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U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station OP1-17  
Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 50-388/2002-005-00  
PLA-5557**

**Docket 50-388  
License No. NPF-22**

Attached is Licensee Event Report (LER) 50-388/2002-005-00. This event is reportable per 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications in that the Unit 2 'B' Inboard Main Steam Isolation Valve was determined to be inoperable for a period of time that exceeded Technical Specification specified completion times. Cold shutdown surveillance testing showed that the valve's stroke time did not meet Technical Specification mandated acceptance criteria. Analysis of the test results has concluded that the peak reactor vessel pressure following a postulated Main Steam Line Isolation would have remained within reactor pressure vessel limits. There were no actual consequences to the health and safety of the public as a result of this event.

Richard L. Anderson  
Vice President - Nuclear Operations

Attachment

cc: Mr. H. J. Miller  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

cc: Mr. S. L. Hansell  
Sr. Resident Inspector  
U.S. Nuclear Regulatory Commission  
P.O. Box 35  
Berwick, PA 18603-0035

*JE22*

Estimated burden per response to comply with this mandatory information collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bjs1@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

# LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME Susquehanna Steam Electric Station - Unit 2	2. DOCKET NUMBER 05000388	3. 1 OF 3
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4. TITLE  
Operations Prohibited by Technical Specifications Due to Inoperable Main Steam Isolation Valve.

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	07	2002	2002	005	00	11	27	2002	FACILITY NAME	DOCKET NUMBER
										05000
										05000

9. OPERATING MODE 4	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check all that apply)				
	20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)	
10. POWER LEVEL 0	20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)	
	20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)	
[REDACTED]	20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)	OTHER Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)		
	20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)		
	20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(vii)		
	20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)		
	20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)		

12. LICENSEE CONTACT FOR THIS LER

NAME Eric J. Miller - Nuclear Regulatory Affairs	TELEPHONE NUMBER (Include Area Code) 570 / 542-3321
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	SB	ISV	A585	N					

14. SUPPLEMENTAL REPORT EXPECTED				15. EXPECTED SUBMISSION DATE		
YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO		MONTH	DAY	YEAR

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

On October 7, 2002 with Unit 2 in Mode 4 (Cold Shutdown) at 0% power, the '2B' Inboard Main Steam Isolation Valve (MSIV: HV241F022B) was declared inoperable when the valve stroked greater than a second faster than allowed by Technical Specifications (1.92 sec. Actual vs. 3-5 sec. Target). A review of test history concluded that the valve may have been inoperable for as many as 360 days prior to the time of discovery. This period exceeds Technical Specification required completion times developed for Primary Containment Isolation Valves (PCIV). Calculations were performed following this event, using more restrictive closure stroke times than those actually experienced, to determine reactor pressures following a postulated Main Steam isolation. These calculations confirm that the peak reactor vessel pressure would not have exceeded established limits. Primary containment entry and inspection revealed that an oil leak on the oil dashpot hydraulic piping was responsible for the failed stroke test. The leak was repaired on October 7, 2002 and the MSIV is now fully operable. Maintenance procedures, preventative maintenance activities, modification solutions and industry best practices will all be explored for changes to enhance MSIV oil piping leak performance. At no time was the valve's ability to provide containment isolation adversely affected by the fast closure time. This event is reportable for Unit 2 as a condition prohibited by Technical Specification 3.6.1.3 per 10 CFR 50.73(a)(2)(i)(B). There were no actual adverse consequences to plant equipment or to the health and safety of the public as a result of this event.

**LICENSEE EVENT REPORT (LER)**

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

**EVENT DESCRIPTION**

On October 7, 2002 with Unit 2 in Mode 4 (Cold Shutdown) at 0% power, the Unit 2 'B' Inboard Main Steam (EISS Code: SB) Isolation Valve (MSIV; HV241F022B) was declared inoperable following Technical Specification (TS) mandated stroke time testing. The actual valve stroke time of 1.92 seconds failed to meet the acceptable range of 3-5 seconds required by TS Surveillance Requirement 3.6.1.3.7.

