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2CAN080007

U. S. Nuclear Regulatory Commission  
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Subject: Arkansas Nuclear One - Unit 2  
Docket No. 50-368  
License No. NPF-6  
Supplemental Information Regarding the Steam  
Generator Inspection License Amendment Request

Gentlemen:

On August 18, 1999 (2CAN089905), Entergy Operations, Inc. submitted a proposed technical specification change request regarding the steam generator inspection requirements for the replacement steam generators. On May 9, 2000 (2CNA050002), the NRC requested additional information regarding the August 18, 1999 letter. Entergy submitted a response to the NRC's questions in a letter dated June 29, 2000 (2CAN060013).

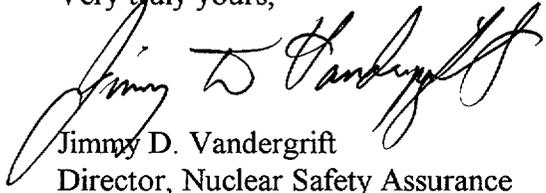
The purpose of this letter is: 1) to withdraw the portion of the proposed technical specification request regarding the steam generator inspection frequency, and 2) to revise the determination of no significant hazards consideration in regard to item 1 and to address the revised definition of tube inspection. The changes are discussed in the attachment.

Consistent with our letter dated August 18, 1999, Entergy requests that the effective date for implementation of this change be prior to restart from the 2R14 refueling outage scheduled for the fall of 2000.

Should you have any questions or comments, please contact me.

A001

Very truly yours,



Jimmy D. Vandergrift  
Director, Nuclear Safety Assurance

JDV/dwb  
Attachment

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ATTACHMENT

TO

2CAN080007

REVISED TECHNICAL SPECIFICATION PAGE

IN THE MATTER OF AMENDING

LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT 2

DOCKET NO. 50-368

### **Withdrawal of Proposed Revision to Surveillance Requirement 4.4.5.3.a**

On page 5 of 9 of the attachment to our letter dated August 18, 1999 (2CAN089905), a revision to the steam generator inspection interval, Surveillance Requirement (SR) 4.4.5.3.a Inspection Frequencies, was proposed. The request was to extend the inspection interval to a maximum of once per 40 months provided the inspection results from the first inspection following the preservice inspection fall into the C-1 category. Based on a telephone conversation with the NRC staff on July 26, 2000, we are withdrawing our request to revise SR 4.4.5.3.a. According to the staff, the proposed change is unacceptable due to insufficient industry operating experience with Alloy 690 tubing in replacement steam generators.

The proposed changes to SRs 4.4.5.3.b and 4.4.5.3.c, contained on the same technical specification page, are not affected by the withdrawal of the proposed change to SR 4.4.5.3.a. The revised technical specification page is included in the back of this attachment. Please replace technical specification page 3/4 4-8 in the August 18, 1999, letter with page 3/4 4-8 from this attachment.

The determination of no significant hazards considerations contained in the August 18, 1999, letter is being revised accordingly. The revised determination of no significant hazards consideration is provided in its entirety in the next section.

### **Revision to No Significant Hazards Consideration**

The determination of no significant hazards consideration is being revised to address two items: 1) the withdrawal of the proposed revision to SR 4.4.5.3.a, Inspection Frequencies, as discussed in the previous section, and 2) a revision to the definition of tube inspection as described in the June 29, 2000 (2CAN060013), letter and summarized in the following paragraph.

On May 9, 2000 (2CNA050002), the NRC requested additional information regarding the August 18, 1999 letter. Entergy submitted a response to the NRC's questions in a letter dated June 29, 2000. In the response to questions 1 and 2 of the determination of no significant hazards consideration contained in the August 18, 1999 letter, Entergy stated, "the requested ANO-2 Technical Specification changes do not alter the requirements for tube integrity, tube inspection, or tube plugging limit." In the June 29, 2000 letter, Entergy stated, "...the no significant hazards considerations contained in our August 18, 1999, submittal remain bounding." However, in the June 29, 2000, letter, a revision was, in fact, made to the definition of tube inspection. The definition was changed to require examination of the entire length of the tube instead of from the point of entry (hot leg side) completely around the U-bend to the top support of the cold leg (i.e., a conservative change).

The determination of no significant hazards consideration section from the August 18, 1999, letter should be deleted and replaced with the following (no changes were necessary to the Environmental Impact Evaluation):

## **DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION**

Entergy Operations, Inc. is proposing that the Arkansas Nuclear One Unit 2 (ANO-2) Operating License be amended to modify the surveillance requirements for the steam generators. An evaluation of the proposed change has been performed in accordance with 10CFR50.91(a)(1) regarding no significant hazards considerations using the standards in 10CFR50.92(c). A discussion of these standards as they relate to this amendment request follows:

### **Criterion 1 - Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated.**

The accidents of interest are a tube rupture, loss of coolant accident (LOCA) in combination with a safe shutdown earthquake and a steam line break in combination with a safe shutdown earthquake. A reduction in tube integrity could increase the possibility of a tube rupture accident and increase the consequences of a steam line break or LOCA. The tubing in the replacement steam generators is designed and evaluated consistent with the margins of safety specified in the ASME Code, Section III. The program for periodic inservice inspection provides sufficient time to take proper and timely corrective action if tube degradation is present. The ASME Section XI basis for the 40% through wall plugging limit is applicable to the replacement steam generators just as it was to the original steam generators. As a result there is no reduction in tube integrity for the replacement steam generators.

