Exelon Generation

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10 CFR 50.73

RA17-076

August 18, 2017

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

LaSalle County Station, Unit 1
Renewed Facility Operating License No. NPF-11
NRC Docket No. 50-373

Subject: Licensee Event Report 2017-007-00, Low Pressure Core Spray System Inoperable due to Loss of Cooling

In accordance with 10 CFR 50.73(a)(2)(v)(D), Exelon Generation Company, LLC (EGC) is submitting Licensee Event Report (LER) Number 2017-007-00 for LaSalle County Station, Unit 1.

There are no regulatory commitments in this letter. Should you have any questions concerning this report, please contact Mr. Guy V. Ford, Jr., Regulatory Assurance Manager, at (815) 415-2800.

Respectfully,

Harold T. Vinyard
Plant Manager
LaSalle County Station

Enclosure: Licensee Event Report

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – LaSalle County Station

NRC FORM 366 (04-2017) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 03/31/2020

LICENSEE EVENT REPORT (LER)

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

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
LaSalle County Station, Unit 1	05000373	1 OF 3

4. TITLE

Low Pressure Core Spray System Inoperable due to Loss of Cooling

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
									NA	NA
06	22	2017	2017	- 007	- 00	08	18	2017	FACILITY NAME NA	DOCKET NUMBER NA

9. OPERATING 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)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
	☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
	☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
10. POWER LEVEL	☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
	☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(C)	☐ 73.77(a)(1)
100	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☒ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(i)
	☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(ii)
		☐ 50.73(a)(2)(i)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A	

12. LICENSEE CONTACT FOR THIS LER

LICENSEE CONTACT	TELEPHONE NUMBER *(Include Area Code)*
John Kowalski, Maintenance Director	(815) 415-2500

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
X	BM	HS	G080	Y	NA	NA	NA	NA	NA

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)*

On June 22, 2017, the Unit 1 Low Pressure Core Spray (LPCS) system was declared inoperable due to loss of corner room area cooling and loss of motor cooling. The common diesel generator cooling water pump received an automatic trip signal while being secured. The LPCS pump remained in standby during the event. Troubleshooting identified the most likely cause for the trip of the emergency cooling water pump breaker was a malfunction of the cooling water pump control switch or the cooling water supply fan control relay. Both suspected components were replaced. The causal investigation did not identify a specific cause; however, there is a high level of confidence that the failure modes were eliminated by the corrective actions taken during troubleshooting.

This component inoperability is reportable in accordance with 10 CFR 50.73(a)(2)(v)(D) as an event or condition that could have prevented fulfillment of the safety function of structures or system that are needed to mitigate the consequences of an accident. This condition could have prevented the LPCS system, a single train safety system, from performing its design function. There was minimal safety consequences associated with the condition since other required emergency safety systems remained operable, there were no actual demands for Unit 1 LPCS, and safety margins were maintained.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
LaSalle County Station, Unit 1	05000373	2017	- 007	- 00

NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

LaSalle County Station Unit 1 is a General Electric Boiling Water Reactor with 3546 Megawatts Thermal Rated Core Power.

The affected system was the Division 1 Low Pressure Core Spray (LPCS) system, one of the stand-by emergency core cooling systems (ECCS) credited for emergency injection into the reactor pressure vessel (RPV). The LPCS system is designed to provide sufficient cooling to the reactor core to prevent excessive fuel cladding temperatures following any break in the nuclear system piping. The affected support system was the diesel generator (DG) cooling water system, which provides cooling to the LPCS room equipment and the LPCS pump motor, from the Division 1 DG cooling water pump 0DG01P.

CONDITION PRIOR TO EVENT

Unit(s): 1 Date: June 22, 2017 Time: 2043 CDT
Reactor Mode(s): 1 Mode(s) Name: Power Operation Power Level: 100 percent

DESCRIPTION

On June 22, 2017, the Unit 1 Low Pressure Core Spray (LPCS) system was declared inoperable due to loss of a supporting system for corner room area cooling and loss of motor cooling. The common (Division 1) diesel generator (DG) cooling water pump received an automatic trip signal while being secured. The LPCS pump remained in standby during the event. This condition could have prevented LPCS, a single train safety system, from performing its design function. The NRC was notified of the event on June 23, 2017, via emergency notification system (ENS) report 52821.

