

# NORTHEAST UTILITIES



The Connecticut Light And Power Company  
Western Massachusetts Electric Company  
Hartford Water Power Company  
Northeast Utilities Service Company  
Northeast Nuclear Energy Company

General Offices: Selden Street, Berlin, Connecticut

Box 270  
HARTFORD, CONNECTICUT 06141-0270  
(203)665-5000

Re: 10CFR50.73(a)(2)(i)

March 24, 1992

MP-92-315

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

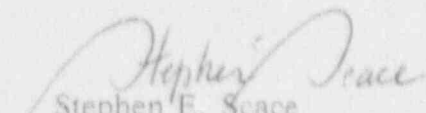
Reference: Facility Operating License No. NPF-49  
Docket No. 50-423  
Licensee Event Report 91-022-01

Gentlemen:

This letter forwards supplemental Licensee Event Report 91-022-01, in accordance with LER 91-022-00. LER 91-022-00 was submitted pursuant to 10CFR50.73(a)(2)(i), any operation or condition prohibited by the plant's Technical Specifications.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
Stephen E. Seace  
Director, Millstone Station

SES/BNF:bjo

Attachment: LER 91-022-01

cc: T. T. Martin, Region I Administrator  
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3  
V. L. Rooney, NRC Project Manager, Millstone Unit No. 3

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## LICENSEE EVENT REPORT (LER)

Estimated median per response to comply with this information collection request: 1.5 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch (3150-0104), U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503.

FACILITY NAME (1)

Millstone Nuclear Power Station Unit 3

DOCKET NUMBER (2)

0 5 0 0 0 4 2 3 1 OF 0 4

TITLE (4) Failure to Adequately Perform Overlap Testing of the Containment Depressurization Actuation Loops  
Due to Management Deficiency

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						
0	8	2	0	9	1	0	2	2	0	5	0	0	0	1	1
0	8	2	0	9	1	0	2	2	0	5	0	0	0	1	1
OPERATING MODE (9)			THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)												
POWER LEVEL (10)			20.402(b)			20.402(c)			50.73(a)(2)(iv)			73.71(b)			
			20.406(a)(1)(i)			50.73(a)(2)(i)			50.73(a)(2)(i)			73.71(b)			
			20.406(a)(1)(ii)			50.73(a)(2)(ii)			50.73(a)(2)(ii)			OTHER (Specify in Abstract below and in Text, NRC Form 368A)			
			20.406(a)(3)(iii)			50.73(a)(2)(iii)			50.73(a)(2)(iii)						
			20.406(a)(1)(iv)			50.73(a)(2)(iv)			50.73(a)(2)(iv)						
			20.406(a)(1)(v)			50.73(a)(2)(v)			50.73(a)(2)(v)						

LICENSEE CONTACT FOR THIS LER (12)

NAME

Burtel N. Forrest, Engineer, X5442

TELEPHONE NUMBER

AREA CODE  
2 0 3 4 4 7 - 1 7 9 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRC

SUPPLEMENTAL REPORT EXPECTED (14)

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

YES (if yes, complete EXPECTED SUBMISSION DATE) ☒ NO

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

On August 20, 1991, at 0800 hours, in Mode 5 (Cold Shutdown), at 95 degrees Fahrenheit and atmospheric pressure, Instrumentation & Controls (I&C) Department personnel reviewing the test methodology during the performance of the containment pressure monthly analog operational check discovered that closure of one of the comparator trip switch auxiliary contacts, which enables transmission of the Containment Depressurization Actuation (CDA) signal, was not being tested. During the investigation of the event, it was determined that the refueling channel calibration procedures for the four CDA signal pressure channels were not overlap testing the contacts as required by the Technical Specifications. The auxiliary contact in each channel which is normally closed to process a signal, is opened during testing to block the CDA signal. No immediate operator action was required since the plant was shutdown.

The root cause of the event is a management deficiency. Prior to initial plant startup, plant management did not ensure that the vendor protection channel test instructions were incorporated into the applicable procedures. The monthly surveillances were modified to verify contact closure. The contact tested satisfactorily in the as-found condition.

A review of I&C procedures versus the vendor operating instructions was performed. No similar concerns were identified.

