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JSP-158-93  
April 16, 1993

U-602122  
147-93(04-16)LP  
8E.100a

10CFR50.12  
10CFR50.90

Docket No. 50-461

Document Control Desk  
Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Application for Exemption from 10CFR50  
Appendix J and Amendment of Facility Operating  
License No. NPF-62 for Clinton Power Station (LS-93-002)

Dear Sir:

Pursuant to 10CFR50.12 and 10CFR50.90, Illinois Power Company (IP) hereby applies for a partial exemption from the requirements of 10CFR50 Appendix J and an associated amendment of Facility Operating License No. NPF-62. Specifically, this request consists of a proposed partial exemption from 10CFR50 Appendix J which would permit the Control Rod Drive (CRD) system to be left in its normal operating configuration with a CRD pump running during the Containment Integrated Leak Rate Test (ILRT). The proposed exemption will necessitate a revision to paragraph 2.D of the CPS Operating License to reflect NRC approval of the proposed partial exemption.

A description of the proposed exemption, the associated justification and a description of the special circumstances (as required by 10CFR50.12) are provided in Attachment 2. In addition, Attachment 2 provides a description and the associated justification (including a Basis for No Significant Hazards Consideration) for the proposed operating license change. Marked-up copies of the affected pages from the current operating license are provided in Attachment 3. Further, an affidavit supporting the facts set forth in this letter and its attachments is provided in Attachment 1.

IP has reviewed the proposed changes against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, or significantly increase the amounts or change the types of effluents that may be released offsite, nor do they significantly increase individual or cumulative occupational radiation exposures. The proposed exemption and associated Operating License change will permit the CRD system to be left in its normal operating configuration with the CRD pump running during the Containment ILRT. The leakage associated with the CRD pump

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discharge line penetration will be determined during Appendix J Type C testing conducted during the same refueling outage as the ILRT. The minimum pathway leakage for this penetration will then be added to the ILRT 95% upper confidence level results. The use of this method will assure the addition of an equivalent leakage to that anticipated during the ILRT. In addition, the resulting overall integrated leakage rate is required to meet the allowable values as specified in the Technical Specifications. Therefore, it can be concluded that the proposed changes will not have a significant effect on the quality of the human environment.

For convenience, Attachment 3 includes all outstanding proposed changes to the Operating License. The mark-up includes those changes proposed by IP in its letter (U-602007) dated February 17, 1993 as well as the changes proposed by this letter. The changes addressed by this letter are identified by revision bars for clarity.

Please note that IP desires to implement this request during the fourth refueling outage at CPS (which is currently scheduled to begin September 26, 1993). Therefore, IP requests that this application be reviewed on a schedule sufficient to support this outage.

Sincerely yours,



J. S. Perry  
Senior Vice President

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Attachments

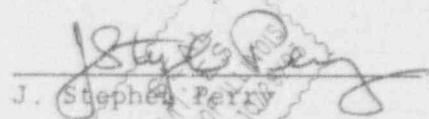
cc: NRC Clinton Licensing Project Manager  
NRC Resident Office, V-690  
Regional Administrator, Region III, USNRC  
Illinois Department of Nuclear Safety

STATE OF ILLINOIS  
COUNTY OF DEWITT

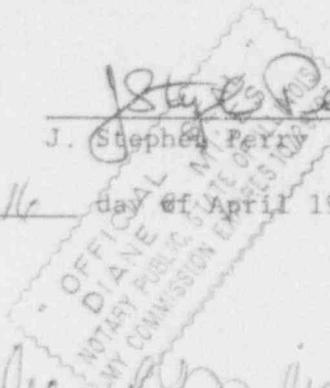
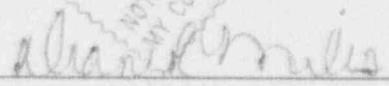
J. Stephen Perry, being first duly sworn, deposes and says: That he is Senior Vice President of Illinois Power Company; that the application for amendment of Facility Operating License NPF-62 has been prepared under his supervision and direction; that he knows the contents thereof; and that to the best of his knowledge and belief said application and the facts contained therein are true and correct.

DATED: This 16 day of April 1993

Signed:

  
J. Stephen Perry

Subscribed and sworn to before me this 16 day of April 1993.

  
  
Notary Public

### Background

In accordance with 10CFR50.54(o), primary reactor containments are subject to periodic leak rate testing as set forth in Appendix J to 10CFR50. As stated in Appendix J, "the purposes of these tests are to assure that (a) leakage through the primary reactor containment and systems and components penetrating primary containment shall not exceed allowable leakage rate values as specified in the technical specifications or associated bases and (b) periodic surveillance of reactor containment penetrations and isolation valves is performed so that proper maintenance and repairs are made during the service life of the containment and systems and components penetrating primary containment". Clinton Power Station (CPS) Technical Specification 3/4.6.1.2, "Primary Containment Leakage," provides additional requirements for performing leakage rate testing and specifies the associated limits.

