Washington Public Power Supply System
P.O. Box 968 3000 George Washington Way Richland, Washington 99352 (509) 372-5000

Docket No. 50-397

July 8, 1983
G02-83-610

Mr. J. B. Martin
Regional Administrator
U.S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, California 94596

Subject: NUCLEAR PROJECT NO. 2
10CFR50.55(e) REPORTABLE CONDITION #264
IMPROPERLY SIZED OVERCURRENT DEVICES

Reference: Telecon QA2-83-112, dated June 9, 1983, L.C. Floyd to A. D'Angelo.

In accordance with the provisions of 10CFR50.55(e), your office was informed, by telephone, of the above subject condition on June 9, 1983. Attachment I provides the Project's interim report on this condition.

We will continue to provide your office with quarterly updates. The next report will be submitted on or before October 3, 1983.

If you have any questions regarding this subject, please contact Roger Johnson, WNP-2 Project QA Manager, at (509) 377-2501, extension 2712.

C. S. Carlisle
Program Director, WNP-2

LCF/kd

Attachment: As stated

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

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ATTACHMENT I

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
NUCLEAR PROJECT NO. 2
DOCKET NO. 50-397
LICENSE NO. CPPR-93
10CFR50.55(e) CONDITION #264
IMPROPERLY SIZED OVERCURRENT DEVICES

INTERIM REPORT

Description of Deficiency

Improperly sized overcurrent devices (fuses on WNP-2) in the feeders for DC motors may not be properly sized to allow for starting and/or plugging currents. These currents may cause the fuses to begin to melt and eventually fail after several cycles.

Safety Implication

Fuses for 125 and 250 VDC, Class 1E, pump and valve operator motors were sized between 125 and 150% of motor full load current. This meets the requirements of the National Electric Code (NEC), Section 430-52 and Table 450-152, which limits fuse sizing to 150% of motor full load current. Exception 2b of NEC Section 430-52, permits fuse sizing to be increased to 225% of full load current, where 150% is not adequate to permit motor operation. This exception was not used in initial fuse sizing.

Jogging pumps and throttling valve operator motors fused at 150% or below of full load current could fail due to repetitive inrush current heating of the fuse and eventually causing melting of the fuse. Continuous duty across-line-starting valve operator motors and one continuous duty reduced voltage starting valve operator motor fused at 150% are not adequately fused to permit motor starting.

The WNP-2 pumps and valves which could be affected by this deviation are listed in Table 1. In order to determine if the fuses for these valves and pump motors could melt under their operating conditions, a study would be required to determine the frequency of energization of each valve and pump motor. With this information, the probability of fuse melting could be evaluated and the impact of any loss of these valves or pump on their safety system could be determined. However, during abnormal plant operations, the frequency of energization of these items would require extensive analysis and such an analysis still may not be definitive. Therefore, this deviation is considered to be reportable under 10CFR50.55(e).

Corrective Action

Project Engineering Directive (PED) 218-E-B800 is being issued to accomplish the following:

1) Fuses for pump and valve operator motors are being replaced with those sized based on motor nameplate rating, coordinating with fuse melt curves to provide a minimum safe time of two (2) minutes at 200% full load current and 600% full load current for a minimum of 10 seconds. This action meets the requirements of NUREG 1.106 criteria.

Corrective Action (Continued)

2) Adequacy of the fuse size to be verified during the performance of startup tests by measuring the currents and comparing them with the ones used for the calculations (nameplate data).

Action to Prevent Recurrence

Methodology used to properly size fuses used in conjunction with safety related motors, to comply with NUREG 1.106, is being added to the Burns and Roe Engineering Criteria Document.

