

November 22, 1996

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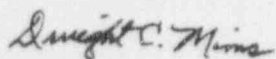
U. S. Nuclear Regulatory Commission  
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Subject: Arkansas Nuclear One - Unit 2  
Docket No. 50-368  
License No. NPF-6  
Additional Information - Eddy Current Indications in Combustion  
Engineering Designed Welded Steam Generator Tube Sleeves

Gentlemen:

On September 25, 1996, the NRC Staff forwarded a request for information (2CNA099606) to ascertain Entergy Operations' plans for inspection and repair of Combustion Engineering designed steam generator tube sleeves installed at Arkansas Nuclear One, Unit 2 (ANO-2) during the next outage. The requested information is attached. If you have any questions concerning this submittal, please contact me.

Very truly yours,



Dwight C. Mims  
Director, Nuclear Safety

DCM/jjd

attachment

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## **Response to NRC Request for Additional Information on Eddy Current Indications in Combustion Engineering Designed Welded Steam Generator Tube Sleeves**

1. **During the licensee's next SG inspection, what is the licensee's intention regarding inspection of the upper weld in the existing CE-designed welded sleeves? Include inspection scope and nondestructive methodology(ies) to be used.**

### **RESPONSE:**

Entergy Operations will perform an eddy current testing (ECT) examination using a Plus Point coil of all existing inservice ABB/Combustion Engineering tungsten inert gas (TIG) welded steam generator tube sleeves with weld zone indications (WZIs) or geometric (GEO or suckback) indications during the next Arkansas Nuclear One, Unit-2 (ANO-2) refueling outage (2R12). Additionally, a Plus Point examination will be performed on 20% of the remaining inservice TIG welded sleeves.

2. **What is the licensee's intention regarding disposition of sleeved tubes with weld zone indications? Include past practices and present intentions. If the licensee intends to leave weld zone indications (WZI's) in service, provide the basis for the acceptability of this practice including the uncertainty in locating the exact position of the volumetric flaws.**

### **RESPONSE:**

A 100% baseline Plus Point examination was performed during the previous inspection (initial installation) in November 1995 (2R11). As a result, 28 WZI/GEO indications were identified in the tube/sleeve transition and subsequently dispositioned as artifacts of the installation process. During 2R11, ECT was not part of the acceptance criteria for TIG welded sleeves per "ANO-2 Steam Generator Tube Repair Using Leak Tight Sleeves," CEN-601-P, Revision 1, dated July 1992 (ANO-2 Technical Specification 4.4.5.4.b.2); therefore, the detected indications were not repaired. This reference relied upon the installation process controls to ensure the weld met structural requirements. Post-weld examinations included ultrasonic testing (UT) for confirming continuous fusion and visual testing (VT) for surface examination. A Plus Point ECT was performed for baseline information only.

For future ANO-2 steam generator inspections, as well as repositioning the 28 WZI/GEO indications previously found, Entergy Operations will adopt the

acceptance methods in "Repair of 3/4" O.D. Steam Generator Tubes Using Leak Tight Sleeves," CEN-630-P, Revision 1, November 1996, which includes a VT after welding, a UT examination, and a Plus Point eddy current inspection. Based on the revised acceptance criteria, WZIs will be left inservice only if the indication is outside the weld pressure boundary per Section 5 of Revision 1 to CEN-630-P. Using the Appendix H qualification process, the ECT method has been proven to correctly locate imperfections relative to the pressure boundary. The Appendix H Qualification Report for this sleeve type was submitted to the NRC by Commonwealth Edison (Zion Nuclear Power Station) on September 9, 1996.

3. **The staff understands a CE topical report addressing the shortcomings found with the previous installation practices (e.g., cleaning and NDE methods) is forthcoming . Is it the licensee's intention to adopt this topical report when it is used? If so, how will the licensee incorporate this topical report into its technical specifications for future sleeving.**

**RESPONSE:**

Entergy Operations will adopt Revision 1 to CEN-630-P for use during steam generator sleeve installation during future ANO-2 outages. An ANO-2 technical specifications change request will be submitted to the NRC to replace the references to CEN-601-P, Revision 1, with CEN-630-P, Revision 1. The new topical report will be included with the technical specifications change request.