Docket Nos. 50-528/529/530

50.55(e) Report

ARIZONA PUBLIC SERVICE COMPANY

STA. 3003

P.O. BOX 21666 - PHOENIX, ARIZONA 85036

January 5, 1982
ANPP-19820-GHD/BSK

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

Attention: Mr. B. H. Faulkenberry, Chief
Reactor Construction and
Engineering Support Branch

Subject: Final Report - 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: 82-019-026
D.4.33.2

Reference: Telephone Conversation between J. Eckhardt and B. Kaplan on December 15, 1981

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

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

EEVBJr/GHD:skc

Attachment

cc: See Attached Page 2

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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 81-49

DEFICIENCY EVALUATION 50.55(e)

ARIZONA PUBLIC SERVICE COMPANY (APS)

PVNGS UNITS 1, 2 AND 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 connect 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 flexihose 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 twenty-three (20 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.

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 will assure correct installations for the various condensate pots:

a. The flexihose specified for these installations will include a vacuum jacket insulation to minimize heat loss condensation effects.

b. The design of flexihose installations is being reviewed and revised to provide adequate draining under all operating conditions and all unnecessary hose length will be eliminated.

c. All condensate pots will be located a minimum of five inches (5") above the root valve elevation.

All the instrument isometric drawings containing condensate pots will be reviewed, revised and reissued by February 15, 1982, to preclude recurrence of this condition.