SUMMARY OF LOADS AND FEEDERS

DC SYSTEM	FEEDER	FROM	TO	COMMENTS
250 VDC	1D21-1	Batt. B2-1	DP-S2-1	-
250 VDC	1D21-3	DP-S2-1	MC-S2-1A	-
250 VDC	1M21A-80			
250 VDC	1A21-9001	DP-S2-1	MC-S2-1B	-
	1A21-9002			
250 VDC	1M21A-10	MC-S2-1A	W/E51-C002	Throttling valve
250 VDC	1M21A-20	MC-S2-1A	RHR-V-8	Non-throttling valve
250 VDC	1M21A-40	MC-S2-1A	RHR-V-23	Throttling valve
250 VDC	1M21A-70	MC-S2-1A	RWCU-V-4	Non-throttling valve
250 VDC	1M21A-120	MC-S2-1A	RCIC-V-13	Non-throttling valve
250 VDC	1M21A-130	MC-S2-1A	RCIC-V-19	Non-throttling valve
250 VDC	1M21A-140	MC-S2-1A	RCIC-V-22	Throttling valve
250 VDC	1M21A-150	MC-S2-1A	RCIC-V-59	Non-throttling valve
250 VDC	1M21A-160	MC-S2-1A	RCIC-V-64	Non-throttling valve
250 VDC	1M21A-170	MC-S2-1A	RCIC-V-45	Non-throttling valve
250 VDC	1M21A-180	MC-S2-1A	RCIC-P-2	Seals in
250 VDC	1M21A-190	MC-S2-1A	RCIC-P-4	Operates based on vacuum tank pressure
250 VDC	1M21A-200	MC-S2-1A	RCIC-V-69	Non-throttling valve
250 VDC	AM21B-10	MC-S2-1B	TG-EOP-1	Runs for entire coastdown period
250 VDC	AM21B-20	MC-S2-1B	TG-ASOBP-1	Runs continuously
250 VDC	AM21B-30	MC-S2-1B	RFT-EOP-1A	Runs on low oil pressure demand
250 VDC	AM21B-40	MC-S2-1B	RFT-EOP-1B	Runs on low oil pressure demand

Rev. 1 4/7/83

DC SYSTEM	FEEDER	FROM	TO	COMMENTS
125 VDC (Div. I)	1D11-1	Batt B1-1	DP-S1-1	-
125 VDC (Div. I)	1D11-3	DP-S1-1	MC-S1-1D	-
125 VDC (Div. I)	1M11D-10	MC-S1-1D	RCIC-V-31	Non-throttling valve
125 VDC (Div. I)	1M11D-20	MC-S1-1D	DO-P-3A-1	Run for only 13 sec to start D-G
125 VDC (Div. I)	1M11D-30	MC-S1-1D	RCIC-V-10	Non-throttling valve
125 VDC (Div. I)	1M11D-40	MC-S1-1D	DO-P-3A-2	Run for only 13 sec to start D-G
125 VDC (Div. I)	1M11D-50	MC-S1-1D	RCIC-V-8	Throttling valve
125 VDC (Div. I)	1M11D-60	MC-S1-1D	DLO-P-2A-1	Run for only 13 sec to start D-G
125 VDC (Div. I)	1M11D-70	MC-S1-1D	DLO-P-2A-2	Run for only 13 sec to start D-G
125 VDC (Div. I)	1M11D-80	MC-S1-1D	CAC-V-2	Non-throttling valve
125 VDC (Div. I)	1M11D-90	MC-S1-1D	CAC-V-6	Non-throttling valve
125 VDC (Div. I)	1M11D-100	MC-S1-1D	CAC-V-4	Non-throttling valve
125 VDC (Div. I)	1M11D-110	MC-S1-1D	CAC-V-8	Non-throttling vavle
125 VDC (Div. I)	1M11D-120	MC-S1-1D	RCIC-V-110	Non-throttling valve
125 VDC (Div. I)	1M11D-130	MC-S1-1D	RHR-V-40	Throttling valve
125 VDC (Div. I)	1M11D-140	MC-S1-1D	MS-V-19	Non-throttling valve
125 VDC (Div. I)	1M11D-170	MC-S1-1D	RCIC-V-46	Non-throttling valve
125 VDC (Div. I)	AM11D-9160*	MC-S1-1D	RCC-V-6	Non-throttling valve

*Non-Class 1E motor purchased 80% starting voltage capability.

DC SYSTEM	FEEDER	FROM	TO	COMMENTS
125 VDC (Div. II)	2D12-1	Batt B1-2	DP-S1-2	-
125 VDC (Div. II)	2D12-9	DP-S1-2	MC-S1-2D	-
125 VDC (Div. II)	2M12D-10	MC-S1-2D	DO-P-3B1	Run for only 13 sec to start D-G
125 VDC (Div. II)	2M12D-20	MC-S1-2D	DO-P-3B2	Run for only 13 sec to start D-G
125 VDC (Div. II)	2M12D-30	MC-S1-2D	DLO-P-2B1	Run for only 13 sec to start D-G
125 VDC (Div. II)	2M12D-40	MC-S1-2D	DLO-P-2B2	Run for only 13 sec to start D-G
125 VDC (Div. II)	2M12D-50	MC-S1-2D	CAC-V-11	Non-throttling valve
125 VDC (Div. II)	2M12D-60	MC-S1-2D	CAC-V-15	Non-throttling valve
125 VDC (Div. II)	2M12D-70	MC-S1-2D	CAC-V-13	Non-throttling valve
125 VDC (Div. II)	2M12D-80	MC-S1-2D	CAC-V-17	Non-throttling valve
125 VDC (Div. II)	2M12D-90	MC-S1-2D	RCIC-V-113	Non-throttling valve