

June 12, 2002

Mr. David A. Christian  
Senior Vice President - Nuclear  
Virginia Electric and Power Company  
Innsbrook Technical Center  
5000 Dominion Blvd.  
Glen Allen, Virginia 23060

SUBJECT: NORTH ANNA POWER STATION, UNIT 2 RE: ASME SECTION XI INSERVICE  
INSPECTION (ISI) PROGRAM THIRD 10-YEAR INTERVAL REQUESTS FOR  
RELIEF (TAC NO. MB2223)

Dear Mr. Christian:

This letter grants you Relief Requests NDE-004, NDE-011, SPT-003, SPT-004, and SPT-008 that you submitted for North Anna Power Station, Unit 2.

By letter dated June 13, 2001, as supplemented by letters dated December 12, 2001, and April 30, 2002, Virginia Electric and Power Company (VEPCO) submitted requests for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI requirements for the third 10-year ISI interval for North Anna, Unit 2. NDE-012 and NDE-015 were withdrawn as you had requested on your January 31, 2002 submittal. The staff has already approved and issued Relief Requests NDE-009, NDE-014, SPT-001 and CS-001.

Our evaluation of relief requests NDE-004, NDE-011, SPT-003, SPT-004, and SPT-008 is enclosed, including the regulatory basis for approval. The approval of SPT-008 is subject to the following requirements in addition to those specified in Code Case N-416-2: Additional surface examinations should be performed on the root (pass) layer of butt and socket welds of the pressure retaining boundary of Class 3 components when the surface examination method is used in accordance with ASME Code, Section III. The staff has determined that relief request NDE-008 is not needed by VEPCO. The staff has completed its evaluation of this matter; therefore, we are closing TAC No. MB2223. Relief Requests NDE-001 through 003, NDE-005 through 007, NDE-010, NDE-013, SPT-002, and SPT-005 through 007 are being dispositioned under TAC No. MB2280.

Sincerely,

***/RA LOlshan for/***

John A. Nakoski, Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-339

Enclosure: As stated

cc w/encl: See next page

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Virginia Electric and Power Company

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

NDE-004, NDE-008, NDE-011, SPT-003, SPT-004, AND SPT-008

THIRD 10-YEAR INSERVICE INSPECTION INTERVAL

NORTH ANNA POWER STATION, UNIT 2

VIRGINIA ELECTRIC AND POWER COMPANY

DOCKET NO. 50-339

1.0 INTRODUCTION

Inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific 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 Director of the Office of Nuclear Reactor Regulation, if the licensee demonstrates that: (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 pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection (ISI) 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) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the North Anna Power Station, Unit 2 third 10-year ISI interval is the 1995 Edition through the 1996 Addenda of the ASME Code, Section XI.

2.0 EVALUATION

The staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the information concerning ISI program requests for relief for the third 10-year interval for North Anna Power Station, Unit 2, provided by Virginia Electric Company (the licensee) in letter dated June 13, 2001, as supplemented by letters dated December 12, 2001, and April 30, 2002.

Enclosure

Attachment 1 lists each relief request and the status of approval. The staff adopts the evaluations and recommendations for authorizing alternatives contained in the Technical Letter Report (TLR), included as Attachment 2, prepared by BNL.

For Request for Relief No. NDE-004 the staff determined that to require the licensee to comply with the Code requirements would result in a hardship or unusual difficulty without a compensating increase in the level quality and safety. Furthermore, the licensee's proposed alternatives provide reasonable assurance of structural integrity of the subject components in the licensee's requests for relief.

For Request for Relief No. NDE-008 the staff has determined that the request for relief was not needed based upon the information that the ASME Code already provides a means of considering the use of alternative calibration blocks under the provisions of IWA-2240. Thus, the licensee's implementation of IWA-2240 regarding the application of alternative calibration blocks obviate the need for this relief request.

For Request for Relief Nos. NDE-011, SPT-003, SPT-004, and SPT-008, the licensee's proposed alternatives to use Code Cases N-573, N-566-1, N-498-1, and N-416-2 respectively, provide an acceptable level of quality and safety.

### 3.0 CONCLUSION

The North Anna Power Station, Unit 2, Request for Relief Nos. NDE-004, NDE-008, NDE-011, SPT-003, SPT-004, and SPT-008 to the Code requirements have been reviewed by the staff with the assistance of its contractor, BNL. The TLR provides BNL's evaluation of these requests for relief. The staff has reviewed the TLR and adopts the evaluations and recommendations for authorizing the licensee's proposed alternatives contained in its requests for relief.

For the alternatives contained in Request for Relief No. NDE-004 the staff concludes that the imposition of the Code requirements would result in hardship without a compensating increase in the level of quality and safety, and the proposed alternatives provide reasonable assurance of structural integrity of the subject components in the licensee's requests for relief. Therefore, the licensee's proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the third 10-year ISI interval.

For the alternative contained in Request for Relief No. NDE-008 the staff concludes that the request for relief is not needed.

The staff concludes that for Request for Relief Nos. NDE-011, SPT-003, SPT-004, and SPT-008 the licensee's proposed alternatives to use Code Cases N-573, N-566-1, N-498-1 and N-416-2, respectively, provide an acceptable level of quality and safety.

Therefore, the licensee's proposed alternatives are authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year interval or until such time Code Cases N-573, N-566-1, N-498-1 and N-416-2 are referenced in a future revision of Regulatory Guide (RG) 1.147. At that time, if the licensee intends to continue to implement Code Cases N-573, N-566-1, N-498-1 and N-416-2, the licensee should follow all provisions of the subject code cases with the limitations listed in RG 1.147, if any.

Attachments: Summary of Relief Requests  
                  Technical Letter Report, Brookhaven National Laboratory

Principal Contributor: Tom McLellan

Date: June 12, 2002

TECHNICAL LETTER REPORT  
THIRD 10-YEAR INSERVICE INSPECTION INTERVAL  
REQUESTS FOR RELIEF  
VIRGINIA ELECTRIC AND POWER COMPANY  
NORTH ANNA POWER STATION, UNIT 2  
DOCKET NO. 50-339

1.0 SCOPE

By letter dated June 13, 2001, as supplemented by letters dated December 12, 2001, and April 30, 2002, Virginia Electric and Power Company (the licensee), submitted multiple requests for relief from the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, for the North Anna Power Station (NAPS), Unit 2 for the third 10-year inservice inspection (ISI) interval. Brookhaven National Laboratory (BNL) reviewed the information submitted by the licensee and the evaluation of the subject requests for relief are discussed in the following section.

