

Arizona Public Service Company

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March 9, 1984
ANPP-29039-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

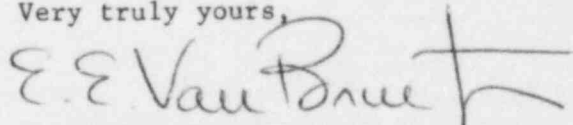
Subject: Final Report - DER 83-59
A 50.55(e) Reportable Condition Relating to IEEE-384
Separation Criteria Violated by Wiring In Unit 2 Post Accident
Control Room Cabinet And Safety Radiation Monitoring Cabinet.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Narbut and R. Tucker on
August 30, 1983
B) ANPP-27912, dated October 3, 1983 (Interim Report)
C) ANPP-28312, dated November 30, 1983 (Interim Report, Rev. 1)

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

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Mr. T. W. Bishop
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cc: Richard DeYoung, Director
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FINAL REPORT - DER 83-59
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 2

I. Description of Deficiency

Inspection of the Radiation Monitoring System (RMS) Class 1E Control and Indication Cabinets JSQA-C01/JAQB-C01 and JSQAC05/JSQBC05 in all 3 units, revealed that some internal wiring separation did not meet Class 1E separation requirements as defined in IEEE-384. These cabinets were supplied by Kaman Instrumentation. These circuits include microcomputer signal wiring (5V-dc or less) and the associated Class 1E wiring circuits.

II. Analysis of Safety Implications

The Engineered Safety Feature Actuation System (ESFAS) monitors the RMS for normally energized contacts. These contacts open on high radiation, high radiation rate, equipment failure, or any power failure. Equipment failure includes high cabinet temperature, incorrect voltages and abnormal signal condition. The failure to meet separation criteria could cause inadvertent actuation of ESFAS. Inadvertent actuation could result in (1) exhausting the Fuel Building HVAC through HEPA filters, (2) securing the containment purge, (3) placing the control room air on internal recirculation. Thus an RMS failure would lead to a fail safe condition. Lack of separation has no adverse safety consequence. The system is not required for safe shutdown.

Analysis of non-1E effects on 1E wiring within cabinet 13JSQA/BC01.

- A. The purpose of this analysis is to demonstrate that there is no credible source of fire from the non-1E, low power, computer signal wiring contained in the 1E cabinet.
- B. The only non-1E wiring in the cabinet connects the non-1E minicomputer, JSQNC03A with each channel of the safety-related isolation modules (SRMS). This is shown on Kaman drawing 430041 (N997-162) and 430036 (N997-370). There are two Greenlee flexible metal conduits which contain non-1E wiring. One set of non-1E wiring runs from TB9B to the SRMS "B". The other set of non-1E wiring runs from TB7A to the SRMS "A".
- C. These non-1E wires terminate in the optical isolator assembly of the SRMS. This is shown on Kamen drawing 430034 (Log 13-10407-N997-370). The optical isolator is a proven and accepted method of providing information transfer from 1E to non-1E systems.

- D. The power source to drive the non-1E components is contained in the minicomputer, 13JSQNC03A. This power supply input is 120V-ac with an impedance of 100 ohms per the supplier, Power-One. Discussions with Kaman indicate that the wire is AWF 16 with an ampacity of 12 amps. It is assumed in the worst case failure that a direct short occurs across the transformer windings and that the 120V-ac is transmitted directly thru Kaman non-1E wiring. This is a very conservative assumption as there will be a substantial drop-in voltage due to failures in the other components of the power supply.

Cable resistance will be neglected since the location of the fault cannot be determined. The cable length is greater than 500 feet so it is likely that some additional resistance due to cable will be present to limit fault current.

Maximum fault current is therefore equal to

$$I_F = 120V/100 \text{ ohms} = 1.2 \text{ amps}$$

- E. The conclusion is that since the cable ampacity is 12 amps and the maximum fault current is 1.2 amps (based on conservative assumptions) these circuits can be considered to be low energy circuits which cannot damage any associated cabling given a fault condition.
- F. There are no other Kaman cabinets with a non-1E to 1E interface except for those already reviewed. The control room cabinets are unique as they provide information to both 1E and non-1E interfaces. All other Kaman cabinets provide either 1E or non-1E interface, but not both. This may be verified by checking the wiring "From-To" List (Log 13-10407-N997-209).

Based on the above, this condition is evaluated as not reportable under the requirements of 10CFR50.55(e) and 10CFR Part 21, since if this condition were to remain uncorrected, it would not represent a significant safety condition.

III. Corrective Action

- A. SAR Change Notice 1114 is currently being corrected to reflect this justification and analysis.
- B. To enhance reliable operation and to preclude potential damage to circuits, particularly during maintenance periods, sheet metal barriers will be added between terminal blocks group 38, 39, 40 and 41 and terminal blocks group 47, 48, 49 and 50 as indicated by Kaman letter (KI-BP-83-090). In addition, an existing metal barrier will be extended to a point above terminal block 37, due to the routing of non-Class 1E wiring into the cabinets.

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- C. The above physical changes have been implemented in Unit 1 by dispositioning NCRs SE-2327, 2350 and 2351 as "Rework" under the direction of the Kaman field representative. Unit 2 changes will be implemented by disposition of "Rework" on Bechtel NCR EJ-3219. The cabinets for Unit 3 will be updated with these changes by Kaman prior to delivery to the jobsite. All work is scheduled to be completed prior to fuel load for the respective units.