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SUBJECT: Forwards Relief Request PR-8 for EDGCW Sys Pumps 72-62 & 72-63.

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NIAGARA MOHAWK

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March 27, 1990
NMP1L 0487

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:

Enclosed is Relief Request Number PR-8 for the Emergency Diesel Generator Cooling Water (EDGCW) System Pumps 72-62 and 72-63. Niagara Mohawk requests approval of this Relief Request by June 15, 1990 to facilitate testing in accordance with the alternative testing method proposed herein. The next quarterly test of the EDGCW system pumps with the plant in operation is scheduled for July, 1990.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

C. D. Terry
Vice President
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Enclosure

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7.0 PUMP RELIEF REQUEST

PR-8

System:	Emergency Diesel Generator Cooling Water (EDGCW) System
Pump:	72-62:72-63
Class:	3
Function:	Provide Cooling Water to the Emergency Diesel Generator
Test Requirements:	Inservice Test Procedure (IWP-3100); vary system resistance to fix the reference flow or the reference differential pressure; to measure inservice test quantities (Table IWP 3100-1); quarterly (IWP-3400).
Basis for Relief:	The EDGCW system consists of two trains. Each train consists of a vertical line shaft pump and a discharge check valve located in the screenhouse and a check valve located downstream of the diesel. The two EDGCW trains (4 inch lines) discharge to the same 6 inch header, which then ties into a ten inch service water header. There are no manual valves that could be used to throttle flow.

The EDGCW was thought to be a simple fixed resistance system (i.e., constant system resistance) due to the simple hydraulic circuit configuration. EDGCW pumps were tested in the first interval program by measuring only pump discharge pressure, not flow measurements. Small deviations in the pump discharge pressure supported earlier conclusions that the EDGCW was a fixed resistance system. Early tests in the second interval dealt with establishing repeatable flow measurements (using an ultrasonic flow instrument). The reference values were established in September 1989.

Tests performed in October 1989 indicated a flow reduction (about 8 to 10%) with an increase in differential pressure (about 4 to 6%) compared to the reference values. This occurred in both trains. Confidence in the pressure readings, and repeatability checks performed on the flow readings, pointed to the backpressure of the service water header as the cause for this fluctuation. This header runs almost 300 feet receiving discharges from several components, before it ties into the 72 inch discharge tunnel. Changing backpressure changes system resistance, thus forcing the operating point to move up and down the

Basis for Relief: (Cont'd)

pump curve. The pump curve is relatively flat meaning a large change in flow occurs for a small differential pressure. During a loss-of-offsite-power event, this service water header would be static as the safety related Emergency Service Water pumps and the reactor building supply use other discharge paths. A temporary modification (installation of throttle valve) was performed to both systems in November 1989 in order to develop a baseline curve for each pump in addition to satisfying ASME XI IWP-3100 requirements. The throttle valve replaced the pump discharge check valve. At least 4 points were taken on each pump, however, the throttle valve used only permitted obtaining flows below the September 1989 reference values.

Pump	Max. Flow with Temp. Valve Installed	9/89 Reference Flow (Max)
72-63	288 gpm	305.5 gpm
72-62	296 gpm	341.4 gpm

Use of the temporary throttle valve causes the respective Emergency Diesel Generator to be inoperable during the course of this test (approximately 12 hours) which is undesirable during plant operation. In addition, this testing method would require several initiations of the diesel generators increasing mechanical wear.

Alternate Testing:

For quarterly tests, a fixed reference value is not obtainable due to the lack of a permanent throttle valve. After the system is determined to be stable, both differential pressure and flow will be measured or determined. The hydraulic acceptance criteria shall use the IWP Table 3100-2 limits applied from the upper bound (highest obtainable test point) to the lower bound (determined by analysis that considers diesel heat exchanger heat transfer, fouling factors, EDG power output, and lake temperature). Test points falling within this region shall be evaluated in accordance with IWP-3230. Vibration readings will also be taken and used to evaluate pump degradation.

During cold shutdowns the temporary throttle valve will be installed to fix a particular reference value in order to perform code required testing.

During the next refueling outage, the modification to install a permanent throttle valve will be completed.

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