The Control Rod Drive (CRD) hydraulic system is one system which penetrates containment and is therefore subject to testing in accordance with Appendix J. The CRD hydraulic system generates the hydraulic force required for normal insertion, withdrawal or rapid insertion (scramming) of the control rods. The system also provides cooling water to the CRD mechanisms, seal purge flow to the Reactor Recirculation pump seals and a means of high pressure emergency vessel makeup. Isolation of this system and all of its loads is required to perform the required Appendix J testing.

As described in detail below, Illinois Power (IP) is requesting a partial exemption from 10CFR50 Appendix J for the CRD hydraulic system penetration in accordance with 10CFR50.12. The proposed exemption will necessitate a revision to the CPS Operating License as also described below.

### Description of Proposed Changes

In accordance with 10CFR50.12, IP is requesting a partial exemption from the 10CFR50 Appendix J, Paragraph III.A.1.(d) requirement for CRD system penetration LMC-63 which would permit the CRD hydraulic system to be left in its normal operating configuration with a CRD pump running during the containment Integrated Leak Rate Test (ILRT).

Consistent with the proposed partial exemption from 10CFR50 Appendix J, IP is also requesting changes to paragraph 2.D of the CPS Operating License (NPF-62) to reflect approval of this partial exemption. The proposed change to the Operating License is identified on the marked-up copy of the affected pages included in Attachment 3.

### Justification for Proposed Changes

As stated in 10CFR50.12(a), the NRC may grant exemptions from the requirements of its regulations when special circumstances are present. 10CFR50.12(a)(2) defines the special circumstances under which the NRC may grant exemptions from the regulations.

Paragraph III.A.1.(d) of 10CFR50 Appendix J requires that portions of fluid systems that are part of the reactor coolant pressure boundary and open to the containment post-accident be vented and drained to assure they will be exposed to containment air test pressure during the ILRT. As described above, IP is

requesting a partial exemption from this requirement of Appendix J Paragraph III.A.1.(c) for CRD penetration IMC-63. The proposed exemption is evaluated against the criteria of 10CFR50.12 below.

In accordance with 10CFR50.12(a)(2)(ii), special circumstances exist when application of the regulation in that particular circumstance would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule. The purpose of the leak test requirements, as stated in Appendix J to 10CFR50, is to provide assurance that leakage through the containment and through systems and components penetrating the containment do not exceed the allowable values specified in the Technical Specifications. The proposed exemption would allow a penetration valve lineup configuration that deviates from that required by Appendix J, Paragraph III.A.1.(d). Specifically, the CRD pump discharge line would not be isolated and the system would be left in its normal operating configuration with a CRD pump running during the ILRT. The leakage associated with this penetration (IMC-63) will be determined during Type C testing conducted during the same refueling outage. The minimum pathway leakage as determined by this Type C testing will then be added to the Type A test 95% upper confidence level results. The use of this method assures the addition of an equivalent leakage to that anticipated during the ILRT. The resulting overall integrated leakage rate is required to meet the allowable values as specified in Technical Specification 3.6.1.2. Therefore, the actions proposed by the requested exemption satisfy the underlying purpose of Appendix J.

In addition to the above, 10CFR50.12(a)(2)(iii) indicates special circumstances also exist when compliance with the regulation would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted. Isolation of penetration IMC-63 for the ILRT results in the need to restore the CRD system to operability late in the refueling outage which involves a large number of critical path man-hours as well as additional exposure for operators and support personnel.

At CPS, Type C testing of CRD pump discharge line penetration (IMC-63) is completed early in the refueling outage schedule. General practice at CPS is to then restore the CRD system to its normal operating configuration as soon as possible following this local leak rate testing. Immediate restoration, as a matter of proper layup procedure, limits the time when flow in the system is isolated, thus reducing the potential for air intrusion into the system, preventing potential corrosion of the system and maintaining CRD seal cleanliness. Because Appendix J, Paragraph III.A.1.(d) requires the CRD hydraulic system to be exposed to the containment atmosphere by venting and draining the system on both sides of the penetration during the ILRT, and because the ILRT is performed near the end of the outage, recovering the CRD system from the ILRT requires a second CRD system restoration. CRD system recovery from the ILRT with penetration IMC-63 vented per Appendix J represents a significant effort and drain on critical path resources to vent system piping and CRD mechanisms. The CRD system recovery is estimated to take 96 hours based on the 96 hours expended for this activity following the last ILRT performed during the second refueling outage. It is estimated that approximately 24 hours of this would be on critical path.

