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March 17, 1994

United States Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Document Control Desk

Reference: Facility Operating License No. NPF-86, Docket No. 50-443

Subject: Licensee Event Report (LER) 94-03-00: "Operation at Reduced Power Levels with Inoperable MSSVs"

Gentlemen:

Enclosed please find Licensee Event Report (LER) No. 94-03-00 for Seabrook Station. This LER addresses Main Steam Safety Valve (MSSV) setpoint testing which was conducted in September 1992. North Atlantic determined on February 17, 1994, on the basis of new information received from Westinghouse that plant operation during the MSSV testing in September 1992 was reportable pursuant to 10CFR50.72(b)(1)(ii)(A) and (B). This LER is being submitted pursuant to 10CFR50.73(a)(2)(ii) and 10CFR50.73(a)(2)(v).

Should you require further information regarding this matter, please contact Mr. James M. Peschel, Regulatory Compliance Manager at (603) 474-9521 extension 3772.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Ted C. Feigenbaum", is written over a large, stylized flourish.

Ted C. Feigenbaum

TCF:ALL/act

Enclosures: NRC Forms 366/366A

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cc: Mr. Thomas T. Martin
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Mr. Albert W. De Agazio, Sr. Project Manager
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LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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 (MNB 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)
Seabrook Station

DOCKET NUMBER (2)
05000443

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TITLE (4)
Operation at Reduced Power Levels with Inoperable MSSVs

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	17	94	94	-- 003 --	00	03	17	94	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1	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)		X 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: James M. Peschel, Regulatory Compliance Manger
TELEPHONE NUMBER (Include Area Code): (603) 474-9521 extension 3772

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)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

In September 1992, North Atlantic conducted Main Steam Safety Valve Setpoint testing as required by Technical Specification 4.0.5 and Section XI of the ASME Boiler and Pressure Vessel Code. During this testing the plant was in MODE 1, at approximately 65% RTP, with power levels being gradually reduced in preparation for Refueling Outage 2. North Atlantic determined on February 17, 1994, that the MSSV setpoint testing conducted in September 1992 was reportable pursuant to 10CFR 50.72 (b)(1)(ii)(A) and (B) (unanalyzed condition and a condition outside the design basis) and made the requisite 1 hour non-emergency notification. This determination was based on new information contained in Westinghouse Nuclear Safety Advisory Letter 94-01. NSAL 94-01, "Operation at Reduced Power Levels With Inoperable MSSVs" provides notification that Technical Specification Table 3.7-1 which allows plant operation at reduced power levels as determined by the neutron flux high trip setpoint, may not be conservative at the reduced power levels. During the MSSV setpoint testing, North Atlantic operated in the configuration allowed by Seabrook Station Technical Specification Table 3.7-1. However, on the basis of the new information provided in NSAL 94-01, operation per Table 3.7-1 may have resulted in secondary side overpressurization in the event of a Loss of Load/Turbine Trip transient. Westinghouse concluded in NSAL 94-01 that this issue does not represent a substantial safety hazard and that there is no loss of safety function to the extent that there is a major reduction in the degree of protection provided to the public health and safety.

Short term corrective actions included the calculation of conservative Technical Specification Table 3.7-1 values. A calculation was performed by North Atlantic using the algorithm provided in NSAL 94-01 to determine these values and a Technical Clarification TS-011 was approved and issued to ensure that the values are administratively controlled until such time that the Technical Specifications are revised.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATE 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.

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

EVENT DESCRIPTION

In September 1992, North Atlantic conducted Main Steam Safety Valve Setpoint testing as required by Technical Specification 4.0.5 and Section XI of the ASME Boiler and Pressure Vessel Code. This testing was conducted using a Furmanite Trevitest device. During this testing the plant was in MODE 1, at approximately 65% RTP, with power levels being gradually reduced in preparation for Refueling Outage 2. During this testing, all 20 of the MSSVs (5 per steam generator) were tested. North Atlantic previously submitted LER 92-16 on October 5, 1992, which reported that 9 MSSVs were discovered to be inoperable with setpoints outside of the acceptance criteria required by Technical Specification 3.7.1.1.

North Atlantic determined on February 17, 1994, that the MSSV setpoint testing conducted in September 1992 is reportable pursuant to 10CFR 50.72 (b)(1)(ii)(A) and (B) (unanalyzed condition and a condition outside the design basis). This determination was based on new information contained in Westinghouse Nuclear Safety Advisory Letter 94-01 (NSAL 94-01). Westinghouse has submitted a copy of NSAL 94-01 to the NRC. NSAL 94-01, "Operation at Reduced Power Levels With Inoperable MSSVs" provides notification that Technical Specification Table 3.7-1 which allows plant operation at reduced power levels as determined by the neutron flux high trip setpoint, may not be conservative at the reduced power levels. Operation per Table 3.7-1 may have resulted in secondary side overpressurization in the event of a Loss of Load/Turbine Trip (LOL/TT) transient.

