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Mr. Richard F. Phares
Director - Licensing
Clinton Power Station
P. O. Box 678
Mail Code V920
Clinton, IL 61727

Dear Mr. Phares:

SUBJECT: ISSUANCE OF AMENDMENT NO. 96 TO FACILITY OPERATING LICENSE NO. NPF-62 - CLINTON POWER STATION, UNIT 1 (TAC NO. M90224)

Dear Mr. Phares:

The U. S. Nuclear Regulatory Commission (Commission) has issued the enclosed Amendment No. 96 to Facility Operating License No. NPF-62 for the Clinton Power Station, Unit No. 1. The amendment is in response to your application dated August 12, 1994 (U-602320) and supplemented by letters dated October 14, 1994 (U-602355) and February 6, 1995 (U-602410).

The amendment modifies Clinton Power Station Technical Specification 3.6.5.1, "Drywell," to permit a one-time only change to delete performance of the drywell bypass leakage rate test during the fifth refueling outage (RF-5) scheduled to begin in March 1995. As described in the attached Safety Evaluation and previously discussed with your staff, the staff is permitting this one-time only change while longer term test alternatives are being pursued. TAC No. M90224 will remain open pending long-term resolution of your original license amendment application.

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

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
Enclosures: 1. Amendment No. 96 to NPF-62
2. Safety Evaluation
cc w/encls: see next page
DOCUMENT NAME: TAC90224.AMD

Richard Lobel for #95-042

Legal objection with additions to F.R. noted

OFFICE	LA:PDIII-3	PM:PDIII-3	BC:SCSB	BC:OTSB	OGC	PD:III-3
NAME	MRushbrook	DPickett	RBarrett	CGrimes	Suttal	LNorrholm
DATE	2/8/95	2/8/95	2/10/95	2/14/95	2/27/95	3/1/95

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

March 1, 1995

Mr. Richard F. Phares
Director - Licensing
Clinton Power Station
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Sincerely,

Douglas V Pickett

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

Enclosures: 1. Amendment No. 96 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

ILLINOIS POWER COMPANY, ET AL.

DOCKET NO. 50-461

CLINTON POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 96
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 August 12, 1994, October 14, 1994, and February 6, 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. 96 , 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, 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: March 1, 1995

ATTACHMENT TO LICENSE AMENDMENT NO. 96

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 a vertical lines indicating the area of change.

Remove Pages	Insert Pages
3.6-54	3.6-54

3.6 CONTAINMENT SYSTEMS

3.6.5.1 Drywell

LCO 3.6.5.1 The drywell shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Drywell inoperable.	A.1 Restore drywell to OPERABLE status.	1 hour
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.5.1.1	----------NOTE---------- Not required to be performed until entry into MODE 2 on the first unit startup from the sixth refueling outage. ---------- Verify bypass leakage is less than or equal to the bypass leakage limit. However, during the first unit startup following bypass leakage testing performed in accordance with this SR, the acceptance criterion is $\leq$ 10% of the drywell bypass leakage limit.	18 months

(continued)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 96 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

The Mark III containment design at the Clinton Power Station (CPS), incorporates the drywell/pressure-suppression features of previous BWR containment designs into a dry containment structure. The function of the drywell is to force steam generated from a LOCA through the weir wall vents into the suppression pool, so it can be condensed. Any steam that bypasses the suppression pool and directly enters the dry containment structure has the potential to rapidly increase the containment pressure. The pressure-suppression capability of the suppression pool assures that the peak LOCA temperature and pressure in the primary containment are kept below the design limits of 185 °F and 15 psig. Since the structural integrity of the primary containment is largely dependent on the drywell's ability to perform its safety function, the total drywell bypass leakage area must be monitored.

CPS Technical Specification 3.6.5.1, "Drywell," requires that a drywell bypass leakage rate test (DBLRT) be performed at least once every 18 months to verify that the steam bypass leakage area is less than or equal to 10% of the maximum allowable leakage path area of 1.18 ft^2.

By letter dated August 12, 1994, the licensee proposed revising the test frequency of the DBLRT based on a performance-based approach. DBLRT frequency would be extended up to once every 10 years. The frequency would be increased to once every 36 months following a test failure but could be reestablished at 10 years, if the next test was successful. If two consecutive DBLRTs failed to meet the acceptance criteria, a DBLRT must be performed at least once every 18 months, until two consecutive tests meet the acceptance criteria.

