

PSEG Nuclear LLC  
P.O. Box 236, Hancocks Bridge, New Jersey 08038-0236



10CFR50.73

LR-N18-0093

**SEP 12 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: Supplemental Licensee Event Report 2018-003-01, Feedwater  
Isolation Valve Leakage Exceeded Technical Specification Limit

Reference: PSEG Letter LR-N18-0068, dated June 18, 2018  
Licensee Event Report 2018-003-00

In accordance with 10 CFR 50.73(a)(2)(i)(B), PSEG Nuclear LLC is submitting Supplemental Licensee Event Report (LER) Number 2018-003-01, "Feedwater Isolation Valve Leakage Exceeded Technical Specification Limit." The Reference LER stated that Hope Creek Generating Station would supply a supplement to the LER with the results of an evaluation to determine if the leakage would have prevented the fulfillment of a safety function. The results of the evaluation are communicated in the LER supplement attached to this letter.

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, appearing to read "E. Casulli".

Edward T. Casulli  
Plant Manager  
Hope Creek Generating Station

Attachment: Supplemental Licensee Event Report 2018-003-01

cc: Mr. David Lew, Regional Administrator – Region I, NRC  
Mr. James 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](mailto: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.

<b>1. Facility Name</b> Hope Creek Generating Station	<b>2. Docket Number</b> 05000-354	<b>3. Page</b> 1 OF 3
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**4. Title**  
Feedwater Isolation Valve Leakage Exceeded Technical Specification Limit

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	18	2018	2018	-003	-01	09	12	2018		05000
									Facility Name	Docket Number
										05000

<b>9. Operating Mode</b> 5	<b>11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)</b>										
	<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)							
<b>10. Power Level</b> 0	<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)							
	<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 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 checked="" 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	SJ	ISV	A391	N					

<b>14. Supplemental Report Expected</b> <input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No	<b>15. Expected Submission Date</b>	Month	Day	Year

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

On April 18, 2018, with Hope Creek Generating Station (HCGS) in a planned refueling outage, HCGS performed a required surveillance test of the long term seal of the feedwater lines. The test criteria could not be met due to leakage past feedwater isolation valve H1AE -AE-HVF032B. The valve is sealed with a water seal from the High Pressure Reactor Coolant (HPCI) system, or Reactor Core Isolation Cooling (RCIC) system, to form a long-term seal boundary of the feedwater lines. The valve is tested per Technical Specification Surveillance Requirement 4.6.1.2.g to verify a maximum leak rate of 10 gpm at a test pressure of 55.7 psig. During the test, a test pressure of 44 psig was the highest pressure that could be obtained, which does not meet the acceptance criterion.

This condition is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by plant Technical Specifications.



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

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](mailto: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.

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1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
Hope Creek Generating Station	05000-354	YEAR 2018	SEQUENTIAL NUMBER - 003	REV NO. - 01

**NARRATIVE**

**PLANT AND SYSTEM IDENTIFICATION**

General Electric – Boiling Water Reactor (BWR/4)\*  
 Feedwater System (SJ) – EISS Identifier {SJ/ISV}  
 High Pressure Coolant Injection (BJ) – EISS Identifier {BJ}  
 Reactor Core Isolation Cooling (BN) – EISS Identifier {BN}  
 Secondary Containment (NG) – EISS Identifier {NG}  
 \*Energy Industry Identification System {EISS} codes and component function identifier codes appear as {SS/CCC}

**IDENTIFICATION OF OCCURRENCE**

Event Dates: April 18, 2018  
 Discovery Dates: April 18, 2018

**CONDITIONS PRIOR TO OCCURRENCE**

Hope Creek was shut down for Refueling Outage H1R21 in Operational Condition (OPCON) 5 – Refueling Operations.

**DESCRIPTION OF OCCURRENCE**

On April 18, 2018, with Hope Creek Generating Station (HCGS) in a planned refueling outage, HCGS performed a required surveillance test of the long term seal of the feedwater lines. The test criteria could not be met due to leakage past feedwater system {SJ} isolation valve H1AE -AE-HVF032B. The valve is sealed with a water seal from the High Pressure Coolant Injection (HPCI) {BJ} system, or Reactor Core Isolation Cooling (RCIC) {BN} system, to form a long-term seal boundary of the feedwater lines. The valve is tested with water at a test pressure of 55.7 psig to ensure the seal boundary will prevent bypass leakage. At the maximum water test rig pressure, the test rig's downstream pressure was only able to achieve approximately 44 psig, 11.7 psig less than the required 55.7 psig to perform the test. Although no flow rate was achieved or directly measured, the test was considered failed due to not being able to meet procedural test acceptance criterion.

The H1AE -AE-HV-F032B is 24 inch anchor darling "Y" type swing check valve with a Limitorque SMB-4 motor operator to assist in maintaining the valve closed.

Technical Specification 3.6.1.2.d limits the total combined leakage rate to 10 gpm, or less, for all the containment isolation valves which form the boundary for the long term seal of the feedwater lines, when tested at 55.7 psig. Based on the cause of the failure, and the maintenance history of the valve, it was concluded that the condition is reportable as a condition prohibited by Technical Specifications under 10 CFR 50.73(a)(2)(i)(B).

**CAUSE OF EVENT**

An internal inspection was performed on the H1AE -AE-HV-F032B under work order 60138581 in H1R21. The following was identified during this inspection:

- One bore on the hinge arm was larger than the acceptance criteria by an average of 0.004 inches. (2.039 inches vs 2.029 - 2.035 inches)
- The hinge pin was worn and undersized by 0.002 inches. (1.997 inches vs 2.000 +/- 0.001 inches)
- The gap between the hinge arm and disc was smaller by 0.0325 inches (0.030 inches vs 0.0625 inches)

The combination of the wear on the hinge arm bores, the wear on the hinge pin, and the smaller gap between the hinge arm and disc prevented the valve disc from properly seating, which resulted in the high leak rate.



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Hope Creek Generating Station	05000-354	2018	- 003	- 01

**SAFETY CONSEQUENCES AND IMPLICATIONS**

The long term feedwater seal is established following a Loss of Coolant Accident (LOCA) by manually aligning the RCIC and/or HPCI jockey pumps to the feedwater lines between the inboard and outboard containment isolation valves. H1AE -AE-HV-F032B is the outboard containment isolation valve on one of two feedwater supply lines. The purpose of the feedwater seal, as described in the UFSAR, is to establish a water seal of the feedwater penetrations to eliminate bypass leakage. The seal is established following a LOCA, and is to be maintained for a minimum of 30 days.

The purpose of the leak rate testing is to verify that the leakage is within the capability of the system to maintain the seal for the 30 day minimum.

A Technical Evaluation was performed to determine the impact on the ability to maintain a leak seal for the 30 day minimum. The evaluation of test data indicates leakage through the F032B would not have posed a challenge to the ability to establish and maintain the required feedwater seal for 30 days post-LOCA.

**SAFETY SYSTEM FUNCTIONAL FAILURE**

A review of this condition, and the associated technical evaluation, determined that a Safety System Functional Failure (SSFF) as defined in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," did not occur. This event did not prevent the ability of a system to fulfill its safety function to either shutdown the reactor, remove residual heat, control the release of radioactive material, or mitigate the consequences of an accident.

**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 F032B check valve was opened and inspected. Corrective maintenance was performed to address the dimensional clearances and deficiencies identified in the Cause of Event section above. A satisfactory leak rate test was performed following the corrective maintenance.

**COMMITMENTS**

This LER contains no regulatory commitments.