

May 1, 2001
NG-01-0589

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station 0-P1-17
Washington, DC 20555-0001

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
NDE-R042, Request for Authorization
to Use Code Case N-516-1
File: A-100, A-286

During the current refueling outage (RFO) 17 at the Duane Arnold Energy Center (DAEC), weld inspections are being performed in accordance with the DAEC IWE Program. As discussed during a conference call with the Staff on April 30, 2001, these inspections have identified a portion of incomplete weld located between the torus shell and a ring girder. In order to repair this weld, the Nuclear Management Company, LLC (NMC) plans to perform underwater welding.

ASME Section XI, IWA-4000 provides general requirements for performing repairs and replacements, but does not address the requirements for welded repair or installation of replacement items by welding on ASME Class 1, 2, 3 and MC pressure boundary components when welding is performed underwater. To address this issue ASME, Section XI, has issued Code Case N-516-1, "Underwater Welding." Code Case N-516-1 provides welding methods and requirements that may be used when a repair welding activity is performed underwater involving P-No.1 carbon steel components, such as the planned torus weld repair.

Code Case N-516-1 is not yet endorsed in the most recent listing of NRC approved Code Cases provided in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME, Section XI, Division 1." The previous version of the Code Case, N-516, is endorsed in Revision 12 of Regulatory Guide 1.147, but this original version does not address underwater repairs and replacements made on P-No.1 carbon steel components.

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10CFR50.55a(a)(3)(i) states that proposed alternatives may be used when authorized by the Director of the Office of Nuclear Reactor Regulation provided that the proposed alternatives provide an acceptable level of quality and safety. Pursuant to 10CFR50.55a(a)(3)(i), NMC hereby requests NRC authorization to use Code Case N-516-1. Use of this Code Case will provide an acceptable level of quality and safety, as discussed in the attachment. Similar authorization to use Code Case N-516-1 was granted to Peach Bottom Units 2 and 3 by the NRC (by letter dated July 31, 2000, TAC Nos. MA4008 and MA4009).

NMC is currently planning the repair, and developing welding procedures to support the activity. Authorization to use Code Case N-516-1 is requested prior to May 7, 2001, when the repair activities are scheduled to begin.

This letter makes the following new NRC commitment in Alternative Testing Number NDE-R042:

The DAEC will use Code Case N-516-1 in its entirety with the following added limitation:

When welding is to be performed on high neutron fluence Class 1 material, then a mockup, using material with similar fluence levels, should be welded to verify that adequate crack prevention measures were used.

Please contact this office should you require additional information regarding this matter.

Sincerely,



Kenneth S. Putnam
Manager, Nuclear Licensing

Attachment

cc: G. Park (w/a)
C. Rushworth (w/a)
G. VanMiddlesworth (w/o)
B. Mozafari (NRC-NRR) (w/a)
J. Dyer (Region III) (w/a)
NRC Resident Office (w/a)
Docu (w/a)

ALTERNATIVE TESTING NUMBER: NDE-R042

SYSTEM/COMPONENT(S) FOR WHICH ALTERNATIVE WILL BE USED

Code Class: Class 1, 2, 3, and MC
Reference: ASME, Section XI, IWA-4000
Examination Category: All
Item Number: All
Description: Alternative Requirements to IWA-4000
Component Numbers: All

CODE REQUIREMENT

The 1992 Edition with the 1992 Addenda of ASME Section XI, IWA-4000 provides the requirements for performing repairs and replacements. Specific criteria on performing underwater welding are not addressed.

Pursuant to 10CFR50.55a(a)(3)(i), the DAEC proposes to implement the provisions of ASME Section XI Code Case N-516-1, "Underwater Welding," which is not yet approved by reference in Regulatory Guide 1.147.

BASIS FOR ALTERNATIVE

ASME Section XI, IWA-4000 (1992 edition with the 1992 addenda), does not address the requirements for welded repair or installation of replacement items by welding on ASME Class 1, 2, 3 and MC pressure boundary components when welding is performed underwater. To address this issue, ASME Section XI, has issued Code Case N-516-1, "Underwater Welding." Code Case N-516-1 provides welding methods and requirements that may be used when welding for a repair or replacement activity is performed underwater.

Code Case N-516-1 was approved by the ASME Boiler and Pressure Vessel Code Committee on December 31, 1996, but is not yet endorsed in the most recent listing of NRC approved code cases provided in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." The previous version of the Code Case, N-516, is endorsed in Revision 12 of Regulatory Guide 1.147. However, this version of the subject Code Case is only applicable for use on P-No. 8 and P-No. 4X materials. Revision 1 of the Code Case extends the applicability to underwater repairs and replacements made on components made of P-No. 1, carbon steel materials as well. Code Case N-516-1 was incorporated into ASME Section XI in the 1996 Addenda which has been approved in 10CFR50.55a. Authorization to utilize the guidance provided in Revision 1 of the subject Code Case will allow the DAEC to control the performance of underwater welding in accordance with an appropriate industry standard.

The DAEC considers the requirements for underwater welding provided in Code Case N-516-1 to be an improvement over existing requirements and as such will enhance the performance of repairs, replacements and modifications of the safety related components.

The Code Case will provide appropriate controls over the welding processes that are needed to implement such repairs, replacements, and modifications in a safe and effective manner. The DAEC therefore regards these requirements as providing an acceptable level of quality and safety.

ALTERNATIVE EXAMINATION

The DAEC will use Code Case N-516-1 in its entirety with the following added limitation:

When welding is to be performed on high neutron fluence Class 1 material, then a mockup, using material with similar fluence levels, should be welded to verify that adequate crack prevention measures were used.

IMPLEMENTATION SCHEDULE

Alternative is requested for the third ten-year interval of the Inservice Inspection Program for DAEC.