

10 CFR 50.55a

RS-09-058

May 5, 2009

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Clinton Power Station, Unit 1  
Facility Operating License No. NPF-62  
NRC Docket No. 50-461

Subject: Request for Proposed Alternative to 10 CFR 50.55a Post Weld Heat Treatment Requirements for Piping Replacements (Relief Request No. 1203)

In accordance with 10 CFR 50.55a, "Codes and standards," paragraph (a)(3)(i), Exelon Generation Company, LLC (EGC), hereby requests approval to use an alternative to the requirements of the 1989 Edition of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section XI, Article IWA-4000, for repair and replacement activities at Clinton Power Station (CPS), Unit 1.

Relief Request Number 1203 proposes to use the requirements of Table NB-4622.7(b)-1, "Exemptions to Mandatory PWHT," of the 2006 Addenda to ASME Section III, Subsection NB for the repair/replacement of certain piping. That piping will be installed in the twelfth refueling outage (i.e., C1R12) scheduled to begin January 11, 2010. The proposed alternative provides an acceptable level of quality and safety in accordance with 10 CFR 50.55a(a)(3)(i). Since 10 CFR 50.55a references only up to the 2004 ASME Code, use of the 2006 Addenda requires NRC approval. The basis for this alternative is discussed in the attached relief request.

We request your review and approval by January 11, 2010 to support refueling outage C1R12.

There are no regulatory commitments contained in this letter. If you have any questions concerning this letter, please contact Mr. Timothy A. Byam at (630) 657-2804.

Respectfully,



Jeffrey L. Hansen  
Manager – Licensing

Attachment – 10 CFR 50.55a Request Number 1203

**ATTACHMENT**  
**10 CFR 50.55a Request**  
**Regarding Alternative Provides Acceptable Level of Quality and Safety**  
**(10 CFR 50.55a(a)(3)(i))**  
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**10 CFR 50.55a Request Number 1203**  
**Proposed Alternative**  
**In Accordance with 10 CFR 50.55a(a)(3)(i)**

**Alternative Provides Acceptable Level of Quality or Safety**

**1. ASME Code Component(s) Affected**

Code Class: 1  
Component Numbers: Reactor Water Cleanup (RT) System Piping Line Numbers  
1RT01AA-4", 1RT01AB-4", 1RT01EC-4", 1RT01ED-4"

**2. Applicable Code Edition and Addenda**

Clinton Power Station (CPS), Unit 1, is currently in the second 10-year Inservice Inspection Program interval and complies with the 1989 Edition of Section XI of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

**3. Applicable Code Requirement**

Repair and replacement activities are governed by Articles IWA-4000, IWB-4000, IWA-7000 and IWB-7000 of Section XI of the ASME Boiler and Pressure Vessel Code. These Articles make reference to the code of construction, which for the subject piping is ASME Section III, Subsection NB, 1974 Edition through Summer 1974 Addenda. The code of construction required CPS to perform post-weld heat treatment (PWHT) of the subject piping welds due to the piping outside diameter being 4.5 inches. These articles also allow using later Editions and Addenda of ASME Section III, either in their entirety or portions thereof, provided they have been approved by the regulatory authorities. The version of the Section III ASME Boiler and Pressure Vessel Code incorporated by reference in 10 CFR 50.55a is the 2004 Edition.

CPS is planning to replace portions of the RT system piping with P-Number 5A (P5A) material. ASME Section III, Subsection NB, Article NB-4000, Table NB-4622.7(b)-1, "Exemptions to Mandatory PWHT," provides exemption criteria from mandatory post weld heat treatment (PWHT). Up to and including the 2004 Edition of the ASME Section III, Subsection NB, Table NB-4622.7(b)-1, P5A material with outside diameter (OD) of 4 inches or less is exempt from PWHT. The current installation at CPS consists of 4-inch nominal pipe size (NPS) piping with an OD of 4.5 inches, which requires PWHT after welding.

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**4. Reason for Request**

During the next refueling outage (i.e., C1R12), CPS intends to replace a portion of the RT system piping with P5A material versus the originally installed P1 material. A literal interpretation of Table NB-4622.7(b)-1, "Exemptions to Mandatory PWHT," of up to and including the 2004 Edition of the ASME Boiler and Pressure Vessel Code Section III, Subsection NB, would preclude NPS 4-inch piping with an outside diameter of 4.5 inches from being exempt from PWHT. However, Table NB-4622.7(b)-1 of the 2006 Addenda of ASME Section III, Subsection NB, was revised to clarify and correct the inconsistencies between older versions of the piping codes. Specifically, this table was revised to correct the references to piping with a nominal OD of 4 inches. The table was revised to include NPS 4-inch piping with a nominal OD of 4.5 inches.

The piping within the scope of this request is being replaced in C1R12. The welds that will be made in support of the piping replacement meet the exemption requirements of the 2006 Addenda of the ASME Code Section III, Subsection NB, Table NB-4622.7(b)-1. Due to the location of the piping in the CPS Drywell and the number of field welds that are required due to space limitations, there would be a significant radiological dose savings (i.e., approximately 2 Rem) by not having to set up and remove equipment for post weld heat treatment of the affected welds.

**5. Proposed Alternative and Basis for Use**

CPS proposes to use ASME Section III, Subsection NB, Table NB-4622.7(b)-1, as provided in the 2006 Addenda of the ASME Code, to utilize an alternative to the requirement for a PWHT of the replacement piping. This Table was revised in the 2006 Addenda to clarify the referenced sizes for pipes and tube OD's. In particular, this table was revised to correct the references to piping with a nominal OD of 4 inches. The table was revised to include NPS 4-inch piping with a nominal OD of 4.5 inches, as long as the piping wall thickness did not exceed 0.5 inches and carbon content did not exceed 0.15%. This revision was documented in a change to the 2006 Addenda of the ASME Section III, Subsection NB Code, under record number BC-05-489. This change recognizes that piping normally produced by piping manufacturers is based on nominal pipe sizes.

The components within the scope of this relief request are the circumferential butt welds associated with replacement piping on the reactor water cleanup system piping system. The affected lines are NPS 4-inch (4.5 inch outside diameter), schedule 120 piping (0.437 inch wall thickness). The material of the piping is SA-335, Grade P22, with a maximum chromium content of 2.6%, and a maximum carbon content of 0.15%. The material of the fittings is SA-234, Grade WP22 Class 1, with a maximum chromium content of 2.6% and a maximum carbon content of 0.15%. EGC plans on replacing a valve as part of the piping

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replacement covered by this relief request. The replacement valve has not yet been manufactured, however, the valve body material has been specified as SA-217, Grade WC9, with a maximum chromium content of 2.75% and an allowable carbon content of 0.18%. While the specified allowable carbon content is above the 0.15% maximum for carbon allowed by Table NB-4622.7(b)-1, the actual valve body carbon content may actually be less than 0.15% once the valve body is actually poured. All of the above materials, except for the valve body material, meet the requirements of ASME Section III, Subsection NB for Table NB-4622.7(b)-1 as revised by the 2006 Addenda. Once the new valve has been manufactured, if the valve vendor certified material test records show that the carbon content of the valves is less than or equal to 0.15%, then the valve to pipe welds would also be included in the exemption.

**6. Duration of Proposed Alternative**

CPS proposes use of this alternative during the second 10-year Inservice Inspection Program interval or until such time as the NRC incorporates the use of the 2006 Addenda of the ASME Section XI, Subsection NB Code by reference.