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ILLINOIS POWER COMPANY



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

Docket No. 50-461

September 19, 1985

Mr. James G. Keppler
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

SUBJECT: Potential 10CFR50.55(e) Deficiency 55-85-03
Firewall Structures Fabricated Using
Unqualified Material

Dear Mr. Keppler:

On April 4, 1985, Illinois Power Company notified Mr. F. Jablonski, NRC Region III (Ref. IP memorandum Y-26230 dated April 4, 1985) of a potentially reportable deficiency involving firewalls constructed with 8 inch hollow core concrete masonry units (CMUs) that may not meet the three (3) hour fire resistance rating stated in the Clinton Power Station (CPS) Fire Protection Evaluation Report (FPER-1978). This initial notification was followed by one (1) interim report (Ref: IP letter U-10273, D. P. Hall to J. G. Keppler, dated May 3, 1985). Illinois Power's investigation of this issue is complete. Our investigation into this matter has determined that this issue does not represent a reportable deficiency under the provisions of 10CFR50.55(e). This letter is submitted as a final report in accordance with the requirements of 10CFR50.55(e). Attachment A provides the details of our investigation.

We trust that this final report provides you sufficient background information to perform a general assessment of this potentially reportable deficiency and adequately describes our overall approach to resolve this issue.

Sincerely yours,

D. P. Hall
Vice President

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RLC/lab

Attachment

cc: NRC Resident Office
Director, Office of I&E, US NRC, Washington, DC 20555
Illinois Department of Nuclear Safety
INPO Records Center

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ATTACHMENT A

Illinois Power Company
Clinton Power Station

Docket No. 50-461

Potential 10CFR50.55(e) Deficiency 55-85-03
Firewall Structures Fabricated Using
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Final Report

Statement of Potentially Reportable Deficiency/Background

During the Clinton Independent Design Review (IDR) Fire Protection Walkdown, performed by Bechtel, questions were raised regarding the existing documentation for the fire resistance rating of the hollow core concrete masonry walls constructed at the Clinton Power Station. Subsequent to the questions raised by the IDR personnel, Sargent & Lundy (S&L) and Illinois Power personnel, performing a similar walkdown during December 1984, requested Baldwin Associates to supply documentation regarding the fire resistance rating of the subject block walls. Baldwin Associates (BA) was unable to supply the requested documentation that would support the required fire resistance rating indicated on the S&L Architectural Drawings.

Investigation Results

Illinois Power prepared and implemented an investigation plan to determine the extent of this deficiency at CPS. The investigation plan included the following actions:

1. A review of documentation was performed to determine the possible cause for purchasing unqualified material.
2. A review of documentation was performed to determine the quantity of material that was supplied by vendors other than the prime supplier. The physical properties of the material were also investigated.
3. Sargent & Lundy evaluated the material to determine the fire resistance rating.

A review of the BA purchase orders indicates that the blocks were purchased to minimum strength requirements in accordance with Specification K-2944.

ATTACHMENT A (cont'd)

The Purchase Orders for the hollow masonry units were reviewed to determine the amount of material purchased from each supplier. There were four suppliers; however, Bloomington Builders Supplies, Bloomington, Illinois, provided approximately 91% of the hollow masonry units. Information supplied by Bloomington Builders Supplies indicated that the 8-inch hollow masonry units would have a two hour fire resistance rating.

Corrective Action

Sargent & Lundy reviewed the fire resistance rating of the firewalls, and in letters SLS-I-5092, dated April 29, 1985, and SLS-I-5102, dated May 3, 1985, made the following recommendations:

- 1) Revise the Control Room Fire Walls to two hour barriers.
- 2) Include the Diesel Day Tank Rooms within the Diesel Generator Fire Areas.
- 3) Add a suppression system to the Auxiliary Electric Equipment Room at elevation 781 in the Control Building.

Illinois Power, in letter S-5418, dated May 14, 1985, concurred, and the recommendations were implemented in the update of the Fire Protection Evaluation Report (FPER) and Safe Shutdown Analysis (SSA).

To confirm the manufacturer's test documentation, physical tests were performed on five blocks selected at random, to verify the two hour fire resistant rating. The blocks were tested in accordance with ASTM C140, Sampling and Testing of Concrete Masonry Units, and ASTM C856, Petrographic Examination of Hardened Concrete. The test results of the blocks indicated that the blocks were made of calcareous gravel with a fire resistant rating of approximately 1.9 hours. The fire resistance rating of 1.9 hours has been used in the update of the FPER and SSA.

The twelve inch hollow masonry was not investigated because the estimated effective thickness will provide the required fire resistance rating regardless of the type of aggregate used.

ATTACHMENT A
(continued)

In the future all new construction or changes in the combustibles in an area will be reviewed for fire protection concerns in accordance with the FPER to assure that the proper fire barriers are provided. NSED Procedure D.20, Processing of Plant Modifications (Normal), D.21, Processing of Plant Modifications (Minor) and D.22, Engineering Interdisciplinary Review of Plant Modifications provide for this review.

Although no additional firewalls are planned for CPS, Field Engineering Change Notice (FECN) No. 11762 was written against S&L Specification K-2944 to require documentation of the fire resistance rating of the concrete masonry used to construct firewalls.

Root Cause

The findings of this investigation were reviewed to determine the root cause. Based on this review it was determined that although the design drawings did specify a 3 hour firewall, BA purchased the masonry units to the minimum strength requirements only, since there was no specification requirement to submit documentation to support the fire resistance rating of the hollow masonry units.

Safety Implications/Significance

Illinois Power's investigation of this issue is complete. S&L has evaluated the findings regarding the fire resistance rating of hollow core concrete masonry units used to construct firewalls at CPS and has determined that the condition is not safety significant within the scope of 10CFR50.55(e) reporting. This evaluation and determination was based on the latest update of the Fire Protection Evaluation Report, the Safe Shutdown Analysis, and was independent of the suppression system added to meet Appendix R requirements.