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FEB 08 2016

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

10 CFR 50.73

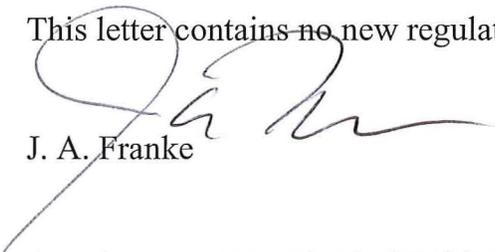
SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-387(388)/2015-014-00
UNIT 1 LICENSE NO. NPF-14
UNIT 2 LICENSE NO. NPF-22
PLA-7433

Docket No. 50-387
50-388

Attached is Licensee Event Report (LER) 50-387(388)/2015-014-00. The LER reports an event where the 'A' Control Structure Chiller failed a surveillance on December 10, 2015 which led to the discovery that the chiller had been inoperable beyond the Technical Specification limit of 30 days. This event was determined to be reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications, and 10CFR 50.73(a)(2)(v), as an event or condition that could have prevented fulfillment of a safety function.

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

This letter contains no new regulatory commitments.


J. A. Franke

Attachment: LER 50-387(388)/2015-014-00

Copy: NRC Region I
Mr. J. E. Greives, NRC Sr. Resident Inspector
Ms. T. E. Hood, NRC Project Manager
Mr. M. Shields, PA DEP/BRP



LICENSEE EVENT REPORT (LER)
(See Page 2 for required number of digits/characters for each block)

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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOF-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.

1. FACILITY NAME Susquehanna Steam Electric Station Unit 1	2. DOCKET NUMBER 05000387	3. PAGE 1 of 3
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4. TITLE
'A' Control Structure Chiller Discovered Inoperable Beyond Technical Specification Limit Due to Refrigerant Overcharge.

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
12	10	2015	2015	- 014	- 00	02	08	2016	Susquehanna Steam Electric Station Unit 2	05000388
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE		11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	
10. POWER LEVEL	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)	
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)	
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)	
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(i)	
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)	
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> OTHER Specify in Abstract below or in NRC Form 366A		

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT Nicole Pagliaro, Licensing Specialist - Nuclear Regulatory Affairs	TELEPHONE NUMER (Include Area Code) (570) 542-6578
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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
A	VI	CHU	C147	No					

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

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

On 12/10/2015 the 'A' Control Structure Chiller (0K112A) failed a surveillance test due to being overcharged. The high power consumption was outside of the acceptance criteria in relation to the quantity of cooling provided. The failure of the test caused Operations to declare the chiller inoperable and enter into LCO 3.7.4 Control Room Floor Cooling System. During the engineering evaluation of the event it was discovered that the refrigerant charge for the chiller was increased from 1710 pounds to 2010 pounds in January 2014 and was considered inoperable for greater than 30 days. This event was determined to be reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications, and 10 CFR 50.73(a)(2)(v), as an event or condition that could have prevented fulfillment of a safety function.

NRC FORM 366A (11-2015)	U.S. NUCLEAR REGULATORY COMMISSION  LICENSEE EVENT REPORT (LER) CONTINUATION SHEET	APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018 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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@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	2. DOCKET NUMBER	3. LER NUMBER		
Susquehanna Steam Electric Station, Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REV NO.
		2015	- 014	- 00

NARRATIVE

CONDITIONS PRIOR TO EVENT

Unit 1 – Mode 1, 100 percent Rated Thermal Power

Unit 2 – Mode 1, 100 percent Rated Thermal Power

There were no other structures, systems, or components inoperable at the start of the event that contributed to the event.

EVENT DESCRIPTION

On 12/10/2015 the 'A' Control Structure Chiller (0K112A) failed its surveillance test due to being overcharged. This high power consumption was outside of acceptance criteria in relation to the quantity of cooling provided. Failing the surveillance resulted in Operations declaring the chiller inoperable and entering a 30 day shutdown required action for Technical Specifications 3.7.4. The last time the 'A' Control Structure Chiller was demonstrated to be capable of performing its safety function was 08/15/2013 when the surveillance test was last completed. This event was determined to be reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications, and 10 CFR 50.73(a)(2)(v), as an event or condition that could have prevented fulfillment of a safety function.

On 12/11/2015 an investigative team was put together to solve the high power consumption issue that failed the test. Historical issues with 0K112A were discussed, particularly the instance when 300 pounds of extra refrigerant was added to aid in oil recovery (2014). A work order was cut in December to adjust the chiller's charge to decrease the power consumption.

November 2015 - 0K112A chiller was operating with service water at a temperature of 64F (normal >100F) due to improper flow adjustment. A work order was created to investigate and fix the problem.

December 10 – The surveillance failed due to high power consumption.

December 11 - Troubleshooting team determined that the chiller was drawing too much power due to being overcharged with refrigerant. Work order 1953538 was cut to remove refrigerant charge until the motor current reduced to acceptable levels (approximately 32 Amps).

December 11 – A work order from November was scheduled and the temperature controller was fixed. Service water temperature returned to approximately 105 F.

December 14 - 0K112A was put back into service to remove refrigerant. 103 pounds of refrigerant was removed and a test run commenced. The chiller was operated and monitored through the night and all parameters stayed within their limits.

December 14 Morning/Afternoon – The surveillance was finished and the chiller passed the acceptance criteria.

NRC FORM 366A (11-2015)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB: NO. 3150-0104		EXPIRES: 10/31/2018	
 <p style="text-align: center;">LICENSEE EVENT REPORT (LER) CONTINUATION SHEET</p>		<p>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 and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to Infocollects.Resource@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.</p>					
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				2015	- 014	- 00	
<p>NARRATIVE</p> <p>CAUSE OF THE EVENT</p> <p>The direct cause was that the refrigerant overcharge made the chiller motor work harder to produce the same amount of cooling. The apparent cause was that Engineering and Maintenance did not document the change to add 300 pounds of refrigerant to the chiller in January 2014. The value was increased from 1710 to 2010 pounds. A causal factor was a preventative maintenance scope for the component that did not provide data to Engineering for trending. Proper parameter knowledge and motor current trending could have discovered the high power consumption earlier in the year.</p> <p>ANALYSIS/SAFETY SIGNIFICANCE</p> <p>Actual Consequences: The chiller did not pass the test that proves it could perform during an accident scenario. The chiller was still able to provide proper cooling capacity during normal operation, and it was still functional.</p> <p>Potential Consequences: If an accident were to occur, the chiller may not be able to keep the control structure habitable. With the current weather patterns surrounding this event, it would have been unlikely that the spray pond temperature would reach the high limits, thus not hampering the chiller's ability to provide cooling.</p> <p>CORRECTIVE ACTIONS</p> <ol style="list-style-type: none"> 1. A work order was generated in December to adjust the chiller's charge to decrease the power consumption. This has been completed. 2. The preventative maintenance activity was updated to include instructions that have the maintenance crew report all fluid level changes, parameter adjustments, and abnormal parameters to the system engineer. This action has been completed. 3. The maintenance and inspection procedure for the chiller was revised to change the refrigerant charge from 2010 pounds to 1910 pounds. <p>PREVIOUS SIMILAR EVENTS</p> <p>LER 2012-001-00 Both Control Structure Chillers Inoperable due to cyclical fatigue / corrosion.</p> <p>LER 2012-002-00 Inoperability of 'B' Control Structure Chiller coincident with inoperability of 'A' EDG due to external corrosion.</p> <p>LER 2012-010-00 3.0.3 Entry Due to Both Control Structure Chillers Inoperable.</p>							