

John D. O'Toole
Vice President

Consolidated Edison Company of New York, Inc.
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Telephone (212) 460-2533

December 26, 1985

Re: Indian Point Unit No. 2
Docket No. 50-247

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ATTN: Mr. Steven A. Varga, Chief
PWR Project Directorate No. 3
Division of PWR Licensing - A

Dear Mr. Varga:

By letter dated October 18, 1985 we provided our schedule for submitting a response to your September 9, 1985 request for information concerning seismic qualification of the Indian Point 2 (IP-2) auxiliary feedwater system. Attachment A to this letter is in response to that request.

Should you or your staff have any further questions, please do not hesitate to call.

Very truly yours,

J. Adamey
for John O'Toole

attach.
cc: Senior Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

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Add:

AD - J. Knight (ltr only)
EB (BALLARD)
EICSB (ROSA)
PSB (GAMMILL)
RSB (BERLINGER)
FOB (BENAROYA)

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ATTACHMENT A

Response to NRC's September 9, 1985 Request
for Additional Information Concerning Seismic
Qualification of the Indian Point Unit No. 2
Auxiliary Feedwater System

Consolidated Edison Company of New York, Inc.
Indian Point Unit No. 2
Docket No. 50-247
December, 1985

Item 1. A common condensate storage tank (CST) pipe line is used to supply condensate to the auxiliary feedwater (AFW) pumps for residual heat removal and to supply makeup to the condenser hotwell. The branch line for hotwell makeup contains one safety related valve (LCV-1158) and non-seismic piping down stream of LCV-1158. This valve must be closed following a safe shutdown earthquake (SSE) in order to prevent loss of condensate to the hotwell or loss from a break in the non-seismic piping. Failure to close would compromise the AFW system function.

The licensee has stated that in the event of an SSE and concurrent single failure of LCV-1158 to close, a break of the non seismic line to the condenser may cause the condensate storage tank (CST) to empty. The licensee has indicated that the tank would empty in 90 minutes. This response is not sufficient. The licensee should address the following:

- 1) Sufficient water is available in the CST assuming 30 minutes is required to take local manual action to close LCV-1158. This time frame begins from the moment of indication of CST water loss via safety related (seismic Category I) instrumentation and should account for obstacles delaying an operator from reaching the valve (e.g., fallen pipe lines or equipment, harsh environments, flooded areas) or taking the required local actions. Adequate CST water volume should be available to reach the RHR cut in temperature following isolation of LCV-1158, or a seismically qualified source of water for replenishment of the CST volume should be provided.
- 2) Proper auxiliary feedwater pump performance (e.g. adequate NPSH requirements) and delivery of sufficient flow for decay heat removal should be demonstrated during the period of increased flow due to LCV-1158 being open.

Alternatively, licensee can provide a redundant, seismic Category I valve to assure isolation of the condensate makeup line in the event of an earthquake.

Response:

- 1) At Indian Point 2 (IP-2), an alarm is annunciated when the water level in the CST reaches 19'-6" and 18'-2.5" and, according to the alarm response procedure, requires the operator to refill the tank using normal procedures and check for piping leaks. LCV-1158 is designed to close if the CST level reaches 17'-2.5", which corresponds to a volume of 360,000 gallons (technical specification limit).

The alarm response procedure will be modified to include a requirement for the operator to monitor the CST level when the 19'-6" or 18'-2.5" level is reached and to verify that LCV-1158 is closed when the CST level reaches 17'-2.5".

With the assumption that the operator takes 30 minutes to identify that the CST level is at 17'-2.5" and direct local manual action to close LCV-1158, the CST will still have sufficient water available to reach the RHR cut in temperature. This is conservatively based on the CST water level being at the minimum allowable by technical specifications, a doubled-ended guillotine break of the non-seismic line to the condenser and an RCS cooldown rate below the Technical Specification limit.

No obstacles are anticipated that may delay the operator from reaching LCV-1158 or taking the required local actions since the Auxiliary Feedwater Building is a seismic Category I structure and the subject piping is seismically supported within the auxiliary feedwater room. Thus any postulated failure of the non-seismic portion of this piping is not expected to result in damage or flooding within the auxiliary feedwater room.

- 2) During the period of increased flow due to LCV-1158 being open, the CST supply to the auxiliary feedwater pumps would continue to meet the pump NPSH requirements with adequate margin, and ample head would still be available to provide sufficient flow for decay heat removal.

Item 2. A common condensate storage (CST) pipe line is used to supply condensate to the auxiliary feedwater (AFW) pumps for residual heat removal and to supply makeup to the condenser hotwell. The branch line for hotwell makeup contains one safety related valve (LCV-1158) and non seismic piping down stream of LCV-1158. This valve must be closed following a safe shutdown earthquake (SSE) in order to prevent loss of condensate to the hotwell or loss from a break in the non seismic piping. Failure to close this valve would compromise the AFW system function.

The licensee has stated that in the event of an SSE and concurrent single failure of LCV-1158 to close, a break of the non seismic line to the condenser may cause the CST to empty. Recognizing this condition, the licensee has advised that local manual action could be taken to close LCV-1158 in sufficient time to assure AFW function. It is our concern however, that the high flow rates from the CST may create a condition (i.e. a vacuum) which results in damage to the tank and a subsequent loss of safety function of the AFW System.

The licensee should address this concern and verify that AFW function is assured given the above situation following an earthquake.

Response:

The CST at IP-2 is designed to withstand the high flow rates associated with the postulated break of the non-seismic line to the condenser without damaging the tank. The tank vent is sufficiently sized to prevent a vacuum condition in the tank with the high flow rates assumed, thereby assuring the safety function of the AFW system.

Item 3. The licensee has stated that IP-2 design employs two power panels for which the seismic qualification is described in Section 7.2.1.11. of the Final Safety Analysis Report. Although 7.2.1.11 specifically describes the qualification of several types of equipment, it is not clear that the power panels are discussed.

The licensee should evaluate this concern and determine if in fact the program described in 7.2.1.11 actually included the power panels.

Response:

Since Section 7.2.1.11 of the IP-2 FSAR does not clearly identify the two subject power panels, a specific analysis will be performed on these panels to confirm their seismic capability. Once the results of this analysis are determined they will be transmitted for your information.