

December 13, 2000

Gary Van Middlesworth
Site General Manager
Duane Arnold Energy Center
Nuclear Management Company, LLC
3277 DAEC Road
Palo, Iowa 52324-9785

SUBJECT: SAFETY EVALUATION FOR THE PROPOSED ALTERNATIVES TO THE
ASME SECTION XI REQUIREMENTS FOR CONTAINMENT INSERVICE
INSPECTION FOR THE DUANE ARNOLD ENERGY CENTER (TAC NO.
MA8523)

Dear Mr. Middlesworth:

In a letter dated February 7, 2000, IES Utilities, Inc., licensee for the Duane Arnold Energy Center (DAEC), submitted relief request MC-R008 for the Inservice Inspection (ISI) Program. The Nuclear Regulatory Commission (NRC) staff has reviewed the proposed alternative examination against the requirements of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (the Code), Section XI, 1992 Edition Subsections IWE and IWL pursuant to Section 50.55a of Part 50 of Title 10 of the *Code of Federal Regulations*.

IES Utilities, Inc., was subsequently succeeded by Nuclear Management Company, LLC (NMC), as the licensed operator of DAEC. By letter dated October 5, 2000, NMC requested the staff continue to process and disposition licensing actions previously docketed and requested by IES Utilities, Inc.

Based on the information provided in the relief request, the NRC staff concludes that for Relief Request MC-R008 compliance with the Code requirement would result in hardship without a compensating increase in the level of quality and safety, and that the licensee proposed alternative will provide reasonable assurance of containment pressure integrity. Therefore, the proposed alternative may be authorized pursuant to 10 CFR 50.55a(a)(3)(ii). The ISI Program alternative that is authorized herein is acceptable for implementation. The authorization of the alternative is based upon the fulfillment of any commitments made by IES Utilities, Inc., in the basis for the proposed alternative. The NRC staff's safety evaluation (SE) is enclosed.

G. Van Middlesworth

- 2 -

If you have any questions regarding this issue or SE, please contact your Project Manager, Brenda L. Mozafari at 301-415-2020.

Sincerely,

/RA/

Claudia M. Craig, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosure: Safety Evaluation

cc w/encl: See next page

If you have any questions regarding this issue or SE, please contact your Project Manager, Brenda L. Mozafari at 301-415-2020.

Sincerely,

/RA/

Claudia M. Craig, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION

PUBLIC	PDIII-1 Reading	ACRS	MLeach, RIII
MSatorius (EDO)	OGC	DTerao (EMEB)	GHill (2)
Elmbro (EMEB)	SBKim (EMEB)	TBergman	

Accession No. ML003777130

OFFICE	PM:PD31	LA:PD31	EMEB	OGC	SC:PD31
NAME	BMozafari	THarris	SE dtd	KBarber	CCraig
DATE	11/21/00	11/16/00	05/19/00	12/13/00	12/13/00

OFFICIAL RECORD COPY

Duane Arnold Energy Center

cc:

Al Gutterman
Morgan, Lewis, & Bockius LLP
1800 M Street, N. W.
Washington, DC 20036-5869

Chairman, Linn County
Board of Supervisors
Cedar Rapids, IA 52406

Plant Manager, Nuclear
Duane Arnold Energy Center
Nuclear Management Company, LLC
3277 DAEC Road
Palo, IA 52324

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
Rural Route #1
Palo, IA 52324

Regional Administrator
U.S. NRC, Region III
801 Warrenville Road
Lisle, IL 60532-4531

Daniel McGhee
Utilities Division
Iowa Department of Commerce
Lucas Office Building, 5th floor
Des Moines, IA 50319

Michael D. Wadley
Chief Nuclear Officer
Nuclear Management Company, LLC
700 First Street
Hudson, WI 54016

Nuclear Asset Manager
Alliant Energy/IES Utilities, Inc.
3277 DAEC Road
Palo, IA 52324

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO RELIEF REQUEST MC-R008 FROM THE AMERICAN SOCIETY OF
MECHANICAL ENGINEERS (ASME) SECTION XI REQUIREMENTS

IES UTILITIES, INC.

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

In *Federal Register* Notice No.154, Volume 61, dated August 8, 1996, the Nuclear Regulatory Commission (NRC) issued a final rule amendment to its regulation, Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a. The rule incorporated by reference the 1992 edition with the 1992 addenda of Subsections IWE and IWL of Section XI of the ASME Boiler and Pressure Vessel Code (Code). Subsections IWE and IWL provide the requirements for inservice inspection (ISI) of Class CC (concrete containments), and Class MC (metallic containments) of light-water cooled power plants. The effective date for the amended rule was September 9, 1996, and it requires the licensees to incorporate the new requirements into their ISI plans and to complete the first containment inspection by September 9, 2001. However, a licensee may submit a request for relief or propose an alternative to one or more requirements of the regulation (or the endorsed code requirements) with proper justification. The provision for granting relief or authorizing an alternative is provided in the regulation pursuant to 10 CFR 50.55a (g)(6) and 10 CFR 50.55a (a)(3), respectively.

