



LR-N07-0274  
October 23, 2007

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

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

Subject: Plans Related to Steam Dryer Evaluation

- References:
- 1) Letter from George P. Barnes (PSEG Nuclear LLC) to USNRC, September 18, 2006
  - 2) Letter from USNRC to William Levis (PSEG Nuclear LLC), June 7, 2007
  - 3) Letter from George P. Barnes (PSEG Nuclear LLC) to USNRC, August 3, 2007

In Reference 1, PSEG Nuclear LLC (PSEG) requested an amendment to Facility Operating License NPF-57 and the Technical Specifications (TS) for the Hope Creek Generating Station (HCGS) to increase the maximum authorized power level to 3840 megawatts thermal (MWt).

In Reference 2, the NRC requested additional information concerning PSEG's request. PSEG provided the response to the request for additional information in Reference 3. PSEG met with the NRC on October 11, 2007, to discuss technical evaluations provided in Reference 3 related to qualification of the Hope Creek steam dryer for extended power uprate (EPU) operation.

The attachment to this letter documents PSEG's understanding of the key issues discussed at the October 11, 2007 meeting and PSEG's plans for additional steam dryer analysis and testing. Upon completion of the testing and analysis, PSEG will submit information in sufficient detail to permit the NRC staff to complete their review.

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PSEG expects to submit the results, with the exception of Unit 2 steam dryer testing, to the NRC by November 30, 2007. To account for bias and uncertainty in frequency response function amplitudes predicted by the finite element model for the HCGS dryer, PSEG is also developing a plan to test the Unit 2 steam dryer. PSEG will be prepared to discuss the schedule for this testing with the NRC staff by November 2, 2007.

There are no regulatory commitments contained within this letter. Should you have any questions regarding this submittal, please contact Mr. Paul Duke at 856-339-1466.

Sincerely,



George P. Barnes  
Site Vice President  
Hope Creek Generating Station

Attachment

1. Plans Related to Steam Dryer Evaluation

cc: S. Collins, Regional Administrator – NRC Region I  
J. Lamb, Project Manager - USNRC  
NRC Senior Resident Inspector - Hope Creek  
P. Mulligan, Manager IV, NJBNE

# ATTACHMENT 1

## Hope Creek Generating Station

Facility Operating License No. NPF-57  
NRC Docket No. 50-354

### Extended Power Uprate

#### Plans Related to Steam Dryer Evaluation

PSEG Nuclear LLC (PSEG) met with the NRC on October 11, 2007, to discuss technical evaluations related to qualification of the Hope Creek steam dryer for extended power uprate (EPU) operation. The following table summarizes PSEG's understanding of the key issues discussed at the October 11, 2007 meeting and provides PSEG's plans for additional steam dryer analysis and testing.

Issue	PSEG Plan to Resolve
<p>Uncertainty and Bias in Finite Element Model (FEM) Frequency Response Function (FRF) Amplitudes</p> <p>Frequency shifting the steam dryer loading accounts for bias and uncertainty in the FEM resonance frequencies but does not account for errors in the mean and peak frequency response amplitudes due to uncertainty or bias in plate dimensions, boundary conditions (joints between plates and other members), pre-stresses within members, and friction between internal vanes and other components.</p>	<p>Assess margins to stress limits after reduction in 80 Hz load component (see below).</p> <p>Assess feasibility of testing on the Unit 2 dryer to account for bias and uncertainty in FRF amplitudes predicted by the FEM.</p>
<p>FEM Dimensions and Mesh Spacing</p> <p>Additional information is needed for the NRC to assess whether the FEM dimensions and mesh spacing are adequate to establish convergence of strain and stress fields.</p>	<p>Model a portion of the dryer including the hood, reinforcing struts, and some welds at the current mesh size. Simple loading will be applied. The mesh size will then be reduced, nominally by 50%, and the same load will be applied. Successful mesh convergence is demonstrated if the results differ by less than 10%.</p>

Issue	PSEG Plan to Resolve
<p><b>Stress Analysis Approach</b>            Additional information is needed to validate the application of the harmonic finite element stress analysis method in comparison to the time-domain method used previously.</p>	<ol style="list-style-type: none"> <li>1. Perform a time-domain stress analysis of the steam dryer with 1% Rayleigh damping. Loads are to be based on actual plant loads, nominally from 100 to 150 Hz.</li> <li>2. Perform harmonic stress analysis with damping at each natural frequency the same as the estimated damping at each natural frequency from the time-domain analysis in (1) above.</li> <li>3. Perform harmonic stress analysis with damping at 1% over the frequency range.</li> <li>4. Compare results for maximum stresses and displacements and for alternating stress ratios for each method.</li> </ol>
<p><b>Acoustic Circuit Model (ACM) Validation</b>            In the absence of additional plant data to validate ACM Revision 4, the reported margins to stress limits for Hope Creek are insufficient to account for uncertainty in predicted loading.</p>	<p>Obtain additional main steam line strain gage data upon completion of the current refueling outage. Provide technical basis for reducing the 80 Hz input to the ACM. Calculate margin to stress limits with the revised ACM input.</p>