

# NORTHEAST UTILITIES



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

General Offices: Selden Street, Berlin, Connecticut

P.O. BOX 270  
HARTFORD, CONNECTICUT 06141-0270  
(203)665-5000

Re: 10CFR50.73(a)(2)(vii)  
June 03, 1992  
MP-92-596

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

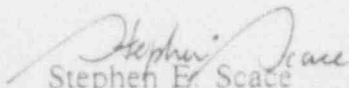
Reference: Facility Operating License No. NPF-49  
Docket No. 50-423  
Licensee Event Report 92-014-00

Gentlemen:

This letter forwards Licensee Event Report 92-014-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(vii).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

  
Stephen E. Scace  
Director, Millstone Station

SES/BNF:ljs

Attachment: LER 92-014-00

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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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-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.

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)  
Millstone Nuclear Power Station Unit 3

DOCKET NUMBER (2)  
0 5 0 0 0 4 2 3  
PAGE 3  
1 OF 0 4

TITLE (4)  
Veritrac Transmitter Impact of Pressure Effects Upon Instrument Calibration

EVENT DATE (5)			LER NUMBER (8)		REPORT DATE (7)			OTHER FACILITIES INVOLVED (6)																					
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES																				
0	5	0	4	9	2	9	2	9	2	0	1	4	0	0	6	0	3	9	2	0	5	0	0	0	0	0	0	0	0

OPERATING MODE (C) 1

POWER LEVEL (D) 019.7

THIS REPORT IS BEING TRANSMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

20.402(a)	20.402(a)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(ii)	50.36(a)(1)	50.73(a)(2)(iv)	73.71(c)
20.405(a)(1)(iii)	50.36(a)(2)	X 50.73(a)(2)(iv)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
20.405(a)(1)(iv)	50.73(a)(2)(i)	50.73(a)(2)(iv)(A)	
20.405(a)(1)(v)	50.73(a)(2)(ii)	50.73(a)(2)(iv)(B)	
20.405(a)(1)(vi)	50.73(a)(2)(iii)	50.73(a)(2)(iv)(C)	

LICENSEE CONTACT FOR THIS LER (12)

NAME: Burtel N. Forrest, Engineer, Ext. 5442

TELEPHONE NUMBER: 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)

YES (if yes, complete EXPECTED SUBMISSION DATE)  NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

On May 7, 1992, at 1300 hours, with the plant in mode 1 (at 97% power) at 2250 psia, and 587 degrees Fahrenheit, it was determined that static pressure effect was not accounted for in the setpoints of Veritrac Differential Pressure (DP) transmitters. Static pressure exerted on both sides of a DP transmitter can cause a zero offset, based on manufacturing tolerances resulting in a finite difference in the effective areas of the two diaphragms.

The failure to account for the static pressure effects reduced the margin of the Technical Specification Setpoints. In some cases this resulted in setpoints after calibration which were not set conservatively.

The root cause of the event was incorrect assumptions by both the group calculating the required instrument setpoints and the plant staff developing the instrument loop calibrations. This condition has existed since initial plant startup. The individuals performing the calculations believed that the shift in response to operating pressure would be calibrated out. The plant staff was not aware of this assumption and believed that the instrument uncertainty calculation accounted for the effects of static pressure. Following discovery of a potential 5% discrepancy on April 28, the instrument setpoints were recalibrated to a conservative value. The static pressure effect error was small enough that the instruments "as found" condition would have resulted in the proper performance of the required safety functions.

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-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

FACILITY NAME (1)  Millstone Nuclear Power Station Unit 3	DOCKET NUMBER (2)  0   5   0   0   0   4   2   3   9   2	LER NUMBER (6)			PAGE (3)  0   2   OF   0   4
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		9   2	0   1   4	0   0	

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

I. Description of Event

On May 7, 1992, at 1300 hours, with the plant in mode 1 (at 97% power) at 2250 psia, and 587 degrees Fahrenheit, it was determined that static pressure effect was not accounted for in the setpoints of Veritrac - Differential Pressure (DP) transmitters. Static pressure exerted on both sides of a DP transmitter can cause a zero offset based on manufacturing tolerances resulting in a finite difference in the effective areas of the two diaphragms.

