7590-01

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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| In the Matter of | ) | |
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| ILLINOIS POWER COMPANY AND | ) | |
| SOYLAND POWER COOPERATIVE, INC. | ) | Docket No. 50-461 |
| | ) | |
| (Clinton Nuclear Power Station) | ) | |

EXEMPTION

I.

The Illinois Power Company, (IP), and Soyland Power Cooperative, Inc. (the licensees), are the holders of Facility Operating License No. NPF-62 (the license) which authorizes operation of the Clinton Power Station, Unit No. 1 (CPS). The license provides, among other things, that it is subject to all rules, regulations and Orders of the Nuclear Regulatory Commission (the Commission) now and hereafter in effect.

The facility consists of a boiling water reactor and other supporting facilities located at the licensee's site in Harp Township, DeWitt County, Illinois.

II.

By letter dated December 23, 1991, IP (the licensee) requested a permanent exemption from the local leak rate testing of the Reactor Core Isolation Cooling (RCIC) vacuum breaker line associated with containment penetration 1MC-64 and the leakage rates associated with the valve packing and body-to-bonnet seal of test boundary valve 1E51-F374, as required by Appendix J to 10 CFR Part 50, and applied for an amendment to Operating License No. NPF-62 to change certain provisions of the Technical

Specifications (TS) for the CPS. The requested exemption is needed since the strict application of the requirements of Appendix J to 10 CFR Part 50 is not necessary to achieve the underlying purpose of the rule and would impose undue hardships to the licensee.

Valve 1E51-F374 is associated with containment penetration 1MC-44, the Reactor Core Isolation Cooling (RCIC) vacuum breaker line. The containment isolation valves for this penetration are outside of containment; there are no valves in the line inside containment, where the line simply ends, open to the containment atmosphere. Valve 1E51-F374 is located in the line outside containment, between the containment wall and the first containment isolation valve. It is a block valve which is closed during the local leak rate testing of the adjacent containment isolation valve, allowing that valve to be tested in the "forward" direction; that is, with pressure applied in the same direction as that which would exist if the valve were required to perform its safety function (outward from containment). The position of valve 1E51-F374, outside containment but before the first containment isolation valve, makes the valve's body part of the containment boundary, and leakage through it to the environment (such as through the packing or body-to-bonnet seal) is containment leakage that must be measured and maintained within limits.

Valve 1E51-F374 is a gate valve. Because this valve is normally in the open position, the valve's packing and body-to-bonnet seal are normally exposed to the containment atmosphere. These potential leakage pathways are therefore required to be included in the local leak rate test boundary per Appendix J. However, because of the gate valve design, it cannot be confirmed that the valve's packing and body-to-bonnet seal are exposed to the test pressure when the valve is in the closed position (i.e., during the performance of

local leak rate tests). As a result, the requirements of Appendix J would require this valve to be in the open (i.e., post-accident) position during local leak rate testing.

As identified in LER 90-018, several alternatives were evaluated to correct this testing deficiency. One alternative consisted of identifying alternate testing configurations. Another alternative consisted of modifying the valve to allow the body-to-bonnet seal and valve packing to be pressurized during local leak rate testing. Modification of the valve was determined by the licensee to be inappropriate as such a modification would degrade the valve's sealing capability (valve-to-seat), making it more difficult to successfully pass the Type C tests on the adjacent isolation valves. Further, performance of such a modification would result in radiation exposure during implementation (the valve is located in the Residual Heat Removal heat exchanger room).

Alternate testing configurations that were evaluated consisted of installing a plug inside containment in the end of this line and/or connecting the leak rate testing rig to the pipe end. As this line terminates over and approximately 10 feet above the suppression pool, a temporary scaffold would have to be erected to gain access to the pipe end. The licensee estimates that erecting and disassembling a temporary scaffold in this area would take approximately 80 man-hours and result in approximately 100 mrem radiation exposure each refueling outage. (It should be noted that this estimate is based on current plant conditions with no known leaking fuel and no significant safety/relief valve leakage. As a result, background radiation levels for performing these activities would likely increase over plant life). In addition, erecting a temporary scaffold would create additional radioactive

waste and would increase the potential for foreign objects to be introduced into the suppression pool.

The licensee has evaluated each of these alternatives and determined that the additional radiation exposure and resource expenses far outweigh the benefits to be gained by including the valve packing and body-to-bonnet seal of valve 1E51-F374 in the local leak rate test boundary. This valve is located in a nominal 3-inch line and is exercised each refueling outage solely for the performance of the Type C test for this containment penetration's associated isolation valves. This line normally contains air at containment pressure and temperature. As a result, the valve packing and body-to-bonnet seal are not subjected to degradation due to large thermal or hydraulic transients. Further, any air leakage through these pathways would be filtered by the standby gas treatment system prior to release to the environment. For these reasons, the licensee believes that leakage through these potential leakage pathways would not be significant, and therefore, inclusion of these pathways in the local leak rate test boundary is not necessary. In addition, these potential leakage pathways are included in the Integrated Leak Rate Test (ILRT) boundary, and thus, any leakage through these pathways will be included in the total leakage rate measured during an ILRT. To provide added assurance that these pathways do not constitute a significant leakage source and to provide additional indication when repairs are necessary, the body-to-bonnet seal and valve packing of valve 1E51-F374 will be leak tested with a soap solution during each ILRT.

The staff finds that the additional assurance of leak-tight integrity of the subject leakage pathways provided by local leak rate testing, when compared to the proposed alternate soap solution test during each ILRT, is not

great enough to justify the costs associated with local leak rate testing, described above. The small size and mild environment of the valve makes it unlikely that the packing or body-to-bonnet seals will degrade quickly and experience a leak that would add significantly to the radiological consequences of a LOCA, considering also the action of the standby gas treatment system. The local leak rate test, performed at every refueling outage (but at least every two years), would be replaced by the roughly equivalent ILRT-with-soap-solution test performed approximately every 3-1/2 years (typically every other refueling outage). This increase in test interval is acceptable, considering the likely stable nature of the leakage pathways, as discussed above.

III.

Accordingly, the NRC staff has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or the common defense and security and is otherwise in the public interest and that special circumstances are present pursuant to 10 CFR 50.12(a)(2)(ii) which states, "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." The NRC staff hereby grants an exemption with respect to one of the requirements of 10 CFR Part 50, Appendix J:

> The Clinton Power Station, Unit No. 1 Technical Specifications may be revised to allow the exclusion of the local leak rate testing of the Reactor Core Isolation Cooling (RCIC) vacuum breaker line associated with containment penetration 1MC-44 and the leakage rates associated with the valve packing and body-to-bonnet seal of test boundary valve 1E51-F374, as required by Appendix J to 10 CFR Part 50. This Exemption does not alter the existing requirements for any other containment isolation valves.

Pursuant to 10 CFR 51.32, the Commission has determined that the issuance of this exemption will have no significant impact on the quality of the human environment (57 FR 18938 ).

This Exemption is effective upon issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by

Bruce A. Boger, Director
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 4th day of May 1992

| PD3-3:LA:DRPW | PD3-3:PM:DRPW | PD3-3:PD:DRPW | OGC | AD:R3:DRPW |
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| PKreutzer | CCarpenter/bj | JHannon | | JZwolinski |
| 4/22/92 | 4/22/92 | 4/24/92 | 4/23/92 | 4/24/92 |

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