

April 5, 2000

Mr. Charles H. Cruse  
Vice President - Nuclear Energy  
Baltimore Gas and Electric Company  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

SUBJECT: SAFETY EVALUATION OF PROPOSED ALTERNATE AMERICAN SOCIETY OF MECHANICAL ENGINEERS BOILER AND PRESSURE VESSEL CODE (ASME CODE) SECTION XI, 1998 EDITION FOR THE THIRD 10-YEAR INSPECTION INTERVAL - CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 (TAC NOS. MA4647 AND MA4648)

Dear Mr. Cruse:

By letter dated January 29, 1999, as supplemented December 23, 1999, Baltimore Gas and Electric Company (BGE or the licensee) for Calvert Cliffs Nuclear Power Plant, submitted a request for updating inservice inspection program plans to the 1998 Edition of the ASME Code, Section XI, (except for Subsections IWE and IWL) for the third 10-year inservice inspection interval of Calvert Cliffs Units 1 and 2. The licensee clarified in a letter dated December 23, 1999, its intent to implement Appendix VIII, "Performance Demonstration for Ultrasonic Examination Systems," of Section XI in conducting inservice inspections as required by 10 CFR 50.55a(g)(6)(ii)(C). The third 10-year inservice inspection interval for the Calvert Cliffs plants commenced on July 1, 1999. Pursuant to 10 CFR 50.55a(g)(4)ii, the applicable code for the third 10-year interval was the 1989 Edition of the ASME Code Section XI. Subsequent to your submittal, the 1995 ASME Code Section XI, up to and including the 1996 Addenda was incorporated in the rule and became effective November 22, 1999. In order to adopt the 1998 Edition of the ASME Code, Section XI, for the third 10-year inspection interval, the licensee provided a paragraph-by-paragraph analysis of the proposed Code with that of the 1989 Edition, since the proposed Code has not been endorsed by the NRC in 10 CFR 50.55a.

The NRC staff has completed its review of the proposed changes in the 1998 Code requirements that are considered to be less restrictive than those of the 1989 Code currently applicable to the third 10-year inservice inspection interval and has documented its conclusions in the enclosed safety evaluation. The NRC in 10 CFR 50.55a has incorporated by reference the 1995 Edition of the ASME Code, Section XI, up to and including the 1996 Addenda for inservice inspection of Code components and component supports subject to limitations and modifications stated under 10 CFR 50.55a(b)(2). Adoption of the proposed 1998 ASME Code, Section XI, will be subject to those limitations and in addition will be subject to exceptions to paragraphs IWA-2314 (Certification and Recertification), IWA-4440 (Welding and Welder Qualification), IWA-5110 (System Pressure Test), IWB-1220 (Components Exempt from Examination), Table IWB-2500-1 (Examination of Control Rod Drive Housing Bolting), Table IWB-2500-1, Figures 13 and 14 (Examination of Integrally Welded Attachments) and the quality

assurance provisions stated in the staff's evaluation. With these limitations, modifications and exceptions, the staff has concluded that the licensee's alternative to use the 1998 Edition of Section XI (excluding Subsections IWE and IWL) would provide an acceptable level of quality and safety and therefore, is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

BGE has stated in the submittal that for Subsections IWE and IWL, the applicable Code during the third 10-year inservice inspection interval will be the 1992 Edition of ASME Section XI Code with the 1992 Addenda as allowed by 10 CFR 50.55a(b)(2)(vi).

The current edition of 1998 Edition has a number of publishing errors which the ASME Code is in the process of addressing. For example, errors exist in certain formulae. Therefore, the licensee is advised to take note of the forthcoming errata and in the meantime, exercise caution in using the Code so as not to affect the intended safety margins.

The licensee is authorized to implement the 1998 Edition of the ASME Code, Section XI (excluding Subsections IWE and IWL), with the limitations, modifications, and exceptions discussed in the enclosed safety evaluation until such time as the Code is included in a future revision of 10 CFR 50.55a. At that time, the licensee is to follow all provisions in the Code with limitations issued in 10 CFR 50.55a, if any, should the licensee continue to implement this relief request.

