

October 10, 2000

Mr. Mike Reandeau  
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P.O. Box 678  
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Clinton, IL 61727

SUBJECT: CLINTON POWER STATION - ENVIRONMENTAL ASSESSMENT (TAC NOS.  
MA9841 AND MA9862)

Dear Mr. Reandeau:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for exemptions and a license amendment dated August 25, 2000, as supplemented September 21, 2000. The proposed exemptions and license amendment would revise the reactor vessel pressure/temperature limits.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

***/RA/***

Jon B. Hopkins, Senior Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosure: Environmental Assessment

cc w/encl: See next page

Mike Reandeau

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UNITED STATES NUCLEAR REGULATORY COMMISSION

AMERGEN ENERGY COMPANY, LLC

50-461

CLINTON POWER STATION

ENVIRONMENTAL ASSESSMENT AND FINDING OF

NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the NRC) is considering issuance of a license amendment to and exemptions from certain requirements of Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Section 50.60(a) for Facility Operating License No. NPF-62, issued to AmerGen Energy Company, LLC (the licensee), for operation of the Clinton Power Station (CPS), located in DeWitt County, Illinois.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

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.

The licensee requested in its submittal that the staff exempt CPS from application of specific requirements of 10 CFR Part 50, Section 50.60(a) and Appendix G, and substitute use of ASME Code Cases N-588 and N-640. Code Case N-588 permits the postulation of a circumferentially-oriented flaw (in lieu of an axially-oriented flaw) for the evaluation of the circumferential welds in RPV P-T limit curves. 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 pressure stresses on a circumferentially-oriented flaw are lower than the pressure stresses on an axially-oriented flaw by a factor of 2, using Code Case N-588 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. Likewise, 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 also be required by 10 CFR 50.60. It should be noted that, although Code Case N-640 was incorporated into the ASME Code recently, an exemption is still needed because the proposed P-T limits (excluding Code Cases N-588 and N-640) are based on the 1989 edition of the ASME Code.

The new P/T limits calculated by the methodologies that are subject to the exemptions, are requested to be incorporated into the CPS Technical Specifications by the associated proposed license amendment.

The proposed action is in accordance with the licensee's application for exemption and amendment dated August 25, 2000, as supplemented September 21, 2000.

The Need for the Proposed Action:

The revised P/T limits are desired to allow required reactor vessel hydrostatic and leak tests to be performed at a significantly lower temperature. These tests are to be performed during the upcoming refueling outage scheduled to commence in October, 2000. The lower temperature for the tests can reduce refueling outage critical path time by reducing or eliminating the heatup time to achieve required test conditions.

Environmental Impacts of the Proposed Action:

The Commission has evaluated the proposed action and concludes that the exemptions and associated license amendment described above would provide an adequate margin of safety against brittle failure of the CPS reactor vessel. The lower temperature, is also safer for test inspectors due to lower ambient drywell temperature and could result in lower radiological dose due to increased inspection effectiveness at the lower temperature.

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 off site, 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 non-radiological impacts, the proposed action does not involve any historic sites. It does not affect non-radiological plant effluents and has no other environmental impact. Therefore, there are no significant non-radiological environmental 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 for the Clinton Power Station.

Agencies and Persons Consulted:

In accordance with its stated policy, on September 28, 2000, the staff consulted with the Illinois State official, Frank Niziolek, of the Illinois Department of Nuclear Safety, 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 letters dated August 25 and September 21, 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 10<sup>TH</sup> day of October 2000.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Jon B. Hopkins, Senior Project Manager, Section 2  
Project Directorate III  
Division of Licensing Project Management  
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