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Executive Vice President
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July 7, 1992
JPN-92-035

U.S. Nuclear Regulatory Commission
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SUBJECT: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Generic Letter 89-10, Supplement 3

Reference: NRC letter, B. C. McCabe to R. E. Beedle, dated March 11, 1992,
Response to Generic Letter 89-10, Supplement 3, "Consideration of
the Results of NRC Sponsored Tests of Motor-Operated Valves."

Dear Sir:

In the referenced letter, the NRC requested that the Authority respond to three evaluations concerning motor operated valves at the FitzPatrick plant. The NRC evaluations concluded that certain motor operated valves could not perform their design basis function unless certain operational conditions are met. The Authority's evaluations concluded that the operational conditions specified by the NRC are met. The Authority's response is provided in Attachment I.

If you have any questions, please contact J. A. Gray, Jr.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'R. Beedle', written over a horizontal line.

Ralph E. Beedle
Executive Vice President
Nuclear Generation

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I. Background

In NYPA letters dated December 13, 1990 (Reference 1) and April 17, 1991 (Reference 2) the Authority responded to Generic Letter (GL) 89-10 Supplement 3, "Consideration of the Results of NRC Sponsored Tests of Motor Operated Valves (MOV)." The Authority provided additional information in a NYPA letter dated August 1, 1991 (Reference 3). The following responds to three issues the NRC raised in Reference 4 concerning NYPA's August 1st submittal.

Each NRC issue is followed by the Authority's reply.

II. Response to Individual Evaluation Determinations

NRC Issue 1

The NRC staff considers 23MOV-15 and 12MOV-15 to be deficient and 13MOV-15 to be marginal with respect to their capability to perform their design bases function to isolate containment in the event of a pipe break downstream of the valves, unless your staff can demonstrate that the voltage at the motor terminals will be maintained above 90% of the motor rated value such that the degraded voltage penalty need not be applied. Your staff should verify that the actual minimum voltage will remain above 90% for these MOVs in accordance with the schedule of Supplement 3 to GL 89-10.

NYPA Response 1

Calculated minimum degraded motor terminal voltages for 23MOV-15, 12MOV-15, and 13MOV-15 exceed 90% of the motor's rated voltage (575V). Therefore, a degraded voltage penalty need not be applied.

FitzPatrick's worst case degraded voltage condition occurs with a minimum voltage on the 115kV system of 115kV and full load on the reserve station service and load center transformers. Under these conditions the 600V emergency buses supplying the 23MOV-15, 12MOV-15, and 13MOV-15 valves have a degraded voltage of 535V (Reference 5).

Listed below are calculated minimum motor terminal voltages assuming the 600V emergency bus voltage is degraded to 535V (Reference 6):

23MOV-15 527.3V or 91.70% of the motor's nominal rating
12MOV-15 523.7V or 91.08% of the motor's nominal rating
13MOV-15 525.0V or 91.30% of the motor's nominal rating

In all cases the motor terminal voltages exceed 90 percent of 575V ($575V \times 0.9 = 517.5$).

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Application of Degraded Voltage Factors:

The Authority's Generic Letter 89-10 Program conservatively calculates revised motor torques using a degraded voltage factor for all valves regardless of the minimum motor terminal voltage. If the results of the valve's thrust and torque calculations show that the motor operator is deficient, the Authority may remove this conservatism when degraded motor terminal voltage is greater than 90% of rated voltage.

Other MOV Performance Concerns:

The Authority also recognizes the NRC has additional concerns other than degraded voltage effecting MOV performance, including the selection of appropriate valve disc factors. The verification of these valves to perform their design basis function is continuing under the long term program to review MOV valve disc factors. This program, as described to the NRC in Reference 2, will assess Anchor/Darling's (A/D) blowdown test results to determine if the current valve disc factor of 0.2 is appropriate. Preliminary test results have been received and indicate that the valve disc factors are higher than what was assumed. The Authority will assess the effect of these test results on FitzPatrick valves prior to startup from the 1992 refueling outage.

NRC Issue 2

Your staff indicated that the 12MOV-80 is not required to perform a design bases function of isolating break flow. Your staff should verify this assertion or demonstrate the capability of the MOV.

NYPA Response 2

12MOV-80 was excluded from our Generic Letter 89-10 Program (Reference 2) because the valve is normally closed and infrequently opened. Therefore, it was not considered an isolation valve for high energy line break mitigation. The valve is an one inch bypass around the Reactor Water Cleanup (RWCU) Suction Outboard Isolation Valve (12MOV-18) and was designed to warmup the RWCU during system startups when the reactor is at operating pressure and temperature.

On October 19, 1990, the valve failed to stroke properly and was placed in the closed position with its power supply breaker tagged open. Procedure revisions were completed to startup RWCU without manipulating the 12MOV-80 valve. As an alternative to repairing the valve, a modification was proposed to remove the bypass line and the 12MOV-80. The modification will be completed this refueling outage (Reference 7), eliminating the need to reconsider 12MOV-80 for the Generic Letter 89-10 Program.

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NRC Issue 3

In the August 1, 1991 submittal, your staff stated that all of the torque switches are presently set at the actuator manufacturer's design maximum setting using run efficiency. Your staff will be expected to demonstrate that a weak link analysis was performed.

NYPA Response 3

In Reference 3 (NRC Question 2) the Authority stated that all actuators in the GL 89-10 Supplement 3 scope are set at the maximum torque switch setting determined by using the pull-out efficiency in accordance with Limitorque Corporation recommendations.

The Authority, in Reference 2, discussed reviewing the feasibility of using motor/actuator run efficiency to determine allowable torque switch settings in the open-to-close direction. Analyses has been performed using run efficiency, however, they have not been used to change MOV torque switch settings in the plant.

If torque switch settings are changed based on run efficiency, a weak link analysis of the valve and operator will be performed prior to the change.

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References

1. NYPA letter, J. C. Brons to NRC, "Generic Letter 89-10, Supplement 3," dated December 13, 1990 (JPN-90-074).
2. NYPA letter, R. E. Beedle to NRC, "Generic Letter 89-10, Supplement 3, Item 2 HPCI, RCIC, and RWCU MOVs," dated April 17, 1991 (JPN-91-013).
3. NYPA letter, R. E. Beedle to NRC, "Generic Letter 89-10, Supplement 3, Request for Additional Information," dated August 1, 1991 (JPN-91-039).
4. NRC letter, B. C. McCabe to R. E. Beedle, "Response to Generic Letter 89-10, Supplement 3, "Consideration of the Results of NRC-Sponsored Tests of Motor-Operated Valves," dated March 11, 1992 (JAF-92-070).
5. James A. FitzPatrick Nuclear Power Plant Final Safety Analysis Report, Section 8.6.6.c, "Emergency Bus Voltages When Operating From the Reserve Source", Revision 3, dated January 1992.
6. NYPA Memo JMD-92-192, "Degraded Voltage Analysis for 23MOV-15, 13MOV-15, and 12MOV-15," dated April 22, 1992.
7. NYPA Modification M1-90-006 Rev. 1, "Remove 12MOV-80 Valve."