



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

January 19, 2012

Mr. Michael D. Skaggs
Senior Vice President
Nuclear Generation Development
and Construction
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: WATTS BAR NUCLEAR PLANT, UNIT 2 – REQUEST FOR RELIEF
REGARDING USE OF AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BOILER & PRESSURE VESSEL CODE CASES N-801 & N-802
(TAC NO. ME7063)

Dear Mr. Skaggs:

By letter dated September 1, 2011, Tennessee Valley Authority submitted a request for the use of alternatives to certain American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Section III requirements at the Watts Bar Nuclear Plant (WBN) Unit 2.

Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), 50.55a(a)(3)(i), TVA requested to use the alternative provisions of ASME Code Cases N-801, "Rules for Repair of N-Stamped Class 1, 2, and 3 Components by Organization Other Than the N-Certificate Holder That Originally Stamped the Component Being Repaired, Section III, Division 1" and N-802, "Rules for Repair of N-Stamped Class 1, 2, and 3 Components by the N-Certificate Holder That Originally Stamped the Component, Section III, Division 1" on the basis that they provide an acceptable level of quality and safety.

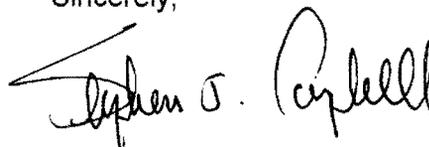
Based on the enclosed safety evaluation, the U.S. Nuclear Regulatory Commission (NRC) staff concludes that ASME Code Cases N-801 and N-802 provide an acceptable level of quality and safety. Therefore, the NRC staff authorizes the proposed alternative in accordance with 10 CFR 50.55a (a)(3)(i) for the completion of construction at WBN Unit 2. The NRC staff's approval of TVA's request does not constitute generic approval of Code Case N-801 and N-802.

M. Skaggs

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If you have any questions regarding this issue, please contact Justin Poole at (301) 415-2048.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen J. Campbell". The signature is written in a cursive style with a large, sweeping initial "S".

Stephen J. Campbell, Chief
Watts Bar Special Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-391

Enclosure:
Safety Evaluation

cc: Distribution via Listserv



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
REQUEST TO USE THE AMERICAN SOCIETY OF MECHANICAL
ENGINEERS BOILER AND PRESSURES VESSEL CODE, CODE CASES N-801 AND
N-802 DURING COMPLETION OF CONSTRUCTION ACTIVITIES
TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT UNIT 2
DOCKET NO. 50-391

1.0 INTRODUCTION

By letter dated September 1, 2011 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12011A044), Tennessee Valley Authority, (TVA), submitted a request for the use of alternatives to certain American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Section III requirements at the Watts Bar Nuclear Plant (WBN) Unit 2. Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3)(i), TVA requested to use the provisions of ASME Code Case N-801, "Rules for Repair of N-Stamped Class 1, 2, and 3 Components by Organization Other Than the N-Certificate Holder That Originally Stamped the Component Being Repaired, Section III, Division 1" and Code Case N-802, "Rules for Repair of N-Stamped Class 1, 2, and 3 Components by the N-Certificate Holder That Originally Stamped the Component, Section III, Division 1." The basis for the request was that completion of the construction activities utilizing the alternatives provided in code cases N-801 and N-802 would provide an acceptable level of quality and safety.

The use of the code cases would allow TVA to have work done on ASME Code Class 1, 2, and 3 components that previously received an ASME Code stamp but require additional ASME work prior to filing the ASME Form N-5, "Certificate Holders' Data Report for Installation or Shop Assembly of Nuclear Power Plant Components, Supports, and Appurtenances" or N-3, "Owners' Data Report For Nuclear Power Plant Components" which signifies the completion of ASME Section III work on plant systems. In accordance with the code cases this work could be done either by the same N certificate holder that applied the N stamp or another N certificate holder.

