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U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Stop OP1-17
Washington, DC 20555-0001

**SUSQUEHANNA STEAM ELECTRIC STATION
FOLLOW-UP RESPONSE TO GENERIC LETTER 2003-01
CONTROL ROOM HABITABILITY
PLA-5711**

**Docket Nos. 50-387
and 50-388**

Reference: 1) Generic Letter 2003-01 "Control Room Habitability," dated August 11, 2003.

- 2) PLA-5659, B. L. Shriver (PPL) to USNRC Document Control Desk,
"Response to Generic Letter 2003-01 Control Room Habitability,"
dated August 11, 2003.*

The purpose of this letter is to provide the additional information PPL Susquehanna, LLC (PPL) committed to, in the response to Generic Letter 2003-01 "Control Room Habitability" (Reference 1). Reference 2 was the original PPL response to Generic Letter 2003-1 "Control Room Habitability." Attachment 1 to this letter identifies actions that have been completed, as well as future actions that PPL will take to address the concerns of Generic Letter 2003-01.

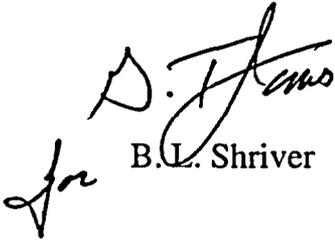
PPL recognizes and has been following the development of the issues delineated in the Generic Letter and understands the importance of ensuring habitability of the Susquehanna Steam Electric Station (SSES) Control Room under normal and off-normal plant conditions.

PPL has evaluated the concerns identified in the Generic Letter using the guidance contained in NEI 99-03, "Control Room Habitability Assessment Guidance," and Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors." PPL will take the actions described in Attachment 1 to demonstrate and maintain the design and licensing bases for the Control Room Habitability Systems (CRHSs). Attachment 2 enumerates the Regulatory Commitments contained in this correspondence.

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Any questions regarding this information should be directed to Mr. Michael H. Crowthers at (610) 774-7766.

Sincerely,


for B.L. Shriver

Attachment 1 – PPL Follow-up Response to GL 2003-01 Requested Information
Attachment 2 – List of Regulatory Commitments

copy: NRC Region I
Mr. R. V. Guzman, NRC Project Manager
Mr. S. Hansell, NRC Sr. Resident Inspector
Mr. R. Janati, DEP/BRP

Attachment 1 to PLA-5711

**PPL Follow-Up Response to
GL 2003-01 Requested Information**

**PPL Follow-Up Response to
Generic Letter 2003-01 Requested Information**

NRC Request 1:

Provide confirmation that your facility's control room meets the applicable habitability regulatory requirements (e.g., GDC 1, 3, 4, 5 and 19) and that the CRHSs are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing bases.

PPL Response:

PPL committed, in Reference 2, to:

1. Performing a design review to confirm that the applicable design and regulatory requirements are met for postulated radiological and hazardous chemical release events.
2. Evaluating the adequacy of the SSES administrative control programs that ensure that the operation and maintenance of the Control Room Habitability Systems meet the SSES Design and Licensing Basis.
3. Using the SSES Corrective Action Program to disposition any deficiencies identified by these reviews and evaluations.

PPL has completed a design review of the Control Room Habitability Systems (CRHSs) using the guidance of NEI 99-03, "Control Room Habitability Assessment Guidance," and Regulatory Guide 1.196, "Control Room Habitability at Light-Water Nuclear Power Reactors."

The SSES Control Room Habitability design and construction were based on an understanding of the regulatory requirements (i.e., GDC 1, 3, 4, 5 and 19) in existence at the time Susquehanna was licensed. Subsequent operation and surveillance testing provide assurance that these requirements continue to be met. The Generic Letter identifies NRC findings, which suggest that the control room design and licensing bases and applicable regulatory requirements may not be met, and that existing Technical Specification surveillance requirements may not be adequate. Therefore, the following actions have or will be taken.