A major portion of the CRD system recovery effort consists of venting each of the 145 CRD insert/withdraw lines and mechanisms to remove trapped air. Prior to venting, the venting procedure requires a drain hose be connected to the

high point vent valves for a control rod's insert and withdraw lines and routed to an equipment drain. The vent valves are then opened while insert and withdraw signals are applied to the control rod. This procedure is repeated for each control rod until all air is purged from the system. Because of the location of the high point vent valves for the CRD insert and withdraw lines, this activity results in radiation exposure to the workers. Although the general area exposure rates are relatively low (approximately 2.5 millirem/hour), it is estimated the total dose to operators and other support personnel is 0.8 man-rem for this activity. IP believes the radiation exposure during this venting evolution to be an unnecessary burden on company resources and plant personnel especially in light of the new emphasis on ALARA as required by 10CFR20.1101.

Introducing relatively large volumes of air into the CRD hydraulic system increases the potential of damaging control rod drive mechanism (CRDM) seals during the outage recovery. If a scram signal occurs with a control rod withdrawn, air trapped in the hydraulic system can cause damage to the CRDM seals. Replacement of these seals requires removal and rework of the CRDM. This operation results in significant radiation exposure for those technicians involved and could significantly delay plant startup from the refueling outage. With the CRD system in its normal operating configuration during the ILRT, this extensive and time consuming rework can be avoided.

In summary, the considerable effort associated with CRD system restoration following the ILRT, the resulting radiation exposure, and the potential for equipment damage and associated rework represent a burden significantly in excess of that contemplated when Appendix J, Paragraph III.A.1.(d) was adopted. Therefore, the proposed exemption meets the intent of the regulation without imposing undue hardship.

Paragraph 2.D of the CPS Operating License documents approved exemptions from the requirements of 10CFR50 and 10CFR70. Therefore, IP is requesting a change to this paragraph to reflect NRC approval of the partial exemption to 10CFR50 Appendix J as described above. These changes merely document NRC approval of the proposed exemptions and identify the location where the special circumstances regarding these exemptions are identified. This change does not result in any technical changes to plant operation requirements other than those previously discussed above.

#### Basis For No Significant Hazards Consideration

According to 10CFR50.92, a proposed change to the Operating License involves no significant hazards consideration if operation of the facility in accordance with the proposed change would not: (1) involve a significant increase in the probability or the consequences of any 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 proposed change to the Operating License is evaluated against each of these criteria below.

- (1) This request does not involve a change in plant design. The proposed Operating License change is editorial in nature and merely reflects approval of the partial exemption from 10CFR50 Appendix J. Failure of or leakage through a containment barrier cannot create an accident and

therefore this request does not increase the probability of any accident previously evaluated. Failure of or leakage through a containment barrier can, however, increase the consequences of those accidents previously evaluated. This request involves an exemption from 10CFR50 Appendix J which permits the CRD system to be left in its normal operating configuration during the containment ILRT. Penetration minimum pathway leakage will be determined during Type C testing and will be added to the ILRT results. The resulting integrated leakage rate is required to meet the allowable values as specified in the CPS Technical Specifications. Therefore, the proposed changes will not result in a significant increase in the consequences of those accidents previously evaluated. This change does not involve any change to the Technical Specifications but ensures that the Operating License reflects the current approach to leak rate testing at CPS. Based on the above, the proposed changes cannot increase the probability or consequences of any accident previously evaluated.

- (2) The proposed changes do not involve a change to plant design or operation. The proposed change to the Operating License merely reflects approval of the partial exemption from 10CFR50 Appendix J. This request cannot create an accident or introduce new failure modes. As a result, these proposed changes cannot create the possibility of a new or different kind of accident from any accident previously evaluated.
- (3) The proposed changes do not alter or delete any Technical Specification requirements and as such maintain an equivalent level of safety. The only margin of safety that could be potentially impacted as a result of the Appendix J exemption is the margin concerning the offsite dose consequences of postulated accidents (which is directly related to the containment leak rate). As discussed above, this request does not result in a significant increase in the consequences of any accident previously evaluated. The addition of an equivalent leakage to that anticipated during the ILRT will ensure any leakage through the CRD hydraulic system penetration is accounted for. The resulting overall integrated leakage rate is still required to meet the Technical Specification requirements. As a result, the proposed changes do not result in a significant reduction in the margin of safety.

Based upon the foregoing, Illinois Power has concluded that this proposed change does not involve a significant hazards consideration.