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Nuclear LLC

10CFR50.73

LR-N17-0084

MAY 04 2017

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

Hope Creek Generating Station Unit 1
Renewed Facility Operating License No. NPF-57
Docket No. 50-354

Subject: Supplemental Licensee Event Report 2016-006-01, Mode Change Without B Channel Level Instrumentation Operable

In accordance with the requirements of 10 CFR 50.73(a)(2)(i)(B), PSEG Nuclear LLC is submitting the enclosed Supplemental Licensee Event Report (LER) Number 2016-006-01, "Mode Change Without B Channel Level Instrumentation Operable."

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,

Edward T. Casulli
Plant Manager
Hope Creek Generating Station

ttm

Attachment: Licensee Event Report 2016-006-01

cc: Mr. Daniel Dorman, Regional Administrator – Region I, NRC
Ms. Carleen Parker, 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)

NRC FORM 366 (06-2016) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2018

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/)

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4. TITLE

Mode Change Without B Channel Reactor Level Instrumentation Operable

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
										05000
11	9	2016	2016	- 006	- 01	4	26	2017	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*			
2 – Startup	☐ 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)
<1%	☐ 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)(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)*
Thomas MacEwen, Principal Nuclear Engineer	856-339-1097

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

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 November 9, 2016, at 0420 with the Hope Creek reactor in Operational Condition 2, Startup, the B channel reactor level instrumentation was found to be inoperable. The inoperable instrumentation was discovered as reactor level was being lowered into the normal band in preparation for plant startup. Hope Creek had made a mode change from Operational Condition 4, Cold Shutdown, to Operation Condition 2, Startup, on November 9, 2016, at 0317, approximately 1 hour prior to discovering the inoperable instrumentation.

The B Channel reactor level instrumentation is required to be operable in order to enter Operational Condition 2 to support the B division of the Reactor Protection System (RPS), the Emergency Core Cooling Systems (ECCS), and the Primary Containment Isolation System (PCIS). The cause was determined to be an improperly filled reference leg for the B channel reactor level instrumentation. This report is being made under 10 CFR 50.73(a)(2)(i)(B), as a condition which was prohibited by the plant's Technical Specifications.

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NARRATIVE

PLANT AND SYSTEM IDENTIFICATION

General Electric – Boiling Water Reactor (BWR/4)
Reactor Protection System – EIIS Identifier {JC/LI}*
ESF Actuation System – EIIS Identifier {JE/LI}*
Containment Isolation Control System - EIIS Identifier {JM/ LI}*

*Energy Industry Identification System {EIIS} codes and component function identifier codes appear as {SS/CCC}

IDENTIFICATION OF OCCURRENCE

Event Date: November 9, 2016
Discovery Date: November 9, 2016

CONDITIONS PRIOR TO OCCURRENCE

When the inoperable instrumentation was discovered, Hope Creek was in Operational Condition (OPCON) 2, Startup, with the reactor sub-critical, and a reactor startup in progress. No other structures, systems or components that could have contributed to the event were inoperable at the time of the event.

DESCRIPTION OF OCCURRENCE

During the twentieth refueling outage (H1R20) at Hope Creek, a section of the reference leg for one instrument on the B channel reactor vessel level instrumentation was replaced and rerouted using the design change process. The reference leg is normally maintained at a constant height of water by a condensing pot connected to the reactor vessel steam space. Initially, the reference leg needs to be backfilled with water to remove small pockets of air or voids which may be present. On November 9, 2016, the reference leg had not been backfilled following the re-routing of the reference leg tubing, resulting in an incorrect level indication on all B channel level instruments.

