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SUBJECT: Requests relief to from ASME Boiler & Pressure Vessel Code, Section XI re inservice insp hydrostatic pressure test, to install supporting straps & continue operation of HXs until Spring 1988 refueling & maint outage.

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NIAGARA MOHAWK

NIAGARA MOHAWK POWER CORPORATION/301 PLAINFIELD ROAD, SYRACUSE, N.Y. 13212/TELEPHONE (315) 474-1511

January 22, 1987
(NMP1L 0129)

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

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63

Gentlemen:

During the 1986 Refueling and Maintenance Outage, Reactor Building Closed Loop Heat Exchanger No. 13 failed the ASME Boiler and Pressure Vessel Code Section XI Inservice Inspection hydrostatic pressure test. Leakage through the shell to tube sheet weld was observed. In our Licensee Event Report, LER 86-33, Niagara Mohawk stated that the cause and extent of the problem was under investigation.

Our investigation has identified the source of leakage to be a through wall crack approximately ten (10) inches long on a copper silicon tube sheet to carbon steel shell weld. The leakage rate is less than 0.022 gph at operating pressure and is well within the system makeup capability of approximately 60 gpm. This heat exchanger has been isolated from the system and will remain isolated until repairs are completed.

The Reactor Building Closed Loop Cooling (RBCLC) system provides cooling water to designated reactor auxiliary systems and components, as well as designated balance of plant systems and components. Some of the systems served by RBCLC are: Reactor Recirculation Pump Motor Coolers, Drywell Air Coolers, Shutdown Cooling Heat Exchangers, Control Room Chillers, Feedwater Pumps (HPCI), Non-Regenerative Clean-Up Heat Exchanger, and Spent Fuel Pool Heat Exchanger. The RBCLC system was originally designed to contain three 50 percent capacity, horizontally mounted, counter flow, tube and shell type heat exchangers. The tube side of the heat exchangers is cooled by service water. Each heat exchanger has a design heat removal load of 68 million Btu/hr. During normal operations, two heat exchangers are in service and one is in standby. However, during the late summer and early fall, when the lake

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temperature is at its highest, all three heat exchangers are in operation. This change in operation is due to the addition of loads to the system since it was originally designed. Additional details on this system can be found in Section X-D of the Final Safety Analysis Report.

Section 3.2.6.a.1 of the Technical Specifications requires quality group A, B and C components to satisfy the requirements of Section XI of the ASME Boiler and Pressure Vessel Code. The Reactor Building Closed Loop Cooling Heat Exchangers are classified as quality group C components. Section XI, paragraph IWA-4120, requires that repairs shall be performed in accordance with the original design specification and construction code of the component. The original code for construction of these heat exchangers is ASME Section VIII-1965. Due to the metalurgical properties of the dissimilar metal tube sheet to shell weld, we do not believe that an acceptable weld repair can be made at this time. A stress analysis of this heat exchanger combining dead weight, thermal and seismic loads has been performed using the load combinations specified in the Second Supplement to the Final Safety Analysis Report. The analysis indicates that the loads in the weld can be carried even with a 50 percent reduction of the weld thickness. Niagara Mohawk will, however, install supporting straps between the waterbox and the shell as shown in Figure 1. This repair will be conducted in accordance with the rules of the ASME Boiler and Pressure Vessel Code Section III, Subsection NF. Niagara Mohawk's 10CFR50 Appendix B QA program will be used in lieu of the NCA 3800 and NCA 4000 requirements.

Due to the low stress and high ductility of the materials, continued operation of heat exchanger does not present a safety concern. Since the leakage rate is very small and since installation of the supporting straps provides additional insurance against catastrophic failure of the weld, Niagara Mohawk proposes to monitor and trend the leakage rate monthly. If any significant increase in leakage is detected, we will perform further non-destructive examinations and evaluate any indications of crack growth. If the leakage exceeds 6.0 gpm (10 percent of makeup flow), we will declare the heat exchanger inoperable.

The other two heat exchangers in the system have not exhibited signs of leakage. However, ultrasonic examination of these heat exchangers could not conclusively demonstrate the integrity of the tube sheet to shell welds. Consequently, Niagara Mohawk believes that installing supporting straps on these heat exchangers would be a reasonable and prudent precaution.

Therefore, in accordance with 10CFR50.55a(g)(5)(iii) and the Technical Specifications, Niagara Mohawk requests relief to install the supporting straps and continue operation of these heat exchangers until no later than the Spring 1988 refueling and maintenance outage. This request is based upon the long lead time required to procure new heat exchangers, if necessary (approximately eight months), and the need to operate all three heat exchangers during high lake temperature conditions.

The low stresses, the installation of the straps, the ductility of the materials and the proposed leakage monitoring program are sufficient to ensure the continued integrity of this system. Further, this temporary repair provides Niagara Mohawk with the opportunity to pursue a permanent repair or a replacement of the heat exchangers.

Sincerely,

NIAGARA MOHAWK POWER CORPORATION

C. V. Mangan
Senior Vice President

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