NRC Form 368A (8-89)		U.S. NUCLEAR REGULATORY COMMISSION  APPROVED CJB NO. 3150-0104 EXPIRES 4/30/92  Estimated burden per response to comply with this information collection request: 50.0 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch, p-5301, U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503.							
<b>LICENSEE EVENT REPORT (LER)</b> <b>TEXT CONTINUATION</b>									
FACILITY NAME (1)  Millstone Nuclear Power Station Unit 3	DOCKET NUMBER (2)  0 5 0 0 0 4 2 3 9 1	LER NUMBER (3) <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 15%;">YEAR</th> <th style="width: 15%;">SEQUENTIAL NUMBER</th> <th style="width: 15%;">REVISION NUMBER</th> </tr> <tr> <td>0 1</td> <td>0 2 2</td> <td>0 1</td> </tr> </table>	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	0 1	0 2 2	0 1	PAGE (3)  0 2 OF 0 4
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TEXT (If more space is required, use additional NRC Form 368A's) (17)

### I. Description of Event

On August 20, 1991, at 0800 hours, while shutdown in Mode 5 (Cold Shutdown), at 95 degrees Fahrenheit and atmospheric pressure, Instrumentation & Controls (I&C) Department personnel reviewing the test methodology during the performance of the monthly analog operational check discovered that closure of the comparator trip switch auxiliary (BSI) contact, which enables transmission of the Containment Depressurization Actuation (CDA) signal, was not being verified. During the investigation of the event, it was determined that the refueling channel calibration procedures for the four CDA signal pressure channels were not in full compliance with the requirements of the Technical Specifications. The Technical Specifications require that overlap testing be performed as part of a channel calibration. The refueling channel calibration procedures did not verify closure of the BSI contact. This contact is in series to allow processing of a CDA signal from the Westinghouse 7300 instrument racks, to the Solid State Protection System (see the attached figure).

A channel calibration is performed on all four containment pressure instruments at least once every 18 months (i.e., at refueling) pursuant to the requirements of Technical Specification 4.3.2.1. However, the applicable procedures did not contain sufficient overlap to verify continuity between: a) the containment pressure instrument input to the comparator trip switch test card; the Westinghouse 7300 instrument racks and b) the output of the comparator trip switch test card (to the Solid State Protection System).

Immediate operator action was required since the plant was shutdown.

### II. Analysis of Event

The primary cause of the event is management deficiency. The vendor protection channel testing procedures, which were submitted to plant management prior to initial startup, were not distributed to the I&C Department procedure writers for incorporation into the applicable procedures.

The energized to actuate design of the CDA circuit does not provide annunciators which directly monitor contact status. The typical protection channel design places the channel in trip during testing and utilizes annunciators to provide indication of off-normal contact status. Actuation is provided by deenergizing the SSPS input relay. The CDA protection channel design (which is energized to actuate) requires that the channel be bypassed during testing. An annunciator and bistable light provide indication of the off-normal channel condition, but does not directly monitor the status of the BSI contact. To verify contact continuity of the BSI, a voltmeter must be placed across the contacts to verify continuity.

There are four utilized contacts on the comparator trip switch test card: two (normally open) contacts are used to light the associated bistable when the switch is in test. One (normally closed) contact is used to provide a channel in test annunciation. The (normally closed) BSI contact is used in line with the SSPS input relays to block an actuation signal while in test. Since they employ different sets of auxiliary contacts (from the same switch), neither the bistable light nor the "channel in test" annunciator provide positive indication of the position of the comparator trip switch BSI contact.

### III. Analysis of Event

This event is being reported pursuant to the requirements of 10CFR59.73(a)(2)(i), as an event or condition prohibited by the Technical Specifications. Plant technical specifications 4.3.2.1 requires that a channel calibration be performed at least once every 18 months. Overlap testing was not performed on the contact associated with the comparator trip switches. The comparator trip switches allow isolation of the containment pressure signal input to allow surveillance testing without causing a CDA.

When containment pressure reaches the CDA setpoint, Emergency Core Cooling Water flow to the Containment Ring Spray headers is initiated and the Containment spray recirculation system is subsequently started. The CDA signal is an Engineered Safety Features (ESF) which limits the peak Containment pressure and reduces the pressure following a design basis accident.

