February 4, 2010

Mr. Rick Libra
Exelon
Chairman, BWR Vessel and Internals Project
Electric Power Research Institute
3420 Hillview Avenue
Palo Alto, CA 94304-1395

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION APPROVAL LETTER FOR TOPICAL REPORT BWRVIP-114-A, "RAMA FLUENCE METHODOLOGY THEORY MANUAL" (TAC NO. ME2292)

Dear Mr. Libra:

By letter dated September 18, 2009, Agencywide Documents Access and Management System (ADAMS) Accession No. ML092650375, the Boiling Water Reactor Vessel and Internals Project (BWRVIP) submitted proprietary (and non-proprietary) versions of the topical report BWRVIP-114-A (BWRVIP-114NP-A), "RAMA Fluence Methodology Theory Manual," ADAMS Accession No. ML092650376, for NRC staff review.

The BWRVIP-114 topical report describes the theory of the neutron transport calculation methodology and uncertainty analysis associated with the Radiation Analysis Modeling Application (RAMA) methodology for determining boiling water reactor pressure vessel neutron fluence. The topical report incorporates corrections and modifications based on the NRC's review of BWRVIP-114, the first copy of which was submitted for NRC review by letter dated June 11, 2003, ADAMS Accession No. ML031640194.

The topical report compiles information associated with the NRC staff's review of BWRVIP-114; namely, it adds the eight items compiled in Table C.1 of Appendix C to BWRVIP-114-A. These eight items are revisions associated with an NRC staff request for additional information (RAI) transmitted by letter dated April 20, 2004, ADAMS Accession No. ML041130513, to which Electric Power Research Institute (EPRI) responded by letter dated September 29, 2004, ADAMS Accession No. ML042750357.

The first revision noted in Table C-1 added the NRC correspondence referenced above. Specifically, the RAI memo was appended as Appendix A, and EPRI's response was appended as Appendix B. This is in accordance with the NRC's process for publication of approved topical reports, and hence acceptable.

The next item is a revision to Section 5.2 of the topical report. The revision includes clarification requested by the NRC in its RAI correspondence. The revision is responsive to an NRC staff RAI and is hence acceptable.

The next five items in Table C-1 are revisions to Section 7.3 of BWRVIP-114, all of which were incorporated based on BWRVIP's response to the NRC RAI. The changes clarify EPRI's treatment of analytical bias, revise equations to correct typographical omissions observed by the NRC staff, revise section headings to use language that is consistent with NRC Regulatory Guide (RG) 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," and align the uncertainty adjustment procedure described in Section 7.3 more closely with the procedure recommended in RG 1.190. All of these changes are responsive to the NRC RAI, and are hence acceptable.

The final item in Table C-1 is the addition of an "Implementation Requirements" section, which affects neither the scope nor application of the RAMA methodology, and is therefore determined to be outside the scope of review.

Based on the discussion above, the NRC staff has determined that BWRVIP-114-A is acceptable to the extent delineated in the NRC staff's original approval letter, dated May 13, 2005, ADAMS Accession No. ML051380572. The revisions to the topical report, submitted in the approved copy, do not affect the NRC's approval status of this topical report.

Please contact Eric Bowman of my staff at (301) 415-2963 if you have any further questions regarding this subject.

Sincerely,

/RA/

Thomas B. Blount, Deputy Director
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Project No. 704

cc: See next page

The next five items in Table C-1 are revisions to Section 7.3 of BWRVIP-114, all of which were incorporated based on BWRVIP's response to the NRC RAI. The changes clarify EPRI's treatment of analytical bias, revise equations to correct typographical omissions observed by the NRC staff, revise section headings to use language that is consistent with NRC Regulatory Guide (RG) 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence," and align the uncertainty adjustment procedure described in Section 7.3 more closely with the procedure recommended in RG 1.190. All of these changes are responsive to the NRC RAI, and are hence acceptable.

The final item in Table C-1 is the addition of an "Implementation Requirements" section, which affects neither the scope nor application of the RAMA methodology, and is therefore determined to be outside the scope of review.

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Thomas B. Blount, Deputy Director
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ADAMS ACCESSION NO. ML100320689 * No significant change from technical input

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