The review of the design, construction, configuration, operation and maintenance of the CRHSs revealed that discrepancies among design documents exist. These discrepancies have been placed into the SSES Corrective Action Program. No operability concerns

have been identified with these issues. In addition to correcting the identified discrepancies, PPL will also enhance specific CRHSs administrative controls to limit future discrepancies with regulatory requirements. Enhancements will be made to administrative controls (procedures), which govern on-site hazardous chemical storage, normal operation of CRHSs and CRHSs surveillance testing. The enhancements to the CRHSs administrative controls will be managed in the PPL Action Request Process.

The guidance provided in NEI 99-03 and Regulatory Guide 1.196 presents detailed discussion of radiological, toxic chemical and smoke events that may impact habitability of the control room envelope. PPL's evaluation in accordance with this guidance is discussed below.

The review of the DBA LOCA control room dose consequence analysis concluded that PPL assumes an unfiltered air flow rate into the Control Room Envelope of 10 cfm (standard value for door opening). In light of the information presented in the Generic Letter, PPL recognizes that this value may be lower than the unfiltered inleakage determined by a tracer gas test. Additionally, the NRC has requested that the control room dose consequence analysis be performed in accordance with the guidance presented in NEI 99-03 and Regulatory Guide 1.195, "Method and Assumptions for Evaluating Radiological Consequences of Design Basis Accidents at Light-Water Nuclear Power Reactors." PPL will ensure that the following SSES FSAR statement will continue to be met: "The radiological effects on the Control Room Envelope that could exist as a consequence of any accident described in Chapter 15 will not exceed the guidelines set by 10 CFR 50, Appendix A, General Design Criteria 19." In order to address these issues, PPL performed control room dose consequence scoping analyses using the methodology presented in Regulatory Guide 1.183, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors." The results of the scoping analyses concluded that significantly higher unfiltered air flow rates could be accommodated for accidents described in FSAR Chapter 15. To meet the guidance in the above discussed documents, PPL commits to providing a dose consequence submittal to the NRC, using the methodology described in Regulatory Guide 1.183, by June 30, 2005. This date will accommodate completion of the analyses and preparation of the methodology change submittal.

Regulatory Guides 1.78, "Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release," and 1.95, "Protection of Nuclear Power Plant Control Room Operators Against an Accidental Chlorine Release" delineate methods acceptable to the NRC for protection of the control room operators from on-site and off-site hazardous chemical releases. PPL is committed to Revision 0 of Regulatory Guides 1.78 and 1.95. (Note: Revision 1 of Regulatory Guide 1.78 has incorporated Revision 0 of Regulatory Guide 1.95). To assure continued compliance with these regulatory requirements, PPL inventoried all on-site hazardous chemicals and performed a control room habitability assessment for each hazardous chemical in

accordance with the guidance provided in Revision 1 of Regulatory Guide 1.78. Revision 1 of Regulatory Guide 1.78 was used, since more specific guidance is presented in this version of the regulatory guide. The analysis for an on-site chemical release postulated in accordance with Regulatory Guide 1.78 determined that protection of the operators is assured with the current CRHSs. Additionally, PPL has established programmatic controls, which, at a minimum, ensure that hazardous chemicals brought on-site are inventoried and evaluated once per year. In addition to the on-site chemical assessment, PPL performed an off-site hazardous chemical assessment in accordance with Revision 1 of Regulatory Guide 1.78. The off-site hazardous chemical control room habitability assessment determined that for all identified off-site hazardous chemicals, protection of the operators is assured with the current CRHSs. It is important to note that the hazardous chemicals transported by the railroad were not evaluated, since the railway company would not release an inventory of hazardous chemicals that they transport (due to security concerns). PPL is working with the railway company and will notify the NRC by July 30, 2004 if the release of an inventory of hazardous chemicals, transported by the railway, is not imminent. If the inventory of hazardous chemicals that are transported by the railway is received by July 30, 2004, PPL will complete the hazardous chemical control room habitability assessment by December 31, 2004. Additionally, PPL will commit to comply with Revision 1 of Regulatory Guide 1.78. This commitment will be incorporated into the FSAR by December 31, 2004.

