

From: Stephen Sands
Sent: Monday, March 09, 2009 4:14 PM
To: 'timothy.byam@exeloncorp.com'
Subject: Follow-on RAIs with respect to LPRM amendment request

Tim,

This e-mail is to inform Exelon Generation Company (Exelon) that the questions below are being placed in the Agencywide Document Access and Management System (ADAMS) as an official record transmitting additional information the NRC staff is requesting. In order for the NRC staff to continue with the review, it is requested that your responses be sent within 30 days from the e-mail transmitting these questions. The additional questions below were supplied by the NRC technical review staff after reviewing Exelon's response to the NRC staff initial request for additional information (RAI), dated February 17, 2009.

Stephen Sands

Division of Operating Reactors
Clinton & LaSalle Project Manager
Licensing Project Branch 3-2
Phone: 301-415-3154
E-mail: Stephen.Sands@nrc.gov

SRXB-1

RAI-1 requested the licensee to provide an uncertainty analysis using decay constants specific to the LRPM detectors at the LSCS. The results should demonstrate that the uncertainties based on a fixed decay factor bound that based on the LRPM specific decay factors for the LSCS. In the response, the licensee did not provide the requested analysis. Instead, it summarized the results of its analysis and indicated that: (1) the analysis used in support of the LAR was based on a fixed decay factor of -0.0092 , which is based on manufacture's data; and (2) the decay constant used in the CMS will be adjusted to -0.100 to assure that the evaluated LRPM uncertainty is within the bounds of SLMCPR analysis.

With the results of the analysis with the fixed decay constants of either -0.0092 or -0.100 , the NRC staff is not sure whether the results are adequate to represent the actual data with values of the decay constants specific to various LRPM detectors at the LSCS. To resolve this RAI satisfactorily, the licensee should provide a discussion or an analysis (such as the requested detector specific decay constant analysis) to show that the assumption used in the analysis in support of the LAR is valid, i.e., the uncertainties based on a fixed decay factor bound that based on the LRPM specific decay factors for the LSCS. If the licensee uses an existing analysis to support the RAI response, it should address applicability of the existing analysis to the LAR. The RAI response should identify the effects of any plant specific deviations, such as the LRPM exposure data that may be collected from different models of LRPM detectors, or methods for the uncertainty analysis that may be based on different ranges of the LRPM exposures to represent a nominal exposure value.

SRXB-2

In the RAI-2 response, the licensee indicated that it would modify the decay constant to -0.100 in its CMS so that the evaluated LRPM uncertainty is within the bounds of the SLMCPR analysis.

Discuss adequacy of the use of the LPRM uncertainty in the SLMCPR to bound the evaluated LPRM uncertainty, which is the difference between standard deviations (underlined for emphasis) calculated at two different exposure intervals (i.e., 1000 MWd/MTU and 2675 MWd/MTU). If applicable, clarify that the LPRM uncertainty limit used in the SLMCPR analysis is the maximum value of one standard deviation (which captures 67% of the data points) allowed for the relative LPRM errors. Explain that the LPRM uncertainty limit is appropriately used in the SLMCPR analysis to assure that the determined SLMCPR is the core-wide critical power ratio at which 99.9% (equivalent to more than 3 standard deviations) of the fuel rods would not be expected to experience boiling transition during normal condition.

SRXB-3

In the RAI-3 response, the licensee indicated that a 3D nodal simulator was used to calculate the accumulated exposure values.

Identify the name of the simulator (or computer code) if it has one, and discuss acceptability of the simulator used for determination of accumulated exposure values. If the simulator was previously approved by the NRC, reference the title and the date of the safety evaluation report that approved the simulator for licensing applications.