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Nuclear Power Plant
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New York Power Authority

William A. Josiger
Resident Manager

May 9, 1988
IP3-88-032B

Docket No. 50-286
License No. DPR-64

Mr. William T. Russell
Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

SUBJECT: Indian Point 3 Nuclear Power Plant
NRC IE Bulletin (IEB) 85-03 ("Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings"):
Response to Request for Additional Information

REFERENCES:
1) Letter from E. C. Wenzinger (NRC) to W. A. Josiger dated April 11, 1988 requesting additional information on subject bulletin.

2) Letter from W. A. Josiger to Dr. T. E. Murley (NRC) dated May 13, 1986 providing IP3 response to Action Item (e) of subject bulletin.

3) Letter from W. A. Josiger to W. T. Russell (NRC) dated January 15, 1988 providing IP3 response to Action Item (f) of subject bulletin.

Dear Mr. Russell:

The purpose of this letter is to provide the additional information requested by the NRC in Reference 1.

Reference 2 provided the Authority's initial response to the subject bulletin for Action Item (e). Reference 3 provided the response to Action Item (f) in addition to updating the information provided in Reference 2. The NRC's request for additional information appears to be based on the Authority's initial response. As indicated in the attachment to this

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letter, details were provided in Reference 3 for most of the areas for which additional information was requested in Reference 1.

Should you or your staff have any questions or comments regarding the attached information, please contact Mr. M. Peckam of my staff.

Sincerely,

William A. Josiger
Resident Manager
Indian Point 3 Nuclear Power Plant

WAJ/PWC/sg
Attachment

cc: Resident Inspector's Office
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ATTACHMENT TO IP3-88-032B

This attachment provides the information requested per Reference 1.

NRC Request

1. Has water hammer due to valve closure been considered in the determination of pressure differentials? If not, explain.

NYPA Response

Water hammer due to valve closure has not been considered in establishing the maximum expected differential pressures in response to Action Item (a) of IEB 85-03. The subject pressure differentials were determined based on plant-specific application of the approach outlined in the final report of the Westinghouse Owners Group (WOG) Safety-Related MOV Program dated March, 1986. This report did not explicitly address the issue of water hammer, consistent with the WOG position which took exception to addressing water hammer within the context of IEB 85-03.

Discussion with the NRC Staff has indicated that the water hammer concern is limited to MOV's on the discharge side of the high head injection pumps. There are eight MOV's within the scope of IEB 85-03 on the discharge side of the IP3 high head safety injection pumps (SI-MOV-856C,E,H and J; SI-MOV-1835A & B; and SI-MOV-1852A & B: refer to Attachment A to Reference 3). Of these eight MOV's, only the 856 MOV's would potentially be closed under differential pressure conditions (refer to Table 1 of Attachment B to Reference 3). For SI-MOV-1835A & B and 1852A & B, the SI pumps would be tripped or flow would be diverted (in the case of passive failures during recirculation downstream of these valves) prior to the valves being closed; hence these MOV's would not have to close against a differential pressure (refer to Table 3 of Attachment B to Reference 3.) Thus, the water hammer concern is limited to the four 856 MOV's.

The Authority's approach in establishing correct switch settings has been to assure that the original design requirements are achieved. The Westinghouse E-Spec design differential pressure for the four 856 MOV's to close against is 2500 psi (see Table 1 of Attachment B to Reference 3). The testing performed on these MOV's in

response to Action Item (c) of IEB 85-03 was aimed at assuring that, as a minimum, the MOV was capable of developing enough thrust to overcome this 2500 psi design pressure differential. However, the maximum expected differential pressure that these MOV's could conservatively be expected to have to close against is only 1720 psi (as determined in response to Action Item (a) of IEB 85-03). This represents a differential pressure margin of approximately 45%. (It is noted that in some cases the final switch settings are actually capable of accommodating differential pressures in excess of the 2500 psi design value). It is the Authority's position that this margin is more than sufficient in accommodating any increase in actual differential pressure due to water hammer. This position was verbally discussed with NRC staff and favorably received.

NRC Request

2. If MOVATS is planned for application to some MOV's which are not included in its database, commit to and describe an alternate method for determining the extra thrust necessary to overcome pressure differentials for these valves.

NYPA Response

As elaborated on in Attachment C to Reference 3, the Authority has not utilized the MOVATS database in establishing MOV thrust requirements. Rather, the Authority's approach in establishing correct torque switch settings has been to assure that the original design requirements are achieved. In response to Action Item (c) of IEB 85-03, MOV's within the bulletin scope were MOVATS tested to measure the actual thrusts being delivered to the valve stem. These tests were conducted under static conditions and were used to demonstrate that the measured thrusts were, as a minimum, equivalent to the design thrusts needed to cycle the MOV against the E-Spec design differential pressures. The original design thrusts included the contribution due to the differential pressure condition as well as the contribution from other forces involved in the valve cycle (e.g., stuffing box load). In some cases, it was necessary to adjust the as-found torque switch settings to achieve the desired design thrusts. Please refer to Attachments C and D of Reference 3 for a full report of the methodology utilized and the results of the testing conducted.

NRC Request

3. MOV's 856A, 856D, 856F and 856K are not included in the utility's or the WOG's list of valves of the safety injection system to be inspected in accordance with bulletin requirements. According to the response of 05-13-86 (Page A-2 of Attachment A) these valves are excluded because they have their motor leads disconnected and are locked open. However, these valves are not shown locked open on Drawing 9321-F-27353, Revision 17. Revise Drawing 9321-F-27353 to show that these valves are locked open with motor leads disconnected.

NYPA Response

The subject drawing will be updated to clarify the operating condition of these valves during the next scheduled revision.

NRC Request

4. The proposed program for Action Items b, c and d of the bulletin is incomplete. Provide the following details as a minimum:

   (a) commitment to a training program for setting switches, maintaining valve operators, using signature testing equipment and interpreting signatures,

   (b) consideration of pipe break conditions as required by the bulletin, and

   (c) stroke testing to meet bulletin requirements.

NYPA Response

(4a) The Authority has long had a training program for setting switches and maintaining valve operators. The Authority purchased the MOVATS 2150 series equipment in 1987. This equipment was used to test those MOV's within the scope of IEB 85-03. A comprehensive program for training plant personnel on the use of the MOVATS equipment and interpreting test results is currently under development.

(4b) Pipe break conditions have been considered in the determination of the maximum expected differential pressures as required by Action Item (a) of IEB 85-03. (Refer to Attachment B to Reference 3 for further details.)

(4c) Refer to Attachment E to Reference 3 for details of the testing proposed for those MOV's within the scope of IEB 85-03.

NRC Request

5. State the planned date of completion of action Item (f) of the bulletin. Note that the due date specified by the bulletin is January 15, 1988.

NYPA Response

Reference 3 transmitted the final IEB 85-03 report in response to Action Item (f). This response indicated that revisions to existing procedures in accordance with IEB 85-03 Action Item (d) would be implemented in the first quarter of 1988. While these revisions have been prepared, they are currently in the review and approval process.

In light of the above, the Authority will implement the necessary revisions to our existing MOV maintenance procedures prior to start of the Cycle 6/7 Refueling Outage currently scheduled for early 1989. This schedule is consistent with our previous commitment to develop and have in place new procedure(s) related to MCC motor load testing prior to start of the indicated refueling outage.