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DUKE POWER

November 15, 1993

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Subject: Catawba Nuclear Station, Unit 2
Docket Number 50-414
Request for Relief Number 93-03
Relief Request from Immediate Component Cooling Heat Exchanger 2B ASME Code Repair

Gentlemen:

Pursuant to 10 CFR 50.55a, please find attached Request for Relief Number 93-03 from the requirements of Section XI of the ASME Boiler and Pressure Vessel Code (with Addenda through Winter 1981). This request is being submitted in order to seek relief from performing an immediate acceptable ASME Code repair of the Component Cooling (KC) Heat Exchanger 2B.

The circumstances surrounding this relief request were discussed in a November 3, 1993 telephone conference call between representatives of Duke Power Company and Mssrs. Freudenberger, Herdt, Blake, and Martin of the NRC. The attachments to this relief request include all information requested by the NRC during the subject conference call in order to allow timely processing of the request.

If you have any questions concerning this material, please call L.J. Rudy at (803) 831-3084.

Very truly yours,

D.L. Rehn

LJR/s

Attachments

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xc (W/Attachments):
S.D. Ebneter, Regional Administrator
Region II

R.J. Freudenberger, Senior Resident Inspector

R.E. Martin
ONRR

conditions, no monitoring should be required. Monitoring will be performed, however, to add assurance that unquantified loading conditions that are beyond design basis are not changing the flaw.

VI. Provide a schedule for implementation of the inservice inspection described in IV above:

This inspection schedule has already begun and will continue until a Code repair is complete, not to exceed the next scheduled refueling outage.

Relief Request from Immediate KC Heat Exchanger 2B ASME Code Repair

This section describes the technical information necessary for requesting relief from performing an immediate acceptable ASME Code repair of the Component Cooling (KC) Heat Exchanger 2B.

A flaw was discovered after noting a slow drip of water during painting of the heat exchanger. An evaluation of the flaw was performed from a metallurgical perspective, including ultrasonic testing (UT) examination, and is shown in Attachment 1.

Structural integrity and leakage evaluations were also performed. The structural integrity evaluation is also shown in Attachment 1. The leakage evaluation is shown in Attachment 2. The basis for the structural integrity evaluation was: 1) based on Linear Elastic Fracture Mechanics Techniques to demonstrate a stable flaw under design basis loadings, including considerations for crack growth due to potential cyclic loadings and 2) based on the guidelines of Generic Letter 90-05.

The following information is provided per the guidelines of Section A, Exhibit B of the ASME Section XI Manual.

I. Identify the component for which relief is requested:

a) Name and number as given in the FSAR;

KC Heat Exchanger, Unit 2, Train B, FSAR Section 9.2.2

b) Description of function of component;

The Component Cooling (KC) System heat exchanger provides closed loop heat removal for the following essential heat loads:

- Decay Heat Removal (ND) Heat Exchanger
- ND Pump Mechanical Seal Heat Exchanger
- KC, Auxiliary Feedwater (CA), ND, Containment Spray (NS), Safety Injection (NI), and Chemical and Volume Control (NV) Centrifugal Charging Pump (CCP) Motor Coolers
- NV CCP Speed Reducer Oil Cooler
- NI Bearing Oil Cooler
- Auxiliary Shutdown Panel Supply Units (ASPSUs) HVAC

The heat collected from the above loads is transferred to the Nuclear Service Water (RN) System in the subject heat exchanger.

Other non-essential loads are served by the KC System as described in FSAR Section 9.2.2, including the Spent Fuel Pool Cooling (KF) System.

c) ASME Section III Code Class or ASME Section XI Code Class;

ASME Class 3 Component, Duke Class C

d) ASME Section III;

ASME Section III, Subsection ND

e) Valve testing;

N/A

II. Specifically identify the ASME Code requirement for which relief is desired:

The heat exchanger has a thru-wall leaking flaw which ultimately needs to be ground out and re-welded per Section XI. The Code requirement from which relief is desired is performing this repair now. The Code repair will be made at the next available time the unit is shut down for a sufficient amount of time to effect the repair or at the next scheduled refueling outage.

III. Provide information to support the determination that relief from the requirement in II above is necessary (i.e., burden):

Performing the repair now would remove from service, for the time period required to effect repair, the related train of KC and every system that relies on KC (e.g., ND, NS, NI, CA, NV, and ASPs) to remain operable. This action would result in loss of safety system availability that is not commensurate with the safety significance of this flaw. There is no assurance that the heat exchanger repair and associated activities (e.g., draining the heat exchanger, root pass of weld, location of flaw on bottom of heat exchanger) can be completed during the Technical Specification 3/4.7.3 allowed outage time of 72 hours. Analyses have demonstrated that this flaw is stable and will not significantly change during the time period for which relief is requested. Also, it has been determined that a non-Code repair has the potential to exacerbate the existing situation. Residual stresses that may be imposed on the flaw/component cannot be accurately quantified to assess structurally. Also, any non-Code repair that would cover the flaw (i.e., mask it) would make subsequent monitoring of the flaw impossible.

IV. Specify the alternate inservice testing/examination that will be performed in lieu of the ASME Code Section XI requirements:

Monthly UT examination will be performed.

V. Provide an explanation as to why the alternate proposed inservice testing/examination will provide an acceptable level of quality and safety and not reduce the level of public health and safety:

The analyses performed to support the determination of operability considered the possibility of crack growth due to system transients and showed insignificant growth due largely to the non-existence of pressure/thermal transients. Therefore, due to design basis loading

ATTACHMENT 1

STRUCTURAL INTEGRITY AND FLAW EVALUATION