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10CFR50.46



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

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

Subject: 10CFR50.46 REPORT

Pursuant to the requirements of 10CFR50.46, PSEG Nuclear LLC (PSEG) hereby reports changes in the application of the Emergency Core Cooling System (ECCS) evaluation models for the Hope Creek Generating Station. 10 CFR 50.46(a)(3)(ii) requires licensees to report at least annually each change to or error discovered in evaluation models used for calculating ECCS performance and the estimated effect on the limiting ECCS analysis. For significant changes or errors, licensees are required to submit a 30 day report and include a proposed schedule for providing a reanalysis or taking other action necessary to show compliance with 10 CFR 50.46 requirements. This report satisfies the annual reporting requirement.

For the current operating cycle, the Hope Creek core contains a mixture of Westinghouse SVEA-96+ and GE14 fuel.

If you have any questions regarding this submittal, please contact Mr. Francis Possessky at (856) 339-1160.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Jesse".

Michael Jesse
Regulatory Assurance Manager – Hope Creek

Attachments (2)

A002

C Mr. S. Collins, Administrator - Region I
U. S. Nuclear Regulatory Commission
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King of Prussia, PA 19406

U. S. Nuclear Regulatory Commission
Mr. S. Bailey, Project Manager - Hope Creek
Mail Stop 08B1
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USNRC Senior Resident Inspector - Hope Creek (X24)

Mr. K. Tosch, Manager IV
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Trenton, New Jersey 086

Attachment 1
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10 CFR 50.46 Report

Attachment 1
 Hope Creek Generating Station
 10CFR50.46 Report

PLANT NAME: Hope Creek Generating Station
 ECCS EVALUATION MODEL: SAFER/GESTR-LOCA
 REPORT REVISION DATE: 8/25/2006
 CURRENT OPERATING CYCLE: 14

ANALYSIS OF RECORD

Evaluation Model: The GESTR-LOCA and SAFER Models for the Evaluation of the Loss-of-Coolant Accident, Volume III, SAFER/GESTR Application Methodology, NEDE-23785-1-PA, General Electric Company, Revision 1, October 1984.

Calculations: "SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis for Hope Creek generating Station," NEDC-33153P, Revision 1, GE Nuclear Energy, September 2004.

Fuel: SVEA-96+ and GE14
 Limiting Fuel Type: SVEA-96+
 Limiting Single Failure: Battery
 Limiting Break Size and Location: 1.0 Double-Ended Guillotine in a Recirculation Suction Pipe

Fuel Type:	SVEA-96+	GE14
Reference PCT	1540 °F	1370 °F

MARGIN ALLOCATION

A. PRIOR LOCA MODEL ASSESSMENTS

None (See note 1)	$\Delta PCT = 0^\circ F$	$\Delta PCT = 0^\circ F$
Net PCT	1540 °F	1370 °F

B. CURRENT LOCA MODEL ASSESSMENTS

GE LOCA Model Change due to New Heat Source (See Note 2)	$\Delta PCT = 0^\circ F$	$\Delta PCT = 0^\circ F$
Impact of Top Peaked Power Shape for Small Break LOCA Analysis (See Note 3)	$\Delta PCT = 0^\circ F$	$\Delta PCT = 0^\circ F$
Total PCT change from current assessments	$\sum \Delta PCT = 0^\circ F$	$\sum \Delta PCT = 0^\circ F$
Cumulative PCT change from current assessments	$\sum \Delta PCT = 0^\circ F$	$\sum \Delta PCT = 0^\circ F$
Net PCT	1540 °F	1370 °F

**Attachment 2
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10 CFR 50.46 Report Assessment Notes**

Attachment 2
Hope Creek Generating Station
10 CFR 50.46 Report Assessment Notes

1. Prior LOCA Model Assessment

The most recent 10 CFR 50.46 report for Hope Creek was submitted in June 1, 2004. Subsequent to this report and with the startup of cycle 13 in November 2004, Hope Creek discharged all GE9B fuel and implemented GE14 fuel. The Referenced LOCA analysis was implemented as analysis of record for GE14 fuel and SVEA-96+ fuel.

[Reference: "SAFER/GESTR-LOCA Loss-of-Coolant Accident Analysis for Hope Creek generating Station," NEDC-33153P, Revision 1, GE Nuclear Energy, September 2004.]

2. Current LOCA Model Assessment

GE has postulated a new heat source applicable to LOCA event. This heat source is due to recombination of hydrogen and excess oxygen drawn into the vessel from containment during core heatup. The oxygen enters the vessel either as a dissolved gas in the ECCS water or through the break when the vessel fully depressurizes and draws the containment non-condensable gases back into the vessel. The current LOCA evaluation model does not account for the effect of this heat source, which has potential to raise the steam temperature while leading to an increase in PCT and local oxidation. GE has evaluated the effect of this additional heat source and determined that the impact is insignificant. For Hope Creek, the PCT impact for all fuel types is reported to be zero degree and the effect on local oxidation is negligible.

[Reference: 10 CR 50.46 Notification Letter, 2003-05.]

3. Current LOCA Model Assessment

GE reported that past small break ECCS-LOCA analyses have assumed a mid-peaked power shape, consistent with DBA break analyses. Recently, it has been determined that for small break cases, a top-peaked axial power shape can result in higher calculated peak cladding temperature. Evaluations have been performed on representative plants spanning all BWR plant types. The impact on the licensing basis PCT is reported as zero degree for both GE14 fuel and SVEA-96+ fuel for Hope Creek.

[Reference: 10 CR 50.46 Notification Letter, 2006-01.]