This submittal was identified by the licensee as a cost-beneficial licensing action (CBLA). This means that the proposed action represents a large cost savings to the licensee without a commensurate safety benefit. Approximately 20 man-days of effort is required to set-up, perform, and evaluate the results of each DBLRT. During plant outages involving primary integrated leak rate tests (ILRT), performance of a DBLRT requires approximately 15 hours of critical path time. During non-ILRT outages, the required critical path time increases to approximately 24 hours. Including the approximate $20,000 cost to rent air compressors and equipment, the total cost savings surpass the staff's threshold of $100,000 established under the CBLA program.

2.0 EVALUATION

The effect of steam bypass of the suppression pool on primary containment integrity has been evaluated for a spectrum of break sizes. The limiting case (assuming containment sprays and heat sinks are available) results in a maximum allowable leakage path area of 1.18 ft^2. (Maximum leak path areas are expressed in terms of $A/\sqrt{k}$, where A is the flow area of leakage and k is the geometric and friction loss coefficient.) The value $A/\sqrt{k}$ of 1.18 ft^2 is equivalent to a bypass leakage rate of 136,400 scfm at a drywell design pressure of 30 psig.

During plant startup testing, a DBLRT was performed with the drywell pressurized to 30 psig. Evaluation of the test results concluded that the drywell remained essentially elastic throughout the test, and actual displacements were considerably smaller than predicted by design. The measured leakage rate was 1,358 scfm (equivalent to an $A/\sqrt{k}$ of 0.0067 ft^2), which is significantly less than the acceptance criterion of 13,640 scfm (i.e., 10% of the maximum rate of 136,400 scfm). Subsequent periodic testing has been performed at 3.0 psig with a corresponding allowable leakage limit of 4,312 scfm. The results of these tests are summarized below:

Previous Results of CPS Drywell Bypass Leakage Rate Tests

Test Date	Leak Rate (at 3.0 psig)	Ratio to Design Limit	Calculated $A/\sqrt{k}$
1/86	273.0 scfm*	0.63%	0.0075 ft^2
11/86	20.8 scfm	0.05%	0.0006 ft^2
4/89 (RF-1)	19.0 scfm	0.04%	0.0005 ft^2
2/91 (RF-2)	21.9 scfm	0.05%	0.0006 ft^2
5/92 (RF-3)	18.0 scfm	0.04%	0.0005 ft^2
11/93 (RF-4)	30.2 scfm	0.07%	0.0008 ft^2

* This test was primarily attributed to a defective electrical penetration seal.

Based on the above test results, which reveal an $A/\sqrt{k}$ that is two orders of magnitude less than the allowable limit, the licensee believes that a reduction in testing is warranted.

The staff's concern over decreasing the frequency of performing DBLRTs is that potential sources of steam bypass leakage paths could remain unidentified for an extended period of time. Potential sources include drywell vacuum breakers, drywell air locks, drywell piping penetrations and cracks in the drywell concrete structure. The licensee's submittal addressed these potential bypass leakage paths, as summarized below.

The preoperational drywell structural integrity test, which was conducted at 30 psig, resulted with only slight cracking of the concrete surface. Subsequent DBLRTs are conducted at 3.0 psig and the normal operating pressure in the drywell is approximately 0.9 psig. These pressures are less likely to cause new cracks or cause existing cracks to grow. In addition, visual inspections of the drywell structure conducted during each refueling outage have not revealed any additional cracks. Therefore, the staff concurs that additional cracking of the drywell structure is not expected.

Piping penetrations having containment isolation valves do not represent a significant concern with regard to drywell bypass leakage. This is because containment isolation valves are locally leak-tested each refueling outage in accordance with 10 CFR 50, Appendix J and the leakage limitations for Appendix J are much lower than that allowed for drywell leakage. However, drywell penetrations not subject to local leak rate testing are of special concern for drywell bypass leakage. A major potential contributor to drywell bypass leakage is through the four 10" post-LOCA vacuum relief lines. Each of the four penetrations has two relief valves in series that are normally sealed shut by the slightly higher pressure in the drywell. Technical Specifications require that these valves be verified to be in the closed position at least once per day. The effective $A/\sqrt{k}$ for each penetration is $0.22 ft^2$ (approximately 18.4% of the design value). As discussed in the licensee's letter of August 31, 1990, assuming the drywell bypass leakage is initially at the Technical Specification limit (i.e., 10% of the design value), all four of the post-LOCA vacuum relief penetrations could be fully open without exceeding the design value.