NRC Form 366A (6-89) *		U. S. NUCLEAR REGULATORY COMMISSION		APPROVED OMB NO. 3150-0104 EXPIRES: 4/30/92  Estimated burden per response to comply with this information collection request: 50.2 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch (2-530), U.S. Nuclear Regulatory Commission, Washington, DC 20555, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503.													
<b>LICENSEE EVENT REPORT (LER) TEXT CONTINUATION</b>																	
FACILITY NAME (1)  Millstone Nuclear Power Station Unit 3		DOCKET NUMBER (2)  0 5 0 0 0 4 2 3 0 1		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">LER NUMBER (5)</th> <th colspan="2" style="text-align: center;">PAGE (3)</th> </tr> <tr> <th style="text-align: center;">YEAR</th> <th style="text-align: center;">SEQUENTIAL NUMBER</th> <th style="text-align: center;">REVISION NUMBER</th> <th style="text-align: center;"></th> </tr> <tr> <td style="text-align: center;">0 1</td> <td style="text-align: center;">0 2 2</td> <td style="text-align: center;">0 1</td> <td style="text-align: center;">0 3 OF 0 4</td> </tr> </table>		LER NUMBER (5)		PAGE (3)		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		0 1	0 2 2	0 1	0 3 OF 0 4
LER NUMBER (5)		PAGE (3)															
YEAR	SEQUENTIAL NUMBER	REVISION NUMBER															
0 1	0 2 2	0 1	0 3 OF 0 4														

TEXT (if more space is required, use additional NRC Form 366A-6) (17)

The four CDA protection channels monitor containment pressure and provide a signal to energize their respective Solid State protection system 24 VDC input relays once the CDA setpoint is reached. If two out of four channels indicate a high containment pressure, a CDA signal is processed by the SSPS. The comparator trip switch provides a means of isolating the actuation signal to SSPS in order that the protection channel may be tested without generating a CDA.

Although, the BSI contact was not tested on the 18 month channel calibration frequency, the I&C department testing in response to the event verified that the BSI contacts for each channel were functional. Additionally, ESF time response testing, which is performed at least once every 72 months for each channel, verifies continuity of these contacts. Based on these factors, the failure to verify continuity of the containment pressure channels as part the 18 month channel calibration did not result in any significant safety consequences.

IV. Corrective Action

The monthly analog channel operational test procedures were modified to include guidance on continuity verification of the CDA comparator trip switch BSI contact for the four protection channels. These procedures were changed vice the channel calibration procedures since they are performed on a more conservative frequency. The modified surveillance procedures were satisfactorily performed. The review of other protection channel instrument loops did not identify similar deficiencies. A review of other I&C department procedures versus the vendor operating instructions has been performed to determine if similar conditions exist. Discrepancies were identified in the step sequence of some procedures. These discrepancies do not violate any of the Plant Technical Specifications or Final Safety Analysis Report (FSAR) requirements, and will be resolved via the internal commitment tracking program.

V. Additional Information

Part of the corrective action for LER 87-042, "Missed Intermediate Range/Power Range Surveillance Due to Procedural Inadequacy," was the performance of a comprehensive review of all Technical Specifications against their applicable surveillance procedures. This review which was completed by the end of 1988, would not have identified the event discussed in this LER because the review scope did not target a system design review given the unique system design.

EHIS Codes

Systems  
 Solid State Protection System - JC  
 Engineered Safety Features Actuation System - JE

Components  
 Auxiliary Actuation Contact  
 Logic Card

The comparator trip switch and associated auxiliary contacts is on an NCT style card, (reference no. 2837A91G01) manufactured by Westinghouse Electric Corporation (WES).

An NPRDS query did not identify any relay failures which resulted in the inability of the comparator trip switch test contact to close.

This event is also being submitted on the INPO notepad.

