

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR REACTOR REGULATION  
WASHINGTON, D.C. 20555-0001

April 8, 2002

**NRC REGULATORY ISSUE SUMMARY 2002-05:  
NRC APPROVAL OF BOILING WATER REACTOR  
PRESSURE VESSEL INTEGRATED SURVEILLANCE PROGRAM**

**ADDRESSEES**

All holders of operating licenses for boiling-water reactors (BWRs), except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.

**INTENT**

The U.S. Nuclear Regulatory Commission (NRC) is issuing this regulatory issue summary (RIS) to inform addressees of the NRC staff's approval of the BWR reactor pressure vessel (RPV) integrated surveillance program (ISP) submitted by the BWR Vessel and Internals Project (BWRVIP) and to specify the conditions for BWR licensees' participation in the ISP. The BWRVIP is an association of owners of BWRs that was formed in June 1994 to focus on the resolution of BWR vessel and internals degradation issues. No specific action or written response to this RIS is required.

**BACKGROUND**

This RIS explains how addressees can meet the conditions for participation in the BWRVIP ISP. These conditions were documented in the NRC staff's safety evaluation (SE) approving the BWRVIP ISP (transmitted by a letter from Mr. William Bateman [USNRC] to Mr. Carl Terry [BWRVIP], February 1, 2002). The information in this RIS is intended to improve the quality of licensee submittals, resulting in more effective and efficient use of both licensee and NRC resources. This information is being provided to licensees as part of the NRC staff's effort to implement the NRC strategic plan performance goal of making NRC activities and the implementation of NRC decisions more effective and efficient.

**SUMMARY OF ISSUE**

By letters dated December 22, 1999, and December 22, 2000, the BWRVIP submitted for staff review and approval the Electric Power Research Institute (EPRI) proprietary topical reports TR-114228, "BWR Vessel and Internals Project, BWR Integrated Surveillance Program Plan (BWRVIP-78)," and TR-1000888, "BWRVIP-86: BWR Vessel and Internals Project, BWR Integrated Surveillance Program Implementation Plan," respectively. These reports, along with the BWRVIP responses (dated December 22, 2000, and May 30, 2001) to NRC staff requests

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for additional information (RAIs), describe the technical basis for an ISP to support the operation of all U.S. BWR RPVs until the end of the 40-year term of their current operating licenses. The BWRVIP ISP was submitted under Title 10 of the Code of Federal Regulations Part 50 (10 CFR Part 50), Appendix H, paragraph III.C., "Requirements for an Integrated Surveillance Program."

The NRC staff reviewed the BWRVIP-78 report, the BWRVIP-86 report, and the associated RAI responses. The staff concluded that the final proposed BWRVIP ISP was acceptable for BWR licensee implementation provided that all participating licensees use one or more compatible neutron fluence methodologies acceptable to the NRC staff for determining surveillance capsule and RPV neutron fluences. "Compatible," in this case, means neutron fluence methodologies that provide results that are within acceptable levels of uncertainty for each calculation. This condition of ISP implementation ensures that data from surveillance capsules included in the ISP may be appropriately shared between BWR facilities and that the basis for the neutron fluence determined for a specific capsule is comparable to the RPV which it is intended to represent. This issue is related to the requirements for an ISP found in items a, b, and c of 10 CFR Part 50, Appendix H, paragraph III.C.1.

The staff also accepted the BWRVIP proposal for using surveillance data from the ISP to support evaluations of BWR RPV fracture toughness or integrity. Position C.2 of NRC Regulatory Guide 1.99, Revision 2 states that plant-specific surveillance program data used to directly modify RPV integrity evaluations should come from surveillance material samples with the same heat number as the limiting RPV material. If position C.2 is used, it is necessary that adjustments be made for chemistry and irradiation temperature differences between the surveillance material and the RPV limiting material. The NRC staff will review the direct use of surveillance data from the ISP program as part of plant-specific RPV integrity evaluations. Surveillance materials which do not have the same heat number as the limiting RPV material may be used for general monitoring, but not for direct determination of RPV embrittlement. The chemistry factor table of position C.1. of NRC Regulatory Guide 1.99, Revision 2, is used for RPV materials for which no matching heat number surveillance material exists within the ISP. Finally, if a licensee uses advanced fracture mechanics-based evaluations (i.e., the Master Curve methodology) for RPV integrity assessments, additional differences between surveillance materials and RPV materials (e.g., heat treatment during fabrication) should be addressed. These differences can complicate the direct use of ISP surveillance data.

