

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) Susquehanna Steam Electric Station - Unit 1	DOCKET NUMBER (2) 05000387	PAGE (3) 1 OF 4
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TITLE (4)
Failure To Maintain Environmental Qualification - Acoustic Monitors Cable Sealing

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	
06	02	99	99	-- 002	-- 00	07	01	99	Susquehanna SES Unit 2	05000388	
									FACILITY NAME	DOCKET NUMBER	
										05000	
OPERATING MODE (9) 4											
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)											
POWER LEVEL (10) 000			20.2201(b)			20.2203(a)(2)(v)			X 50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)			20.2203(a)(3)(i)			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)(iii)			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 Robert D. Kichline - Senior Engineer, Licensing	TELEPHONE NUMBER (Include Area Code) 610 / 774-7705
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On June 2, 1999, at 1600 hours with Unit 1 in Mode 4 (Cold Shutdown) at 0 percent power, and Unit 2 in Mode 1 (Power Operation) at 100 percent power, it was determined that the main steam safety/relief valve (SRV) acoustic monitors for both units were inoperable in that RTV sealant (sealant type recommended by accelerometer manufacturer) had not been applied to the accelerometer cable connectors of the acoustic monitors following a modification to replace the accelerometers and cables. The RTV sealant is required, per the manufacturer, to prevent moisture intrusion to the sensors, in order for the acoustic monitors to be environmentally qualified. Without this sealant, the Environmental Qualification (EQ) of the acoustic monitors is indeterminate, and the acoustic monitors were declared inoperable. On June 11, 1999, it was further determined that Unit 1 had been operating from July 14, 1998 to October 3, 1998 in a condition prohibited by the Standard Technical Specifications, which were in place at the time of the modification (7/14/98) until implementation of the Improved Technical Specifications (ITS) on October 3, 1998. It was further recognized on June 11, 1999 that this modification had also been performed on the Unit 2 "J" acoustic monitor on June 25, 1998 without the sealant. Therefore, Unit 2 had also operated in a condition prohibited by the Standard Technical Specifications, which were in place at the time of the modification (6/25/98) until implementation of the Improved Technical Specifications (ITS) on October 3, 1998. As such, these conditions are being reported pursuant to 10CFR50.73(a)(2)(i)(B). With implementation of the ITS, the acoustic monitoring requirements were relocated to the Technical Requirements Manual (TRM). The failure to apply RTV sealant was caused by the lack of identification in the EQ test report of the RTV sealant being required to meet EQ requirements, and the failure to translate the manufacturer's instructions for installing RTV sealant on the accelerometer cable connectors during equipment replacement. The RTV sealant has since been applied to all Unit 1 and Unit 2 acoustic monitor cable connectors. Actions to prevent recurrence include the training of appropriate personnel to enhance their awareness of attention to details, and evaluating and revising, as applicable, all related EQ and work planning documents to assure that RTV sealant is applied to the subject connectors.

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

EVENT DESCRIPTION

On June 2, 1999, at 1600 hours with Unit 1 in Mode 4 (Cold Shutdown) at 0 percent power, and Unit 2 in Mode 1 (Power Operation) at 100 percent power, it was determined that the acoustic monitors for both units were inoperable in that RTV sealant (sealant type recommended by accelerometer manufacturer) had not been applied to the accelerometer cable connectors of the acoustic monitors following a modification to replace the accelerometers and cables. The RTV sealant is required, to prevent moisture intrusion to the sensors, for the acoustic monitors to be environmentally qualified.

This issue was identified during a review of an industry event, and was determined to be applicable to the Susquehanna SES. The industry event discussed a condition where three hardline cable accelerometer connectors (in the acoustic monitoring system for the pressurizer relief valves at a Pressurized Water Reactor (PWR)) did not have the required cable RTV sealant. Without this sealant to preclude moisture intrusion to the sensors, the Environmental Qualification (EQ) of the acoustic monitors was considered to be indeterminate and the acoustic monitors were declared inoperable.

On October 3, 1998, the Susquehanna SES implemented the Improved Technical Specifications (ITS). ITS relocated Technical Specification requirements for the acoustic monitors to the Technical Requirements Manual (TRM) section 3.3.4. Prior to implementation of ITS, acoustic monitoring requirements were located in Technical Specification section 3.3.7.5.

On April 22, 1999, the accelerometers and associated cabling for the acoustic monitors on Unit 2 were replaced using an improved type of hardline cables. The Unit 2 "J" acoustic monitor accelerometer cable had been replaced on June 25, 1998. No RTV sealant had been applied to the cable connectors; therefore, a determination was made on June 2, 1999, that the acoustic monitors were not environmentally qualified. Consequently, the acoustic monitors for Unit 2 were determined to be inoperable on June 2, 1999, pursuant to TRM sections 3.0.3 and 3.3.4. Technical Requirements section 3.0.3 was entered because the TRM CONDITION in section 3.3.4 for acoustic monitors was not met and the associated ACTIONS could not be met. Unit 2 scrambled on June 8, 1999. The RTV sealant was applied to the Unit 2 connectors on June 10, 1999 during the forced outage. The acoustic monitors were declared operable on June 11, 1999.

The Unit 1 accelerometers and associated cabling for the acoustic monitors had been replaced using an improved type of hardline cables on July 14, 1998. As on Unit 2, no RTV sealant had been applied to the cable connectors at that time. This was considered to be acceptable since the Environmental Qualification (EQ) test report available at that time did not address the requirement that RTV sealant at the cable connectors was a condition for EQ. RTV sealant was subsequently applied to the Unit 1 cable connectors on June 3, 1999. Unit 1 was in Mode 4 on June 2, 1999, therefore, the applicable TRM sections did not apply.

