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APR 28 2015

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)/2015-001-00
UNIT 1 LICENSE NO. NPF-14
UNIT 2 LICENSE NO. NPF-22
PLA-7323

Docket No 50-387
50-388

Attached is Licensee Event Report (LER) 50-387(388)/2015-001-00. The LER reports an event involving the inoperability of an emergency diesel generator due to fuel oil leakage. This event was determined to be reportable under 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications.

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)/2015-001-00

Copy: NRC Region I
Mr. J. E. Greives, NRC Sr. Resident Inspector
Mr. J. A. Whited, NRC Project Manager
Mr. L. J. Winker, PA DEP/BRP

NRC FORM 366 (02-2014) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 01/31/2017

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.

LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Susquehanna Steam Electric Station Unit 1	05000387	1 of 2

4. TITLE Inoperability of the 'B' Emergency Diesel Generator due to Fuel Oil Leakage

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
									Susquehanna Steam Electric Station, Unit 2	05000388
03	02	2015	2015	- 001	00	04	28	2015	FACILITY NAME	DOCKET NUMBER 05000

9. OEPRATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
1	☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
10. POWER LEVEL	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
100	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
	☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMER *(Include Area Code)*
C. E. Manges Jr., Senior Engineer – Nuclear Regulatory Affairs	(570) 542-3089

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	DC	PSP	C634	N					

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

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

During a routine surveillance test on March 2, 2015, the 'B' Emergency Diesel Generator (DG) was declared inoperable due to fuel oil leakage from the fuel oil drain line crossover piping. The DG was declared inoperable because it was not known if the DG would have been able to meet its mission time due to the risk of fire from the leaking fuel oil. A prompt operability determination performed when the leak was originally identified on January 31, 2015 did not bound the increased leak rate observed on March 2, 2015. The leaking drain line piping was replaced and the 'B' DG was restored to operable on March 3, 2015.

The direct cause of the fuel oil leakage was determined to be fretting, due to normal engine vibration, from the piping rubbing against a metal clamp used to support the piping. The underlying cause of the fretting was determined to be the inadequate design of the support clamp. The design did not take into account the engine vibration and the possibility of fretting-induced wear from metal-on-metal contact. Immediate corrective action was taken to replace the affected piping and complete the routine surveillance test on the 'B' DG. The support clamp was then replaced with a clamp of a different design to account for engine vibration and fretting-induced wear.

Given the location of the affected drain line piping and the design of the fuel oil system, the fuel oil leakage did not adversely impact the supply of fuel oil to the DG to perform its safety function for the required mission time. There were no actual consequences to the health and safety of the public as a result of this event.

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Susquehanna Steam Electric Station, Unit 1	05000387	2015	- 001	- 00	2 of 2

NARRATIVE

CONDITIONS PRIOR TO THE EVENT

Unit 1 – Mode 1, 100 percent Rated Thermal Power

Unit 2 – Mode 1, 100 percent Rated Thermal Power

Besides the affected DG, there were no systems, structures, or components that were inoperable at the start of the event and contributed to the event.

EVENT DESCRIPTION

During a routine surveillance test run on March 2, 2015, the 'B' Emergency Diesel Generator (DG) [EIIS System Identifier: EK] was declared inoperable due to fuel oil leakage from the fuel oil drain line crossover piping [EIIS System/Component Identifier: DC/PSP]. The DG was declared inoperable because it was not known if the DG would have been able to meet its mission time due to the risk of fire from the leaking fuel oil. The leaking drain line piping was replaced and the 'B' DG was restored to operable on March 3, 2015.

On January 31, 2015, fuel oil drain line pipe fretting and fuel oil leakage was identified on the 'B' DG at a leak rate of approximately 12 drops per minute. A prompt operability determination (POD) was performed that concluded that there was no impact on the ability of the DG to perform its safety function with the existing leak. The DG was later declared inoperable on March 2, 2015 when the leak rate increased to approximately 24 drops per minute with some spraying action observed. Based on the initial identification of leakage on January 31, 2015, firm evidence is considered to exist to indicate that the condition existed prior to the time of discovery. Therefore, this condition is considered to be reportable under 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specification 3.8.1.

CAUSE OF THE EVENT

The direct cause of the fuel oil leakage was determined to be fretting, due to normal engine vibration, from the fuel oil drain line crossover piping rubbing against a metal clamp used to support the piping. The underlying cause of the fretting was determined to be an inadequate design of the support clamp. The design did not take into account the engine vibration and the possibility of fretting-induced wear from metal-on-metal contact. Additional cause evaluation is in progress and a supplemental LER will be submitted based on the additional cause analysis, if necessary.

ANALYSIS/SAFETY SIGNIFICANCE

Given the location of the affected drain line piping and the design of the fuel oil system, the fuel oil leakage did not adversely impact the supply of fuel oil to the DG to perform its safety function for the required mission time. The DG was declared inoperable based on the condition not being bounded by the POD with respect to the risk of fire from the leaking fuel oil and the resulting potential impact of a fire on the DG's ability to meet its required mission time.

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

CORRECTIVE ACTIONS

Immediate corrective action was taken to shut down the DG from its surveillance test, replace the affected piping, and complete the routine surveillance test run on the 'B' DG. The support clamp was then replaced with a clamp of a different design to account for engine vibration and fretting-induced wear. The extent of condition was evaluated and affected piping was replaced and clamps of a different design were installed on the 'A', 'C', and 'D' DGs.

PREVIOUS SIMILAR EVENTS

Although no fuel oil leakage was identified, fretting at this piping location was previously addressed in 2001 by replacing the affected piping.