

Arizona Public Service Company

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September 25, 1984  
ANPP-30642-TDS/TRB

REGION V I&E

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

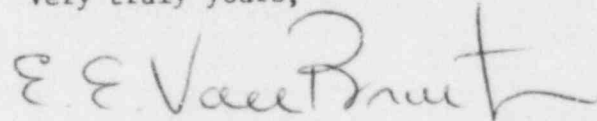
Subject: Final Report - DER 84-29  
A 50.55(e) Reportable Condition Relating to Buildup Of  
Material On Unit 2 Diesel Generator Heat Exchangers.  
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Narbut and T. Bradish on  
May 11, 1984  
B) ANPP-29668, dated June 5, 1984 (Interim Report)

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 84-29  
Page Two

cc: Richard DeYoung, Director  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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FINAL REPORT - DER 84-29  
DEFICIENCY EVALUATION 50.55(e)  
ARIZONA PUBLIC SERVICE COMPANY (APS)  
PVNGS UNITS 1, 2, & 3

I. Description of Deficiency

The cooling system of the Diesel Generators consists of the following coolers:

<u>Item No.</u>	<u>Cooler Description</u>	<u>Tag No.</u>
1	Air After-cooler	MDGA-E01A, E01B, and MDGB-E01A, E01B
2	Governor Oil Cooler	MDGA-E02 and MDGB-E02
3	Fuel Oil Cooler	MDGA-E03 and MDGB-E03
4	Lube Oil Cooler	MDGA-E04 and MDGB-E04
5	Jacket Water Cooler	MDGA-E05 and MDGB-E05

As specified in Bechtel Specification No. MM-018, Cooper Energy Services (CES), the supplier of the Diesel Generators furnished carbon steel epoxy lined (Plasite 7155-H) channels for Items 1, 4, and 5. The channels for Items 2 and 3 are made of cast iron and hence do not require the Plasite lining.

While operating Train A of the Unit 2 Essential Spray Pond System, an inspection of the temporary startup strainer located on the return line to the pond revealed an accumulation of epoxy material. NCR SM-2935 was written to document the condition. The interim disposition of the NCR provided for removal of the channel covers and the floating head covers from the jacket water cooler and lube oil cooler for inspection of the Plasite lining. The inspection revealed that the coolers had extensive failure of the Plasite lining including severe, dense, blistering, and widespread rusting. NCR SM-3938 was written to document the results of the inspection.

Trains A and B air after-coolers were opened and inspected. Lining damage similar to the jacket water and lube oil coolers was discovered and documented on NCR SM-3938.

The governor oil coolers and fuel oil coolers in both trains were also inspected. NCR SM-4064 was written to document the discovery of a significant buildup of a foreign material suspected to be Plasite chips and corrosion products related to the lining failures.

#### Evaluation

An evaluation by Bechtel Materials and Quality Services has determined the root cause of this deficiency to be related to the following:

- a) lack of profile; surface was too smooth for adequate adhesion of plasite.
- b) the presence of cutting oils on the heat exchanger surface prior to Plasite application.
- c) heat exchangers being sealed prior to complete curing of Plasite.

An inspection of Items 1, 4, and 5 on Unit 1 revealed Plasite lining failure similar to those found on Unit 2. These failures are documented on NCRs MG-2130, 2208, 2209, 2210, and 2211.

Items 2 and 3 on Unit 1 were inspected for a buildup of foreign material as documented by NCR SM-4064 for Unit 2. No foreign material was found in either the heat exchangers or the connecting tubing.

Any Plasite lining failures on Unit 3 will be identified during startup strainer inspections. Letter B/ANPP-E-116242 has requested that Engineering be advised immediately for a first-hand look at debris whenever any pertinent materials are found in startup strainers.

All of the NCRs for Plasite lining failures listed above have been dispositioned as repair per 13-P-ZZG-012, Plasite repair procedure 11.

#### II. Analysis of Safety Implications

Bechtel Engineering has reviewed the deficiency and has determined that if operation of the system had continued, complete clogging of the five coolers (per diesel engine) could have occurred. High temperature alarms would have alerted operators to the problem, but function of the diesel generator set would be impaired or halted.

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 10CFR21.21(b)(3). This report addresses the reporting requirements of the regulation with the exception of subpart (vi), regarding the number and location of such components supplied to other facilities.

### III. Corrective Action

Unit 1 Plasite lining failures have been repaired in accordance with power tool cleaning procedure SSPC-SP3 and drawing 13-P-ZZG-012, Plasite repair Procedure 11. This work was performed per the dispositions of and documented on NCRs MG-2130, 2208, 2209, 2210, and 2211.

NCR-SM-3938, which covers the Unit 2 jacket water coolers, lube oil, coolers, and air after-coolers, has been dispositioned as follows:

1. The covers are to be grit blasted to remove coating and to provide a profile 1-5 mils minimum. Recoat with Plasite (may use 9009-1T).
2. End channels (but not tube sheets) of above coolers shall be power tool cleaned in accordance with SSPC-SP-3 until rust and contaminants are removed and a clean roughened surface is attained. Recoat with Plasite (may use 9009-1T).
3. Recoating is to be performed to drawing 13-P-ZZG-012, Rev. 14, Procedure 11.

NCR-SM-4064, which covers the Unit 2 governor oil coolers and the fuel oil coolers, has been dispositioned to clean the coolers to the appropriate cleanliness level.

The corrective actions for Units 1 and 2 address all of the systems, as listed in Section I above, in which Plasite lining was used, and they require complete replacement of the lining. Any Plasite lining problems that are identified in Unit 3 will be handled in the same manner, and the corrective action will be completed prior to fuel load.

A copy of this report will be sent to Cooper Energy Services for their review and disposition in accordance with the requirements of 10CFR21.

Mr. T. W. Bishop  
DER 84-29  
Page Four

IV.        References

Construction NCRs: MG-2130, MG-2208, MG-2209, MG-2210,  
MG-2211.

Startup NCRs: SM-2935, SM-3938, SM-4064.

Letter to J. D. Houchen from W. G. Bingham dated June 15, 1984  
(B/ANPP-E-116242).