

March 1, 2006

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

SUBJECT: NRC APPROVAL LETTER FOR BWRVIP-51-A, "BWR VESSEL AND
INTERNALS PROJECT, JET PUMP 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-51-A, "BWR Vessel and Internals Project, Jet Pump Repair Design Criteria," for Nuclear Regulatory Commission (NRC) staff review. The BWRVIP-51-A report provides general design acceptance criteria for the permanent and temporary repairs of jet pump assemblies. These guidelines are intended to maintain the structural integrity and system functionality of the jet pump assemblies during normal operation, postulated transient, and design basis accident conditions. The BWRVIP provided the BWRVIP-51 report to support generic regulatory efforts related to the repair of jet pumps.

The BWRVIP-51-A report presents a compilation of information from the BWRVIP-51 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-51-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-51 report in the production of the BWRVIP-51-A report. These revisions are discussed in detail below.

The first 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-51 report. In addition, the BWRVIP removed References 7-14 of the BWRVIP-51 report and replaced these references with a reference (Reference 8) 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-51 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 second revision was that the BWRVIP revised Section 7.11 of the BWRVIP-51 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-51 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 third revision was that the BWRVIP revised Section 10 of the BWRVIP-51 report to address the staff's recommendation that pre- and post-installation inspections required for the entire repaired jet pump assembly shall be consistent with the requirements and scope of the BWRVIP-41 report, "BWR Jet Pump Assembly Inspection and Flaw Evaluation Guidelines." In addition, the staff recommended that the inspection requirements for new welds shall be specified commensurate with the design requirements and that these inspections shall also be consistent with the requirements and scope of the BWRVIP-41 report. The staff determined that the BWRVIP adequately revised Section 10 of the BWRVIP-51 report to address its recommendations regarding the pre- and post-installation inspections of the jet pump to be consistent with the BWRVIP-41 report.

The next revision was that the BWRVIP revised Section 9.2 of the BWRVIP-51 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-51 report to be consistent with the other repair design criteria regarding crevices.

The next revision was that the BWRVIP added Section 9.4, "Post Installation As-Built Inspection," to the BWRVIP-51 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-51 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-51 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-51 report to enhance the evaluations for minimizing the in-vessel debris generation with respect to the jet pump repair.

B. Eaton

-3-

Based on the discussion above, the staff has determined that the BWRVIP-51-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

B. Eaton

-3-

Based on the discussion above, the staff has determined that the BWRVIP-51-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.: ML060650117

INDICATE IN BOX: "C"=COPY W/O ATTACHMENT/ENCLOSURE, "E"=COPY W/ATT/ENCL, "N"=NO COPY

OFFICE	CVIB:DCI	E	CVIB:DCI	E	DCI:ADES	
NAME	MKhanna		MAMitchell		WHBateman	
DATE	02/28/2006		03/01/2006		03/01/2006	

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. 9th 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