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SUBJECT: Final deficiency rept re defects in workmanship of wiring connections on American Warning & Ventilating, Inc. dampers, originally reported on 800506. Verification of corrective actions to be completed on 810522 by unannounced audit.

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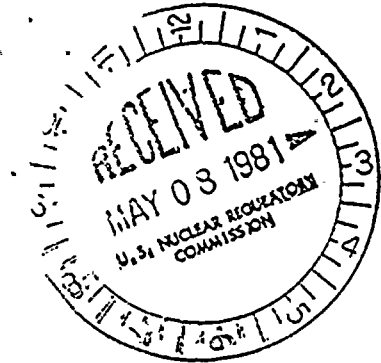
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NORMAN W. CURTIS
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May 1, 1981

Mr. Boyce F. Grier
Director, Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406



SUSQUEHANNA STEAM ELECTRIC STATION
DEFICIENCY IN AMERICAN WARMING AND VENTILATING
BACK DRAFT ISOLATION DAMPERS (BDID)
ER's 100450/100508 FILE 840-4
PLA-716

Reference: PLA-485 dated May 19, 1980

Dear Mr. Grier:

This letter serves to provide the Commission with a final report of a deficiency relating to defects in the workmanship of certain wiring connections on American Warming and Ventilating, Inc. (AWV) dampers. The deficiency was originally reported under the provisions of 10 CFR 21 in AWV's letter to the NRC dated May 6, 1980. PLA-485, dated May 19, 1980, advised the Commission that PPSL was evaluating the subject condition for reportability under 10 CFR 50.55(e). The information contained in this report is submitted pursuant to the provisions of 10 CFR 50.55(e).

The attachment to this letter contains a description of the problem, its cause, safety implications and significance and the corrective action taken to preclude recurrence.

We trust the Commission will find the information forwarded by this letter to be satisfactory.

Very truly yours,

N. W. Curtis

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

Attachment

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Mr. Boyce H. Grier

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May 1, 1981

cc: Mr. Victor Stello (15)
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BACKGROUND

Defects in the workmanship of some wiring connections on fifty eight (58) AWV dampers Model Number 8700 were identified in AWV's 10 CFR 21 notification letter to the NRC dated May 6, 1980. The defects were originally discovered in similar AWV dampers installed at another nuclear generating facility under construction. The AWV letter indicated that SSES dampers were also affected and Bechtel QC consequently tagged the subject dampers under their nonconformance control system pending AWV corrective action instructions.

DESCRIPTION OF DEFICIENCY

The deficiency relates to improperly crimped ring terminal connectors and the butt splice connectors on wiring within the junction boxes of the BDID's purchased under specification M-336A. Some of the wires could be pulled out of the connectors by a light hand applied tensile force. The AWV crimping tool used in manufacture did not make crimps consistently capable of meeting the 70 lb. minimum pull test required by Underwriting Laboratories specifications as referenced by Bechtel purchase specification M-336A paragraph 7.1. Bechtel source inspection activities at AWV did not require physical checking of the wires and connectors for adequate crimps. Only a visual inspection was required, thus the improperly crimped connectors were not discovered during Bechtel source inspection activities.

SAFETY IMPLICATIONS

The function of the BDID's is to protect divisionalized electrical and mechanical systems from the effects of a high energy pipe break outside of containment. It is intended that such breaks will be permitted to disable only one division of an electrical or mechanical divisionalized system. The dampers are used to provide isolation for rooms such as the RHR piping room and the Reactor Core Isolation Cooling Pump room. Failure of these, or similar dampers, from providing such isolation could possibly affect the safe operation of the nuclear power plant. The deficiency necessitated extensive repair to establish the adequacy of the dampers to perform their intended safety function. A significant breakdown in the quality assurance program at AWV was concluded to have allowed this deficiency to occur and go undetected. Therefore, the condition is considered reportable under the conditions of 10 CFR 50.55(e).

CORRECTIVE ACTION TAKEN

The crimping tool used at AWV has since been placed under their calibration program to prevent inadequate crimps from being made in the future. Additionally, the Bechtel Procurement Supplier Quality Inspection instructions have been modified to include a spot-check examination of terminal boxes for correct wires and connectors and proper connections. This includes physical and visual checking of the integrity of crimped connectors prior to their release from the factory.

May 1, 1981

AWV has issued a repair procedure titled "Wiring Connector Replacement Procedure for Single and Double Isolation Dampers." This procedure identified all necessary connector replacements. All replacements have been completed and 100% QC inspection of the repaired BDID's electrical connectors has been performed. All work has been accepted as satisfactory by Bechtel QC thus resolving the subject deficiency at SSES.

PL NQA is scheduled to perform a verification of this corrective action in an unannounced audit which will be completed by May 22, 1981.