

February 27, 2006

Bill Eaton, BWRVIP Chairman  
Entergy Operations, Inc.  
Echelon One  
1340 Echelon Parkway  
Jackson, MS 39213-8202

SUBJECT: NRC APPROVAL LETTER FOR BWRVIP-50-A, "BWR VESSEL AND  
INTERNALS PROJECT, TOP GUIDE/CORE PLATE REPAIR DESIGN  
CRITERIA"

Dear Mr. Eaton:

By letter dated September 21, 2005, the Boiling Water Reactor Vessel and Internals Project (BWRVIP) submitted Proprietary Report BWRVIP-50-A, "BWR Vessel and Internals Project, Top Guide/Core Plate Repair Design Criteria," for Nuclear Regulatory Commission (NRC) staff review. The BWRVIP-50-A report provides general design criteria for repairs to the top guide and core plate structures in BWR plants. These criteria are applicable for any type of repair to the structures either to address specific degradation found during inspections or on a pre-emptive basis. In addition, the BWRVIP-50-A report provides additional design criteria for a specific repair which adds wedge-type structures in the annular space between the top guide or core plate and the core shroud.

The BWRVIP-50-A report presents a compilation of information from the BWRVIP-50 report and the NRC staff final safety evaluation (SE) dated August 20, 2004, which includes the BWRVIP's associated responses to NRC staff requests for additional information (RAIs).

The NRC staff has reviewed the information in the BWRVIP-50-A report and has found that the report accurately incorporates all of the relevant information which was submitted by the BWRVIP in the documents noted above to support NRC staff approval of the report. The staff found that minimal revisions were made to the BWRVIP-50 report in the production of the BWRVIP-50-A report. The revisions are discussed in detail below.

The first revision was that the BWRVIP added Section A.7, "Reporting," to the BWRVIP-50 report to address the staff's RAI Item 6.4. The staff, by RAI Item 6.4, requested that the BWRVIP add a reporting requirement to the BWRVIP-50 report that licensees are to provide information to the NRC regarding inservice inspections, materials, lubricants, and crevice issues with respect to wedge repairs. The staff determined that the BWRVIP adequately added the reporting requirements for wedge repairs in Section A.7 of the BWRVIP-50 report.

The second revision was with respect to the deletion of text from Section 9.1, "Materials and Fabrication," and Section 9.3, "Pre-Installation As-Built Inspection," of the BWRVIP-50 report. In addition, the BWRVIP removed References 1-5 of the BWRVIP-50 report and replaced these references with a reference (Reference 4) to the BWRVIP-84 report, "Guidelines for Selection and Use of Materials and Repairs." The BWRVIP determined that the material and fabrication requirements would be removed from the BWRVIP-50 report since they are already contained in the BWRVIP-84 report. The staff found this acceptable because the material and fabrication requirements are adequately included in the BWRVIP-84 report.

The staff noted that the BWRVIP's third revision was with respect to an editorial correction to Reference 8 in various sections of the BWRVIP-50 report. The staff verified that the BWRVIP adequately corrected the reference, i.e., GENE-771-44-0894, in the various sections of the BWRVIP-50 report.

The fourth revision was that the BWRVIP revised Section 8 of the BWRVIP-50 report to address Open Item 8 of the staff's initial SE dated January 29, 2001. The BWRVIP revised Section 8 of the BWRVIP-50 report to include a requirement of an assessment of new leakage sources and leakage paths resulting from the repair. The staff determined that the BWRVIP adequately revised Section 8 of the BWRVIP-50 report to address Open Item 8 of the staff's initial SE dated January 29, 2001.

The fifth revision was that the BWRVIP revised Section 5.6 of the BWRVIP-50 report to address Open Item 10 of the staff's SE dated January 29, 2001. The BWRVIP revised Section 5.6 of the BWRVIP-50 report to include a requirement to evaluate for unanticipated displacements due to binding or slippage. The staff determined that the BWRVIP adequately revised Section 5.6 of the BWRVIP-50 report to address Open Item 10 of the staff's SE dated January 29, 2001.

The sixth revision was that the BWRVIP revised Section 7.11 of the BWRVIP-50 report to apply the minimum corrosion allowance for exposed austenitic stainless steel surfaces of 0.003 inch for a 60-year design life. This corrosion allowance had originally been approved for a 40-year design life. This extension was based on the information that the BWRVIP provided in its response to RAI Item 2, with respect to the BWRVIP-50 report, in its letter dated December 6, 1999. By SE dated January 29, 2001, the staff found that the BWRVIP had adequately responded to RAI Item 2. Therefore, the staff determined that the BWRVIP adequately revised Section 7.11 of the BWRVIP-50 report to extend the minimum corrosion allowance for exposed austenitic stainless steel surfaces of 0.003 inch from a 40-year design life to a 60-year design life.

The next revision was that the BWRVIP revised Section 9.2 of the BWRVIP-50 report regarding crevices. The revisions were made for consistency with the other repair design criteria reports. A statement, "the design shall minimize crevices between new components, and between new components and original components, to minimize the potential for crevice-induced stress corrosion cracking," was included in Section 9.2 of the report. The staff determined that the BWRVIP adequately revised Section 9.2 of the BWRVIP-50 report to be consistent with the other repair design criteria regarding crevices.

