Exelon Generation

10 CFR 50.73

LG-18-078
June 18, 2018

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

Limerick Generating Station, Unit 1
Renewed Facility Operating License No. NPF-39
NRC Docket No. 50-352

Subject: LER 2018-003-00, High Pressure Coolant Injection (HPCI) Inoperability due to Main Pump Inboard Seal Leak

Enclosed is a Licensee Event Report (LER) which addresses the inoperability of the High Pressure Coolant Injection (HPCI) system during surveillance testing at Limerick Generating Station (LGS), Unit 1.

This LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(v)(D), any event or condition that could have prevented the fulfillment of the safety function of structures or systems that are needed to mitigate the consequences of an accident.

Additionally, this LER is being submitted pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

There are no commitments contained in this letter.

If you have any questions, please contact Robert B. Dickinson at (610) 718-3400.

Respectfully,

Richard W. Libra
Vice President – Limerick Generating Station
Exelon Generation Company, LLC

cc: Administrator Region I, USNRC
USNRC Senior Resident Inspector, Limerick Generating Station

NRC FORM 366
(02-2018)

U.S. NUCLEAR REGULATORY COMMISSION

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/)

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

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 Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by 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.

1. Facility Name	2. Docket Number	3. Page
Limerick Generating Station, Unit 1	05000352	1 OF 3

4. Title

High Pressure Coolant Injection (HPCI) Inoperability due to Main Pump Inboard Seal Leak

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	17	2018	2018	- 003 -	00	06	18	2018	Facility Name	Docket Number

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)
012	☐ 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)
	☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☒ 50.73(a)(2)(v)(D)	☐ 73.77(a)(2)(ii)
	☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(iii)
		☐ 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)
Robert B. Dickinson, Manager – Regulatory Assurance	(610) 718-3400

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES
A	BJ	P	A391	Y					

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 14 single-spaced typewritten lines)

On April 17, 2018, the Unit 1 High Pressure Coolant Injection (HPCI) system was secured during surveillance testing due to a leak from the main pump inboard seal. Unit 1 HPCI System was isolated and declared inoperable at 1030.

A retaining collar setscrew was not properly secured during reassembly of the HPCI inboard pump seal. The retaining collar captures a split ring that secures the mechanical seal sleeve in position. During surveillance testing, the seal sleeve moved out of position resulting in the inboard seal leak.

Technicians performed a less than adequate inspection and did not ensure that the split ring was secured by the retaining collar. The individuals were coached and the procedure for a HPCI full pump rebuild was revised to include additional technical detail with technical hold points for pump seal reinstallation.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Limerick Generating Station, Unit 1	05000352	2018	- 003	- 00

NARRATIVE

I. Unit Conditions Prior to the Event

Limerick Generating Station (LGS) Unit 1 was operating in Operational Condition (OPCON) 1 at 12 percent power at the time of the event. There were no other structures, systems, or components inoperable that contributed to the event.

II. Description of the Event

On March 26, 2018 Unit 1 was shutdown for the refuel outage. During the refuel outage work was performed to repair a small leak on the HPCI Main Pump Seal.

On April 15, 2018 the Unit 1 entered OPCON 2, Startup.

At 0510 on April 16, 2018 with reactor pressure at 200 psig, Unit 1 HPCI was declared operable following the HPCI Operability Verification Surveillance Testing when no seal leakage was evident.

At 0804 on April 17, 2018, the Unit 1 entered OPCON 1, Run.

On April 17, 2018, with reactor pressure at 960 psig, the Unit 1 High Pressure Coolant Injection (HPCI) system was secured during surveillance testing due to a leak from the main pump inboard seal. Unit 1 HPCI System was isolated and declared inoperable at 1030.

Troubleshooting identified that a retaining collar was not properly secured with its setscrew during reassembly of Unit 1 High Pressure Coolant Injection (HPCI) Main Pump inboard seal. The retaining collar captures a split ring that secures the mechanical seal sleeve in position. During surveillance testing, the seal sleeve moved out of position resulting in the pump inboard seal leak.

This condition is reportable under 10 CFR 50.73(a)(2)(v)(D) as an event that could have prevented fulfillment of a safety function of a system that is needed to mitigate the consequences of an accident. An eight (8) hour Emergency Notification System (ENS) notification (#53341) was completed at 1629 hours on April 17, 2018.

Following repair of the pump inboard seal, satisfactory post-maintenance testing, and surveillance testing, the Unit 1 HPCI system was declared operable at 1938 hours on April 17, 2018.

III. Analysis of the Event

Technicians performed a less than adequate inspection and did not ensure that the split ring was secured by the retaining collar. The individuals were coached and the procedure for a HPCI full pump rebuild was revised to include additional technical detail with technical hold points on pump seal reinstallation.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(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/)

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
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Limerick Generating Station, Unit 1	05000352	2018	- 003	- 00

NARRATIVE

Based on the indeterminate condition of the seal, HPCI past operability between 200 psig and rated reactor pressure could not be ensured. Although HPCI was operable based on the 200 psig HPCI Operability Verification Surveillance Testing when no seal leakage was evident, the past operability evaluation could not justify operability at the time the reactor mode changed at 0804 on 4/17/18.

Therefore, this LER is also being submitted pursuant to the requirements of 10CFR 50.73(a)(2)(i)(B), Operation or Condition Prohibited by Technical Specifications.

IV. Safety Significance

There was no actual safety consequence associated with this event. The reactor core isolation cooling (RCIC) system and low-pressure Emergency Core Cooling Systems (ECCS) were available during surveillance testing.

V. Cause of the Event

Technicians performed a less than adequate inspection and did not ensure that the split ring was secured by the retaining collar.

VI. Corrective Actions Completed/Planned

The individuals were coached and the maintenance procedure for the HPCI full pump rebuild was revised to include additional technical detail with technical hold points on pump seal reinstallation.

VII. Previous Similar Occurrences

There were no previous similar occurrences in the past 5 years.

VIII. Component Data

System: BJ High Pressure Coolant Injection System
Component: Pump
Component number: 10-P204
Manufacturer: Flowserve
Model number: DVMX
Serial number: 701-S-0833