

ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

March 11, 1986

Docket No. 50-461

Director of Nuclear Reactor Regulation
Attention: Dr. W. R. Butler, Director
BWR Project Directorate No. 4
Division of BWR Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Clinton Power Station - Additional Information
Regarding Request for Exemption from 10CFR50,
Appendix J, Leak Test Requirements

Dear Dr. Butler:

Illinois Power (IP) Letter U-600296, dated December 9, 1985, requested that the NRC grant two specific exemptions to the leak test requirements of Appendix J to 10CFR50 for the licensed operating lifetime of the Clinton Power Station (CPS). Specifically, the exemptions requested related to 10CFR50, Appendix J, Paragraph III.C.3 requirements for Main Steam Isolation Valve leak rate tests and Paragraph III.D.2(b)(ii) requirements for Containment Air Lock leakage testing. This request was in accordance with that version of 10CFR50.12 of the Commission's regulations in effect at that time. On December 12, 1985, the Commission issued (Federal Register, Vol. 50, No. 239, Page 50764) a final revision to 10CFR50.12. As a result of the revised rulemaking, Mr. B. L. Siegel (NRC Clinton Licensing Project Manager) requested that IP submit additional information regarding CPS compliance with the December 12, 1985, final rule on 10CFR50.12. An evaluation of CPS compliance to the revised rule is provided herein as an attachment.

Section 50.12(a)(1) of the revised final rule authorizes the Commission to grant exemptions which are:

" . . . authorized by law, will not present an undue risk to the public health and safety, and are consistent with the common defense and security."

As described in the attachment, the previous evaluation provided in the above referenced IP letter still applies to the revised 10CFR50.12 rule. Specifically, the two requested exemptions to 10CFR50, Appendix J, are authorized by law, will not present undue risk to the public health and safety and will not impact the common defense and security.

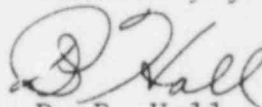
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Section 50.12(a)(2) of the revised final rule provides that the Commission will not consider granting an exemption unless special circumstances are present. The special circumstances under which the Commission will grant an exemption, provided that the general standards of Section 50.12(a)(1) are also met, are identified in Sections 50.12(a)(2)(i) through (vi). The attachment provides IP's evaluation of these special circumstances. As noted in the attachment, Sections 50.12(a)(2)(ii), (iii), (iv) and (vi) apply to these specific exemptions.

An affidavit in support of these requests is also attached. Please contact F. A. Spangenberg of my Staff if there are any questions regarding these specific exemption requests.

Sincerely yours,



D. P. Hall
Vice President

TLR/ckc

Attachment

cc: Mr. B. L. Siegel, NRC Clinton Licensing Project Manager
NRC Resident Office
Region Administrator, Region III, USNRC
Illinois Department of Nuclear Safety

AFFIDAVIT

ILLINOIS POWER
COUNTY OF DEWITT

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ss.

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D. P. Hall being first duly sworn, deposes and says:

That he is Vice President of Illinois Power Company, the Applicant herein; that he has reviewed the foregoing request, pursuant to Section 50.12, as revised on December 12, 1985, per Federal Register, Vol. 50, No. 239, page 50764, of the United States Nuclear Regulatory Commission's regulations, for certain specific exemptions to the requirements of Appendix J to 10CFR Part 50 together with the Justification For The Requested Exemptions and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.



D. P. Hall - Vice President

Subscribed and sworn to

before me this day *11th day of March*
of 1986.



Notary Public

My Commission Expires *Oct 1, 1986*

JUSTIFICATION FOR THE REQUESTED EXEMPTIONS
TO 10CFR50 APPENDIX J

10CFR50.12(a)(1)

In accordance with 10CFR50.12(a)(1), the Commission may grant exemptions under the following circumstances: (I) the activities to be conducted are authorized by law, (II) operation with the exemption will not present undue risk to the health and safety of the public, and (III) the common defense and security are not endangered. The evaluations to these standards, contained herein, are in accordance with 10CFR50.12 as revised by final rule dated December 12, 1985 (Federal Register, Volume 50, No. 239, page 50764).

