50-530

Arizona Public Service Company
P.O. BOX 21666 • PHOENIX, ARIZONA 85036

March 9, 1984
ANPP-29037-BSK/TRB

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

Attention: Mr. T. W. Bishop, Director
Division of Resident
Reactor Projects and Engineering Programs

Subject: Final Report - DER 83-60
A 50.55(e) Reportable Condition Relating to Wiring In Unit 2 Main Steam and Feedwater Activation System by Vitro Does Not Meet IEEE-384 Separation Criteria.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Barbut and R. Tucker on September 1, 1983.
B) ANPP-27911, dated October 3, 1983 (Interim Report)
C) ANPP-28324, dated November 30, 1983 (Time Extension)
D) ANPP-28551, dated January 4, 1984 (Time Extension)
E) ANPP-28913, dated February 21, 1984 (Time Extension)

Dear Sir:

Attached is our final written report of the deficiency referenced above, which has been determined to be Not Reportable under the requirements of 10CFR50.55(e).

Very truly yours,

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

EEVB/TRB:db
Attachment

cc: See Page Two

IE-27
1/1

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

T. G. Woods, Jr.
W. E. Ide
D. B. Fasnacht
A. C. Rogers
B. S. Kaplan
L. A. Souza
J. Vorees
J. R. Bynum
P. P. Klute
A. C. Gehr
W. J. Stubblefield
W. G. Bingham
R. L. Patterson
R. W. Welcher
H. D. Foster
D. R. Hawkinson
L. E. Vorderbrueggen
G. A. Fiorelli
S. R. Frost
J. Self
D. Canady

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339

FINAL REPORT - DER 83-60
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 2

I. Description of Deficiency

While performing installation inspection at PVNGS on Unit 2, Main Steam and Feedwater Isolation Actuation System (MSFIS), it was reported that internal wiring of control cabinets, identified as tag number 2J-SGA-C01 and 2J-SGB-C01 did not conform with the Class 1E separation criteria of IEEE 384. The cabinets were supplied by Vitro Laboratories under Purchase Order Specification 13-JM-105.

Bechtel Engineering has corresponded with Vitro concerning this condition. Vitro has responded by letter (VL-CS-T-185(83). The non-Class 1E circuits identified in the NCR are smoke detector and trouble alarm circuits which are low energy (24 V-dc) circuits. Bechtel and Vitro have determined that failure of these circuits will not affect the adjacent Class 1E circuits. This determination is in conformance with the Bechtel position as stated in Specification Change Notice No. 3473 to 13-EM-306 and SAR Change Notice 1114.

II. Analysis of Safety Implications

The smoke detection circuits within the Main Steam and Feedwater Isolation System (MSFIS) cabinet are not Class 1E circuits and are not connected, because they are superseded by the external smoke detectors. Therefore, no justification is required for compliance with the Regulatory Guide 1.75 separation requirement.

The MSFIS trouble alarms employ photosensitive resistance detectors whose resistance changes from 90 ohms to 1 megohm when trouble is detected in the MSFIS cabinet. The alarm wiring is No. 22 AWG Tefzel insulated and is terminated on terminal blocks within two metal boxes interconnected by a rigid metal conduit within the MSFIS cabinet.

The Plant annunciator employs a 24V-dc power supply to interrogate the resistance detectors through interconnecting wiring. A signal input card in the annunciator is designed to limit the signal current to 2 milliamps when the input is short-circuited at the annunciator terminals.

The following fault conditions were analyzed to determine the degradation of the Class 1E wiring:

A. Considering the short circuit fault across the MSFIS resistance detector, the current would increase to 2 milliamps, as limited by the annunciator signal input card, resulting in an insignificant temperature rise in the non-1E wiring with no effect on the 1/E wiring.

B. Considering a short circuit fault across the annunciator signal input card, the current in the non-1E wiring will be limited by the internal resistance of the annunciator power supply, the interconnecting wiring, and the MSFIS resistance detector which is 90 ohms minimum.

Disregarding the internal resistance of the annunciator power supply and the resistance of the wiring, the maximum current would be:

24V-dc/90 ohms = 0.266 amps

Since the wiring in the cabinet (No. 22 AWG) is rated at 3 amps, the temperature rise due to this fault current would be negligible.

C. Considering a ground fault in a non-1E MSFIS cabinet wire, a negligible current would flow in the annunciator power supply is otherwise ungrounded. The 1E wiring would not be affected.

Since there is no degradation of the Class 1E circuits by any fault in the non-1E circuits, the separation criteria of Regulatory Guide 1.75 is not required. This condition is evaluated as not reportable under the requirements of 10CFR50.55(e), since if this condition were to remain uncorrected, it would not represent a safety significant condition.

III. Corrective Action

A. NCR EJ-3219 will be disposition "Use As Is."

B. SAR Change Notice 1114 is currently being corrected to reflect this justification and analysis.