In September 1992, while performing MSSV setpoint testing, the requirements of Technical Specification Table 3.7-1 were applied. At the initiation of the testing the neutron flux high setpoint was set at 87% RTP to allow the use of the Furmanite Trevitest device which restricts the MSSV from relieving fully and therefore requires the MSSV being tested to be declared inoperable. Testing of 2 MSSVs was performed concurrently using 2 Trevitest devices (1 device in the east pipechase and 1 device in the west pipechase on different SG loops). The neutron high flux trip setpoints utilized during the testing were in accordance with Technical Specification Table 3.7-1. Table 3.7-1 requires that the neutron high flux setpoint be reduced to 87% RTP when operating with a maximum of one inoperable MSSV on any SG (65% RTP with 2 inoperable on any SG, 43% RTP with 3 inoperable on any SG). Later in the testing, the neutron flux high setpoints were further reduced per Table 3.7-1 to accommodate the testing of MSSVs on SG loops with 2 inoperable MSSVs.

NSAL 94-01 provides an algorithm for calculation of conservative Technical Specification Table 3.7-1 values. A calculation was performed by North Atlantic to determine these values and a Technical Clarification TS-011 was approved and issued to ensure that the values are administratively controlled until such time that the Technical Specifications are revised. The calculation established a value of 60% RTP for the high flux trip setpoint when operating with a maximum of one inoperable MSSV on any SG (42% RTP with 2 inoperable on any SG, 25% RTP with 3 inoperable on any SG). Therefore during the September 1992 MSSV setpoint testing, the high flux setpoints utilized were non-conservative relative to the values calculated using the NSAL 94-01 algorithm. Operation in this condition represents an unanalyzed condition and a condition outside the design basis of the plant.

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

SAFETY CONSEQUENCES

North Atlantic determined on February 17, 1994, that Seabrook Station had been operated in an unanalyzed condition and a condition outside the design basis of the plant during September 1992 while conducting MSSV setpoint testing. This determination was made based on the calculation of conservative Technical Specification Table 3.7-1 values using the algorithm provided in NSAL 94-01. During the September 1992 MSSV setpoint testing, the high flux setpoints utilized were non-conservative with respect to the NSAL 94-01 algorithm values.

From a licensing basis perspective, this condition may have resulted in secondary side overpressurization in the event of a loss of load/turbine trip transient. The Seabrook Station licensing basis for anticipated operational occurrences (ANS Condition II events) requires that the secondary side pressure remain below 110% of the design value. Westinghouse concluded in NSAL 94-01 that this issue does not represent a substantial safety hazard. This Westinghouse conclusion was based on "several mitigating factors which provide assurance that there is no loss of safety function to the extent that there is a major reduction in the degree of protection provided to the public health and safety". The following mitigating factors identified by Westinghouse in NSAL 94-01 are applicable to Seabrook Station:

1. The LOL/TT analysis conservatively assumes that main feedwater flow to the SGs is lost at the time of the turbine trip. If a LOL/TT transient occurs at reduced power levels and main feedwater flow is maintained, operation in accordance with the Technical Specification Table 3.7-1 will not result in an overpressure condition.
2. In any LOL/TT transient, the atmospheric steam dump valves and/or condenser steam dump valves actuate to relieve energy from the steam generators prior to the opening of the MSSVs, and continue to relieve steam if the MSSVs do open. Since it is not a safety grade function, steam dump is not assumed to operate in the safety analysis; however it is reasonable to expect that the steam dump system would function to protect the secondary system against overpressurization. It is very improbable that all these components would be non-functional coincident with inoperable MSSVs.
3. The primary coolant heatup resulting from the LOL/TT transient would tend to drive the MTC negative, which would reduce the core power and heat input to the coolant. This would result in a lower required MSSV capacity to prevent secondary overpressurization. The safety analysis does not credit the reduction of MTC during the transient.

ROOT CAUSE

The root cause of this event is the failure of the UFSAR LOL/TT analysis to bound the operating configurations permitted by Technical Specification Table 3.7-1 since the neutron high flux trip setpoints specified in this table for a corresponding number of MSSVs may not be low enough to preclude a secondary system overpressurization condition.

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CORRECTIVE ACTIONS

NSAL 94-01 provides an algorithm for calculation of conservative Technical Specification Table 3.7-1 values. A calculation was performed by North Atlantic to determine these values and a Technical Clarification TS-011 was approved and issued to ensure that the values are administratively controlled until such time that the Technical Specifications are revised.

North Atlantic will submit a license amendment request containing proposed revisions to Technical Specification Table 3.7-1.

PLANT CONDITIONS

This event occurred in September 1992 while North Atlantic was conducting Main Steam Safety Valve setpoint testing as required by Technical Specification 4.0.5 and Section XI of the ASME Boiler and Pressure Vessel Code. During this testing the plant was in MODE 1, at approximately 65% RTP, with power levels being gradually reduced in preparation for Refueling Outage 2.

PREVIOUS OCCURRENCES

This is the third condition of this type at Seabrook Station where non-conservative Technical Specification values have been determined to exist. Licensee Event Report 92-02 dated March 13, 1992, and Supplement 1 to LER 92-02 dated April 8, 1993, identify a non-conservative value for RHR flow and a non-conservative figure depicting reactor core safety limits.