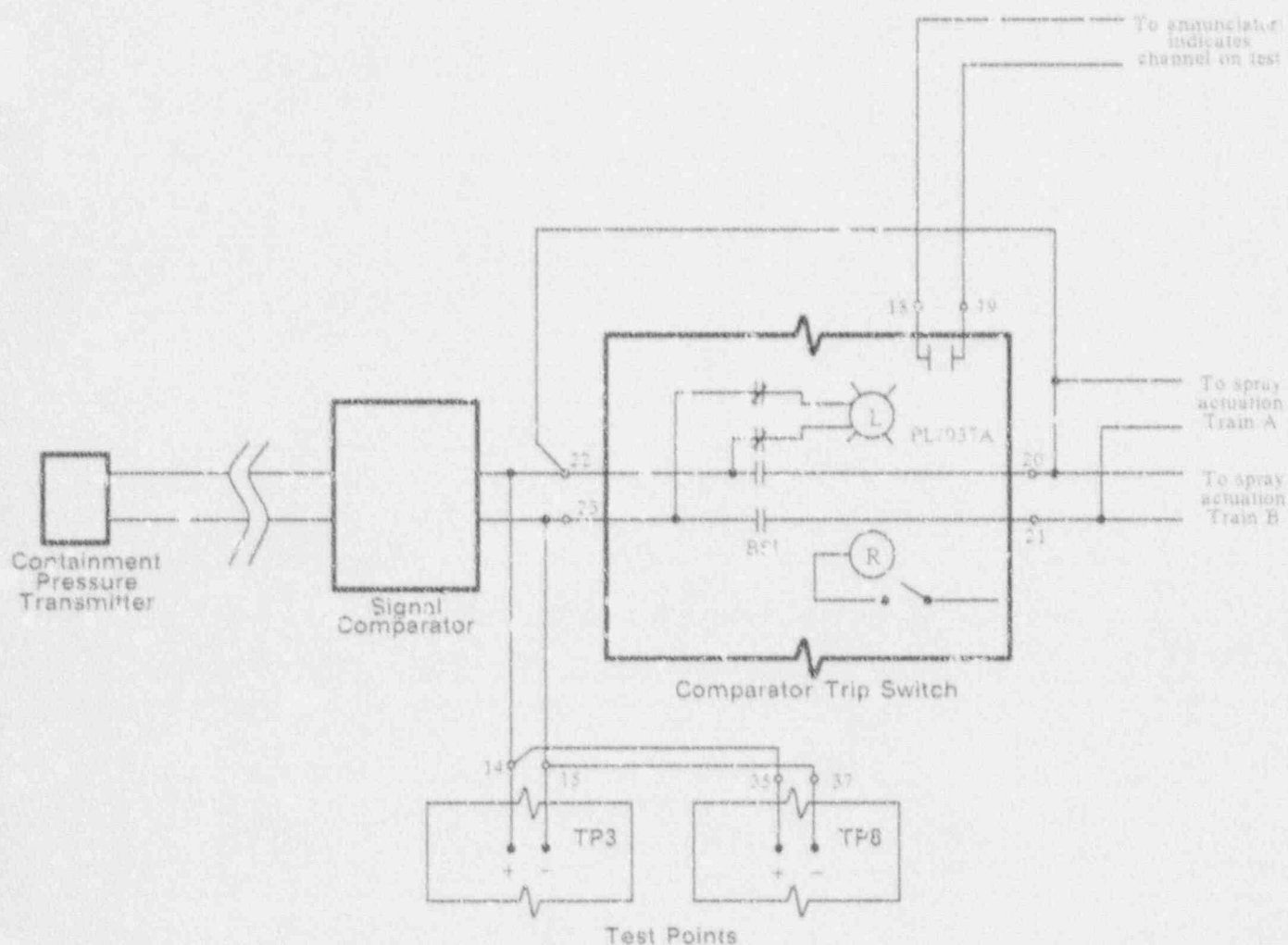
LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

Estimated burden per response to comply with this information collection request: 50.0 hrs. Forward comments regarding burden estimate to the Records and Reports Management Branch (p-630), U. S. Nuclear Regulatory Commission, Washington, DC 20555, 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)		
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Millstone Nuclear Power Station Unit 3	0 5 0 0 0 4 2 3	9 1	0 2 2	0 1	0 4	OF	0 4

TEXT (If more space is required, use additional NRC Form 386A & (17))

CDA Protection Channel Figure (Partial)



- NOTE: (1) Contacts shown in the de-energized "test" position  
(2) Schematic shows 1 of 4 channels (remaining channels similar)