February 22, 1991

Docket No. 50-461

DISTRIBUTION
~~Docket File~~
NRC & Local PDRs
PD33 Reading
BBoger
JZwolinski
JHannon
PKreutzer
AGody,Jr.
OGC-OWFN
DHagan
GHill (4)
Wanda Jones
JCalvo
CMcCracken
JKudrick
JPulsipher
ACRS (10)
GPA/PA
OC/LFMB
PD33 Gray

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

Dear Mr. Spangenburg:

SUBJECT: ISSUANCE OF AMENDMENT NO. 57 TO FACILITY OPERATING LICENSE NO. NPF-62 (TAC NO. 79378)

The Commission has issued the enclosed Amendment No. 57 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1. This amendment is in response to your application dated January 18, 1991.

The amendment revises Technical Specification Section 3.6.1.2 to allow exclusion of the leakage rates associated with two feedwater system containment isolation check valves from the Local Leak Rate Testing totals in accordance with the Temporary Exemption to Appendix J of 10 CFR, Part 50 issued to you on February 20, 1991.

A copy of the staff's Safety Evaluation is also enclosed. The notice of issuance and final no significant hazards consideration will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by Stephen P. Sands for:

Anthony T. Gody, Jr., Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

9103010136 910222
PDR ADOCK 05000461
P PDR

Enclosure: As stated
cc: w/enclosure
See next page

OFC	LA/PD33/DRP345	PM/PD33/DRP345	SPLB	D/PD33/DRP345	ADR3/DRP345
NAME	PKreutzer	AGodyJr./bj	CMcCracken	JHannon	JZwolinski
DATE	/ /91	2/19/91 AT	2/19/91	2/20/91	2/21/91

Subject to Agreed Correction

OFC	OGC-OWFN				
NAME	BMB				
DATE	2/21/91				

OFFICIAL RECORD COPY
Document Name: 79378 AMD

270036

OFol
11

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

February 22, 1991

Docket No. 50-461

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

Dear Mr. Spangenburg:

SUBJECT: ISSUANCE OF AMENDMENT NO. 57 TO FACILITY OPERATING LICENSE NO. NPF-62 (TAC NO. 79378)

The Commission has issued the enclosed Amendment No. 57 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1. This amendment is in response to your application dated January 18, 1991.

The amendment revises Technical Specification Section 3.6.1.2 to allow exclusion of the leakage rates associated with two feedwater system containment isolation check valves from the Local Leak Rate Testing totals in accordance with the Temporary Exemption to Appendix J of 10 CFR, Part 50 issued to you on February 20, 1991.

A copy of the staff's Safety Evaluation is also enclosed. The notice of issuance and final no significant hazards consideration will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Stephen P. Sands for
Anthony T. Gody, Jr., Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc: w/enclosure
See next page

Mr. Frank A. Spangenberg
Illinois Power Company

Clinton Power Station
Unit 1

cc: Mr. J. S. Perry
Vice President
Clinton Power Station
P. O. Box 678
Clinton, Illinois, 61727

Mr. J. A. Miller
Manager Nuclear Station
Engineering Dept.
Clinton Power Station
P. O. Box 678
Clinton, Illinois 61727

Sheldon Zabel, Esquire
Schiff, Hardin & Waite
7200 Sears Tower
233 Wacker Drive
Chicago, Illinois 60606

Resident Inspector
U. S. Nuclear Regulatory Commission
RR#3, Box 229 A
Clinton Illinois 61727

Mr. L. Larson
Project Manager
General Electric Company
175 Curtner Avenue, N/C 395
San Jose, California 95125

Regional Administrator, Region III
799 Roosevelt Road, Bldg. #4
Glen Ellyn, Illinois 60137

Chairman of DeWitt County
c/o County Clerk's Office
DeWitt County Courthouse
Clinton, Illinois 61727

Robert Neumann
Office of Public Counsel
State of Illinois Center
100 W. Randolph
Suite 11-300
Chicago, Illinois 60601

Illinois Department
of Nuclear Safety
Office of Nuclear Facility Safety
1035 Outer Park Drive
Springfield, Illinois 62704

Mr. Donald Schopfer
Project Manager
Sargent & Lundy Engineers
55 East Monroe Street
Chicago, Illinois 60603

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

ILLINOIS POWER COMPANY, ET AL.

