

Arizona Public Service Company

RECEIVED
NRC

1984 JUL 27 PM 1:32

July 24, 1984
ANPP-30030-TDS/TRB

REGION V IRE

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

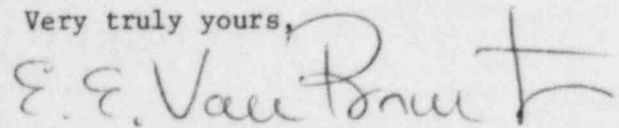
Subject: Final Report - Revision 1 - DER 81-49
A 50.55(e) Reportable Condition Relating To NSSS Water Level
Transmitters May Give Erroneous Readings Due To Variations Of
Water Leg In Flexible Tubes Affected By Thermal Growth,
Sagging Or Low Points.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between J. Eckhardt and B. Kaplan on
December 15, 1981
B) ANPP-19820, dated January 5, 1982 (Final Report)

Dear Sir:

Attached is Revision 1 of our final written report of the reportable
deficiency, under 10CFR50.55(e), referenced above. This report clarifies
the Condition Description and the Corrective Action.

Very truly yours,



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

EEVB/TRB:db
Attachment

cc: See Page Two

8408080529 840724
PDR ADOCK 05000528
S PDR

11
IE-27

Mr. T. W. Bishop
DER 81-49
Page Two

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
M. Woods
T. J. Bloom

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

FINAL REPORT - REVISION 1 - DER 81-49
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 1, 2, 3

I. Description of Deficiency

Level transmitters require a constant water reference level for accurate instrument operation. A completely filled "leg" is essential for accurate calibration since it is the source against which the varying pressure exerted by the changing height of fluid in the vessel is measured. A partially filled reference leg will lead to erroneous transmitter output.

As the instrument isometric drawings were originally issued for construction, a possibility of steam condensing and remaining trapped in the reference leg; i.e., the flex-tube which connects the root valve to the condensate pot, can possibly exist for the following reasons:

- ° Radiation heat loss effects acting on the flexihose.
- ° Sagging or low points in the flexihouse due to installed configuration.
- ° Thermal growth of the vessel could possibly raise the root valve above the condensate pot if these were originally installed at identical elevations.

A total of nineteen (16 steam generator and 3 pressurizer) condensate pot installations may be subject to one or more of the above conditions and thereby not acceptable for use as a reference level for the transmitters. The cause of this design error is attributed to a design oversight since the use of flexihose for this application is a new development and the above ramifications were not seen until the hot functional test was performed on San Onofre Unit 2 which also used the flexihose for this installation.

A change which raised the condensate pots to a minimum of five (5) inches above the root valve elevations and installed vacuum jacketed flexihoses was implemented by Design Change Packages (DCP's) 1SJ-SG-039 and -040. During the hot functional test of PVNGS Unit 1, these installations did not function correctly. The steam generator level measurements were found to be erroneous during the start of the test and temporary fixes had to be made to allow completion of the tests. This failure was attributed to an insufficient flexihose internal diameter which did not allow the free passage of condensing water draining into the steam generator; also steam flowing up to the condensate pot resulted in the hoses filling with water causing inaccurate level indications.

II. Analysis of Safety Implications

This condition is evaluated as Reportable since if left undetected and uncorrected this deficiency could result in erroneous level indication and/or discrepancies between redundant level indications causing the operator to distrust readings and, thereby, potentially make a wrong operating decision.

III. Corrective Action

The following corrective actions have been implemented to assure correct installations for the various condensate pots.

- A. The condensate pots for the steam generator and pressurizer level measurements have been installed directly to the root valves. The flexihose are now installed between the condensate pot and the instrument impulse tubing lines. Prior, the hoses were installed between the root valves and the condensate pots. Eleven (11) condensate pot installations were changed to this type of pot and hose configuration.
- B. For the steam flow measurements the flexihose diameter has been increased from a 1/2 inch to 3/4 inch vacuum jacketed hose and is welded directly to the root valve. The condensate pots are located a minimum of five (5) inches above the root valve elevations. There are eight affected steam flow measurements.

These corrective actions have been implemented by DCPs 1SJ-SB-021, 2SJ-SB-021, and 3CJ-SB-021. The Unit 1 DCP is completed and the Units 2 and 3 DCP's will be completed prior to fuel load in each unit.