PPL FSAR Section 6.4 requires that smoke from inside and outside the control room can not inhibit habitability of the control room. PPL has performed a qualitative smoke assessment in accordance with NEI 99-03 and Regulatory Guide 1.196. The qualitative assessment determined that smoke will not simultaneously inhibit habitability of both the control room and alternate shutdown panel for either SSES Unit.

NRC Request 1a:

That the most limiting unfiltered inleakage into your CRE (and the filtered inleakage if applicable) is no more than the value assumed in your design basis radiological analyses for control room habitability. Describe how and when you performed the analyses, tests, and measurements for this confirmation.

PPL Response:

PPL committed, in Reference 2, to providing the basis for the determination of the necessity for unfiltered inleakage rate testing (following performance of the confirmatory analyses discussed in the Response to Request 1) and the schedule for any further necessary action.

As discussed above, PPL currently assumes an unfiltered air flow rate of 10 cfm into the Control Room Envelope for the DBA LOCA dose consequence analysis. Based on the

information provided in Generic Letter 2003-01, this value may need to be revised. To assess the leak tightness of the Control Room Envelope, PPL commits to performing an integrated tracer gas test using the standard test method described in American Society for Testing and Materials (ASTM) consensus standard E741 "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution." PPL will transmit the results of the tracer gas testing and results of the corresponding dose consequence analysis to the NRC by June 30, 2005.

NRC Request 1b:

That the most limiting unfiltered inleakage into your CRE is incorporated into your hazardous chemical assessments. This inleakage may differ from the value assumed in your design basis radiological analyses. Also, confirm that the reactor control capability is maintained from either the control room or the alternate shutdown panel in the event of smoke.

PPL Response:

PPL committed, in Reference 2, to:

1. Determine the necessity for unfiltered leakage testing once the design review for hazardous chemical release events is completed.
2. Perform a qualitative smoke assessment to confirm reactor control capability is maintained from the control room or alternate shutdown panel.

As stated in the response to Request 1, PPL has performed an assessment of on-site and off-site hazardous chemicals (with the exception of railway transport) in accordance with Regulatory Guides 1.78 and 1.95. The results of this assessment determined that the normal CRHSs could continue to operate for the duration of any identified hazardous chemical release and the control room habitability envelope will remain habitable. Since the normal CRHSs are assumed to operate during the postulated hazardous chemical release, the concept of unfiltered inleakage as identified in Generic Letter 2003-01 is not used in the hazardous chemical assessment. The untreated pressurization flow value used in the hazardous chemical release analysis was verified by a multi-position pitot tube flow traverse. Therefore, unfiltered leakage is not relevant for hazardous chemical assessment.

As stated in the response to Request 1, PPL has performed a qualitative smoke assessment in accordance with NEI 99-03 and Regulatory Guide 1.196. The qualitative assessment determined that smoke will not simultaneously inhibit habitability of the control room or the alternate shutdown panel for either SSES Unit. Therefore reactor control capability is assured.

NRC Request 1c:

That your technical specifications verify the integrity of the CRE, and the assumed inleakage rates of potentially contaminated air. If you currently have a ΔP surveillance requirement to demonstrate CRE integrity, provide the basis for your conclusion that it remains adequate to demonstrate CRE integrity in light of the ASTM E741 testing results. If you conclude that your ΔP surveillance requirement is no longer adequate, provide a schedule for: 1) revising the surveillance requirement in your technical specification to reference an acceptable surveillance methodology (e.g., ASTM E741), and 2) making any necessary modifications to your CRE so that compliance with your new surveillance requirement can be demonstrated.

If your facility does not currently have a technical specification surveillance requirement for your CRE integrity, explain how and at what frequency you confirm your CRE integrity and why this is adequate to demonstrate CRE integrity.

PPL Response:

PPL committed, in Reference 2, to establish the need for a change to Technical Specifications and if necessary a schedule for the change.

