

Washington Public Power Supply System

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Docket No. 50-397

October 21, 1983
G02-83-952

Mr. J. B. Martin
Regional Administrator
Region V, N.R.C.
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

Subject: NUCLEAR PROJECT NO. 2
10CFR50.55(e) REPORTABLE CONDITION #277,
DC MOTOR STARTING RESISTORS

References: (1) Telecon dated August 5, 1983, L.C. Floyd to
D. Haist, same subject.

(2) Letter G02-83-795 dated September 2, 1983,
C.S. Carlisle to J.B. Martin

In accordance with the provisions of 10CFR50.55(e), your office was informed, by the references, of the above subject condition. The attachment provides the Project's final report on Condition #277.

If there are any questions concerning this matter, please contact Roger Johnson, WNP-2 Project QA Manager, (509) 377-2111, extension 2712.


C.S. Carlisle
Program Director, WNP-2

RTJ/jdb

Attachment: As stated

cc: W.S. Chin, BPA
N.D. Lewis, EFSEC
A. Toth, Resident Inspector
Document Control Desk, NRC

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
NUCLEAR PROJECT NO. 2
DOCKET NO. 50-397
LICENSE NO. CPPR-93
10CFR50.55(e) CONDITION #277
DC MOTOR STARTING RESISTORS

FINAL REPORT

Description of Deficiency

A potential problem related to direct current motor starting resistors on Class 1E DC motors used in valve operators and as pump drives was identified to the Architect Engineer (AE). The AE reviewed the plant DC equipment installed and determined the required resistor setting for the motors on the equipment. A field inspection was then conducted which established that the calculated resistance values could not be confirmed in the field. It was concluded by the AE that under these uncertain conditions, safety-related equipment might not have started at fully loaded conditions if the resistors had been left at the values set by the manufacturer.

Safety Implications

Safety considerations vary with the specific piece of equipment and the particular function of the system in which it is to operate. The result of improper resistor setting could be either excessive starting current causing indeterminate damage to the motor, or insufficient starting current to meet the starting torque requirements of the driven equipment.

Either condition could result in the equipment being unable to perform its safety-related function. The condition is considered to be reportable under 10CFR50.55(e) criteria.

Cause for Deficiency

Starting resistor problems have occurred on other nuclear plants due to motor control center (MCC) vendors sizing starting resistors based on assumed or initial motor size, and feeder cable size and length information. These assumptions do not remain consistent with the evolution of plant design in all cases. A failure to correlate final vendor data composing the as-constructed conditions in the plant is considered to be the probable cause for the deficiency.

Corrective Action

The AE has conducted a review of all the electrical DC equipment where the DC motors require a starting resistor. Calculations have been performed for both safety and non-safety-related equipment establishing the correct ohmic setting for the starting resistors. Project Engineering Directive (PED) 218-E-8782 has been issued to Supply System Startup to set the ohmic value and to confirm the setting is correct by verification of the actual starting currents and valve operating times on the attached list of components. Startup has initiated SDR's 11291 through 11296 to track implementation of the work. The work is in progress and will be completed on a system need basis.

Action to Prevent Recurrence

A complete review of the direct current motors in the plant has been performed correlating appropriate vendor information. This type of effort is ongoing in other areas as an integral part of "as-building" efforts. No other action to prevent recurrence is considered necessary.