



Northeast
Nuclear Energy

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The Northeast Utilities System

APR 19 1996

Docket No. 50-336
B15663

Re: 10 CFR 50.73

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

This letter forwards Licensee Event Report (LER) 96-012-00 documenting an event that occurred at Millstone Nuclear Power Station, Unit No. 2 on February 28, 1996. This LER is being submitted pursuant to 10 CFR 50.73(a)(2)(ii).

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

P. M. Richardson
Director - Millstone Unit No. 2

Attachment: LER 96-012-00

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

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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 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 (T-6 F33), 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 2		DOCKET NUMBER (2) 05000336	PAGE (3) 1 of 4
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TITLE (4)
Failure of Safety Injection System Drain Stop Valves to Meet the Functional Requirements of the Technical Specifications

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER	
02	28	96	96	012	00	04	19	96	FACILITY NAME	DOCKET NUMBER	
OPERATING MODE (9)		5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)								
POWER LEVEL (10)		0%	20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)	50.73(a)(2)(viii)	
			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)(ii)			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 G. P. van Noordennen, Nuclear Licensing Supervisor	TELEPHONE NUMBER (include Area Code) (860)440-2084
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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
B	BQ	FSV	A499	N/A					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On February 28, 1996, at 1505 hours, with the plant in Mode 5 at 0% power, valve 2-SI-618, Loop 1A Check Leakoff Drain Stop Valve, failed its Operational Readiness Test. This valve is one of four Safety Injection System (SIS) air operated valves that receive a Safety Injection Actuation Signal (SIAS) to close, in order to prevent bypass of SI flow to the Safety Injection Tank (SIT) recirculation header.

The valve operator for valve 2-SI-618 was disassembled and inspected, and it was determined that poor work practices and inadequate retest requirements did not properly verify the operability of the fast acting feature of the air dump solenoid valve prior to returning valve 2-SI-618 back to service.

This report is being reported pursuant to the requirements of 10CFR50.73(a)(2)(ii).

There were no automatic or manually initiated safety systems activated as a result of this event.

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		96	--	012	--	

Millstone Nuclear Power Station Unit 2

05000336

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

I. Description of Event

On February 28, 1996, at 1505 hours, with the plant in Mode 5 at 0% power, valve 2-SI-618, Loop 1A Check Leakoff Drain Stop Valve, failed its Operational Readiness Test. This valve is one of four Safety Injection System (SIS) air operated valves that receive a Safety Injection Actuation Signal (SIAS) to close in order to prevent bypass of SI flow to the Safety Injection Tank (SIT) recirculation header. Surveillance Procedure SP 21136 simulates a SIAS signal by removing power to the Check Leakoff Drain Stop Valves to allow the valves, when in the open position, to rapidly close under spring pressure. At the time of testing, the failure of the valve to close within the time specified by procedure SP 21136 was not considered to be a reportable event. Valve 2-SI-618 was declared inoperable and the valve actuator was subsequently disassembled and inspected.

The inspection of the valve actuator revealed that the lower disk stem associated with the solenoid exhaust valve was missing, rendering this valve incapable of functioning as designed. In this condition, the solenoid valve could isolate supply air to the valve actuator when de-energized, and to supply opening and closing air to the valve actuator when energized. However, without the lower disk stem installed, the valve actuator could not achieve the fast acting vent position.

There were no operator actions required in response to this event. Additionally, there were no automatic or manually initiated safety systems activated as a result of this event.

II. Cause of Event

The following factors are believed to be the most probable cause of this event:

A.) Personnel error pertaining to poor work practices with respect to solenoid valve installation