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 57
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 January 18, 1991, 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. 57 , 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

John N. Hannon

John N. Hannon, Director
Project Directorate III-3
Division of Reactor Projects III/IV/V

Attachment:
Changes to the Technical
Specifications

Date of issuance: February 22, 1991

ATTACHMENT TO LICENSE AMENDMENT NO. 57

FACILITY OPERATING LICENSE NO. NPF-62

DOCKET NO. 50-461

Replace the following page of the Appendix "A" Technical Specifications with the attached page. The revised page is identified by amendment number and contains vertical lines indicating the area of change. The corresponding overleaf page is provided to maintain document completeness.

Remove	Insert
3/4 6-2	3/4 6-2

3/4.6 CONTAINMENT SYSTEMS

3/4.6.1 PRIMARY CONTAINMENT

PRIMARY CONTAINMENT INTEGRITY

LIMITING CONDITION FOR OPERATION

3.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be maintained.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2*, and 3.

ACTION:

Without PRIMARY CONTAINMENT INTEGRITY, restore PRIMARY CONTAINMENT INTEGRITY within 1 hour or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.1 PRIMARY CONTAINMENT INTEGRITY shall be demonstrated:

a. After each closing of each penetration subject to Type B testing, except the primary containment air locks, if opened following Type A or B test, by leak rate testing the seals with gas at Pa, 9.0 psig, and verifying that when the measured leakage rate for these seals is added to the leakage rates determined pursuant to Surveillance Requirement 4.6.1.2.d for all other Type B and C penetrations, the combined leakage rate is less than or equal to 0.60 La.

b. At least once per 31 days by verifying that all containment penetrations** not capable of being closed by OPERABLE containment automatic isolation valves and required to be closed during accident conditions are closed by valves, blind flanges, or deactivated automatic valves secured in position, except as provided in Table 3.6.4-1 of Specification 3.6.4.

c. By verifying each primary containment air lock is in compliance with the requirements of Specification 3.6.1.3.

d. By verifying the suppression pool is in compliance with the requirements of Specification 3.6.3.1.

---

*See Special Test Exception 3.10.1

**Except valves 1HG016 and 1HG017 and valves, blind flanges, and deactivated automatic valves which are located inside the primary containment, steam tunnel, or drywell, and are locked, sealed or otherwise secured in the closed position. These penetrations shall be verified closed during each COLD SHUTDOWN except such verification need not be performed more often than once per 92 days.

PRIMARY CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Primary containment leakage rates shall be limited to:

a. An overall integrated leakage rate of less than or equal to:

   1. La, 0.65% by weight of the containment air per 24 hours at Pa, 9.0 psig.

b.# A combined leakage rate of less than or equal to 0.60 La, for all penetrations and all valves subject to Type B and C tests when pressurized to Pa, 9.0 psig.

c.* Less than or equal to 28 scf per hour for any one main steam line through the isolation valves when tested at Pa, 9.0 psig.

d.## A combined leakage rate of less than or equal to 0.08 La, for all penetrations shown in Table 3.6.4-1 of Specification 3.6.4 as secondary containment bypass leakage paths when pressurized to Pa 9.0 psig.

e. A combined leakage rate of less than or equal to 1 gpm times the total number of containment isolation valves in hydrostatically tested lines per Table 3.6.4-1, which penetrate the primary containment, when tested at 1.10 Pa, 9.9 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2**, and 3.

ACTION:

With:

a. The measured overall integrated primary containment leakage rate exceeding 0.75 La, or

b. The measured combined leakage rate for all penetrations and all valves subject to Type B and C tests exceeding 0.60 La, or

c. The measured leakage rate exceeding 28 scf per hour for any one main steam line through the isolation valves, or

d. The combined leakage rate for all penetrations shown in Table 3.6.4-1 as secondary containment bypass leakage paths exceeding 0.08 La; or

e. The measured combined leakage rate for all containment isolation valves in hydrostatically tested lines per Table 3.6.4-1 which penetrate the primary containment exceeding 1 gpm times the total number of such valves, restore:

---

*Exemption to Appendix J of 10 CFR 50.

