

September 2, 2005

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

SUBJECT: NRC APPROVAL LETTER OF BWRVIP-18-A, "BWR VESSEL AND
INTERNALS PROJECT BOILING WATER REACTOR CORE SPRAY
INTERNALS INSPECTION AND FLAW EVALUATION GUIDELINES"

Dear Mr. Eaton:

By letter dated March 30, 2005, the Boiling Water Reactor Vessel and Internals Project (BWRVIP) submitted Proprietary Report BWRVIP-18-A, "BWR Vessel and Internals Project Boiling Water Reactor Core Spray Internals Inspection and Flaw Evaluation Guidelines," for Nuclear Regulatory Commission (NRC) staff review.

The BWRVIP-18-A report provides generic guidelines for the inspection and reinspection of the core spray piping and spargers. The report describes piping and sparger locations, categories of plants for which inspection needs would differ, and flaw evaluation procedures to determine allowable flaw sizes. The intent of the subject document is, when approved by the staff, to replace the inspection guidance contained in the NRC's Bulletin 80-13, "Cracking in Core Spray Spargers," dated May 13, 1980, which requested that licensees inspect their core spray spargers and the segment of piping between the inlet nozzle and the vessel shroud during each refueling outage in order to provide adequate assurance of core spray system integrity. To date, these inspections have been successful in identifying cracking and flaws in the core spray piping and spargers.

The BWRVIP-18-A report presents a compilation of information from several sources: the subject proprietary report, BWRVIP responses to NRC staff requests for additional information (RAIs) regarding the subject report, and the NRC staff's final safety evaluation (SE) dated December 2, 1999. It should be noted that the BWRVIP also made modifications to the subject report based on the recommendations that the staff provided in its initial SE of the BWRVIP-18 report dated June 8, 1998.

The NRC staff has reviewed the information in the BWRVIP-18-A report and has found that the report accurately incorporates all of the relevant information in the documents noted above to support NRC staff approval of the report. The staff found that a few technical changes were made in the production of the BWRVIP-18-A report. The first revision was that the BWRVIP added text to Sections 2.1.2 and 2.3 of the BWRVIP-18-A report to clarify that no inspection is required of any solution annealed, non-creviced core spray piping welds. The staff determined that the BWRVIP's position is acceptable because solution annealed, non-creviced core spray piping welds are not expected to experience cracking significant enough to require inspection.

With respect to Open Item 3.3-4 of the staff's SE on the BWRVIP-03 report, "Reactor Pressure Vessel and Internals Examination Guidelines," the staff required that "all BWRVIP inspection and evaluation guidelines be revised to replace Core Spray VT-1 (CSV-1) and modified visual testing (MVT-1) by enhanced visual testing (EVT-1), VT-1, or VT-3. In addition, EVT-1 is to be specified as the primary technique when fine, tight IGSCC is a primary concern. In all other locations, VT-1 or VT-3 will be used as appropriate." Therefore, in response to this open item, the BWRVIP revised the wording in several places throughout the BWRVIP-18-A report, to replace "CSV-1" with "EVT-1." The staff found that the BWRVIP adequately revised the applicable sections of the BWRVIP-18-A report to address Open Item 3.3.4 of the BWRVIP-03 report.

The BWRVIP, in response to Item 3.1 of the staff's initial SE on the BWRVIP-18 report dated June 8, 1998, eliminated the discussion of cleaning with regard to the generic visual inspection procedure. The staff determined that this was acceptable because cleaning is addressed in the BWRVIP-03 report, "Reactor Pressure Vessel and Internals Examination Guidelines."

The BWRVIP, in response to Item 3.2 of the staff's initial SE on the BWRVIP-18 report dated June 8, 1998, revised the text in Section 3.3 and Table 3-5, to revise the list of welds to include heavily-ground welds. The staff found this acceptable because the BWRVIP adequately addressed its issue of including heavily-ground welds within the scope of the welds that are to be inspected.

The BWRVIP, in response to Item 3.4 of the staff's initial SE on the BWRVIP-18 report dated June 8, 1998, revised the text in Section 5.1.8 and A.2 of the BWRVIP-18-A report to indicate that leakage is to be evaluated from all flaws. The staff determined that the BWRVIP adequately revised the appropriate sections in the BWRVIP-18-A report to address that leakage is to be evaluated from all flaws.

The BWRVIP, in response to Item 3.5(b) of the staff's initial SE on the BWRVIP-18 report dated June 8, 1998, revised the criteria in Section 3.2.4 of the BWRVIP-18-A report regarding supplemental ultrasonic testing of non-creviced welds. The staff determined that the BWRVIP adequately revised Section 3.2.4 of the BWRVIP-18-A report to include comprehensive inspection criteria with respect to supplemental ultrasonic testing of non-creviced welds.

The BWRVIP, in response to Item 3.6(b) of the staff's initial SE on the BWRVIP-18 report dated June 8, 1998, revised Section 3.2.4 of the BWRVIP-18-A report to address the staff's recommendation that inspections of the P9 weld (identified on page 3-7 of the BWRVIP-18-A report) shall be required when cracking of either of the collar welds (P8a or P8b) is found. The BWRVIP revised Section 3.2.4 to provide requirements for evaluations that are to be performed on the P9 weld and guidelines for other options, i.e., repair or replacement of the collar welds, if the integrity of the collar welds was determined to have diminished. The staff determined that the BWRVIP adequately revised Section 3.2.4 to address the staff's open item regarding collar welds with diminished integrity.

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The last revision was with respect to the deletion of Section 3.4, "Reporting of Inspection Results," of the BWRVIP-18-A report. The BWRVIP determined that all reporting requirements would be removed from the BWRVIP-18-A report since they are already contained in the BWRVIP-94 report, "Program Implementation Guide." The staff found this acceptable because all reporting requirements for inspection and evaluation guidelines are adequately included in the BWRVIP-94 report.

Also, the staff noted that several minor clarifications and editorial revisions were made in the report. The staff confirmed that the clarifications and editorial revisions did not impact the technical aspects of the report.

Based on the discussion above, the staff has determined that the BWRVIP-18-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 by M. Mitchell for W. Bateman)/

William H. Bateman, Chief
Materials and Chemical Engineering Branch
Division of Engineering
Office of Nuclear Reactor Regulation

Attachment: As stated

cc: See next page

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William H. Bateman, Chief
Materials and Chemical Engineering Branch
Division of Engineering
Office of Nuclear Reactor Regulation

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