B. Eaton

-3-

With respect to the next revision, the BWRVIP added Section 9.4, "Post Installation As-Built Inspection," to the BWRVIP-50 report for consistency with the other repair design criteria reports to ensure that the repair hardware is correctly installed. The staff determined that the BWRVIP adequately revised Section 9.4 of the BWRVIP-50 report to be consistent with the other repair design criteria regarding post installation as-built inspections.

For the last revision, the BWRVIP added Item (f) to Section 9.5, "Installation Cleanliness," of the BWRVIP-50 report which requires the evaluation to include the specific requirements of the utility's loose parts or foreign material exclusion program. The staff determined that the BWRVIP adequately revised Section 9.5 of the BWRVIP-50 report to enhance the evaluations for minimizing the in-vessel debris generation with respect to the top guide and core plate repair.

Based on the discussion above, the staff has determined that the BWRVIP-50-A report is acceptable. Please contact Meena Khanna of my staff at (301) 415-2150 if you have any further questions regarding this subject.

Sincerely,

*/RA/*

William H. Bateman, Deputy Director  
Division of Component Integrity  
Office of Nuclear Reactor Regulation

cc: BWRVIP Service List

With respect to the next revision, the BWRVIP added Section 9.4, "Post Installation As-Built Inspection," to the BWRVIP-50 report for consistency with the other repair design criteria reports to ensure that the repair hardware is correctly installed. The staff determined that the BWRVIP adequately revised Section 9.4 of the BWRVIP-50 report to be consistent with the other repair design criteria regarding post installation as-built inspections.

For the last revision, the BWRVIP added Item (f) to Section 9.5, "Installation Cleanliness," of the BWRVIP-50 report which requires the evaluation to include the specific requirements of the utility's loose parts or foreign material exclusion program. The staff determined that the BWRVIP adequately revised Section 9.5 of the BWRVIP-50 report to enhance the evaluations for minimizing the in-vessel debris generation with respect to the top guide and core plate repair.

Based on the discussion above, the staff has determined that the BWRVIP-50-A report is acceptable. Please contact Meena Khanna of my staff at (301) 415-2150 if you have any further questions regarding this subject.

Sincerely,

*/RA/*

William H. Bateman, Deputy Director  
Division of Component Integrity  
Office of Nuclear Reactor Regulation

cc: BWRVIP Service List

Distribution:

CVIB R/F ALee CE Moyer WCullen RLorson, R1 MLesser, R2 DHills, R3

ADAMS Accession No.: ML060620606

OFFICE	CVIB:DCI	E	CVIB:DCI	E	DCI:ADES
NAME	MKhanna		MAMitchell		WHBateman
DATE	02/15/2006		02/28/2006		02/27/2006

OFFICIAL RECORD COPY

CC:

Tom Mulford, EPRI BWRVIP  
Integration Manager  
Raj Pathania, EPRI BWRVIP  
Mitigation Manager  
Ken Wolfe, EPRI BWRVIP  
Repair Manager  
Larry Steinert, EPRI BWRVIP  
Electric Power Research Institute  
P.O. Box 10412  
3412 Hillview Ave.  
Palo Alto, CA 94303

George Inch, Technical Chairman  
BWRVIP Assessment Committee  
Constellation Nuclear  
Nine Mile Point Nuclear Station (M/S ESB-1)  
348 Lake Road  
Lycoming, NY 13093

Jeff Goldstein, Technical Chairman  
BWRVIP Mitigation Committee  
Entergy Nuclear NE  
440 Hamilton Ave. (M/S K-WPO-11c)  
White Plains, NY 10601

Amir Shahkarami, BWRVIP Executive Oversight Committee  
Exelon Corp.  
Cornerstone II at Cantera  
4300 Winfield Rd.  
Warrenville, IL 60555-4012

Al Wrape, Executive Chairman  
BWRVIP Assessment Committee  
PPL Susquehanna, LLC  
2 N. 9<sup>th</sup> St.  
Allentown, PA 18101-1139

Rick Libra, BWRVIP Executive Oversight Committee  
DTE Energy  
Fermi Nuclear Plant (M/S 280 OBA)  
6400 N. Dixie Highway  
Newport, MI 48166-9726

Robin Dyle, Technical Chairman  
BWRVIP Integration Committee  
Southern Nuclear Operating Co.  
42 Inverness Center Parkway (M/S B234)  
Birmingham, AL 35242-4809

Denver Atwood, Technical Chairman  
BWRVIP Repair Focus Group  
Southern Nuclear Operating Co.  
Post Office Box 1295  
40 Inverness Center Parkway (M/S B031)  
Birmingham, AL 35242-4809

Charles J. Wirtz, Chairman  
BWRVIP Inspection Focus Group  
FirstEnergy Corp.  
Perry Nuclear Power Plant (M/S A250)  
10 Center Road  
Perry, OH 44081

Robert Carter, EPRI BWRVIP  
Assessment Manager  
Jeff Landrum, EPRI BWRVIP  
Inspection Manager  
EPRI NDE Center  
P.O. Box 217097  
1300 W. T. Harris Blvd.  
Charlotte, NC 28221

H. Lewis Sumner, Executive Chairman  
BWRVIP Mitigation Committee  
Vice President, Hatch Project  
Southern Nuclear Operating Co.  
M/S BIN B051, P.O. BOX 1295  
40 Inverness Center Parkway  
Birmingham, AL 35242-4809