

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH IT-8 P331, 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 3		DOCKET NUMBER (2) 05000423	PAGE (3) 1 of 4
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TITLE (4)
Technical Specification 3.0.3 Entry Due to Both Service Water Trains Declared Inoperable Following Failure of Check Valves Associated with the Injection of Sodium Hypochlorite

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	
09	10	98	98	-- 037	-- 00	10	13	98	FACILITY NAME	DOCKET NUMBER	

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
	20.2201(b)			20.2203(a)(2)(v)			<input checked="" type="checkbox"/> 50.73(a)(2)(i)		50.73(a)(2)(viii)	
POWER LEVEL (10)	20.2203(a)(1)			20.2203(a)(3)(i)			<input checked="" type="checkbox"/> 50.73(a)(2)(ii)		50.73(a)(2)(x)	
	20.2203(a)(2)(i)			20.2203(a)(3)(iii)			50.73(a)(2)(iii)		73.71	
	20.2203(a)(2)(ii)			20.2203(a)(4)			50.73(a)(2)(iv)		OTHER	
	20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A	
20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)				

LICENSEE CONTACT FOR THIS LER (12)

NAME David A. Smith, Manager, Unit 3 Regulatory Compliance	TELEPHONE NUMBER (include Area Code) (860)437-5840
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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)				<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On September 10, 1998, with the Unit in Mode 1, it was determined that check valves associated with the injection of Sodium Hypochlorite into both trains of the Service Water System failed to reseal. The unit entered Technical Specification (TS) 3.0.3 at 12:07 as both trains of the Service Water System were declared inoperable. The unit exited TS 3.0.3 when the check valves were resealed. A second entry into Technical Specification 3.0.3 occurred on September 18, 1998 due to a similar condition with the check valves.

These check valves were installed when the Sodium Hypochlorite injection point into the Service Water System was relocated from the pump suction bell to downstream of the pump discharge strainers. The relocated Sodium Hypochlorite injection paths were first used in August 1998.

The cause of the event was an individual's inadequate work practice that failed to define the system design and operating parameters and failed to address potential consequences to the system resulting from changes to the system flow and Sodium Hypochlorite concentrations. The inadequate work practice allowed the use of monel as acceptable material for the check valves, which resulted in internal valve corrosion to an extent that the valves failed to reseal.

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

I. Description of Event

On September 10, 1998, with the Unit in Mode 1, it was determined during testing that check valves associated with the injection of Sodium Hypochlorite into both trains of the Service Water System failed to reseat. The unit entered Technical Specification (TS) 3.0.3 at 12:07 and both trains of the Service Water System were declared inoperable. At 12:33, a shutdown of the unit was initiated. At 13:06, the shutdown was terminated at approximately 80 percent power when the check valves were resealed. After exiting TS 3.0.3, the check valves were refurbished and retested. Additional actions taken following this event included increasing the frequency of leak testing of these valves to at least once per eight days and increasing the frequency of visual inspection and reconditioning as appropriate to at least once per fifteen days. A second entry into TS 3.0.3 occurred on September 18, 1998 at 11:46 due to a similar condition with the check valves. A shutdown was initiated at 12:51. The shutdown was terminated at 14:42, at approximately 27 percent power after the injection points downstream of the Service Water System pump discharge strainers had been isolated.

The entry into Technical Specification 3.0.3 is reportable pursuant to 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the plant's Technical Specifications and the common mode failure of the check valves to both trains of the Service Water System is reportable pursuant to 10CFR50.73(a)(2)(ii)(B) as a condition that was outside the design basis of the plant.

Sodium Hypochlorite is injected into the Service Water System to provide fouling protection. A plant design change relocated the Sodium Hypochlorite injection point from the service water pump suction bell (in the service water intake bay) to a connection immediately downstream of the Service Water System pump discharge strainer. The relocation of the injection point was required to limit the discharge of Sodium Hypochlorite into the environment (i.e. Long Island Sound). The relocated injection points required the installation of the check valves at the ASME class boundary.

The interface of the two systems requires a class break bounded by the more limiting specification. In this case the ASME III service water system was selected as the defining system for the material choice for the isolation valves. The pipe specification for sea water (service water) lists monel as acceptable material. ASME Class 3 check valves were specified for the interface. ASME Class 3 meets the specification requirements and provides automatic isolation of the service water system from the Sodium Hypochlorite system in the event of a line break.

II. Cause of Event

The cause of the event was an individual's inadequate work practice that failed to define the system design and operating parameters and failed to address potential consequences to the system resulting from changes to the system flow and Sodium Hypochlorite concentrations. The inadequate work practice allowed the use of monel as acceptable material for the check valves, which resulted in internal valve corrosion to such an extent that the valves failed to reseat.

III. Analysis of Event

This condition caused the plant to be operated outside its design basis when in modes 1 through 4, as the installation of the check valves associated with the injection of Sodium Hypochlorite into the Service Water System introduced a common mode failure into both trains of the Service Water System.

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A review of the impact of the check valve failures determined that the plant cooling requirements would be met for non-seismic Design Basis Accidents. Under seismic conditions, the potential for failure of the four injection lines could result in the loss of Service Water System cooling. A walkdown of the affected piping concluded that failure of these lines was unlikely.

IV. Corrective Action

The following corrective actions have been completed:

1. The Sodium Hypochlorite injection point immediately downstream of the Service Water System pump discharge strainer has been isolated and the injection point to the service water pump suction bell was re-established.

The following corrective actions will be implemented:

1. Millstone Unit No. 3 design management will be briefed on the lessons learned from these events.
2. Improve the Design Control Manual design engineering check list for interface between design engineering and the materials group.

Additional corrective actions for programmatic issues will be addressed through the Millstone Corrective Action Program.

V. Additional Information

None

Similar Events

The following LERs identify an individual's inadequate work practice as a primary cause:

LER 98-034-00 Inadequate Evolution and Retest of Replacement Group Rod Indicator Position

LER 98-036-00 Engineered Safety Features Building Sump Pump Design Deficiencies

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

Manufacturer Data

EIIS System Code

(Essential) Service Water System-----BI

EIIS Component Code

Valve-----V