Northeast
Nuclear Energy

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Millstone Nuclear Power Station
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The Northeast Utilities System

Donald B. Miller Jr.,
Senior Vice President - Millstone

MP-95-011

Jan. 06, 1995

Re: 10CFR50.73(a)(2)(ii)
10CFR50.73(a)(2)(v)
10CFR50.73(a)(2)(vii)

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

Reference: Facility Operating License No. DPR-65
Docket No. 50-336
Licensee Event Report 94-041-00

This letter forwards Licensee Event Report 94-041-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(ii), 10CFR50.73(a)(2)(v) and 10CFR50.73(a)(2)(Vii).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Donald B. Miller, Jr.
Senior Vice President - Millstone Station

DBM/MJR:lfg

Attachment: LER 94-041-00

cc: T. T. Martin, Region I Administrator
P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2, and 3
G. S. Vissing, NRC Project Manager, Millstone Unit No. 2

IE22
1/1

NRC Form 366 (5-92)

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES: 5/31/95

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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Millstone Nuclear Power Station Unit 2	05000336	1 OF 3

TITLE (4)
Turbine Building 45'-6" Cable Vault Floor Leak to 31'-6" 4160 Volt Vital Switchgear Room

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
										05000
12	08	94	94	- 041 -	00	01	06	95	FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	*	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
			20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
POWER LEVEL (10)	0		20.405(a)(1)(i)		50.36(c)(1)	X	50.73(a)(2)(v)		73.71(c)
			20.405(a)(1)(ii)		50.36(c)(2)	X	50.73(a)(2)(vii)		OTHER
			20.405(a)(1)(iii)		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)	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 (Include Area Code)
Philip J. Lutzi, Nuclear Licensing	(203) 440-2072

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 December 8, 1994, at 1600 hours, with the plant defueled, a review of an event which occurred on October 20, 1994, indicated a loss of electrical facility separation due to the degraded condition of the floor drains and leakage collection systems.

Due to the clogged drain and the deteriorated cofferdam and floor in the 45'-6" cable vault, water draining from the 54'-6" 4160 volt switchgear room (Z1 facility) leaked through to the 31'-6" 4160 volt switchgear room (Z2 facility). This leak path creates a loss of separation of facilities (required by 10CFR50, Appendix A, Criteria 17 Electric Power Systems and IEEE 308-1971, Standard Criteria for Class IE Systems) which allows a common mode failure to remove redundant facilities from service. Design modifications are being prepared to correct the deteriorated cofferdam and floor, and repairs will be completed prior to startup.

I. Description of Event

On December 8, 1994, at 1600 hours, with the plant defueled, a review of an event which occurred on October 20, 1994, indicated a loss of electrical facility separation due to the degraded condition of the floor drains and leakage collection systems.

On October 20, 1994, at 0200 hours with the Plant at 0% power in Mode 6, a security guard reported water falling on the switchgear in the 31'-6" 4160 volt switchgear room of the Turbine Building. At 0203 a Plant Equipment Operator (PEO) confirmed that water was falling on non vital 4160 volt Bus 24A. At 0205, the source of the water was located in the 54'-6" 4160 volt switchgear room and isolated. The source, a vent valve on the ventilation system room cooler, had been opened earlier as part of the "B" service water facility drain down process. This vent valve is the headers high point vent. Subsequent "B" service water facility tagout actions caused the header to repressurize due to an open crosstie valve with the operating "A" service water facility. Service water issued from the vent valve into the cofferdam surrounding the cooler and onto the floor outside of the cofferdam creating a puddle of water around adjacent Bus 24B. The 54'-6" switchgear room ventilation cooler cofferdam drains to another cofferdam in the cable vault (45'-6" level) of the Turbine Building. The cable vault cofferdam surrounds the 31'-6" switchgear room's ventilation fan and cooler. This cofferdam drains to the ground floor of the Turbine Building. This 45'-6" cofferdam drain was clogged with dirt and debris and caused the cofferdam to fill and overflow onto the cable vault floor. Coupled with degraded concrete flooring inside and outside of the cofferdam the water worked its way through the cable vault floor onto the ceiling of the lower 4160 volt switchgear room below. The water then fell onto ventilation ductwork and onto Bus 24A forming a large puddle around the Bus Operator actions following closure of the cooler vent valve were to de-energize all non-vital 480 volt buses, de-energizing 4160 volt Bus 24A and to begin cleanup of the spilled water. Service water to both the 54'-6" and 31'-6" switchgear room coolers was isolated to prevent further spills.

There were no automatic or manually initiated safety systems actuated as a result of the event.

II. Cause of Event

There are two root causes for this event:

1. Initial cofferdam and floor degradation creating a leak path from Z2 facility components to Z1 facility components.

2. Inadequate drain inspection and housekeeping program allowing 45'-6" cable vault cofferdam drain to become clogged and prevent drainage of water.

III. Analysis of Event

Based on event investigation, this event is reportable under the criteria of 10CFR50.73(a)(2)(ii) "Any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded, or that resulted in the nuclear power plant being in a condition that was outside the design basis of the plant", 50.73(a)(2)(v) "Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident", and 50.73(a)(2)(vii) "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to mitigate the consequences of an accident."

A reportability evaluation generated after the degraded condition was found concluded that the deteriorated condition of the floor drainage systems (cofferdam, drainage openings) provided an open path between two electrical facilities and thus design basis requirements for separation of facilities protection against flooding was not satisfied.

The deterioration of the roof liner at elevation 45′-6″ in the 31′-6″ 4160 Z1 facility switchgear room is related to a progressive deterioration of the floor and cofferdam in 45′-6″ Z2 facility cable vault. This condition is further aggravated by the design of a cascading drainage system from the 54′-6″ 4160 Z2 facility switchgear room, which allows water to collect in the cable vault cofferdam. The lack of maintenance on the 45′-6″ cable vault cofferdam and repeated usage to drain saltwater from the area are both factors in the current deteriorated conditions.

The leakage that has occurred through the building structure between the 45′-6″ (Z-2) facility cable vault and the (Z1) facility switchgear room indicates a lack of integrity between the physical facilities. This situation allows a common mode failure or a single active failure to exist which could prevent the system from performing its intended safety function. The separation between facilities Z1 and Z2 is required per the original plant design basis (GDC Criterion 17 Electric Power Systems and IEEE 308-1971 Standard for Class 1E Systems). The existing degraded condition of the 45′-6″ cofferdam compromises the separation of facilities, in that if the sprinkler system is initiated or a significant leak occurs from service water piping or the cooler tubes at either the 54′-6″ (Z2) facility switchgear room or the 45′-6″ (Z2) cable vault, the existing leakage path could have directed water onto the 31′-6″ (Z1) facility switchgear.

IV. Corrective Action

Following the event, immediate corrective action was to isolate service water flow to the the 54′-6″ and 31′-6″ 4160 volt switchgear room coolers. Since the plant was in Mode 6, the temperature in both rooms could be maintained below required temperature of 122°F without service water being provided. Also, fire water was isolated to the cable vault and a fire watch was established in the 45′-6″ cable vault to detect fire/leakage events.

Design changes are in progress that will repair the flooring and cofferdam in the 45′-6″ cable vault, redirect the 54′-6″ cofferdam drain away from the 45′-6″ cable vault cofferdam and provide for service water isolation to the coolers by use of moisture detectors within the cofferdam.

V. Additional Information

Similar LERs - None

EIIS Codes:

Equipment and Floor Drains System	WK
Medium Voltage Power System - Class IE	EB
Essential Service Water System	BI
Medium Voltage Power System (601-V to 35-KV)	EA