Prior to the condition the station was preparing to shut down Unit 1 for a planned maintenance outage. The Division 1 residual heat removal (RHR) pump had been shut down, and its corner room fan had been verified to be secured. As neither Unit 1 nor Unit 2 required the use of the common DG cooling pump, the 0DG01P control switch was taken to the STOP position at the 1PM01J panel. When the switch was taken to the STOP position, the automatic trip light lit and 1PM01J-A215 0 DG trouble alarm annunciated. Operations re-verified that the associated pumps and fans were not required to be running and took the 0DG01P control switch to the NORMAL AFTER STOP position and the 0DG01P pump restarted. This operation was performed to ensure operability of the pump and minimize risk. Troubleshooting identified that the most likely reason for the malfunction of the 0DG01P pump breaker was a contact fault of either the 0HS-DG001A control switch or the 1VY01C control relay. Troubleshooting was performed, and both the control relay and the hand switch were replaced. Correct operation of the control circuit and breaker was verified, and the equipment was returned to operable status.

CAUSE

The most likely causes of the event were intermittent binding of the contact carriers internal to the switch or an intermittent failure of the control relay that contains the contact that provides the automatic start of the 0DG01P pump. The analysis of various potential failures of other components in the control logic did not identify any other component failures with the potential to cause the same type of behavior. Based on the review of the troubleshooting and failure analysis, both suspected failure modes were addressed by component replacements.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
LaSalle County Station, Unit 1	05000373	2017	- 007	- 00

NARRATIVE

REPORTABILITY AND SAFETY ANALYSIS

The required action of Technical Specifications (TS) 3.5.1, "ECCS – Operating" was entered on June 22, 2017 at 2043 CDT when the condition was identified, and the LPCS system was determined to be inoperable. The TS limiting condition of operation (LCO) was exited on June 23, 2017 at 1357 CDT when the station transitioned Unit 1 to Mode 4 in support of the planned maintenance outage L1M22. Troubleshooting, associated component maintenance, and system testing was completed on June 24, 2017 at 1518 CDT.

This component inoperability is reportable in accordance with 10 CFR 50.73(a)(2)(v)(D) as an event or condition that could have prevented fulfillment of the safety function of structures or system that are needed to mitigate the consequences of an accident. This condition could have prevented the LPCS system, a single train safety system, from performing its design function. There was minimal safety consequences associated with the condition since other required emergency safety systems remained operable, there were no actual demands for Unit 1 LPCS, and safety margins were maintained.

This condition was determined to be a safety system functional failure (SSFF) as defined in accordance with NEI 99-02, Regulatory Assessment Performance Indicator Guideline.

CORRECTIVE ACTIONS

Corrective actions were taken to replace the 0HS-DG001A control switch and the 1VY01C control relay during troubleshooting.

PREVIOUS OCCURRENCES

A review of station Licensee Event Reports and corrective action program (CAP) data for the past three years, related to switch failures, identified the following similar instance:

ICES 322935 – LaSalle Unit 1, Reactor Building Ventilation Fan Tripped During Fan Swap (April 29, 2016)
Operations personnel were performing a fan swap on Reactor Building Ventilation (VR), when the fan tripped shortly after starting. The consequence was loss of one ventilation fan; however, there are three fans in the train where only two fans are needed for normal operation. The failure was due to switch stop contacts stuck closed in the Control Room. The cause was SBM-style switch stop contacts stuck closed giving a stop signal when the switch was taken to start. The switch was replaced with a new one and tested successfully. Actions to prevent recurrence were determined to be not needed because the switch has been reliable and there has not been a failure of the SBM switch component in over fifteen years on any of the twelve VR supply/exhaust fans, and the device's preventative maintenance was in alignment with station expectations.

COMPONENT FAILURE DATA

Manufacturer: General Electrical Company (G080)
Device: Diesel Generator 0 Cooling Water Pump Hand/Control Switch
Component ID: 0HS-DG001A, Model: Q16SBMD4C42P1F1P1 (SBM)