



NIAGARA MOHAWK POWER CORPORATION / 300 ERIE BOULEVARD WEST, SYRACUSE, N.Y. 13202 / TELEPHONE (315) 474-1511

January 31, 1986
(NMP2L 0600)

Mr. R. W. Starostecki, Director
U.S. Nuclear Regulatory Commission
Region I
Division of Reactor Projects
631 Park Avenue
King of Prussia, PA 19406

Re: Nine Mile Point - Unit
Docket No. 50-410

Dear Mr. Starostecki:

Enclosed is a final report in accordance with 10CFR50.55(e) for the problem concerning the Reliance Motor on Limitorque Motor Operator Model No. SB-3-150, DBE Qualification. This problem was reported via tel-con to T. Silko of your staff on June 25, 1985, and an interim report was transmitted on July 26, 1985. Please note that the model number addressed in all previous correspondence was SMB-3-150; the proper model number is SB-3-150.

Very truly yours,


C. V. Mangan
Senior Vice President

CVM/GG/cia
(1412H)

xc: Director of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

R. A. Gramm, NRC Senior Resident Inspector

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NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT - UNIT 2
DOCKET NO. 50-410

Final Report for a Problem
Concerning Reliance Motor on
Limiter Motor Operator,
Model SB-3-150, DBE Qualification
(55(e)85-22)

Description of the Problem

Loss of torque was observed by Wyle Laboratories during the testing of a Limitorque motor-operated valve actuator with a Limitorque model SB-3-150 operator equipped with a Reliance Electric motor as part of the General Electric Environmental Qualification Program. During the design basis testing of the valve actuator under elevated temperature and steam conditions, the motor exhibited loss of torque after 7 days of the 100-day test period. A second identical motor exhibited the same loss of torque after 14 additional days due to motor rotor failure. A third motor failed after 43 days.

Underlying Cause

The rotor used in the motor that failed is made of a magnesium alloy. The rotor is used by Reliance when high motor torque is required. When the rotor was subjected to a steam environment, the rotor bar at the interface with the end ring corroded which led to separation of the end ring from the conduction bars.

Analysis of Safety Implications

Twenty motor operated valves at Nine Mile Point Unit #2 were identified by the vendor as having magnesium rotor design. These motor operated valves were reviewed for their required post-accident operability time, and it was determined that in a harsh environment 13 motor operated valves have a post-accident operability time of less than 1 day, and 5 motor operated valves have a post-accident operability time of 100 days. The remaining 2 motor operated valves are in a mild environment; therefore, a post-accident operability time is not applicable for these valves. Similarly, the 13 valves with a one day post-accident operability time are not required to operate after one day and thus are acceptable as is.

The only valves with an environmental qualification problem are motor operated valves 2RHS*MOV24A, B, C, and 2CSL*MOV104 and 2CSH*MOV107 which are injection valves outside the containment for the emergency core cooling system. If it were necessary to realign the valves after 7 days, realignment may not be possible after this failure. A Loss of Coolant Accident inside the drywell would not result in conditions severe enough to affect operation of these valves. Only a high-energy line break outside of primary containment is of concern since the valves are located in the secondary containment. Failure of these valves could have rendered all three emergency core cooling systems inoperable.

Based on the above, it can be concluded that had this condition remained uncorrected, it could have adversely affected the safety of operations of the plant.

Corrective Action

General Electric has performed a review of valve functional requirements and provided the necessary valve alignments for safe plant operation during postulated design basis event beyond 7 days. Stone & Webster has confirmed that the emergency core cooling system operation with this valve alignment is not adversely affected by high-energy line breaks outside containment. Therefore, the post accident operability time for the 5 emergency core cooling system motor operated valves outside containment will be revised to 100 days following Loss of Coolant Accident inside containment and 7 days following a high-energy line break outside containment.