

December 7, 2000

Mr. Carl Terry, BWRVIP Chairman  
Niagara Mohawk Power Company  
Post Office Box 63  
Lycoming, NY 13093

**SUBJECT: SAFETY EVALUATION FOR REFERENCING OF BWR VESSEL AND INTERNALS PROJECT, BWR CORE PLATE INSPECTION AND FLAW EVALUATION GUIDELINES (BWRVIP-25) REPORT FOR COMPLIANCE WITH THE LICENSE RENEWAL RULE (10 CFR PART 54) AND APPENDIX B, BWR CORE PLATE DEMONSTRATION OF COMPLIANCE WITH THE TECHNICAL INFORMATION REQUIREMENTS OF THE LICENSE RENEWAL RULE (10 CFR 54.21)**

Dear Mr. Terry:

By letter dated December 27, 1996, as supplemented and modified by letters dated December 19, 1997, and October 15, 1999, the Boiling Water Reactor Vessel and Internals Project (BWRVIP) submitted the Electric Power Research Institute (EPRI) proprietary Report TR-107284, "BWR Vessel and Internals Project, BWR Core Plate Inspection and Flaw Evaluation Guidelines (BWRVIP-25)," December 1996, for U.S. Nuclear Regulatory Commission (NRC) staff review. In response to the staff's request for additional information (RAI), dated March 14, 1997, the BWRVIP provided supplemental information by letter dated December 19, 1997. The NRC staff issued its initial safety evaluation report (SER), with open items, by letter dated April 28, 1999. The BWRVIP responded to these open items by letter dated October 15, 1999, modifying the BWRVIP-25 report. The staff issued a final SER (FSER) by letter dated December 19, 1999, which found the BWRVIP-25 report, as supplemented and modified, acceptable for the current operating period of BWRs.

By letter dated July 17, 1997, the BWRVIP submitted "Appendix B, BWR Core Plate Demonstration of Compliance with the Technical Information Requirements of the License Renewal Rule (10 CFR 54.21)," for NRC staff review. The BWRVIP submitted a non-proprietary version of the BWRVIP-25 report, TR-107284NP, on April 9, 1999.

As documented in the attached license renewal (LR) SER, the NRC staff has completed its review of Appendix B to the BWRVIP-25 report. As discussed, the staff found the BWRVIP-25 report to be acceptable for licensees participating in the BWRVIP to reference in a LR application to the extent specified and under the limitations delineated in the LR SER. In order for licensees participating in the BWRVIP to reference the report, they must commit to the accepted aging management programs defined therein, and complete the action items described in the LR SER.

By referencing the BWRVIP-25 report, as supplemented and modified, and meeting these limitations, an applicant will provide sufficient information that the staff will be able to make a finding that there is reasonable assurance that the applicant will adequately manage the effects of aging so that the intended functions of the reactor vessel internal components covered by the scope of the report will be maintained consistent with the current licensing basis during the period of extended operation.

The staff does not intend to repeat its review of the matters described in the report and found acceptable in the LR SER when the report appears as a reference in LR applications, except to ensure that the material presented applies to the specified plant.

In accordance with the procedures established in NUREG-0390, "Topical Report Review Status," the staff requests that BWRVIP publish the accepted version of the BWRVIP-25 report within 90 days after receiving this letter. In addition, the published version shall incorporate this letter and the enclosed LR SER, as well as the staff's initial SER and FSER, between the title page and the abstract.

To identify the version of the report that was found accepted by the staff, the staff requests that the BWRVIP include "A" following the topical report number (e.g., BWRVIP-25-A).

Sincerely,

***/RA/***

Christopher I. Grimes, Branch Chief  
License Renewal and Standardization Branch  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Project No. 704

Enclosure: Final Safety Evaluation Report

cc w/encl: See next page

By referencing the BWRVIP-25 report, as supplemented and modified, and meeting these limitations, an applicant will provide sufficient information that the staff will be able to make a finding that there is reasonable assurance that the applicant will adequately manage the effects of aging so that the intended functions of the reactor vessel internal components covered by the scope of the report will be maintained consistent with the current licensing basis during the period of extended operation.

The staff does not intend to repeat its review of the matters described in the report and found acceptable in the LR SER when the report appears as a reference in LR applications, except to ensure that the material presented applies to the specified plant.

