

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

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January 31, 1994
MP-94-78

DONALD B. MILLER, Jr.
SENIOR VICE PRESIDENT - MILLSTONE

Re: 10CFR50.73(a)(2)(ii)(B)

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

Reference: Facility Operating License No. DPR-21
Docket No. 50-245
Licensee Event Report 94-001-00

Gentlemen:

This letter forwards Licensee Event Report 94-001-00 required to be submitted within thirty (30) days pursuant to 10CFR50.73(a)(2)(ii)(B).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

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

DBM/KEM:ljs

Attachment: LER 94-001-00

cc: T. T. Martin, Region I Administrator
P. D. Swetland, Senior Resident Inspector, Millstone Unit Nos. 1, 2 and 3
J. W. Andersen, NRC Acting Project Manager, Millstone Unit No. 1

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LICENSEE EVENT REPORT (LER)

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

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 (MNB 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.

FACILITY NAME (1) Millstone Nuclear Power Station Unit 1		DOCKET NUMBER (2) 05000245	PAGE (3) 1 OF 03
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TITLE (4)
Potential Loss of Off-Site Power During a LOCA

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
12	30	93	94	001	00	01	31	94		05000
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9) N	THIS REPORT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
POWER LEVEL (10) 100	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)			
	20.405(a)(1)(i)		50.36(c)(1)		50.75(a)(2)(v)		73.71(c)			
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vi)		OTHER			
	20.405(a)(1)(iii)		50.73(a)(2)(f)		50.73(a)(2)(vii)(A)		(Specify in Abstract below and in Text, NRC Form 386A)			
	20.405(a)(1)(iv)		X 50.73(a)(2)(g)		50.73(a)(2)(viii)(B)					
20.405(a)(1)(v)		50.73(a)(2)(h)		50.73(a)(2)(ix)						

LICENSEE CONTACT FOR THIS LER (12)

NAME Drexel N. Harris, Site Licensing	TELEPHONE NUMBER (Include Area Code) (203) 437-5903
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NRPDS

SUPPLEMENTAL REPORT EXPECTED (14)

X YES (If yes, complete EXPECTED SUBMISSION DATE)	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
			05	31	94

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On December 30, 1993, at 1435 hours, with the plant operating at 100% power, an evaluation concluded that a potentially reportable condition existed. Using a computer model of the Millstone Unit One electrical distribution system, various load studies were being conducted. One of the cases involved the mitigation of a postulated Loss of Coolant Accident (LOCA) with power being supplied by the Reserve Station Service Transformer (RSST), the preferred source of off-site power. With switchyard voltage assumed at the worst case minimum value of 348 KV, results of the load study indicated that LOCA mitigation loads, in combination with the normal loads which are not shed upon receipt of an accident signal, combine to produce a voltage drop across the RSST which is sufficient to lower the voltage available at 4160 volt emergency buses 14E and 14F. This low voltage would result in the actuation of the relays which monitor for degraded bus voltage conditions. Worst case minimum switchyard voltage is postulated to occur after the loss of Millstone Unit One generation when both Millstone Unit Two and Millstone Unit Three are off-line. In the unlikely event that this scenario occurs, the preferred source of off-site power would be automatically tripped, and LOCA mitigation would be accomplished utilizing the on-site sources of emergency power, the Diesel Generator and the Gas Turbine Generator. With either or both Millstone Unit Two and Millstone Unit Three on-line, it is postulated that electrical distribution system voltage would not decrease low enough to actuate the degraded grid voltage relays upon loss of generation at Millstone Unit One.

Compensatory measures were taken to limit the potential for this postulated scenario, and long term corrective actions are currently being finalized. No safety consequences resulted from this event.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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FACILITY NAME (1) Millstone Nuclear Power Station Unit 1	DOCKET NUMBER (2) 05000245	LER NUMBER (6)			PAGE (3) 02 OF 03
		YEAR 94	SEQUENTIAL NUMBER - 001 -	REVISION NUMBER 00	

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

I. Description of Event

On December 30, 1993, at 1435 hours, with the plant operating at 100% power, an evaluation concluded that a potentially reportable condition existed. Using a computer model of the Millstone Unit One electrical distribution system, various load studies were being conducted. One of the cases involved the mitigation of a postulated Loss of Coolant Accident (LOCA) with power being supplied by the Reserve Station Service Transformer (RSST), the preferred source of off-site power. With switchyard voltage assumed at the worst case minimum value of 348 KV, results of the load study indicated that LOCA mitigation loads, in combination with the normal loads which are not shed upon receipt of an accident signal, combine to produce a voltage drop across the RSST which is sufficient to lower the voltage available at 4160 volt emergency buses 14E and 14F. This low voltage would result in the actuation of the relays which monitor for degraded bus voltage conditions. Worst case minimum switchyard voltage is postulated to occur after the loss of Millstone Unit One generation when both Millstone Unit Two and Millstone Unit Three are off-line. In the unlikely event that this scenario occurs, the preferred source of off-site power would be automatically tripped, and LOCA mitigation would be accomplished utilizing the on-site sources of emergency power, the Diesel Generator and the Gas Turbine Generator. With either or both Millstone Unit Two and Millstone Unit Three on-line, it is postulated that electrical distribution system voltage would not decrease low enough to actuate the degraded grid voltage relays upon loss of generation at Millstone Unit One.

II. Cause of Event

The Millstone Unit One Electrical Distribution System Functional Inspection (EDSFI) noted deficiencies in previously prepared Degraded Voltage Calculations. A commitment was made following the EDSFI to recalculate the voltage profiles using the OPAL computer database when it became available. The use of more sophisticated analysis tools and methods allowed for more accurate and refined determinations of electrical distribution system voltage profiles.

III. Analysis of Event

This event is being reported in accordance with the requirements of 10CFR50.73(a)(2)(ii), which requires the reporting of any event or condition that results in a condition that is outside the design basis of the plant. The preferred source of off-site power for Millstone Unit One is the Reserve Station Service Transformer (RSST). This transformer, as defined by certain regulatory criteria, should be a reliable, adequately designed, immediately available source of off-site power. With switchyard voltage assumed at the worst case minimum value of 348 KV, LOCA mitigation loads, in combination with the normal loads which are not shed upon receipt of an accident signal, combine to produce a voltage drop across the RSST which is sufficient to lower the voltage available at 4160 volt emergency buses 14E and 14F. This low voltage will result in the actuation of the relays which monitor for degraded bus voltage conditions. In the unlikely event this scenario occurs, the preferred source of off-site power would be automatically tripped, and LOCA mitigation would be accomplished utilizing the on-site sources of emergency power.

IV. Corrective Action

Immediate corrective actions were taken to provide guidance to the Millstone Unit One, Two, and Three Operations Departments to ensure switchyard voltage remained within acceptable limits to ensure adequate emergency bus voltage during accident conditions. This guidance included a provision to require Millstone Unit One to enter a Limiting Condition for Operation (LCO), in accordance with Technical Specification 3.9.B.3 requirements, to declare the RSST inoperable whenever both Millstone Unit Two and Unit Three are off-line. This guidance was in place until the start of the current refueling and maintenance outage, which began January 15, 1994.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
		94	— 001 —	00	

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

This issue is presently under evaluation. It is currently our intention to address resolution of this issue prior to startup from the current refueling outage. Potential solutions to this scenario include the shedding of non-essential loads to preclude degraded bus voltage during accident conditions. A supplement to this LER will provide the details of the final resolution.

V. Additional Information

There were no similar events.