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U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

June 19, 1996

Subject: Beaver Valley Power Station, Unit No. 2
Docket No. 50-412, License No. NPF-73
Request for Relief for a Non-Code
Repair on the Supply Pipe for 2HVP*CLC265B

Attached for NRC review and approval is a request for relief for a non-Code repair for the supply pipe for the MCC*2-E04 Cubicle Cooler 2HVP*CLC265B. A pinhole leak was discovered in this pipe on June 8, 1996. The flaw causing the leak has been evaluated in accordance with the requirements of Generic Letter 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping" and found to meet the criteria for a non-Code repair.

The pinhole leak cannot be ASME Code ("the Code") repaired within the time period permitted (72 hours) by Limiting Condition for Operation 3.7.4.1 of the Service Water System Technical Specification due to the complexity of the weld repair, and therefore, the performance of a Code repair would require a plant shutdown. Therefore, a Code repair during power operation is impractical. Additionally, the present leak rate is insignificant and does not necessitate an immediate repair. An alternative method for providing the cooler's cooling function has also been evaluated and can be implemented if needed. Pursuant to 10 CFR 50.55a (a) (3) (ii), it is requested that the NRC grant relief for a temporary non-Code repair to be used until the next scheduled outage exceeding 30 days, but no later than the completion of the Sixth Refueling Outage (2R06) which is scheduled to begin on August 30, 1996.

If there are any questions concerning this matter, please contact Mr. Roy K. Brosi at (412) 393-5210.

A047

Sincerely,

Sushil C. Jain

DELIVERING QUALITY ENERGY

c: Mr. L. W. Rossbach, Sr. Resident Inspector
Mr. T. T. Martin, NRC Region I Administrator
Mr. D. S. Brinkman, Sr. Project Manager

DUQUESNE LIGHT COMPANY
Nuclear Power Division
Beaver Valley Power Station Unit No. 2

Attachment 1

Request for Relief for a Non-Code
Repair on the Supply Pipe for 2HVP*CLC265B

Description of Problem

On June 8, 1996, during Beaver Valley Unit 2 (BV-2) power operation, a pinhole leak was discovered on the supply nozzle for the MCC*2-E04 Cubicle Cooler 2HVP*CLC265B. The pinhole leak was located near the top of the carbon steel pipe near the brazed joint where the nozzle attaches to the copper header of the cooler (See Figure 1). The pinhole was seeping water at a rate of approximately four (4) drops per minute.

The pinhole leak is located on a carbon steel pipe which is the supply nozzle for the MCC*2-E04 Cubicle Cooler 2HVP*CLC265B. This cooler is an ASME Code ("the Code") Class 3 component, and maintains the temperature of the cubicle within the design limits of motor control center MCC*2-E04. The Service Water System supplies water to the cooler at ambient temperature and is an ASME Code Class 3 System. The design temperature and pressure for the cooler are 120°F and 150 psig, respectively. The pinhole leak cannot be Code repaired within the time period permitted (72 hours) by Limiting Condition for Operation 3.7.4.1 of the Service Water System Technical Specification due to complexity of a weld repair in the immediate vicinity of the brazed joint connecting the carbon steel pipe to the copper header. Therefore, the performance of a Code repair would require a plant shutdown. Based on the above and the guidance provided by Generic Letter 90-05, "Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping," a Code repair during power operation is impractical. Therefore, pursuant to 10 CFR 50.55a (a) (3) (ii), it is requested that the NRC grant relief for a temporary non-Code repair to be used until the next scheduled outage exceeding 30 days, but no later than the completion of the Sixth Refueling Outage (2R06) which is scheduled to begin on August 30, 1996.

Generic Letter 90-05 Applicability

Only ASME Code Class 3 piping fabricated from ferritic steel or austenitic stainless steel are within the scope of guidance provided by Enclosure 1 of Generic Letter 90-05 for performing flaw evaluations. Although the ferritic steel piping containing the pinhole leak was provided by the manufacturer as part of a component assembly (cooler), the through-wall flaw evaluation approach is still valid for use since the piping area containing the flaw was fabricated to piping specification SA 234 WPB. In addition, the

configuration of the entire cooler assembly was reviewed, and it was determined to be technically acceptable to evaluate the flaw using the through-wall flaw approach.