This action completes the technical review required to be performed by the NRC staff under TAC Nos. MA4647 and MA4648.

Sincerely,

*/RA/*

Marsha Gamberoni, Acting Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure: Safety Evaluation

cc w/encl: See next page

assurance provisions stated in the staff's evaluation. With these limitations, modifications and exceptions, the staff has concluded that the licensee's alternative to use the 1998 Edition of Section XI (excluding Subsections IWE and IWL) would provide an acceptable level of quality and safety and therefore, is authorized pursuant to 10 CFR 50.55a(a)(3)(i).

BGE has stated in the submittal that for Subsections IWE and IWL, the applicable Code during the third 10-year inservice inspection interval will be the 1992 Edition of ASME Section XI Code with the 1992 Addenda as allowed by 10 CFR 50.55a(b)(2)(vi).

The current edition of 1998 Edition has a number of publishing errors which the ASME Code is in the process of addressing. For example, errors exist in certain formulae. Therefore, the licensee is advised to take note of the forthcoming errata and in the meantime, exercise caution in using the Code so as not to affect the intended safety margins.

The licensee is authorized to implement the 1998 Edition of the ASME Code, Section XI (excluding Subsections IWE and IWL), with the limitations, modifications, and exceptions discussed in the enclosed safety evaluation until such time as the Code is included in a future revision of 10 CFR 50.55a. At that time, the licensee is to follow all provisions in the Code with limitations issued in 10 CFR 50.55a, if any, should the licensee continue to implement this relief request.

This action completes the technical review required to be performed by the NRC staff under TAC Nos. MA4647 and MA4648.

Sincerely,

**/RA/**

Marsha Gamberoni, Acting Chief, Section 1  
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Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 and 2

President  
Calvert County Board of  
Commissioners  
175 Main Street  
Prince Frederick, MD 20678

James P. Bennett, Esquire  
Counsel  
Baltimore Gas and Electric Company  
P.O. Box 1475  
Baltimore, MD 21203

Jay E. Silberg, Esquire  
Shaw, Pittman, Potts, and Trowbridge  
2300 N Street, NW  
Washington, DC 20037

Mr. Bruce S. Montgomery, Director  
NRM  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

Resident Inspector  
U.S. Nuclear Regulatory  
Commission  
P.O. Box 287  
St. Leonard, MD 20685

Mr. Richard I. McLean, Manager  
Nuclear Programs  
Power Plant Research Program  
Maryland Dept. of Natural Resources  
Tawes State Office Building, B3  
Annapolis, MD 21401

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. Joseph H. Walter, Chief Engineer  
Public Service Commission of  
Maryland  
Engineering Division  
6 St. Paul Centre  
Baltimore, MD 21202-6806

Kristen A. Burger, Esquire  
Maryland People's Counsel  
6 St. Paul Centre  
Suite 2102  
Baltimore, MD 21202-1631

Patricia T. Birnie, Esquire  
Co-Director  
Maryland Safe Energy Coalition  
P.O. Box 33111  
Baltimore, MD 21218

Mr. Loren F. Donatell  
NRC Technical Training Center  
5700 Brainerd Road  
Chattanooga, TN 37411-4017

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
ON THE THIRD 10-YEAR INTERVAL INSERVICE INSPECTION  
PROPOSED ALTERNATE ASME CODE, SECTION XI, 1998 EDITION  
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2  
DOCKET NUMBERS 50-317 AND 50-318

1.0 INTRODUCTION

The inservice inspection of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (Code) and applicable addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The third 10-year inservice inspection interval for the Calvert Cliffs plants commenced on July 1, 1999. Pursuant to 10 CFR 50.55a(g)(4)ii, the applicable code for the third 10-year interval was the 1989 Edition of the ASME Code Section XI. Subsequent to your submittal, the 1995 ASME Code Section XI, up to and including the 1996 Addenda was incorporated in the rule and became effective November 22, 1999. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to Commission approval.

