

**North  
Atlantic**

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The Northeast Utilities System

Ted C. Feigenbaum  
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NYN- 95068

August 30, 1995

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

Attention: Document Control Desk

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

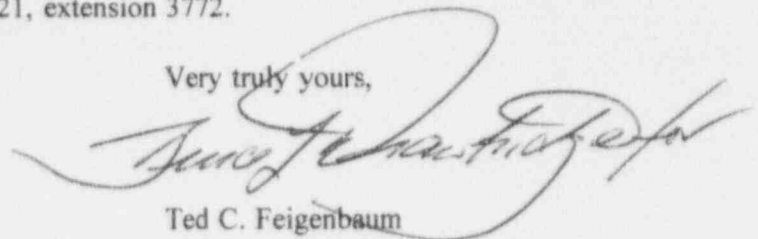
Subject: Licensee Event Report (LER) No. 95-01-01: "Inadequate Overtemperature Delta T and Overpower Delta T Channel Calibrations"

Gentlemen:

Enclosed please find supplemental Licensee Event Report (LER) No. 95-01-01 for Seabrook Station. This submittal documents an event which occurred on June 8, 1995. This event is being reported pursuant to 10CFR50.73(a)(2)(i).

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,



Ted C. Feigenbaum

TCF:EWM/ewm

Enclosures: NRC Forms 366/366A

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United States Nuclear Regulatory Commission  
Attention: Document Control Desk

August 30, 1995  
Page two

cc: Mr. Thomas T. Martin  
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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	PAGE (3) 1 OF 3
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TITLE (4)  
Inadequate Overtemperature Delta T and Overpower Delta T Channel Calibrations

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
06	08	95	95	01	01	08	30	95	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)										
POWER LEVEL (10) 100	20.402(b)			20.405(c)			50.73(a)(2)(iv)			73.71(b)	
	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)			X 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)			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 Mr. James M. Peschel, Regulatory Compliance Mngr.	TELEPHONE NUMBER (Include Area Code) (603) 474-9521 ext. 3772
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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)				EXPECTED SUBMISSION DATE (15)			MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO							

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

On June 8, 1995, North Atlantic Energy Service Corporation (North Atlantic) identified certain passive components (i.e. wiring) were not being adequately tested during CHANNEL CALIBRATIONS in accordance with plant Technical Specifications. These instances were identified during a systematic review of surveillance procedure as a part of Seabrook Station's Procedure Upgrade Project.

The surveillance requirements for the Overtemperature Delta-T (OTΔT) and Overpower Delta-T (OPΔT) reactor trip channels are specified in Technical Specification Table 4.3-1, Functional Units 7 and 8. Systematic reviews performed as a part of the Procedure Upgrade Project identified two instances where sections of wiring were not verified during the OTΔT and OPΔT CHANNEL CALIBRATIONS. One instance involved a section of field cabling from the Nuclear Instrumentation (NI) isolation amplifiers to the 7300 process rack which was not verified during the OTΔT CHANNEL CALIBRATION. These untested portions of the OTΔT circuit were the axial flux input for each of the four Reactor Protection System channels. The other instance involved a section of interconnecting wiring, within the 7300 process rack, between the ΔT lead-lag card and the relay test card. The untested portions of the OTΔT and OPΔT circuits were the ΔT inputs for each of the four Reactor Protection System channels. North Atlantic is reporting this event as inadequate Technical Specification CHANNEL CALIBRATIONS of the OTΔT and OPΔT channels.

Corrective actions taken were to verify proper overlap by performing continuity checks of the above sections of wiring. The applicable channel calibration surveillance procedures will be revised to reflect proper overlap test methods. The Procedure Upgrade Project (PUP) will continue to review surveillance procedures to ensure commitments and specific criteria are appropriately addressed in the procedures. Additionally, procedure background documents will be developed to aid in reviewing the technical adequacy of the existing procedures, and will provide a mechanism for documenting the procedural requirements.

The root cause of this event has been determined to be a lack of design engineering involvement in the initial surveillance procedure development. A contributing cause was determined to be inadequate documentation providing justification for an earlier decision not to test the specified cabling.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Seabrook Station	05000443	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		95	01	01	

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

DESCRIPTION OF EVENT

On June 8, 1995, North Atlantic Energy Service Corporation (North Atlantic) identified certain passive components (i.e. wiring) were not being adequately tested during CHANNEL CALIBRATIONS in accordance with plant Technical Specifications. These instances were identified during a systematic review of surveillance procedures, as a part of Seabrook Station's Procedure Upgrade Project.