In accordance with the procedures established in NUREG-0390, "Topical Report Review Status," the staff requests that BWRVIP publish the accepted version of the BWRVIP-25 report within 90 days after receiving this letter. In addition, the published version shall incorporate this letter and the enclosed LR SER, as well as the staff's initial SER and FSER, between the title page and the abstract.

To identify the version of the report that was found accepted by the staff, the staff requests that the BWRVIP include "A" following the topical report number (e.g., BWRVIP-25-A).

Sincerely,

*/RA/*

Christopher I. Grimes, Branch Chief  
License Renewal and Standardization Branch  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Project No. 704  
Enclosure: Final Safety Evaluation Report  
cc w/encl: See next page

DISTRIBUTION:  
See next page

Enclosed SER provided by memorandum from W. Bateman, EMCB, to C. Grimes, RLSB, dated September 6, 2000, Accession number ML003747727.

DOCUMENT NAME:  
G:\RLSB\ANAND\BWRVIP25.WPD

OFFICE	LA:DRIP	PM:RLSB:DRIP	BC:RLSB:DRIP	OGC
NAME	EGHylton	RKAnand	CIGrimes	JEuchner
DATE	10/11/00	11/ 03/00	12/7 /00	11/ 8/00

OFFICIAL RECORD COPY

FINAL LICENSE RENEWAL SAFETY EVALUATION REPORT  
BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
FOR  
"BWR VESSEL AND INTERNALS PROJECT, BWR CORE PLATE  
INSPECTION AND FLAW EVALUATION GUIDELINES (BWRVIP-25)"  
FOR COMPLIANCE WITH THE LICENSE RENEWAL RULE (10 CFR PART 54)

1.0 INTRODUCTION

1.1 Background

By letter dated December 27, 1996, as supplemented and modified by letters dated December 19, 1997, and October 15, 1999, the Boiling Water Reactor Vessel and Internals Project (BWRVIP) submitted the Electric Power Research Institute (EPRI) proprietary Report TR-107284, "BWR Vessel and Internals Project, BWR Core Plate Inspection and Flaw Evaluation Guidelines (BWRVIP-25)," December 1996, for U.S. Nuclear Regulatory Commission (NRC) staff review. The BWRVIP-25 report provides generic guidelines intended to present the appropriate inspection recommendations to assure safety function integrity of the subject safety-related reactor pressure vessel (RPV) internal components. It also provides design information on the core plate, geometries, weld locations, and potential failure locations for the several categories of boiling water reactors (BWR/2 through BWR/6). The BWRVIP submitted a non-proprietary version of the BWRVIP-25 report, TR-107284NP, on April 9, 1999.

In response to the staff's request for additional information (RAI), dated March 14, 1997, the BWRVIP provided supplemental information by letter dated December 19, 1997. The NRC staff issued its initial safety evaluation report (SER), with open items, by letter dated April 28, 1999. The BWRVIP responded to these open items by letter dated October 15, 1999, modifying the BWRVIP-25 report.

The staff issued a final SER (FSER) by letter dated December 19, 1999, which found the BWRVIP-25 report, as supplemented and modified, acceptable for the current operating period of BWRs.

1.2 License Renewal Appendix

By letter dated July 17, 1997, the BWRVIP submitted "Appendix B, BWR Core Plate Demonstration of Compliance with the Technical Information Requirements of the License Renewal Rule (10 CFR 54.21)," for NRC staff review in accordance with the License Renewal (LR) Rule (10 CFR Part 54).

Section 54.21 of the LR Rule requires, in part, that each application for license renewal contain an integrated plant assessment (IPA) and an evaluation of time-limited aging analyses (TLAA). The IPA must identify and list those structures and components subject to an aging management review and demonstrate that the effects of aging will be adequately managed so that their intended functions will be maintained consistent with the current licensing basis (CLB)

ATTACHMENT

for the period of extended operation. In addition, 10 CFR 54.22 requires that each application include any technical specification changes or additions necessary to manage the effects of aging during the period of extended operation as part of the renewal application.

If an LR applicant participating in the BWRVIP confirms that the BWRVIP-25 report applies to its facility and that the results of the Appendix B IPA and TLAA evaluation are in effect at its plant, then no further review by the NRC staff of the issues described in the documents is necessary, except as specifically identified by the staff below. With this exception, such an applicant may rely on the BWRVIP-25 report for the demonstration required by Section 54.21(a)(3) with respect to the components and structures within the scope of the report. Under such circumstances, the NRC staff intends to rely on the evaluation in this LR SE to make the findings required by 10 CFR 54.29 with respect to a particular application.