By letter dated January 29, 1999, as supplemented December 23, 1999, Baltimore Gas and Electric Company (BGE or the licensee), submitted a request to the NRC for updating inservice inspection program plans to the 1998 Edition of the ASME Code, Section XI, (except for

Subsections IWE and IWL) for the third 10-year inservice inspection interval of Calvert Cliffs Units 1 and 2. The NRC has incorporated by reference the 1995 Edition of the ASME Code, Section XI, up to and including the 1996 Addenda for inservice inspection of Code components and component supports subject to limitations and modifications stated under 10 CFR 50.55a(b)(2). In order to adopt the 1998 Edition of the ASME Code, Section XI, for the third 10-year inspection interval, the licensee provided a paragraph-by-paragraph comparison of the proposed Code with that of the 1989 Edition since the proposed Code has not been endorsed by the NRC in 10 CFR 50.55a. The staff has evaluated those requirements of the proposed 1998 Code considered to be less restrictive than those of the 1989 Code currently incorporated in 10 CFR 50.55a to ensure that adoption of the proposed 1998 ASME Code, Section XI, with exceptions would provide an acceptable level of quality and safety, pursuant to 10 CFR 50.55a(a)(3)(i).

## 2.0 EVALUATION

The staff has evaluated the information provided by the licensee in support of its proposed alternative to update the third 10-year inservice inspection program plan to the 1998 Edition of the ASME Code, Section XI, for Calvert Cliffs Units 1 and 2 with the exception that for Subsections IWE and IWL, the licensee will use the 1992 Edition with 1992 Addenda of Section XI. The licensee has evaluated the changes to the ASME Section XI Code from the 1989 Edition through the 1998 Edition based on a compilation of the impact of each revision prepared by Section XI. The staff has reviewed the licensee's assessment of this compilation of changes to the Section XI Code. The compilation was divided into three categories: (i) no significant change (ii) less restrictive change or (iii) more restrictive change, as explained below.

- (i) "No significant change" consists of clarifications or editorial changes that are discussed and voted on at the main committee meeting.
- (ii) "Less restrictive change" consists of any change that reduces the technical requirement of the Code. The staff evaluation is based on the licensee's justification of its impact on safety.
- (iii) "More restrictive change" consists of any change that increases the technical requirement and therefore, needs no justification for acceptance. No staff evaluation has been provided.

The staff has evaluated all changes classified as "Less Restrictive" which amounted to 19 out of a total of 195 changes that also included "No Significant" and "More Restrictive" changes in the 1998 Section XI Code. Three changes involved use of Code Cases N-491, N-498, and N-408-2 which are approved for use in NRC Regulatory Guide 1.147, Rev. 12; and, thus, these changes do not require further evaluation. The staff finds that the 1998 Code incorporates 27 "More Restrictive" changes in comparison to the 1989 Code, and thus, require no further evaluation. However, in staff's opinion, the following changes classified as "No significant change" in the submittal required further evaluation by the NRC.

No significant changes

IWA-4440 (Transfer of Procedure Qualification Records Between Owners)

This revision provides alternative requirements for welding procedure qualification. The change allows owners to use welding procedure qualifications performed and documented by other owners. This change incorporates the provisions of Code Case N-573, "Transfer of Procedure Qualification Records Between Owners". The staff approves the transfer of welding procedure qualification records from one owner to the other with the condition for the organization using the procedure qualification records and certification to ensure that the qualification and certification activities were performed in accordance with a quality assurance (QA) program that met the requirements of IWA-1400 and was effectively implemented at the time these activities were performed. The applicable QA program under IWA-1400 should have met the requirements of Appendix B of 10 CFR Part 50.

