

Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

July 7, 1983
ANPP 24247-RQT/BSK

SP-528

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

Attention: Mr. D. M. Sternberg, Chief
Reactor Projects Branch 1

Subject: Interim Report - DER 83-35
A 50.55(e) Potentially Reportable Deficiency Relating to
Inverters Supplied By Elgar Were Found To Produce Voltage
Spikes On The DC Supply Bus
File: 83-019-026; D.4.33.2

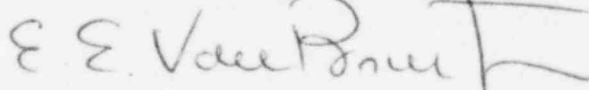
Reference: Telephone Conversation between P. Narbut and R. Tucker on
June 7, 1983

Dear Sir:

The NRC was notified of a potentially reportable deficiency in the
referenced telephone conversation. At that time, it was estimated that a
determination of reportability would be made within thirty (30) days.

Due to the extensive investigation and evaluation required, an Interim
Report is attached. It is now expected that this information will be
finalized by October 31, 1983, at which time a complete report will be
submitted.

Very truly yours,



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

EEVB/RQT:wp
Attachment

cc: See Attached Page 2

REGIONAL

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U. S. Nuclear Regulatory Commission
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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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Atlanta, Georgia 30339

INTERIM REPORT - DER 83-35
POTENTIAL REPORTABLE DEFICIENCY
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNIT 1, 2, & 3

I. Potential Problem

Quality Class Q inverters, supplied by Elgar Corporation under Specification 13-EM-054, produce 20 to 40 volt spikes on the DC supply bus. These spikes were first noticed on the DC supply source to the diesel generator governor panel and were causing the diesel generator speed sensor to deflect full scale, thereby precluding the diesel generator from starting. A Bechtel Field Engineering investigation traced the voltage spikes to the Elgar inverters.

The Elgar service representative was called to the site to evaluate the cause of this condition. Measurements were taken at each single phase inverter for the four different separation groups in Unit 1 and showed each of separation group "B", "C" and "D" inverters to exhibit 20 to 40 volt spikes at approximately 2000 Hz. Separation group "A" inverter exhibited 2 to 4 volt spikes at the same frequency. The problem was identified to be the result of the high frequency snubber capacitor negative lead being run in the same wire bundle as the unfiltered power wires. This negative lead was removed from the bundle and rerouted to the negative side of the incoming circuit breaker. This modification reduced the voltage spike to 2 to 4 volts in separation group "B", "C" and "D" inverters. No further modifications were performed at this time based upon the acceptability of 2 to 4 volt spikes on an interim basis.

The cause is attributed to the Elgar design, which did not include active filters to prevent spikes from being introduced on the supply bus. Inclusion of the filter was specified to insure that the inverters met the design requirement of section 4.6.5.1, which states in part: "An audio frequency input filter shall be supplied to prevent audio noise feedback from the inverter into the DC input. This filter shall also prevent voltage surges on the battery from reaching the inverters as well as preventing noise of the inverter circuit from reaching the battery."

II. Approach To and Status of Proposed Resolution

Bechtel is corresponding with Elgar to have additional inverter tests performed to determine if the voltage spike can be further reduced or eliminated

III. Projected Completion of Corrective Action and Submittal of the Final Report

Evaluation of this condition and submittal of the Final Report is forecast to be completed by October 31, 1983.