Addition of a "Note" to clarify that inservice inspection is not required during the steam generator replacement outage is an administrative change that provides clarification regarding inservice inspection requirements. The change in reporting requirements is also an administrative change. The requirements for inservice inspection or the plugging limit for the tubes are not altered by these administrative changes. Additionally, changes were made to the bases to remove potentially misleading information. Bases changes are considered to be administrative in nature.

Elimination of the repair option and the associated references to repair of the original steam generator tubes is an administrative adjustment since the sleeve design is not applicable to the replacement steam generators. The elimination of the repair option does not alter the requirements for inservice inspection or reduce the plugging limit for the tubes.

A preservice eddy current inspection will be performed onsite prior to installation of the replacement steam generators. The orientation of the replacement steam generators during the eddy current exam will not impact the results. The hydrostatic test required by the ASME Code Section III for the replacement steam generators is to be performed in the manufacturing facility and not as part of a reactor coolant system hydrostatic test. The post-repair leakage test required by the ASME Code, Section XI for an operating plant is performed at a much lower pressure. No evolutions subsequent to the replacement steam generator hydrostatic test are expected to occur that will change the condition of the tubes prior to operation. This change does not alter the requirement to perform a preservice

inspection. As a result, an inservice inspection is not required during the steam generator replacement outage.

The requested ANO-2 Technical Specification changes do not alter the requirements for tube integrity or tube plugging limits. The change to the definition of tube inspection is a conservative change; therefore, this change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

**Criterion 2 - Does Not Create the Possibility of a New or Different Kind of Accident from any Previously Evaluated.**

The proposed changes do not affect the design or function of any other safety-related component. There is no mechanism to create a new or different kind of accident for the replacement steam generators by eliminating repair criteria or by clarifying the applicable preservice and inservice inspection requirements because a baseline of tube conditions is established and plugging limits are maintained to ensure that defective tubes are removed from service.

The requested ANO-2 Technical Specification changes do not alter the requirements for tube integrity or tube plugging limits. The change to the definition of tube inspection is a conservative change; therefore, this change does not involve a significant increase in the probability or consequences of any accident previously evaluated.

**Criterion 3 - Does Not Involve a Significant Reduction in the Margin of Safety.**

The tubing in the replacement steam generators is designed and evaluated consistent with the margins of safety specified in the ASME Code, Section III. The program for periodic inservice inspection provides sufficient time to take proper and timely corrective action to preserve the design margin if tube degradation is present.

Based upon the reasoning presented above and the previous discussion of the amendment request, Entergy Operations has determined that the requested change does not involve a significant hazards consideration.

REVISED PROPOSED TECHNICAL SPECIFICATION PAGE 3/4 4-8

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

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4.4.5.3 Inspection Frequencies - The above required inservice inspections of steam generator tubes shall be performed at the following frequencies:

- a. The first inservice inspection shall be performed after 6 Effective Full Power Months but within 24 calendar months of initial criticality. Subsequent inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. If two consecutive inspections following service under AVT conditions, not including the preservice inspection, result in all inspection results falling into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months.
- b. If the results of the inservice inspection of a steam generator conducted in accordance with Table 4.4-2 at 40 month intervals fall into Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 4.4.5.3.a; the interval may then be extended to a maximum of once per 40 months.
- c. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Table 4.4-2 during the shutdown subsequent to any of the following conditions:
  1. Primary-to-secondary tube leaks (not including leaks originating from tube-to-tube sheet welds) in excess of the limits of Specification 3.4.6.2.
  2. A seismic occurrence greater than the Operating Basis Earthquake.
  3. A loss-of coolant accident requiring actuation of the engineered safeguards.
  4. A main steam line or feedwater line break.

REVISED MARKUP OF CURRENT ANO-2 TECHNICAL SPECIFICATION PAGE 3/4 4-8

(FOR INFO ONLY)

REACTOR COOLANT SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

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4.4.5.3 Inspection Frequencies - The above required inservice inspections of steam generator tubes shall be performed at the following frequencies:

- a. The first inservice inspection shall be performed after 6 Effective Full Power Months but within 24 calendar months of initial criticality. Subsequent inservice inspections shall be performed at intervals of not less than 12 nor more than 24 calendar months after the previous inspection. If two consecutive inspections following service under AVT conditions, not including the preservice inspection, result in all inspection results falling into the C-1 category or if two consecutive inspections demonstrate that previously observed degradation has not continued and no additional degradation has occurred, the inspection interval may be extended to a maximum of once per 40 months.
- b. If the results of the inservice inspection of a steam generator conducted in accordance with Tables 4.4-2 and ~~4.4-3~~ at 40 month intervals fall into Category C-3, the inspection frequency shall be increased to at least once per 20 months. The increase in inspection frequency shall apply until the subsequent inspections satisfy the criteria of Specification 4.4.5.3.a; the interval may then be extended to a maximum of once per 40 months.
- c. Additional, unscheduled inservice inspections shall be performed on each steam generator in accordance with the first sample inspection specified in Tables 4.4-2 and ~~4.4-3~~ during the shutdown subsequent to any of the following conditions:
  1. Primary-to-secondary tube leaks (not including leaks originating from tube-to-tube sheet welds) in excess of the limits of Specification 3.4.6.2.
  2. A seismic occurrence greater than the Operating Basis Earthquake.
  3. A loss-of coolant accident requiring actuation of the engineered safeguards.
  4. A main steam line or feedwater line break.