October 23, 1996

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KWichman	

Mr. Paul J. Telthorst
Director - Licensing
Clinton Power Station
P. O. Box 678
Mail Code V920
Clinton, IL 61727

SUBJECT: ISSUANCE OF AMENDMENT NO. 109 TO FACILITY OPERATING LICENSE NO. NPF-62 - CLINTON POWER STATION, UNIT 1 (TAC NO. M94887)

Dear Mr. Telthorst:

The U. S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 109 to Facility Operating License No. NPF-62 for the Clinton Power Station (CPS), Unit No. 1. The amendment is in response to your application dated February 22, 1996 (U-602551), and supplemented by letters dated July 22 (U-602612) and September 20, 1996 (U-602641).

The amendment revises CPS Technical Specification 3.4.11, "Reactor Coolant System (RCS) Pressure and Temperature (P/T) Limits," to incorporate specific P/T limits for the bottom head region of the reactor vessel, separate and apart from the core beltline region of the reactor vessel.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

Original signed by:

Douglas V. Pickett, Senior Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-461

DF01 1/1

Enclosures: 1. Amendment No. 109 to NPF-62
2. Safety Evaluation
cc w/encls: See next page
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OFFICE	LA:PDIII-3	E	PM:PDIII-3	E	SC:EMCB		OGC	
NAME	DFoster-Curseen		DPickett		KWichman*		MZobler**	
DATE	10/23/96		10/23/96		09/30/96		10/16/96	

*See KWichman to GMarcus memorandum of 9/30/96
**See previous concurrence

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 23, 1996

Mr. Paul J. Telthorst
Director - Licensing
Clinton Power Station
P. O. Box 678
Mail Code V920
Clinton, IL 61727

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Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosures: 1. Amendment No. 109 to NPF-62
2. Safety Evaluation

cc w/encls: See next page

Mr. Paul J. Telthorst
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Clinton Power Station
Unit No. 1

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ILLINOIS POWER COMPANY, ET AL.

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 109
License No. NPF-62

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Illinois Power Company* (IP), and Soyland Power Cooperative, Inc. (the licensees) dated February 22, 1996, and supplemented by letters dated July 22 and September 20, 1996, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-62 is hereby amended to read as follows:

*Illinois Power Company is authorized to act as agent for Soyland Power Cooperative, Inc. and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

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(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 109 , are hereby incorporated into this license. Illinois Power Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Douglas V Pickett

Douglas V. Pickett, Senior Project Manager
Project Directorate III-3
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 23, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 109

FACILITY OPERATING LICENSE NO. NPF-62

DOCKET NO. 50-461

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change.