On June 14, 1996, the use of Generic Letter 90-05 guidance was discussed with the NRC staff in a telephone conference call. In this call, it was agreed that the application of Generic Letter 90-05 methodology is acceptable.

Flaw Characterization

The inlet pipe nozzle was ultrasonically (UT) scanned to determine the extent of wall thinning (see Figure 1). The lowest thickness that could be obtained at, and in the vicinity of the pinhole leak was 0.100 inches. The pinhole was of insignificant size to allow for UT detection due to technique limitations and is suspected to be an inside surface pit. The visual inspection of the area of leakage could not discern a surface defect, thereby leading to the conclusion that the actual through-wall defect is small and localized.

Root Cause Determination

The most likely root cause of the minor through-wall leak on the carbon steel piping section is localized pitting. This root cause determination is based on the following information: 1) the cooling fluid for the cooler is service water, 2) pitting has been experienced in the Service Water System, 3) the localized nature of the defect as characterized by ultrasonic (UT) thickness measurements, and 4) the lack of vibration loads and low nozzle stress loads. When this section of piping is removed from service for repair or replacement, the affected area will be examined to further ascertain the root cause.

Corrective Actions

The pipe flaw will be removed and repaired or replaced in accordance with ASME Code Section XI requirements no later than the completion of the Sixth Refueling Outage (2R06) which is the next scheduled outage exceeding 30 days. This outage is scheduled to begin on August 30, 1996.

Flaw Evaluation

The flaw was evaluated using the "through-wall flaw" approach provided by Enclosure 1 of Generic Letter 90-05. The Code required minimum wall thickness for the supply pipe for 2HVP*CLC265B was determined to be 0.082 inches based upon the design Code, ASME III, 1974 Edition, Winter 1974 Addenda. The pipe was fabricated with carbon

steel, Type SA 234 WPB and has a design pressure and temperature of 150 psi and 120°F, respectively.

Using the "through-wall flaw" methodology, the maximum length of a flaw with a wall thickness less than 0.082 inches was determined to be 0.960 inches with a corresponding value of "K" equal to 34,745 psi $(in)^{0.5}$. The UT examination did not identify any areas below the Code required minimum wall thickness of 0.082 inches. The actual pinhole could not be seen visually or detected ultrasonically. Therefore, the actual flaw size is less than 0.960 inches and the "through-wall flaw" approach criteria is satisfied.

Augmented Inspection

Augmented UT examinations have been performed on 11 additional similarly configured locations (see Attachment 2). Localized thinning was found in 9 of the 11 locations examined. The piping was evaluated by performing Code minimum wall calculations, and found to be acceptable.

A UT examination of the supply pipe for 2HVP*CLC265B will be performed monthly. These UT examinations will continue until the piping is isolated from service to be repaired or replaced in accordance with Code requirements. The results of the periodic UT examinations will be evaluated to ensure that the piping is acceptable for continued service.

System Interactions

The pinhole leak in the supply pipe for 2HVP*CLC265B is dripping at the rate of approximately four (4) drops per minute. This water collects in a permanently mounted condensation drip pan that drains to a local floor drain.

The potential for flooding, spraying water and loss of flow to the system due to the flaw has been evaluated. A one (1) inch service water line supplies cooling water to the cooler. The normal water pressure and flows at the inlet of the cooler are approximately 60 psig and 20 gpm, respectively. The Design Basis Accident lineup pressures and flows are approximately 30 psig and 13 gpm, respectively.

Motor control center (MCC) MCC*2-E04 is the closest piece of equipment to the cooler in the room. This safety-related MCC provides power to various safety-related equipment. In the extremely unlikely event of a complete circumferential failure of the supply pipe, flooding of the MCC will not occur as the MCC is located on top of a four (4) inch concrete slab and the room is equipped with a local floor drain. The floor drain is capable of draining the entire flow from the supply pipe and empties into the Primary

Auxiliary Building sump which is equipped with a high level alarm that annunciates in the control room. Loss of flow to the Service Water System due to a pipe break would not adversely affect the system as the cooler outlet normally flows to the system discharge header. If significant leakage would occur, service water to the cooler can be isolated outside of the MCC room.

In the event that water spray from a small hole at the flaw location were to develop, it would be deflected away from the MCC by the cooler support plates, and collected in the drip tray and drained away.

