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U. S. Nuclear Regulatory Commission
Document Control Desk
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Washington, DC 20555

Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Request For Alternate Examination Approval For ANO-1 Steam Generator Nozzle Inservice Inspection

Gentlemen:

Title 10 of the Code of Federal Regulations, Part 50.55a, requires that inservice inspection of certain ASME Code Class 1, 2, and 3 piping be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable addenda, except where alternatives are authorized or relief is granted by the Commission pursuant to 10 CFR 50.55a(a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate under (i) that the proposed alternatives provide an acceptable level of quality and safety, or under (ii) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Attached is a request for application of an alternative inspection approach for ASME Class 1 B-D pressure-retaining full-penetration nozzle-to-vessel welds and nozzle inner radius sections in steam generators.

ANO-1 proposes to examine all of the Code category B-D nozzles on one of the steam generators rather than both steam generators. This proposal is similar to the examination requirements on Class 2 steam generator nozzles (Code Category C-B) and is consistent with the general philosophy of Section XI, which is to take a representative sample of all safety-related components and items. Other examples of the sampling approach are contained in Code Categories B-B (Class 1 vessel welds) and B-J (Class 1 piping welds).
For ANO-1, this would require that one steam generator be inspected every inspection interval. Approval of this relief request by NRC would no longer require the two remaining nozzle weld examinations and two inner radii inspections for this current inspection interval. The specific details of the relief request are attached.

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Approval of this relief request by NRC would delete the 2 remaining nozzle weld examinations and 2 inner radii inspections for this current interval. Cancellation of the examinations would save ANO-1 approximately $65,000 in unnecessary inspection costs and would reduce the personnel radiation exposure by 4.1 Person-Rem for this inspection.

In order to facilitate final planning for the next refueling outage at ANO-1, scheduled to begin in mid-September 1996, we request that your review of this requested relief be performed by September 1, 1996.

Very truly yours,

Dwight C. Mims
Director, Nuclear Safety

DCM/sab

Attachments

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Relief Request 96-001
ANO-1 Inservice Inspection for Steam Generator
Class 1 B-D Nozzles

Applicable Interval:

Current (Second) interval

Applicable Edition and Addenda of ASME Section XI:

1980 Edition with Addenda through Winter 1981

Code Class:

1

Code Examination Category:

B-D

Code Item No(s).:

B3.130 and B3.140

Code Required Examination:

Volumetric examination of Pressure-Retaining Full-Penetration Nozzle-to-Vessel Welds and Nozzle Inner Radius Sections in steam generators (Primary Side).

Component(s) or Relief Area(s):

Steam Generator E24B Outlet-Nozzle-to-Lower-Head Welds and Nozzle-to-Head Inner Radius - ISI Exam Numbers 04-006, 04-007 Inner Radius, 04-008, and 04-009 Inner Radius.

Requirement from which Relief is Requested:

IWB-2500 requires that the all Category B-D welds be examined during the current (second) interval.

Basis for Relief:

The Code of Federal Regulations 10CFR50.55a(g) and ANO-1 Technical Specification 4.0.5 require that ASME Code Class 1, 2, and 3 systems be routinely inspected as an assurance of continued structural integrity of the pressure boundary. These regular inspections must be performed per Section XI of the ASME Boiler and Pressure Vessel Code. Section XI, which is entitled "Rules for Inservice Inspection of Nuclear Power Plant Components", requires the inspection of all Class 1 nozzle-to-vessel welds (Code Category B-D) once during each 10-year interval of operation. The upcoming ANO-1 outage (1R13) in mid-September 1996 will conclude the second inservice inspection interval.

B & W nuclear power plants experience has shown that these nozzle welds and inner radii have no known active failure mechanisms which are likely to threaten their structural integrity. The Code requirement to inspect all of these nozzles is overly conservative and results in excessive costs and unnecessary personnel radiation exposures. A more reasonable approach to the inspection of these nozzle welds would be to perform a sampling of the nozzles. This sampling approach is used on most other components in commercial nuclear power plants.

At ANO-1 the total number of Code Category B-D nozzle welds is 19, distributed as follows:

Reactor Vessel	8
Steam Generator E24A	3
Steam Generator E24B	3
Pressurizer	5

All of these nozzle welds were inspected when the vessels were fabricated. They were inspected again as a Preservice examination before ANO-1 went into commercial service. During the first 10-year interval, they were all inspected again. During this second 10-year interval, 17 of these 19 nozzle welds have again been inspected. The remaining 2 nozzles are on the bottom head of steam generator E24B and are scheduled to be examined during refueling outage 1R13.

As an alternative to the Code-required examination scope, ANO-1 proposes to examine all of the Code Category B-D nozzles on one of the steam generators rather than both steam generators. This proposal is similar to the examination requirements on Class 2 steam generator nozzles (Code Category C-B) and is consistent with the general philosophy of Section XI, which is to take a representative sample all safety-related components and items. Other examples of the sampling approach are contained in Code Categories B-B (Class 1 vessel welds) and B-J (Class 1 piping welds).

Approval of this relief request by NRC would delete the 2 remaining nozzle weld examinations and 2 inner radii inspections for this current interval. Cancellation of the examinations would save ANO-1 approximately $65,000 in unnecessary inspection costs with no added safety benefit. Deletion of these examinations would also reduce the personnel radiation exposure by 4.1 Person-Rem for this inspection.

As part of the continuing regularly-scheduled inservice inspection scope, all of the other Category B-D welds have been examined ultrasonically. In addition, the steam generators receive a visual (VT-2) examination each refueling outage. No service-induced cracking or degradation has been found either with the ultrasonic examinations or with the visual inspections. Since no service-induced flaws have been found in any of the Category B-D welds at ANO-1 during the many examinations that have already been performed, a high degree of confidence exists in the structural integrity of the steam generator nozzle welds and associated inner radius sections.

Alternative Examinations:

ANO-1 proposes to examine all of the Code Category B-D nozzles on one of the steam generators rather than both steam generators. For ANO-1, this would require that one steam generator be inspected every inspection interval. Approval of this relief request by NRC would no longer require the two remaining nozzle weld examinations and two inner radii inspections for this current inspection interval.