The surveillance requirements for the Overtemperature Delta-T (OTΔT) and Overpower Delta-T (OPΔT) reactor trip channels are specified in Technical Specification Table 4.3-1, Functional Units 7 and 8. Systematic reviews performed as a part of the Procedure Upgrade Project identified two instances where sections of wiring was not verified during either the OTΔT and OPΔT CHANNEL CALIBRATIONS. One instance involved a section of field cabling from the Nuclear Instrumentation (NI) isolation amplifiers to the 7300 process rack which was not verified during the OTΔT CHANNEL CALIBRATION. These untested portions of the OTΔT circuit were the axial flux input for each of the four Reactor Protection System channels. The other instance involved a section of interconnecting wiring, within the 7300 process rack, between the ΔT lead-lag card and the relay test card. The untested portions of the OTΔT and OPΔT circuits were the ΔT inputs for each of the four Reactor Protection System channels.

A task team was formed to provide clear definition to the Procedure Upgrade Project regarding the scope of overlap testing required to satisfy Technical Specification requirements and Updated Final Safety Analysis Report commitments. During the task team evaluation process the untested portions of the circuit were tested as a conservative measure. It was later determined that these sections of the OTΔT and OPΔT circuits were required to support the operability of the protection circuit in its entirety and should have been tested during each CHANNEL CALIBRATION.

The Seabrook Station Updated Final Safety Analysis Report (UFSAR) states that the Reactor Trip System (RTS) and Engineered Safety Features Actuations Systems (ESFAS) acceptability will be the successful completion of the overlapping tests performed on the initiating system and the actuated component. The testing requirements are to be performed in accordance with IEEE Standard 338-1977 and IEEE Standard 279-1971. These IEEE Standards describe the preferred method of testing as by testing the entire protection channel at one time. Overlap testing will serve as an alternate test method should it not be practicable to test the entire channel at once. The Seabrook Station Technical Specifications define CHANNEL CALIBRATION as follows: "A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel such that it responds within the required range and accuracy to known values of input. The CHANNEL CALIBRATION shall encompass the entire channel including the sensors and alarm, interlock and/or trip functions and may be performed by any series of sequential, overlapping, or total channel steps such that the entire channel is calibrated." NRC Information Notice 95-15, "Inadequate Logic Testing of Safety-Related Circuits", and Draft NRC Generic Letter 95-xx, "Testing of Safety-Related Logic Circuits", were reviewed for guidance regarding the testing of passive components. Neither document provided any additional discussion or specific details on this subject.

Therefore the task team concluded that Channel Calibrations are required to include active components such as switch/relay contacts and passive components such as traces on printed circuit boards and cabling. Based upon the above, the task team determined that the OTΔT and OPΔT Channel Calibrations had not been properly performed and this event is reported as inadequate channel calibrations pursuant to 10CFR50.73(a)(2)(i).

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TEXT CONTINUATION

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Seabrook Station	05000443	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		95	01	01	

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

SAFETY CONSEQUENCES

There are no adverse safety consequences as a result of this event. The interconnecting wiring for each of the four protection channels was satisfactorily verified. This testing verified that the OTAT and OPAT circuits would have been capable of performing their designated safety functions is called upon to do so.

ROOT CAUSE

The root cause of this event was determined to be a lack of design engineering involvement in the original surveillance procedure development. This absence of a technical engineering review caused the section of interconnecting wiring, between the AT lead-lag card and the relay test card, to be missed and not tested within the overlap program. A contributing cause was inadequate documentation providing justification for an earlier decision not to test the cabling between the NI and 7300 process cabinets. An extensive overlap testing review was performed in 1989 where the untested cabling was identified as a potential overlap issue. The testing of this cabling was taken exception to, during this review, due to the extensive jumpering required for testing. However, these exceptions were not adequately documented to provide the necessary justification for not testing the specified cabling.

CORRECTIVE ACTIONS

Corrective actions taken were to verify proper overlap by performing continuity checks of the above sections of wiring. The applicable channel calibration surveillance procedures will be revised to reflect proper overlap test methods. The Procedure Upgrade Project (PUP) will continue to review surveillance procedures to ensure commitments and specific criteria are satisfied. Additionally, procedure background documents will be developed to aid in reviewing the technical adequacy of the existing procedures, and will provide a mechanism for documenting the commitments and design basis requirements. Design Engineering is presently involved in developing the applicable procedure background documents reviewing surveillance procedures to ensure adequate testing.

PLANT CONDITIONS

At the time of this event the plant was in MODE 1 and operating at 100 % power.

SIMILAR EVENTS

North Atlantic has identified and reported several events involving general surveillance procedure inadequacies to the NRC in LERs. The event being reported in this LER relates to three of these previous events by having the same root causes (e.g. inadequate preparation and review of surveillance procedures). Those instances are described in LERs 93-013-01, 93-015-00 and 94-002-01.