The supply pipe for 2HVP*CLC265B will be observed during the regular operator tours of the Primary Auxiliary Building which are performed once per shift. Increases in the observed leakage rate possibly indicating degradation of the structural integrity of the piping will be reported to the Control Room and Engineering. Significant changes in the observed leakage rate will be evaluated by Engineering to assure that structural integrity is maintained.

Temporary Repair

A temporary repair is not needed due to the insignificant leak rate, and the desire to maintain access for visual inspections and augmented UT examinations.

Conclusion

The structural integrity of the supply pipe for 2HVP*CLC265B was assessed using the "through-wall flaw" approach provided in Enclosure 1 of Generic Letter 90-05 and found to be acceptable. Based on the above review, it is requested that the NRC grant relief for a temporary non-Code repair to be used until the piping can be repaired or replaced in accordance with Code requirements. The Code repair or replacement will be performed no later than the completion of the Sixth Refueling Outage (2R06) which is scheduled to begin on August 30, 1996.

Attachment 2

List of Augmented Ultrasonic Examinations' Locations

2HVP*CLC265B Outlet Nozzle - MCC*2-E04 Cubicle Cooler
2HVP*CLC265A Inlet Nozzle - MCC*2-E03 Cubicle Cooler
2HVP*CLC265A Outlet Nozzle - MCC*2-E03 Cubicle Cooler
2HVP*CLC206A1-Inlet Nozzle - Main Steam Valve Area Cooler
2HVP*CLC206A1 Outlet Nozzle - Main Steam Valve Area Cooler
2HVP*CLC206A2 Inlet Nozzle - Main Steam Valve Area Cooler
2HVP*CLC206A2 Outlet Nozzle - Main Steam Valve Area Cooler
2HVP*CLC206B1 Inlet Nozzle - Main Steam Valve Area Cooler
2HVP*CLC206B1 Outlet Nozzle - Main Steam Valve Area Cooler
2HVP*CLC206B2 Inlet Nozzle - Main Steam Valve Area Cooler
2HVP*CLC206B2 Outlet Nozzle - Main Steam Valve Area Cooler