2.0 REGULATORY EVALUATION

As stated in 10 CFR 50.55a, systems and components of nuclear power reactors must meet the requirements of the ASME Boiler and Pressure Vessel Code. The WBN Unit 2 ASME piping systems and components were designed and constructed to meet the 1971 Edition with addenda through the Summer 1973 Addenda of Section III, as the Code-of-Record (COR). TVA's ASME Section III Quality Assurance Manual, in effect at the time WBN Unit 2 construction activities were suspended, was written to meet the administrative, documentation,

and quality program aspects in the 1980 Edition through the Winter 1981 Addenda. According to 10 CFR 50.55a(a)(3), the NRC may authorize alternatives to the requirements of 50.55a(b), 50.55a(c), 50.55a(d), 50.55a(e), 50.55a(f) and 50.55a(g), if an applicant demonstrates that the proposed alternatives would provide an acceptable level of quality and safety, or that compliance with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

TVA submitted the request to use the alternative rules in ASME Code Cases N-801 and N-802 under the provisions of 10 CFR 50.55a(a)(3)(i). TVA believes the rules associated with use of Code Cases N-801 and N-802 provides an acceptable level of quality and safety.

3.0 TECHNICAL EVALUATION

3.1 Applicant's Basis for Requesting Alternative

ASME Code Requirements

Construction activities shall be conducted in accordance with the requirements of ASME Section III by a certificate holder. Components shall be designed, fabricated, installed, examined and tested in accordance with the applicable ASME Section III requirements. Upon completing all of the Section III requirements the "N-stamp" will be applied to the component by the certificate holder and the ASME Form N-5 Code Data Reports will be completed. Upon completion of all the systems of a nuclear power plant the owner will file the ASME Form N-3, Owner's Data Report.

Background

At the time of the suspension of construction activities at WBN Unit 2, TVA was the N, NA, and NPT Certificate holder for the unit. Subsequent to the suspension of construction activities at WBN Unit 2, TVA allowed the Owner's Certificate and the N-type Certifications to expire. However, TVA maintained the NRC construction permit for WBN Unit 2 in case additional generating capacity should be needed in the future. TVA also continued to maintain the WBN Unit 2 ASME Section III piping and system documentation, in the event that construction of WBN Unit 2 was resumed. At the time there were no clear directions in ASME Section III on how to transfer jurisdiction for Code activities from the owner of an incomplete unit to a new ASME Certificate holder. The COR for WBN Unit 2 basically required these activities to be administered and controlled by N-type certificate holders. Subsequent to these early editions and addenda of ASME Section III, it was recognized that construction activities may be interrupted, prior to the completion of all Code assigned responsibilities, and later resumed under a different subcontract N-type certificate holder. In support of this possibility, the ASME Section III Committee created ASME Section III Code Case N-520, "Alternative Rules for Renewal of N-type Certificates for Plants Not In Active Construction, Section III, Division 1." These documents still required the transfer of the jurisdiction of the partially completed data between organizations with existing ASME III Certifications.

By letter dated August 3, 2007 (ADAMS Accession No. ML072190047), TVA notified the Nuclear Regulatory Commission (NRC) of the intent to resume construction activities on WBN Unit 2. With this resumption of construction activities, TVA needed a means to transfer the partially completed ASME Section III piping systems and components, and their associated

documentation, to the N-Type Certificate holder subcontracted to complete WBN Unit 2. In this manner the work previously performed under TVA's N Certificate of Authorization could be credited toward the final completion of the unit's Section III systems and components. TVA approached the ASME Section III committee about a process that could be developed whereby the partially completed documentation and associated Code items could be transferred from TVA jurisdiction to an N-type Certificate Holder and allows the plant systems to be completed in accordance with the rules of ASME Section III. ASME Code Case N-520-2 was the result of this request to the ASME Section III committee. Code Case N-520-2 imposes conditions on the Owner (TVA) to ensure that the transfer of the documentation and associated Code items, from the organization with the expired Certificates of Authorization to the new subcontractor N-type Certificate Holder, is performed in a quality manner.

