

RS-05-160

November 15, 2005

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

Quad Cities Nuclear Power Station, Units 1 and 2  
Renewed Facility Operating License Nos. DPR-29 and DPR-30  
NRC Docket Nos. 50-254 and 50-265

**Subject:** Supplemental Response to NRC Generic Letter 2003-01, "Control Room Habitability"

- References:**
1. Letter from David B. Matthews (NRC) to Addressees, "NRC Generic Letter 2003-01: Control Room Habitability," dated June 12, 2003
  2. Letter from M. P. Gallagher (Exelon Generation Company, LLC) to U. S. NRC, "Exelon/AmerGen 180-Day Response To NRC Generic Letter 2003-01, 'Control Room Habitability,'" dated December 9, 2003

In Reference 1, the NRC requested licensees to provide confirmation that facility control rooms meet applicable habitability regulatory requirements and that the control room habitability systems are designed, constructed, configured, operated, and maintained in accordance with the facility's design and licensing bases. Request 1(b) of Reference 1 requested licensees to confirm that the most limiting unfiltered inleakage into the control room envelope (CRE) is incorporated into the hazardous chemical assessments.

Exelon Generation Company, LLC (EGC) provided a response to this request for Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, in Attachment 10 of Reference 2. In response to Request 1(b), EGC stated, in part, "During the toxic gas isolation mode the CRE is at a neutral pressure." However, based on recent differential pressure measurements between the QCNPS CRE and adjacent areas, EGC has subsequently determined that there are two areas where the CRE is at a negative pressure with respect to adjacent areas during the toxic gas isolation mode. Therefore, EGC is providing the following supplemental information in response to Request 1(b) of Reference 1.

At the time Reference 2 was submitted, differential pressure data was not available to determine the CRE pressure relative to adjacent areas during toxic gas isolation mode.

However, system design specifications indicated that the Train A control room heating ventilation and air conditioning (HVAC) system in normal mode results in the CRE being slightly positive. In the normal mode, approximately 2000 cfm of outside air enters the CRE, and during the toxic gas isolation mode, the outside air dampers close and the 2000 cfm of outside air is not present. Based upon engineering judgment, EGC concluded that if the CRE was slightly positive in Train A normal mode, then the toxic gas isolation mode would result in the CRE being neutral because the same supply and exhaust flows remain without the 2000 cfm of outside air.

In August 2005, differential pressure measurements were taken on the Train A control room HVAC system. Specifically, differential pressure measurements were recorded between the CRE and adjacent areas in both the normal mode and toxic gas isolation/recirculation modes of operation. With the Train A control room HVAC system in toxic gas isolation or recirculation mode, the data showed most locations to be at a neutral pressure. However, there were two areas where the CRE was at a negative pressure with respect to adjacent areas. Those two areas were (1) the area between the Cable Spreading Room and the adjacent hallway, and (2) the area between the Auxiliary Electric Equipment Room and the adjacent hallway. The reason for the negative pressure in these areas is that the return air flowrate from the Cable Spreading Room and Auxiliary Electric Equipment Room increases when changing from the normal mode to the recirculation mode of operation despite the fact that the same return ductwork is used for both modes.

With the exception of the information described above, the original response to Request 1(b), provided in Reference 2, remains valid. For both the Train A and Train B isolation/pressurization modes, previously performed tracer gas inleakage tests support inleakage assumptions assumed in radiological consequence analyses. Additionally, QCNPS credits the use of self-contained breathing apparatus for toxic gas protection in accordance with Regulatory Guide 1.78.

There are no regulatory commitments contained in this letter. If you have any questions concerning this letter, please contact Mr. Kenneth M. Nicely at (630) 657-2803.

Respectfully,

  
Patrick R. Simpson  
Manager – Licensing

cc:

Regional Administrator - NRC Region III  
NRC Senior Resident Inspector - Dresden Nuclear Power Station  
NRC Senior Resident Inspector - Quad Cities Nuclear Power Station  
Illinois Emergency Management Agency - Division of Nuclear Safety