FIGURE 1

Duquesne Light — RTL # A9 730K

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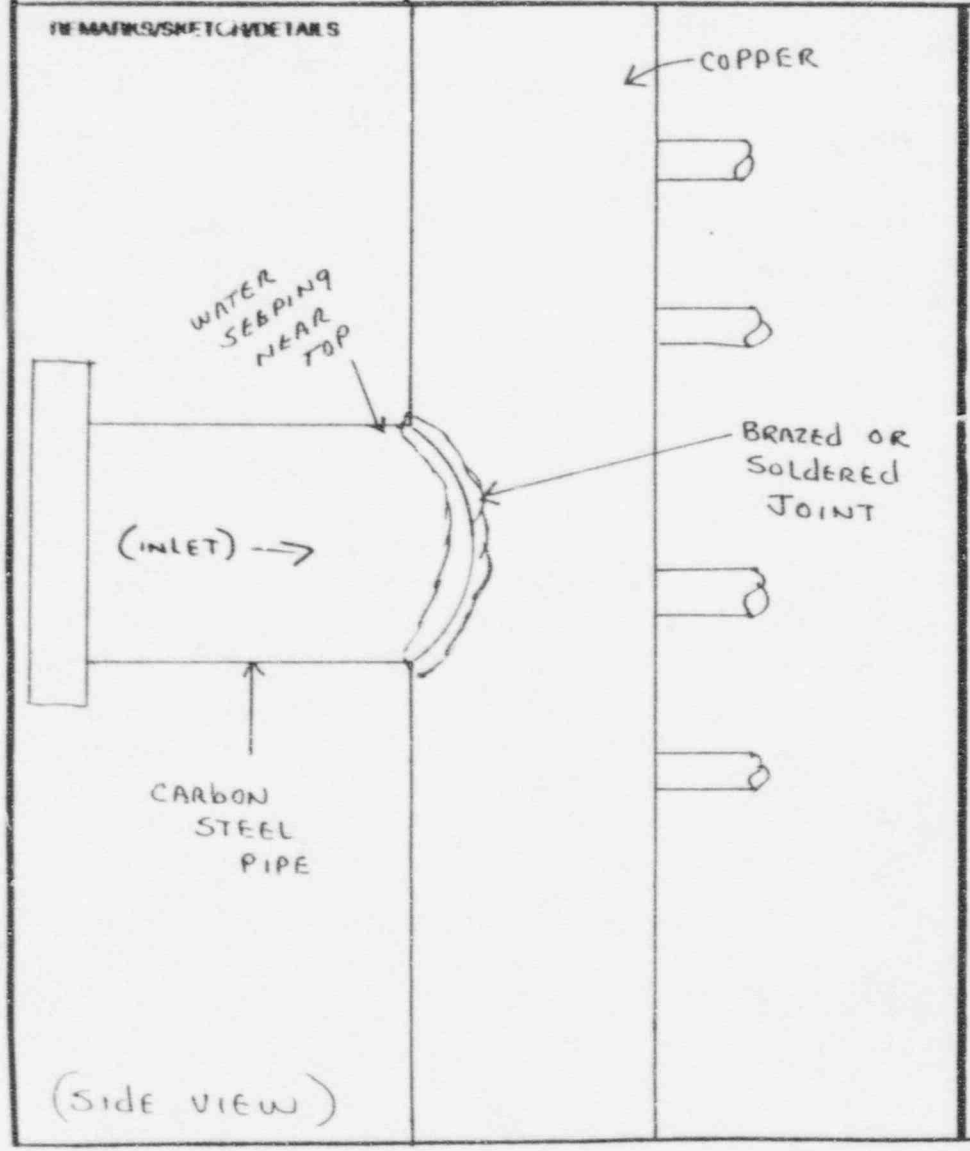
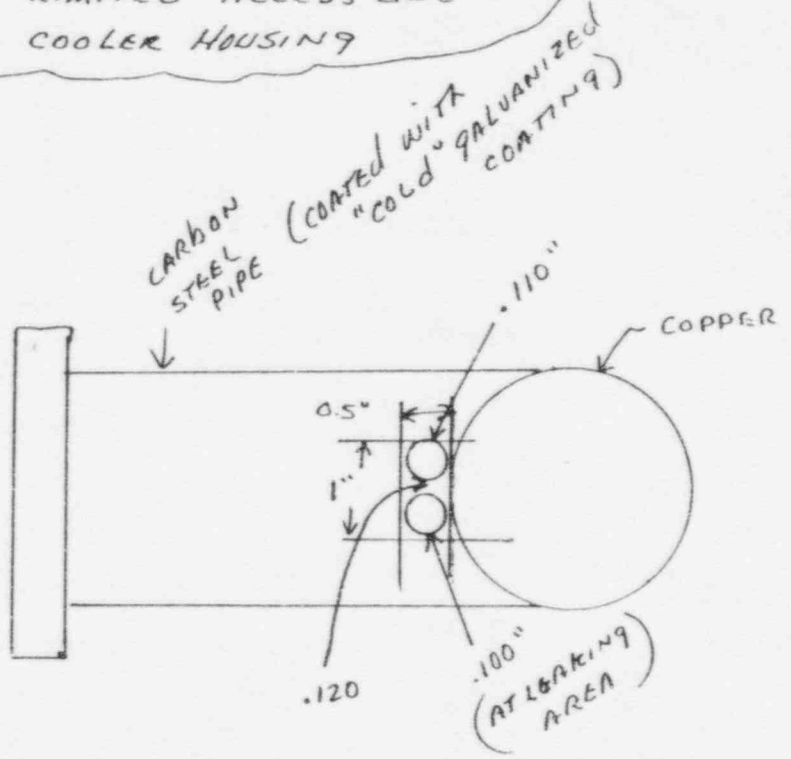
MCC COOLER MCC*2-E-04

2HUP*CLC265B

REMARKS/SKETCH/DETAILS



NOTE: LIMITED ACCESS DUE TO COOLER HOUSING



LOWEST OBSERVED THICKNESS = 0.100 IN VICINITY OF LEAK. THINNING (< .120") LIMITED TO ½" x 1" AREA AT TOP OF PIPE NEAR THE JOINT. REMAINDER OF ACCESSIBLE STEAL PIPE IS .180" – .220" THICK.

(VIEW LOOKING DOWN)