During inspection of the valve actuator solenoid valve, it was noted that in order to unthread the air connection fitting that connects the solenoid supply port to the tubing running to the actuator valve diaphragm, it was necessary, due to lack of clearance, to remove the solenoid exhaust valve disc guide cap. Because this solenoid valve is Environmental Equipment Qualified (EEQ), it is required to be vertically mounted, so that the weight of the de-energized core, acting through the valve lever and lower disk stem, can position the exhaust valve port of the solenoid valve to the vent position. This configuration results in the following valve internals falling out when the valve guide cap is removed in order to insert the air connection fitting: 1) lower spring, 2) lower valve disk, and 3) the lower disk stem. The lower disk stem was found to be missing during the valve actuator inspection on March 3, 1996. During previous work evolutions, the lower disk stem had been noted to sometimes hang up in the lower valve seat, requiring a slight tap to dislodge. It is postulated that lower disk stem was lost during replacement of the solenoid valve on February 14, 1989. Upon review of the work performed during the March 1996 solenoid valve replacement, the maintenance supervisor reported that his mechanic had stopped work to request supervisory guidance because it was impossible to install the air connection fitting without first removing the lower disk guide cap. This prompted engineering to modify the connecting tubing such that the solenoid valve air tube connection fitting could be installed without removing the disk guide cap. It was this discussion that led to the conclusion that the lower disk stem may have been lost during the 1989 solenoid valve replacement.

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

B.) Inadequate retest requirements

The Inservice Testing Program (IST), required by Technical Specification 4.0.5, contains testing requirements for "Fail Safe Valves" per ASME Section XI, IWV-3415. Per IWV-3415 testing is performed every 3 months or during cold shutdown plant conditions. IWV-3415 states that, "When practical, valves with fail-safe actuators shall be tested by observing the operation of the valves upon loss of actuator power." Prior to May 26, 1995, the fail-safe condition of these valves was tested by disconnecting the air supply and verifying that the valve traveled to its closed position. Therefore, the fast acting feature of the air dump solenoid valves had not been previously tested to reflect an actual SIAS signal response as part of the IST Program. Testing of these valves is now performed during cold shutdown by removing the fuses powering the solenoid valve control circuit, simulating a SIAS signal.

III. Analysis of Event

This event is being reported per 10CFR50.73(a)(2)(ii) as "any event or condition that resulted in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded or being in an unanalyzed condition that significantly compromised plant safety", since the failure of the check leakoff drain valves to close in response to a SIAS signal could potentially degrade SI flow delivered to the Reactor Coolant System.

The safety consequences of this event are considered to be low. This is based upon:

1. During normal operation the check leakoff drain stop valves are closed. These valves are typically opened for about 15 minutes each month to increase SIT level or to decrease the SI header pressure.
2. Integrated Engineered Safety Features (ESF) testing of these valves in May 1995 (Facility 1) and June 1995 (Facility 2) did not indicate that these valves had failed to close in response to a SIAS signal.
3. Valve 2-SI-618 was the only one (of four) check leakoff drain valves that did not satisfy the acceptance criteria of the "fail safe" surveillance test (move to the fully closed position upon removal of the solenoid fuses)

IV. Corrective Action

The connecting tubing for the valve actuator for valve 2-SI-618 has been modified such that the solenoid valve can be installed without removing the disk guide cap, and thus eliminating the problem of inadvertently losing internal valve components.

All safety related solenoid valves, with active safety functions, will be inspected for piping configurations similar to 2-SI-618. Solenoid valves found to have similar piping configurations will have their operability verified. This commitment will be completed prior to Mode 4.

The applicability of Engineered Safety Feature Actuation Systems (ESFAS) response time requirements as specified in Technical Specification Table 3.3-5, will also be investigated.

V. Additional Information

EIIS Codes

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

Safety Injection System: BP

Solenoid Valve HY-618: BP-PSV-A610

Similar Events

None

Manufacturer Data

System Actuator Data

Manufacturer - Fisher Control Corp.
 Drawing No.-.25203-29180 Sheet 19
 Model - Type 3590 Positioner mounted on Type 667 Diaphragm Actuator
 Design Valve Trim Factor - C_v: 8.0

Solenoid Valve Data

Manufacturer - ASCO Valves
 Model No.-. 206-381-6RF
 Drawing No. - Manufacturer Bulletin # 206-381
 Nominal Size - 3/8 inch
 Type - 3-Way Direct Acting, Normally Open Valve

Solenoid Valve HY-618: BP-PSV-A610