2.0 EVALUATION

The information provided by the licensee in support of the six requests for relief from ASME Code requirements has been evaluated and the bases for disposition are documented below. The Code of Record for the NAPS, Unit 2, third 10-year ISI interval, which began on December 14, 2001, is the 1995 Edition with Addenda up to and including 1996 Addenda of Section XI of the ASME Code.

2.1 Request for Relief No. NDE-004, for Class 1 and 2 Piping, Vessel and Component Welds Including the Head-to-Flange Reactor Vessel Weld, IWA-2600, Weld Reference System

Code Requirement

ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, IWA-2600, "Weld Reference System," requires a reference system for all welds and areas subject to surface or volumetric examination. The system shall permit identification and location of each weld.

Licensee's Code Relief Request

Pursuant to 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from establishing a new reference system that would be totally in compliance with guidelines delineated in IWA-2600 of 1995 Edition with 1996 Addenda of the ASME Code, Section XI, for Class 1 and 2 piping, vessel, and component welds including the head-to-flange reactor vessel weld, but excluding all other

reactor vessel welds and the reactor vessel nozzle area examined by the automated vessel examination tool.

Licensee's Basis for Requesting Relief (as stated)

The original construction code used at North Anna Power Station, ANSI B31.7, 1969 Edition, did not establish a weld reference system. Establishment of a weld reference system cannot be practically attained within the scope and schedule of existing outages. During the second inspection interval, the implementation of this Section XI Code requirement was also considered to be impractical and a request for relief was submitted (NDE-13 of the second inspection interval ISI Program). The alternative provisions proposed in this request for relief are the same as those proposed and accepted by the NRC for the second inspection interval (Reference: NRC letter No. 92-730, Dated 11/15/92). Consistent with the commitments made in the second inspection interval, the alternative reference system was established within the plant on those welds examined as part of the second inspection interval. Continued use of the alternative reference system is reasonable because its [sic] provides an acceptable level of quality and safety. To reject the alternative reference system, already in use, would require the plant to establish either the system required by the Section XI Code in IWA-2600 or some other alternative system yet to be developed. In either case, significant effort would be expended to achieve compliance with the requirements of IWA-2600 (or as modified) without any justifiable gain in quality or safety.

The licensee stated:

Section XI paragraph IWA-2610 requires, in part, that "A reference system shall be established for all welds and areas subject to surface or volumetric examination..." As stated in the request for relief the plant was built to a code that did not require the establishment of a weld reference system. North Anna considers it a hardship to "backfit" a weld reference on all welds and areas subject to surface or volumetric examination. It is a hardship because the Section XI selection requirements, especially modified by risk-informed selection criteria for Class 1 piping, results in significantly fewer welds or areas being examined than are considered "subject to examination." To build scaffolding, handle insulation, clean areas and expose staff to radiation simply to strike a mark or several marks on a weld or area that is subject to examination, but may never be examined, is work and exposure that provides no compensating increase in the quality or safety of the plant. Therefore, approval of Request for Relief NDE-004 is being made under the provisions of 10 CFR 50.55a(a)(3)(ii).

The implementation of the third inspection interval will require that some welds be examined that were not examined in the Second Inspection Interval. This results, in part, from the implementation of risk-informed ISI selection criteria for selection of Category B-F and B-J welds. It is also possible that due to the detection of a rejectable indication, that an expansion program will be necessary under the requirements of IWB-2430, or IWC-2430, "Additional Examinations." These additional examinations will likely contain welds or areas that did not receive an examination in the Second Inspection Interval. The purpose of the noted statement is to document 1) that some of the welds or areas examined in the Third Inspection Interval will not have a reference system existing from a Second Inspection Interval

examination, and 2) when this happens North Anna will continue to implement the reference system established for the Second Inspection Interval. This will establish a reference for each weld, including a zero point and direction of examination for each volumetric examination.

Reference to the word “impractical” in the Request for Relief NDE-004 was intended to contrast the amount of resources required and the lack of resulting benefits from “backfitting” a reference system on every weld or area subject to surface or volumetric examination. With that perspective we consider implementation of this requirement of the Code to be a hardship.

#### Licensee's Proposed Alternative Examination (as stated)

NAPS 2 uses weld isometrics drawings (the WMKS series) to provide a detailed identification of location of each weld requiring examination as part of the inspection interval. It is our intention to use these drawings for identifying and locating welds in the third inspection interval. As welds, which require a volumetric examination but did not require examination as part of the second inspection interval, are examined, the alternative system will establish a reference for each weld, indicating a zero point and direction of examination. The volumetric examination of other welds will use the points of reference established in the second inspection interval. Welds that contain recordable indications (RI) shall be marked to ensure the relocation of the indication, using appropriate reference marks. All reference marks will be permanently fixed on the weld.

The licensee stated:

North Anna uses a set of weld isometrics drawings (the WMKS series) to provide a detailed unique identification and location of each weld or area requiring volumetric and surface examination. In most cases, where surface examination is specified, Section XI requires that 100% of the selected weld or area be examined. Unlike the performance of a volumetric examination, there is no need to indicate the direction of examination (or scan) to assure uniformity in reporting results. In these cases no marks are placed on the weld or area. In some cases, only a portion of a weld may be examined as part of a period examination. This usually involves a large weld that is divided into thirds, with 1/3 being done each period. In these cases, the weld is required to have both a surface and volumetric examination. Therefore, reference points are marked on the weld to identify the volumetric examination.

The location of reportable surface indications is documented on a map of the weld or surface that permits accurate identification of areas on the examination surface. The map contains sufficient indicators (e.g., reference points, orientation, and/or proximity to other welds) to positively identify the weld or area in question and the examination starting point. The starting point of the map is determined from the instructions provided for determining the location of the zero reference point associated with a volumetric examination. The examination record will provide information as to the location of the surface indication on the weld examination map.

The North Anna weld identification activity only addresses surface and volumetric examinations in accordance with the requirements of IWA-2600. The Code does not require a reference system for visual examinations.

## Evaluation

In accordance with the ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, IWA-2600, a reference system is required for all welds and areas subject to surface or volumetric examination. Each such weld and area shall be located and identified by a system of reference points. The system shall permit identification of each weld, location of each weld centerline, and designation of regular intervals along the length of the weld.

