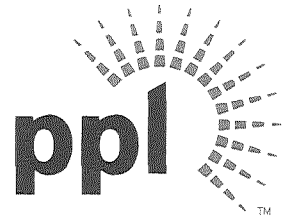


Jeffrey M. Helsel
Nuclear Plant Manager

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jmhelsel@pplweb.com



JUN 04 2012

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

**SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387/2012-002-00
LICENSE NO. NPF-14
PLA-6858**

Docket No 50-387

Attached is Licensee Event Report (LER) 50-387/2012-002-00. The event involved the "B" Control Structure (CS) chiller being declared inoperable concurrent with the "A" Emergency Diesel Generator being inoperable for a surveillance. Since the "A" EDG impacted the "A" CS chiller, the event resulted in a condition that could have prevented the fulfillment of a safety function and is being reported in accordance with 10 CFR 50.73(a)(2)(v).

There were no actual consequences to the health and safety of the public as a result of this event.

No regulatory commitments are associated with this LER.

A handwritten signature in black ink that reads "Jeffrey M. Helsel for". The signature is written in a cursive, flowing style.

J. M. Helsel

Attachment: LER 50-387/2012-002-00

Copy: NRC Region I
Mr. P. W. Finney, NRC Sr. Resident Inspector
Mr. R. R. Janati, DEP/BRP
Ms. C. J. Sanders, NRC Project Manager

NRC FORM 366 (10-2010)	U.S. NUCLEAR REGULATORY COMMISSION LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)	APPROVED BY OMB: NO. 3150-0104 EXPIRES:10/31/2013 Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resources@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 an 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.
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1. FACILITY NAME Susquehanna Steam Electric Station Unit 1	2. DOCKET NUMBER 05000387	3. PAGE 1 OF 3
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4. TITLE
"B" Control Structure Chiller Inoperable Concurrent with "A" Emergency Diesel Generator Out of Service

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	04	2012	2012	-002	-00	06	04	2012	Susquehanna Steam Electric Station Unit 2	05000388
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 5	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply) <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> 20.2201(b)</td> <td><input type="checkbox"/> 20.2203(a)(3)(i)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(C)</td> <td><input type="checkbox"/> 50.73(a)(2)(vii)</td> </tr> <tr> <td><input type="checkbox"/> 20.2201(d)</td> <td><input type="checkbox"/> 20.2203(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(1)</td> <td><input type="checkbox"/> 20.2203(a)(4)</td> <td><input type="checkbox"/> 50.73(a)(2)(ii)(B)</td> <td><input type="checkbox"/> 50.73(a)(2)(viii)(B)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(i)</td> <td><input type="checkbox"/> 50.36(c)(1)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iii)</td> <td><input type="checkbox"/> 50.73(a)(2)(ix)(A)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(ii)</td> <td><input type="checkbox"/> 50.36(c)(1)(ii)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(iv)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(x)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iii)</td> <td><input type="checkbox"/> 50.36(c)(2)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(A)</td> <td><input type="checkbox"/> 73.71(a)(4)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(iv)</td> <td><input type="checkbox"/> 50.46(a)(3)(ii)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(B)</td> <td><input type="checkbox"/> 73.71(a)(5)</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(v)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(A)</td> <td><input type="checkbox"/> 50.73(a)(2)(v)(C)</td> <td><input type="checkbox"/> OTHER</td> </tr> <tr> <td><input type="checkbox"/> 20.2203(a)(2)(vi)</td> <td><input type="checkbox"/> 50.73(a)(2)(i)(B)</td> <td><input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)</td> <td>Specify in Abstract below or in NRC Form 366A</td> </tr> </table>	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A
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10. POWER LEVEL 0%																																					

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME C. E. Manges, Jr., Senior Engineer - Nuclear Regulatory Affairs	TELEPHONE NUMER (Include Area Code) (570) 542-3089
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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
E	KM	PSP	C150	Yes					

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

On April 4, 2012 at 1517, the "A" Emergency Diesel Generator (EDG) was declared inoperable for performance of a surveillance. At 1835 on April 4, 2012, the "B" Control Structure (CS) chiller was declared inoperable due to an unrelated problem (degradation of refrigerant piping associated with the chiller). With the "B" CS chiller inoperable coincident with the "A" EDG inoperable, the "A" CS chiller would not be available to perform its design function on a loss of offsite power.

The direct cause of the refrigerant line degradation was corrosion. Causes of the event included: 1) a lack of an agreed upon documented system recovery plan fix for chiller leaks because the station failed to identify the complexity and need for a plan and 2) the corrective action program (CAP), System Health, and Work Management processes are not linked so that they work together to produce reliable, failure free operation of station chillers.

