



ENTERGY

Entergy Operations, Inc.

1448 S.R. 333

Russellville, AR 72801

Tel 501-858-4888

Jerry W. Yelverton

Vice President

Operations ANO

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2CAN059508

U. S. Nuclear Regulatory Commission

Document Control Desk

Mail Station P1-137

Washington, DC 20555

Subject: Arkansas Nuclear One - Unit 2
Docket No. 50-368
License No. NPF-6
Proposed Technical Specification Change for Inspections
of Steam Generator Special Interest Groups

Gentlemen:

Attached for your review and approval is a proposed Arkansas Nuclear One, Unit 2 (ANO-2) technical specification (TS) change adding defined special interest groups for steam generator tube inspections along with appropriate expansion criteria should defects be found. Entergy Operations has determined a need for this change based upon the NRC staff memorandum from J. Strosnider to B. Sheron, "Implementation of Technical Specification Expansion Criteria During Unscheduled Steam Generator Tube Inspections," dated October 31, 1994. This memorandum states that "...it is not intended that the inspection expansion criteria be ignored simply because the inspection is not performed to meet the technical specifications requirements. In other words, if the technical specification findings would normally warrant additional inspections, licensees are expected to expand the sample regardless of whether the initial sample was required by the technical specifications or not." Using the current TS expansion criteria for a special inspection would, in many cases, require an unnecessarily large expansion based on the number of tubes in a steam generator, not the number of tubes potentially affected by the defect mechanism targeted by the special inspection. The proposed change properly limits any expansions necessary due to special inspection findings.

The proposed change has been evaluated in accordance with 10CFR50.91(a)(1) using criteria in 10CFR50.92(c) and it has been determined that this change involves no significant hazards considerations. The bases for this determination are included in the attached submittal.

Entergy Operations requests that the effective date for this change be within 30 days of NRC issuance of the amendment to allow for distribution and procedural revisions necessary to implement this change. Although this request is neither exigent nor emergency, your prompt review is requested prior to the next ANO-2 refueling outage (2R11) which is scheduled to begin September 22, 1995.

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ADD

Very truly yours,

JWY/jjd

JWY/jjd
attachments

To the best of my knowledge and belief, the statements contained in this submittal are true.

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for Johnson
County and the State of Arkansas, this 19 day of May, 1995.

Juana M. Tapp

Notary Public
My Commission Expires 11-8-2000



cc: Mr. Leonard J. Callan
Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

NRC Senior Resident Inspector
Arkansas Nuclear One
1448 S. R. 333
Russellville, AR 72801

Mr. George Kalman
NRR Project Manager Region IV/ANO-1 & 2
U. S. Nuclear Regulatory Commission
NRR Mail Stop 13-H-3
One White Flint North
11555 Rockville Pike
Rockville, MD 20852

Ms. Greta Dicus
Arkansas Department of Health
Division of Radiation Control
and Emergency Management
4815 West Markham Street
Little Rock, AR 72205

ATTACHMENT

TO

2CAN059508

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT TWO

DOCKET NO. 50-368

DESCRIPTION OF PROPOSED CHANGES

The Arkansas Nuclear One, Unit 2 (ANO-2) Technical Specification (TS) Section 3.4.5 has been revised to incorporate inspections of steam generator (SG) special areas of interest as follows:

- The note to TS 4.4.5.0, which pertained to the mid-cycle outage which began on January 6, 1995 (2P95-1), has no further applicability and has been deleted.
- TS 4.4.5.2 has been revised to delete the redundant requirement for each inservice inspection to include at least 3% of the total number of tubes in all steam generators.
- TS 4.4.5.2.b.2 has been modified to except groups inspected as special areas of interest from the first sample of tubes selected for general inservice inspection (inspection of the SG tube from the hot leg point of entry to the top support plate of the cold leg per Specification 4.4.5.4.a.9).
- A new TS 4.4.5.2.c has been added defining five special interest groups which may be inspected in addition to, or at different times from, required general tube inspections. The five special interest groups are: 1) the hot leg expansion transition area of tubes, 2) the cold leg expansion transition area of tubes, 3) sleeves in unplugged tubes, 4) known dents in partial drilled support plates, and 5) the U-bend of tubes in the steam blanket region.
- The existing TS 4.4.5.2.c has been redesignated 4.4.5.2.d.
- Three footnotes have been added to Table 4.4-2. The first specifies that the initial sample size and expansion criteria for special interest groups are based upon the number of tubes in the group, not the number of tubes in a SG. Peripheral expansion criteria for the sludge pile region of the SGs have also been added. The second footnote specifies that the inspection results from special interest groups be categorized separately from that of the general SG tube inspection. The third footnote provides criteria for categorizing the inspection results when an indication is found in a special interest group as a result of the general SG tube inspection. Additionally, the entire table has been reformatted to reduce its size and correct several capitalization and punctuation errors.
- Bases Section 3/4.4.5 has been revised by discussing the reason for establishment of special interest groups and to define the terms "sludge pile region" and "steam blanket region." The TS pages that contain the Bases have also been reformatted to increase available space for addition of the new discussion.

