



Northeast  
Utilities System

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DEC 12 1996

Docket No. 50-423  
B16020

Re: NUREG 1031

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

Millstone Nuclear Power Station, Unit No. 3  
Steam Generator Tube Rupture-Analysis  
1995 Operator Response Times

In a letter dated November 7, 1994, Northeast Nuclear Energy Company (NNECO) submitted to the NRC staff additional information on operator response times for simulated steam generator tube rupture (SGTR) recovery operations. This letter identified that the operator response times are consistent with the SGTR analysis assumption that the steam generators would not be overfilled. Additionally, NNECO committed to revalidate the operator response times by conducting additional operating crew SGTR simulations by April 1995.

1995 OPERATOR RESPONSE DATA

Operator response data for simulated SGTR recovery operations were collected in 1995. During the 1995 simulations, additional data were taken to determine when auxiliary feedwater (AFW) was isolated to the affected steam generator during the recovery operation. This is the key step in operator response to a SGTR as AFW flow significantly increases the steam generator fill rate and is the relevant time for comparison to the first step defined in the analysis.

A review of the 1995 operator response data was completed in November 1996, in response to questions posed by an NRC inspector reviewing the Millstone Unit No. 3 Licensed Operator Requalification Training program. In a conference call with the NRC Staff on November 11, 1996, NNECO committed to submit the results of this review by mid-December 1996. The 1995 data (Attachment 2) show that the time frames for completing the different steps associated with the recovery operations have increased from previous data. However, by utilizing the additional information of the actual AFW isolation time and the extrapolation method documented in our November 7, 1994

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submittal, the evaluation of the 1995 results show that for all but the Instructor crew, the operators responded significantly better than the analysis assumption for AFW isolation and a margin to overfill was demonstrated. Thus, while the total steam generator isolation process is taking longer, the key analysis assumption of not overfilling the steam generator is met. Based upon this result, NNECO concludes that the operator responses and consequently the training in this area is adequate.

If you need any additional information, please contact Mr. J. Peschel at (860) 440-5840.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY



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John Paul Cowan  
Millstone Unit No. 3 Recovery Officer

Attachment

cc: H. J. Miller, Region I Administrator  
W.D. Travers, Dr., Director, Special Projects  
A. C. Cerne, Senior Resident Inspector, Millstone Unit No. 3  
V. L. Rooney, NRC Project Manager, Millstone Unit No. 3

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Attachment 1

Millstone Nuclear Power Station, Unit No. 3

December 1996

Enclosure  
List of Regulatory Commitments

The following table identifies those actions committed to by NNECO in this document. Any other actions discussed in the submittal represent intended or planned actions by NNECO. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager - Nuclear Licensing at the Millstone Nuclear Power Station Unit No. 3 of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed Date or Outage
NONE	N/A

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Attachment 2

Millstone Nuclear Power Station, Unit No. 3

December 1996

1995 Operator Response Times for SGTR Recovery Operations

CREW	Time 1*	Time 2*	Time 3*	Time 4*	Total Time*	Time 5*	Proc. Step*	Margin to Overfill (FT3)
OPS B	23	10	3	2	38	5	E-0/14	855
OPS C	25	12	4	2	43	10	E-0/16	324
OPS D	17	7.5	2	2.5	29	11	E-0/21d	788
OPS E	27	13	3	2	45	12	E-0/16	125
OPS F	24	11	4	2	41	11	E-0/17	329
OPS G	25	11	3	3	42	12	E-0/15	241
ADM A	29	12	3	2	46	12	E-0/16	88
ADM B	27	8	2	3	40	10	E-0/14	459
INST	34	11	3	2	50	15	E-0/15	-261
AVG	25.67	10.6	3	2.3	41.4	N/A	N/A	N/A

\*NOTES: The entries represent the time in minutes that was taken to accomplish the operator actions identified below:

Time 1 The time from the start of the event until the ruptured Steam Generator isolation (Step 4 of E-3 complete).

Time 2 The time from completion of ruptured Steam Generator isolation (Step 4 of E-3), until the start of the RCS Cooldown (Step 14b of E-3).

Time 3 The time that the RCS Cooldown was terminated (Step 14d of E-3), until the start of the RCS depressurization (Step 18b).

Time 4 The time that the RCS depressurization was terminated (Step 18c of E-3), until the time that SI was terminated (Step 21 of E-3 completed).

Total Time The sum of Times 1-4. It must be stressed that this time is NOT total time to SI termination, but rather total operator action times. To obtain total time to SI termination the following two computer generated times should be added:

RCS Cooldown Time 13.7 minutes

RCS Depressurization Time 2.1 minutes

Time 5 The time represents the time in minutes, from the start of the event, to which the operator throttled AFW to "0" flow to the ruptured Steam Generator.

Proc. Step # The Procedure Step identified is the step at which the operator took action to throttle flow the ruptured Steam Generator.