## 1.2 Purpose

The staff reviewed the BWRVIP-25 report and its Appendix B to determine whether its guidance will provide acceptable levels of quality for inspection and flaw evaluation of the subject safety-related RPV internal components during the period of extended operation. The review also considered compliance with the LR Rule in order to allow applicants the option of incorporating the BWRVIP-25 guidelines by reference in a plant-specific IPA and associated TLAAs.

## 1.3 Organization of BWRVIP-25 Report

Because the BWRVIP-25 report, as supplemented and modified, is proprietary, this SER was written so as not to repeat information contained in the propriety portions of the report. The staff does not discuss in any detail the provisions of the guidelines nor the parts of the guidelines it finds acceptable. A brief summary of the contents of the BWRVIP-25 report is given in Section 2.0 of this SER, with the NRC staff's evaluation presented in Section 3.0. The conclusions are summarized in Section 4.0. The presentation of the evaluation is structured according to the organization of the BWRVIP-25 report.

## 2.0 SUMMARY OF BWRVIP-25 REPORT

The BWRVIP-25 report and its Appendix B contain a generic evaluation of the management of the effects on aging on the subject safety-related RPV internal components so that their intended functions will be maintained consistent with the CLB for the period of extended operation. This evaluation applies to BWR applicants who have committed to implementing the BWRVIP-25 report and want to incorporate the report and Appendix B by reference into a plant-specific IPA and associated TLAAs.

The BWRVIP-25 report addresses the following topics:

- Susceptibility Factors – The various types of material degradation mechanisms (e.g., fatigue, stress corrosion cracking, age embrittlement) that could impact the core plate are characterized. Materials, stress, and environmental factors are described in general terms, followed by specific references to localized regions relative to plant operating experience for particular mechanisms and components.

- Component Description and Function – The various core plate components are described in considerable detail by a series of illustrations along with brief descriptions of each component's function and materials/welding characteristics. Differences among the various models of BWRs (BWR/2, BWR-3-5, and BWR/6) are identified.
- Potential Failure Locations and Safety Consequences - Each of the core plate components is addressed from the standpoint of inspection history, future susceptibility to degradation, and consequences of failures in terms of component functions and plant safety. Based on these qualitative considerations, the BWRVIP-25 report makes recommendations as to the need for inspection of the core plate components.
- Background and Inspection History – Data on service-related failures of components are summarized. Most plants include the examination of the core plate under the ASME Code, Section XI, Examination Category B-N-2, "Integrally Welded Core Support Structures," which addresses the Code examination requirement for "accessible surfaces" by the VT-3 visual examination method. While the Code defines "accessible surfaces" as those areas "made accessible for examination by removal of components during normal refueling outages," during a typical refueling outage, the shuffling of fuel bundles does not allow access to the core plate. With the accessibility limitations, few examinations have actually been performed to date, and there is little inspection history on the core plate components. However, no instances of cracking have been identified during the Code inspections performed domestically. The major sources of data on cracking detected outside the U.S. are the various General Electric (GE) Service Information Letters (SILs) and Rapid Information Communication SILs (RICSILs). It is expected, as licensees implement the BWRVIP-25 Inspection Guidelines, that the inspection history will increase.
- BWRVIP Inspection Guidelines – The guidelines recommend the specific locations, NDE methods, and inspection frequencies for examinations of core plate components.
- Loads – This section defines the loading to be used in fracture mechanics evaluations to address the effects of detected flaws on structural integrity, and is based on the plant design and licensing basis. The various types of loads (e.g., pressures, seismic, etc.) of concern are listed.

Appendix B discusses the following topics:

## 2.1 Identification of Structures and Components Subject to an Aging Management Review

10 CFR 54.21(a)(1) requires that the IPA identify and list those structures and components within the scope of license renewal that are subject to an aging management review (AMR). Structures and components subject to an AMR will encompass those structures and components that (1) perform an intended function, as described in 10 CFR 54.4, without moving parts or without a change in the configuration or properties, and (2) are not subject to replacement based on a qualified life or specified time period. These structures and components are also referred to as "passive" and "long-lived" structures and components, respectively.

