



Northeast
Utilities System

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October 31, 1996

Docket No. 50-245
B15957

Re: Bulletin 96-03

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Millstone Nuclear Power Station, Unit No. 1
Response to NRC Bulletin 96-03
Potential Plugging of Emergency Core Cooling Suction
Strainers By Debris in Boiling-Water Reactors

The purpose of this letter is for Northeast Nuclear Energy Company (NNECO) to provide the required 180 day response to NRC Bulletin 96-03, " Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors¹" on behalf of Millstone Unit No. 1.

Background

On May 6, 1996, the NRC Staff issued Bulletin 96-03. This bulletin presented the results of an NRC Staff study which concluded there is a high probability that the available net positive suction head (NPSH) margin for the emergency core cooling pumps (ECCS) may be inadequate following dislodging of insulation and other debris caused by a loss of coolant accident (LOCA) and transport of the debris to the suction strainers. The debris could then be deposited on the ECCS Torus Suction Strainers, potentially reducing available NPSH and the flow to the ECCS pumps. The NRC Bulletin requested NNECO to provide a report to the NRC Staff within 180 days of the date of the subject bulletin describing the actions to be taken, the mitigative strategies to be used, and schedule for implementation.

¹ B. K. Grimes letter to All Holders of Operating Licenses or Construction Permits for Boiling Water Reactors, except Big Rock Point and Holders of Possession-Only Licenses, "NRC Bulletin 96-03: Potential Plugging Of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors", dated May 6, 1996.

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The bulletin also requested that within 30 days of completion of all requested actions, NNECO should provide a report confirming completion and summarizing any actions taken to minimize the potential for clogging of ECCS torus suction strainers by debris.

Finally the bulletin identified several potential options that could be implemented to ensure the capability of the ECCS to perform its safety function following a LOCA. These options are: 1) installation of larger capacity passive strainer design, 2) installation of a self-cleaning strainer, 3) installation of a backflush system, or 4) alternative options proposed by NNECO that provide an equivalent level of assurance that the ECCS will perform its design function during a LOCA. The bulletin indicated that these actions must be completed by the end of the first refueling outage starting after January 1, 1997. The bulletin also requested licensees to incorporate new surveillance requirements for the proposed modifications into the technical specifications.

Discussion

Millstone Unit No. 1 has a Mark I containment design with a common torus ring header supplying both trains of ECCS pumps. There are three strainers located in separate torus bays which are in turn connected to the external torus ring header. Each strainer has a surface area of approximately 23 square feet. The total ECCS flow is approximately 10,000 gpm per strainer when all four low pressure coolant injection (LPCI) pumps and two core spray pumps start concurrently following a LOCA. These flow rates are maintained until the operator brings the LPCI heat exchangers on line to start cooling the torus at approximately 30 minutes after the LOCA. The combined LPCI and Core Spray flowrate is then throttled down to about 10,000 gpm (approximately 3300 gpm through each strainer).

During the past two refueling outages (RFO) (RFO 14 and RFO 15), fibrous insulation on most large bore piping near and below drywell elevation 32' has been replaced with Diamond Power mirror reflective metallic insulation (RMI). Removal of the fibrous insulation has reduced the projected post-LOCA loadings on the strainers considerably. However, feedwater, main steam, and isolation condenser large bore piping in the upper portion of the drywell are still insulated with fibrous insulation pads.

To date, NNECO has been evaluating the current strainer size, piping insulation configurations and ECCS flows against the preliminary recommendations and test data developed by the BWROG committee on ECCS suction strainers in the Utility Resolution Guidance (URG) document. NNECO is also considering the installation of supplemental banding on RMI insulation and larger passive strainers as described in the URG. However, NNECO cannot take any final actions until the URG document is approved by the NRC Staff.

The NRC staff review of the BWROG URG recommendations and associated test data is underway and is currently scheduled for completion by the end of 1996. Concerns (if any) identified by the NRC Staff must be fully understood by the BWROG Committee and would be subsequently addressed in the final strainer solution prior to implementation. Therefore, NNECO requests to revise its response date to this bulletin describing the final solution and associated implementation schedule until 2 months after receipt of NRC Safety Evaluation Report on the BWROG URG recommendations.

Millstone Unit No. 1 is currently in an extended shutdown and requires an NRC Commission vote to restart. Therefore, the requested delay will have no impact on plant safety.

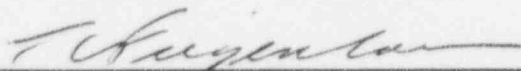
Commitments

- B15957.1 NNECO will provide a report to the NRC Staff, within 60 days of NRC approval on the BWROG URG, describing the actions to be taken, the mitigative strategies to be used, and schedule for implementation.
- B15957.2 NNECO will provide within 30 days of completion of all requested actions, a report confirming completion and summarizing any actions taken to minimize the potential for clogging of ECCS torus suction strainers by debris.

If the NRC Staff should have any questions on the above, please contact Mr. Robert W. Walpole at (860) 440-2191.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



T. C. Feigenbaum
Executive Vice President and
Chief Nuclear Officer

cc: See page 4

Subscribed and sworn to before me

this 31st day of October, 1996

Carla J. Hickey

Date Commission Expires: 12/31/96

cc: H. J. Miller, Region I Administrator
J. W. Andersen, NRC Project Manager, Millstone Unit No. 1
T. A. Easlick, Senior Resident Inspector, Millstone Unit No. 1