I. The Requested Exemptions and the Activities Which Would Be Allowed Thereunder Are Authorized by Law

There are no other prohibitions of law to preclude the activities which would be authorized by the requested exemption. Therefore, the Commission is authorized by law to grant this exemption request.

II. The Requested Exemptions Will Not Present Undue Risk to the Health and Safety of the Public

The evaluation of "no undue risk" considers such factors as the type of plant operation contemplated, the length of time the exemption would be in effect, the existence of alternative means of compliance or compensatory measures, and other safety factors. The results of the evaluations considering these factors are discussed below.

A. Containment Air Lock Testing

10CFR50, Appendix J, Paragraph III.D.2(b) details three explicit air lock testing requirements. Proposed CPS Technical Specification 4.6.1.3 items a and b correspond to, and comply with, those Appendix J requirements with one exception.

Appendix J, Paragraph III.D.2(b)(ii) requires that "Air locks opened during periods when containment integrity is not required by the plant's Technical Specifications shall be tested at the end of such periods at not less than Pa." Whenever the plant is in OPERATIONAL CONDITIONS 4 or 5, PRIMARY CONTAINMENT INTEGRITY is not required. Therefore, if an air lock is opened during either of these conditions, paragraph III.D.2(b)(ii) requires that an overall air lock leakage test at not less than Pa be conducted prior to entry into OPERATIONAL CONDITION 3.

This requirement is excessively restrictive since it requires a termination of containment entries while preparing to leave OPERATIONAL CONDITION 4 until the air lock that was opened and operated in OPERATIONAL CONDITION 4 or 5 is tested pursuant to paragraph III.D.2(b)(ii). PRIMARY CONTAINMENT entries during OPERATIONAL CONDITION 4 are important to ensure that surveillance requirements and minor maintenance activities are completed. The requirements of paragraph III.D.2(b)(ii) would apply even if the six month testing requirement of paragraph III.D.2(b)(i) had been satisfied. Subsequent containment entries while in OPERATIONAL CONDITION 4 would require retesting of the air lock utilized. Access to containment during periods when PRIMARY CONTAINMENT INTEGRITY is required by plant Technical Specifications is governed by paragraph III.D.2(b)(iii).

The existing air lock doors are so designed that a full pressure test at Pa of an entire air lock can only be performed after strongbacks (structural bracing) have been installed on the inner door. This is because the pressure exerted on the inner door during the test is in a direction opposite to that of force experienced during a postulated accident and the locking mechanisms are not designed to withstand such reverse forces. Installing strongbacks, performing the test, and removing the strongbacks, is a cumbersome process requiring at least 12-14 hours during which access through the air lock is prohibited.

The Appendix J periodic 6-month test requirement of paragraph III.D.2(b)(i) and the 3-day test requirement of paragraph III.D.2(b)(iii) provide assurance that the air lock will not leak excessively if no maintenance which could affect the ability of the airlock to seal has been performed on the air lock and if the air lock is properly engaged and sealed. An exemption from paragraph III.D.2(b)(ii) of Appendix J is requested since the proposed CPS Technical Specifications (provided in IP Letter U-600296, dated December 9, 1985) are substantially as safe as the requirement itself. This exemption is included as a part of the NRC Standard Technical Specifications (NUREG-0123) and is consistent with current regulatory practice and policy.

