**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 06414-0270
(203)665-5000

November 22, 1989
MP-13773

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

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 89-026-00

Gentlemen:

This letter forwards Licensee Event Report 89-026-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(i), any operation or condition prohibited by the Plant's Technical Specifications, and 10CFR50.73(a)(2)(ii), any event or condition that resulted in the nuclear power plant being in a condition that was outside the design basis of the plant.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Stephen E. Scace
Station Superintendent
Millstone Nuclear Power Station

SES/NDH:tp

Attachment: LER 89-026-00

cc: W. T. Russell, Region 1 Administrator
W. J. Raymond, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3
D. H Jaffe, NRC Project Manager, Millstone Unit No. 3



IE22
1/1

NRC Form 366 (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: 50.0 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) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| Millstone Nuclear Power Station Unit 3 | 0 5 0 0 0 4 2 3 | 1 OF 0 3 |

TITLE (4)
Turbine-driven Auxiliary Feedwater Pump Open Drain Valve Due to Personnel Error

| 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 5 0 0 0 |
| 1 0 | 2 3 | 8 9 | 8 9 | - 0 2 6 | - 0 0 | 1 1 | 2 2 | 8 9 | | 0 5 0 0 0 |

| OPERATING MODE (9) | 1 | THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|---|
| POWER LEVEL (10) | 1 0 0 | 20.402(b) | 20.402(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 (Specify in Abstract below and in Text, NRC Form 366A) |
| | | 20.405(a)(1)(iii) | X 50.73(a)(2)(i) | 50.73(a)(2)(viii)(A) | |
| | | 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 | TELEPHONE NUMBER |
|---|---|
| Nelson D. Hulme, Senior Engineer, Ext. 5398 | 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 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 fifteen single-space typewritten lines) (16)


On October 23, 1989, at 1024 hours with the plant at 100% power, the Turbine-driven Auxiliary Feedwater (TDAFW) Pump room became filled with steam during the TDAFW Pump monthly surveillance test. The pump was stopped and the ensuing investigation determined that a normally locked closed drain valve was locked, approximately 1.5 turns open. The drain valve was closed, locked and the TDAFW Pump surveillance was then successfully performed.

The TDAFW Pump was last successfully tested on September 21, 1989. Therefore, the pump was inoperable from this time until the event date, a period of 32 days. During this time, the "B" and "A" Train Motor Driven Auxiliary Feedwater (MDAFW) Pumps were inoperable for approximately 8 hours (on 10/3 and 10/17 respectively), when the associated Emergency Diesel Generator was out of service for preventive maintenance. During these periods one MDAFW pump would not function during a loss of power. With the TDAFW pump inoperable at the same time, the plant was outside its design basis.

The root cause of the event was personnel inattention to detail in failing to completely close the drain. As a contributing cause, the TDAFW Pump procedure did not require the drain valve to be verified closed by another operator (PEO). The PEO responsible for failing to close the drain was counselled on being attentive to details when operating plant equipment. The final valve lineup check list was modified to include checking the drain valve locked and closed.

I. Description of Event

On October 23, 1989, at 1024 hours with the plant in Mode 1 at 100% power, at a temperature of 587 degrees Fahrenheit and a pressure of 2250 psia, the Turbine-driven Auxiliary Feedwater (TDAFW) Pump room was filled with steam during the monthly surveillance test. The pump was stopped and an investigation was conducted to determine the cause. Within an hour of stopping the pump, a normally locked closed drain valve was found approximately 1.5 turns open. The drain valve was closed, locked and the TDAFW Pump surveillance was then successfully performed.

It was determined that the drain valve was 1.5 turns open from September 21, 1989, until October 23, 1989. During this period, the TDAFW Pump was inoperable. However, the Motor-driven Auxiliary Feedwater (MDAFW) Pumps were available to perform the AFW System function during any emergency except for two, 8 hour periods. On October 3, 1989, "B" Train Emergency Diesel Generator (EDG) was inoperable for approximately 8 hours because of preventive maintenance. Likewise, the "A" Train EDG was inoperable for approximately 8 hours on October 17, 1989. Therefore, one MDAFW pump would not have been available to function during a loss of power event when its respective EDG was inoperable.

