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January 31, 2016

10 CFR 50.59

LR-N17-0004

U.S. 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: Report of Changes, Tests, and Experiments

Pursuant to the requirements of 10 CFR 50.59, "Changes, Tests, and Experiments," paragraph (d)(2), Hope Creek Generating Station (HCGS) is providing the required report (Attachment 1) for Renewed Facility Operating License No. NPF-57. This report provides a summary of 10CFR50.59 evaluations for activities implemented under 10CFR50.59 at HCGS during the period of January 1, 2015, through December 31, 2016.

There are no regulatory commitments contained in this letter.

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

Sincerely,

A handwritten signature in black ink, appearing to read "David Mannai", written over a horizontal line.

David Mannai
Senior Director - Regulatory Operations
PSEG Nuclear LLC

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Attachment 1: Report of Changes, Tests, and Experiments

cc: Mr. Daniel Dorman, Regional Administrator - NRC Region 1
Ms. Carleen Parker, Project Manager - USNRC
Mr. Justin Hawkins, USNRC Senior Resident Inspector - Hope Creek
Mr. Patrick Mulligan, Manager IV, NJBNE
Mr. Lee Marabella, Corporate Commitment Tracking Coordinator
Mr. Thomas MacEwen, Hope Creek Commitment Tracking Coordinator

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

Report of Changes, Tests, and Experiments

Replacement of the Main Generator Automatic Voltage Regulator

Hope Creek replaced the main generator Automatic Voltage Regulator (AVR) in May 2015 during refueling outage 19. The AVR was changed from an analog control system to a digital control system. The new system includes computer programmable controls. The design and function of the AVR is not described in the UFSAR. However, because the use of computer programmable controls introduces potential new failure mechanisms, and because the change involves modification of the Human-System Interface (HSI) that encompasses the way that operators interact with the plant, a safety evaluation was performed.

The evaluation determined that these changes did not increase the frequency of failure and did not increase the need for operator intervention or operator burden. Therefore there was no increase in the frequency or likelihood of accidents or malfunctions occurring, or changes in the consequences of accidents or malfunctions. Furthermore, new accident scenarios would not be introduced. No departures from methods of evaluation described in the UFSAR were used in evaluating this condition.

Implementation of the Boiling Water Reactor Owners Group (BWROG) Emergency Procedure and Severe Accident Guidelines (EPG/SAG), Rev 3.

Hope Creek updated the plant Emergency Operating Procedures (EOPs) and associated calculations to incorporate the most current industry guidance. Revision 3 of the EPG/SAG incorporated 45 distinct changes to the EOPs and SAGs. Some of the changes involved actions to preserve the capability of High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems, and also to permit venting of the containment at lower containment pressures than the previous EPG/SAG guidance. Because these changes affect the manner in which a UFSAR design function is performed or controlled, a safety evaluation was performed.

The evaluation determined that the changes do not result in more than a minimal increase in the frequency or likelihood of accidents or malfunctions occurring, or changes in the consequences of accidents or malfunctions, and do not create the possibility for an accident of a different type. Furthermore, design basis limits for fission product barriers are not exceeded or altered. No departures from methods of evaluation described in the UFSAR were used in evaluating this condition.

Control Room Temperature Calculation for Station Blackout (SBO)

Hope Creek revised the calculation for the control room temperature during a SBO event. The revision was performed because the procedure for SBO response did not properly implement the conditions assumed in the original calculation. The original calculation assumed that all acoustic ceiling tiles would be removed during an SBO event. A review of this action determined that this was not practical within the prescribed 30-minute time limit. The revised calculation was performed assuming that 150 square feet of ceiling tile would be removed within the 30-minute time limit. The original methodology described in the UFSAR, NUMARC 87-00, is not amenable to calculate the control room temperature for a partial opening in ceiling tiles. Therefore an alternate methodology, GOTHIC, was used to determine the control room temperature during the SBO event. A safety evaluation was performed because the activity involved a change to a UFSAR described evaluation methodology.

The evaluation determined that these changes did not represent a departure from a method of evaluation described in the UFSAR used in establishing design bases or in the safety analyses. The methodology has been previously approved by the NRC for similar calculations at Hope Creek and at other licensed commercial nuclear plants. The methodology is more appropriate for the given conditions, due to the limitations associated with the original methodology. Although this is a change in methodology, this change is not a departure in methodology since the use of GOTHIC as a methodology has been approved for this application and the application of the new method is appropriate for evaluation of the control room heat-up during an SBO event. Therefore, the proposed activity did not result in a departure from a method of evaluation described in the UFSAR used in establishing the design basis or in the safety analyses.

Final Feedwater Temperature Reduction Dose Calculations

Hope Creek established a new sequence for isolating feedwater heaters to support final feedwater temperature reduction (FFWTR) and performed calculations to determine the impact of these changes along with the introduction of GE2 fuel in the reactor. FFWTR is implemented at the end-of-cycle to increase generator output. These changes were determined to impact the core inventory and radioactive source term used in the Design Basis Accident (DBA) analyses, which impacts the radiological consequences (onsite and offsite doses) of DBA analyses described in the UFSAR. This represents a change to the facility as described in the UFSAR, and a safety evaluation was performed.

The post-accident offsite and control room radiological consequences were evaluated using the Alternate Source Term (AST) methodology and Total Effective Dose Equivalent (TEDE) criteria in a manner consistent with Regulatory Guide 1.183 and the requirements of the Hope Creek operating license. The changes do not result in a design basis limit for a fission product barrier being altered or exceeded. The changes do not result in more than a minimal increase in the consequences previously evaluated in the Hope Creek UFSAR. The changes do not alter the manner in which any plant system, structure or component is controlled or operated and do not create any new system interactions nor affect equipment reliability. There are no changes made to any input to the methodology as described in the UFSAR. The changes do not alter assumptions previously used in evaluating the radiological consequences of an accident described in the UFSAR, nor change the dose mitigating functions previously credited in the radiological consequences of an accident described in the UFSAR.