Remove Pages	Insert Pages
3.4-32	3.4-32

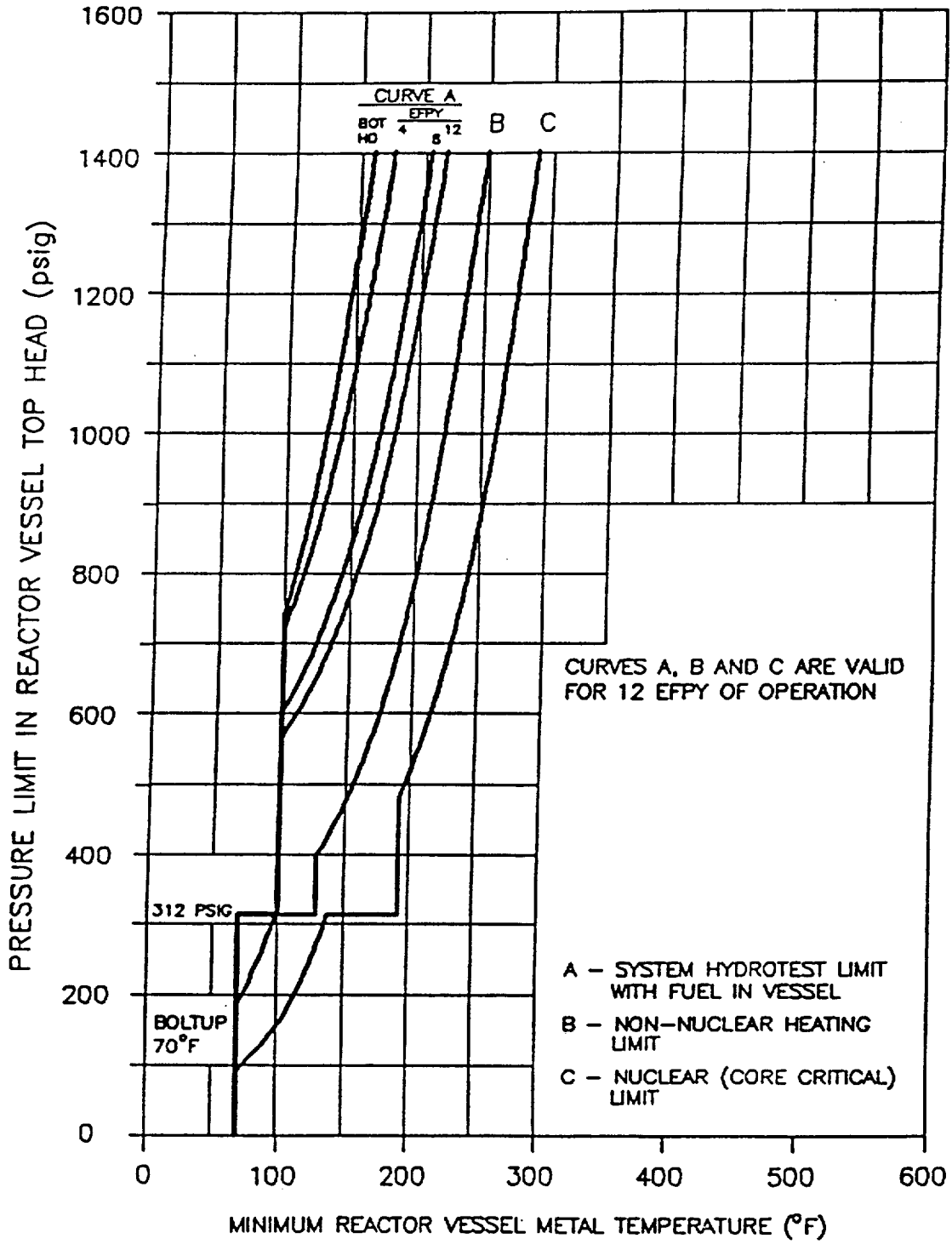

Figure 3.4.11-1 (page 1 of 1)
RCS Pressure Versus Minimum Reactor Vessel Metal Temperature

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 109 TO FACILITY OPERATING LICENSE NO. NPF-62

ILLINOIS POWER COMPANY, ET AL.

CLINTON POWER STATION, UNIT NO. 1

DOCKET NO. 50-461

1.0 INTRODUCTION

By letter dated February 22, 1996, Illinois Power (IP, the licensee) requested review and approval of its application for amendment of the Clinton Power Station (CPS) Operating License (License No. NPF-62) to incorporate a proposed change to the CPS Technical Specifications (TS) Appendix A. IP proposed to revise TS 3.4.11, "Reactor Coolant System (RCS) Pressure and Temperature (P/T) Limits," to incorporate a P/T Limits curve for the bottom head region of the reactor vessel, separate and apart from the core beltline region of the reactor vessel. The new P/T Limits curve will be used during hydrostatic pressure tests and leak rate (HP/LR) testing. The application was supplemented by letters dated July 22 and September 20, 1996, in response to Requests for Additional Information from the staff. These subsequent submittals provided clarifying information and did not alter the staff's initial finding that the proposed changes involve no significant hazards consideration.

The staff has reviewed the information provided by the licensee in the documents listed above. The staff has determined that the licensee used methodologies consistent with or conservative to the requirements of Title 10 of the Code of Federal Regulations Part 50 (10 CFR 50), Appendix G; Appendix G to Section XI of the American Society of Mechanical Engineers (ASME) Code; and Standard Review Plan (SRP, NUREG-0800) Section 5.3.2. The staff also determined that the methodology proposed by the licensee for monitoring the vessel lower head, beltline, and flange temperatures was acceptable.

