

Arizona Public Service Company

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November 28, 1983

ANPP-28295-KCP/BSK REGION VISE

U. S. Nuclear Regulatory Commission  
Region V  
Creskide 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

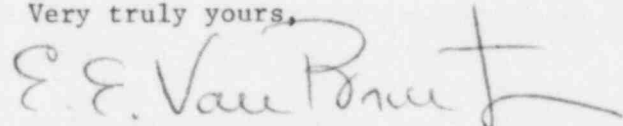
Subject: Final Report, Revision 2 - DER 82-44  
A 50.55(e) Report Relating to Gould-Brown Boveri Load Centers  
Have Improperly Crimped AMP Termination Lugs  
File: 83-029-026; D.4.33.2

Reference: A) Telephone Conversation between G. Hernandez and  
G. Duckworth on August 13, 1982  
B) ANPP-21798 dated September 9, 1982 (Interim Report)  
C) ANPP-22460 dated December 7, 1982 (Final Report)  
D) ANPP-23441 dated April 6, 1983 (Final Report, Rev. 1)

Dear Sir:

Enclosed is revision two of the subject Deficiency Evaluation Report  
under the requirements of 10CFR50.55(e). This revision provides  
additional clarification of equipment to be inspected for compliance with  
crimp requirements.

Very truly yours,



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

EEVB/KCP:sls  
Attachment

cc: See Attached Page Two

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Mr. T. W. Bishop  
DER 82-78  
Page Two

cc: Richard DeYoung, Director  
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U. S. Nuclear Regulatory Commission  
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FINAL REPORT, REVISION 2 - DER 82-44  
DEFICIENCY EVALUATION 50.55(e)  
ARIZONA PUBLIC SERVICE COMPANY (APS)  
PVNGS UNITS 1, 2 & 3

I. DESCRIPTION OF DEFICIENCY

During QC surveillance of the class IE 480V load centers supplied by Brown Boveri Electric Company (BBEI), also referred to as Gould-Brown Boveri or Gould-I.T.E. in previous Interim Report, several conductors were found partially pulled from the crimped area of AMP type lug connectors.

BBEI provided criteria for corrective action for determining acceptable termination crimps in 480V load centers furnished under PVNGS specification 13-EM-017. A followup random inspection performed by Bechtel construction in Unit 3 load centers (9 cubicles noted below) revealed that not all lug terminations were in compliance; however, no open circuits were apparent. In some cases, conductors were less than flush with the crimp connector barrel, and the ends of the wires were not visible under high intensity light and magnification.

<u>L/C CUBICLE</u>	<u>TERM. POINT</u>	<u>WIRE I.D.</u>
3E-PGA-L31B2	7	EA3
3E-PGA-L31B2	12	EA8
3E-PGA-L31E4	7	EL11
3E-PGA-L33B3	7	EA31
3E-PGA-L33C3	5	EA23
3E-PGA-L33C3	4	EA28
3E-PGB-L32B4	2	PHTB1
3E-PGB-L32D4	7	EA31
3E-PGB-L34C3	5	EA23
3E-PGB-L34C4	1	EK2
3E-PGB-L34C4	2	AH7
3E-PGB-L32D3	2	AB7

II. ANALYSIS OF SAFETY IMPLICATIONS

This condition is evaluated as Reportable. Connections with reduced contact area in termination lug barrels do not adequately assure the degree of electrical continuity required for reliable operations. If inadequately crimped lugs were left uncorrected, potential open circuits could jeopardize safety related functions of these load centers.

### III. CORRECTIVE ACTION

All Class 1E terminations, and the non-Class 1E terminations associated with the non-Class 1E Auxiliary Feedwater Pumps which utilize AMP crimp-type lugs in load centers (Units 1, 2 and 3) supplied by BBEI under specification 13-EM-017, shall be inspected for compliance to BBEI's visual criteria for terminations.

The terminal lug connection to the conductor is acceptable if the conductor is visible and underneath the crimp connection (i.e., approximately within 1/16" from the face of the barrel). In addition, the conductor extending beyond the barrel of the connector does not pose a problem unless it interferes with the termination screw, in which case it should be cut back. The terminal connection shall exhibit the use of the correct crimping lug.

Any connectors which do not meet this requirement shall be removed and have a new AMP connector installed in accordance with Bechtel's termination practices established in construction specification 13-EM-306 (including proper usage and traceability of crimping tools).

This condition will be corrected via the following Design Change Packages:

10E-PG-016

20E-PG-016

30E-PG-016

In addition to reportability under 10CFR50.55(e), PVNGS Project considers the deficiency to be Reportable by the Supplier under the requirements of 10CFR Part 21. Deficiency Evaluation Report 82-44 addresses the reporting requirements specified under 10CFR 21.21(b) (3), with the exception of sub-part (vi), which requires the number and location (customers and/or facilities) of other possibly defective equipment. A copy of this report will be sent to BBEI requesting their review for reporting under 10CFR Part 21, including number and location of all components supplied.