

October 18, 2006

Mr. Britt T. McKinney
Sr. Vice President
and Chief Nuclear Officer
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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) - APPLICATION FOR
LICENSE AMENDMENT AND RELATED TECHNICAL SPECIFICATION
CHANGES TO IMPLEMENT FULL-SCOPE ALTERNATIVE SOURCE TERM
(TAC NOS. MC8730 AND MC8731)

Dear Mr. McKinney:

In reviewing your letter dated October 13, 2005, concerning the request for an amendment to the licensing basis for SSES 1 and 2 that supports a full implementation application of an alternative source term methodology, 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 October 5, 2006. As agreed to by your staff, we request you respond within 30 days of the date of this letter.

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

Sincerely,

/RA/

Richard V. Guzman, 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 LICENSE AMENDMENT FOR FULL IMPLEMENTATION OF AN
ALTERNATIVE SOURCE TERM (AST) METHODOLOGY
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 full implementation application of an AST methodology for SSES 1 and 2. The NRC staff has determined that additional information requested below will be needed to complete its review.

1. The NRC staff notes two differences between the 1999-2003 meteorological data summaries provided as part of the October 13, 2005, license amendment request and the 1973-1976 data summaries in the Susquehanna Final Safety Analysis Report (FSAR). During 1999-2003, neutral atmospheric dispersion conditions and winds from a generally northeasterly direction were somewhat more prominent than during the 1973-1976 period. Were both data sets collected using temperature difference with height (Δ -T) measurements between the 60-meter and 10-meter levels to estimate atmospheric stability and were both periods of data collected at the same tower location?

Were the 1999-2003 measurements used in this license amendment request made at the location shown in Figure 2.1-22 of the FSAR? Is this the same place described in FSAR Section 2.3.3.1, that is, about 340 meters to the southeast of the cooling towers?

2. Page 11 of Attachment 2 to the October 13, 2005, submittal references Figures 1 and 2 which show the location of postulated release and receptor locations. Where are these figures in the submittal? Are the figures of sufficient detail (e.g., drawn approximately to scale and showing true north) to permit the NRC staff to make rough estimates of distances, directions and heights for comparison with the inputs used in the ARCON96 (computer code) calculations?
3. Page 12 of Attachment 2 states that the χ/Q values for releases from the main steamline blowout panels were generated using the puff methodology described in Section 4.4.4, not the ARCON96 calculations that were provided in calculation number EC-ENVR-1058. Are the postulated energy of release and arrangement of the blowout panels adequate to blow out all of the walls that might otherwise temporarily contain and retard dispersion of at least part of the effluent?

Enclosure

Would the puff be buoyant? Is the intake location higher than the height of release? If so, what is the justification for assuming a difference in elevation between the height of release and the intake height given that Regulatory Guide (RG) 1.194, "Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants," states that the difference in height should be assumed to be zero for this case?

4. Table 4.1-3 on page 12 of Attachment 2 provides two sets of χ/Q values, both listing the same three postulated release points. What is the basis for the differences in the inputs to the two sets of ARCON96 calculations? What is/are the actual intake height(s)?
5. A taut string methodology described in RG 1.194 was used to generate inputs to the ARCON96-generated χ/Q values. When this methodology is used, it may be advisable to input the actual release height as both the release and intake heights, so the taut string estimate factors in the slant range for differences in height. In addition, the actual release height should be input to utilize winds representative of the height of release which may be different than winds at the height of the intake. For example, the ARCON96 calculation for the Reactor Building Unit 1 Closest Distance has a release height input of zero meters and an intake height input of 36.9 meters. What criteria was used to determine the closest distance? Is the closest point to the intake at a height of zero meters? Limiting χ/Q values generated by the ARCON96 methodology generally occur with moderate, not light, wind speeds so assuming a release near the ground may underestimate the wind speeds and resultant χ/Q values if the release could occur at a higher elevation. Therefore, please confirm that the taut string calculations adequately address the heights of release, differences in height of the release and receptor, and, based upon these considerations, have correctly identified the limiting source/receptor pairs. Note that RG. 1.194 provides guidance concerning consideration of diffuse area sources for cases when a release may not be from a point location (e.g., a single vent).
6. Do the χ/Q values used in the dose assessments represent the limiting cases should a loss of offsite power or other single failure occur? For example, would the effluent be released to the environment from a different and more limiting location than the current calculations that assume releases from facility vents? Do the χ/Q values used in the dose assessments include consideration of possible secondary containment bypass releases to the intake or as unfiltered inleakage?
7. ARCON96 computer printouts in calculation number EC-ENVR-1058 show wind speed inputs in meters per second whereas EC-ENVR-1059 show wind speed in miles per hour. Were the same hourly meteorological data files used for both sets of calculations? Please review/revise the control room χ/Q calculations to ensure that input units are consistent with the meteorology data file(s).

Susquehanna Steam Electric Station, Unit Nos. 1 and 2

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