**See Special Test Exception 3.10.1.

#The leakage rates of valves 1B21-F032A and B are not required to be included until startup from the third refueling outage in accordance with an approved exemption to Appendix J of 10 CFR50.

##The leakage rates of valves 1B21-F032A and B are not required to be included until startup from the third refueling outage.

PRIMARY CONTAINMENT LEAKAGE

LIMITING CONDITION FOR OPERATION

3.6.1.2 Primary containment leakage rates shall be limited to:

a. An overall integrated leakage rate of less than or equal to:

   1. La, 0.65% by weight of the containment air per 24 hours at Pa, 9.0 psig.

b.# A combined leakage rate of less than or equal to 0.60 La, for all penetrations and all valves subject to Type B and C tests when pressurized to Pa, 9.0 psig.

c.* Less than or equal to 28 scf per hour for any one main steam line through the isolation valves when tested at Pa, 9.0 psig.

d.## A combined leakage rate of less than or equal to 0.08 La, for all penetrations shown in Table 3.6.4-1 of Specification 3.6.4 as secondary containment bypass leakage paths when pressurized to Pa 9.0 psig.

e. A combined leakage rate of less than or equal to 1 gpm times the total number of containment isolation valves in hydrostatically tested lines per Table 3.6.4-1, which penetrate the primary containment, when tested at 1.10 Pa, 9.9 psig.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2**, and 3.

ACTION:

With:

a. The measured overall integrated primary containment leakage rate exceeding 0.75 La, or

b. The measured combined leakage rate for all penetrations and all valves subject to Type B and C tests exceeding 0.60 La, or

c. The measured leakage rate exceeding 28 scf per hour for any one main steam line through the isolation valves, or

d. The combined leakage rate for all penetrations shown in Table 3.6.4-1 as secondary containment bypass leakage paths exceeding 0.08 La; or

e. The measured combined leakage rate for all containment isolation valves in hydrostatically tested lines per Table 3.6.4-1 which penetrate the primary containment exceeding 1 gpm times the total number of such valves, restore:

---

*Exemption to Appendix J of 10 CFR 50.

**See Special Test Exception 3.10.1.

#The leakage rates of valves 1B21-F032A and B are not required to be included until startup from the third refueling outage in accordance with an approved exemption to Appendix J of 10 CFR50.

##The leakage rates of valves 1B21-F032A and B are not required to be included until startup from the third refueling outage.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO FACILITY OPERATING LICENSE NO. NPF-62

ILLINOIS POWER COMPANY, ET AL.

CLINTON POWER STATION, UNIT NO. 1

DOCKET NO. 50-461

1. INTRODUCTION

By letter dated January 18, 1991, Illinois Power Company (IP) (the licensee) requested an exemption from Appendix J to 10 CFR Part 50 and an amendment to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1. The proposed amendment consists primarily of an administrative change to the Clinton Power Station's (CPS) Technical Specifications (TSs) to reflect a Temporary Exemption from Appendix J to 10 CFR Part 50 (Appendix J) issued on February 1991. The Temporary Exemption from Appendix J authorized exclusion of the current leakage rates for the 1B21-F032A(B) feedwater containment check valves from the Local Leak Rate Testing (LLRT) totals for the next operating cycle. The staff's decision to issue the Exemption was based, in part, on providing IP ample time to develop and implement a permanent and effective solution to problems associated with excessive leak rates, when tested with air in the 1B21-F032A(B) check valves.

2. DISCUSSION

As discussed in the CPS Updated Safety Analysis Report (USAR) Section 6.2.4.3.2.1.1.1, the feedwater lines are part of the reactor coolant pressure boundary as they penetrate the drywell and connect to the reactor pressure vessel. Each of the two feedwater line containment penetrations incorporate three containment isolation valves in series. The isolation valve inside the drywell is a simple check valve [1B21-F010A(B)], located as close as practicable to the drywell wall. Outside the primary containment is an air-assisted check valve [1B21-F032A(B)] located as close as practicable to the containment wall. Farther away from the primary containment is a motor-operated gate valve [1B21-F065A(B)]. This arrangement is designed such that, should a break occur in the feedwater line, the check valves prevent a significant loss of reactor coolant inventory and offer immediate isolation. The air-operated check valve is "power assisted" closed and is actuated by the protection system. During the postulated loss-of-coolant accident, it is desirable to maintain reactor coolant makeup from all sources of supply. For this reason, the outermost valve does not automatically isolate upon a signal from the protection system. However, this valve is capable of being remotely closed from the control room to provide long-term leakage protection when continued makeup from the feedwater source is unavailable or unnecessary. Another valve contributing to feedwater penetration integrity is the Residual Heat Removal (RHR) 1E12-F053A(B) globe valve. The 1E12-F053A(B) valves receive