BACKGROUND

On July 14, 1994, Entergy Operations made a presentation to the NRC staff discussing the status of the ANO-2 SGs. In this presentation, it was proposed that only one SG be inspected during the next mid-cycle inspection and that the TSs did not require expansion for special SG

inspections. The staff took this interpretation under consideration and in the minutes for the July meeting concluded that the TS expansion criteria apply, even if the initial sample was not performed to meet the TS requirements for steam generator inspections. The staff's decision appears to be based upon an internal memorandum from J. Strosnider to B. Sheron, "Implementation of Technical Specification Expansion Criteria During Unscheduled Steam Generator Tube Inspections," dated October 31, 1994. This memorandum, which discusses Entergy Operations' July proposal, states that "...it is not intended that the inspection expansion criteria be ignored simply because the inspection is not performed to meet the technical specifications requirements. In other words, if the technical specification findings would normally warrant additional inspections, licensees are expected to expand the sample regardless of whether the initial sample was required by the technical specifications or not." This memorandum has been interpreted as meaning that any findings as a result of special interest inspections in the SGs require expansion based upon the TS Table 4.4-2. The expansions in this table are based upon the number of tubes in a SG, not upon the number of tubes in the SG susceptible to the type of degradation observed.

DISCUSSION OF CHANGE

The proposed change will add five special areas of interest to the TSs for optional inspection in addition to the currently required general tube inspections. Appropriate minimum sample sizes and expansion criteria for inspections of these special interest areas have also been defined. Special inspection areas for SGs have been previously approved for plants with Babcock and Wilcox once-through SGs (lane and wedge regions), including Arkansas nuclear One, Unit 1. Special inspection sample sizes and expansion criteria different from those in the TSs were also recently approved (by Amendment 158, dated January 5, 1995) for ANO-2's use during the January 1995 mid-cycle outage (2P95-1). This change will provide special areas of interest and expansion criteria that may be utilized during all future SG tube inspections, thereby eliminating the need for individual TS changes for each inspection.

The five special interest areas to be added are: 1) the hot leg expansion transition area of tubes, 2) the cold leg expansion transition area of tubes, 3) sleeves in unplugged tubes, 4) known dents in partial drilled support plates, and 5) the U-bend of tubes in the steam blanket region. The special interest area could be the result of known degradation in a specific section of tubing (e.g., circumferential cracking at the expansion transition region of a tube), or the potential for degradation based upon industry experience (e.g., flaws at dented regions of tubes located at the partial drilled support plates). One reason for defining the special areas of interest is to utilize other examination methods (e.g., use of a rotating pancake coil probe) which may detect certain structural flaws more readily than the inspection method utilized for the general tube examination. Another reason is to apply expansion criteria which would emphasize increased inspections in tubes and/or areas of tubes where specific types of flaws/degradation mechanisms occur. The defined expansion criteria for special interest areas would be independent of the expansion criteria for flaws found during the general tube inspection. The separation of expansion criteria for general inspections and special interest groups will also cause the general inspection to be more effective since the expansion for the

general inspection would not be diluted by inspecting for flaws which could be separately found by a special interest inspection.

The proposed change uses the same percentages for minimum sample size and inspection expansion as the current TSs. However, the minimum sample size and expansion criteria for inspections of special interest groups are based on the applicable population of tubes within the area of interest, not on the current TS requirement which is based on the total number of tubes in each SG. By providing the same percentage initial sample and expansions as currently utilized, an examination capability comparable to that currently in the TSs is maintained. Inspection of the minimum sample size (3%) for all groups provides greater or equivalent confidence of detection of a flaw than if just a general tube inspection were performed. This is because: 1) the cold leg expansion transition area does not need to be inspected in a general inspection, 2) it is unlikely that an equivalent number of tubes from the sleeves, dents, and steam blanket region groups would be included in a general inspection as for a special interest group inspection, and 3) the sample size for an inspection of the hot leg expansion transition region is the same as (or a substantial percentage thereof) for a general inspection.

