

Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

March 19, 1984
ANPP-29099-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, Revision 1 - DER 82-46
A 50.55(e) Reportable Condition Relating to ITT-Barton
Pressure Transmitters supplied by CE Do Not Meet Overpressure
Requirements.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between J. Eckhardt and G. Duckworth
on August 24, 1982.
B) ANPP-21837, dated September 15, 1982 (Interim Report)
C) ANPP-22279, dated November 15, 1982 (Time Extension)
D) ANPP-22731, dated January 14, 1983 (Time Extension)
E) ANPP-23274, dated March 17, 1983 (Revised Interim Report)
F) ANPP-23889, dated May 25, 1983 (Time Extension)
G) ANPP-27605, dated August 22, 1983 (Revised Interim Report)
H) ANPP-28484, dated December 22, 1983 (Revised Interim Report)
I) ANPP-28790, dated February 3, 1984 (Time Extension)

Dear Sir:

Enclosed is revision one of the subject Deficiency Evaluation Report
under the requirements of 10CFR50.55(e). This revision re-states
Corrective Action to be taken relative to Unit 2 and 3.

Very truly yours,

E. E. Van Brunt
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

DER 82-46

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FINAL REPORT, REVISION 1 - DER 82-46
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 1, 2, 3

I. Description of Deficiency

- A. As documented by Combustion Engineering (C-E) letters V-CE-20050, V-CE-16845 and 18182, ITT Barton Model 763 pressure transmitters were provided and installed in Unit 1 having a overpressure range of 0-1000 psig. The same model transmitters supplied for Units 2 and 3 have the correct overpressure range of 0-2485 psig. The transmitters are installed on the pressurizer as restricted range transmitters and are identified by the following tag numbers:

<u>Tag No.</u>	<u>Model</u>	<u>Range (PSIG)</u>	<u>Overpressure Range (PSIG)</u>
1JRCA-PT-103	763	0-760	*0-1000
1JRCA-PT-104	763	0-760	*0-1000
2JRCA-PT-103	763	0-760	0-2485
2JRCA-PT-104	763	0-760	0-2485
3JRCA-PT-103	763	0-760	0-2485
3JRCA-PT-104	763	0-760	0-2485

*Should be 0-2485 psig

ITT Barton Model 763 pressure transmitters tag numbers 1JRCA-PT-103 and 1JRCA-PT-104 were returned to ITT Barton for overpressure range modifications from 0-1000 psig to 0-2485 psig. During this modification program, the thermal non-repeatability engineering changes were also implemented. During factory testing it was determined the mandatory thermal non-repeatability modifications reduced the percentage accuracy required for the restrictive 0-760 psig range. ITT Barton concluded that the modified transmitters cannot meet the original design criteria requirements for PT-103 and PT-104 for Unit 1, 2 and 3.

- B. ITT Barton has filed a 10CFR Part 21 report concerning the Model 763 and 764 electronic transmitters, based on thermal non-repeatability at nominal in-containment ambient temperatures. This report is addressed in C-E letters V-CE-17362 and V-CE-19054. The problem is defined in two parts as follows:

1. An equipment defect

The equipment defect has been identified as a leakage current path between the zero and span adjustment potentiometers and the case ground of the instrument. This current leakage becomes significant at higher temperatures (above 280°F). ITT Barton has attributed this condition to existing metallic washers which are providing the leakage path.

2. A methodology error during factory transmitter calibration

The methodology problem occurred during the temperature compensation portion of the transmitter calibration. This methodology error resulted in an additional 0.25 to 0.5% zero shift error over a temperature range of 80°F to 130°F, with proportionately higher errors at higher temperatures. ITT Barton has attributed this condition to wrong value Balco resistors installed for temperature compensation.

The ITT Barton Model 763 and 764 transmitters pertinent to the above conditions are identified by the following unit tag numbers:

1,2,3JRCE-PT-100X
1,2,3JRCE-PT-100Y
1,2,3JRCA,B,C,D-PT-101
1,2,3JRCA,B,C,D-PT-102
*1,2,3JRCA-PT-103
*1,2,3JRCA-PT-104
1,2,3JRCA,B,C,D-PDT-115
1,2,3JRCA,B,C,D-PDT-125
1,2,3JCHA-PT-268
1,2,3JSIB-PT-311
1,2,3JSIB-PT-313
1,2,3JSIB-PT-321
1,2,3JSIB-PT-323
1,2,3JSIA-PT-331
1,2,3JSIA-PT-333
1,2,3JSIA-PT-341
1,2,3JSIA-PT-343
1,2,3JSGA,B,C,D-PT-1013
1,2,3JSGA,B,C,D-PT-1023
1,2,3JRCA-LT-11X
1,2,3JRCA-LT-110Y
1,2,3JCHN-LT-268
1,2,3JSIB-LT-311
1,2,3JSIB-LT-321
1,2,3JSIA-LT-331
1,2,3JSIA-LT-341
1,2,3JSGA,B,C,D-LT-1113
1,2,3JSGA,B,C,D-LT-1114
1,2,3JSGA,B,C,D-LT-1123
1,2,3JSGA,B,C,D-LT-1124

*To be replaced by Rosemount Model 1153 Series D pressure transmitters, or other suitable replacement (see III.1).

