



**PUBLIC
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S. W. Shields
Senior Vice President -
Nuclear Division

August 30, 1983
S82-21
SVP-0120-83

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

Docket Nos.: STN 50-546
STN 50-547
Construction Permit Nos.:
CPPR - 170
CPPR - 171

Marble Hill Nuclear Generating Station - Units 1 and 2

Dear Mr. Keppler:

On August 18, 1982, Mr. T. D. Geib of Public Service Company of Indiana, Inc. (PSI) notified your office of a potentially reportable item as required by 10 CFR 50.55(e). During chipping to repair spalled concrete near an embedded plate in the primary shield wall of Unit 1 containment, workers discovered two deformed wire anchors missing from the plate. Further investigation of similar plates revealed additional missing wire anchors and cracked welds between plate and anchor. These plates had been installed prior to cessation of safety related work in August, 1979.

Tests were performed by an independent laboratory to determine the failure mode of the anchor welds. The results of these tests indicated that an axial tensile stress applied to the anchor welds was the primary cause of failure. This stress was developed due to the excessive heat buildup during the process of welding framing members to the embedded plates. For the subject embedded plates, an alternative anchorage system was designed and installed to ensure acceptable structural integrity of the primary shield wall support system. Similar situations in Unit 2 containment have been examined and necessary corrective action taken. The issue of the missing deformed wire anchors has been addressed by an analysis which estimated the reliability that the specified number of deformed wire anchors for the embedded plates inside Unit 1 containment were in place when the concrete was poured. The sample size for the analysis consisted of the exposed anchors inspected on the four embedded plates located inside the primary shield wall and all other deformed wire anchors exposed

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during the patching program (a total sample size of 553 anchors). Observations made by field personnel at the time of inspection constituted an unbiased sampling of the state of in place deformed wire anchors since the phenomenon of missing anchors had not been noticed in the field at the time that the patching work had been performed. There were no additional reported missing anchors during this inspection. Based on the above assumptions and a total deformed wire anchor population of 14,988, the following analysis has been performed:

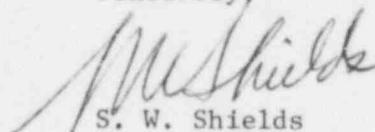
Population	N = 14,988
Sample Size	n = 553
Number of Missing Anchors	r = 4
Confidence Level	c = 95%

The computed reliability, R, is 98.35%.

This means that there is a 95% confidence level that 98.35% of the total population of anchors were in place when the concrete was poured.

This letter is intended to fulfill the requirements of a final report as defined in 10 CFR 50.55(e). If you have any questions regarding this matter, please contact me at your convenience.

Sincerely,



S. W. Shields

SWS/LGY/bak

cc: Director of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

J. E. Konklin
J. F. Schapker