IWA-5110 (System Pressure Test)

This revision incorporates the provisions of Code Case N-522, "Pressure Testing of Containment Penetration Piping". The change permits Appendix J testing in lieu of the Code pressure testing for piping that penetrates the containment vessel, when the piping and the isolation valves that are part of the containment system are Class 2 and the balance of the piping system is outside the scope of Section XI. The staff accepts use of Code Case N-522 with the condition that the Appendix J test be conducted at the peak calculated containment pressure and the test procedures ensure the detection and location of through-wall leakage in containment isolation valves (CIVs) and pipe segments between the CIVs. Therefore, this condition must be satisfied when the Appendix J testing provisions are applied.

Reconciliation of Quality Assurance (QA) Requirements

BGE will use their Appendix B QA program in conjunction with the QA provisions of Section XI with the clarification that, where the two differ, the licensee will use whichever requirements are more rigorous. The clarification is important because NQA-1 contains some NDE related requirements important to ISI that may not be explicitly addressed in the licensee's QA program (such as analyst qualifications), while some of the NQA provisions are not sufficiently rigorous to ensure compliance with Appendix B. This reconciliation is necessary and is acceptable to the staff.

Less Restrictive Changes

IWC-5230 and IWD-5222 (System Pressure Tests)

This revision incorporates the provision of Code Case N-534, "Alternative Requirement for Pneumatic Pressure Testing". This change permits use of a leakage test at normal operating pressure for Class 2 and 3 pneumatic tests, in lieu of the hydrostatic test of 1.1 or 1.25 times the design pressure. The staff considers that this code case does not represent a compromise to safety since the leak tightness of the pressure boundary is ensured by performing leakage tests at normal operating pressure. The hydrostatic test at slightly elevated pressure is regarded as a means to enhance leakage detection during examination of components under

pressure and is not intended to test structural integrity of the pressure boundary. Therefore, this change would provide an acceptable level of quality and safety.

#### IWA-2314 (Recertification of Personnel)

This revision provides that Level I and II nondestructive examination personnel can be recertified on a 5 year cycle rather than the current 3-year cycle. The revision incorporates the provision of Code Case N-574, "NDE Personnel Recertification Frequency". The staff does not consider extension to 5 years for recertification of Level I and II personnel acceptable since the proficiency of examination personnel decreases over time. Therefore, the staff denies this change because the alternate does not provide acceptable level of quality and safety.

#### IWA-4110 and IWA-4221 (General Requirements for Repair/Replacement Activities)

This revision provides three alternatives for determining the construction code to be used for repair/replacement activities. This includes provisions for the addition of new systems under the jurisdiction of ASME Section XI. This subsection previously had no rules for selection of a construction code for the addition of new systems. As a result, the addition of new systems using the rules of Section XI was prohibited. This change provides the rules for the selection of a construction code for the new system based on the system function and the applicable construction code for the facility. Inclusion of these provisions in the later code permits addition of a new system under the jurisdiction of ASME Section XI which would ensure protection of public health and safety.

#### Table IWB-2500-1, Figures IWB-2500-13 & 14 (Examination of Integrally Welded Attachments)

This revision incorporates the provision of Code Case N-323-1, "Alternative Examination for Welded Attachments to Pressure Vessels". The revision permits a one side surface examination in lieu of surface examination from both sides and of one side volumetric examination of attachment welds to vessels, when only one side of the attachment weld is accessible for examination. The staff does not approve use of Code Case N-323-1 since it would allow a surface examination from an accessible side when a volumetric examination from an accessible side may also be practical and more useful than a single-sided surface examination which is of limited value. Therefore, the provisions of the 1989 Edition to the Code in regard to the examination of integrally welded attachments shall be adopted in lieu of the requirements of the 1998 Edition.

#### IWA-4132 (Alternative Requirements for Items Rotated From Stock)

The revision incorporates the provisions of Code Case N-508-1, "Rotation of Serviced Snubbers and Pressure Relief Valves for the Purpose of Testing". This revision permits rotation of previously installed snubbers and relief valves from stock and installed on components without the need for a Repair/Replacement Plan, an Authorized Inspection, or a NIS-2 Data Report, provided the snubber or relief valve is removed from the component only for testing. The staff believes that this does not represent a reduction in safety since the removed snubber or the relief valve undergoes testing to confirm its ability to meet the design requirement and/or to detect any service-related degradation. Should any failure be detected,

the scope of examination will be expanded and the provisions for Repair/Replacement of the Code would be invoked. Furthermore, this paragraph requires the Owner to maintain traceability and to ensure that the items being removed and installed are of the same design and construction. The staff considers the alternative to provide an acceptable level of quality and safety.

