

# New Hampshire Yankee

Ted C. Feigenbaum  
President and  
Chief Executive Officer

NYN-91041

March 13, 1991

Document Control Desk  
United States Nuclear Regulatory Commission  
Washington, D.C. 20555

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

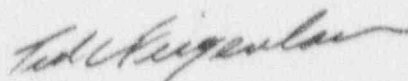
Subject: Licensee Event Report (LER) No. 91-001-00: Reactor Trip Due to Loss of  
Electrohydraulic Control System Pressure

Gentlemen:

Enclosed please find Licensee Event Report (LER) No. 91-001-00 for Seabrook Station. This submittal documents an event which occurred on February 12, 1991, and is being reported pursuant to 10CFR50.73(a)(2)(iv).

Should you require further information regarding this matter, please contact Mr. Allen L. Legendre, Lead Engineer-Compliance, at (603) 474-9521, extension 2373.

Very truly yours,

  
Ted C. Feigenbaum

TCF:WJT/act

Enclosures: NRC Forms 366, 366A

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United States Nuclear Regulatory Commission  
Attention: Document Control Desk

March 13, 1991  
Page two

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United States Nuclear Regulatory Commission  
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## LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Seabrook Station</b>										DOCKET NUMBER (2) <b>0 5 0 0 0 4 4 3 1</b>										PAGE (3) <b>0 3</b>																																							
TITLE (4) <b>REACTOR TRIP DUE TO LOSS OF ELECTROHYDRAULIC CONTROL SYSTEM PRESSURE</b>																																																											
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 NAMES										DOCKET NUMBER(S)																			
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OPERATING MODE (9) <b>1</b>										THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																																																	
POWER LEVEL (10) <b>1 0 0</b>										20.402(b)										20.405(c)										XX										50.73(a)(2)(iv)										73.71(b)									
										20.405(a)(1)(i)										50.38(e)(1)																				50.73(a)(2)(iv)										73.71(c)									
										20.405(a)(1)(ii)										50.38(e)(2)																				50.73(a)(2)(vii)										OTHER (Specify in Abstract below and in Text, NRC Form 366A)									
										20.405(a)(1)(iii)										50.73(a)(2)(i)																				50.73(a)(2)(viii)(A)																			
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LICENSEE CONTACT FOR THIS LER (12)																																																											
NAME <b>Allen L. Legendre, Lead Engineer - Compliance, Extension 2373</b>																				TELEPHONE NUMBER <b>6 1 0 1 3 4 7 1 4 1 - 1 9 1 5 2 1 1</b>																																							
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																																																											
CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NPROS			CAUSE			SYSTEM			COMPONENT			MANUFACTURER			REPORTABLE TO NPROS																																
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 fifteen single-space typewritten lines) (16)																																																											
<p>On February 12, 1991, at 8:22 a.m. EST, a turbine-generator trip with a reactor trip occurred while the plant was at 100% power. The trip was initiated by a loss of Electrohydraulic Control (EHC) system pressure. A Main Feedwater Isolation and an Emergency Feedwater Actuation also occurred subsequent to the trip.</p> <p>Prior to the event, 480 volt AC unit substation ED-US-14 was cross connected to unit substation ED-US-21 in preparation for various electrical maintenance tasks on the primary breaker, secondary breaker and transformer for ED-US-14. Approximately twenty-five minutes following the cross connection, the secondary breaker for ED-US-21 tripped due to the energization of two large cyclic loads, the turbine building crane and the guardhouse megatherm tank heaters. Consequently, power was lost to both EHC pumps causing a loss of EHC system pressure that resulted in a turbine-generator trip with a reactor trip as designed.</p> <p>The root cause has been determined to be an inadequate procedure. A contributing cause was inadequate training. To prevent recurrence, operating procedures, maintenance Repetitive Task Sheets and planning and scheduling procedures will be revised to provide additional controls to ensure that the overall connected load is formally evaluated and controlled prior to cross connecting unit substations. The lessons learned from this event will be discussed with all operating crews. Additionally, a Training Development Recommendation (TDR) will be written to address failure mode and consequence thought processes during abnormal system alignments.</p> <p>This is the first event of this type at Seabrook Station.</p>																																																											



## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104

EXPIRES: 8/31/86

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
Seabrook Station	0500044391	0	0	1	0	2	03

TEXT (If more space is required, use additional NRC Form 266A (1/77))

On February 12, 1991 at 8:22 a.m., EST, a turbine-generator trip with a reactor trip occurred while the plant was at 100% power. The turbine trip was initiated by a loss of Electrohydraulic Control (EHC) [TG] system pressure.

Description of Event

Prior to the event, 480 volt AC unit substation ED-US-14 was cross-connected to unit substation ED-US-21 in preparation for various electrical maintenance tasks on the primary breaker, secondary breaker and transformer for ED-US-14. A total load of 975 amps was verified locally immediately following the cross-connection. The cross connection was performed in accordance with section 6.8 of procedure ON1046.08, "Non-Vital 480V Operation".

Approximately twenty-five minutes following the cross connection, the secondary breaker for ED-US-21 tripped due to the energization of two large cyclic loads, the turbine building crane and the guardhouse megatherm tank heaters. Consequently, power was lost to both EHC pumps causing a loss of EHC system pressure that resulted in a turbine-generator trip with a reactor trip.

Following the turbine trip and reactor trip a Main Feedwater Isolation [JE] occurred. Pressure pulses were created by the rapid closure of the turbine control valves. These pressure pulses were transmitted through the steam flow transmitters' water filled lines and sensed by the high pressure side of the steam generator narrow range level transmitter. This resulted in the steam generator high-high level signal. Actual steam generator levels did not approach the high-high level setpoint at any time. Additionally, an Emergency Feedwater Actuation [JE] occurred as designed, due to the loss of feedwater to a steam generator.

Safety Consequences

There were no adverse safety consequences as a result of this event. All the applicable trips and interlocks associated with the reactor trip functioned as designed.

All operator actions were determined to be appropriate to ensure the safety of the plant. At no time during this event was there any impact on the health and safety of plant employees or the public.

Root cause

The root cause has been determined to be an inadequate procedure. The procedure only required a verification of current loads, it did not require the evaluation and control of other loads which may automatically energize. A contributing cause was inadequate training. A failure mode and consequence thought process during an abnormal system alignment was not properly applied.

Corrective Actions

After the trip, the plant was placed in HOT STANDBY in accordance with operating procedure OS1001.11 "Post Trip to Hot Standby". An event evaluation and post trip review were immediately initiated. A Human Performance Evaluation System (HPES) analysis as well as a root cause analysis were also initiated.

## LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)  Seabrook Station	DOCKET NUMBER (2)  0 8 0 0 0 4 4 3 9 1 - 0 0 1 - 0 0 0 3	LER NUMBER (5)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
						OF	3

TEXT (If more space is required, use additional NRC Form 365A's) (17)

Operating procedures, maintenance Repetitive Task Sheets and planning and scheduling procedures will be revised to provide additional controls to ensure that the overall connected load is formally evaluated and controlled prior to cross connecting unit substations. Procedure revisions are expected to be completed by May 15, 1991. The lessons learned from this event will be discussed with all operating crews.

Additionally, a Training Development Recommendation (TDR) will be written by April 15, 1991 to address failure mode and consequence thought process during abnormal system alignments. This training will be given to operations and technical staff personnel.

Plant Conditions

At the time of this event, the plant was in Mode 1, Power Operation at 100%, with an RCS temperature of 587 degrees Fahrenheit and pressure of 2,235 psig.

This is the first event of this type at Seabrook Station.