By letter dated February 1, 2008, TVA requested the NRC approve the use of N-520-2 at WBN Unit 2 for the completion of construction activities. Code Case N-520-2 would allow TVA to obtain a temporary Certificate of Authorization from ASME to complete and subsequently transfer the documentation of the partially completed ASME Section III systems and components to the jurisdiction of a subcontractor that is an ASME Section III N-type Certificate Holder. The subcontractor would complete the construction of the WBN Unit 2 systems and components the associated N-5 Code Data Reports to certify that the required portions of the plant were constructed in accordance with ASME Section III and allow TVA to document completion of the plant as part of the Owner's Section III requirements. An N-5 Code Data Report is a Certificate Holder's documentation for installation or shop assembly of a nuclear power plant's components, supports or appurtenances. The N-5 Code Data Reports were not completed on most of the WBN Unit 2 systems because construction activities were halted before the plant's completion. Code Case N-520-2 would allow the partially completed work to be properly documented through the issuance of "Partial N-5 Code Data Reports," which will then be transferred to the TVA subcontractor N Certificate Holder's jurisdiction for final completion of the documentation. TVA would not be authorized to perform any physical work or repairs under the temporary Certificate of Authorization. The NRC authorized TVA's use of N-520-2 at WBN Unit 2 by letter dated October 2, 2008 (ADAMS Accession No. ML082560373).

By letter dated June 25, 2010, TVA requested the NRC approve the use of N-520-3 at WBN Unit 2 for the completion of construction activities. This code case in addition to the requirements of N-520-2 would allow TVA to apply to ASME for extension of the term length of its temporary Certificate of Authorization. The NRC authorized the use of N-520-3 at WBN Unit 2 by letter dated September 29, 2010 (ADAMS Accession No. ML102700527).

The ASME Section III COR for WBN Unit 2 is the 1971 Edition through the summer 1973 Addenda. The requirements for component repairs in the COR were predicated on those repairs being accomplished prior to the application of the N Stamp to the component. With re-activation of construction activities after nearly 22 years, it was necessary to ensure that partially completed ASME Section III piping systems and components would be fully capable of meeting their design requirements. The long-term effect of allowing components and piping systems to remain idle without continuous layup or preservation has required the evaluation and refurbishment of some systems to restore design requirements. Further, many of the N-Certificate Holders that manufactured and stamped these components were no longer N-Certificate Holders, or no longer were in business. Although the lack of ASME Section III Division I rules regarding repair of installed components did not prevent licensing of operating plants constructed to ASME Section III, the resumption of construction of WBN Unit 2 under

ASME Section III and inquiries regarding rules for documenting component repairs under ASME Section III resulted in the development and approval of ASME Code Cases N-801 and N-802. These Code Cases are necessary to provide rules for N-Certificate Holders to perform repairs to N-Stamped components at WBN Unit 2 under ASME Section III, Division 1 and complete the documentation requirements. Code Case N-801, "Rules for Repair of N-Stamped Class 1, 2, and 3 Components by Organizations Other Than the N-Certificate Holder That Originally Stamped the Component Being Repaired Section III, Division 1," provides rules for an N-Certificate Holder other than the one who initially stamped the component to perform repairs to previously stamped components in accordance with Section III. Code Case N-802, "Rules for Repairs of N-Stamped Class 1, 2, and 3 Components by the N-Certificate Holder That Originally Stamped the Component, Section III, Division 1," provides rules for the original manufacturer to perform repairs in accordance with Section III subsequent to the component being stamped.

Applicant's Proposed Alternative Code Case N-801

Pursuant to 10 CFR 50.55a(a)(3)(i), TVA is requesting authorization to use the provisions of ASME Code Case N-801, "Rules for Repair of N-Stamped Class 1, 2, and 3 Components by Organizations Other Than the N-Certificate Holder That Originally Stamped the Component Being Repaired Section III, Division 1," as an alternative to the rules of ASME Section III on the basis that it will provide an acceptable level of quality and safety for the construction of systems at WBN Unit 2.