IWB-3641, C-3300 (Acceptance Criteria for Austenitic Steel Piping)

This revision removes the penalties for flux welds. Service experience and additional fracture toughness data have justified increasing the a/t max limit of 0.6 for flux welds to 0.75 for austenitic materials. The 1996 Addenda to the Section XI Code revised the a/t max limit to 0.75 based on new test data which shows that the penalty for flux welds, was not justified. Therefore, the change would provide an acceptable level of quality and safety.

IWB-2411, IWB-2412, IWB-2420, IWB-2430, IWB-2500, IWC-2411, IWC-2412, IWC-2420, IWC-2430, Table IWC-2500-1, IWD-2411, IWD-2412, IWD-2420, IWD-2430, Table IWD-2500-1 (Inspection Schedule)

This revision incorporates the provisions of Code Case N-509, "Alternative Rules for the Selection and Examination of Class 1, 2, and 3 Integrally Welded Attachments". The change modifies the examinations to be performed on welded attachments for Examination Categories B-K, C-C, and D-A. The extent of examinations for welded attachments to piping, pumps, and vessels is reduced from 100 percent of all welded attachments to 10 percent. For Category D-A, the 10 percent must include those welded attachments most susceptible to corrosion. The industry experience has shown that the integral attachment welds have not experienced degradation that warrants continued examination to the extent required by the 1989 Edition of the ASME Code, Section XI. To date, no significant loading conditions or known material degradation mechanisms have become evident that specifically relate to integral attachment welds in nuclear plant piping. The 10 percent sample is selected from each system from the total population of non-exempt component supports, irrespective of the attachment base material design thickness which, therefore, constitutes an unbiased and reasonable sample. The 1998 Code requires further examination whenever deformation (e.g., broken, bent, or pulled out parts) is identified on Class 1, 2, and 3 components. The examination of Class 3 integral attachment welds is improved due to selection of attachment welds that are most susceptible to corrosion and by performing more stringent VT-1 examination in lieu of VT-3 examination required by the 1989 Code. Furthermore, the staff has previously authorized implementation of the alternative examination requirements of Code Case N-509 with the condition that a minimum 10 percent sample of integrally welded attachments for each item in each code class per interval is examined which is incorporated in the 1998 ASME Code, Section XI. Therefore, the provisions of the 1998 ASME Code, Section XI, would provide an acceptable level of quality and safety.

Table IWB-2500-1 (Examination of Control Rod Drive (CRD) Housing Bolting)

This revision incorporates the provisions of Code Case N-547, "Alternative Examination Requirements for Pressure Retaining Bolting of Control Rod Drive (CRD) Housings". The revision eliminates the requirement of the VT-1 visual examination of the CRD housing bolting when disassembled. However, the licensee has proposed its VT-2 visual examination

performed during the Boric Acid Corrosion Inspection as an alternative to the requirement of a VT-1 visual examination of the 1989 ASME Code, Section XI. The VT-2 is an existing requirement and is unrelated to the need to evaluate the condition of removed bolting. The only Code acceptance criteria for visual examination of bolting are VT-1 criteria. The staff requires VT-1 visual examination of the CRD housing bolting in accordance with the 1989 Section XI Code when a CRD is disassembled, and therefore, the use of the 1998 Code for this examination is not acceptable.