In Section 2.0 of the BWRVIP-25 report, the BWRVIP describes the intended function of the core plate assembly. The functions are to: (1) provide lateral support for the fuel bundles, control rod guide tubes, and in-core instrumentation during seismic events, and (2) provide vertical support for the peripheral fuel assemblies.

In Appendix B, the BWRVIP identified the passive and long-lived components as required by 10 CFR 54.21(a)(1). The BWRVIP noted that the complete core plate assembly is subject to AMR.

## 2.2 Effects of Aging

The BWRVIP identified the aging mechanisms and aging effects for the core plate using the guidance from NUMARC 90-02, "BWR Reactor Pressure Vessel License Renewal Industry Report," Revision 1, dated August 1992. The BWRVIP also used NUREG-1557, "Summary of Technical Information and Agreements from Nuclear Management and Resources Council Industry Reports Addressing License Renewal," dated October 1996, to correlate the aging effects and their associated aging mechanisms. Using these reports, the BWRVIP determined that stress corrosion crack initiation and growth is the only aging effect that requires AMR for the core plate assembly.

In Section 2.0 of the BWRVIP-25 report, the BWRVIP discussed the causes of crack initiation and growth and provided a susceptibility assessment, and also discussed the susceptibility factors of environment, materials, and stress state. The BWRVIP's review of the degradation history is presented in Section 3.0. The assessment determined that:

1. All locations on the core plate are subjected to an aggressive environment and within a region of high electrochemical corrosion potential (ECP).
2. Core plate materials at locations where a heat-affected zone (HAZ) or excessive cold work exists may be susceptible.
3. The cracking history suggests that all core plate components, regardless of the grade of stainless steel material, are susceptible.
4. Regions with the highest expected crack susceptibility are the creviced locations, especially those creviced regions subject to high weld residual stresses.

## 2.3 Aging Management Programs

10 CFR 54.21(a)(3) requires that the applicant demonstrate, for each component identified, that the effects of aging will be adequately managed so that the intended function will be maintained consistent with the CLB for the period of extended operation.

In Section 3.0 of the BWRVIP-25 report, the BWRVIP discussed the plant-specific inspection strategy (i.e., plant-specific analysis and reinspection schedule) to be used for ensuring that cracks that might occur in the core plate are detected in a timely manner. The inspection methods and implementation guidance address the:

- Core plate location (rim hold down bolts) that requires inspection.
- Extent of inspection for each location.
- Analysis methods to determine the need for corrective action and establish a reinspection schedule.

The BWRVIP concluded that both its inspection program and plant-specific considerations will result in verification of the structural integrity, consistent with the CLB, for the subject safety-related RPV internal components.

#### 2.4 Time-Limited Aging Analyses

10 CFR 54.21(1)(c) requires that each application for license renewal contain an evaluation of TLAAs as defined in 10 CFR 54.3, and that the applicant shall demonstrate that:

- (i) The analyses remain valid for the period of extended operation;
- (ii) The analyses have been projected to the end of the period of extended operation; or
- (iii) The effects of aging on the intended function(s) will be adequately managed for the period of extended operation.

The TLAAs considered in the BWRVIP-25 report are those licensee calculations and analyses that:

- (1) involve the core plate within the scope of license renewal;
- (2) consider the effects of aging;
- (3) involve time-limited assumptions defined by the current operating term;
- (4) were determined to be relevant by the licensee in making a safety determination;
- (5) involve conclusions or provide the basis for conclusions related to the capability of the core plate to perform its intended function; and
- (6) are contained or incorporated by reference in the CLB.

With respect to the BWRVIP-25 report, if a plant-specific analysis, as identified by an applicant, meets all six of the above criteria, the analysis will be considered a TLAAs for license renewal and needs to be evaluated by the applicant on a plant-specific basis.

The susceptibility of the rim hold-down bolts to stress relaxation results in a potential TLAAs issue. The BWRVIP evaluated this issue under 10 CFR 54.21(c)(1)(ii) by projecting the analysis to the end of the period of extended operation. The BWRVIP found a significant reduction in the stress state during an extended 60-year period of operation; however, even in the most severe case, some tensile pre-load remained. The stress relaxation is due to the close proximity of the rim hold-down bolts to the active fuel region resulting in irradiation induced relaxation of the bolt stress over the life of the plant.