II. Cause of Event

It was determined that the normally locked closed TDAFW Stop Valve Drain was locked approximately 1.5 turns open when aligning the TDAFW pump after the previous surveillance test on September 21, 1989. The root cause for the drain valve being open was operator inattention to detail in failing to completely close the drain valve. As a contributing cause, the TDAFW Pump procedure did not require the subject drain valve to be verified closed by another operator.

III. Analysis of Event

This event is reportable in accordance with the requirements of 10CFR50.73(a)(2)(i) and 10CFR50.73(a)(2)(ii). Plant Technical Specification 3.7.1.2 requires the TDAFW Pump to be operable in Modes 1, 2, and 3. As the pump, turbine, and associated support equipment are not environmentally qualified for a (harsh) steam environment, the TDAFW Pump was considered inoperable during the period that the drain valve was not closed.

The TDAFW Pump was last successfully tested on September 21, 1989. After stopping the pump, non-licensed operators (PEOs) cycled the drain valves and performed a final valve lineup check in accordance with the procedure. At this time a PEO inadvertently left one of the three drain valves locked in a throttled position.

The TDAFW Pump operated for approximately ten minutes in a steam atmosphere before the pump was stopped to investigate the cause of the steam. It functioned satisfactorily in the high humidity, but continued operation could not be assured because the pump is not qualified for the harsh steam environment.

As stated in the FSAR, either the two MDAFW Pumps, or the TDAFW Pump are of sufficient capacity to remove the sensible and decay heat from the reactor core. Maintenance records and operator logs were reviewed to determine any periods where a MDAFW pump was not available. It was discovered that Train "A" EDG was inoperable for approximately 8 hours due to preventive maintenance. Likewise, Train "B" was inoperable for approximately 8 hours during this period. Therefore, one MDAFW Pump would not have been available during these periods when the respective EDG was inoperable. At all other times, both MDAFW Pumps were operable during the time the drain on the TDAFW Pump was open. Also, the TDAFW Pump did operate satisfactorily in a steam atmosphere for a short period of time, so it would have served as a temporary backup to the MDAFW Pumps.

The condition of the TDAFW Pump and one MDAFW Pump inoperable at the same time would require an immediate report per 10CFR50.72(b)(1)(ii). An immediate notification was not made since the condition was discovered during the investigation phase, approximately 25 days after the TDAFW pump had been restored to operable status.

IV. Corrective Action

Immediate corrective action was to close the valve and the TDAFW Pump surveillance was then successfully performed.

The operator responsible for failing to close the drain was counselled on being attentive to details when operating plant equipment.

The post surveillance valve lineup checklist contributed to this event. Instructions for cycling the three drain valves, which drain the turbine casing, were included in the body of the procedure. The final step for restoring the TDAFW pump to an operable status is to perform an independently verified AFW valve lineup check. Since the three drain valves were presumably cycled and locked closed in a previous step, they were not included in the final valve lineup check. Therefore, there was no independent verification that the drain valves were closed and locked. The form used in the final valve lineup check was revised to include independent verification that all three drain valves are closed and locked.

V. Additional Information

The driver for the TDAFW Pump is a horizontal, type GS-2N steam turbine manufactured by Terry Corporation. The turbine is controlled by a Model PGG, mechanical-hydraulic governor manufactured by Woodward Governor Company. The pump is a seven-stage, horizontal, type MSD-DS pump manufactured by Bingham-Willamette Company.

A similar event is documented by LER 86-056-00, "Inoperability of 'B' Train Safety Injection Pump Cooler Due To Inadequate Procedure". In this event, valve manipulations were required to be performed within a procedure in order to establish a specified flow condition. The procedure did not require an independent check that flow was restored. As corrective action, the procedure was modified to have an independent check made.

EIIS Codes

| System | Components |
|---|---|
| Auxiliary Feedwater System - BA | Turbine - TRB<br>Governor - GRL<br>Pump - P<br>Valve - V |