9103010142 910222
PDR ADOCK 05000461
P PDR

an automatic containment isolation signal and have satisfactorily passed air tests; therefore, these particular valves are excluded from the staff's evaluation. For ease in reading, the "1B21-" nomenclature will be dropped for the remainder of the staff's evaluation.

The requirement contained in Section III.C.2, "Test pressure," of Appendix J, indicates that valves, unless pressurized with fluid (e.g., water, nitrogen) from a seal system, shall be pressurized with air or nitrogen at a pressure of Pa. Pa (psig) is defined as the calculated peak containment internal pressure related to the design basis accident and specified in either the TSs or associated bases. Pa for CPS is 9.0 psig. Additionally, Sections III.B.3 and III.C.3, which provide acceptance criteria, require that the combined leakage rate for all penetrations and valves subject to Type B and C tests shall be less than 0.60 La. La (percent/24 hours) means the maximum allowable leakage rate at pressure Pa as specified for pre-operational tests in the TSs or associated bases, and as specified for periodic tests in the operating license. La for CPS is 13.08 Standard Cubic Feet per Minute (SCFM) [0.65 w/o per 24 hours].

In a discussion with the staff on January 8, 1991, CPS was informed of a flaw in their maximum pathway leakage methodology for each of the feedwater penetrations. CPS previously determined the leakage for these penetrations as described in Note 24 to the CPS USAR Table 6.2-47 which indicates that the maximum pathway leakage rate for each feedwater penetration was equal to the leakage associated with the valve with the second smallest leakage rate. This maximum pathway leakage was included in the combined leakage rate of all containment penetrations and valves subject to Type B and C tests and in the combined leakage rate of secondary containment bypass leakage paths. Historically, the leakage rates for the F010A(B) and F065A(B) valves have been much lower than those of the F032A(B) valves. As a result, the maximum pathway leakage for these penetrations did not include leakage from the F032A(B) valves.

The staff's concern about the CPS feedwater penetration methodology focuses on the fact that the F065A(B) valves do not receive an automatic isolation signal. Since the F065A(B) valves require remote manual operation (operator action) to close, the time that the penetration relies on the F010A(B) and F032A(B) check valves alone is not accurately quantifiable. During this portion of the postulated accident scenario, the CPS methodology does not necessarily provide a conservative estimate of potential feedwater penetration leakage.

The staff indicated to the licensee on January 8, 1991, that the maximum pathway feedwater penetration leakage should be based on the feedwater containment isolation check valve with the highest leakage rate. This position would require the licensee to utilize the current leakage rate through the F032A(B) valves as the maximum pathway leakage for these penetrations and thus be included in the combined leakage rates described above.

Including the individual leakage rates for the F032A(B) valves in the combined leakage rates would, at this time, cause the combined leakage rate of containment penetrations and valves subject to Type B and C tests to exceed the limits prescribed in 10 CFR Part 50, Appendix J and the CPS TSs (3.6.1.2 b.). The combined leakage rate of the secondary containment bypass leakage paths would also exceed the limits prescribed in the CPS TSs (3.6.1.2 d.). In its request, the licensee indicated that the F032A(B) check valves, being of the tilting-disc and hardened seat design, are designed such that acceptable air leakage rates are difficult to establish and maintain. The licensee also indicated that corrective actions may include changes to the current design or maintenance techniques. The possible design or maintenance changes may take several months to evaluate, select the best engineering alternative, procure the appropriate equipment, and implement the solution. Based on these factors, the licensee requested an exemption from the CPS TS 3.6.1.2 and from 10 CFR Part 50, Appendix J, to allow the exclusion of the air leakage rates associated with the F032A(B) valves for one operating cycle.

