

February 20, 1987

Docket No.: 50-461

Mr. Frank A. Spangenberg  
Manager - Licensing and Safety  
Clinton Power Station  
P. O. Box 678  
Mail Code V920  
Clinton, Illinois 61727

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Dear Mr. Spangenberg:

SUBJECT: CHANGES TO THE TECHNICAL SPECIFICATIONS TO PERMIT CONTROL ROOM  
HVAC SYSTEM AIR FLOW RATE TO BE INCREASED

RE: CLINTON POWER STATION, UNIT NO. 1

The Commission has issued the enclosed Amendment No. 1 to Facility Operating License No. NPF-55 for the Clinton Power Station, Unit No. 1. This amendment consists of changes to the Technical Specifications (TSs) in response to your application dated January 20, 1987.

This amendment will permit the control room Heating, Ventilating and Air Conditioning (HVAC) system air flow rate to be increased from 62,500 ±10% cfm to 64,000 ±10% cfm.

A copy of our Safety Evaluation is also enclosed. Notice of Issuance and Final Determination of No Significant Hazards Consideration and Opportunity for a Hearing will be included in the Commission's biweekly Federal Register notice.

Sincerely,

/s/ Robert E. Martin for  
Walter R. Butler, Director  
BWR Project Directorate No. 4  
Division of BWR Licensing

Enclosures:

1. Amendment No. 1 to License No. NPF-55
2. Safety Evaluation

cc w/enclosures:  
See next page

8703020135 870220  
PDR ADOCK 05000461  
PDR

PD#4/LAV  
MO'Brien  
2/12/87

PD#4/PM  
BSiegel:1b  
1/14/87

~~FOB/D  
DVassallo  
1/187~~

OGC  
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2/17/87  
PD#4/D  
WButler  
2/12/87

2/19/87

*See  
Consolidation  
etc*



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

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Walter R. Butler, Director  
BWR Project Directorate No. 4  
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See next page

Mr. Frank A. Spangenberg  
Illinois Power Company

Clinton Power Station  
Unit 1

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Springfield, Illinois 62704



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

ILLINOIS POWER COMPANY  
SOYLAND POWER COOPERATIVE, INC.  
WESTERN ILLINOIS POWER COOPERATIVE, INC.  
DOCKET NO. 50-461  
CLINTON POWER STATION, UNIT NO. 1  
AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 1  
License No. NPF-55

1. The Nuclear Regulatory Commission (the Commission) has found that
  - A. The application for amendment by Illinois Power Company, Soyland Power Cooperative, Inc., and Western Illinois Power Cooperative, Inc. (the licensees) dated January 20, 1987, 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-55 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 1, are hereby incorporated into this license. Illinois Power Company shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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PDR ADDCK 05000461  
P PDR

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

FOR THE NUCLEAR REGULATORY COMMISSION

/s/ Robert E. Martin for  
Walter R. Butler, Director  
BWR Project Directorate No. 4  
Division of BWR Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 20, 1987

PD#4/LA  
MWB  
2/13/87

PD#4/PM  
BSiegel:lb  
2/13/87

OGC  
Pirfo  
2/19/87

PD#4/D  
WButler  
2/20/87

2/19/87

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

FOR THE NUCLEAR REGULATORY COMMISSION

*Robert E. Martin*  
Walter R. Butler, Director  
BWR Project Directorate No. 4  
Division of BWR Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: February 20, 1987

ATTACHMENT TO LICENSE AMENDMENT NO. 1

FACILITY OPERATING LICENSE NO. NPF-55

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. Overleaf page(s) provided to maintain document completeness.\*

Remove

3/4 7-3  
3/4 7-4

3/4 7-5  
3/4 7-6

Insert

3/4 7-3\*  
3/4 7-4

3/4 7-5  
3/4 7-6

## PLANT SYSTEMS

### 3/4.7.2 CONTROL ROOM VENTILATION SYSTEM

#### LIMITING CONDITION FOR OPERATION

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3.7.2 Two independent Control Room Ventilation Systems shall be OPERABLE.†

APPLICABILITY: All OPERATIONAL CONDITIONS and \*.

