

May 30, 2006

Mr. Gary Van Middlesworth
Vice President
Duane Arnold Energy Center
3277 DAEC Road
Palo, IA 52324-9785

SUBJECT: DUANE ARNOLD ENERGY CENTER - THIRD 10-YEAR INTERVAL
INSERVICE INSPECTION PROGRAM PLAN REQUEST FOR RELIEF TO
EXTEND THE THIRD 10 YEAR INSERVICE INSPECTION INTERVAL FOR
THE EXAMINATION OF WELDS VLA-001 VLA-002 (TAC NO. MC8165)

Dear Mr. Van Middlesworth:

By letter to the Nuclear Regulatory Commission (NRC) dated August 3, 2005, Nuclear Management Company, LLC (NMC) (the former licensee), for Duane Arnold Energy Center (DAEC), submitted a request for relief from performing a complete coverage examination of the reactor vessel stabilizers' attachment welds, VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ, in accordance with the existing DAEC Inservice Inspection (ISI) Program. (On January 27, 2006, the NRC issued Amendment No. 260 that reflected the transfer of the license to FPL Energy Duane Arnold, LLC).

The NRC staff has completed its review of the submittal. Our safety evaluation (SE) concludes that the American Society of Mechanical Engineers (ASME) Code required examinations are impractical to perform at DAEC due to physical obstructions, and that imposition of this requirement would cause a significant burden on the licensee. Furthermore, the NRC staff concludes that the surface examinations performed to the extent practical provide reasonable assurance of the structural integrity of the subject welds. Additionally, the NRC staff has determined that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property, or the common defense, and security and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.

Therefore, for attachment welds VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the third 10-year ISI program. All other requirements of the ASME Code, Section XI for which relief has not been specifically requested remain applicable, including a third party review by the Authorized Nuclear Inservice Inspector.

G. Van Middlesworth

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If you have any questions concerning this matter, please contact your project manager, Ms. D. Spaulding of my staff at (301)415-2928.

A copy of the SE is also enclosed.

Sincerely,

/RA by F. Lyon for/

L. Raghavan, Chief
Plant Licensing Branch III-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosure:
As stated

cc w/encl: See next page

G. Van Middlesworth

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

NUCLEAR REACTOR REGULATION

DUANE ARNOLD ENERGY CENTER

FPL ENERGY DUANE ARNOLD, LLC

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC) dated August 3, 2005, Nuclear Management Company, LLC (NMC) (the former licensee), for Duane Arnold Energy Center (DAEC), submitted a request for relief from performing a complete coverage examination of the reactor vessel stabilizers' attachment welds, VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ, in accordance with the existing DAEC Inservice Inspection (ISI) Program. (On January 27, 2006, the NRC issued Amendment No. 260 that reflected the transfer of the license to FPL Energy Duane Arnold, LLC).

2.0 REGULATORY REQUIREMENTS

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

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b), 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The ASME Code of record for the DAEC third 10-year ISI program, which will end October 21, 2006, is the 1989 Edition of Section XI of the

ENCLOSURE

3.0 EVALUATION

Request for Relief No. NDE-R035

Component Identification:

Code Class: Class 1

References: ASME Code, Section XI, Subarticle IWB-2500
Table IWB-2500-1
ASME Code Case N-509

Examination Category: B-K

Item Number: B10.10

Description: Surface examination coverage of Reactor Vessel Stabilizers

Component Numbers: VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ

ASME Code Requirements:

ASME Code, Section XI, Subarticle IWB-2500 states, in part, "Components shall be examined and tested as specified in Table IWB-2500-1." ASME Code, Section XI, Table IWB-2500-1, Examination Category B-H (Integral Attachments for Vessels) includes reactor vessel integrally welded attachments as Item No. B8.10 and requires essentially 100 percent surface examination of these welds.

ASME Code Case N-509, "Alternative Rules for the Selection and Examination of Class 1, 2, and 3 Integrally Welded Attachments, Section XI, Division 1," groups ASME Code, Section XI, Examination Category B-H and Examination Category B-K-1 (Integral Attachments for Piping, Pumps, and Valves) into Category B-K (Integral Attachments for Class 1 Vessels, Piping, Pumps, and Valves). The DAEC ISI Program utilizes ASME Code Case N-509; therefore, the vessel stabilizer attachment welds are categorized as ASME Code, Section XI, Category B-K, Item B10.10. ASME Code Case N-509 requires essentially 100 percent surface examination of these welds.