3.0 EVALUATION

3.1 Accident Analyses

Three major transient/design basis accident analyses described in the CPS Updated Safety Analysis Report (USAR) are potentially impacted by the licensee's Appendix J Exemption request for the F032A(B) check valves. The three postulated scenarios are; (1) Feedwater Line Break Outside Containment, (2) Recirculation Line Break, and (3) Feedwater Line Break Inside Containment. The licensee addressed the three postulated scenarios in its exemption request dated January 18, 1991.

3.1.1 Feedwater Line Break Outside Containment (FLBOC)

The FLBOC described in the CPS USAR, Section 15.6.6, postulates an instantaneous, circumferential break in the piping outside containment, upstream of the F032A(B) check valve. The two check valves (F010A(B) and F032A(B)) in the feedwater lines are assumed to terminate reactor coolant flow from the reactor vessel through the break. Initiation of the Emergency Core Cooling Systems (ECCS) maintains the reactor water level above the low-low-low level 1 trip and eventually restores it to the normal level. No credit is taken for closure of the F065A(B) valves in the resultant 10 CFR Part 100 release calculations in the CPS USAR. This results in a primary fission product transport to the environment from the steam, condensate, and feedwater systems through the break which is carried over to the turbine building atmosphere and subsequently released unfiltered through the turbine building ventilation. The calculated site boundary exposures for this analysis are a small fraction of the limits prescribed in 10 CFR Part 100 and are presented in Table 15.6.6-4 of the CPS USAR.

Based on the fact that the F032A(B) check valves sucessfully completed a 1000 psig water test as described in Section XI of the ASME Code and the fact that water is maintained on the reactor side of the F010A(B) and F032A(B) check valves for the postulated FLBOC scenario, the staff has reasonable assurance that the F032A(B) check valves would satisfactorily perform their intended containment isolation function.

Therefore, based on the licensee's analysis and the discussion above, the staff concludes that containment integrity would be adequately maintained for the feedwater penetrations 1MC-009 and 010 during the postulated FLBOC scenario. Additionally, the staff has determined that the postulated site boundary dose calculations in accordance with 10 CFR Part 100 would not be significantly affected and that the 10 CFR Part 100 limits would not be exceeded with the current air leakage of the F032A(B) check valves for this particular scenario.

3.1.2 Recirculation Line Break (RLB)

As described in the CPS USAR, the postulated instantaneous guillotine rupture of a reactor recirculation line produces the highest peak containment pressure and worst postulated offsite dose consequences. The plant design basis accident (DBA) includes a safe shutdown class earthquake (SSE), a complete loss of offsite power, and the RLB discussed above.

Prior to the postulated RLB accident scenario, the feedwater system would be in service providing flow to the reactor vessel. Feedwater penetration integrity during the initial portion of the scenario is maintained primarily due to the presence of feedwater flow. The CPS feedwater system consists of two steam turbine-driven pumps and one motor-driven feedwater pump. Following the postulated RLB, the steam supply to the steam driven feedwater pumps continues until the Main Steam Isolation Valves (MSIVs) receive an isolation signal from lowering reactor water level (group 1 isolation). The CPS USAR assumes the MSIVs begin to close 0.5 seconds after the break, being fully closed 3 seconds later. Once the MSIVs are shut, the steam driven feedwater pumps begin to coast down. Feedwater pressure decreases to less than reactor pressure approximately 10 seconds after the MSIVs are shut. If feed flow was being provided by the motor-driven feedwater pump, as during selected planned plant transients and maintenance, feed flow through the feedwater penetrations would continue till either: (1) feed flow is no longer necessary, or (2) the condensate source is depleted, or (3) power is lost to the motor-driven feed pump. The motor-driven feedwater pumps are powered from a nonsafety related bus; therefore, during the postulated DBA/RLB, power may be lost. In the event of a loss of offsite power the motor-driven feedwater pump would not be available.

Operators are trained to keep the feedwater system operating to assist the Emergency Core Cooling System (ECCS) in restoring reactor vessel water level. Additionally, once reactor pressure drops below the discharge pressure of the condensate pumps, operators can utilize the condensate pumps, if available, for additional reactor makeup from the condensate and feedwater systems. Operators are also trained to secure the feedwater system and remotely close the F065A(B) valves once the feedwater system is no longer available or required. Once the F065A(B) motor-operated valves are closed, the 1MC-009 and 010 feedwater penetrations have three valve boundaries, two of which have satisfactorily passed the air leakage test described above.