The licensee proposes an alternate system that uses a set of weld isometrics drawings (the WMKS series) to provide detailed unique identification and location of each weld or area requiring volumetric or surface examination. These drawings will be used for identifying and locating welds. All reference marks will be permanently fixed on the weld.

The BNL staff has reviewed the information concerning the ISI Program Request for Relief NDE-004 for the third 10-year ISI interval of NAPS, Unit 2 pertaining to a weld reference system. NAPS, Unit 2 was built to ANSI B31.7, 1969 Edition that did not require the establishment of a weld reference system. Developing a weld reference system to satisfy the ASME Section XI Code requires referencing of all welds and areas subject to surface or volumetric examination. Recently, the risk-informed selection criteria for Class 1 piping resulted in significantly fewer welds or areas to be examined in this inspection interval. In order to satisfy the Code requirements, licensee will have to build scaffolding, handle insulation, clean areas and expose staff to radiation simply to strike a mark or several marks on a weld or area that is subject to examination, but may never be examined.

The provisions in the proposed alternative are the same as those proposed and accepted by the staff for the second inspection interval at NAPS 2. The licensee's weld referencing system currently used accomplishes what the Code-required reference system intended. Requiring the licensee to use the Code requirements for the third 10-year interval would result in a hardship without a compensating increase in the level of quality and safety. The licensee-proposed alternative provides reasonable assurance of structural integrity of the subject welds. Therefore, it is recommended that the licensee's proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

### 2.2 Request for Relief No. NDE-008, for Ultrasonic Calibration Blocks for Vessels (>2 inch thickness) and for Piping and Vessels (≤2 inch thickness).

#### Code Requirement

ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda (specifically, Article I-2000 of Appendix I), provides requirements for fabrication of ultrasonic calibration blocks for vessels (>2 inch thickness) and for piping and vessels (≤2 inch thickness) that are not required to be examined in accordance with Appendix VIII to ASME Section XI.

#### Licensee's Code Relief Request

In accordance with 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the Article I-2000 of the ASME Section XI requirements for fabrication of ultrasonic calibration blocks for vessels (>2 inch thickness) and for piping and vessels (≤2 inch thickness).

Licensee's Basis for Requesting Relief (as stated)

North Anna Power Station was essentially constructed prior to the issue and adoption of the current requirements of ASME Section XI. Therefore, the original ultrasonic calibration blocks used for North Anna were fabricated before the current guidelines of ASME Section XI were developed and approved. Meeting the requirements of Article I-2000 of Appendix I for the calibration blocks as specified in the most recently approved Section XI Code, identified above, would require new calibration blocks to be fabricated.

The existing calibration blocks have always been used to examine the above components at North Anna. The calibration blocks are generally in compliance with current requirements of ASME Section V. Examples in the variations in design include the blocks for piping and vessels  $\leq 2$  inches do not meet the recommended design specified by Section V for a thickness less than 1 inch in that the notches are not staggered. Also, the notches in some of the piping blocks are located one (1) "t" (or thickness) from the end of the block instead of  $1\frac{1}{2}$ " as specified. Another example includes the vessel calibration blocks used for the reactor vessel head-to-flange weld, steam generator primary side tubesheet-to-head weld, and pressurizer welds in that they are partially clad instead of fully clad as specified. These variations in design are not significant and do not pose a threat to the quality of the resultant examinations.

Using the existing calibration blocks for the components identified in Section I, allows correlation of ultrasonic data from the first and second interval examinations as required by paragraph IWA-1400(h). It is considered important to maintain the repeatability of the examinations as much as possible by maintaining the use of the existing calibration blocks. Additionally, it is expected that the cost of obtaining fully compliant calibration blocks will result in an expenditure not commensurate with the little or no gain in safety that could be obtained from their use.

The licensee stated:

Request for Relief NDE-008 states that the variations in the calibration blocks are not technically significant. Use of the existing blocks will not affect the quality of the calibrations used for the examinations. Because the remaining calibration requirements of the 1995 Edition through 1996 Addenda of the Section XI Code will be met, the resultant calibrations will be no different than if fully compliant calibration blocks had been used. Therefore, it is North Anna's position that use of the existing calibration blocks provides an alternative with an acceptable level of quality and safety. To acquire fully compliant calibration blocks would be a hardship without a compensating increase in the level of quality or safety. Approval of this alternative is requested under the provisions of 10CFR50.55a(a)(3)(ii).

Licensee's Proposed Alternative Examination (as stated)

The existing calibration blocks will be used to perform examinations during the third inspection interval in lieu of the current code requirements for calibration blocks. This alternative will be applicable to examinations not subject to the requirements of Appendix VIII to the Section XI Code.

## Evaluation

In accordance with the ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda (specifically, Article I-2000 of Appendix I), the configuration and fabrication of ultrasonic calibration blocks are required to meet conditions specified in the Code. Since this request for relief does not apply to components, which are required to be examined in accordance with Appendix VIII, Article 4 of Section V of the ASME Code, as supplemented by Table I-2000-1 is applicable for vessels greater than 2 inches in thickness, and Appendix III, as supplemented by Table I-2000-1, is applicable for vessels 2 inches and less in thickness.

The licensee can change the calibration block design and material for the existing ultrasonic testing (UT) technique by following the requirements of paragraph III-1100(d) of the ASME Code, which states that an alternative calibration block design and material may be used for an existing UT technique provided by paragraph IWA-2240 of the ASME Code. Paragraph IWA-2240 permits the use of alternative blocks provided an Authorized Nuclear Inservice Inspector (ANII) is satisfied that the results are demonstrated to be equivalent or superior to those of the specified UT method. This demonstration includes not only a witnessed (physical) demonstration, but documentation which supports the ANII's determination of equivalency or superiority.

Based on the information provided in this request for relief, the ASME Code already provides a means of considering the use of alternative calibration blocks under the provisions of IWA-2240. The licensee's implementation of IWA-2240 regarding the application of alternative calibration blocks obviate the need for this relief request. Therefore, it is recommended that this request for relief is not needed.

### 2.3 Request for Relief No. NDE-011, for Class 1, 2, and 3 Components and Their Associated Supports, Code Case N-573

#### Code Requirement

ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, IWA-4410(a) requires "All welding shall be performed in accordance with Welding Procedure Specifications that have been qualified by the Owner or Repair/Replacement Organization in accordance with the requirements of code specified in the Repair/Replacement Plan."

