

Arizona Public Service Company

September 21, 1984  
ANPP- 30600-TDS/TRB

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

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

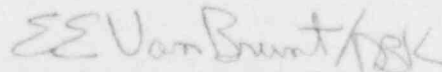
Subject: Final Report - DER 84-26  
A 50.55(e) Reportable Condition Relating To Improperly Tested  
Or Adjusted Interlock.  
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Narbut and T. Bradish on  
May 10, 1984  
B) ANPP-29646, dated June 4, 1984 (Interim Report)  
C) ANPP-30190, dated August 13, 1984 (Time Extension)  
D) ANPP-30480, dated September 11, 1984 (Time Extension)

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, Jr.  
APS Vice President  
Nuclear Production  
ANPP Project Director

EEVB/TRB/nj  
Attachment

cc: See Page Two

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Mr. T. W. Bishop  
DER 84-26  
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cc: Richard DeYoung, Director  
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U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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FINAL REPORT - DER 84-26  
DEFICIENCY EVALUATION 50.55(e)  
ARIZONA PUBLIC SERVICE COMPANY (APS)  
PVNGS UNITS 1 & 2

I. Description of Deficiency

Circuit breakers in Class 1E 4.16 kV switchgear were damaged during functional tests by improper use and/or improper installation of an adjustable test link. Since adjustable test links are not used in any other Class 1E distribution centers, this problem is considered to be limited to the Class 1E 4.16kV switchgear.

The "L"-shaped cam, which operates the plunger interlock on top of each circuit breaker mechanism, was bent because of not locking the test link into adjustment and/or overextending the test link when it is installed. The "L" cam was deformed when pre-operational tests were performed for Class 1E 4.16 kV switchgear. The deformation was such that the distance from the top of the plunger bolt to the bottom of the breaker lifting rail was not within the vendor's requirements of 16-9/32 to 16-23/32 inches.

The root cause of the bent 'C' clips (or L-shaped cam) was due to improper use and adjustments by jobsite personnel, due to inadequate procedures. In order to perform a portion of the breaker test and adjustment procedure, an adjustable test link must be installed on the breaker interlock operation linkage prior to test closing of the breaker. The problem occurs when a link for a different type/size of breaker is used (several different size links are available on the jobsite) or the correct link is improperly installed/tightened.

The plunger interlock operates the auxiliary static switch which in turn determines the status of the control circuits for circuit breaker 1E-PBB-S04D (circuit breaker where problem was identified). Therefore, damage to the plunger interlock as described above could result in incorrect operation of the circuit breaker's control circuits.

II. Analysis of Safety Implications

- A. Since the circuit breakers have deformed cams, they may not be able to open or close as required by control signals; therefore, their associated loads may not be available to perform their required safety functions.
- B. The damaged circuit breakers cannot be attributed to any part of the supply chain involved in providing the basic component because they were in good working order until damaged by improper use and/or installation of the test link by pre-operational test personnel at the jobsite.

- C. Based on II.A above, this condition is evaluated as reportable under the requirements of 10CFR50.55(e); since, if this condition were to remain uncorrected, it could represent a significant safety condition.
- D. Based on II.B above, this condition is evaluated as not reportable under the requirements of 10CFR21.

III. Corrective Action

- A. Since Unit 1 NCR No. SE-4056, Reference 3, establishes that Class 1E 4.16 kV circuit breaker damage is a repetitive problem, a more comprehensive program was recommended in Reference 2.
- B. As of July 18, 1984, consistent with the recommendations of Reference 2, the APS Breaker Test Group has revised their training program to re-emphasize controlled use of test links. The training sessions identify that, in accordance with the G.E. recommendations contained in Reference 2, the use of test links should be eliminated whenever possible by using a box wrench on the end of the stationary auxiliary switch shaft that manually verifies correct operation of auxiliary switch.

The added controls placed on the use of breaker test links, provided by this program, require that only properly trained, authorized personnel install or use breaker test links.

An 100% inspection of Units 1 and 2 will be performed after pre-operational testing and before fuel load. The results of these inspections and any replacement of damaged parts will be documented in Units 1 and 2 per NCRs SE-4056 and SE-4636, respectively.

- D. An inspection program is not required for Unit 3 since the training program changes discussed in Paragraph III.B were completed prior to any use of test links.
- E. To verify similar procedures used by all disciplines for testing were adequate, a review of test procedures was conducted in conjunction with the restart program. Necessary changes have been and continue to be made, as needed, to ensure their adequacy.

Mr. T. W. Bishop  
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IV.        References

1. General Electric Company Instructional Manual for 4.16 kV Switchgear: Books GEK 41902B and GEH-1802W (Bechtel DDC Log No. E009-354-7)
2. General Electric letter GE-PHX/B-1369, July 2, 1984, MIC 227051
3. Startup Field Report No. 1SI-562 (NCR No. SE-4056)