### 3.0 STAFF EVALUATION

The staff reviewed the BWRVIP-25 report to determine if it demonstrated that the effects of aging on the reactor vessel components within the scope of the report will be adequately managed so that the components' intended functions will be maintained consistent with the CLB for the period of extended operation, in accordance with 10 CFR 54.21(a)(3). This is the last step in the IPA described in 10 CFR 54.21(a).

Besides the IPA, Part 54 requires an evaluation of TLAAAs in accordance with 10 CFR 54.21(c). The staff reviewed the BWRVIP-25 report to determine if the TLAAAs covered by the report were evaluated for license renewal in accordance with 10 CFR 54.21(c)(1).

#### 3.1 Structures and Components Subject to Aging Management Review

The staff agrees that the core plate components are subject to AMR because they perform intended functions without moving parts or without a change in the configuration or properties. The staff concludes that BWR applicants for license renewal must identify the appropriate subject safety-related RPV internal components as subject to AMR to meet the applicable requirements of 10 CFR 54.21(a)(1).

#### 3.2 Intended Functions

The staff agrees that the intended functions of the core plate assembly are as stated. The function is to provide lateral support for the fuel bundles, control rod guide tubes, and in-core instrumentation during seismic events, and also to provide vertical support for the peripheral fuel assemblies.

#### 3.3 Effects of Aging

The information necessary to demonstrate compliance with the requirements of the license renewal rule, 10 CFR 54.21, is provided in Appendix B of the BWRVIP-25 report. The BWR Reactor Pressure Vessel Industry Report, NUMARC 90-02, Revision 1, dated August 1992, and the resolution to the NRC's questions on that industry report were used to identify the aging mechanisms for the core plate. If the industry report concluded that the aging mechanism is significant then the aging mechanism was included in the AMR. Using this methodology, it was determined that crack initiation and growth are the only aging effects that required AMR.

#### 3.4 Aging Management Programs

The staff evaluated the BWRVIP's aging management program (AMP) to determine if it contains the following 10 elements constituting an adequate AMP for license renewal:

- (1) Scope of Program: The program is focused on managing the effects of crack initiation and growth due to stress corrosion cracking (SCC). The program contains preventive measures to mitigate stress corrosion cracking; inservice inspection (ISI) to monitor the effects of SCC on the intended function of the components, and repair and/or replacement as needed to maintain the ability to perform the intended function.

- (2) Preventive Actions: Coolant water chemistry is monitored and maintained in accordance with EPRI guidelines. Maintaining high water purity reduces susceptibility to SCC. For those plants using hydrogen water chemistry (HWC) or noble chemistry chemical addition (NMCA), hydrogen additions are effective in reducing electrochemical (corrosion) potentials in the recirculation piping system, but are less effective in the core region. NMCA, through a catalytic action, appears to increase the effectiveness of hydrogen additions in the core region.
- (3) Parameters Monitored or Inspected: The AMP monitors the effects of SCC on the intended function by detection and sizing of cracks by inservice inspection. Table IWB-2500 category B-N-2 specifies visual VT-3 examination of all accessible surfaces of the core support structure. Inspection and flaw evaluation are performed in accordance with the BWRVIP-25 guidelines, which specifies ultrasonic or visual examinations (EVT-1), as approved by the NRC.
- (4) Detection of Aging Effects: Inspection in accordance with BWRVIP guidelines assures that degradation due to SCC is detected before any loss of the intended function of the core plate components.
- (5) Monitoring and Trending: The inspection schedule is in accordance with applicable approved BWRVIP guidelines and is adequate for timely detection of cracks. Scope of examination expansion and re-inspection beyond the baseline inspection are required if flaws are detected.
- (6) Acceptance Criteria: Any degradation is evaluated in accordance with ASME Code Section XI or other acceptable flaw evaluation criteria, such as the applicable staff-approved BWRVIP-25 guidelines.
- (7) Corrective Actions: Repair and replacement procedures are equivalent to those requirements in the ASME Code, Section XI.
- (8) & (9) Confirmation Process and Administrative Controls: Site QA procedures, review and approval processes and administrative controls are implemented in accordance with the requirements of Appendix B to 10 CFR 50.
- (10) Operating Experience: Cracking of the core plate itself in General Electric BWRs has not been reported, but the creviced regions beneath the plate are difficult to inspect. NRC Information Notice (IN) 95-17 discusses cracking in core plates of the U. S. and overseas BWRs. Related experience in other components is reviewed in NRC Generic Letter (GL) 94-03 and NUREG-1544.