#### Licensee's Code Relief Request

In accordance with 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the IWA-4410(a) requirements that all welding should be performed in accordance with Welding Procedure Specifications that have been qualified by the Owner or Repair/Replacement Organization in accordance with the requirements of code specified in the Repair/Replacement Plan.

#### Licensee's Basis for Requesting Relief (as stated)

NAPS 2 proposes to use Code Case N-573, "Transfer of Procedure Qualification Records Between Owners," as an alternative to the requirements of IWA-4440(a) applicable to the Owner. The Code Case has been reviewed and determined to provide an acceptable level of quality and safety based on the following elements of the Code Case:

- 1) Code Case N-573 places certain responsibilities on the Owners involved with the transfer of the PQR (Performance Qualification Record). The term "Owner" is a specific term used in Section XI to identify "the organization legally responsibility [sic] for the construction and/or operation of a nuclear facility..." (IWA-9000). Therefore the organizations involved with the transfer of the PQR have been determined to be competent in the requirements associated with nuclear power industry and the responsibilities associated with their actions.
- 2) Code Case N-573 allows NAPS 2 to receive a PQR only from the Owner that performed the procedure qualification testing to the requirements of Section XI.
- 3) Code Case N-573 requires the PQR to have been qualified to the requirements of Section XI; specifically including the Quality Assurance Program requirements of IWA-1400.
- 4) Code Case N-573 requires NAPS 2 to accept responsibility for the use of PQR and assure that each resulting WPS (Welding Procedure Specification) has the parameters applicable to welding documented on the WPS.
- 5) Code Case N-573 requires NAPS 2 to demonstrate technical competence in application of the received PQR by completing a performance qualification test using the parameters of a resulting WPS.
- 6) Code Case N-573 does not alter the commitments NAPS 2 to complete all welding based on the transferred PQR in full compliance with the requirements of its Quality Assurance Program and other applicable requirements of Section XI.

The licensee stated:

For the reasons presented in the request for relief, North Anna determined that Code Case N-573 provides an alternative to the requirements of IWA-4440 that will maintain an acceptable level of quality and safety. A Procedure Qualification Record (PQR) is simply documentation that certain base material and weld metal chemistries when brought together under a stated set of physical conditions (such as atmosphere, voltage, amperage, moisture, and temperature) will produce certain metallurgical properties. It is not necessary for each Owner to perform the PQR to maintain acceptable quality and safety. The Code Case establishes rules for assuring that the Owner using a PQR is no more than one step removed from the Owner who performed the qualification of the PQR. The Code case maintains the principle that the Owner using the PQR is responsible for the technical adequacy of the PQR. Additionally, the Owner using the PQR must demonstrate proficiency in the use of the PQR by producing a the [sic] Welding Procedure Specification (WPS) from the requirements of the PQR and then successfully complete a performance demonstration test using the WPS. Therefore, approval of the alternative is requested under the provisions of 10CFR50.55a(a)(3)(i).

Item III.2 of Relief Request NDE-011 should reference Section IX, not Section XI.

In item 3) the quality assurance program reference is to the quality assurance program used by the qualifying organization. The ASME Code requires that the Owner implement a quality assurance program that meets either the requirements of

10 CFR 50, App. B or ASME NQA-1, parts II and III. However, before a PQR prepared by the qualifying organization can be used by North Anna, it must also be in compliance with the requirements of the North Anna quality assurance program. There may be commitments to the regulator, specific items in procedures, or aspects of design that prohibit the PQR from being used at North Anna. The discussion in item number 6) is directed to these unit specific commitments or procedures. Similarly, Section XI requires that repair/replacement activity be in compliance with the design basis of the plant. This includes what Section XI calls Owner's Requirements. Owner's Requirements are defined as:

those technical requirements prepared by or for the Owner that define the material, design, fabrication, and examination requirements for an item in excess of Construction Code requirements...

Contained within the body of the Owner's Requirements could be an issue prohibiting the use of a PQR prepared by an organization that does not have a similar issue. The statement made by Item 6 is recognition of this possibility.

Item (e) of the Code Case requires the following:

(e) The Owner accepting the completed PQR shall accept responsibility for the PQR. Acceptance shall be documented by the Owner's Approval of each WPS that references the PQR.

North Anna interprets the paragraph to mean that North Anna is totally responsible for the use of any PQR it accepts from the qualifying Owner just as if North Anna had performed the qualification work. Each Welding Procedure Specification (WPS) generated by North Anna and based on such a PQR will reference the subject PQR by a unique identification number on the face of the WPS. Each WPS is issued as part of the North Anna Welding Program, which is controlled per the requirements of the North Anna quality assurance program compliant with 10 CFR 50 Appendix B.

Item (f) of the Code Case requires the following:

(f) The Owner accepting the completed PQR shall demonstrate technical competence in application of the received PQR by completing a performance qualification test using the parameters of a resulting WPS.

North Anna will perform a performance qualification test for each WPS based in total or in part on a PQR obtained from the qualifying Owner. This performance qualification test will meet the requirements of Section IX of the ASME Boiler and Pressure Vessel Code.

Item (g) of the Code Case requires the following:

(g) The Owner may accept and use a PQR only when it is received directly from the Owner that certified the PQR.

North Anna will only allow the use of a PQR when it is received directly from the Owner that certified the PQR.

Item (h) of the Code Case requires:

(h) Use of this Case shall be shown on the NIS-2 form documenting welding or brazing.

The third inspection interval program for North Anna Power Station, Unit 2, includes the use of Code Case N-532, "Alternative Requirements to Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000." Code Case N-532 eliminates the use of the NIS-2 Form to document repair and replacement activities. Code Case N-532 requires the use of the NIS-2A Form, which does not require the documentation of Code Cases. However, IWA-4150(c)(1) requires that Code Cases used in the repair/replacement activity be documented on the Repair/Replacement Plan. Therefore, the use of Code Case N-573 will be documented, if used, on the Repair/Replacement Plan. Similar to the NIS-2, documentation of use of the Code Case will be maintained and traceable to the involved component.