The degraded piping on the "B" CS chiller that resulted in the chiller inoperability was replaced. Key corrective actions that are planned include developing a long-term chiller reliability project plan, replacing the refrigerant lines on the CS chillers and other applicable chillers, changes to the Equipment Reliability and Station Health Process procedure to include a template that directs that a project plan be developed that includes a systematic and thorough analysis for a system or component recovery, and changes to the station work management process procedure and the station CAP procedure to ensure the processes are properly linked. This will ensure that work orders that are CAP corrective actions are given sufficient priority.

There were no adverse consequences to the health and safety of the public as a result of this event. This event is being reported under 10 CFR 50.73(a)(2)(v) as a condition that could have prevented the fulfillment of a safety function.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Susquehanna Steam Electric Station Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2012	- 002	- 00	

NARRATIVEEVENT DESCRIPTION

On April 4, 2012 at 1517, the "A" Emergency Diesel Generator (EDG) [EIS Code: EK] was declared inoperable for performance of a surveillance. At 1835 on April 4, 2012, the "B" Control Structure (CS) chiller [EIS Code: KM] was declared inoperable due to an unrelated problem (degradation of refrigerant piping associated with the chiller). With the "B" CS chiller inoperable coincident with the "A" EDG inoperable, the "A" CS chiller would not be available to perform its design function on a loss of offsite power. This is a condition that, at the time of discovery, could have prevented fulfillment of a safety function and was reported in EN 47807 in accordance with 10 CFR 50.72(b)(3)(v) as an 8 hour notification. This event is also reportable as an LER in accordance with 10 CFR 50.73(a)(2)(v).

The Susquehanna Technical Specifications allow four hours to correct the condition before the features ('A' Control Structure Chiller) supported by the inoperable EDG inoperable are required to be declared inoperable. The "A" EDG was restored to operable status on April 4, 2012 at 2200 which restored safety function capability for the "A" Control Structure Chiller and the "A" CS chiller was not required to be declared inoperable.

Background Information

Degradation of refrigerant piping on chillers has been an ongoing issue at Susquehanna. The most significant problem is external corrosion of the piping. During operation, the temperature of the evaporator on plant chillers is frequently below the dew point of the ambient air and condensation occurs on the steel surfaces of the evaporator. Insulation is applied to the chillers to minimize condensation; however, corrosion has been found on joints in the insulation and under the insulation.

Susquehanna has experienced leaking on control structure chillers since 2006. Although the trend in chiller leaks was identified and evaluated in the corrective action program (CAP), leaks continued to occur.

CAUSE OF THE EVENT

The direct cause of the component failure was:

- The refrigerant line degradation was the result of external corrosion.

The causes of the event were determined to be as follows since the external corrosion is a known problem:

- The station lacks an agreed upon documented system recovery plan fix for chiller leaks because the station failed to identify the complexity and need for a plan.
- The corrective action program (CAP), System Health, and Work Management processes are not linked so that they work together to produce reliable, failure free operation of station chillers.

ANALYSIS/SAFETY SIGNIFICANCEActual Consequences:

There were no actual consequences. The "A" CS chiller remained in service for normal operation cooled by Service Water during the event. All cooling loads were maintained by the "A" CS chiller and the associated CS ventilation fans remained in-service. Temperatures within the Control Structure remained within normal limits.

The "B" CS chiller was declared inoperable due to an identified wall thickness issue with a Freon piping connection at the evaporator. No actual Freon leak was identified.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Susquehanna Steam Electric Station Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		2012	- 002	- 00	

NARRATIVEPotential Consequences:

During LOCA/LOOP conditions, the "A" CS chiller is cooled via the Emergency Service Water (ESW) system. During the period the "A" EDG was inoperable, EDG power to the ESW return valve was not available. With the ESW return valve inoperable for emergency conditions, an ESW flow path through the chiller condenser could not be established thereby preventing chiller operation.

CORRECTIVE ACTIONS

Key corrective actions:

1. The degraded piping on the "B" CS chiller that resulted in the chiller inoperability was replaced.
2. A chiller project plan will be developed and approved by Senior Station Leadership and the Station Health Committee.
3. The refrigerant lines on the CS chillers and other applicable chillers will be replaced.
4. The Equipment Reliability and Station Health Process procedure will be revised to include a template that directs that a project plan be developed that includes a systematic and thorough analysis for a system or component recovery.
5. The station work management process procedure will be revised to align with the CAP program.
6. The corrective action program procedure will be changed to provide direction for linking work orders that are corrective actions such that they are given sufficient priority.

PREVIOUS SIMILAR EVENTS

The following LER was also the result of chiller reliability issues:

- LER 387/2012-01-00, "Both Control Structure Chillers Inoperable" identified a condition that could have prevented the fulfillment of a safety function associated with the CS chillers.