On April 28, investigation of drift problems with a Veritrac transmitter for Steam Generator level (SFWS\*LTs19) identified a potential discrepancy in the setpoint calculation affecting all Veritrac DP Transmitters. The static pressure effect at operating pressure did not appear to be addressed. This effect can be compensated for either in the setpoint calculations or the calibration of the transmitter. On May 4th, conservative setpoints were calculated and incorporated into calibration of the protection set bistables by May 7. On May 7th, it was determined that neither of the above methods were used to compensate for the static pressure effects in Veritrac DP transmitters.

The failure to account for the static pressure effects reduced the margin of the Technical Specification Setpoints. Technical Specifications require a trip setpoint be set during calibration which is conservative to the trip value. The omission of the static pressure effect, resulted in the "as left" value for the affected transmitters not being conservative with respect to the Technical Specification trip setpoint in all cases.

The "as found" condition of 11 of the 13 affected transmitters were within the allowable limits at the last calibration. Two transmitters had additional problems unrelated to the static pressure effects.

II. Cause of Event

The cause of this event was incorrect assumptions by the plant staff and the individuals performing the setpoint calculations during initial development of plant calibration procedures in 1985. The individuals performing the setpoint calculations believed the plant would calibrate the instruments to compensate for the static pressure effect to operating pressure. The plant did not realize that the correction was required. The vendor calibration instructions did not reference a method of static pressure correction. Also, the specifications supplied by the vendor did not clearly address the static pressure effects.

III. Analysis of Event

This event is reportable under 10CFR50.73(a)(2)(i) as an event prohibited by the Plant's Technical Specifications.

Plant Technical Specification 3.3.1 and 3.3.2 requires that values for the trip setpoint be set conservative with respect to values listed in the Technical Specifications Table. The table lists trip values which are required to be set after calibration. Not accounting for static pressure effects resulted in not setting the trip setpoints to a conservative value. Allowable values represent the value which if found would have resulted in the instrument performing it's intended safety function. The difference allows for instrument drift, and inaccuracies between calibration intervals. The two instruments not meeting allowable values are discussed below. The remaining 11 instruments met the allowable value prior to recalibration after consideration of any potential static pressure errors. The errors introduced by the static pressure effects are minor. The worst case of static pressure shift was less than 0.9%. The shift is a fixed but unique characteristic of each transmitter. Based on this experience, further historical review of data is not considered warranted.

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-535), 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	LER NUMBER (6)			PAGE (3)	
		YEAR 9   2	SEQUENTIAL NUMBER 0   1   4	REVISION NUMBER 0   0	0   3	OF 0   4

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

3FWS\*LT519 "A" Steam Generator Narrow Range Level

This transmitter had been declared inoperable due to transmitter drift, prior to the discovery of the static pressure effect problem. This transmitter exhibited inconsistent readings. The combination of drift and static pressure effects resulted in an error that exceeded the technical specification allowable value for Steam Generator Level HI-HI by 1.13%. The contribution from Static Pressure effect was 0.89%. The total allowable measured level error permitted by Technical Specifications is 5.25%. The actual measured error was 6.38%. Action had already been taken to trip the transmitter bistable and declare the channel inoperable and investigate the cause of transmitter drift. Transmitter 3FWS\*LT519 would have been inoperable even if no static pressure effect was present.

3FWS\*LT547 "D" Steam Generator Narrow Range Level

This transmitter exceeded the allowable value for Steam Generator Level HI-HI. However, the "as found" data was incorrect due to water in the DP cell during calibration. The actual "as found condition" is not verifiable. The data could not be recovered after the adjustments were made.