#### Licensee's Proposed Alternative Examination (as stated)

In accordance with the provisions of 10 CFR 50.55a(a)(3), NAPS 2 requests approval to use the provisions of Code Case N-573, "Transfer of Procedure Qualification Records Between Owners," approved March 12, 1997 by Section XI.

#### Evaluation

ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, IWA-4410(a) requires that all welding shall be performed in accordance with Welding Procedure Specifications (WPS) that have been qualified by the Owner or Repair/Replacement Organization in accordance with the requirements of Code- specified in the Repair/Replacement Plan. In lieu of this, the licensee has proposed the use of Code Case N-573, "Transfer of Procedure Qualification Records Between Owners." The Code Case essentially allows the use of a welding or brazing procedure qualification record (PQR) qualified by one owner to be used by another owner for the development of the WPS. The eight specific requirements listed in Code Case N-573 should be met by the Owner that performed the procedure qualification, and by the Owner intending to use the PQR. These requirements are:

- a. The Owner that performed the procedure qualification test shall certify, by signing the PQR, that testing was performed in accordance with Section IX.
- b. The Owner that performed the procedure qualification test shall certify, in writing, that the procedure qualification was conducted in accordance with a Quality Assurance Program that satisfies the requirements of IWA-1400.
- c. The Owner accepting the completed PQR shall accept responsibility for obtaining any additional supporting information needed for WPS development.

- d. The Owner accepting the completed PQR shall document, on each resulting WPS, the parameters applicable to welding. Each WPS shall be supported by all necessary PQR's.
- e. The Owner accepting the completed PQR shall accept responsibility for the PQR. Acceptance shall be documented by the Owner's Approval of each WPS that references the PQR.
- f. The Owner accepting the completed PQR shall demonstrate technical competence in application of the received PQR by completing a performance qualification test using the parameters of a resulting WPS.
- g. The Owner may accept and use a PQR only when it is received directly from the Owner that certified the PQR.
- h. Use of this Case shall be shown on the NIS-2 form documenting welding or brazing.

The licensee also stated it will use Code Case N-532 which requires the use of the NIS-2A form in lieu of NIS-2 form. Code Cases which are used are not documented on the NIS-2A form. However, the licensee will document the Code Cases used in the repair/replacement activity on the Repair/Replacement Plan in accordance with IWA-4150(c)(1) requirement. This is acceptable.

The qualification of a procedure for the purpose of joining materials by either welding or brazing may be performed by any Owner provided the applicable requirements for procedure qualification are maintained. Also, Owners may use procedures qualified by other Owners provided the conditions/requirements listed in Code Case N-573 are met. The licensee has committed to comply with the requirements listed in Code Case N-573. Thus, the proposed alternative provides an acceptable level of quality and safety. Therefore, it is recommended that the use of the licensee's proposed alternative be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third inspection interval, or until Code Case N-573 is approved for general use by reference in Regulatory Guide (RG) 1.147. After that time, the licensee must follow the conditions, if any, specified in the regulatory guide.

#### 2.4 Request for Relief No. SPT-003, for Pressure Retaining Bolted Connections Within the Scope of ASME Section XI, Code Case N-566-1

##### Code Requirement

ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, paragraph IWA-5250(a)(2) requires, in part, that "if leakage occurs at a bolted connection on other than a gaseous system, one of the bolts shall be removed, VT-3 examined, and evaluated in accordance with IWA-3100."

##### Licensee's Code Relief Request

In accordance with 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from removing the bolting and then performing VT-3 examination to detect evidence of corrosion.

Licensee's Basis for Requesting Relief (as stated)

Section XI requires the bolting to be removed and evaluated even if sufficient evidence exist to support the conclusion that the involved bolting has not been harmed by the leakage. Such factors as the age of the bolts or the susceptibility of the bolting material to corrosion by the leaking liquid may not be used to justify leaving bolting material in service without further examination. Code Case N-566-1, "Corrective Action for Leakage Identified at Bolted Connections," dated February 15, 1999, used in lieu of the Section XI requirements would allow greater flexibility and prudent decision making. Leaking conditions at a bolted connection may be an important factor in the degradation of bolting. However, the removal of bolting unnecessarily may result in the damaging of sound bolting, the exposure of personnel to radiation, and the expenditure of resources for no gain in safety. Code Case N-566-1 provides the basis for determining the acceptability of bolting based upon several factors including material, leaking medium, duration of the leak, general corrosion of the connection and the impact of such leakage on the system. An analysis to determine the need to remove a bolt for examination prior to any action to remove the bolting is required by Code Case N-566-1. This is an alternative to the requirements of Section XI that provides an acceptable level of quality and safety.

A similar relief request was approved for North Anna Unit 1 for that unit's third interval inspection ISI Program by letter dated April 25, 2000, under TAC NO. MA5750.

The licensee stated:

North Anna reviewed Code Case N-566-1 and determined that the use of the code case provides an acceptable level of quality and safety to the requirements of Section XI for the reasons stated in Request for Relief SPT-003. The evaluations required by the Code Case provides a systematic approach and allow for the use of sound engineering judgement in determining the condition of the bolts. Therefore, permission to use Code Case N-566-1 as an alternative to the requirements of Section XI is requested under the provisions of 10CFR50.55a(a)(3)(i).

The correct Code reference is IWA-5250(a)(2).

Licensee's Proposed Alternative Examination (as stated)

NAPS 2 requests approval in accordance with 10CFR50.55a(a)(3)(i) to use Code Case N-566-1, "Corrective Action for Leakage Identified at Bolted Connections," dated February 15, 1999, as part of its third inspection interval.

The licensee stated:

If the evaluation determines that examination is required, a VT-1 examination will be performed on the removed bolting in lieu of the Code required VT-3 examination.

Evaluation

In accordance with the ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, paragraph IWA-5250(a)(2) requires that when leakage occurs at a bolted connection on other than a gaseous system, one of the bolts be removed, VT-3 examined, and

evaluated in accordance with IWA-3100. The bolt selected is the one closest to the source of leakage. When the removed bolt has evidence of degradation, all remaining bolting in the connection are removed, VT-3 examined, and evaluated in accordance with IWA-3100.

