

WISCONSIN PUBLIC SERVICE CORPORATION



P.O. Box 1200, Green Bay, Wisconsin 54305

September 5, 1984

Mr. Richard C. DeYoung, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. DeYoung:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
10 CFR Part 21 - Closeout Report on Fire Doors

References: 1) Letter from E. R. Mathews to V. Stello dated Nov. 20, 1980

On November 20, 1980 Wisconsin Public Service Corporation (WPSC) submitted a 10 CFR 21 report (ref. 1) regarding certain bullet and fire resistant doors installed at the Kewaunee Nuclear Power Plant (KNPP).

The Part 21 Report was issued as a result of Protective Material Company, Inc.'s (PMC) refusal to comply with the purchase order condition of supplying Underwriter's Laboratories (UL) A Labels, synonymous with a 3 hour fire rating, on their protective doors. Without the UL A Labels there was insufficient evidence that the protective doors would provide the required level of fire resistance; constituting a possible defect and necessitating the 10 CFR 21 Report.

On June 20, 1983 Underwriters Laboratories conducted tests, at WPSC's request, on protective doors that PMC had supplied to the KNPP. A single door assembly and a double door assembly was tested. The results of this testing indicated that for the two door assemblies in question at KNPP, one met the requirements for a UL A Label and one did not. The failing door arrangement was modified and subsequently qualified for UL's A Label.

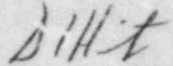
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The attachment to this letter provides a historical summary of the issue and a detailed explanation of its resolution. This submittal constitutes WPSC's final report on the Part 21 Action concerning PMC's protective doors.

Very truly yours,



D. C. Hintz
Manager - Nuclear Power

GWH/js

Attach.

cc - Mr. S. A. Varga, US NRC
Mr. Robert Nelson, US NRC

Historical Summary

In August of 1978 Wisconsin Public Service Corporation (WPSC) began installing fire and security barrier doors at the Kewaunee Nuclear Power Plant (KNPP) to achieve compliance with 10 CFR 73.55 and Appendix A to Branch Technical Position APCS 9.5-1.

The fire and bullet resistant doors were supplied by:

Protective Material Company, Inc. (PMC)
Folly Mill Road
Seabrook, New Hampshire 03874

in response to a purchase order issued from WPSC's general contractor:

Klug & Smith Company
4425 West Mitchell Street
Milwaukee, WI 53214

consistent with specifications and dimensions supplied by:

Fluor Power Services, Inc. (FPSI)
200 West Monroe Street
Chicago, IL 60606

The fire and bullet resistant doors were to meet Underwriters Laboratories requirements for receiving the UL A Label, as explained in FPSI's specification TS-S-945. Contrary to the terms agreed upon in the purchase order, the protective doors & frames were supplied without UL A Labels.

WPSC demanded several times that PMC supply UL A Labels as required by the purchase order. In July of 1979 PMC agreed to submit doors and frames, iden-

tical to those at KNPP, for Underwriters Laboratories testing in order to obtain UL A Labels.

In May of 1980 PMC supplied WPSC with a Certificate of Compliance (COC) stating that the doors in question were in compliance with 10 CFR 73.55 and UL Standard 10B. However, the COC was unacceptable since it only referenced compliance to UL Standards pertaining to manufacturing techniques and not performance characteristics, which are also required for a UL A rating.

On October 17, 1980 WPSC informed PMC that a 10 CFR 21 report would be issued on the subject doors unless UL A Labels were affixed to the doors or the results of the UL tests (promised by PMC in July 1979) were made available for WPSC audit.

On November 10, 1980 PMC responded to WPSC's October 17, 1980 request. PMC insisted that their fire and bullet resistant doors met the specifications listed in the purchase order. They also refused to put UL A Labels on the doors and refused to let WPSC audit the UL test results. WPSC concluded that sufficient information had been received to reasonably indicate the non-compliance of the doors with the applicable requirements. At this time the Region III Office of Inspection & Enforcement was verbally notified, and the formal Part 21 report was issued on November 20, 1980.

The defect necessitating the Part 21 report was . . . "that the doors may not meet the required level of fire resistance" (ref. 1). The safety hazard was noted as "The safety hazard which is or may thus be created is that assurance is not obtained that a fire will be properly contained if one should occur" (ref. 1). As a protective measure WPSC instituted an hourly fire watch of the areas bounded by the doors in question, pending final resolution.

On June 20, 1983 Underwriters Laboratories conducted their UL 10B test, Fire Tests of Door Assemblies, on door arrangements identical to those in question at the KNPP. The results of this testing indicated that for the two installation geometries in question at the KNPP, one met the requirements for a UL A Label (synonymous with a 3 hour fire rating) and one did not.

The door assembly that failed was a double swinging door. The mode of failure, as quoted from UL File Number R10328, was: "By 132 min. a through opening, approximately $\frac{1}{4}$ in. by 1 in. developed at the top hinge corner of the active door of the pair. (The head of the frame expanded bending the jamb at the corner from the door). The through opening occurred where the stop was pushed past the door edge because the continuous hinge terminated one inch below the frame head, leaving a small through opening along the top inch of the jamb."

On September 15, 1983, WPSC engineers proposed three modifications to UL that they felt would enable the failing door arrangement to provide a 3 hour fire barrier (UL A Label).

On October 21, 1983, Underwriters Laboratories responded to the WPSC proposal with, "It is our judgement that if either Proposal No. 2 or 3 were incorporated in the test sample; the pair of Special Purpose Fire doors described by report R10328; dated August 26, 1983, would have demonstrated suitable protection for openings in walls requiring 3 hour (A) fire rating assemblies."

Proposal No. 2 was selected by WPSC engineers to provide the modification necessary to qualify the fire doors for a UL A rating. Proposal No. 2 included adding a section of bar stock to the jamb stop in the region of the failure.

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The bar stock would cover the opening in that region if the frame expanded as it did in the test (see Figure 1).

The above modification (Proposal 2) has been completed on the nine (9) double door assemblies supplied by PMC and installed at the KNPP. The single door arrangement was qualified for the LIL A Label by test.

The original defect necessitating the November 20, 1980 10 CFR 21 report on fire and bullet resistant doors supplied by PMC and installed at the KNPP has been corrected. This report provides the final correspondence on the issue.