Work history review shows that the MSIV had been reworked in April 2001 following an LLRT failure. Stroke speed was set at 4.3 seconds following the rework. HV241F022B was stroked again in August 2001 where it was noted that the stroke time, while still meeting established acceptance criteria, had decreased by an unusual amount. Oil loss was preliminarily identified as the most likely cause. The valve was subsequently observed during four separate strokes on October 12, 2001 as part of a troubleshooting effort initiated in response to the August test. The October stroke speeds were highly consistent with the data obtained in August 2001 with no degrading trend observed. By virtue of these results, Plant Engineers concluded that the change in stroke time seen between April and August was likely attributable to a suspected stopwatch timing error during the April valve stroke. Accordingly, with acceptance criteria satisfied and no degrading trend noted, concerns regarding the valve's continued operability were discontinued.

**CAUSE OF EVENT**

Following the failure of 'B' Inboard MSIV stroke time testing on October 7, 2002, primary containment (EISS Code: NH) entry and inspection revealed an oil leak on the oil dashpot hydraulic piping. A limited quantity of oil in the area of the leak suggested that the dashpot assembly may not have been completely full following the April 2001 valve rework and the oil leaked slowly over a long period of time. Accordingly, it has been conservatively estimated that the 'B' Inboard MSIV stroke time would have dropped below the minimum Technical Specification required limit sometime between October 12, 2001 and October 7, 2002. An excessive number of joints (25 mechanical joints per valve on the external oil piping) greatly increases the likelihood for one of the joints to develop a leak. This oil piping must be disassembled/reassembled to accommodate most MSIV maintenance efforts. These evolutions also increase the possibility for developing a leak.

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

**ANALYSIS/SAFETY SIGNIFICANCE**

This event is reportable as a condition prohibited by Technical Specifications per 10 CFR 50.73(a)(2)(i)(B) for Unit 2 in that the 'B' Inboard MSIV may have been inoperable for as long as 360 days. This period exceeds the action completion times allowed in Technical Specification 3.6.1.3. The valve was determined to be inoperable when the 3-second fast closure criteria, used to limit peak pressures in the reactor vessel, was exceeded. The current model used to determine peak vessel pressures following MSIV closure assumes closure of all MSIVs at the same time. This scenario is much more limiting than that which would have been encountered with a single MSIV closing faster than desired. Calculations performed to simulate closure of all MSIVs in 1.5 seconds (below the actual time of 1.92 seconds experienced on the 'B' Main Steam line) confirm peak pressures experienced during this bounding transient would not exceed the established vessel pressure limits. Hence, peak pressures resulting from the fast closure of one MSIV would also remain within established limits. At no time was the valve's ability to provide containment isolation adversely affected by the fast closure time. There were no actual adverse consequences to the health and safety of the public as a result of this event.

In accordance with guidance in NUREG-1022, Revision 2, the due date for this report is December 6, 2002.

**CORRECTIVE ACTIONS**

Corrective actions that have been completed:

- The Unit 2 'B' Inboard MSIV (HV241F022B) dashpot was refilled with oil after the oil piping was satisfactorily repaired.
- Stroke time surveillance testing was successfully performed for HV241F022B following repair of the dashpot oil piping.
- Calculations used to determine peak reactor pressures following a postulated MSIV closure have been updated to incorporate results using the 1.5 second closure time (previous assumption had been 2 seconds).

Corrective actions to be completed:

- Review modification solutions, maintenance procedures, PM activities, industry best practices and vendor recommendations pertaining to MSIV dashpot oil piping in an effort to enhance leak performance. Implement improvements as required.

**ADDITIONAL INFORMATION**

Past Similar Events: None  
 Failed Component: 'B' Inboard MSIV HV241F022B  
 Manufacturer: Atwood & Morrill Co.  
 Model Number: 21190-H