II. Analysis of Safety Implications

The conditions of incorrect overpressure range on the pressurizer transmitters and the generic thermal non-repeatability of the Model 763 and 764 ITT Barton pressure transmitters could cause physical damage and unreliable setpoint calibration of safety-related devices. Based on the above, the conditions are evaluated by the PVNGS Project as reportable under the requirements of 10CFR50.55(e), since if these conditions were to remain uncorrected, it would constitute a significant safety condition. The supplier ITT Barton has previously filed a 10CFR Part 21 report on the thermal non-repeatability problem.

III. Corrective Action

1. C-E letter V-CE-18781 addresses the corrective action that the ITT Barton Model 763 pressure transmitters for PT-103 and PT-104 on Unit 1 will be replaced with qualified Rosemount Model 1153 Series D pressure transmitters that meet the restricted range criteria. Replacement of PT-103 and 104 with qualified Rosemount Model 1153 Series D transmitters, will mean PT-103, 104, 105 and 106 will all be Rosemount Model 1153 Series D transmitters. C-E also addresses that this replacement for the first fuel cycle of PVNGS Unit 1 will require relaxation of the requirement for diversity of pressure sensing interlocks on redundant shutdown cooling system isolation valves identified in CESSAR-F Section 7.6.1.2.1.g. In addition, until such time another qualified vendor is available, PT-103 and PT-104 will be replaced with Rosemount Model 1153 Series D transmitters in Units 2 and 3 prior to fuel load for the respective units.
2. Bechtel will implement replacement of ITT Barton Model 763 transmitters with Rosemount Model 1153 Series D via DCP 1SM-RC-105 for Unit 1 prior to fuel load. DCPs 2SM-RC-105 and 3CM-RC-105 will be issued for Units 2 and 3 prior to fuel load for the respective units.
3. PVNGS SAR Change Notice No. 1137 will be issued revising Section 1.9.2.4 to identify a deviation from the diversity requirement design basis contained in CESSAR-F Section 7.6.1.2.1.g. The SAR change will be incorporated prior to fuel load for Unit 1.
4. C-E will revise drawings and documentation applicable to the replacement of ITT Barton Model 763 transmitters with Rosemount Model 1153 Series D for PT-103 and PT-104. C-E will also submit revised Barton documentation identifying the thermal non-repeatability modifications.

5. C-E letter V-CE 19054 addresses the corrective action required for the thermal non-repeatability problem on all ITT Barton Model 763 and 764 transmitters. The corrective action will consist of two (2) engineering changes as follows:

- a. Metallic washers will be replaced by non-metallic washers as a field modification, in accordance with ITT Barton Field Change Procedure 0764-1240B Log No. N001-1.01-418-1. This field modification will be implemented on all pressure transmitters as identified in Section IB, with the exception of PT-103 and PT-104 which have been replaced as identified in Paragraph III.1.
- b. C-E will return the following ITT Barton transmitters for the Balco resistors and metallic washer modifications:

1JRCE-PT-100X
1JSIA-PT-343
1JSGB-PT-1023B
1JSGC-LT-1123C
1JRCE-LT-110Y
1JSIB-LT-311
1JSIB-LT-321
1JSIA-LT-331
1JSIA-LT-341

via NCR SJ-3230
& CE letter V-CE-20416

2JSIA-PT-333
2JSGA-LT-1113

via DCP 2SM-RC-118

- c. All Unit 3 transmitters modifications will be implemented via DCP 3CM-RC-118, as follows:

Transmitter to be modified on site.

3JSGB,D-LT-1113
3JSGB,C-LT-1123
3JSGB-PT-1013

The above transmitters do not require Balco resistor modifications and will have metallic washers changed only.

Transmitters returned to ITT Barton for Balco resistor and metallic washer modifications, per C-E letter V-CE-20532.

3JRCA-LT-110X
3JSGA,C-LT-1123
3JSGA,D-LT-1123
3JSGA,B,C,D-LT-1114
3JSGA,B,C,D-LT-1124

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3JRCE-PT-100X
3JRCE-PT-100Y
3JCHA-PT-268
3JRCA,B,C,D-PT-101
3JRCA,B,C,D-PT-102
3JSIB-PT-311
3JSIB-PT-313
3JSIB-PT-321
3JSIB-PT-323
3JSIA-PT-331
3JSIA-PT-333
3JSIA-PT-341
3JSIA-PT-343
3JSGA,C,D-1013
3JSGA,B,C,D-PT-1023

- d. The returned Unit 1 and 2 pressure transmitters (III.5.b) will have the metallic washer modifications performed by ITT Barton.
6. All NCRs which have been initiated as a result of these conditions will be dispositioned as "repair" in accordance with the applicable DCPs.

REFERENCES

- *(a) V-CE-16845, dated July 30, 1982
*(b) V-CE-17362, dated November 11, 1982
*(c) V-CE-18182, dated March 25, 1983
 (d) V-CE-18465, dated May 17, 1983
*(e) V-CE-18781, dated July 22, 1982
 (f) V-CE-19001, dated September 15, 1983
*(g) V-CE-19054, dated September 29, 1983
*(h) V-CE-20050, dated April 29, 1983
 (i) V-CE-20312, dated May 2, 1983
 (j) V-CE-20485, dated October 17, 1983
 (k) V-CE-20522, dated, November 14, 1983
 (l) V-CE-20532, dated November 28, 1983