Currently, PPL confirms the integrity of the CRE by a ΔP surveillance requirement (SSES Technical Specification Surveillance 3.7.3.4). The SSES CRE was designed to minimize unfiltered inleakage into the CRE. To accomplish this design objective, most of the HVAC ductwork was housed within the envelope. To accommodate all the HVAC ductwork, the CRE for SSES encompasses multiple floors of the Control Structure Building. The data provided by the NRC concerning ASTM E741 testing performed at other facilities does not provide the CRE boundary configurations or HVAC configurations that were tested. Discussions with facilities that have performed the test indicate that those facilities have numerous vulnerabilities in their boundaries, since their boundaries are not as encompassing as the SSES CRE boundary. Based on the differences, PPL cannot make a determination that our ΔP surveillance requires revision until performance of the ASTM E741 test at SSES. As stated in the response to Request 1a, PPL will perform an ASTM E741 integrated tracer gas test to determine the unfiltered inleakage flow rate and inform the NRC of the results by March 31, 2005. Once the flow rate is determined, PPL will perform an assessment of the ΔP Technical Specification and determine if changes to the Technical Specification are required. This assessment will be completed and results transmitted to the NRC by June 30, 2005. PPL believes this resolution schedule is adequate, since CRE integrity is not risk significant (i.e., it does not affect core damage frequency or large early release frequency).

NRC Request 2:

If you currently use compensatory measures to demonstrate control room habitability, describe the compensatory measures at your facility and the corrective actions needed to retire these compensatory measures.

PPL Response:

PPL committed, in Reference 2, to validate that no compensatory measures have been taken that were required to demonstrate compliance to Control Room Habitability requirement.

A review of the SSES FSAR and Licensing commitments indicates that there are currently no compensatory measures used to demonstrate control room habitability. This has been validated during the design basis review performed in the response to Request 1.

NRC Request 3:

If you believe that your facility is not required to meet either the GDC, the draft GDC, or the "Principle Design Criteria" regarding control room habitability, in addition to responding to 1 and 2 above, provide documentation (e.g., Preliminary Safety Analysis Report, Final Safety Analysis Report sections, or correspondence) of the basis for this conclusion and identify your actual requirements.

PPL Response:

This question is not applicable to SSES, since the SSES FSAR states that SSES will comply with the GDCs referenced in the generic letter.

Attachment 2 to PLA-5711

**List of
Regulatory Commitments**

List of Regulatory Commitments

The following table identifies those actions committed to by PPL in this document. Any other statements in the submittal are provided for information purposes and are not considered to be regulatory commitments. Please direct questions regarding these commitments to Mr. Michael H. Crowthers.

Regulatory Commitment	Due Date
<p>PPL commits to providing a dose consequence submittal to the NRC, using the methodology described in Regulatory Guide 1.183, "Alternative Radiological Source Terms For Evaluating Design Basis Accidents at Nuclear Power Reactors."</p>	<p>June 30, 2005</p>
<p>PPL will notify NRC if the release of an inventory of hazardous chemicals, transported by railroad, is not imminent.</p>	<p>July 30, 2004</p>
<p>[or]</p>	
<p>If the inventory of hazardous chemicals that are transported by the railway is received by July 30, 2004, PPL will complete the hazardous chemical control room habitability assessment.</p>	<p>December 31, 2004</p>
<p>PPL will commit to comply with Revision 1 of Regulatory Guide 1.78, "Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release." This commitment will be incorporated into the FSAR.</p>	<p>December 31, 2004</p>

Regulatory Commitment	Due Date
<p>PPL commits to perform and transmit the results of an integrated tracer gas test using the standard test method described in American Society for Testing Materials (ASTM) consensus standard E741 "Standard Test Method for Determining Air Change in a Single Zone by Means of a Tracer Gas Dilution," and the results of the corresponding dose consequence analysis.</p>	<p>June 30, 2005</p>
<p>PPL will perform an assessment of the ΔP Technical Specification and determine if changes to the Technical specification are required.</p>	<p>June 30, 2005</p>