

CATEGORY 1

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SUBJECT: Requests relief from performing ASME Code Section XI repairs on Unit 1 reactor water cleanup sys regenerative heat exchanger w/10CFR50.55a(g)(6)(i).

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**SUSQUEHANNA STEAM ELECTRIC STATION
REQUEST TO PERFORM TEMPORARY
NON-CODE REPAIRS TO RWCU HEAT
EXCHANGER UNIT 1
PLA-4452**

FILE R41-2

Docket No. 50-387

The purpose of this letter is to request relief from performing ASME Code Section XI repairs on the Unit 1 Reactor Water Cleanup System Regenerative Heat Exchanger (1E207A) in accordance with 10 CFR 50.55a(g)(6)(i). The Reactor Water Cleanup System Regenerative Heat Exchanger is an ASME Class 3 component. A steam leak (approximately 3 foot plume which is equivalent to less than 1 gpm) was identified coming from between the end bell flange and the flange of the heat exchanger at approximately the 2 o'clock position. The cause of the steam leak is believed to be cracking of a weld on an internal diaphragm that separates the tube sheets from the end bell. We propose a temporary non-Code repair using a clamp/cap nut system with a compound that is injected into the voids in the end bell flange and hardens at elevated temperatures. This repair will be done with the Reactor Water Cleanup System in service. The Reactor Water Cleanup System P&ID is shown in Figure 5.4-16. FSAR Figures 1.2-21, 1.2-25, and 12.3-20 provide the layout of the Reactor Water Cleanup System equipment. Sketches of the clamping system and leak location are being sent to the NRC Project Manager under separate cover.

To perform a Code repair at this time is impractical. Unit 1 is presently in Operating Condition 1 at 100% power. The Reactor Water Cleanup System is used to remove impurities from the reactor coolant. The Reactor Water Cleanup System does not itself have a LCO; however, removing the system from service allows impurities, particularly sulfate, to buildup in the reactor coolant, and would result in exceeding the chemistry limits of both the Technical Specifications and EPRI guidelines. This situation would result in significantly more corrosive reactor coolant, requiring a unit shutdown. Based on an engineering evaluation using existing water chemistry concentrations, the EPRI guidelines on sulfate concentration (< 20 ppb) would be exceeded within 4 hours. The EPRI guideline allows continued operation for up to 24 hours within a concentration of >20 ppb after which a shutdown would be initiated. The estimated time the

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Reactor Water Cleanup System would be out of service to complete a Code repair on the heat exchanger is between 72 and 96 hours.

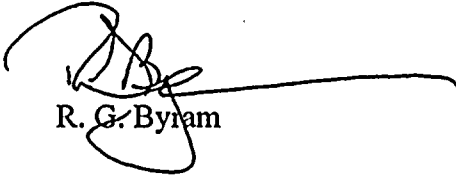
In addition to the sulfate concentration, conductivity is a concern. Conductivity is estimated to reach the Technical Specification LCO limit of 1.0 $\mu\text{mhos/cm}$ within 36 hours. The maximum conductivity while the Reactor Water Cleanup System would be out of service is estimated to be between 2.0 and 2.7 $\mu\text{mhos/cm}$. The Technical Specifications allow operation up to 72 hours with the conductivity exceeding the limit. Based upon the estimated completion time for a Code repair and the estimated conductivity at the completion of the Code repair, the conductivity would have to be reduced to below the limit within 24 hours or the plant would have to be shutdown. Based on experience, the Reactor Water Cleanup System could not reduce the conductivity to below the limit within the 24 hours; therefore, a plant shutdown would have to be initiated.

Prior to 1989, PP&L has had this type of leak occur on these heat exchangers several times and had successfully performed a similar type of temporary repair. In 1990 the diaphragm was redesigned and a Code repair was performed. The heat exchangers have not experienced any leaks of this nature from that time until now. The temporary repair will be performed by an experienced vendor (TEAM Inc. - Leak Repair Division) in accordance with plant procedures including ALARA. This temporary repair does not affect any other pressure retaining part except the end bell fasteners. The temporary repair will be in place until the upcoming Refueling Outage starting in September 1996 at which time an ASME Code repair will be performed.

We request your approval by April 26, 1996, in order that the repairs can be made as soon as possible in order to prevent additional damage to the heat exchanger and to prevent the spread of additional contamination within the Reactor Water Cleanup System equipment rooms.

If you have any questions, please contact Mr. C. T. Coddington at (717) 542-3289.

Very truly yours,



R. G. Byram

copy: NRC Region I
Ms. M. Banerjee, NRC Sr. Resident Inspector
Mr. C. Poslusny, NRC Sr. Project Manager