#### ACTION:

- a. In OPERATIONAL CONDITION 1, 2 or 3 with one Control Room Ventilation System inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.
- b. In OPERATIONAL CONDITION 4, 5, or \*:
  1. With one Control Room Ventilation System inoperable, restore the inoperable system to OPERABLE status within 7 days or initiate and maintain operation of the OPERABLE system in the high radiation mode of operation.
  2. With both Control Room Ventilation Systems inoperable, suspend CORE ALTERATIONS, handling of irradiated fuel in the secondary containment and operations with a potential for draining the reactor vessel.
- c. The provisions of Specification 3.0.3 are not applicable in OPERATIONAL CONDITION \*.

#### SURVEILLANCE REQUIREMENTS

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4.7.2 Each Control Room Ventilation System shall be demonstrated OPERABLE:†

- a. At least once per 12 hours by verifying that the control room air temperature is less than or equal to 86°F.
- b. At least once per 31 days on a STAGGERED TEST BASIS by initiating, from the control room, flow through the HEPA filters and charcoal adsorbers and verifying that the makeup filter system operates continuously for at least 10 hours with the heaters operating; and with flow through the recirculation charcoal adsorber for at least 15 minutes.

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\*When irradiated fuel is being handled in the secondary containment.

†The operability requirement for the Control Room Ventillation System is suspended until the intial fuel load is completed and prior to placing the reactor mode switch in STARTUP for the initial criticality.

PLANT SYSTEMS

CONTROL ROOM VENTILATION SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

4.7.2 (Continued)

- c. At least once per 18 months or (1) after any structural maintenance on the makeup or recirculation HEPA filters or charcoal adsorber housings, or (2) following painting, fire or chemical release in any ventilation zone communicating with the makeup or recirculation filter system by:
1. Verifying that the makeup filter system satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978\*, and the system flow rate is 3000 cfm  $\pm$  10%.
  2. Verifying that the recirculation filter system satisfies bypass leakage testing acceptance criteria of less than 2% total bypass and uses test procedure guidance in Regulatory Positions C.5.a and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978\*, and the system flow rate is 64,000 cfm  $\pm$  10%.
  3. Verifying, within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978\*, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978\*, for a methyl iodide penetration of less than 0.175% for makeup filter system carbon adsorber and 6% for recirculation filter system carbon adsorber when tested; in accordance with ASTM D3803-79 methods, with the following parameters:

Make Up Filter System

- |                      |            |
|----------------------|------------|
| a) Bed Depth         | - 4 inches |
| b) Velocity          | - 40 fpm   |
| c) Temperature       | - 30°C     |
| d) Relative Humidity | - 70%      |

Recirculation Filter System

- |                      |            |
|----------------------|------------|
| a) Bed Depth         | - 2 inches |
| b) Velocity          | - 80 fpm   |
| c) Temperature       | - 30°C     |
| d) Relative Humidity | - 70%      |

4. Verifying flow rate of 3000 cfm  $\pm$  10% for the makeup filter system and 64,000 cfm  $\pm$  10% for the recirculation filter system during operation when tested in accordance with ANSI N510-1980.

\*ANSI N510-1980 shall be used in place of ANSI N510-1975 as referenced in Regulatory Guide 1.52, Revision 2, March 1978.

## PLANT SYSTEMS

### CONTROL ROOM VENTILATION SYSTEM

#### SURVEILLANCE REQUIREMENTS (Continued)

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#### 4.7.2 (Continued)

- d. After every 720 hours of charcoal adsorber operation, by verifying within 31 days after removal, that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978\*, meets the laboratory testing criteria of Regulatory Position C.6.a of Regulatory Guide 1.52, Revision 2, March 1978\*, for a methyl iodide penetration of less than 0.175% for the makeup filter system carbon adsorber and 6% for the recirculation filter system carbon adsorber when tested; in accordance with ASTM D3803-70 methods, with the following parameters:

##### Make Up Filter System

- |                      |   |          |
|----------------------|---|----------|
| a) Bed Depth         | - | 4 inches |
| b) Velocity          | - | 40 fpm   |
| c) Temperature       | - | 30°C     |
| d) Relative Humidity | - | 70%      |