Therefore, based on (1) the discussion above, (2) the current capability of the F032A(B) check valves to pass a 1000 psig water test in accordance with Section XI of the ASME Code, (3) the current capability of the F010A(B) and F065A(B) valves to pass an Appendix J Type C air test, (4) the licensee's commitment to increase operator awareness and training on the need to isolate the F065A(B) valves in the event feedwater is no longer available or required, and (5) the licensee's commitment to implement special night orders to close the F065A(B) valves in the event leakage is detected and feedwater flow is no longer available or required, the staff has determined that assurance of public health and safety would be adequately maintained for the postulated RLB scenario.

Other mitigating factors exist which support the temporary exemption and associated TS change. These mitigating factors are discussed in Section 3.2.

3.1.3 Feedwater Line Break Inside Containment (FLBIC)

The CPS USAR analysis, Section 6.2.1.2, of the postulated FLBIC accident scenario shows that the containment sub-compartment pressurization effects of this accident are less pronounced than the effects of the RLB accident scenario discussed in section 3.1.2 above. The CPS USAR postulates a guillotine type rupture of the feedwater line in the annular space between the reactor pressure vessel and the biological shield wall as the worst location for a break. As described in the RLB accident scenario above, feedwater penetration integrity is maintained as long as flow continues through the penetration. Once flow stops, the ruptured feedwater piping is subject to containment atmosphere. Assuming one of the F010A(B) check valves fails in conjunction with feedwater flow stoppage, immediate penetration integrity is provided by the F032A(B) check valve. Since the current air leakage rates of the F032A(B) check valves are excessive, closure of the F065A(B) motor-operated gate valves to ensure long-term feedwater containment penetration integrity is necessary.

Discussion on the sequence of actions between feedwater flow stoppage and the F065A(B) valve closure is warranted. As discussed above, operators are trained to keep the feedwater system operating to assist the ECCS in restoring reactor vessel water level. Operators are also trained to secure the feedwater system and remotely close the F065A(B) valves once the feedwater system is no longer available or required. Once the F065A(B) motor-operated valves are closed, the unaffected feedwater penetration has three valve boundaries, two of which have satisfactorily passed the air leakage test described above. In the event one of the F010A(B) check valves fails, the affected feedwater penetration with the failed F010A(B) check valve would still have two containment isolation valves, one of which has satisfactorily passed an Appendix J Type C air test.

Therefore, based on both the RLB and FLBIC discussions above, the staff has determined that assurance of public health and safety would be adequately maintained for the postulated FLBIC scenario.

Other mitigating factors exist which support the temporary exemption and associated TS change. These mitigating factors are discussed in the following section.

3.2 Additional Mitigating Factors

The period of time in which the feedwater penetrations rely on the two check valves in series for containment isolation (potentially one for the affected feedwater penetration during a FLBIC) is principally dependent upon operator action to close the F065A(B) motor-operated gate valves. Several factors exist which would mitigate the potential for fission product release in the event one of the accidents described above should occur. These factors are listed below:

(1) The licensee has committed to enhance operator training and awareness on the need to close the F065A(B) motor-operated valve once the feedwater is no longer available or not necessary. Additionally, special night orders are in place to remind operators of this need. This would serve to minimize the time delay to close the F065A(B) motor-operated valves and, thus, minimize the potential for feedwater penetration leakage.

(2) The F010A(B) check valves have passed Appendix J Type C air tests which would prevent any significant containment atmosphere and steam leakage should one of the postulated scenarios, described above occur. For more realistic scenarios this valve would remain functional, aiding the F032A(B) check valves in providing immediate containment isolation.

(3) For postulated accident scenarios in which the feedwater piping becomes depressurized and one of the F010A(B) check valves fails to seat, the licensee has indicated, utilizing a simple constant enthalpy calculation, that approximately 59 percent of the feedwater would remain in a liquid state. The feedwater remaining in the piping which did not flash to steam would tend to seal the F032A(B) check valves with water, potentially improving the containment isolation capability of these valves. Utilizing a more conservative calculation using the RELAP code, other licensees with similar plant designs have indicated that the feedwater remaining in a liquid state during certain postulated accidents could be as low as 16 percent. This would still serve to partially seal the F032A(B) check valves. Additionally, the licensee has indicated that, for scenarios where the feedwater piping integrity is maintained, a loop seal arrangement would exist between the containment atmosphere and turbine building atmosphere through the condensate and feedwater piping, providing some containment isolation.