Code Case N-801 provides the following rules for repairs by organizations other than the N-Certificate Holder that originally stamped the component for the time period after Component stamping and prior to the Owner's filing of the N-3 Data Report:

- a) The N-Certificate Holder performing the repair shall review the component Design Specification and Design Report, stress analysis, or applicable design rules to determine the required repair parameters. This review shall be documented and certified by a Registered Professional Engineer. If this review results in a need to revise the Design Specification or Design Report, these documents shall be revised prior to completion of the Code Data Report form N-10.
- b) The N-Certificate Holder performing the repair shall complete the repair under the provisions of the Section III Edition and Addenda required by the Design Specification.
- c) The N-Certificate Holder performing the repair shall document the repair on Code Data Report form N-10 and attach or reference supporting documentation to describe the repair.
- d) Unless otherwise stated herein, the component shall be subjected to pressure testing as required by NB-6000, NC-6000, or ND-6000 following the repair. Where the component has already been installed, the hydrostatic test pressure would exceed the piping system test pressure requirements of the piping system in which the component is installed, and the component cannot be isolated for testing, the repair shall be tested to the piping system pressure test requirements. The test pressure shall be documented on the Code Data Report completed by the N-Certificate Holder performing the repair.

- e) The scope of the Certificate of Authorization for the organization performing the repair shall include construction of the type and Code class of the component to be repaired.
- f) The N-Certificate Holder's Quality Assurance (QA) program shall describe the controls for performing repair of N-stamped components. These controls shall include the requirements for materials, fabrication, examination, inspection, testing, certification and documentation of the repairs.
- g) All of the requirements of the Design Specification and the Code Edition and Addenda applicable to the construction of the component shall be met except for pressure testing, which may be performed as described in (d) above.
- h) The use of this Case shall be documented on the Code Data Report completed by the N-Certificate Holder performing the repair. In addition, the Code Data Report completed by the N-Certificate Holder performing the repair shall be attached to the Data Report of the N-Certificate Holder who originally stamped the component.
- i) Stamping of the repaired component by the N-Certificate Holder performing the repair shall not be required.
- j) The Authorized Nuclear Inspector shall review plans for repairs conducted under this Case and perform required in-process inspections and a final review of the completed repair prior to signing the Code Data Report.

TVA proposes to use this alternative until such time as the WBN Unit 2 Code Data Report form N-3 is completed and signed by TVA, as the owner; or until the use of the Code Case is no longer necessary, nor allowed, in accordance with the provisions of the Code Case.

Applicant's Proposed Alternative Code Case N-802

Pursuant to 10 CFR 50.55a(a)(3)(i), TVA is requesting authorization to use the provisions of ASME Code Case N-802, "Rules for Repairs of N-Stamped Class 1, 2, and 3 Components by the N-Certificate Holder That Originally Stamped the Component, Section III, Division 1," as an alternative to the rules of ASME Section III on the basis that it will provide an acceptable level of quality and safety for the construction of systems at WBN Unit 2.

Code Case N-802 provides the following rules for repairs of N Stamped components by the N-Certificate Holder that originally stamped the component when such repairs are performed in accordance with ASME Section III, Division 1:

- a) At the time of the repair, the Owner has not yet filed the N-3 Data Report.
- b) The N-Certificate Holder performing the repair shall prepare Data Report N-10A. The certification of Data Report N-10A indicates that the N-Certificate Holder performing the repair assumes responsibility for Code compliance of the repair, as described in the Data Report.

- c) Stamping of the repaired component by the N-Certificate Holder performing the repair shall not be required.