##### Recirculation Filter System

- |                      |   |          |
|----------------------|---|----------|
| a) Bed Depth         | - | 2 inches |
| b) Velocity          | - | 80 fpm   |
| c) Temperature       | - | 30°C     |
| d) Relative Humidity | - | 70%      |

- e. At least once per 18 months by:
1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches Water Gauge while operating the makeup filter system at a flow rate of 3000 cfm  $\pm$  10%.
  2. Verifying that on a high chlorine actuation and a manual initiation test signal, the system automatically switches to the chlorine mode of operation and the dampers close within 2 seconds.
  3. Verifying that the control room leak rate is limited to  $<$  4000 cfm  $\pm$  10% at  $\geq$  1/8-inch Water Gauge (W.G.) with respect to adjacent areas.
  4. Verifying that on a smoke mode actuation test signal, the system automatically switches to the smoke mode of operation at a flow rate less than or equal to 64,000 cfm  $\pm$  10%.
  5. Verifying that on a high radiation actuation test signal, the system automatically switches to the high radiation mode of operation and

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\*ANSI N510-1980 shall be used in place of ANSI N510-1975 as referenced in Regulatory Guide 1.52, Revision 2, March 1978.

## PLANT SYSTEMS

### CONTROL ROOM VENTILATION SYSTEM

#### SURVEILLANCE REQUIREMENTS (Continued)

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##### 4.7.2 (Continued)

the control room is maintained at a positive pressure of at least 1/8-inch W.G. relative to the outside atmosphere during system operation at a flow rate less than or equal to 3000 cfm.

6. Verifying that the makeup filters heaters dissipate  $16 \pm 1.6$  kW when tested in accordance with ANSI N510-1980.
- f. After each complete or partial replacement of a HEPA filter bank in the makeup filter system, by verifying that the HEPA filter bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% in accordance with ANSI N510-1980 while operating the system at a flow rate of 3000 cfm  $\pm$  10%.
- g. After each complete or partial replacement of a charcoal adsorber bank in the makeup or recirculation filter systems, by verifying that the charcoal adsorber bank satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% for the makeup filter system and 2% total bypass leakage for the recirculation filter system in accordance with ANSI N510-1980 for a halogenated hydrocarbon refrigerant test gas while operating the makeup system at a flow rate of 3000 cfm  $\pm$  10% and the recirculation filter system at a flow rate of 64,000  $\pm$  10%.
- h. At least once per 18 months by verifying that the air inleakage rate into the negative pressure portions of the Main Control Room Ventilation System ductwork located outside the Main Control Room habitability boundary between fan OVC04CA(B) and isolation dampers OVC03YA(B) inclusive, and fire dampers OVC042YA(E), OVC042YB(F), OVC042YC(G) and OVC042YD(H) to be  $< 650$  cfm when tested in accordance with an NRC-approved test method. In addition, visually verify the integrity of the Recirculation Filter Housing flexible connection to the fan.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 7 TO FACILITY OPERATING LICENSE NO. NPF-55

ILLINOIS POWER COMPANY

SOYLAND POWER COOPERATIVE, INC.

WESTERN ILLINOIS POWER COOPERATIVE, INC.

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT NO. 1

1.0 INTRODUCTION

By letter dated January 20, 1987, Illinois Power Company, Soyland Power Cooperative, Inc., and Western Illinois Power Cooperative, Inc. (the licensees) requested an amendment to Facility Operating License No. NPF-55 for the Clinton Power Station, Unit No. 1. The proposed amendment would increase the Clinton control room heating ventilating and air conditioning (HVAC) system air flow rate to 64,000 cfm  $\pm 10\%$  from the currently specified 62,500 cfm  $\pm 10\%$ . The proposed new air flow rate is based on the pre-operational flow test results with the as-built configuration of the control room HVAC system.