Because of Technical Specification surveillance requirements, the requested exemption involves a de facto requirement for an air lock seal test in lieu of the III.D.2(b)(ii) test. Appendix J, Paragraph III.D.2(b)(iii) already allows an air lock seal test in lieu of a similar required air lock test at a pressure of not less than Pa. Thus the functional equivalence of these tests under similar circumstances has been recognized. IP proposes an alternative test to be conducted during those periods when PRIMARY CONTAINMENT INTEGRITY is not required by the Plant Technical Specifications and prior to entering OPERATIONAL CONDITION 3. The alternative test consists of testing the seals of

the inner and outer doors by pressurizing the area between the seals to Pa (9.0 psig) and verifying an acceptable leakage rate of less than or equal to 5 standard cubic feet per hour (scfh). If, however, maintenance has been performed on the air lock since the last successful test performed pursuant to paragraph III.D.2(b)(i), an overall air lock test will be performed.

It is concluded that there is reasonable assurance against undue air lock leakage provided under the exemption and no material increase in the probability or extent of air lock leakage is to be expected. Therefore, there is no significant increase in the probability of higher post-accident offsite or onsite doses related to the exemption and no significant increase in environmental impact beyond that experienced without an exemption. As a result, this exemption will not present undue risk to the health and safety of the public.

B. Main Steam Isolation Valves (MSIVs)

10CFR50, Appendix J, Paragraph III.C.3 requires that the measured MSIV leak rates be included in the summation of the local leak rate test results. An exemption is requested to exclude the measured leakage from the combined local leak rate test results.

The MSIV Leakage Control System is designed to control and minimize the release of fission products that could leak through the closed MSIVs after a Loss of Coolant Accident (LOCA) by maintaining a negative pressure between the MSIVs. The effluent will be discharged directly to the Standby Gas Treatment System where it will be treated before being released to the environs. A radiological analysis, including this potential source of containment atmosphere leakage (28 scfh per steamline), was performed and the results documented in the CPS FSAR Chapter 15. The MSIVs will be periodically leak rate tested to verify that the leakage assumed in the radiological analysis is not exceeded per CPS Technical Specification 3.6.1.2.c (provided in IP Letter U-600296, dated December 9, 1985).

Supplement #2 to the NRC CPS Safety Evaluation Report (SSER #2), Section 6.2.6, addresses the proposed MSIV leak test program. As noted on SSER #2 page 6-7, the proposed program is acceptable to the Staff. Also, SSER #2, Section 6.7 concludes that the design of the MSIV Leakage Control System at CPS is acceptable.

An exemption from paragraph III.C.3 of Appendix J is requested since the proposed Technical Specification is substantially as safe as the requirement itself and does not endanger public health and safety. This exemption is included as part of the NRC Standard Technical Specifications (NUREG-0123) and is consistent with current regulatory practice and policy. Therefore, literal compliance with Appendix J for this item is unwarranted.

The proposed CPS Technical Specification requirements provide reasonable assurance against undue MSIV leakage and no material increase in the probability or extent of MSIV leakage is to be expected. Therefore, there is no significant increase in the probability of higher post-accident offsite or onsite doses related to the exemption and no significant increase in environmental impact beyond that experienced with no exemption. As a result, this exemption will not present undue risk to the health and safety of the public.

III. The Requested Exemptions Will Not Endanger the Common Defense and Security

The requested exemptions will have no impact on the common defense and security.

In conclusion, the standards of 10CFR50.12(a)(1) are met for these two specific exemptions.

10CFR50.12(a)(2)

In accordance with 10CFR50.12(a)(2), the Commission will not consider granting an exemption unless special circumstances are present. Special circumstances in which the Commission believes it would be reasonable to grant an exemption are identified in Sections 50.12(a)(2)(i) through (vi) of the revised final rule. The following evaluations pertain to each of these criteria.

50.12(a)(2)(i) - "Application of the regulation in the particular circumstances would be in conflict with other rules or requirements of the Commission."

The specific exemption requests discussed herein are not applicable to the special circumstance of Section 50.12(a)(2)(i).

50.12(a)(2)(ii) - "Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule."

Application of this special circumstance shows that application of the regulation is not necessary to serve the specific purpose of the regulation.

