

April 17, 2001

Gary Van Middlesworth
Site Vice President
Duane Arnold Energy Center
Nuclear Management Company, LLC
3277 DAEC Road
Palo, IA 52324-0351

SUBJECT: DUANE ARNOLD ENERGY CENTER - ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT REGARDING EXEMPTION REQUEST TO USE THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE CASE N-640 (TAC NO. MB0394)

Dear Mr. Middlesworth:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application dated October 16, 2000, for the Duane Arnold Energy Center, requesting new pressure-temperature (P-T) limits and an exemption from certain requirements of 10 CFR Part 50, Appendix G. The new P-T limits were developed using the methodology in the ASME Boiler and Pressure Vessel Code Case N-640, "Alternative Reference Fracture Toughness for Development of P-T Limit Curves for ASME Section XI, Division 1," instead of using the methodology in 10 CFR Part 50, Appendix G.

The environmental assessment has been forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA by CLyon for/

Brenda L. Mozafari, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosure: Environmental Assessment

cc w/encl: See next page

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NAME	FLyon	THarris	CCarpenter	RHoefling	CCraig
DATE	3/29/01	4/17/01	3/29/01	4/10/01	4/16/01

ACCESSION NO. ML011090026

OFFICIAL RECORD COPY

Duane Arnold Energy Center

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UNITED STATES NUCLEAR REGULATORY COMMISSION
NUCLEAR MANAGEMENT COMPANY, LLC
DOCKET NO. 50-331
DUANE ARNOLD ENERGY CENTER
ENVIRONMENTAL ASSESSMENT AND FINDING OF
NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an exemption from certain requirements of 10 CFR Part 50, Appendix G, for Facility Operating License No. DPR-49, issued to Nuclear Management Company, LLC (NMC, or the licensee) for operation of the Duane Arnold Energy Center (DAEC), located in Linn County, Iowa.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

Title 10 of the Code of Federal Regulations (10 CFR Part 50), Appendix G, requires that pressure-temperature (P-T) limits be established for reactor pressure vessels (RPVs) during normal operating and hydrostatic or leak rate testing conditions. Specifically, 10 CFR Part 50, Appendix G, states, "The appropriate requirements on both the pressure-temperature limits and the minimum permissible temperature must be met for all conditions." Appendix G of 10 CFR Part 50 specifies that the requirements for these limits are the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, Appendix G Limits.

To address provisions of amendments to the technical specifications (TS) P-T limits, the licensee requested in its submittal dated October 16, 2000, that the staff exempt NMC from application of specific requirements of 10 CFR Part 50, Appendix G, and substitute use of ASME Code Case N-640. The license amendment request is being addressed as a separate

action. Code Case N-640 permits the use of an alternate reference fracture toughness (K_{Ic} fracture toughness curve instead of K_{Ia} fracture toughness curve) for reactor vessel materials in determining the P-T limits. Since the K_{Ic} fracture toughness curve shown in ASME Section XI, Appendix A, Figure A-2200-1 (the K_{Ic} fracture toughness curve) provides greater allowable fracture toughness than the corresponding K_{Ia} fracture toughness curve of ASME Section XI, Appendix G, Figure G-2210-1 (the K_{Ia} fracture toughness curve), using Code Case N-640 for establishing the P-T limits would be less conservative than the methodology currently endorsed by 10 CFR Part 50, Appendix G and, therefore, an exemption to apply the Code Case would be required by 10 CFR 50.60(b).

The Need for the Proposed Action:

The proposed exemption is needed to allow the licensee to implement ASME Code Case N-640 in order to revise the method used to determine the reactor coolant system (RCS) P-T limits, because continued use of the present curves unnecessarily restricts the P-T operating window. Since the RCS P-T operating window is defined by the P-T operating and test limit curves developed in accordance with the ASME Section XI, Appendix G procedure, continued operation of DAEC with these P-T curves without the relief provided by ASME Code Case N-640 would unnecessarily require the RPV to maintain a temperature exceeding 212 degrees Fahrenheit in a limited operating window during the pressure test. Consequently, steam vapor hazards would continue to be one of the safety concerns for personnel conducting inspections in primary containment. Implementation of the proposed P-T curves, as allowed by ASME Code Case N-640, does not significantly reduce the margin of safety and would eliminate steam vapor hazards by allowing inspections in primary containment to be conducted at a lower coolant temperature.

In the associated exemption, the staff has determined that, pursuant to 10 CFR 50.12(a)(2)(ii), the underlying purpose of the regulation will continue to be served by the implementation of this Code Case.

Environmental Impacts of the Proposed Action:

The NRC has completed its evaluation of the proposed action and concludes that there are no significant adverse environmental impacts associated with the proposed action.

The proposed action will not significantly increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released offsite, and there is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological environmental impacts, the proposed action does not involve any historic sites. It does not affect nonradiological plant effluents and has no other environmental impact. Therefore, there are no significant nonradiological impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the “no-action” alternative). Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar.

Alternative Use of Resources:

This action does not involve the use of any resources not previously considered in the "Final Environmental Statement Relating to the Operation of the Duane Arnold Energy Center," dated March 1973.

Agencies and Persons Consulted:

In accordance with its stated policy, on March 26, 2001, the staff consulted with the Iowa State official, Mr. D. McGhee of the Department of Public Health, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated October 16, 2000. Documents may be examined, and/or copied for a fee, at the NRC's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records will be accessible electronically from the ADAMS Public Library component on the NRC Web site, <http://www.nrc.gov> (the Electronic Reading Room).

Dated at Rockville, Maryland, this 17th day of April 2001.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Carl F. Lyon, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation