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September 18, 1984
ANPP-30550-TDS/TRB

REGION V

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 84-35
A 50.55(e) Reportable Condition Relating to Setpoint
Potentiometers In The PPS Drift Outside Of Tolerance.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Narbut and T. Bradish on
May 17, 1984
B) ANPP-29732, dated June 12, 1984 (Interim Report)
C) ANPP-30355, dated August 29, 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 / ASK

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

EEVB/TRB/nj
Attachment

cc: See Page Two

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

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FINAL REPORT - DER 84-35
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 1, 2

I. Description of Deficiency

After experiencing excessive voltage drift in a number of setpoint potentiometers in the Auxiliary Feed Actuation System at the St. Lucie II power plant, Combustion Engineering (C-E) began a program in the Summer of 1983 to perform stability testing on the ANPP Plant Protection Systems (PPS), which use identical potentiometers - the Bourns Infinetron series. C-E identified a total of twelve potentiometers in Unit 1 that exhibited voltage drift beyond allowable tolerances and required replacement.

II. Analysis of Safety Implications

The subject deficiency was discovered as a result of stability testing of Bourns P/N 3501S-1-102 setpoint voltage course potentiometers in the PVNGS-1 Plant Protection System (PPS). Stability testing involved monitoring of setpoint voltages over a 14-day period.

Test results revealed that 12 of 160 setpoint voltages exceeded the hardware design acceptance criteria of +4.13 mVdc drift. However, criteria for safety analysis and PPS setpoints were not exceeded. The 12 potentiometers associated with these setpoint voltages were subsequently replaced via DCP 1SJ-SB-039.

Of the 12 out-of-tolerance readings, 3 setpoint voltage drifts were attributed to a single random defect in a bistable comparator card reference voltage source connected to all three of the potentiometers; the potentiometers were not defective at all. The defective comparator card was subsequently replaced.

Of the remaining 9 out-of-tolerance readings, 7 exceeded the hardware acceptance criteria by +3.87 mVdc or less. This drift is minor since it is less than one tenth of the safety margin which has been established between the trip setpoint and allowable value for the affected parameters and which is included in the safety analysis.

The remaining 2 out-of-tolerance readings were observed to drift by 47 mVdc and 44 mVdc respectively. This drift does not exceed the safety margin established between the trip setpoint and the allowable value for the respective parameters.

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The root cause of the observed setpoint drifts is believed to be differences in the physical resistance characteristics of out-of-tolerance potentiometers when subjected to internal resistance heating and environmental effects.

Since the observed setpoint drifts were within the assumptions of the safety analysis, the reported deficiency would not have affected safe operation of the plant.

Based on the above, this condition is evaluated as not reportable under the requirements of 10CFR50.55(e) and 10CFR21; since, if this condition were to remain uncorrected, it would not represent a significant safety condition.

III. Corrective Action

The 12 identified potentiometers in Unit 1 have been replaced via DCP 1SJ-SB-039. The Unit 3 PPS was tested prior to shipment and verified to be within specifications.

For the Unit 2 PPS, a stability test will be performed via SWA #8A 45 and any potentiometers exhibiting drift will be replaced via DCP 2SJ-SB-039.

IV. References

C-E letter V-CE-30180, dated May 2, 1984

C-E letter V-CE-30555, dated July 13, 1984

DCPs 1SJ-SB-039, 2SJ-SB-039

Plant Protection System Instruction Manual, N.001-13.03-200