The Containment Air Lock and MSIV leakage rate testing is performed to ensure PRIMARY CONTAINMENT INTEGRITY. PRIMARY CONTAINMENT INTEGRITY ensures that the release of radioactive materials from the containment atmosphere will be restricted to those leakage paths and associated leak rates assumed in the accident analyses. The restriction, in conjunction with the leakage rate limitation, will limit the site boundary radiation doses to within the limits of 10CFR Part 100 during accident conditions.

The limitations on containment leakage rates ensure that the total containment leakage volume will not exceed the value assumed in the accident analyses at the peak accident pressure of 9.0 psig, Pa. Calculated doses resulting from the maximum leakage allowance for the Main Steam Isolation Valves in the postulated LOCA situations would be a small fraction of the 10CFR100 guidelines, provided the main steam line system from the isolation valves up to and including the MSIV Leakage Control System motor-operated boundary valve remains intact. Operating experience has indicated that degradation has occasionally occurred in the leaktightness of the MSIVs such that the specified leakage requirements have not always been maintained continuously. The requirement for the leakage control system will reduce the untreated leakage from the MSIVs when isolation of the primary system and containment is required.

As noted above, and in the previous discussion of "no undue risk", the application of the requirements of 10CFR50, Appendix J, Paragraphs III.D.2(b)(ii) and III.C.3 is not necessary to serve the underlying purpose of these regulations. This is true since the alternatives presented for CPS limit the postulated accident doses to within the 10CFR100 guidelines. Therefore, the special circumstances of Section 50.12(a)(2)(ii) apply to these specific exemption requests.

50.12(a)(2)(iii) - "Compliance would result in undue hardship or other costs that are significantly in excess of those incurred by others similarly situated."

This special circumstance is intended to provide equitable treatment to all applicants and licensees. As noted in the discussion of the Containment Air Lock test exemption request, undue hardships or unnecessary difficulties, in the form of excessive restrictions to Containment access and the cumbersome process of installing/removing strongbacks on the inner door, would result from literal compliance to 10CFR50, Appendix J, Paragraph III.D.2(b)(ii). Such literal compliance to this Appendix J requirement would not result in any measurable difference in protection to the public health and safety relative to the protection afforded if this exemption is granted. In addition, similar exemptions to these requirements have been granted by the NRC for the Grand Gulf Nuclear Station and Fermi Unit 2. Therefore, with respect to the Containment Air Lock test exemption, the special circumstance of Section 50.12(a)(2)(iii) applies.

- 50.12(a)(2)(iv) - "The exemption would result in benefit to the public health and safety that compensates for any decrease in safety that may result from the grant of the exemption."

The above discussions on the Containment Air Lock and MSIV leak rate test exemptions support the basis for this special circumstance. In both exemption requests, the CPS design and/or alternative testing is substantially as safe as the requirements themselves. Furthermore, the MSIV Leakage Control System will reduce the untreated leakage from the MSIVs when isolation of the primary system and containment is required. Use of the MSIV Leakage Control System will result in a net benefit to the public health and safety. Therefore, the special circumstance of Section 50.12(a)(2)(iv) applies to these specific exemptions.

- 50.12(a)(2)(v) - "The exemption would provide only temporary relief from the applicable regulation and the licensee or applicant has made good faith efforts to comply with the regulation."

This special circumstance does not apply to these exemption requests since they are for the operating lifetime of CPS.

- 50.12(a)(2)(vi) - "There is present any other material circumstance not considered when the regulation was adopted for which it would be in the public interest to grant an exemption."

This special circumstance relates only to the MSIV leak test exemption request. When 10CFR50, Appendix J, Paragraph III.C.3 was adopted, no special consideration was given to the development of systems, such as the MSIV Leakage Control System, with the design basis for treating such leakage independent of other radioactive leakage to the environs. It is in the public interest to grant this exemption, since independent treatment of MSIV leakage results in an improvement to public health and safety.

As a result of the evaluations contained herein, IP considers the applicable provisions of 10CFR50.12 have been met and that, on this basis, the NRC should grant these specific exemptions to 10CFR50, Appendix J.