Arizona Nuclear Power Project
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June 20, 1985
ANPP-32861-TDS/TPS

U. S. Nuclear Regulatory Commission
Region V
1450 Maria Lane - Suite 210
Walnut Creek, CA 94596-5368

Attention: Mr. D. F. Kirsch, Acting Director
Division of Reactor Safety and Projects

Subject: Final Report - DER 85-05
A 50.55(e) Reportable Condition Relating To
Improper Installation Of Non-Segregated Phase
Bus Fire Stops
File: 85-019-026; D.4.33.2

Reference: A. Telephone Conversation between A. Hon and T. Bradish on February 19, 1985.
B. ANPP-32172, dated March 22, 1985, (Interim Report).
C. ANPP-32330, dated April 8, 1985, (Time Extension)

Dear Sir:

Attached is our final written report of the Reportable Deficiency under 10CFR50.55(e), referenced above. The 10CFR21 evaluation is also included in this report.

Very truly yours,

E. E. Van Brunt

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/TPS/plk

Attachment

cc: See Page Two

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IE-27

cc: Richard DeYoung, Director
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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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FINAL REPORT - DER 85-05
REPORTABLE CONDITION
ARIZONA NUCLEAR POWER PROJECT (ANPP)
PVNGS UNITS 1, 2, 3

I. Description of Deficiency

During an investigation of non-segregated phase bus fire stops as a result of SFR #1PB-044 it was discovered that the vendors approved fire seal design had not been properly implemented. A resulting SFR #1PB-045, (NCR SE 5260) to inspect all non-segregated phase bus stops, resulted in identification of thirteen improperly implemented fire seals at wall penetrations located in the Control Building, Aux Building, and Turbine Building as identified in CWO #72259.

The problem was identified in Unit 1 by NCR SE-5260 (superseded by EER 84-PB-002). Potentially Reportable Occurrence No. 1-85-0031 was issued by APS Operations to document this finding for Unit 1.

The specific problem identified in Unit 1 involved fire stops in which the bus conductors had not been properly prepared prior to the installation of the silicone foam fire seals. A high voltage tape had not been applied to the bare bus conductor as required by the manufacturer's installation drawing, E015-108-3. In addition, two fire stops were installed with the interior and exterior foam seals misaligned.

Inspection of six (6) of the nineteen (19) fire stops in Unit 2 revealed that five (5) were not installed properly. Either the conductor bus was not taped properly or the Noryl sleeving was not replaced with insulating tape within the fire stop area. One fire stop was not foamed per the design drawings.

EVALUATION

Improper fire seal installation degrades the integrity of the non-segregated phase bus and the fire-rated walls. This increases the possibility of bus faults and the spread of fire to redundant safety systems. The present installation is deficient for the following reasons:

1. Calvert, supplier of the non-segregated phase bus, advised that Noryl sleeving or insulating tape is required on conductor bars to meet phase to phase and phase to ground voltage clearance requirements. The conductor bars should be insulated prior to having the silicone foam applied. Since there is a possibility that the pressure exerted by the foam when it expands could cause the Noryl sleeving to crack, the conductor bars should be taped within the fire stop area.

2. The fire resistance rating of the fire stop is proportional to the thickness of the applied silicone foam. Misalignment of the interior and exterior fire seals reduces the effective thickness of the silicone foam, thus decreasing the effective fire rating of the fire stop. Total misalignment (with complete offset of foam areas between the interior and exterior fire seals) is ineffective against fire penetration.

The root cause is that the vendors installation drawings were not followed by Bechtel Construction during the field installation of the Unit 1 and 2 fire stops.

Other cable penetration fire seals do not require the additional preparation identified as inadequate and therefore are not subject to this problem.

II. Analysis of Safety Implication

Inadequate fire seal installation could impair the ability to limit fire damage to one train of the safety-related system. If this condition were to remain uncorrected, it would represent a significant safety condition. Therefore, this condition is evaluated as reportable under the requirement of 10CFR Part 50.55(e).

This condition is also evaluated as reportable under 10CFR Part 21, since it constitutes a defect in a basic component. It also represents a substantial safety hazard on a component that has been delivered. This report addresses all the reporting requirements of the regulation with the exception of subpart (VI) regarding the number and location of such components supplied to other facilities.

III. Corrective Action

1. In Unit 1, CWO's 72259, 74033, and 74035 have been completed with repair/rework to all non-segregated phase buses performed as necessary per the above CWO's.

2. In Unit 2, all non-segregated phase buses will be evaluated for compliance to Calvert drawing E015-108-3 and repaired where necessary by NCR SE-5574. The forecast completion date for this work is August 31, 1985.

3. In Unit 3, buses 3E-NAN-A03 and A04 and 3E-NHN-A02 have been evaluated under NCR SE-5439, and no discrepancies were found. The remaining buses are still under construction. Interoffice memorandum E-12082, dated February 12, 1985, has been sent to Bechtel Construction to emphasize that installation must be in accordance with Calvert's drawing E015-108-3 to preclude reoccurance.