March 11, 1996

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Mr. Michael W. Lyon
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Clinton Power Station
P. O. Box 678
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Clinton, IL 61727

SUBJECT: ISSUANCE OF AMENDMENT NO. 103 TO FACILITY OPERATING LICENSE NO. NPF-62 - CLINTON POWER STATION, UNIT 1 (TAC NO. M94311)

Dear Mr. Lyon:

The U. S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 103 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1. The amendment is in response to your application dated December 14, 1995 (U-602499).

The amendment modifies Technical Specification 3.4.2, "Flow Control Valves (FCVs)," by deleting Surveillance Requirement (SR) 3.4.2.2. SR 3.4.2.2 required periodic verification that the average rate of movement of each reactor recirculation system FCV was limited to less than or equal to 11% per second in the opening and closing directions.

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, Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-461

Enclosures: 1. Amendment No. 103 to NPF-62
2. Safety Evaluation

cc w/encls: See next page

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

March 11, 1996

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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. 103
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 December 14, 1995, 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.

(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. 103 , 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, 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: March 11, 1996

ATTACHMENT TO LICENSE AMENDMENT NO. 103

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
3.4-6	3.4-6
3.4-7	3.4-7

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.2 Flow Control Valves (FCVs)

LCO 3.4.2 A recirculation loop FCV shall be OPERABLE in each operating recirculation loop.

APPLICABILITY: MODES 1 and 2.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each FCV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required FCVs inoperable.	A.1 Lock up the FCV.	4 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.2.1	Verify each FCV fails "as is" on loss of hydraulic pressure at the hydraulic unit.	18 months

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 103 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 December 14, 1995, Illinois Power Company, the licensee, submitted proposed changes to the technical specifications (TSs) of the Clinton Power Station (CPS). The licensee proposed modifying TS 3.4.2, "Flow Control Valves (FCVs)," by deleting Surveillance Requirement (SR) 3.4.2.2. SR 3.4.2.2 requires periodic verification that the average rate of each reactor recirculation system FCV is limited to less than or equal to 11% per second in the opening and closing directions.

The SR was originally included in the TSs because it was an assumption of the transient analyses for recirculation loop control failures that resulted in both recirculation loop FCVs either opening or closing simultaneously. However, during the fifth refueling outage (Spring 1995), the FCV control system was modified such that failure modes which could result in both FCVs opening or closing simultaneously were eliminated from the CPS plant design. As a result of this modification, the licensee has determined that SR 3.4.2.2 is no longer applicable and has proposed deleting it.

2.0 EVALUATION

The reactor recirculation system is used to control reactivity over a wide span of reactor power by varying the recirculation flow rate to control the void content of the moderator. The two loop reactor recirculation system controls flow rate through a two-speed reactor recirculation pump and a flow control valve. Each of the FCVs has an individual controller that can be operated manually or placed in the automatic mode. When in the automatic mode, both FCVs can be operated jointly using a master controller.

Operation of the FCVs can have a major impact on loss of coolant accident (LOCA) and plant transient analyses. FCVs are designed to fail "as is" when LOCA conditions are present. SR 3.4.2.1 requires periodic verification that the FCVs will fail "as is." Upon receipt of a high drywell pressure signal, electronic circuits will inhibit motion of the FCV so that the valves maintain their preexisting position.

Transient analyses included in the Updated Safety Analyses Report (USAR) assumed failures of the recirculation flow controllers. The single failure of an individual FCV controller could result in a single FCV suddenly opening or closing at power. In addition, the single failure of the master controller could result in simultaneous opening or closing of both FCVs. The CPS has been designed to handle these transients as described in USAR Section 15.3.2 (inadvertent closure of the FCVs) and Section 15.4.5 (inadvertent opening of the FCVs).

The transient analyses is dependent upon the rate of FCV opening or closing. The FCVs are physically capable of opening or closing very rapidly. USAR Section 15.3.2 assumes that a single FCV closes at a rate of 60% per second. This speed is the rate at which the FCV would close when limited solely by valve hydraulics. Similarly, USAR Section 15.4.5 assumes that a single FCV opens at a rate of 30% per second. This speed is also the rate at which the FCV would open when limited solely by valve hydraulics. While these numbers are considered theoretical values, the hydraulic limitation of FCV velocity was verified during initial plant startup as part of the Initial Startup Testing program. This testing found that the velocity of the FCVs varied from 21.7% to 23% per second in the opening direction and from 19.6% to 21.5% per second in the closing direction.

Failure of the master flow controller could result in the simultaneous opening or closing of both FCVs. For this transient, the USAR analyses relied upon the FCV movement to be less than or equal to 11% of stroke per second in both the opening and closing directions. This limit is controlled by an electronic limiter of the electrical demand signal sent to the FCV actuator. This was a valid assumption for the original FCV control system design since multiple failures involving the master flow controller as well as each FCV's individual controller would have to occur for both FCVs to close at the faster rates described above. Therefore, Technical Specification SR 3.4.2.2 was imposed to periodically verify that the average rate of simultaneous FCV movement is within the USAR assumptions, i.e., less than or equal to 11% of stroke per second in both the opening and closing directions.

The original design of the Clinton Power Station allowed for three modes of automatic control and one mode of manual control of the recirculation loops. The two highest levels of automatic control modulated both FCVs together while the lowest level of automatic control and the manual control mode utilize individual controllers for each FCV. However, control room operators at the CPS have historically not used automatic modes of operation and relied upon manual control. Therefore, during the fifth refueling outage (Spring 1995), the automatic modes of control were eliminated. This modification eliminated use of the master flow controller such that flow in each reactor recirculation loop is now controlled by use of individual FCV controllers.

Elimination of the master flow controller only impacts the single failure assumptions of the transient analyses. Elimination of the master flow controller prevents simultaneous opening or closing of the FCVs as a result of a single active failure. Accordingly, the licensee has revised the USAR transient analyses by removing this single failure from consideration. In

addition, since SR 3.4.2.2 is specifically associated with the single active failure of the master flow controller, the licensee has proposed to eliminate it because it is no longer applicable to the CPS design.

The licensee also cited operational considerations in their desire to eliminate SR 3.4.2.2. A limited amount of preventive and corrective maintenance work can be performed on components of the reactor recirculation loops with the plant at power. However, any work that can potentially affect the operability of the FCVs will require performance of SR 3.4.2.2 which can only be performed with the plant shut down. Licensee Event Report (LER) 95-06 describes a situation when maintenance was performed at power and the appropriate post maintenance testing could not be performed. Part of the licensee's corrective actions in response to LER 95-06 was to eliminate or revise SR 3.4.2.2 so that the TS surveillance requirements more closely reflect plant design.

The staff has reviewed the licensee's proposal and finds that with the elimination of the master flow controller, a single active failure can no longer result in the simultaneous opening or closing of both FCVs. The staff also concludes that SR 3.4.2.2 is no longer applicable to the CPS design and may be eliminated. The single failure analyses of a single FCV opening or closing is unaffected by this modification and there is no need to impose additional requirements. Therefore, the staff finds the licensee's proposal 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 1630). 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: Douglas Pickett

Date: March 11, 1996