Following replacement of the reference leg, the design change package (DCP) did not provide instructions for back-filling the reference leg. Instead, the DCP relied on the maintenance department to backfill the reference leg while returning the affected instruments to service. The assigned maintenance supervisor was not cognizant of the DCP scope, and determined that the step to backfill the reference leg was not required. A second maintenance supervisor, who was aware of the work scope, did not question the decision to sign-off the backfill as not required. The B channel instruments were returned to service by maintenance without completing the backfill evolution. As a result, the reference leg for the B channel was not completely filled with water, and level on this channel indicated higher than actual level. The top of the indicating band for Technical Specification required reactor vessel instrumentation is +60 inches, and water level was being maintained in a band of 60 to 65 inches inches prior to making the mode change. Under this condition, all four channels of Technical Specification required vessel level indication indicated off-scale high, above 60 inches. Vessel level was being monitored using non-Technical Specification required level instrumentation which has a wider indicating range. Under this condition, the incorrect indication on the B channel instrumentation was not observable to the plant operators.

Following the mode change, when vessel level was being lowered into the normal band of 30-39 inches, the A, C and D channels of vessel level instrumentation all tracked together into the indicating range, while the B channel remained off-scale high.

At approximately 0420, control room operators recognized the condition, declared the B channel inoperable and directed maintenance personnel to investigate. At 0528 a prompt investigation was initiated by the Shift Manager.

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Plant Technical Specifications require that all four channels of vessel level instrumentation be operable prior to making the mode change from OP CON 4, Cold Shutdown to OP CON 2, Startup. The B channel level instruments are required for the operability of the B RPS {JC} channel, the B ECCS {JE} channels and B PCIS {JM} channels.

On November 9, 2016 at 1505, the B1 RPS channel and the B Nuclear Steam Supply Shutoff System (NSSS) {JM} were placed in the tripped condition to comply with the 12 hour action for Technical Specification 3.3.1, Reactor Protection System actuation instrumentation, and Technical Specification 3.3.2, Primary Containment Isolation actuation instrumentation.

Maintenance technicians completed the backfill of the B channel reference leg and the B channel was returned to operable on November 9, 2016 at 2228.

CAUSE OF EVENT

The cause of the event involved personnel error. The two maintenance supervisors involved in the event failed to use a questioning attitude when determining that the backfill evolution was not required. Contributing to the error was the practice of treating the reference leg backfill evolution as a contingency activity, as described in the work schedule. This activity is scheduled as a contingency every outage, but would not normally be performed during every refuel outage, unless work scope dictated that a backfill was required. In this case, the work scope did require that the backfill be performed, but it was not recognized by the supervisor involved.

SAFETY CONSEQUENCES AND IMPLICATIONS

There were no adverse safety consequences as a result of this event. The A, C and D channel level instruments were all operable throughout the duration of the event. The RPS system would have responded properly to shut down the reactor with the B channel level instruments inoperable. The A, C and D ECCS subsystems would have responded to an actual low level condition, and would have provided sufficient capability to restore and maintain vessel level. The reactor coolant system pressure remained within the design capability of the low pressure ECCS systems throughout the event. The PCIS system would have successfully isolated primary containment with the B channel level instruments inoperable since the A, C and D channels were operable.

The B channel level instrumentation was restored to operable prior to the mode change to Operational Condition 1, Run, which occurred on November 11, 2016 at 1423.

SAFETY SYSTEM FUNCTIONAL FAILURE

A review of this condition and the associated evaluations 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.

PREVIOUS EVENTS

A review of events from the past 3 years was performed. Eleven instances were identified in the corrective action program (CAP) in which work was inappropriately closed, and personnel error was cited as causal. None of the evaluations associated with these eleven events identified questioning attitude as a cause or contributing cause. None of the events involved similar consequences and they were not found to be significant in relation to this event.

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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CORRECTIVE ACTIONS

1. The B channel reference leg was backfilled and returned to operable status.
2. The personnel involved in the decision to not perform the backfill were disqualified from performing similar duties until remediated.
3. Additional corrective actions are planned in accordance with the station's corrective action program.

COMMITMENTS

There are no regulatory commitments contained in this LER.