Arizona Nuclear Power Project
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December 14, 1984
ANPP-31466-TDS/TRB

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

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

Subject: Final Report - DER 84-100
A 50.55(e) Reportable Condition Relating To Compression Fittings On MCCs.
File: 84-019-026; D.4.33.2

Reference: (A) Telephone conversation between P. Narbut and L. Spiers on December 4, 1984

Dear Sir:

Attached is our final written report of the Reportable Deficiency under 10CFR50.55(e), referenced above.

Very truly yours,

E. E. Van Brunt

E. E. Van Brunt, Jr.
APS Vice President
Nuclear Production
ANPP Project Director

EEVB/TRB/nj
Attachment

cc: See Page Two

IE27

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

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FINAL REPORT - DER 84-100
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 1, 2, 3

I. Description of Deficiency

Investigation Request (IR-031 was issued to inspect MCC power compression terminals (Cat. Type 75B132506G701) which are mounted on split terminal blocks (Cat. Type 75B132505G701). This IR was initiated in response to SFR #1SI-729 which questioned the security of the screws holding compression terminals to split terminal blocks. The investigation of Unit 2, Class 1E MCCs find loose holding screws on 79% of the compression type terminals. Also, at the terminal blocks, slight discoloration was noticed on some of the conductor insulation, however, the conductors themselves showed no signs of oxidation. The jackets are cut back 6-12 inches from the terminal and showed no signs of excessive heating. These MCCs are manufactured and supplied by the General Electric Company (GE) and purchased by project specification 13-EM-018.

Evaluation

These loose screws can cause excessive heating at the terminal which, over an extended time period could oxidize the cable conductors and may cause breakage of some strands. Under extreme circumstances, this condition can cause excessive voltage drop to safety-related equipment thereby possibly preventing the Class 1E equipment from performing its intended safety function.

The integrity of the circuits has not been degraded by the slight discoloration at the terminal blocks because at that location the dielectric properties of air, provided by the terminal block spacing predominate. The absence of oxidation on the conductor indicates they were not degraded.

The evaluation of this DER is being done on a generic basis since it is likely that different holding screws on compression terminals will require tightening in Units 1 and 3.

The root cause of loose compression terminals may be attributed to one or both of the following causes:

a) The MCCs were delivered with loose terminals and construction did not tighten them.

b) The terminals were loosened by the many terminating and de-terminating operations that occurred during construction and startup testing.

II. Analysis of Safety Implications

Based on the fact that 79% of the compression terminals require the tightening of their holding screws, this condition is evaluated as reportable under the requirements of 10CFR50.55(e). If this condition were to remain uncorrected, it would represent a significant safety condition.

III. Corrective Action

a) To preclude recurrence, Construction Specification 13-EM-306 was revised by Specification Change Notice 3789 to include the requirement, after terminating MCC power cables, to inspect the tightness of compression terminal's holding screws and tighten them if required.

b) IR-031 has been issued to inspect and tighten the compression terminal holding screws on MCCs in Units 1, 2, and 3. Implementation of IR-031 will ensure that the Class 1E terminals will be inspected and if found loose, tightened.

c) IR-031 has been completed in Unit 1 and all compression terminal holding screws for Class 1E MCCs have been tightened. IR-031 will be completed for Units 2 and 3 prior to operating license for each unit.