2.0 EVALUATION

The control room HVAC system consists of two fully redundant trains of air conditioning units, recirculation filter units, fans, humidifiers, ductwork and isolation dampers. Each train has a parallel 4000 cfm standby makeup air filtration unit containing fans, electric heaters, demisters, high efficiency particulate air filter (HEPA), and charcoal adsorbers. The Control Room HVAC system is designed to maintain the control room under a positive pressure with a suitable environment for equipment operation and safe occupancy of the control room under all plant operating conditions.

In the current version of the Clinton Final Safety Analysis Report (FSAR) (through Amendment No. 38) the licensee has identified 62,500 cfm as the design air flow rate through the recirculation air filter unit in the control room HVAC system. This air flow rate (62,500 cfm  $\pm 10\%$ ) is based on calculated air flows using expected flow resistance in the system. This value was subsequently used in the Clinton Technical Specifications as a preliminary value. A measured value was not available, since pre-operational flow tests on the as-built control room HVAC system were not performed prior to issuance of the Low Power Operating License. As indicated in Supplement No. 7 to the Clinton SER, the tests were deferred until prior to initial criticality. The proposed 64,000 cfm  $\pm 10\%$  air flow rate is representative of the as-built configuration of both trains of the control room HVAC system. It is based on the results of the pre-operational air flow tests that since have been performed.

The recirculation air flow rate through the filter unit is directly proportional to the iodine protection factor (IPF). The increased air flow rate from 62,500 cfm to 64,000 cfm (at the same inleakage rate and filter efficiency) raises the IPF by approximately 2 percent. Therefore, the proposed increase of recirculation air flow rate is more conservative and does not relax the current requirements for protection of the control room operators as required in General Design Criterion 19 of Appendix A to 10 CFR 50. Hence, we find that the proposed change is acceptable.

### 3.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

#### State Consultation

In accordance with the Commission's regulations, consultation was held with the State of Illinois, Department of Nuclear Safety by telephone. The State had no comment on this proposed amendment.

#### Response to Comments

No comments were received in response to the Federal Register Notice of January 27, 1987 (52 FR 2812).

#### No Significant Hazards Consideration Determination

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a proposed license amendment involves no significant hazards considerations if operation of the facility in accordance with the proposed amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The thyroid dose for control room operators resulting from the proposed increase in the control room HVAC flow rate has been recalculated. The proposed increase in the system flow rate results in a slight decrease in calculated thyroid dose to control room operators due to recirculating a higher percentage of control room air through the filter unit (charcoal adsorbers). Therefore, this proposed amendment does not involve a significant increase in the consequences of an accident previously evaluated. Since there is no change in equipment or procedures for this system this change does not involve a significant increase in the probability of an accident previously evaluated.

There are no changes to plant equipment or plant procedures, except for procedures test acceptance criteria. The only affect of the change on plant safety is the small improvement in the iodine protection factor and the slight decrease in chloride removal capability. These affects are enveloped by previously evaluated accidents. The amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

Although the proposed amendment will result in an increase in the control room HVAC system flow rate to 64,000 cfm, the initial control room design was for a two unit control room utilizing a recirculation flow rate of approximately 71,000 cfm. The increased flow rate will result in an overall decrease in thyroid dose and a slight decrease in chloride removal (approximately 2%) from the values described in the Final Safety Analysis Report. The slight decrease in chloride removal capability is still well within acceptable limits. Therefore, this change does not involve a significant reduction in the margin of safety.

The staff has determined, based on the review of the licensee's submittal that operation of the facility in accordance with the proposed amendment would not involve a significant reduction in the margin of safety and that:

- (1) Operation of the facility in accordance with the proposed amendment would not significantly increase the probability or consequences of an accident previously evaluated.
- (2) Operation of the facility in accordance with the proposed amendment would not create the possibility of a new or different kind of accident from any accident previously evaluated.
- (3) Operation of the facility in accordance with the proposed amendment would not involve a significant reduction in a margin of safety.

Therefore, the staff concludes that this amendment involves no significant hazards considerations.

#### 4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The 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 made a final no significant hazards consideration finding with respect to this amendment. Accordingly, this 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 nor environmental assessment need be prepared in connection with the issuance of this 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, and

(2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and the security nor to the health and safety of the public.

Principal Contributor: J. Lee

Dated: February 20, 1987