

Maine Yankee

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March 8, 1994

MN-94-20

JRH-94-46

UNITED STATES NUCLEAR REGULATORY COMMISSION

Attention: Document Control Desk

Washington, DC 20555

Reference: (a) License No. DPR-36 (Docket No. 50-309)

Subject: Inadequate Configuration Control in Design and Operation of SG Blowdown System

Gentlemen:

Please find enclosed Maine Yankee Licensee Event Report 94-002. This report is submitted in accordance with 10CFR50.73(a)(2)(ii).

Please contact us should you have any questions regarding this matter.

Very truly yours,



James R. Hebert, Manager
Licensing & Engineering Support Department

JVW/jag

Enclosure

c: Mr. Thomas T. Martin
Mr. J. T. Yerokun
Mr. E. H. Trottier
Mr. Patrick J. Dostie

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LICENSEE EVENT REPORT (LER)

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Maine Yankee Atomic Power Company	DOCKET NUMBER (2) 50-309	PAGE (3) 1 OF 3
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TITLE (4)
Inadequate Configuration Control in Design and Operation of SG Blowdown System

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
02	07	94	94	-- 002 --	00	03	08	94	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9) 7	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 100		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	(Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iv)	X 50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME George N. Stowers, Senior Nuclear Safety Specialist	TELEPHONE NUMBER (Include Area Code) (207) 882-6321
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

X YES (If yes, complete EXPECTED SUBMISSION DATE)	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
		07	01	94

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

This LER is being submitted to supply information related to inadequate configuration control in the design and operation of Maine Yankee's Steam Generator Blowdown System which resulted in operation of the plant in an unanalyzed condition.

On December 3, 1993, Maine Yankee recognized that station design and administrative controls did not prevent operation of the Steam Generator Blowdown System outside the bounds of Maine Yankee's transient analysis. Immediately following identification of this discrepancy, administrative controls were established to ensure conservative operation of the Blowdown System. At that time, Maine Yankee had determined that the blowdown system was operated in an unanalyzed condition, but that this condition did not significantly compromise plant safety.

Further analysis of the situation revealed that the fluid conditions post trip may change such that more mass would be transported from the steam generators than was originally considered. Thus, on February 7, 1994, Maine Yankee determined that the Steam Generator Blowdown system had been operated in an unanalyzed condition which may have significantly affected plant safety. Stricter administrative controls were immediately set to limit full power blowdown flow rates.

An investigation into the cause of this oversight, and analysis of it's safety implications, is in progress. A supplemental LER will be sent by July 1, 1994 discussing Maine Yankee's findings and corrective actions.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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TEXT [If more space is required, use additional copies of NRC Form 366A] (17)

On December 3, 1994, while the plant was operating steady state at 100% power, a post implementation review was performed of a recently completed design change to Maine Yankee's Steam Generator Blowdown (WI), system (EDCR-91-55). The purpose of the design change was to improve the ability of the system to remove impurities from the Steam Generators (AB), during plant startup by increasing blowdown system capacity to 300 GPM. System flow restrictions had limited actual attainable blowdown to less than 136 GPM total flow. During the review it was noted that the Loss of Feedwater Transient Analysis assumed a nominal blowdown flow of 51 GPM. Furthermore, there were no operational controls in place to limit steam generator blowdown flow to this value. Immediately following identification of this discrepancy, Maine Yankee set administrative controls to limit total blowdown flow to 51 GPM or less. Since total steam generator blowdown flow rates of approximately 150 GPM had been observed during post modification testing, Maine Yankee determined that the system had been operated in an unanalyzed condition.

Maine Yankee initiated a safety analysis review to determine the effect the higher flow rates would have on plant safety and to establish less restrictive operating limits for the blowdown system. On December 17, 1993 it was determined based on engineering judgement that a blowdown flow of 150 GPM would not have significantly reduced plant safety. Pending completion of a more formal analysis, an administrative limit of 75 GPM total blowdown flow was established.

On February 7, 1994, Maine Yankee determined that postulated fluid conditions post trip during a Loss of Feedwater event could lead to blowdown flows greater than previously considered. Based on a conservative treatment of post trip SG blowdown response, a total SG blowdown limit of 45 GPM was derived. If, under certain postulated circumstances, blowdown flow was not stopped, the resulting loss of steam generator inventory could have led to a loss of natural circulation, and subsequent loss of core heat removal by the steam generators. Thus, on February 7, 1994, Maine Yankee determined that the Steam Generator Blowdown system had been operated in an unanalyzed condition that may have significantly affected plant safety. Appropriate administrative controls were put in place to limit blowdown flow to 45 GPM or less.

The actual safety consequences of exceeding the 45 GPM blowdown flow rate would have been significantly reduced by operator action directed by existing emergency operating procedures. Functional Recovery Procedure FR.H-5 is entered based on a low steam generator level indication. The second step of FR.H-5 directs operators to manually isolate the blowdown system using qualified valves (ISV) which normally close on a safety Injection Actuation Signal.

The safety analysis currently does not credit this operator action. Interim guidance was provided to plant operators on February 17, 1994 to immediately shut the blowdown valves from the control room after any plant trip.

In addition to the operator action, significant conservatism exists between the safety analysis assumptions and actual plant performance. These include emergency feedwater delivery rates which would be approximately 550 GPM versus the 475 GPM assumed in the safety analysis and a conservatively high steam generator overall heat transfer coefficient (relative to actual plant performance) which maximizes the boiloff rate in the steam generators.

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TEXT [If more space is required, use additional copies of NRC Form 366A] (17)

The root cause of this event is under evaluation. Further analysis is being conducted to determine whether the postulated fluid conditions are credible and to determine the safety significance of this event.

As a result of this event the following corrective actions have been taken or are planned:

- o Pending further analysis blowdown flow has been administratively limited to 45 GPM and direction has been issued to plant operators to immediately shut the blowdown valves from the control room following a plant trip. Calculations to date confirm that 45 GPM is an acceptable value for any analyzed condition.
- o The importance of aggressively pursuing the basis for the engineering values presented in the analysis Inputs and Assumptions Summary Document, (IASD) has been stressed to those responsible for development and review of EDCRs.
- o A task has been initiated to improve the useability of the IASD.
- o A rigorous analysis is being performed to determine the actual maximum allowable blowdown flow rate.

Maine Yankee will issue a supplemental LER by July 1, 1994 discussing our root cause evaluation, additional corrective actions taken with scheduled completion dates, as well as an assessment of the safety significance.

LERs 80-001, and 83-032 describe events similar to those presented in this LER.