(4) The staff's Safety Evaluation Report related to the operation of CPS (NUREG-0853) indicates that the portion of the feedwater piping between the reactor vessel and the turbine wall is safety related and designed to seismic Category I, Quality Group A, criteria (from the reactor to the outboard containment isolation valve) and Quality Group B criteria (from the outboard containment isolation valve up to and including the shutoff [F065A(B)] valve). The condensate and feedwater system from the turbine wall to the main condenser is classified as non-safety related (Quality Group D, non-seismic). Although the feedwater system piping is not specifically designed to withstand the effects of a

seismic event, this piping is designed to the requirement of ANSI B31.1. Data compiled from past seismic experience shows evidence that piping designed in accordance with ANSI B31.1 can reasonably be assured to remain in tact during seismic events. Seismic qualification of the piping from the reactor vessel to the turbine wall (steam tunnel) would virtually preclude any realistic pipe rupture from external forces such as a seismic event. Additionally, leakage detection systems and pipe monitoring programs would reveal small leaks and/or defects prior to any significant pipe degradation, providing assurance of pipe structural integrity.

The mitigating factors described above serve to provide sufficient justification for approval of the proposed exemption and associated TS change for the limited time requested. The staff has determined, that for the reasons described in the individual postulated accident scenario and the mitigating factors discussion above, the licensee has provided sufficient assurance of public health and safety for continued operation for the next cycle. The licensee shall select and implement a corrective action program before startup from the third refueling outage sufficient to ensure satisfactory air leakage rates associated with the 1B21-F032A(B) check valves.

3.3 Proposed Changes to the Technical Specification

Technical Specification 3.6.1.2 b. specifies that the primary containment leakage rate shall be limited to a combined leakage rate of less than or equal to 0.60 La for all penetrations and all valves subject to Type B and C tests when pressurized to Pa (9.0 psig). The proposed change specifically excludes the F032A and B check valves from the combined containment leakage rates until startup from the third refueling outage. The staff's evaluation of excluding the leakage rates associated with these check valves is given above.

Technical Specification 3.6.1.2 d. specifies that primary containment leakage rates shall be limited to a combined leakage rate of less than or equal to 0.08 La for all penetrations shown in Table 3.6.4-1 of Specification 3.6.4 as secondary containment bypass leakage paths when pressurized to Pa 9.0 psig. The proposed change excludes the F032A and B check valves from the combined feedwater penetration (1MC-009 and 010) leakage. Again, the staff's evaluation of excluding the leakage rates associated with these check valves is given above.

Based on the above evaluation and the issuance of an exemption to Appendix J of 10 CFR Part 50, the staff has determined that the proposed TS change is acceptable.

4.0 EXIGENT CIRCUMSTANCES

The Commission's regulations, 10 CFR 50.91, contain provisions for issuance of amendments when the usual 30-day public notice period cannot be met. One type of special exception is an exigency. An exigency is a case where the staff and licensee need to act promptly, but failure to act promptly does not preclude public notice prior to issuance of the amendment. The exigency case usually represents an amendment involving a safety enhancement to the plant or a situation which may involve a plant shutdown, derating, or delay in startup.

Under such circumstances, the Commission notifies the public in one of two ways: by issuing a Federal Register notice providing an opportunity for hearing and allowing at least 2 weeks for public comments, or by issuing a public announcement discussing the proposed changes, using the local media. In this case, the Commission has chosen the first approach.

The licensee submitted the request for amendment on January 18, 1991. The staff published a public notice in the Federal Register on January 25, 1991 (56 FR 2960), at which time the staff proposed a no significant hazards consideration determination. There were no public comments in response to this notice.

In a phone conversation on January 8, 1991 the staff informed the licensee that their feedwater penetration leakage rate calculation methodology required modification. The licensee responded by evaluating the current design and maintenance practices of the affected feedwater containment isolation check valves. Their conclusion was that, for appropriate corrective action to be taken, additional time would be required to facilitate the necessary changes.