In lieu of the Code-required removal of bolting to perform a VT-3 visual examination, the licensee has proposed to use Code Case N-566-1, "Corrective Action for Leakage Identified at Bolted Connections," which requires that the leakage be stopped and the joint integrity be reviewed. If the leakage is not stopped, the joint shall be evaluated in accordance with IWB-3142.4 for joint integrity. The evaluation for the specified case would consider (1) the number and service age of the bolts, (2) bolt and component material, (3) corrosiveness of process fluid, (4) leakage location and system function, (5) leakage history at the connection or other system components, and (6) visual evidence of corrosion at the assembled connection. If the evaluation determines that examination is required, a VT-1 examination will be performed on the removed bolting in lieu of the Code required VT-3 examination. This alternative allows the licensee to utilize a systematic approach and sound engineering judgement, provided that as a minimum, all of the evaluation factors listed in the Code Case are considered. Furthermore, if the joint is acceptable for continued service based on analytical evaluation, it shall be subsequently examined in accordance with IWB-2420(b) and (c).

In accordance with the Code, the evaluation of bolting subject to VT-3 examination is done in accordance with IWA-3100, which corresponds to IWB-3100 for Class 1 and IWC-3100 for Class 2. By contrast, Code Case N-566-1 requires evaluation in accordance with IWB-3142.4 irrespective of the piping class. In addition, the licensee is committed to perform VT-1 examination, in lieu of VT-3 examination in accordance with the Code, on the removed bolting. This is a more stringent evaluation than that of the Code. The alternative use of the Code Case and VT-1 examination of removed bolting in lieu of the requirements of IWA-5250(a)(2) in regard to corrective action for leakage identified at bolted connections will provide an acceptable level of quality and safety, as the integrity of the joint will be maintained. Therefore, it is recommended that the licensee's proposed alternative to use Code Case N-566-1 and VT-1 examination of the removed bolting be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year ISI interval or until such time as Code Case N-566-1 is published in RG 1.147. At that time, if the licensee intends to continue to implement Code Case N-566-1, the licensee must follow all conditions, if any, specified in the RG.

## 2.5 Request for Relief No. SPT-004, for Class 3 Pressure Retaining Components and Piping, Examination Category D-B, Item Numbers D2.20, D2.40, D2.60, and D2.80

### Code Requirement

ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, Table IWD-2500-1, Category D-B, Item Numbers D2.20, D2.40, D2.60 and D2.80 requires a system hydrostatic test in accordance with IWD-5222 be performed once in the inspection interval at the test pressure to be greater than the normal operating pressure.

### Licensee's Code Relief Request

In accordance with 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from performing the required hydrostatic test at a test pressure greater than the normal operating pressure for Class 3 components. In lieu of this, the licensee requests to perform the Code-required test at a reduced test pressure corresponding to the system's normal operating pressure.

Licensee's Basis for Requesting Relief (as stated)

Section XI determined that the over pressurization requirements of earlier Code editions were excessive and issued Code Case N-498 in various revisions to eliminate the over pressurization requirement. The NRC agreed with the position taken by Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems," dated May 11, 1994. Code Case N-498-1 is currently identified for use in the latest revision of Regulatory Guide 1.147. However, the Code Case N-498-1 addresses all three classes of components. Section XI, 1995 Edition with 1996 Addenda, has incorporated the reduced pressure requirements of the Code Case for Class 1 and 2 items, but failed to do so for Class 3 items. A later revision to Section XI eliminated the over pressurization requirements for Class 3 items.

To continued [sic] to perform the over pressurization testing of Class 3 components as part of the third inspection interval is considered impractical as both the industry and the NRC have agreed that the benefit to safety does not merit the effort to perform the test at the elevated pressure. The alternative testing proposed in the following paragraph of this request for relief is the same as that required for Class 3 items by Code Case N-498-1. To propose these requirements outside of the Code Case allows the aspects of the Code Case to be applied to the Class 3 components only. It does not cause the need to request the use of only part of the Code Case or to correct what are now incorrect references to specific Section XI requirements (for example, only Examination Category D-A now states system pressure testing requirements for Class 3 components.)

The licensee stated:

Both Section XI and the NRC have accepted, by the issuance and approval for use of Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Testing for Class 1, 2, and 3 Systems," that overpressure testing is no longer necessary to provide effective surveillance of the pressure boundaries. Conducting these tests at normal operating pressure in accordance with the provisions of Code Case N-481-1 [sic] has been determined to provide an acceptable level of quality and safety. The alternative proposed by Relief Request SPT-004 for Class 3 systems is identical to Code Case N-481-1 [sic] for Class 3 systems. Therefore, North Anna considers it to be an alternative that also provides an acceptable level of quality and safety. Permission is requested to implement Request for Relief SPT-004 under the provisions of 10CFR50.55a(a)(3)(i).

By letter dated October 14, 1997, North Anna requested to use Code Case N-498-1 as part of the second inspection interval. The NRC approved the request on December 29, 1997 (TAC No. M99807). This request extended the system leakage test to Class 3 systems. The testing allowed by Code Case N-498-1 was implemented upon approval for almost the entire third period of the second inspection interval. The testing alternative requested by Request for Relief SPT-006 is the same as required by Code Case N-498-1 for Class 3 systems. Therefore, the testing of Class 3 systems in the third inspection interval will be the same as that requested and approved for the third period of the Second Inspection Interval, if Request for Relief SPT-006 is approved.

Reference to the word “impractical” was intended to convey that the benefits derived from meeting the Section XI overpressure hydrostatic testing requirements for Class 3 systems was not commensurate with the commitment of resources necessary to do so. The increased use of resources arises from the fact that overpressure testing may require the use of auxiliary equipment, “gags” on relief valves, special valve line-ups, increased testing times, maintenance valves used as boundary valves for tests, and possible radiation exposure to accomplish these tasks. The NRC and Section XI reached agreement, as evidence by the issuance and approval of Code Case N-498-1, that the minimal increase in assurance of structural integrity provided by a slightly higher pressure associated with hydrostatic test of Class 3 systems is not considered commensurate with the increase in cost and possible radiation exposure. Acceptable quality and safety can be achieved by performing system pressure boundary testing at normal operating pressure.

The direct use of Code Case N-498-1 to solve the issue with Class 3 testing was not considered proper for the following reasons; none of which were technical:

- 1) Use of the Code Case for Class 1 and 2 was no longer justified, as Section XI no longer required the overpressure test for these two Code classes. Class 3 requirements were revised by a Code revision published after the 1996 Addenda.
- 2) Code Case N-498-1 is only applicable through the 1992 Edition with the 1993 Addenda. To use the Code Case would require relief from the requirements of IWA-2441(b), “Code Cases shall be applicable to the Edition and Addenda specified in the Inspection Plan.”
- 3) The Code Case is not administratively compatible with the 1995 Edition through the 1996 Addenda. Category D-A no longer addresses pressure testing and Category D-C no longer exists.

