



10CFR50.73

LR-N18-0128

NOV 20 2018

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-001

Hope Creek Generating Station
Renewed Facility Operating License No. NPF-57
Docket No. 50-354

Subject: Licensee Event Report 2018-004-00, High Pressure Coolant
Injection System Inoperable due to Failed Fuse.

In accordance with 10 CFR 50.73(a)(2)(v)(D), PSEG Nuclear LLC is submitting
Licensee Event Report (LER) Number 2018-004-00, "High Pressure Coolant Injection
System Inoperable due to Failed Fuse."

If you have any questions or require additional information, please contact
Mr. Thomas MacEwen at (856) 339-1097.

There are no regulatory commitments contained in this letter.

Sincerely,

A handwritten signature in black ink that reads "John F. Casulli". The signature is stylized and written over a horizontal line.

John F. Casulli

for
Edward T. Casulli
Plant Manager
Hope Creek Generating Station

ttm

Attachment: Licensee Event Report 2018-004-00

cc: Mr. Daniel Dorman, Regional Administrator – Region I, NRC
Mr. Jim Kim, Project Manager - US NRC
Mr. Justin Hawkins, NRC Senior Resident Inspector – Hope Creek (X24)
Mr. Patrick Mulligan, Manager IV, NJBNE
Mr. Thomas MacEwen, Hope Creek Commitment Tracking Coordinator (H02)
Mr. Lee Marabella, Corporate Commitment Tracking Coordinator (N21)



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/>)

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 Hope Creek Generating Station	2. Docket Number 05000-354	3. Page 1 OF 3
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4. Title
High Pressure Coolant Injection System Inoperable Due to Failed Fuse

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
09	26	2018	2018	-004	-00	11	20	2018		05000
									Facility Name	Docket Number
										05000

9. Operating Mode 1	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)											
	<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 100%	<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)(ii)		
	<input type="checkbox"/> 20.2203(a)(2)(vi)			<input type="checkbox"/> 50.73(a)(2)(i)(B)			<input type="checkbox"/> 50.73(a)(2)(vii)			<input type="checkbox"/> 73.77(a)(2)(iii)		
			<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 Thomas MacEwen, Principal Nuclear Engineer	Telephone Number (Include Area Code) 856-339-1097
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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
X	BJ	LS	R369	Y					

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: _____
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Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On September 26, 2018, at 1530 the High Pressure Coolant Injection (HPCI) system became inoperable due to a failed fuse in channel 'A' of the system initiating logic. At the time of the failure Hope Creek was in Operational Condition 1 at 100% power. The failed fuse also affected the 'A' channel of the Core Spray and Low Pressure Coolant Injection (LPCI) sub-systems. The HPCI system can be initiated by either of two channels, designated as 'A' channel and 'C' channel. The 'C' channel of the HPCI system remained functional. The fault was isolated to a single component associated with the HPCI system high water level trip (level 8). With the fault isolated, power was restored to the remaining effected portions of the 'A' channel ECCS systems at 2101 on September 26, 2018.

With power restored to the other circuits, the 'A' Core Spray and 'A' LPCI subsystems were restored to operable. The HPCI system remained inoperable in accordance with plant Technical Specifications. HPCI was restored to operable status on September 27, 2018 at 1755, following replacement of the effected component, a trip unit, associated with the 'A' channel high water level switch.

These conditions are being reported in accordance with 10 CFR 50.73(a)(2)(v)(D) as a condition that could have prevented the fulfillment of a safety function.



**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

(See NUREG-1022, R.3 for instruction and guidance for completing this form
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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Hope Creek Generating Station	05000-354	2018	- 004	- 00

NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

General Electric – Boiling Water Reactor (BWR/4)*
 High Pressure Coolant Injection (BJ) – EIS Identifier {BJ}
 Core Spray (BM) – EIS Identifier {BM}
 Low Pressure Coolant Injection (BO) – EIS Identifier {BO}
 *Energy Industry Identification System {EIS} codes and component function identifier codes appear as {SS/CCC}

IDENTIFICATION OF OCCURRENCE

Event Dates: September 26, 2018
 Discovery Dates: September 26, 2018

CONDITIONS PRIOR TO OCCURRENCE

Hope Creek was in Operational Condition (OPCON) 1 – Power Operation, at 100% power.

DESCRIPTION OF OCCURRENCE

On September 26, 2018, at 1530 the High Pressure Coolant Injection (HPCI) {BJ} system became inoperable due to a failed fuse in channel 'A' of the system initiating logic. At the time of the failure Hope Creek was in Operational Condition 1 at 100% power. The failed fuse also affected the 'A' channel of the Core Spray and Low Pressure Coolant Injection (LPCI) sub-systems. The HPCI system can be initiated by either of two channels, designated as 'A' channel and 'C' channel. The 'C' channel of the HPCI system remained functional. The fault was isolated to a single component associated with the HPCI system high water level trip (level 8). With the fault isolated, power was restored to the remaining effected portions of the 'A' channel ECCS systems at 2101 on September 26, 2018.

With power restored to the other circuits, the 'A' Core Spray and 'A' LPCI subsystems were restored to operable. The HPCI system remained inoperable in accordance with plant Technical Specifications. HPCI was restored to operable status on September 27, 2018 at 1755, following replacement of the effected component, a trip unit associated with the 'A' channel high water level switch. The HPCI system was inoperable for 26 hours and 25 minutes.

These conditions are being reported in accordance with 10 CFR 50.73(a)(2)(v)(D) as a condition that could have prevented the fulfillment of a safety function.

CAUSE OF EVENT

The failed fuse was removed and a short circuit to ground was identified on the load side of the fuse. The effected trip unit modules were then removed one at a time until the module containing the HPCI high water level trip, 1BJLS-N693A-B21, was removed and the resistance increased, indicating that the short circuit was removed. The fuse and trip unit module were replaced and the system functions were restored.

Analysis of the failed module found it to be working correctly during subsequent testing. Review of operating experience found a Part 21 notice, 1999-31-0 containing information that capacitor C25, connected across the dc input power to the trip unit, has a potential to short circuit. Measurements made on the C25 capacitor found it to be open and outside of tolerance, reading 0.13 nanofarads instead of 1 microfarad. The capacitor age was within the date range identified in the Part 21 notice. Based on this, the likely cause of failure is a short circuit of capacitor C25 on trip unit 1BJLS-N693A-B21, HPCI high water level trip.



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		2018	- 004	- 00

There was one similar failure identified at Hope Creek in 1996. A search of industry operating experience (OE) identified eight failures in the industry since 1998. Based on the relatively low number of industry failures and the time that has passed since the part 21 was issued, this is considered to be a random failure.

SAFETY CONSEQUENCES AND IMPLICATIONS

There were no safety consequences as a result of this event.

The operating crew responded correctly to the event. The event was within the analysis of UFSAR chapter 15. There was no release of radioactivity associated with this event.

During the event, the ADS system, the 'B' Core Spray system and the 'B', 'C' and 'D' LPCI systems remained operable. The combination of operable low pressure ECCS pumps and the ADS system was sufficient to provide the required safety functions needed to protect the health and safety of the public.

PREVIOUS EVENTS

A review of Licensee Event Reports and the corrective action program for the past three years identified no LERs issued for similar conditions.

CORRECTIVE ACTIONS

The failed fuse and trip unit module were replaced and the system functions were restored.

COMMITMENTS

This LER contains no regulatory commitments.