Limiting expansions of inspections in special interest groups to tubes within the groups can cause significant reductions in the number of tubes to be inspected. For example, if 600 sleeves are installed in a SG and one defective sleeve is found during a 20% inspection of the special interest group, the current TS expansion criteria would require an additional 6% of all the tubes in the SG (505), which is equivalent to all the sleeves in the SG, to be inspected. Utilizing the proposed expansion criteria for special interest groups, a minimum of 36 additional sleeves would need to be inspected. The proposed TS changes provide the minimum required sample sizes and expansion criteria similar to those in the current TSs. Entergy Operations may choose to inspect larger samples than required by the TSs if analysis/judgment indicates a larger inspection is warranted.

Unique expansion criteria are also proposed for addition to Table 4.4-2. The expansion criteria apply only to special interest group inspections of the hot or cold leg sludge pile regions in the expansion transition area of the tubes. If a circumferential crack indication is found on the periphery of the inspection area, the periphery shall be expanded to bound the detected indication by two tubes. Should more than one circumferential crack indication be found on the periphery of the sludge pile region, the periphery of the entire sample area will be expanded by two tubes. The peripheral expansion shall be continued until no further circumferential indications are found. The special expansion criteria are equivalent to those approved by the staff for use during the inspection conducted at ANO-2 during 2P95-1. Definitions of the sludge pile region and the steam blanket region are being added to the Bases. Inclusion in the Bases facilitates the ability to modify the inspection area under the provisions of 10CFR50.59 should experience indicate that redefinition of the area is appropriate.

By including special interest groups in TS 4.4.5.2.c, the categorization of inspection results will be consistent with that done for the general tube inspections. Categorization of the

results for inspections of special interest groups will be done separately from the results of general tube inspections. Indications discovered during inspections of areas of special interest will be included only in the categorization of the results of the special interest groups; they will not be included in the results of the general tube inspection. If an indication is found in a special interest area of a tube as part of a general inspection, the indication will be used in the categorization of that special interest group when the special interest group inspection is performed coincident with the general inspection. If the applicable special interest group inspection is not performed coincident to the general SG tube inspection, the indication will be included with the results for the general inspection. Reporting requirements for the results of special interest group inspections will be the same as for general tube inspections.

The note to TS 4.4.5.0 added by amendment 158 is deleted by this proposed change. The note pertained only to the SG inspection conducted during 2P95-1 and is no longer applicable. The statement in TS 4.4.5.2 requiring a minimum 3% sample is redundant to the minimum sample requirements in Table 4.4-2 and therefore can be deleted. Several capitalization and punctuation changes are made to Table 4.4-2 and are considered administrative in nature.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATION

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.

Steam generator tubes are inspected on a periodic basis to reduce the probability of a steam generator tube rupture or tube leakage. Five special interest groups are being added for optional inspections in addition to the general tube inspections currently required by the technical specifications. These special interest groups define areas of tubes where known or potential degradation mechanisms may exist for which additional inspection, above that currently required in the technical specifications, may be beneficial. Inspection of these special interest groups may utilize probes which more readily detect indications which may be found in the special interest areas. The increased detection capability will reduce the probability that a structurally significant flaw will go undetected during an inspection. The minimum sample size and expansion criteria (should a flaw be found) for inspections of special interest groups are based on percentages of tubes potentially affected by the specific degradation mechanisms for which the special inspection is being performed. The percentages used are the same as used for the current general tube inspections. The expansion criteria allow expansion within the area of interest without affecting the expansions of any general tube inspection. By expanding within the area of interest, a more complete inspection for the defects caused by a specific degradation mechanism can be performed than if the expansion were conducted in tubes not necessarily affected by the degradation mechanism, which is possible with the

current technical specifications. Therefore, this change does not involve a significant increase in the probability of an accident previously considered.

The proposed change does not increase the amount of radioactive material available for release or modify any systems used for mitigation of such releases during accident conditions. The steam generator tubing will continue to be examined on the frequency currently specified in the technical specifications. This change will allow steam generator examinations to focus on known areas of interest without requiring unnecessary expansion. The integrity of the steam generators will continue to be assured at an equivalent level. Therefore, the change does not involve a significant increase in the 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.

Special inspections such as the ones being added to the technical specifications have been conducted in the past at ANO-2. The method of inspection, pushing or pulling a probe through the steam generator tubes from the primary side, is the same method employed for the current technical specification required inspections. Inspection methodology is not being changed by incorporation of these special interest groups into the technical specifications. No design or operational characteristics of the plant are changed by the proposed amendment.

Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

The proposed amendment adds special interest groups for optional inspection into the technical specifications. These inspections concentrate on areas of interest using inspection methodology that is equivalent or better at finding specific types of flaws than the methodology used for the currently required general tube inspections. If the special interest groups are not inspected, the existing technical specification requirements for inspection still apply.

Therefore, this change does not involve a significant reduction in the margin of safety.

Therefore, 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.

PROPOSED TECHNICAL SPECIFICATION CHANGES