

Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

March 9, 1984

ANPP-29038-BSK/TRB

U. S. Nuclear Regulatory Commission
Region V
Creskside 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

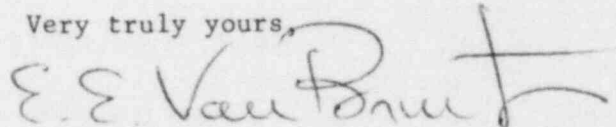
Subject: Final Report - DER 83-79
A 50.55(e) Reportable Condition Relating to AC Interference
Spikes On The 125 Volts DC Bus (Diesel Generator) Exceeds
Specification.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between T. Young and K. Parrish on
November 18, 1983.
B) ANPP-28480, dated December 21, 1983 (Interim Report)
C) ANPP-28753, dated January 30, 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
ANPP Project Director

EEVB/TRB:db
Attachment

cc: See Page Two

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Mr. T. W. Bishop

DER 85-79

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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 83-79
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNITS 1, 2, 3

I. Description of Deficiency

DERs 83-35 and 83-52 identified safety significant conditions wherein ac spikes in the range of 20-70V-ac range on the 125V-dc bus would affect the operation of the diesel generator, primarily the speed sensing and starting control circuits. The diesel generator design was based on the allowable 2% (2.1-2.8V-ac) ac-ripple on the 125V-dc bus. Resolution of DERs 83-35 and 83-52 required modifications to the 125V-dc power supplies to limit ac ripple/spikes to the 2-4V-ac range. However, the new acceptance criteria of 2-4V-ac ripple/spikes is above the diesel generator original design of 2% (2.1-2.8V-ac) allowable ripple/spikes.

Therefore, Cooper Energy, the diesel generator supplier, was requested to review the new 2-4V-ac ripple/spikes criteria and to evaluate if this revised criteria would in any way impact the safe operation of the diesel generator.

Cooper Energy conducted a factory test on an identical control panel, as supplied to PVNGS, to evaluate the effects of the revised criteria. Cooper Energy letter of January 9, 1984 contains T.st Procedure S00391-ESO-59-7183-88, and states that the Air Pax speed monitor, without the Bechtel recommendation to install a 1/4 inch Micarta board to insulate the chassis from ground, could tolerate a maximum of 6V-ac ripple/spikes without affecting the speed pickup circuits. In addition, Cooper Energy letter of January 9, 1984, file: CES No. 368 states that major components (i.e., exciter, governor) of the control panels, will not be effected by the revised criteria of 2-4V-ac ripple/spikes allowable on the 125V-dc bus. Cooper Energy has indicated they will review other components in the En.-Tronic panels if deemed necessary.

Bechtel Engineering concurs with Cooper Energy's review that the revised acceptance criteria of 2-4V-ac ripple/spikes will not effect the diesel generator operations. However, to ensure that ac signals are not induced from chassis ground, the Air Pax speed monitor chassis will be modified by adding the 1/4 inch Micarta insulation board.

II. Analysis of Safety Implications

The review of the diesel generator control circuits with regard to the revised criteria of 2-4V-ac ripple/spikes in lieu of the specified diesel generator 2.1-2.8V-ac range indicates no effect on the diesel generator safety-related functions. In addition, the diesel generator was properly designed to function on the original specified 2.1-2.8V-ac ripple/spikes. If the 125V-dc revised design requirement of 2-4V-ac ripple/spikes allowable is maintained, the diesel generator control circuits will function properly.

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

III. Corrective Action

- A. Specification Change Notice (SCN) 3535 to Specification 13-MM-018, has been issued to revise the allowable 2-4V-ac ripple/spikes criteria on the 125V-dc bus for the diesel generator.
- B. A Bechtel revision to Cooper Energy drawing G5-262-1009, Sht. 2, will be issued to reflect the Micarta board installation.
- C. NCR SE-1684 was issued to provide an interim resolution to isolate the Air Pax speed monitor chassis from stray AC ripple/spikes. This was done to support Startup activities. This NCR will be final dispositioned to implement the addition of Micarta insulation boards in the Unit 1 diesel generator control panels.
- D. DCPs 2SM-DG-037 and 3CM-DG-037 have been issued for Unit 2 and 3 modifications, which will be completed based on APS direction.