

DOCKET NO. 50-247

DATE: MAR 27 1974

LICENSEE: Consolidated Edison Company of New York, Inc.

FACILITY: Indian Point Unit 2

SUMMARY OF MEETING RE FEEDWATER LINE MODIFICATIONS

On March 12, 1974, representatives of the licensee and their consultants met with the Regulatory staff to discuss a report, which was filed that day, summarizing modifications to the spargers in the steam generators and the reasons for modifying them. These modifications were performed subsequent to the rerouting of the feedwater piping to Steam Generator 22 as discussed in our letter to the docket on January 23, 1974.

A list of attendees is attached.

Significant points discussed in the meeting are summarized below:

1. Testing

After rerouting of the feedwater piping to Steam Generator 22, all the steam generators were tested at the conditions (7% power) which had resulted in failure of the feedwater piping. The tests demonstrated that rerouting of the piping was effective in eliminating water hammer at these conditions. Before similar tests could be performed at 100% power as planned, an inadvertent turbine trip at 35% power resulted in a water hammer in feedwater piping to Steam Generator 21 at 13 minutes after trip. Subsequent testing demonstrated that the water hammer could be reproduced and that water hammers could be induced with the reactor at essentially zero power provided that the auxiliary feedwater flow was maximum. Further, the testing showed that the water hammers occurred after the water level fell below the spargers and simultaneous with recovery of the sparger with water. Recovery occurred as late as 13 minutes after trip. Although some of the water hammers were significant, none had sufficient impact to impair the capability of the piping.

2. Cause of Subsequent Water Hammers

The water hammers occurred after the spargers were uncovered and at the time that they were recovered, thus sealing the holes in the bottom of the spargers. Rapid condensation of the steam trapped

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in the spargers resulted in the water hammers. The previous modification, i.e., rerouting of the feedwater piping to Steam Generator 22, eliminated steam trapping in that feedwater piping but did not eliminate steam trapping in the sparger.

3. Additional Modifications

To preclude steam trapping in the spargers and in the short runs of horizontal feedwater piping to Steam Generators 21, 23, and 24, Con Ed is plugging the holes in the bottoms of the spargers, drilling holes in the tops, and installing inverted J-shaped risers to direct the flow from each riser in the downward direction. The shape of the riser is intended to avoid moisture carryover. This modification has been subjected to the usual design reviews by Westinghouse and Con Ed. Prior to making the modification, Con Ed considered two other options, viz., programming auxiliary feedwater flow and raising the operating water level in the steam generators.

4. Additional Testing

When the modification is completed, appropriate tests will be conducted at 0%, 7-10%, 35%, and 100% power.

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R. W. Woodruff
Operating Reactors Branch #1
Directorate of Licensing

Enclosure:
List of Attendees

- cc: Docket File
- AEC PDR
- Local PDR
- L Reading File
- Branch Reading File
- RP Assistant Directors
- RP Branch Chiefs
- T. Carter
- J. Hendrie
- TR Assistant Directors
- TR Branch Chiefs
- R. Woodruff
- M. Oestmann
- M. Karman

OFFICE	E. Lyle	L:ORB#1	L:ORB#1		
	RO (3)	RWoodruff:dc	RJSchemel		
SURNAME	RS (3)	3/27/74	3/21/74		10
DATE	R. Fraley, ACRS (16)				
	Principal Staff Participants				

LIST OF ATTENDEES

W. J. Cahill, Jr., Con Ed
Peter Zarakas, Con Ed
Charles W. Jackson, Con Ed
J. M. Makepeace, Con Ed
John D. O'Toole, Con Ed
Eric Olson, Con Ed

E. U. Powell, Westinghouse
Harry Clark, Westinghouse
L. Conway, Westinghouse
T. M. Geets, Westinghouse
Charles W. Gay, Westinghouse

Edward L. Cohen, LeBoeuf, Lamb, Leiby & MacRae

Mrs. Weintraub, a member of the public

A. Fasano, RO

M. Karman, OGC

A. B. Miller, Licensing
Mark Hartzman, Licensing
R. W. Woodruff, Licensing
R. J. Schemel, Licensing

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