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July 13, 1984 REGION WISE
ANPP-29956-TDS/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

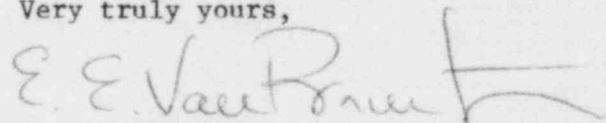
Subject: Final Report - DER 84-02
A 50.55(e) Reportable Condition Relating To Rust, Scale And
Pitting In The Clevis And Arm Of Several SI And CH Valves.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Johnson and T. Bradish on
January 23, 1984
B) ANPP-28885, dated February 15, 1984 (Interim Report)
C) ANPP-29130, dated March 22, 1984 (Time Extension)
D) ANPP-29350, dated April 24, 1984 (Time Extension)

Dear Sir:

Attached is our final written report of the deficiency referenced above,
which has been determined to be Not Reportable under the requirements of
10CFR50.55(e).

Very truly yours,



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

EEVB/TRB:db
Attachment

cc: See Page Two

50-528

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Mr. T. W. Bishop
DER 84-02
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cc: Richard DeYoung, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

T. G. Woods, Jr.
D. B. Karner
W. E. Ide
D. B. Fasnacht
A. C. Rogers
L. A. Souza
D. E. Fowler
T. D. Shriver
C. N. Russo
J. Vorees
J. R. Bynum
J. M. Allen
J. A. Brand
A. C. Gehr
W. J. Stubblefield
W. G. Bingham
R. L. Patterson
R. W. Welcher
H. D. Foster
D. R. Hawkinson
L. E. Vorderbrueggen
R. P. Zimmerman
S. R. Frost
J. Self
D. Canady
T. J. Bloom

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339

FINAL REPORT - DER 84-02
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 1, 2, 3

I. Description of Deficiency

NCR SM-3448 identified the existence of excessive rust, heavy scale, and pitting of the clevis (Part No. 26) in valves 1PS1AV205, 1PS1BV206, and 1PS1BV158. The material type listed on drawing N001-11.04-17-8 for the clevis is ASTM 296 GR CFBM. NCR SM-3534 identified the existence of excessive oxidation of the clevis and arm in valves 2PCHN-V139, 2PCHN-V450, and 2PCHN-V647. The material type listed on drawing N001-7.09-88 for the clevis is ASTM A 240 type 316L and the the arm is AMS 5398 17-4PH.

Further Field Investigation revealed the existence of rust on the internal walls of the valve body and there is reason to believe that this condition could be generic to all check valves in the SI and CH subsystems supplied by Combustion Engineering (CE) and manufactured by Borg-Warner. An on-site visual inspection was conducted by C-E metallurgists and start-up personnel.

Borg-Warner and CE reviewed the site inspection data, which included photographs of the affected parts of the valves. As a result of this review the problem was identified as surface rust from free iron on the nonmachined cast surfaces of the stainless steel valves. The nonmachined surfaces of the cast swing check valves body contained some normal voids as a result of the casting process. The nonmachined surfaces were also covered with soft (not scale) corrosion products which were most likely Fe_2O_3 . The oxides were from free iron embedded into the surface during the manufacturing process. There were neither pits nor corrosive products on the machined areas of these valves.

The presence of this type of impurity in the surface could cause micropits. The micropits would not propagate however, due to the fact the iron is consumed through oxidation. It should also be noted that these valves have been in service for over a year in a worst-case environment (i.e., closed stagnate moist atmosphere) and the pits are less than 0.001 inch. This condition will be alleviated with the advent of system flow, altering the environment which promotes such pitting.

II. Analysis of Safety Implications

This surface rust is not significant for the following reasons:

- A. Its presence on nonmachined surfaces will not affect the opening and closing functions of the valve because the non-machined surfaces are not subjected to metal-to-metal contact.
- B. Pitting corrosion to the cast and stainless steel that is induced by the presence of free iron is expected to terminate at a shallow depth. (See last paragraph Section I.)

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C. This is an insignificant source of iron corrosion product to the reactor coolant system.

Based upon the above, this condition is evaluated as not reportable under 10CFR50.55(e) and/or 10CFR21 since it does not adversely affect the safety of plant operations and does not represent a substantial safety hazard.

III. Corrective Action

1. NCRs SM-3448 and SM-3534 were dispositioned "Use-As-Is".
2. Proper operation of the check valves will be verified via successful completion of pre-operational system testing.