When approval of the code case was not considered to be an option, North Anna relied on previous success in gaining approval to use applicable aspects of a code case by submitting them to the NRC in the form of request for relief. North Anna considers this to be a case where the strategy should be followed. The referenced sentence is an attempt to document the use of this strategy. (Note: The reference in the request for relief to D-A is incorrect. The correct reference is D-B.)

In our letter dated December 12, 2001 (Serial No. 01-328B), which provided additional information regarding the third interval program and associated relief requests, an incorrect code case was referenced in our response to relief request SPT-004. The correct Code Case is N-498-1, which will be followed for system pressure testing of Class III components.

#### Licensee’s Proposed Alternative Examination (as stated)

NAPS 2 proposes to use the following requirements as part of its third interval inspection ISI Plan for the testing of Class 3 components and piping as opposed to the requirements of Section XI referenced in Section II of this request.

- 1) A system pressure test shall be conducted at or near the end of the inspection interval;

- 2) The boundary subject to test pressurization during the system pressure test shall extend to all Class 3 components included in those portions of systems required to operate or support the safety system function up to and including the first normally closed valve, including a safety or relief valve, or valve capable of automatic closure when safety function is required;
- 3) Prior to performing the VT-2 visual examination, the system shall be pressurized to nominal operating pressure for at least 4 hours for insulated systems and 10 minutes for non-insulated systems. The system shall be maintained at nominal operating pressure during performance of the VT-2 visual examination; and
- 4) The VT-2 visual examination shall include all components within the boundary identified in (2) above.
- 5) Test instrumentation requirements of IWA-5260 are not applicable.

### Evaluation

In accordance with the ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, Class 3 pressure retaining components and piping require a system hydrostatic test in accordance with IWD-5222 once in the inspection interval at the test pressure to be greater than the normal operating pressure. In lieu of performing the system hydrostatic test at a test pressure greater than the system's normal operating pressure, the licensee proposes to perform the test at a reduced test pressure equal to the system's normal operating pressure for Class 3 components.

As stated in RG 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 12, the NRC has found Code Case N-498-1, "Alternative Rules for 10-Year System Hydrostatic Test for Class 1, 2, and 3 Systems," dated May 11, 1994, acceptable. As an alternative to the 10-year system hydrostatic test that is performed at a test pressure greater than the normal operating pressure, Code Case N-498-1 allows a system pressure test which is performed at a test pressure equal to the system's normal operating pressure for all ASME Class 1, 2 and 3 systems. However, Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, eliminated the system hydrostatic test requirement for Class 1 and 2 components, while keeping the system hydrostatic test requirement for Class 3 components. The system hydrostatic testing at a higher test pressure increases the use of resources for the licensee resulting from use of auxiliary equipment, special valve line-ups, increased testing time, and possible radiation exposure. The minimal increase in assurance of structural integrity provided by a slightly higher test pressure is not considered commensurate with the increase in burden. The licensee's proposed alternative to perform the Code-required hydrostatic test at a test pressure equal to the normal operating pressure provides an acceptable level of quality and safety.

The provisions in the licensee's proposed alternative include all five requirements addressed in Code Case N-498-1 for Class 3 components. Conducting a system pressure test at normal operating pressure in accordance with the provisions of Code Case N-498-1 provides an acceptable level of safety and quality. Therefore, it is recommended that the licensee's proposed alternative to perform the system pressure test in lieu of the Code-required system hydrostatic test for Class 3 components be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third 10-year ISI interval.

2.6 Request for Relief No. SPT-008, Class 1, 2, and 3 Piping, Components, and Their Supports, Code Case N-416-2

Code Requirement

ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, paragraph IWA-4540(a) requires that "After welding on a pressure boundary or installation of an item by welding or brazing, a system hydrostatic test shall be performed in accordance with IWA-5000."

Licensee's Code Relief Request

In accordance with 10 CFR 50.55a(g)(5)(iii), the licensee requested relief from the system hydrostatic test requirement after welding on a pressure boundary or installation of an item by welding or brazing.

Licensee's Basis for Requesting Relief (as stated)

The Section XI Code has passed and published Code Case N-416-2, "Alternative Pressure Test Requirements for Welded Repairs, Fabrication Welds for Replacement Parts and Piping Subassemblies, or Installation of Replacements Items for Welding, Class 1, 2, and 3," dated May 5, 2000. This Code Case is very similar to an earlier revision, N-416-1, which has been approved for use, with condition, by the NRC in Regulatory Guide 1.147, Revision 12, dated May 1999. Code Case N-416-2 expanded the detail presented in scope of the Code Case to assure that it included items that are "fabricated" by welding as well as repaired or installed by welding. Section XI was concerned that not all would agree that the word "installed" would apply to each weld of a piping subassembly, for example, unless each weld was made to an existing portion of piping already part of the plant. The clarification assures that a weld joining two items not yet joined to the plant (i.e. fabricated), but are later joined by an additional weld to an item already part of the plant (i.e. installed) are subject to the same hydrostatic test requirements as the installation weld(s).

Code Case N-416-2 has been reviewed by NAPS 2 and determined to provide an acceptable level of quality and safety if implemented with the same conditions required for the implementation of Code Case N-416-1. The alternative testing requirements of Code Case N-416-1, if implemented with the additional nondestructive examination requirements stated in Regulatory Guide 1.147, has been determined by both Section XI and the NRC to provide an acceptable level of quality and safety. The fact that the weld may not actually join the item to the plant when it is actually made does not change this conclusion, if the requirements of the Code Case are met [sic].

The licensee stated:

Section XI considered that the wording of Code Case N-416-1 was not sufficiently clear to determine whether either type of weld (fabrication or installation) needs to be subjected to overpressure testing. Section XI eliminated this concern by issuing Code Case N-416-2. There is no difference in the welding program, the quality assurance program, the proposed examination program, or the end use of the welds based on their classification as either fabrication or installation welds.

Typically, overpressure hydrostatic testing only subjects the piping components to a small increase in pressure over the design pressure and, therefore, does not present a significant challenge to pressure boundary integrity. Little benefit is gained from the added challenge to the piping system provided by an overpressure hydrostatic test of weld on a test stand. The weld on the test stand is not subjected to the additional stresses of being installed in a system, even though these could be the primary stresses on the weld.