The staff has determined that the proposed ISP, if implemented in accordance with the conditions specified in the NRC staff's SE of February 1, 2002, is an acceptable alternative to all existing BWR plant-specific RPV surveillance programs for the purpose of maintaining compliance with the requirements of 10 CFR Part 50, Appendix H, until the end of the 40-year term of a BWR's current operating license. However, since implementation of the ISP may directly affect the licensing basis of every operating BWR in the United States, licensees who wish to participate in the program shall submit a license amendment (see Commission Memorandum and Order CLI-96-13) to incorporate the ISP into the licensing basis for their BWR facility. The specific information required from a licensee in its license amendment request was identified in the NRC staff's SE of February 1, 2002. Each licensee shall provide information addressing the specific neutron fluence methodology it will use in the ISP. Each licensee shall also address the issue of neutron fluence methodology compatibility. The information submitted should be sufficient for the staff to determine that RPV and surveillance capsule fluences will be based on the use of an NRC-approved fluence methodology that will

provide acceptable results as supported by the available dosimetry data. If one methodology is used to determine the neutron fluence values for a licensee's RPV and a different methodology or methodologies are used to establish the neutron fluence values for the ISP surveillance capsules which "represent" that RPV in the ISP, the results of these differing methodologies should be demonstrated to be compatible (i.e, within acceptable levels of uncertainty for each calculation).

BWR licensees who voluntarily choose to participate in the ISP should submit their license amendment requests and supporting information in a timely manner, consistent with the guidance provided in the BWRVIP-94 report, "Program Implementation Guide," dated September 2001. BWR licensees who choose not to participate in the ISP need not respond to the NRC staff's SE of February 1, 2002; however, the voluntary submittal of a letter stating your intent to continue with your plant-specific surveillance program, and the reasons why, would aid the NRC staff in its continuing evaluation of the ISP.

The staff's approval of the ISP is predicated on the full participation of the BWR facilities identified in the ISP test matrix as supplying surveillance capsules for the ISP. Therefore, if any BWR licensees that provide surveillance capsules to the ISP decline to participate in the ISP, either now or in the future, the NRC staff will reconsider the technical adequacy of the ISP. This matter was addressed in the staff's SE regarding the ISP which states that the BWRVIP must submit, for NRC staff review and approval, proposed changes to the ISP to compensate for any reduction in participation and preserve the acceptability of the program.

## **BACKFIT DISCUSSION**

This RIS does not require any modification to plant structures, systems, components, or design of facilities, or any action or written response. Consequently the staff did not perform a backfit analysis under 10 CFR 50.109.

## **FEDERAL REGISTER NOTIFICATION**

A notice of opportunity for public comment was not published in the *Federal Register* because the NRC has worked closely with representatives of the BWRVIP, members of the public, and other stakeholders in the development of the BWRVIP ISP. Public meetings for BWRVIP representatives and external stakeholders were held on March 14 and October 25, 2000, and August 21, 2001. The ISP was discussed at these meetings and interested stakeholders were given an opportunity to comment.

## **PAPERWORK REDUCTION ACT STATEMENT**

This regulatory issue summary contains a voluntary information collection that is subject to the Paperwork Reduction Action of 1995 (44 U.S.C. 3501 et seq.). This information collection was approved by the Office of Management and Budget, clearance number 3150-0011, which expires July 31, 2003.

The burden to the public for this voluntary information collection is estimated to average 40 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the

information collection. The U.S. Nuclear Regulatory Commission is seeking public comment on the potential impact of the information contained in the regulatory issue summary and on the following issues:

1. Is the proposed information collection necessary for the proper performance of the functions of the NRC, including whether the information will have practical utility?
2. Is the estimate of burden accurate?
3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?
4. How can the burden of the information collection be minimized, including the use of automated collection techniques?

Send comments on any aspect of this information collection, including suggestions for reducing the burden, to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by Internet electronic mail at [INFOCOLLECTS@NRC.GOV](mailto:INFOCOLLECTS@NRC.GOV); and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0011), Office of Management and Budget, Washington, DC 20503.

#### Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, an information collection unless the requesting document displays a currently valid OMB control number.

If there are any questions about this matter, please contact the one of the persons listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

**/RA/**

William D. Beckner, Program Director  
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Attachment: List of Recently Issued NRC Regulatory Issue Summaries

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LIST OF RECENTLY ISSUED  
NRC REGULATORY ISSUE SUMMARIES

Regulatory Issue Summary No.	Subject	Date of Issuance	Issued to
2002-04	Results of the Pilot Test of the Proposed Changes to the Unplanned Scrams Performance Indicator and the Scrams with Loss of Normal Heat Removal Performance Indicator	03/01/2002	All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2002-03	Guidance on the Content Measurement Uncertainty Recapture Power Uprate Applications	01/31/2002	All holders of operating licenses for nuclear power reactors, except those that have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2002-02	Lessons Learned Related to Recently Submitted Decommissioning Plans and License Termination Plan	01/16/2002	All NRC licensees.
2002-01	Changes to NRC Participation in the International Nuclear Event Scale	01/14/2002	All NRC licensees and certificate holders.
2001-25	NEI-099-02, Revision 2, Voluntary Submission of Performance Indicator Data	12/12/2001	All holders of operating licenses for nuclear power reactors, except those who have permanently ceased operations and have certified that fuel has been permanently removed from the reactor vessel.
2001-24	Status of Receipt of NRC Mail Following the Closing of the Brentwood Postal Facility	12/06/2001	All NRC licensees