As noted above, the accelerometer and associated cabling for the "J" acoustic monitor on Unit 2 had also been replaced using an improved type of hardline cables on June 25, 1998. As for the other modifications, no RTV sealant had been applied to the cable connector at that time. This again was considered to be acceptable since the Environmental Qualification (EQ) test report available at that time did not address the requirement that RTV sealant at the cable connectors was a condition for EQ. RTV sealant was subsequently applied to the Unit 2 "J" acoustic monitor cable connectors on June 10, 1999.

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Since all Unit 1 acoustic monitor accelerometers and cables had been replaced without RTV sealant on July 14, 1998, and were a condition of the Standard Technical Specifications between July 14, 1998 and October 3, 1998, it was determined that Unit 1, for that period of time, had operated in a condition prohibited by Standard Technical Specifications. Additionally, since the Unit 2 "J" accelerometer cable had been replaced without RTV sealant on June 25, 1998, and was a condition of the Standard Technical Specifications between June 25, 1998 and October 3, 1998, it was determined that Unit 2, for that period of time, had operated in a condition prohibited by the Standard Technical Specifications. This condition is being reported pursuant to 10CFR50.73(a)(2)(i)(B).

CAUSE OF EVENT

The Susquehanna SES evaluation of the industry event identified the applicability of this concern to the Susquehanna SES. Once identified as being applicable, a review to determine the cause/s for not recognizing the EQ implications of the RTV sealant on the acoustic monitor accelerometers cables connectors was performed.

The results of the review identified the following:

- A requirement for application of RTV sealant on the cable connectors was identified in the accelerometer manufacturer's installation instructions for replacement equipment. However, this requirement was not recognized, although the requirement to apply RTV sealant to the lockwire insulation was recognized. Additionally, the activities associated with the development of this modification were expedited, and involved numerous vendor (manufacturer) related problems that caused changes to the work plan, and contributed to the failure to recognize the requirement to apply the RTV sealant to the accelerometer cable connectors.
- The EQ test report and the vendor details used for the accelerometers cable connectors did not identify the RTV sealant as a component material necessary for EQ of the hardline cable assembly. Therefore, the Susquehanna SES EQ documentation did not require the application of the RTV sealant, to prevent moisture intrusion, as a condition to meet EQ requirements. The requirement for RTV sealant on the lockwire insulation (transient shield) to meet signal quality requirements was shown on the vendor's details, and was recognized and incorporated in the work plan.

REPORTABILITY/ANALYSIS

This event was determined to be reportable per 10CFR50.73(a)(2)(i)(B) in that the Susquehanna SES Unit 1 had operated in a condition prohibited by the Standard Technical Specifications for a period of time between July 14, 1998 following installation of an improved type of hardline cables for the acoustic monitor accelerometers without RTV sealant applied to the cable connectors, and October 3, 1998, when the Improved Technical Specifications (ITS) were implemented. Unit 2 had also operated in a condition prohibited by the Standard Technical Specifications for a period of time between June 25, 1998 and October 3, 1998 because of the modification on the "J" acoustic monitor. ITS relocated the requirements for the acoustic monitors from the Technical Specifications to the Technical Requirements Manual.

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Standard Technical Specification 3.3.7.5 required that all Main Steam Safety/Relief Valve acoustic monitors be operable in Operational Conditions 1 and 2. Since the non-conforming condition was only identified on June 2, 1999, Unit 1 and Unit 2 had not been operated in accordance with the Standard Technical Specifications between July 14, 1998 and October 3, 1998 for Unit 1, and between June 25, 1998 and October 3, 1998 for Unit 2. Corrective action for the non-conforming condition was completed on June 3, 1999 and June 10, 1999, respectively for Unit 1 and Unit 2, in accordance with the Technical Requirements Manual, section 3.3.4, in that RTV sealant was applied to the acoustic monitor accelerometer cable connectors prior to Unit 1 and Unit 2 entering Operational Condition 2.

The failure of the acoustic monitor does not affect the safety function of the Safety Relief Valves (SRV). The position of the SRV's can be confirmed by indications other than the acoustic monitor. These indications include SRV tailpipe temperature and pressure. Additionally, there was no indication that the operability of the acoustic monitors during the period between July 14, 1998 and October 3, 1998 for Unit 1, and between June 25, 1998 and October 3, 1998 for Unit 2 was affected by the lack of RTV sealant on the accelerometer cable connectors.

In accordance with the guidelines provided in NUREG-1022, Revision 1, Section 5.1.1, the required submission date for this report was determined to be July 2, 1999.

CORRECTIVE ACTIONS

The following corrective actions have been completed:

- RTV sealant was applied to the Unit 1 and 2 acoustic monitor accelerometer cable connectors.

The following corrective actions will be taken:

- Work planning documents will be reviewed to ensure they include the application of RTV sealant to acoustic monitor accelerometer cable connectors to achieve EQ requirements.
- Tailboard training will be provided to appropriate personnel to enhance their awareness of "attention to details".
- Appropriate EQ manual(s) will be evaluated, and revised as necessary, to assure that the application of RTV sealant to acoustic monitor accelerometer cable connectors is captured.

ADDITIONAL INFORMATION

Past Similar Events: None

Failed Components: None