The staff's FSER of the BWRVIP-25 report for the current operating term was transmitted by letter dated December 19, 1999, to Carl Terry, BWRVIP Chairman. In it, the staff concluded that the inspection strategy and evaluation methodologies discussed in the BWRVIP-25 report, as supplemented and modified, will provide an acceptable level of quality for examination of the subject safety-related RPV internal components for the current operating period of BWRs. Further, based on the licensee's implementation of the BWRVIP-25 inspection program, as supplemented and modified, the staff finds that there is reasonable assurance that crack initiation and growth will be adequately managed such that the intended functions of the subject safety-related RPV internal components will be maintained consistent with the CLB for the period of extended operation.

### 3.5 Time Limited Aging Analyses

The susceptibility of the rim hold-down bolts to stress relaxation results in a potential Time Limiting Analysis Aging (TLAA) issue. The rim hold-down bolts connect the core plate to the core shroud. The BWRVIP evaluated this issue under 10 CFR 54.21(c)(1)(ii) by projecting the analysis to the end of the period of extended operation. The stress state analyses, calculated for a 60-year plant life, indicated that all but two BWR/3s would undergo a five to 19 percent reduction in stress (e.g., loss of preload). However, two BWR/3s with core plate bolts positioned closer to the active fuel would show a 54 to 74 percent stress reduction. The staff agrees that stress relaxation in the rim hold-down bolts is a TLAA issue and must be identified and evaluated by individual applicants considering license renewal.

### 4.0 CONCLUSIONS

The staff has reviewed the BWRVIP-25 report submitted by the BWRVIP. On the basis of its review, as set forth above, the staff concludes that the BWRVIP-25 report provides an acceptable demonstration that BWRVIP member utilities referencing this topical report will adequately manage the aging effects of reactor vessel components within the scope of the report, with the exception of the noted renewal applicant action items set forth in Section 4.1 below, so that there is reasonable assurance that the core plate components will perform their intended functions in accordance with the CLB during the period of extended operation.

Any BWRVIP member utility may reference this report in a license renewal application (LRA) to satisfy the requirements of (1) 10 CFR 54.21(a)(3) for demonstrating that the effects of aging on the reactor vessel components within the scope of this topical report will be adequately managed, and (2) 10 CFR 54.21(c)(1) for demonstrating the appropriate findings regarding evaluation of TLAA's for the core plate for the period of extended operation. The staff also concludes that, upon completion of the renewal applicant action items set forth in Section 4.1 below, referencing this topical report in an LRA and summarizing in an FSAR supplement the AMPs and the TLAA evaluations contained in this topical report will provide the staff with sufficient information to make the findings required by Sections 54.29(a)(1) and (a)(2) for components within the scope of this topical report.

#### 4.1 Renewal Applicant Action Items

The following are license renewal applicant action items to be addressed in the plant-specific LRA when incorporating the BWRVIP-25 report in a renewal application:

- (1) The license renewal applicant is to verify that its plant is bounded by the BWRVIP-25 report. Further, the renewal applicant is to commit to programs described as necessary in the BWRVIP-25 report to manage the effects of aging on the functionality of the core plate assembly during the period of extended operation. Applicants for license renewal will be responsible for describing any such commitments and identifying how such commitments will be controlled. Any deviations from the AMPs within the BWRVIP-25 report described as necessary to manage the effects of aging during the period of extended operation and to maintain the functionality of the reactor vessel components or

other information presented in the report, such as materials of construction, will have to be identified by the renewal applicant and evaluated on a plant-specific basis in accordance with 10 CFR 54.21(a)(3) and (c)(1).

- (2) 10 CFR 54.21(d) requires that an FSAR supplement for the facility contain a summary description of the programs and activities for managing the effects of aging and the evaluation of TLAAAs for the period of extended operation. Those applicants for license renewal referencing the BWRVIP-25 report for the core plate will ensure that the programs and activities specified as necessary in the BWRVIP-25 report are summarily described in the FSAR supplement.
- (3) 10 CFR 54.22 requires that each application for license renewal include any technical specification changes (and the justification for the changes) or additions necessary to manage the effects of aging during the period of extended operation as part of the renewal application. In its Appendix B to the BWRVIP-25 report, the BWRVIP stated that there are no generic changes or additions to technical specifications associated with the core plate as a result of its AMR and that the applicant will provide the justification for plant-specific changes or additions. Those applicants for license renewal referencing the BWRVIP-25 report for the core plate will ensure that the inspection strategy described in the BWRVIP-25 report does not conflict with or result in any changes to their technical specifications (TS). If TS changes do result, then the applicant must ensure that those changes are included in its application for license renewal.
- (4) Due to susceptibility of the rim hold-down bolts to stress relaxation, applicants referencing the BWRVIP-25 report for license renewal should identify and evaluate the projected stress relaxation as a potential TLAA issue.
- (5) Until such time as an expanded technical basis for not inspecting the rim hold-down bolts is approved by the staff, applicants referencing the BWRVIP-25 report for license renewal should continue to perform inspections of the rim hold-down bolts.

