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WILLIAM D. HARRINGTON
SENIOR VICE PRESIDENT
NUCLEAR

July 26, 1983
BECO Letter No. 83-196

Mr. Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

License No. DPR-35
Docket No. 50-293

Subject: NUREG 0619 "BWR Feedwater Nozzle and Control Rod Drive Return Line
Nozzle Cracking"

References: (A) NRC Letter dated November 13, 1980
(B) BECO Letter dated February 3, 1981
(C) NRC Letter dated June 4, 1981
(D) BECO Letter dated August 21, 1981
(E) BECO Letter dated September 22, 1982

Dear Sir:

This submittal is to provide an updated report on Boston Edison Company's implementation of NUREG-0619 guidance, describe BECO's selected Control Rod Drive (CRD) return line option, advise the NRC of proposed changes in BECO's earlier commitments, and request NRC review and concurrence.

NUREG-0619 was issued with Reference (A) in response to the discovery of cracks in BWR feedwater (FW) and CRD nozzles. The document identified causes of the cracking, together with suggested means of mitigating the problem. BECO responded in Reference (B), committing to re-route the RWCU return flow to all FW nozzles, modify the low-flow FW controller, install equalizing valves in the CRD system and replace carbon steel piping in the stabilizing loop if CRD return line flow was not maintained, or install a pressure-control station if flow was maintained. Following your review of Reference (B), you recommended via Reference (C) that BECO take advantage of analysis which might demonstrate the adequacy of the existing low flow FW control, and thereby obviate the need for modification in this area. The reference also requests a BECO commitment to review and upgrade procedures per paragraph 4.4.1.2.2 of NUREG-0619, advise NRC whether BECO intends to operate the re-routed CRD return line valved open or closed, and commit to inspect and test nozzles per Table 2 of the NUREG.

In Reference (D), BECO acknowledged the recommendations, and modified its commitments to consider the guidance of Reference (C). In the same reference, BECO

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committed to review and upgrade procedures as practicable, per Paragraph 4.4.1.2.2 and to notify NRC by October 1, 1981 concerning the chosen arrangement for the CRD return line. Also, BECo committed to perform nozzle inspections and testing per Table 2 of the NUREG.

In Reference (E), BECo revised its scheduled completion of NUREG-0619 compliance modifications to coincide with planned refueling outage dates. Since BECo's last communication on this topic, additional research has uncovered the need to further modify the implementation program.

In connection with FW nozzles, NUREG-0619 recommends nozzle clad removal, installation of improved-design spargers, re-routing of RWCU return to all FW nozzles, installation of a new low-flow FW controller, and new operating and inspection procedures. Further, it suggests installation of thermal sleeve bypass monitors as a means of detecting the efficacy of thermal sleeve seals in preventing relativity cool FW from contacting hot nozzle surfaces.

Of the items suggested by NUREG-0619, BECo has completed clad removal, installation of improved-design spargers, and implementation of new inspection procedures. Following clad removal, all four FW nozzles were PT-inspected and found to be free of cracks. The recommended changes in operating procedures have been noted, and they will be implemented as soon as practicable. The thermal sleeve bypass monitor has been evaluated, and a decision has been made not to install them at this time.

BECo has committed to re-route the RWCU return flow, and to install the new low-flow FW controller if the analysis recommended by NRC in Reference (C) demonstrated the necessity of doing so. As of this writing, the analysis has been completed and it indicates that neither the RWCU re-route nor the new low-flow FW controller is necessary. Hence, our position on these items, as stated in reference (B), has been re-evaluated and we are retracting these commitments. We request that you review our revised position on these items and advise us of its acceptability.

In connection with the CRD return line nozzle, NUREG-0619 recommends inspection of bores and removal of cracks, plus one of the following return line treatments:

1. Valve out the return line.
2. Re-route the return line to another system.
3. Cut and cap the return line.

We have completed the inspection of the nozzle bores and have not discovered any cracking. We have also cut and capped the CRD return line.

NUREG-0619 also recommends that equalizing valves be installed between the cooling water header and the exhaust water header, that the carbon steel piping in the stabilizing loop be replaced with stainless steel piping, and that the exhaust water header piping be similarly replaced with stainless steel (or alternatively, install flush and drain ports).

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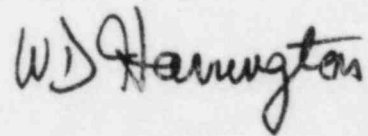
As scheduled, we will complete the installation of the equalizing valves and the installation of the flush and drain ports in the exhaust water header piping during RFO #6. However, we have re-evaluated our commitment to replace the stabilizing loop piping and have concluded that it is not necessary. Our analysis indicates that the same purpose (minimization of corrosion products being generated) can be achieved by simply valving out the stabilizing loop. Our reconsideration further shows that since the CRD return line has been cut and capped, the stabilizing loop and valves serve no functional purpose and therefore can be isolated.

Completion of the program discussed above will constitute completion of Boston Edison Company's implementation of the provisions of NUREG-0619; please review it and apprise us of its acceptability.

It would aid us greatly if you would respond to this request at your earliest convenience, because the approach of RFO #6 and the integration of tasks into a long range plan mandate early identification of any required changes.

We appreciate your attention to this issue. If you require any further information, please contact us.

Very truly yours,

A handwritten signature in dark ink, appearing to read "W.D. Harrington". The signature is written in a cursive, slightly slanted style.