2.0 EVALUATION

The requirements and guidelines which have been established or endorsed by the NRC concerning pressure vs. temperature limitations on reactor vessel environment provide adequate margins of safety against brittle fracture of the reactor vessel during all modes of operation. As addressed in 10 CFR 50, Appendix G, two regions of the reactor vessel are identified relating to the establishment of these limitations (i.e., the closure flange region and the vessel beltline region). Each of these regions is currently controlling in different pressure/temperature regimes for the CPS HP/LR testing curve.

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The licensee has proposed consideration of a third region of the vessel, the lower head, separately from the two mentioned in 10 CFR 50, Appendix G. The licensee has asserted that this separation is valid due to the thermohydraulic conditions of the water in the vessel during HP/LR testing. The water in the vessel lower head is separated from the water in contact with the vessel beltline and flange regions by the reactor baffle plate. The water in the regions above the baffle plate is heated by decay heat from the reactor core, while the water in the lower head is cooled due to the injection of control rod drive water for vessel pressurization. With little or no circulation through the recirculation pump loops, these regions are therefore maintained at different temperatures during the HP/LR testing procedure.

The licensee has proposed to implement an additional HP/LR testing curve in the CPS TS based upon the nil-ductility transition reference temperature (RT_{ndt}) for the limiting material of the reactor vessel lower head. The licensee submitted the proposed lower head HP/LR testing curve in their submittal on February 22, 1996. Additional information on the material properties of the lower vessel head materials, the methodology of the licensee's lower head stress analysis, and information to support the licensee's ability to accurately monitor the lower head and vessel beltline temperatures was submitted in the letters dated July 22 and September 20, 1996.

In addition, the licensee has proposed to modify the Bases for TS 3.4.11 to implement a method for monitoring the vessel lower head, beltline and flange temperatures during HP/LR testing. The licensee has proposed to assess the temperature of the vessel lower head by using the lower of the two temperature values given by the external bottom head thermocouple and the bottom head drain temperature. The vessel head flange, vessel shell flange, and the reactor recirculation loop temperature will be used to ensure compliance with the P/T curve applicable to the beltline and flange regions.

The regulatory guidelines concerning the development of P/T Limits are contained in Appendix G to 10 CFR 50 and provide the general basis for these limits. The requirements of 10 CFR 50, Appendix G specifically state that the P/T Limits for a vessel must be at least as conservative as limits obtained by following the methods of analysis and the margins of safety of Appendix G to Section XI of the ASME Code. The staff has also established guidance for the development of P/T limits in SRP Section 5.3.2.

The staff has assessed the information provided by the licensee to support the proposed vessel lower head P/T limits curve for HP/LR testing. Independent calculations were performed in a manner consistent with SRP Section 5.3.2 and Appendix G to Section XI of the ASME Code. The staff determined that 1) the licensee's calculated value for the applied stress intensity factor was conservative; 2) the licensee's calculated reference stress intensity factor (K_{Ia}) for the limiting lower head material (plate heat number C4027-1) was consistent with Appendix G of the ASME Code; and 3) the licensee's P/T limits curve for the vessel lower head during HP/LR testing was at least as conservative as that which would be generated using the methodologies of SRP Section 5.3.2 and Appendix G of the ASME Code.

In conclusion, the staff has reviewed the information provided by the licensee and has determined that the licensee used methodologies consistent with or conservative to 10 CFR 50, Appendix G; Appendix G to Section XI of the ASME Code; and SRP Section 5.3.2. The staff also determined that the methodology proposed by the licensee for inclusion in the Bases for TS 3.4.11 concerning monitoring the vessel lower head, beltline, and flange temperatures was acceptable. Therefore, the staff finds the licensee's proposed changes acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois state official was notified of the proposed issuance of the amendment. The state official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (61 FR 18169). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Matthew Mitchell

Date: October 23, 1996