Additionally TVA proposes to apply the following provisions from Code Case N-801 to ensure consistency:

- 1) The N-Certificate Holder performing the repair shall review the component Design Specification and Design Report, stress analysis, or applicable design rules to determine the required repair parameters. This review shall be documented and certified by a Registered Professional Engineer. If this review results in a need to revise the Design Specification or Design Report, these documents shall be revised prior to completion of the Code Data Report form N-10A.
- 2) The N-Certificate Holder performing the repair shall complete the repair under the provisions of the Section III Edition and Addenda required by the Design Specification.
- 3) Unless otherwise stated herein, the component shall be subjected to pressure testing as required by NB-6000, NC-6000, or ND-6000 following the repair. Where the component has already been installed, the hydrostatic test pressure would exceed the piping system test pressure requirements of the piping system in which the component is installed, and the component cannot be isolated for testing, the repair shall be tested to the piping system pressure test requirements. The test pressure shall be documented on the Code Data Report completed by the N-Certificate Holder performing the repair.
- 4) The scope of the Certificate of Authorization for the organization performing the repair shall include construction of the type and Code class of the component to be repaired.
- 5) The N-Certificate Holder's QA program shall describe the controls for performing repair of N-stamped components. These controls shall include the requirements for materials, fabrication, examination, inspection, testing, certification and documentation of the repairs.
- 6) All of the requirements of the Design Specification and the Code Edition and Addenda applicable to the construction of the component shall be met except for pressure testing, which may be performed as described in (3) above.
- 7) The use of this Case shall be documented on the Code Data Report completed by the N-Certificate Holder performing the repair. In addition, the Code Data Report completed by the N-Certificate Holder performing the repair shall be attached to the Data Report of the N-Certificate Holder who originally stamped the component.
- 8) The Authorized Nuclear Inspector shall review plans for repairs conducted under this Case and perform required in-process inspections and a final review of the completed repair prior to signing the Code Data Report.

TVA proposes to use this alternative until such time as the WBN Unit 2 Code Data Report form N-3 is completed and signed by TVA, as the owner; or until the use of the Code Case is no longer necessary, nor allowed, in accordance with the provisions of the Code Case.

3.2 NRC Staff Evaluation

The staff has reviewed the information in TVA's letter dated September 1, 2011, regarding the TVA's request to use the alternatives provided by ASME Code Cases N-801 and N-802 in lieu of the requirements of ASME Section III, Division 1. The staff finds that the controls provided by Code Case N-801 provide rules for the review of design documentation, performance of repairs in accordance with Section III, performance of pressure testing, QA program requirements, repair documentation, and Authorized Nuclear Inspector reviews for an N-Certificate Holder other than the one who originally stamped components to complete the construction activities in accordance with the requirements of ASME Section III. Therefore, the staff finds that the proposed alternative provides an acceptable level of quality and safety. The staff also determined that the use of Code Case N-802 along with the additional provisions from N-801 described in TVA's submittal provide the same level of assurance that the N-Certificate Holder who originally stamped a component can complete the construction activities in accordance with ASME Section III. Therefore the staff finds that the proposed alternative to use Code Case N-802 as described also provides an acceptable level of quality and safety.

The staff also looked at the implementation of Code Cases N-801 and N-802 in conjunction with previously approved alternatives to use Code Cases N-520-2 (ADAMS Accession Number ML082560373) and N-520-3 (ADAMS Accession Number ML102700527). The staff believes that the implementation of these alternatives along with the implementation of Code Cases N-801 and N-802 as described herein will provide TVA the framework for completing the construction of WBN Unit 2 in accordance with the requirements of ASME Section III.

4.0 CONCLUSION

As set forth above, the NRC staff determines that the proposed alternative provides an acceptable level of quality and safety. Accordingly, the NRC staff concludes that TVA has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a, and is in compliance with the ASME Code's requirements. Therefore, the NRC staff authorizes the use of Code Case N-801 and Code Case N-802 at WBN Unit 2 for the completion of construction activities. The NRC staff's approval of TVA's request does not constitute generic approval of Code Case N-801 and N-802.

All other ASME Code, Section II and Section XI requirements for which relief was not specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inspector and Authorized Nuclear Inservice Inspector as appropriate.

Principal Contributor: Keith M. Hoffman

Date: January 19, 2012

M. Skaggs

- 2 -

If you have any questions regarding this issue, please contact Justin Poole at (301) 415-2048.

Sincerely,

/RA/

Stephen J. Campbell, Chief
Watts Bar Special Projects Branch
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-391

Enclosure:
Safety Evaluation

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*Per Memo

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