

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9201150005      DOC. DATE: 92/01/10      NOTARIZED: NO      DOCKET #  
 FACIL: 50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylv      05000388  
 AUTH. NAME      AUTHOR AFFILIATION  
 METER, J.J.      Pennsylvania Power & Light Co.  
 STANLEY, H.G.      Pennsylvania Power & Light Co.  
 RECIPIENT NAME      RECIPIENT AFFILIATION

SUBJECT: LER 91-014-00: on 911212, discovered that main steam isolation valve closure channel response time exceeded TS required value of 60 msec. Caused by deficient procedures. Response time testing procedures changed. W/910110 ltr.

DISTRIBUTION CODE: IE22T      COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5  
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES: LPDR 1 cy Transcripts. 05000388

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EXTERNAL:	EG&G BRYCE, J.H	3				3	L ST LOBBY WARD	1				1
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Pennsylvania Power & Light Company

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January 10, 1992

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

SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 91-014-00  
FILE R41-2  
PLAS - 512

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

Attached is Licensee Event Report 91-014-00. This event was determined reportable per 10CFR50.73(a)(2)(i)(B) in that an operation prohibited by the plant's Technical Specifications occurred when a Reactor Protection Main Steam Isolation Valve Closure Channel Response Time exceeded the required value of 60 milli-seconds by 2 milli-seconds.

H.G. Stanley  
Superintendent of Plant - Susquehanna

JJM/mjm

cc: Mr. T. T. Martin  
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9201150005 920110  
PDR ADOCK 05000388  
S PDR

*FE22*

LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) <b>Susquehanna Steam Electric Station - Unit 2</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 3 8 8</b>	PAGE (3) <b>1 OF 0 4</b>
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TITLE (4)

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 NAMES	DOCKET NUMBER(S)
1	2	9	1	0	1	0	1	0		0 5 0 0 0
1	2	9	1	0	0	0	1	0		0 5 0 0 0

OPERATING MODE (8) <b>1</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)										
POWER LEVEL (10) <b>1, 0, 0</b>	20.402(b)			20.406(c)			60.73(a)(2)(iv)			73.71(b)	
	20.406(a)(1)(i)			60.38(c)(1)			60.73(a)(2)(v)			73.71(c)	
	20.406(a)(1)(ii)			60.38(c)(2)			60.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)	
	20.406(a)(1)(iii)			60.73(a)(2)(i)			60.73(a)(2)(viii)(A)				
	20.406(a)(1)(iv)			60.73(a)(2)(ii)			60.73(a)(2)(viii)(B)				
20.406(a)(1)(v)			60.73(a)(2)(iii)			60.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER (12)									
NAME <b>J. J. Meter - Compliance Engineer</b>							TELEPHONE NUMBER		
							AREA CODE <b>7 1 7</b>		
							<b>5 4 2 - 1 8 7 3</b>		

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
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO						

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

At 1400 hours on December 12, 1991, after reviewing an industry event report, an Instrumentation and Control Engineer discovered that a Main Steam Isolation Valve (MSIV) Closure Channel Response Time had exceeded the Technical Specification required value of 60 milli-seconds (msec) by 2 msec. The Unit 2 "B1" channel was 2 msec over Technical Specification limits from the Fall of 1989 until the Spring of 1991. The cause of the event was that Response Time Testing procedures did not account for the Trip Channel Sensor (limit switch contact) Response time of 10 msec as identified in General Electric Design Data sheets. Therefore the measured Response Time of 52 msec was actually 62 msec. The remaining Closure Response Channels were within Technical Specification limits and the system would have performed its intended function. Changes were initiated for I&C Response Time Testing procedures to ensure that 10 msec for Channel Sensor Response is included in the overall RPS Response Time for MSIV Closure and Turbine Stop Valve Closure. The reason why the Sensor Response Time allotment was not accounted for could not be determined. A review of Response Time procedures of both Units was performed to ensure no other Response Time tests were affected by the General Electric Design Data Sheets. No safety consequences or compromises to the health or safety of the public were attributed to the event.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Unit 2 Susquehanna Steam Electric Station	DOCKET NUMBER (2)  0   5   0   0   0   3   8   8	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9   1	—   0   1   4	—   0   0	0   2	OF 0   4

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

DESCRIPTION OF EVENT

At 1400 hours on December 12, 1991 with Unit 2 operating in CONDITION 1 at 100% power, an Instrumentation & Control (I&C) Engineer (non-utility) discovered that a Main Steam Isolation Valve (MSIV) Closure Channel Response Time exceeded the Technical Specification required value of 60 milli-seconds (msec) by 2 msec. The discrepancy occurred on the "B1" channel of the Unit 2 MSIV Closure Time Response during the Unit's third Refueling and Inspection Outage (RIO) in the Fall of 1989.

