

April 27, 2007

Mr. Britt T. McKinney
Sr. Vice President
and Chief Nuclear Officer
PPL Susquehanna, LLC
769 Salem Blvd., NUCSB3
Berwick, PA 18603-0467

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) - SUSQUEHANNA STEAM
ELECTRIC STATION, UNITS 1 AND 2 (SSES 1 AND 2) - EXTENDED POWER
UPRATE APPLICATION RE: CONTAINMENT AND VENTILATION
TECHNICAL REVIEW (TAC NOS. MD3309 AND MD3310)

Dear Mr. McKinney:

In reviewing your letter dated October 11, 2006, concerning the request to increase the maximum steady-state power level at the SSES 1 and 2 from 3489 megawatts thermal (MWt) to 3952 MWt, the Nuclear Regulatory Commission staff has determined that additional information contained in the enclosure to this letter is needed to complete its review. These questions were discussed with your staff during a teleconference on April 19, 2007. As agreed to by your staff, we request you respond by May 31, 2007.

If you have any questions, please contact me at 301-415-1030.

Sincerely,

/RA/

Richard V. Guzman, Senior Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosure:
RAI

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION
RELATING TO THE
APPLICATION FOR EXTENDED POWER UPRATE (EPU)
CONTAINMENT AND VENTILATION TECHNICAL REVIEW
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2 (SSES 1 AND 2)
PPL SUSQUEHANNA, LLC
DOCKET NOS. 50-387 AND 50-388

The Nuclear Regulatory Commission (NRC) staff is reviewing the request from PPL Susquehanna, LLC (PPL, the licensee) to support the application of the EPU for SSES 1 and 2. The NRC staff has determined that additional information requested below will be needed to complete its review.

1. (a) list and discuss all changes to analysis methods or assumptions between the EPU and the current licensing basis in the area of containment safety, and (b) verify that the assumptions of the final safety analysis report (FSAR) Sections 6.2.1.1.3.3.1.1, 6.2.1.1.3.3.1.2, and 6.2.1.1.3.3.1.3 are used for the EPU analyses.
2. In Attachment 4, "Power Uprate Safety Analysis Report (PUSAR)" of your October 11, 2006, submittal, Section 4.1.1.1, (a) verify that Service Information Letter 636 Revision 1 was used when determining decay heat values and, (b) verify that the bulk pool temperature is calculated "based on" ANSI/ANS-5.1-1979, "American National Standard for Decay Heat Power in Light Water Reactors," dated August 1979. What does the term, "based on" imply? Are there modifications to this standard's methods for the Susquehanna EPU calculations?
3. Table 4-1 of the PUSAR: (a) explain what factors are responsible for the difference between the current license thermal power (CLTP) peak drywell pressure and peak drywell temperature values from the FSAR and the CLTP peak drywell pressure and peak drywell temperature values calculated with constant pressure power uprate (CPPU) methods, (b) explain why the peak bulk pool temperature is reduced to 11 degrees Fahrenheit (°F) when the CPPU methods are used rather than FSAR methods, (c) explain the difference between the peak wetwell pressure values with FSAR and CPPU methods, (d) explain why the peak drywell-to-wetwell (down) differential pressure is reduced when using CPPU methods rather than FSAR methods, and (e) what accounts for the increase in peak drywell pressure from CLTP to CPPU if the dome pressure remains almost constant (1050 pounds per square-inch absolute (psia) vs. 1054 psia) and the same methods are used?

Enclosure

4. Table 4-1 of PUSAR: The peak drywell temperature limit is given as 340 °F. Verify by reference to the updated FSAR (UFSAR) that this limit applies to the containment structure as well as environmental qualification.
5. PUSAR Section 4.1.2.1: This section states that the NRC approved the use of the detailed reactor pressure vessel (RPV) break flow model in Reference 11. Reference 11 is a GE document. Please clarify.
6. PUSAR Section 4.1.2.1.2: Explain why the pool swell loads are bounded by the current analysis. Has the pressurization rate decreased? If so, why?
7. PUSAR Section 4.1.2.1.3.2: Explain why design traces selected for small steam line break tests are conservative for chugging loads and why they remain bounding for the CPPU domain.
8. PUSAR Section 4.1.2.1.5.2: Explain why the maximum air bubble pressures at CPPU conditions are less than the current calculated pressures.
9. PUSAR Section 4.1.2.3: (a) explain why the current licensing basis bounds the mass and energy release rates at EPU conditions for the recirculation suction line break and main steam line break, (b) explain why the feedwater line break at EPU conditions is not bounded by the current licensing basis? (c) provide the current licensing basis and EPU values of the pressure difference across the biological shield, and (d) was a reanalysis done at EPU conditions for the drywell head region subcompartment?
10. PUSAR Section 4.1.6 (Generic Letter 96-06): Explain why pipe penetration integrity is unaffected by the CPPU.
11. PUSAR Section 4.2.6: (a) please provide the peak suppression pool temperatures for the station blackout, anticipated transient without scram, Appendix R fire, and stuck open relief valve events, and (b) briefly describe the Appendix R scenario which results in the peak suppression pool temperature.
12. PUSAR Section 4.2.6: (a) what is the K value of the residual heat removal heat exchangers, (b) why is this value conservative, and (c) how is assurance provided that the heat exchangers will not have a K value less than this value?
13. PUSAR Section 4.5: What is the effect of CPPU on the reactor building drawdown time?
14. PUSAR Section 4.7: This section states that several assumptions in the combustible gas analysis have been changed, as well as the power level. Please list the significant changes and the justification for these changes.

Susquehanna Steam Electric Station, Unit Nos. 1 and 2

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