The Steam Generator Level transmitters generate a Reactor trip and initiate auxiliary feedwater on low level and to isolate feed water supply on high level. There are 3 Veritak level transmitters and 1 Rosemount level transmitter per Steam Generator. Two transmitters are sufficient to generate a trip signal on any Steam Generator. The pressurizer level transmitters generate a reactor trip on high level and provide equipment protection at low levels. There are 2 Rosemount transmitters and 1 Veritak transmitter for pressurizer level. The Rosemount transmitters had a clear requirement to compensate for static pressure effects and were correctly compensated. All of the transmitters provide level indication on the Main Control Boards which are compared with each other and expected levels every 12 hours.

Due to the diversity of instrument type, the comparison of redundant indication, and the small actual value of zero offset due to static pressure effects, this event did not result in any significant safety consequences.

IV. Corrective Action

Immediate action was taken to adjust the Steam Generator Level and Pressurizer Level system setpoints to conservative values to the Technical Specification trip values. The setpoints were selected and deemed acceptable through independent calculations.

Westinghouse has provided the plant with a recommended method for eliminating the static pressure effects to the nominal operating pressure during instrument calibration. All applicable surveillance procedures associated with the affected Veritak - DP transmitters have been revised to reflect the new calibration procedures in accordance with the vendor recommendations. This action will preclude a recurrence of this event. During a recent plant shutdown all Veritak DP transmitter were calibrated using the new procedure.

NU will review the setpoint methodology for differential transmitters used in Reactor Protection System instrument loops to ensure that static pressure effects are adequately addressed for both Millstone and Connecticut Yankee.

V. Additional Information

As a result of this reportable event and NPRDS items identified as a result of this event, Westinghouse will provide a generic notification to other utilities regarding the issues addressed in this report.

The following events are similar in that vendor requirements were either not clearly communicated or fully understood by the plant staff:

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)  Millstone Nuclear Power Station Unit 3	DOCKET NUMBER (2)  0 5 0 0 0 4 2 3 9 2	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 2	0 1 4	0 0	0 4	OF 0 4

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

LER 92-002, "Seismic Deficiencies Found in Safety Related Instrument Cabinets Foxboro SPEC 200 Equipment," reported an event where the plant was not aware of requirements for seismic bumper assemblies on instrument cards. This information was provided to the plant until several years after commercial operation.

LER 91-022, "Failure to Adequately Perform Overlap Testing of the Containment Pressurization Actuation Loops Due to Management Deficiency," reported a situation where all aspects of an instrument loop were not adequately tested. This event missed vendor testing requirements which were adequately documented.

LER 90-005, "Manual Reactor Trip After Main Feedwater Pump Coupling Failure Due to Loss of Coupling Bolt Preload," reported the catastrophic failure of the feedwater turbine/pump coupling due to personnel error and procedural inadequacy. This event found the vendor technical manuals were procedurally inadequate.

LER 88-010, "Improper Nuclear Instrument Calibration Due To Low Leakage Core," discussed an event where a design change was not taken into account prior to implementation of the design. Specifically the nuclear instrumentation negative and positive rate reactor trips had been set non-conservatively because personnel failed to properly account for the effect of low leakage core on the plant's excore nuclear instrumentation. As a contributing factor, the fuel vendor did not properly forward all information concerning adjustments of NIs for low leakage core to Millstone 3. As action to prevent recurrence, the fuel vendor notified Northeast Utilities that it has made changes to its internal control procedures to ensure that information related to core design change effects on NI post refueling alignment is forwarded to customers. This event is considered similar in that it identifies problems generated due to a lack of adequate vendor technical information. The corrective action for LER 88-010 was event specific and would not have prevented the occurrence of the event described in this LER.

EIIS Codes

System

Reactor Coolant System AB  
Feedwater/Steam Generator Water Level Control System JB

Components

Transmitter - Differential Pressure PDT