During a review of an operating occurrence report from the Limerick Nuclear Generating Station, in which improper application of response time testing requirements for Main Turbine Stop Valves and MSIV functions of the Reactor Protection System (RPS) were discovered, it was identified that Susquehanna Steam Electric Station surveillance procedures also had the potential for exceeding response time testing requirements.

A review of all applicable historical Response Time Testing of both Units was completed and a discrepancy was noted for the Unit 2 third refueling and inspection outage. Technical Specification 4.3.1.3 requires an RPS Response Time of less than or equal to 60 msec for MSIV Closure. The Unit 2 channel "B1" Response Time exceeded the Technical Specification limit by 2 msec.

CAUSE OF EVENT

The cause of the event was due to an omission of a 10 msec Trip Channel Sensor Response Time in I&C procedures for MSIV Response Time Testing. The plant's Technical Specifications define RPS Response Time as the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until de-energization of the scram pilot valve solenoids. The I&C Response Time Testing procedures considered the instant the MSIV limit switch (Channel Sensor) contact opened as "when the monitored parameter exceeded its trip setpoint". The Technical Specification limit of 60 msec was used as the time limit from the opening of the limit switch contact until de-energization of the SCRAM pilot valve solenoids.

General Electric Design Data Sheets identify a Trip Channel Sensor Response Time of less than or equal to 10 msec. That is the MSIV limit switch contact opening must occur no later than 10 msec after the closing valve reaches the 90% open position. The Data Sheets also identify a logic response time of less than or equal to 50 msec from the opening of the sensor contact to and including opening of the contacts of the main trip actuators, scram contactors.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)  Unit 2 Susquehanna Steam Electric Station	DOCKET NUMBER (2)  0   5   0   0   0   3   8   8	LER NUMBER (6)			PAGE (3)	
		YEAR 9   1	SEQUENTIAL NUMBER -   0   1   4	REVISION NUMBER -   0   0	0   3	OF 0   4

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

Therefore, the I&C Response Time Testing procedures did not account for the 10 msec Sensor Response Time. Historical records indicate that the subject RPS MSIV Closure Channel Response Time tests have always utilized closure of the MSIV limit switch contacts as the test initiation point. The reason why the Sensor Response Time allotment was not accounted for could not be determined.

REPORTABILITY/ANALYSIS

The event was determined reportable per 10CFR50.73(a)(2)(i)(B) in that an operation prohibited by the plant's Technical Specifications occurred when Unit 2 was operating with a Reactor Protection System MSIV Closure Channel Response Time exceeding the required value of 60 msec by 2 msec. The actual measured Response Time was 52 msec. This time plus the unaccounted 10 msec Sensor Response equaled 62 msec. The Unit 2 "B1" channel was 2 milli-seconds over Technical Specification limits from the 3rd RIO (Fall of 1989) until the 4th RIO (Spring of 1991). At the time of discovery all RPS MSIV Closure Channel Response Times were within Technical Specification limits.

The safety function of the RPS MSIV Closure Response Channels is to initiate a reactor SCRAM in the event of MSIV closures. The system is to respond to counter act the reactor power increase due to MSIV closure.

The MSIV Closure Response Channels operate on a one-out-of two taken twice logic. Therefore, even if one channel is not functional, the required SCRAM will occur. For the condition described above, three of the four channels were within the Technical Specification required limit and the system would have performed its intended function in the required time frame. Additionally, the "B1" channel was functional with a slightly increased time response.

No safety consequences or compromises to the health or safety of public were attributed to the event.

In accordance with the guidance provided in NUREG 1022 Supplement 1 Item 14.1 and 10CFR50.4(d), the required submission date for this report was determined to be January 13, 1992.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

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FACILITY NAME (1)  Unit 2 Susquehanna Steam Electric Station	DOCKET NUMBER (2)  0   5   0   0   0   3   8   8	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9   1	-   0   1   4	-   0   0	0   4	OF 0   4

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

CORRECTIVE ACTIONS

A review of Response Time procedures of both Units was performed to ensure that no other Response Time tests (e.g. Emergency Core Cooling System and Containment Isolation response times) were affected by the General Electric Design Data Sheets. None were found. The Unit 2 "B1" MSIV Closure Time Response during the third refueling outage was the only occurrence of a Response Time over Technical Specification limits.

Changes were initiated for I&C Response Time Testing procedures to ensure that 10 msec for Channel Sensor Response is included in the overall RPS Response Time for MSIV closure and Turbine Stop Valve closure.

ADDITIONAL INFORMATION

Past Similar Events: None