#### Tables IWB-2500-1 and IWC-2500-1 (Examination of Longitudinal Welds)

This revision incorporates the provisions of Code Case N-524, "Alternative Examination Requirements for Longitudinal Welds in Class 1 and 2 Piping". The revision reduces the extent of inservice examination of longitudinal welds in Class 1 and 2 piping from the lesser of one pipe diameter or 12 inches to the portion of the longitudinal weld within the examination boundary of the intersecting circumferential weld required to be examined. The staff has previously evaluated the requirements of Code Case N-524 and has authorized its use at various plants on the following basis. The longitudinal welds are produced during the manufacturing process of the piping, not in the field as is the case for circumferential welds. The Code contains requirements on characteristics and performance of materials and products and specifies the examination requirements during the manufacturing of the subject longitudinal welds in piping. The industry experience has been that pipes with shop welded longitudinal seams have not experienced degradation that would warrant continued examination beyond the boundaries required to meet the circumferential weld examination requirements. If any degradation associated with a longitudinal weld were to occur, it is expected that it would be located at the intersection with a circumferential weld. Therefore, inspection in accordance with the provisions of the 1998 ASME Section XI Code provides an acceptable level of quality and safety.

#### Figures IWB-2500-15, IWC-2500-5, and IWD-2500-1 (Examinations Around Supports)

This revision adds a note to allow limited examination based on accessibility of welded attachments without removal of support members. From staff's experience on inservice examination of attachment welds, a best-effort surface examination of the accessible portions of the Code examination area without removal of the support member would provide an acceptable level of quality and safety.

#### IWB-1220 (Exemption from Examination)

This revision exempts from examination welds or portions of welds which are located inside penetrations. The change incorporates the provisions of Code Case N-198-1, "Exemption From Examination for ASME Class 1 and 2 Piping Located at Containment Penetrations". These welds may be a part of the break exclusion zone of the containment with their location inside the containment penetration. The regulation does not exempt these components from examination. Therefore, subsection IWB-1220 of the 1989 Code shall apply in lieu of that of the 1998 Code.

Appendix A, Article A-3000 (Method for K Determination)

This revision modifies the A-3000 determination to allow the user a more accurate formulation for determining stress intensity factors for any gradient of stress distribution over the flaw face. The provisions of Appendix A are nonmandatory. The use of the Article A-3000 of the 1998 ASME Section XI Code would provide an acceptable level of quality and safety because the fracture toughness criteria are satisfied.

IWB-3730, Appendix K (Fracture Toughness Criteria for Protection Against Failure)

This change provides acceptance criteria and evaluation procedures for assessment of reactor vessels when the predicted upper shelf Charpy Impact energy is below 50 ft-lbs. The staff has reviewed the methodology for evaluation and acceptance criteria of Appendix K and found it to be acceptable. Therefore, the alternative evaluation procedure and the acceptance criteria proposed in the 1998 Code would provide an acceptable level of quality and safety because the fracture toughness criteria are satisfied.

Appendix A, Article A-4300 (Fatigue Crack Growth Rate)

This change provides fatigue crack growth curves for ferritic steel in an air and water environment. This is a nonmandatory Appendix in ASME Code, Section XI, providing a new methodology for calculating fatigue crack growth rate in the analytical evaluation of flaws. This revision incorporates the provision of Code Case N-463-1, "Evaluation Procedure and Acceptance Criteria for Flaws in Class 1 Ferritic Piping that Exceed the Acceptance Standards of IWB-3514.2" which has been approved for use by the NRC in Regulatory Guide (RG) 1.47, Rev. 12. Therefore, the change would provide an acceptable level of quality and safety.

IWB-3650, Appendix H (Acceptance Criteria for Flaws in Ferritic Piping)

This revision provides an evaluation procedure and acceptance criteria for evaluating flaws in ferritic piping that exceed the acceptance standards of IWB-3514.2. This revision incorporates the provisions of Code Case N-463-1, "Evaluation Procedure and Acceptance Criteria for Flaws in Class 1 Ferritic Piping that Exceed the Acceptance Standards of IWB-3514.2" which has been approved for use by the NRC in RG 1.147, Rev. 12. Therefore, the change would provide an acceptable level of quality and safety.

