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November 27, 1984
ANPP-31129-TDS/TRB

REGION V USE

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

Attention: Mr. D. F. Kirsch, Acting Director
Division of Reactor Safety and Projects

Subject: Final Report - DER 84-25
A 50.55(e) Reportable Condition Relating To Containment Supply
Registers Would Not Cycle.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Narbut and T. Bradish on
May 1, 1984
B) ANPP-29611, dated May 29, 1984 (Interim Report)
C) ANPP-30256, dated August 16, 1984 (Time Extension)
D) ANPP-30564, dated September 19, 1984 (Time Extension)
E) ANPP-30835, dated October 15, 1984 (Time Extension)
F) ANPP-30999, dated October 30, 1984 (Time Extension)
G) ANPP-31192, dated November 20, 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. D. F. Kirsch
DER 84-25
Page Two

cc: Richard DeYoung, Director
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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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FINAL REPORT - DER 84-25
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 1, 2, 3

I. Description of Deficiency

During receiving inspection, the containment building air supply registers failed to cycle properly. The inspection revealed that the tension wire used for maintaining louver (blade) adjustment fractured during cycling. This results in a condition where the louvers are free to move and can close, thereby blocking the supply of air to safety-related areas that require cooling.

This condition was documented by The Waldinger Corporation (TWC), supplier of the air conditioning system, in References 1 and 2.

The air supply registers and grilles for PVNGS air conditioning systems are manufactured by Titus Products Co. (Titus) and supplied by The Waldinger Corporation (TWC). The registers are Titus model 272 RL5 and the grilles are Titus model 272 RLO. It should be noted that an air supply grille consists of an adjustable airfoil louver (blade) mounted in a frame, while an air supply register is a grille provided with a damper.

During a subsequent internal QA inspection by the Titus Products Co., it was discovered that some of the tension wires used for adjustment of the blades on the grilles would not remain in place when the blades were closed.

The deficiency discussed in this report concerns the grille portion of both the Titus model 272 RLO grilles and 272 RL5 registers.

Evaluation

There are a total of 117 Titus quality class "Q" and "R" registers and grilles in each unit. The following is a list of affected Titus registers and grilles by building:

<u>Building</u>	<u>Number Per Unit</u>
Auxiliary	33
Containment	65
Control	10
Diesel Generator	4
Fuel	5

TWC has confirmed that the tension wire failures and the tension wires not remaining in place are isolated to models 272 RLO and 272 RL5 (Reference 5).

Titus has determined the root cause of these deficiencies to be the following:

- A. Carbon steel tension wires became brittle and susceptible to fracture due to the plating (galvanizing) process used during fabrication.
- B. Wire retaining lances, which are tabs pressed out from the register side walls, were insufficient in depth to retain the wire.
- C. Retaining clips failed to remain intact on louvers.

It was determined that (a) either 0.031 inch stainless steel or 0.050 inch diameter carbon steel wire provided satisfactory tension, (b) a round type pushnut fastener (No. PDI56307) manufactured by TRW Co. would remain intact on the louvers, and (c) with additional fasteners, the wire would be properly retained by the lances (Reference 6 and 7).

II. Analysis of Safety Implications

If this deficiency were to have remained uncorrected the supply of air to safety-related areas could have been blocked.

Based on the above, this condition is evaluated as reportable under the requirements of 10CFR50.55(e); since, if this condition were to remain uncorrected, it would represent a significant safety condition.

This project has also evaluated this condition as reportable under 10CFR Part 21 since a defect exists in a basic component. This report addresses the reporting requirements of the regulation with exception of subpart (vi), regarding the number and location of similar components supplied to other facilities.

Titus previously notified the NRC that the tension wires would not remain in place when blades were closed. The breakage of tension wire has not been reported (Reference 3).

A copy of this document will be sent to The Waldinger Corporation and Titus Products Company to notify them of the Part 21 reportability evaluation by the PVNGS project.

III. Corrective Action

A. The following corrective actions has been implemented by Titus to ensure future deliveries do not have these problems (Reference 5):

1. Future fabrications will use the TRW Fastener No. PD156307 to restrain the tension wire.
2. Tension wires will be installed after the registers have been plated.
3. Future fabrications will have either 0.031 inch stainless steel or 0.050 inch carbon steel tension wires (Note: 0.050 inch carbon steel tension wires were used in the original installations in PVNGS).

B. The following action is being implemented to correct this condition in equipment at the jobsite:

1. The supply registers and grilles for Units 1, 2, and 3 will be modified per Titus field rework procedures (Reference 6). These procedures cover (a) replacing existing push-on lock nuts with the TRW fastener PD156307, (b) replacing existing tension wires with 0.031 inch diameter stainless steel tension wires and (c) adding fasteners. The 0.031 inch stainless steel has been selected over 0.050 inch carbon steel because it is easier to install and has superior corrosion resistance.
2. The registers and grilles in the Unit 1 Containment building have been reworked per NCR SM-4980.

NCR SM-5128 has been initiated to rework the safety-related (Q Class) registers and grilles in the Unit 1 Control Building. The registers in the Control Building are the only safety-related registers outside containment. This work will be completed prior to fuel load.

Unit 2 registers and grilles requiring modifications will be reworked prior to fuel load. This action is expected to be completed by April 30, 1985.

Unit 3 registers and grilles requiring modifications will be reworked prior to fuel load.

IV. References

1. Letter from TWC to Bechtel F-TWC-BPC-84-60, dated March 6, 1984
2. Letter from TWC to Bechtel F-TWC-BPC-84-63, dated March 7, 1984
3. Letter from Titus to NRC, dated August 7, 1984
4. Letter from TWC to Bechtel F-TWC-BCI-84-225, dated August 10, 1984
5. Letter from TWC to Bechtel F-TWC-BCI-84-309, dated October 4, 1984
6. Titus Tension Wire Rework Report, Bechtel Log No.
13-10407-M598-2230
7. Letter from TWC to Bechtel F-TWC-BPC-84-322, dated
October 15, 1984