An exigent TS change was requested since the full 30 day Federal Register notice period may not have been possible before plant startup from the current refueling outage. To provide a full 30-day notice period, the amendment would not be able to be issued prior to the close of business on February 25, 1991. This would force the Clinton Power Station to remain in a shutdown condition unnecessarily. The staff will issue this amendment such that the notice period is at least 15 days. Should current plant maintenance activities necessitate a delay in plant startup, the staff will delay issuance of this amendment to allow for a longer notice period up to 30-days.

The staff has reviewed the circumstances described above with respect to the proposed TS change and agrees that the amendment is necessary for startup of the Clinton Power Station, and that failure to act on the request in a timely manner would require IP to unnecessarily maintain the CPS in a shutdown condition. The CPS feedwater containment penetration methodology error was not discovered by the staff until January 8, 1991. The licensee made a good-faith effort to expedite submittal of the request. The staff concludes that these circumstances could not have reasonably been avoided and, therefore, valid exigent circumstances exist, as defined by 10 CFR 50.91(a)(6).

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION

The Commission's regulations in 10 CFR 50.92 state that the Commission may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility in accordance with the 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.

As discussed above, containment isolation valves F010A(B) and F065A(B) have demonstrated acceptable air leakage rates. In addition, several mitigating factors exist which would provide adequate assurance that an air leakage pathway from the containment to the environment would not exist even in the event a failure to close the F065A(B) motor-operated valves occurred. Based on this determination, the staff has determined that there is no significant impact on the applicable accident analyses presented in the USAR and that approval of this TS change does not involve a change to the plant design. Therefore, operation of the facility in accordance with the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The licensee's request does not involve a change to the plant design. However, plant operation in accordance with the proposed exemption and associated TS change constitutes a change in operation relative to the testing requirements of 10 CFR Part 50, Appendix J. The licensee has determined, and the staff agrees, that this change to operation has the potential to impact only the consequences of the loss of coolant accidents (LOCA) described previously. Leakage or failure of the F032A(B) check valves cannot alone create a new or different type of accident from any accident previously evaluated. Therefore, operation of the facility in accordance with the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

As discussed above, the licensee's request impacts only the requirement to include the air leakage test results associated with the F032A(B) check valves in the combined leakage rate of containment penetrations and valves subject to Type B and C tests, and in the combined leakage rate of secondary containment bypass leakage paths. Therefore, the only margin of safety that could be impacted by the licensee's request is the margin associated with the offsite dose consequences of a DBA LOCA and the corresponding dose limits as prescribed in 10 CFR Part 100. As discussed in section 3.2 above, the ability to maintain a water seal in the feedwater system piping outside containment, together with the acceptable air leakage rates associated with the F010A(B) and F065A(B) valves, provides adequate assurance that the capability to prevent containment atmosphere leakage to the environment during a design basis LOCA will be maintained. Therefore, operation of the facility in accordance with the proposed change will not involve a significant reduction in a margin of safety

Based on the above considerations, the staff concludes that the amendment meets the three criteria of 10 CFR 50.92. Therefore, the staff has made a final determination that the proposed amendment does not involve a significant hazards consideration.

6.0 STATE CONSULTATION

The staff made a good-faith effort to consult with the State of Illinois by telephone on February 22, 1991. The state offered no comments on this amendment.

7.0 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 or a change to a surveillance requirement. 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 previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). This amendment also involves changes in recordkeeping, reporting or administrative procedures or requirements. Accordingly, with respect to these items, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR §51.22(c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

However, in a related Exemption from Appendix J to 10 CFR Part 50, the staff prepared an environmental assessment and finding of no significant impact pursuant to 10 CFR 51.21, 51.32, and 51.35. The staff's findings were published in the Federal Register on February 19, 1991 (56 FR 6689). Accordingly, based upon the environmental assessment, the Commission has determined that the exemption would not have a significant effect on the quality of the human environment.

8.0 CONCLUSION

The staff has concluded, based on the considerations 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 security of to the health and safety of the public.

Principal Contributors: Anthony T. Gody, Jr.
Jim Pulsipher
Fred Maura

Dated: February 22, 1991