

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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May 13, 1991

Docket No. 50-336

A09330

Re: RG 1.97, Rev. 2

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

Gentlemen:

Millstone Nuclear Power Station, Unit No. 2
Conformance to Regulatory Guide 1.97, Rev. 2 (TAC No. 75776)

By letter dated February 5, 1991,⁽¹⁾ the NRC Staff transmitted to Northeast Nuclear Energy Company (NNECO) the Safety Evaluation Report (SER) and associated Technical Evaluation Report (TER) regarding conformance to Regulatory Guide (RG) 1.97, Revision 2, for Millstone Unit No. 2. The Staff found instrumentation provided by NNECO to meet the recommendations of RG 1.97 to be acceptable with the exception of accumulator tank level and pressure, containment sump water temperature, and closed cooling water temperature to the engineered safety features (ESF) system. The variables accumulator tank level and pressure are currently under generic review by the Staff, and thus do not require a response at this time. Responses to Staff positions for the two remaining variables are provided below.

Containment Sump Water Temperature

Millstone Unit No. 2 does not have any installed instrumentation for monitoring of sump water temperature. No detailed justification has been provided for this position previously since in the Staff's SER forwarded November 22, 1989,⁽²⁾ Section 3.b stated that this parameter was at the time undergoing generic review. In light of the Staff's position in its current SER that Category 2 instrumentation for containment sump water temperature should be provided, NNECO hereby provides justification for its position that no instrumentation is necessary to monitor this parameter.

- (1) G. S. Vissing letter to E. J. Mroczka, "Emergency Response Capability--Conformance to Open Issues Regarding Regulatory Guide 1.97, Rev. 2 (TAC No. 75776)," dated February 5, 1991.
- (2) G.S. Vissing letter to E. J. Mroczka, "Emergency Response Capability--Conformance to Regulatory Guide 1.97, Revision 2, for Millstone 2 (TAC No. 51107)," dated November 22, 1989.

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Sump water temperature is not an important parameter for Millstone Unit No. 2. While the equivalent parameter is important for many boiling water reactors for pump net positive suction head (NPSH) considerations, Millstone Unit No. 2 has no such restrictions which would require knowledge of sump water temperature. This parameter is not considered important or even a good indicator of containment heat removal, and no operator actions would utilize such an instrument.

RG 1.97 classifies this variable as Type D under the heading of Containment Cooling Systems. Type D variables are defined as "those variables that provide information to indicate the operation of individual safety systems and other systems important to safety. These variables are to help the operator in mitigating the consequences of an accident." Other existing instrumentation at Millstone Unit No. 2 is adequate to fulfill this function.

The other Type D variables for containment cooling are containment spray flow, heat removal by the containment fan heat removal system, and containment atmosphere temperature. Millstone Unit No. 2 has instrumentation for monitoring all of these parameters. Details on this instrumentation have been submitted to the NRC previously. In addition, Millstone Unit No. 2 has fully qualified containment pressure indication, which is the most direct indication of any potential challenge to containment integrity and the overall effectiveness of the containment heat removal systems.

The foregoing information explains NNECO's rationale for not installing instrumentation for this variable. If the Staff continues to maintain its position that "information on the containment sump water temperature is valuable to the operator in the evaluation of proper containment cooling system operation," NNECO respectfully requests that the Staff more clearly delineate the basis for that position, specifically for Millstone Unit No. 2.

Closed Cooling Water Temperature to ESF Components

In the justification provided to the Staff in NNECO's January 11, 1990, (3) submittal, it was stated that the only potential environmental qualification (EQ) problems related to the reactor building closed cooling water (RBCCW) heat exchanger outlet temperature indications were during postloss-of-coolant accident (LOCA) recirculation (potential high radiation exposure), and for steam-line breaks outside containment.

With respect to LOCAs, these temperature sensors are not exposed to harsh pressure/temperature or humidity conditions since they are located outside of containment. For radiation exposure concerns, the radiation dose to components in the RBCCW room area during post-LOCA conditions will be less than 1E^3 rads (the radiation threshold for electronic equipment) for at least

(3) E. J. Mroczka letter to U.S. Nuclear Regulatory Commission, "Conformance to Regulatory Guide 1.97, Revision 2 (TAC No. 51107)," dated January 11, 1990.

12 hours after the initiation of recirculation mode cooling. Therefore, these instruments are considered to be in a mild radiation environment for at least 12 hours postaccident. Since the peak heat load demand on RBCCW occurs just after the initiation of sump recirculation mode cooling, these detector circuits can be expected to perform their function during this time. By the time the integrated dose reaches the threshold for qualification for the detector circuits, the heat load on RBCCW is significantly reduced. These devices will be operable for the period of time that they could provide useful information, and therefore need not be a part of the 10CFR50.49 qualification program.

A steam-line or other high-energy line break outside containment could potentially result in a harsh environment for these sensors. However, for breaks outside containment, the heat load on the RBCCW system is far less than for a LOCA. For example, in the event of a LOCA, the largest demand on RBCCW is for containment cooling via the containment air recirculation fans and, after sump recirculation actuation system, the shutdown cooling (SDC) heat exchanger. Final Safety Analysis Report (FSAR) Table 9.4-1 gives the post-LOCA heat load as 160×10^6 Btu/hour for each RBCCW heat exchanger, which results in an expected outlet temperature of approximately 107°F.

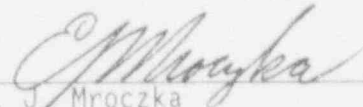
For a non-LOCA event such as a steam-line break, there is no significant containment heat removal requirement. The important load on RBCCW would be limited to an SDC heat exchanger (after SDC entry conditions are reached) and the heat load would be closer to the normal load of 36×10^6 Btu/hour (approximately 85°F outlet temperature, which is within normal operating parameters) given in FSAR Table 9.4-1 for 27.5 hours after shutdown. Thus, it can be seen that for all non-LOCA events where qualification of these instruments has not been established, the demand on RBCCW is far less than the system is designed to handle. Therefore, the importance of a qualified heat exchanger outlet temperature indication is very low.

If the Staff continues to maintain its position that "information on the CCW temperature to ESF system is valuable to the operator in the evaluation of proper cooling water system operation," NNECO respectfully requests that the Staff more clearly delineate the basis for that position, specifically for Millstone Unit No. 2.

Please contact us if you have any questions.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY


E. J. Mroczka
Senior Vice President

cc: T. T. Martin, Region I Administrator
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3