ASME Code Case N-460, "Alternative Examination Coverage for Class 1 and Class 2 Welds," an alternative approved for use by the NRC in Regulatory Guide 1.147, Revision 14, Inservice Inspection Code Case Acceptability, states that a reduction in examination coverage due to part geometry or interference for any Class 1 and 2 weld is acceptable provided that the reduction is less than 10 percent, i.e., greater than 90 percent examination coverage obtained.

Licensee's Basis for Relief Request (As Stated):

Pursuant to 10 CFR 50.55a(g)(5)(iii) relief is requested on the basis that obtaining "essentially 100 percent" examination coverage is impractical due to physical obstructions and limitations imposed by design.

These welds integrally attach lugs to the vessel. The lugs are used to connect the vessel stabilizers to the vessel. The stabilizers prevent the necessary access to perform the surface examination of the bottom side of the lug. In addition, the close proximity of the lug to the vessel prevents access.

The vessel stabilizers would require disassembly in order to provide the access necessary to complete the examination of 100 percent of the bottom weld.

Licensee's Proposed Alternative Examination (As Stated):

Relief is requested from performing a complete coverage examination of the entire volume or area required. Entire volume or area required is defined by ASME Section XI Code Case N-460 titled "Alternative Examination Coverage for Class 1 and Class 2 Welds, Section XI, Division 1." Code Case N-460 states in part, "...when the entire examination volume or area cannot be examined. ...a reduction in examination coverage. ...may be accepted provided the reduction in coverage for that weld is less than 10 percent."

During Refueling Outage (RFO) 19, the stabilizer attachment welds received surface examinations to the extent practical with regard to the limited access available. Approximately 60 percent coverage was obtained for these surface examinations for attachment welds VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ. No indications were identified.

The surface examination of approximately 60 percent of the vessel stabilizer attachment welds provides reasonable assurance that significant degradation, if present, would have been detected. Disassembly of the vessel stabilizers is impractical; the configuration of the attachment lugs does not provide an alternative examination to expand the coverage. Based on the percentage of examination coverage obtained, and the lack of indications, there is a high level of confidence in the continued structural integrity of the welds. There is no impact upon the overall plant quality and safety, and no adverse impact on the health and safety of the public.

Staff's Evaluation:

The ASME Code, Section XI requires that an essentially 100% surface examination be performed on integral attachments for ASME Class 1 vessels, piping, pumps, and valves. The licensee requested relief from performing the ASME Code-required examination of the attachment welds VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ. The subject welds integrally attach lugs to the RPV. The lugs are used to connect the vessel stabilizers to the vessel. These stabilizers prevent licensee access to perform the ASME Code required surface

examination of the bottom side of the lug. In addition, as shown in the drawings¹ provided by the licensee, the lugs are close to the reactor pressure vessel (RPV) and prevent access to perform the required surface examination. The licensee considered disassembling the stabilizers to provide the necessary access. However, to disassemble the stabilizers would cause a significant burden on the licensee because the subject components would have to be redesigned in order for the licensee to gain access to perform the ASME Code-required examinations. Therefore, the NRC staff determined that the ASME Code-required examinations are impractical at DAEC.

The licensee obtained approximately 60 percent of the surface examination of the subject vessel stabilizer attachment welds during Refueling Outage 19 and no indications were identified. The staff determined that the percentage of examination coverage obtained and the lack of indications found provide reasonable assurance of the structural integrity of the subject welds.

4.0 CONCLUSIONS

For Request for Relief No. NDE-R035 attachment welds VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ, the staff concluded that the ASME Code-required examinations are impractical to perform due to physical obstructions and that imposition of this requirement would cause a significant burden on the licensee. The surface examinations performed to the extent practical provide reasonable assurance of the structural integrity of the subject welds. Therefore, for attachment welds VSW-0AZ, VSW-90AZ, VSW-180AZ, and VSW-270AZ, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the third 10-year ISI program.

The staff has determined that granting relief pursuant to 10 CFR 50.55a(g)(6)(i) is authorized by law and will not endanger life or property, or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. All other requirements of the ASME Code, Section XI for which relief has not been specifically requested remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: T. McLellan

Date: May 30, 2006

1. The drawings of the integrally attached lugs to the RPV and vessel stabilizers are not included in this report, but can be found in the licensee's letter dated August 3, 2005.

Duane Arnold Energy Center

cc:

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February 2006