The drywell vent and purge system has two 24-inch supply isolation valves in series (1VQ001A & 1VQ001B). Technical Specifications require that both of these valves be sealed closed during Operational Conditions 1, 2, and 3 and that they be verified to be in the closed position at least once per 31 days. The drywell vent and purge system has two exhaust isolation valves (10-inch valve 1VQ005 and 24-inch 1VQ002). Technical Specifications only permit these valves to be open for a total of five hours per 365 days.

Another potential bypass leakage path is through the drywell personnel air locks. The licensee has proposed that one drywell door shall remain open during the drywell leakage test, such that each drywell door is leak tested during at least every other leakage rate test. While the proposed DBLRT test frequency will only test the air lock doors once every 10 years, Technical Specification 3.6.5.2, "Drywell Air Lock," requires an overall air lock leakage test at 3.0 psig at least once every 18 months. In addition, Technical Specifications require that the gap between the dual seals be pressurized to 3.0 psig, and leak tested within 72 hours following each closing.

Two further arguments were also presented by the licensee to provide additional justification for their proposed change. An analysis was conducted

to determine the potential risk to the public due to the increased probability that a large increase in drywell bypass leakage could go undetected for an extended period of time. The licensee's analysis concluded that the added risk of radioactivity release from containment was negligible.

The licensee's final argument was based on their ability to make a continuing on-line assessment of drywell integrity. The drywell is constantly being pressurized due to instrument air in-leakage and must be vented approximately once per day when drywell pressure approaches 1.0 psig. An analysis using the drywell leakage rate measured during the last refueling outage and the most recent drywell pressurization rate (known to be approximately 0.04 psi/hr), has back-calculated the instrument air in-leakage to be approximately 23 scfm. This information can be used by the licensee to provide a qualitative assessment of drywell integrity. While an increase in the pressurization rate would be indicative of an increase in instrument air in-leakage, a decrease in pressurization rate would be indicative of a larger drywell leak path. The $A/\sqrt{k}$ for a 23 scfm leak at 0.2 psig is 0.0025 ft^2 or 0.2% of the allowable leakage area. Therefore, the licensee has concluded that as long as the drywell continues to pressurize, an unacceptable leakage path does not exist and drywell integrity is assured.

In summary, the licensee has provided detailed justification to decrease the frequency of performing DBLRTs. The performance of DBLRTs is expensive and adds to the outage critical path. Past DBLRTs performed at the CPS have consistently demonstrated margins of two orders of magnitude. The potential bypass leak paths of most concern, have been addressed by the licensee and reasonable assurance has been provided to prevent them from becoming significant contributors to bypass leakage paths. Finally, a risk analysis and the qualitative argument that maintaining a positive pressure in the drywell assures drywell integrity adds further support to extend the test interval.

The staff has concluded that a technical basis may exist to grant some amount of relaxation for the performance of DBLRTs. This conclusion is based upon the fact that 1) all previous DBLRT tests have been successful, 2) all previous DBLRT test results have had significant margins against acceptance criteria, 3) there is no discernable negative trend in test results and 4) the continuing ability to maintain a positive pressure in the drywell provides some qualitative assurance that unacceptable leakage paths do not exist. However, the staff has not been able to conclude that the licensee's original proposal for a 10-year interval is appropriate. Concerns that this was an exceptionally long test frequency resulted in the licensee submitting an alternative test interval of five years. This was proposed in the licensee's letter of October 14, 1994.

Based on the information described above, the staff concludes that sufficient technical basis exists, particularly by the previously good leakage performance of the Clinton drywell, to permit the licensee to forego performance of the DBLRT during the fifth refueling outage (RF-5) scheduled to begin in March 1995. Therefore, based on this agreement and the licensee's acknowledgment letter of February 6, 1995, the staff approves this one-time

only change to the Technical Specifications. Further relaxation of the DBLRT test frequency will focus on alternative, periodic monitoring capabilities and will be the subject of future discussions with the licensee.

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 and changes surveillance requirements. 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 (59 FR 49427). 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 V. Pickett

Date: March 1, 1995