This evaluation addresses the merits of the requests for relief proposed by the licensee, IES Utilities, Inc, for its Duane Arnold Energy Center (DAEC).

2.0 EVALUATION

Relief Request MC-R008

Component Identification

Code Class: MC

Reference: Table IWE-2500-1

Examination Category: E-A

Item Number: E1.12

Description: Limited Examination

ENCLOSURE

Component Number: Drywell Stabilizer X-58A

Code Requirement: ASME Section XI, 1992 Edition, 1992 Addenda, IWE-2500-1, requires the VT-3 visual examination be performed on 100 percent of the accessible areas each interval.

Basis for Requesting Relief

During refueling outage (RFO) 16, the Drywell Stabilizer X-58A with the associated bolting was scheduled for examination. It was discovered that the well water piping associated with the 7A cooler prohibited the removal of the bolting. Without removal of the bolting, the integral attachment and the associated reinforcing structure cannot be examined. In order to perform the VT-3 visual examination, the well piping would need to be cut and rewelded into place. This would require draining of the well water system, hot work permit, welding, and additional personnel exposure to complete the work. Based on dose measurements obtained during work activities during RFO 10, dose rate in the general area is about 28 to 50 millirem per hour. Allowing 8 person-hours to perform the aforementioned activities, the total dose would be approximately 300 millirem. Examination of the Drywell Stabilizer X-58A, which includes the reinforcing structure and the integral attachment to the outside diameter of the Drywell, has only a small potential of increasing plant safety margins and a disproportionate impact on expenditure of plant manpower and radiation exposure.

Alternative Examination(s):

Pursuant to 10 CFR 50.55a(a)(3)(ii), DAEC requests relief from the VT-3 visual examinations of the reinforcing structure and internal attachment of the Drywell Stabilizer X-58A. Once per period, the General Visual Examination of the accessible surfaces will be performed. Once per interval, the associated bolting will be examined in-place under tension as allowed by Relief Request MC-R003.

Applicable Time Period

Relief is requested for the first 10-year interval of the Containment Inspection Program for DAEC.

Staff Evaluation

The licensee stated that examination of the Drywell Stabilizer X-58A, including the reinforcing structure and integral attachment to the outside of the drywell, has only a small potential of increasing plant safety margins and a disproportionate impact on expenditure of plant manpower and radiation exposure. The licensee discovered that the well water piping associated with the 7A cooler interfered with the required visual examination of the integral attachment and the associated reinforcing structure. In order to perform the required VT-3 visual examination, the well water piping would need to be cut and re-welded into place. This would require draining the well water system, completing a hot work permit, welding of piping, and exposing personnel to radiation levels to complete the work in an environment of about 28 to 50 millirem per hour. The licensee estimated that this would require 8 person-hours with a total dose of approximately 300 millirem.

In 10 CFR 50.55a(b)(2)(x)(A) of the 1992 Code of Federal Regulations (this section was amended on January 1, 1998, and is currently section 50.55a(b)(2)(ix)(A) in the 2000 edition of the Federal Code of Regulations), the NRC established a requirement for the examination of inaccessible areas of metal containments. Therein, the NRC stated that for Class MC applications, the licensee shall evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or result in degradation to such inaccessible areas. The NRC staff finds that the licensee's proposed alternative of performing general visual examination of the accessible surfaces once per examination interval meets the requirements of 10 CFR 50.55a(b)(2)(x)(A) of 1992 edition, currently section 50.55a(b)(2)(ix)(A) in the 2000 edition of the Federal Code of Regulations. Moreover, as required by the approved Relief Request MC-R003 that is described in an NRC safety evaluation (SE) dated October 19, 1999, the licensee will examine the bolting associated with the Drywell Stabilizer X-58A once per examination interval. Thus, the NRC staff finds that the licensee's proposed alternative will provide reasonable assurance of containment pressure integrity. Therefore, the licensee's request for relief is granted pursuant to 10 CFR 50.55a(a)(3)(ii) on the basis that compliance with the Code would result in a hardship without a compensating increase in the level of quality and safety.

3.0 CONCLUSION

For Relief Request MC-R008, the NRC staff concludes that compliance with the Code would result in a hardship without a compensating increase in the level of quality and safety, and that the licensee's proposed alternative will provide reasonable assurance of containment pressure integrity. Therefore, the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(ii).

Principal Contributor: H. Ashar, DE/EMEB

Dated: December 13, 2000