December 15, 2006

LICENSEE: PSEG NUCLEAR LLC

FACILITY: HOPE CREEK GENERATING STATION

SUBJECT: SUMMARY OF NOVEMBER 13 AND 14, 2006, CATEGORY 1 MEETING WITH PSEG NUCLEAR LLC, REGARDING APPLICATION FOR EXTENDED POWER UPRATE FOR HOPE CREEK GENERATING STATION (TAC NO. MD3002)

On November 13 and 14, 2006, the Nuclear Regulatory Commission (NRC) staff conducted a working level meeting with representatives of PSEG Nuclear LLC. (PSEG), the licensee for the Hope Creek Generating Station (Hope Creek), to discuss the September 18, 2006, application for an extended power uprate (EPU). PSEG proposed to increase the maximum power level at Hope Creek from 3339 megawatts thermal (MWt) to 3952 MWt, an increase of approximately 15%. The NRC staff considers an EPU to be any uprate in excess of approximately 8%, and typically involving major plant modifications to achieve the higher power level.

PSEG presented information in two technical areas, steam dryer structural analyses and core analyses, and then met with various review groups to discuss other technical areas. The licensee's slides are enclosed.

For the steam dryer structural analyses, the licensee used a combination of computer modeling and scale model testing to evaluate the effects of higher steam flow rates that result from operation at EPU conditions. Industry operating experience has shown that acoustic excitations in the steam lines can damage steam dryers and other equipment attached to the steam lines. The licensee used an acoustic circuit computer model, an 1/8 scale model, and in-plant vibration monitoring to assess the acoustic loads. The licensee installed strain gauges at two locations on each steam line to measure the acoustic loads, but the lower set of strain gauges failed on the "C" and "D" steam lines. The licensee used the scale model test and Susquehanna data to account for the missing strain gauges, instead of assuming worst-case phasing of the steam lines. The acoustic loads were entered into a finite element analysis of the steam dryer to evaluate stress levels.

The licensee and NRC staff discussed the uncertainty and conservatism in the licensee's methods. The scale model predicted that a 118 hertz acoustic load would initiate below 90% of Hope Creek's current power level, and increase with increased power. However, strain gauges on the Hope Creek main steam lines show that the load is not present at current full power level. Therefore, the licensee reduced this load when predicting steam dryer loads at EPU conditions. The licensee also reduced an 80 hertz load that the licensee believes is an artifact of the acoustic circuit model. The licensee stated that, while the model predicts this load for Hope Creek and other plants, vibration monitoring at Hope Creek and other plants has demonstrated that it does not exist. With the above loads removed, the licensee predicted that the maximum stress in the steam dryer will be approximately 65% (stress ratio of 1.54) of the allowable stress.

For the core analyses, the licensee used General Electric (GE) interim methodologies to evaluate the steady state and transient neutronic and thermal-hydraulic response at Hope Creek, including the non-GE legacy fuel. During the first cycle of EPU operation, approximately 25% of the core will be thrice-burned Westinghouse SVEA 96+ fuel. The licensee discussed their analyses of the mixed core and presented data comparing the operation of the GE 14 and SVEA 96+ fuel types.

For the other technical areas, the licensee met with the responsible NRC staff reviewers to discuss the information in the application and provide clarifying information. Some NRC technical reviewers requested additional information from the licensee, and these requests will be documented in a letter to the licensee.

The meeting notice indicated that a portion of the meeting would be closed to discuss proprietary information; however, no proprietary information was discussed.

A list of meeting attendees is enclosed. Additional members of the public, licensee technical personnel, contractors for the licensee, and contractors for the NRC staff attended by telephone conference bridge.

Please direct any inquiries to me at 301-415-1321 or snb@nrc.gov.

/RA/

Stewart N. Bailey, Sr. Project Manager
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Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosures:
1. Licensee Slides
2. Attendee List

cc w/enclosures: See next page

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/RA/

Stewart N. Bailey, Sr. Project Manager
Plant Licensing Branch I-2
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ATTENDEE LIST

NOVEMBER 13 AND 14, 2006, MEETING ON EXTENDED POWER UPRATE

HOPE CREEK GENERATING STATION

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G. Cranston	NRC/NRR/ADES/DSS/SBWB
R. Ennis	NRC/NRR/ADRO/DORL/LPL1-2
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H. Garg	NRC/NRR/ADES/DE/EICB
C. Hinson	NRC/NRR/ADRO/DIRS/HIPB
A. Hiser	NRC/NRR/ADES/DCI/CSGB
J. Honcharik	NRC/NRR/ADES/DCI/CVIB
R. Karipini	NRC/NRR/ADES/DSS/SCVB
J. Kim	NRC/NRR/ADRO/DORL/LPL1-2
P. Lein	NRC/NRR/ADES/DSS/SBWB
R. Lobel	NRC/NRR/ADES/DSS/SCVB
G. Makar	NRC/NRR/ADES/DCI/CSGB
G. Malone	NRC/R-I/DRP/PB3
K. Manoly	NRC/NRR/ADES/DE/EEMB
K. Martin	NRC/NRR/ADRO/DIRS/IOLB
M. McConnell	NRC/NRR/ADES/DE/EEEA
R. Pettis	NRC/NRR/ADES/DE/EQVB
G. Purchiarello	NRC/NRR/ADES/DSS/SBPB
M. Rozzaque	NRC/NRR/ADES/DSS/SBWB
T. Scarbrougn	NRC/NRR/ADES/DCI/CPTB
M. Stutzke	NRC/NRR/ADRA/DRA/APLA
G. Thomas	NRC/NRR/ADES/DSS/SBWB
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J. Wu	NRC/NRR/ADES/DE/EEMB
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L. Curran	PSEG
P. Davison	PSEG/Exelon
T. DelGaizo	PSEG
P. Duke	PSEG
S. Kugler	PSEG
M. Jesse	PSEG/Exelon
J. Mallon	PSEG/Exelon
A. Olson	PSEG/Exelon
J. Sindoni	PSEG
H. Trenka	PSEG
M. Teske	Continuum Dynamics, Inc. (PSEG Contractor)
R. Pistolas	PPL Susquehanna
J. Humphries	New Jersey Department of Environmental Protection (by phone)

Enclosure 2

LICENSEE SLIDES

NOVEMBER 13 AND 14, 2006, MEETING ON EXTENDED POWER UPRATE

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Enclosure 1