Code Case N-462, like Code Case N-416-1, requires volumetric examination of Class 1 and 2 piping components in accordance with the requirements of the 1992 Edition of Section III. Also, like Code Case N-416-1, it only requires a surface examination of Class 3 welds. The NRC, in approving Code Case N-416-1, required that in addition to the surface examination required for Class 3, a surface examination will also be performed on the root pass of butt and socket welds of pressure retaining boundary of Class 3 components. North Anna, in requesting permission to use the alternative provided by N-416-2, committed to perform this additional root pass examination of Class 3 welds. North Anna concluded that the use of the 1992 Edition examination requirements with the additional surface examination of the root pass of Class 3 welds in conjunction with the proposed system pressure test at nominal operating pressure provides an acceptable level of quality and safety. Therefore, permission to use Code Case N-416-2 is requested under the provisions of 10CFR50.55a(a)(3)(i).

Performing overpressure testing of subassemblies may require that special fixtures and/or welded end caps be installed on the subassemblies prior to testing. These actions will likely result in work to clear the material of the residual effects of these acts (e.g., cleaning/repairing tack welds). Alternatively, to avoid this effort, it may be necessary to perform welding inside the plant under conditions that may not be optimum to obtain the best welds or subject personnel to unnecessary radiation exposure.

Code Case N-416-2 is identical to Code Case N-416-1, except that N-416-2 has clarifying language that both fabrication and installation welds are included in the scope of the Code Case. There is no technical difference between a "fabrication" weld and an "installation" weld. The only difference is whether or not the other end of the component or subassembly is physically attached to the plant at the actual time the weld is made. Code Case N-416-1 has been determined to provide acceptable alternative requirements for pressure testing of welds by Section XI. The NRC agreed with this decision provided the additional NDE examinations were performed on Class 3 components. These additional requirements were published

in Regulatory Guide 1.147. North Anna, in implementing the requirements of Code Case N-416-2, will perform the additional NDE the NRC requires for the implementation of Code Case N-416-1 in Regulatory Guide 1.147.

#### Licensee's Proposed Alternative Examination (as stated)

NAPS 2 requests approval, as allowed by 10CFR50.55a(a)(3)(i), to use Code Case N-416-2, "Alternative Pressure Test Requirements for Welded Repairs, Fabrication Welds for Replacement Parts and Piping Subassemblies, or Installation of Replacements Items for Welding, Class 1, 2, and 3," dated May 5, 2000. As part of the implementation of this alternative, North Anna Power Station will also implement the additional requirements required for implementation of Code Case N-416-1 as stated in Regulatory Guide 1.147, Revision 12, dated May 1999. Specifically, that in addition to those conditions specified in the Code Case, additional surface examinations will be performed on the root (pass) of butt and socket welds of the pressure retaining boundary of Class 3 components when the surface examination method is used in accordance with Section III.

#### Evaluation

In accordance with the ASME Section XI, 1995 Edition with addenda up to and including the 1996 Addenda, paragraph IWA-4540(a) requires that after welding on a pressure boundary or installation of an item by welding or brazing, a system hydrostatic test shall be performed in accordance with IWA-5000. In lieu of performing the system hydrostatic test, the licensee proposes to use Code Case N-416-2, "Alternative Pressure Test Requirement for Welded Repairs, Fabrication Welds for Replacement Parts and Piping Subassemblies, or Installation of Replacements Items for Welding, Class 1, 2, and 3," dated May 5, 2000.

As stated in RG 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 12, the NRC has found Code Case N-416-1, "Alternative Pressure Test Requirement for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2, and 3, Section XI, Division 1," acceptable subject to the following conditions in addition to those specified in the Code Case: Additional surface examinations should be performed on the root (pass) layer of butt and socket welds of the pressure retaining boundary of Class 3 components when the surface examination method is used in accordance with Section III. Code Case N-416-2 is identical to Code Case N-416-1, except that N-416-2 has clarifying statements that both fabrication and installation welds are included in the scope of the code case. There is no technical difference between a "fabrication" weld and an "installation" weld.

As part of the implementation of the proposed alternative by the licensee, the licensee will implement the additional requirements specified in RG 1.147 for implementation of Code Case N-416-1. Thus, the proposed alternative provides an acceptable level of quality and safety. Since the staff has found Code Case N-416-1 to be acceptable with the addition of the noted condition(s), it is recommended that the use of the licensee's proposed alternative to use Code Case N-416-2 be authorized pursuant to 10 CFR 50.55a(a)(3)(i) for the third inspection interval, or until Code Case N-416-2 is approved for general use by reference in RG 1.147. After that time, the licensee must follow the conditions, if any, specified in the regulatory guide.

SUMMARY OF RELIEF REQUESTS

Relief Request Number	TLR Sec.	System or Component	Exam Category	Item No.	Volume or Area to be Examined	Required Method	Licensee Proposed Alternative	Relief Request Status
NDE-004	2.1	Weld Reference System	All	All	All applicable welds	Surface and volumetric examinations	Use weld isometric drawings	Authorized per 10 CFR 50.55a(a)(3)(ii)
NDE-008	2.2	Calibration Blocks	All	All	All applicable welds	Ultrasonic Testing	Use calibration blocks from second ISI intervals	Not Needed
NDE-011	2.3	Class 1, 2, and 3 Components	All	All	Welding Procedure Specifications	Transfer of Procedure Qualification Record	Use Code Case N-573	Authorized per 10 CFR 50.55a(a)(3)(i)
SPT-003	2.4	Bolted Connections	N/A	N/A	Leakage in bolted connections	Removal of one bolt for examination	Use Code Case N-566-1 and VT-1 examination of removed bolting	Authorized per 10 CFR 50.55a(a)(3)(i)
SPT-004	2.5	Class 3 systems	D-B	D2.20, 40, 60, and 80	System leakage	System Hydrostatic test	Use system pressure test similar to Code Case N-498-1	Authorized per 10 CFR 50.55a(a)(3)(i)
SPT-008	2.6	Class 1, 2, and 3 Components	All	All	System leakage	System Hydrostatic test	Use Code Case N-416-2	Authorized per 10 CFR 50.55a(a)(3)(i)