### 3.0 CONCLUSION

The staff has evaluated the "Less Restrictive" and the "No Significant" changes to the ASME Section XI Code from the 1989 Edition through the 1998 Edition to determine their impact on public health and safety. The staff takes exceptions to requirements of 1998 ASME Code, Section XI, in regard to the following because they are considered to be less restrictive than the current approved Code and do not provide acceptable level of quality and safety.

IWA-2314 (Recertification of Personnel)

This revision provides that Level I and II nondestructive examination personnel can be recertified on a 5-year cycle rather than the current 3 year cycle. The staff does not approve

extension to 5 years for recertification of Level I and II personnel since the proficiency of examination personnel decreases over time. The alternative does not provide an acceptable level of quality and safety.

IWB-1200 (Components Exempt from Examination)

The exclusion of welds from examination in Class 1 and 2 piping located at containment penetrations is not authorized. Therefore, the requirements of the 1989 Edition of the Code shall apply in regard to paragraph IWB-1220 in lieu of that of the 1998 Code.

Table IWB-2500-1, Figures IWB-2500-13 & 14 (Examination of Integrally Welded Attachments)

The revision permits a one side surface examination in lieu of surface examination from both sides and volumetric examination of attachment welds to vessels when only one side of the attachment weld is accessible for examination. The staff does not approve this revision since it would allow a surface examination from an accessible side when a volumetric examination from an accessible side may also be practical and more useful than a single-sided surface examination which is of limited value. Therefore, the provisions of the 1989 Edition to the Code in regard to the examination of integrally welded attachments shall be adopted in lieu of the requirements of the 1998 Edition.

Table IWB-2500-1 (Examination of Control Rod Drive (CRD) Housing Bolting)

The revision eliminates the requirement of the VT-1 visual examination of the CRD housing bolting when disassembled. However, the licensee has proposed its VT-2 visual examination performed during the Boric Acid Corrosion Inspection as an alternative to the requirement of a VT-1 visual examination of the 1989 ASME Code, Section XI. The VT-2 is an existing requirement and is unrelated to the need to evaluate the condition of removed bolting. The only Code acceptance criteria for visual examination of bolting are VT-1 criteria. Therefore, the staff requires VT-1 visual examination of the CRD housing bolting in accordance with the 1989 Section XI Code when a CRD is disassembled.

IWA-4440 (Transfer of Procedure Qualification Records Between Owners)

The staff approves the transfer of welding procedure qualification records from one owner to the other with the condition for the organization using the procedure qualification records and certification to ensure that the qualification and certification activities were performed in accordance with a quality assurance (QA) program that met the requirements of IWA-1400 and was effectively implemented at the time these activities were performed.

IWA-5110 (System Pressure Test)

The staff accepts use of Appendix J testing for penetration piping in lieu of Code pressure testing with the condition that the test be conducted at the peak calculated containment pressure and the test procedure ensure the detection and location of through-wall leakage in containment isolation valves (CIVs) and pipe segments between the CIVs.

### Reconciliation of Quality Assurance (QA) Requirements

The staff requires that the licensee implement its QA program conforming to 10 CFR 50, Appendix B, in conjunction with the QA provisions of the ASME Code, Section XI with the clarification that, where the two differ, the licensee will use whichever requirements are more rigorous.

Except as noted above, the staff concludes that the use of the 1998 ASME Section XI Code for the third 10-year inspection interval of Calvert Cliffs Units 1 and 2 would provide an acceptable level of quality and safety. The licensee will update the inservice inspection program plans to the 1998 Edition of the ASME Code, Section XI, with the exceptions stated above including exceptions to updating Subsections IWE and IWL. The proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(i) for both units of Calvert Cliffs. The licensee is authorized to implement the 1998 Edition of the ASME Code, Section XI, in the inservice inspection program until such time as the Code is included in a future revision of 10 CFR 50.55a. At that time, the licensee is to follow all provisions in the Code with limitations issued in 10 CFR 50.55a, if any, should the licensee continue to implement this relief request.

Principal Contributor: P. Patnaik

Date: April 5, 2000