## 5.0 REFERENCES

1. NUREG-1557, Summary of Technical Information and Agreements from Nuclear Management and Resources Council Industry Reports Addressing License Renewal, October 1996.
2. Carl Terry, BWRVIP, to USNRC, "BWR Vessel and Internals Project, BWR Core Plate Inspection and Flaw Evaluation Guidelines (BWRVIP-25)," EPRI Report TR-107284, dated December 1997.
3. C. E. Carpenter, USNRC, to Carl Terry, BWRVIP, "Propriety Request for Additional Information - Review of BWR Vessel and Internals Project Report, BWR Core Plate Inspection and Flaw Evaluation Guidelines (BWRVIP-25)," dated March 14, 1997.
4. Carl Terry, BWRVIP, to USNRC, "BWRVIP Response to NRC Request for Additional Information on BWRVIP-25," December 19, 1997.
5. J. R. Strosnider, USNRC, to Carl Terry, BWRVIP, "Safety Evaluation of BWR Vessel and Internals Project Report, BWR Core Plate Inspection and Flaw Evaluation Guidelines (BWRVIP-25)," dated December 19, 1999.

cc:

Karl W. Singer, Executive Chair  
BWRVIP Assessment Task  
Tennessee Valley Authority  
PO Box 2000  
Decatur, AL 35602-2000

Bill Eaton, Executive Chair  
Inspection Committee  
Entergy Operations, Inc.  
PO Box 756, Waterloo Rd  
Port Gibson, MS 39150-0756

H. Lewis Sumner, Executive Chairman  
BWRVIP Mitigation Task  
Southern Nuclear Operating Co.  
M/S BIN B051, PO Box 1295  
40 Inverness Center Parkway  
Birmingham, AL 35201

Harry P. Salmon, Executive Chairman  
BWRVIP Integration Task  
New York Power Authority  
123 Main St., M/S 11 D  
White Plains, NY 10601-3104

George T. Jones, Executive Chair  
BWRVIP Repair Task  
Pennsylvania Power & Light, Inc.  
M/S GEN A 61  
2 N 9<sup>th</sup> Street  
Allentown, PA 18101-1139

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

Greg Selby, EPRI BWRVIP  
Inspection Manager  
EPRI NDE Center  
P. O. Box 217097  
1300 W. T. Harris Blvd.  
Charlotte, NC 28221

Joe Hagan, BWRVIP Vice Chairman  
PECO Energy Co.  
MC 62C-3  
965 Chesterbrook Blvd  
Wayne, PA 19807-5691

Steve Lewis, Technical Chairman  
BWRVIP Assessment Task  
Entergy  
P. O. Box 756  
Waterloo Road  
Port Gibson, MS 39150

Carl Larsen, Technical Chairman  
BWRVIP Inspection Task  
Yankee Atomic  
580 Main Street  
Bolton, MA 01740

John Wilson, Technical Chairman  
BWRVIP Mitigation Task  
Clinton Power Station, M/C T-31C  
P.O. Box 678  
Clinton, IL 61727

Vaughn Wagoner, Technical Chairman  
BWRVIP Integration Task  
Carolina Power & Light Company  
One Hannover Square 9C1  
P.O. Box 1551  
Raleigh, NC 27612

Bruce McLeod, Technical Chairman  
BWRVIP Repair Task  
Southern Nuclear Operating Co.  
Post Office Box 1295  
40 Inverness Center Parkway  
Birmingham, AL 35201

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

James P. Pelletier, BWRVIP Liaison  
to EPRI Nuclear Power Council  
Nebraska Public Power District  
1200 Prospect Avenue  
PO Box 98Brownville, NE 683210098