

WCAP 8587

"Equipment Qualification Data Packages"

Supplement 1

EQDP-ESE-18

Instrument Bus Power Supply (Static Inverter)

Revision 5

Instruction Sheet

The following instructional information and checklist is being furnished to help insert the following into WCAP-8587 Supplement 1 EQDP-ESE-18 Class 3 (Non-Proprietary). Discard the old sheet and insert the new sheets as listed below. Revised information is indicated by a bar and number 5 on the outside margin of the page.

Remove
(Front/Back)

Cover sheet/--
page 2/3
14/15

Insert
(Front/Back)

Cover sheet/--
page 2/3
14/15

4028Q

March, 1983

EQUIPMENT QUALIFICATION DATA PACKAGE

This document contains information, relative to the qualification of the equipment identified below, in accordance with the methodology of WCAP-8587. The Specification section (Section 1) defines the assumed limits for the equipment qualification and constitute interface requirements to the user.

Instrument Bus Power Supply (Static Inverter)

APPROVED: _____

E. P. Rahe, Manager
Nuclear Safety Department

WESTINGHOUSE ELECTRIC CORPORATION
NUCLEAR ENERGY SYSTEMS
P.O. Box 355
PITTSBURGH, PENNSYLVANIA 15230

SECTION 1 - SPECIFICATIONS

1.0 PERFORMANCE SPECIFICATIONS

1.1 Electrical Requirements

- 1.1.1 Voltage: 125 VDC Nom (105-140 VDC); 460 VAC (420-500 VAC) 30.
- 1.1.2 Frequency: 60 Hz $\pm$ 1 Hz.
- 1.1.3 Load: 7.5 KVA Max.
- 1.1.4 Electromagnetic Interference: N/A.
- 1.1.5 Other: The electrical requirements are described in detail in E-Spec G676573 Revision 5.

1.2 Installation Requirements: W Dwg 7241D97 Revision 4,

1.3 Auxiliary Devices: None.

1.4 Preventative Maintenance Schedule: As a result of the completion of the Westinghouse Aging Evaluation Program (Phase 1, Short Term Aging described in WCAP-8587 and discussed in WCAP-8687 Supplement 2, Appendix A1 (Component Aging) Reference 11 and Appendix A2 (Materials Aging) Reference 12 Proprietary, no preventive maintenance is required to support the equipment qualified life. This does not preclude development of a preventive maintenance program designed to enhance equipment performance and identify unanticipated equipment degradation as long as this program does not compromise the qualification status of the equipment. Surveillance activities may also be considered to support the basis for/and a possible extension of the qualified life.

1.5 Design Life: 40 year.

1.6 Operating Cycles (Expected number of cycles during design life, including test): Continuous duty.

1.7 Performance Requirements for (b): All Safety Related Functions

Parameter	Normal Conditions	Abnormal Conditions	Containment Test Conditions	DBE Conditions (a)			Post DBE Conditions (a)		
				FLB/SLB	LOCA	Seismic	FLB/SLB	LOCA	Seismic
1.7.1 Time requirement	Continuous	12 hours	N/A	Event duration	Event duration	Event duration	Continuous	Continuous	Continuous
1.7.2 Performance requirement	Note c	As normal		As normal	As normal	As normal	As normal	As normal	As normal

1.8 Environmental Conditions for Same Function (b)

1.8.1 Temperature ($^{\circ}$ F)	60 - 104	Note d	Ambient Conditions	Ambient Conditions	Ambient Conditions	Ambient Conditions
1.8.2 pressure (psig)	0	0	0			
1.8.3 Humidity (% RH)	20 - 70	Note d	Ambient			
1.8.4 Radiation (R)	< 400	None	None			
1.8.5 Chemicals	None	None	None			
1.8.6 Vibration	None	None	None			
1.8.7 Acceleration (g)	None	None	See Section 2.10.3.2			

Notes: a: DBE is the Design Basis Event.

b: Margin is not included in the parameters of this section.

c: Output 118 VAC $\pm 2\%$, 60 Hz ± 1.0 Hz, 5% Harmonic Distortion to 2/3 full rated load. Full load power factor 0.8.

d: Figure 1, Envelope 3. However, for plants having Class 1E HVAC for the area in which the inverters are located, the abnormal extremes are the same as the normal specified above.

2.12 References

1. Yalich, M., "Equipment Qualification Test Report Instrument Bus Power Supply (Static Inverter) (Normal and Abnormal Temperature and Humidity Testing)" WCAP-8687 Supplement 2 E-18A (Proprietary).
2. Vogeding, E. L., "Seismic Testing of Electrical and Control Equipment" WCAP-7397-L (Proprietary), January 1970, WCAP-7817 (Non-Proprietary), December 1971.
3. Potochnik, L. M., "Seismic Testing of Electrical and Control Equipment (Low Seismic Plants)", WCAP-7817 Supplement 2 (Non-Proprietary) December 1971.
4. Vogeding, E. L., "Seismic Testing of Electrical and Control Equipment for Low Seismic Plants", WCAP-7817 Supplement 7 (Non-Proprietary), September 1976.
5. Potochnik, L. M., "Seismic Testing of Electrical and Control Equipment (High Seismic Plants)" WCAP-7536-L (Proprietary) November 1970, WCAP-7821 (Non-Proprietary) December 1971.
6. Potochnik, L. M., "Seismic Testing of Electrical and Control Equipment (High Seismic Plants)" WCAP-7821 Supplement 2 (Non-Proprietary) December 1971.
7. Figenbaum, E. K., "Seismic Testing of Electrical and Control Equipment Static Inverter and Instrument Bus Distribution Panel" WCAP-7821 Supplement 2 Addendum 1 (Non-Proprietary), October 1975.
8. Vogeding, E. L., "Seismic Testing of Electrical and Control Equipment for High Seismic Plants," WCAP-7821 Supplement 5 (Non-Proprietary), September 1976.

9. Jarecki, S. D., E. L. Vogeding, "Multi-Frequency and Direction Seismic Testing of Relays" WCAP-8673 (Proprietary), WCAP-8674 (Non-Proprietary) December 1975.
10. Damerow, F. W., "Effects of Gamma Radiation Doses Below 104 Rads on Mechanical Properties of Materials." Appendix C WCAP-8587 (Non-Proprietary).
11. Jabs, D., Parello, J., Huang, J., Yalich, M., "Equipment Qualification Test Report Short Term Component Aging Test Program," WCAP-8687, Supplement 2, Appendix A1 (Proprietary).
12. "Equipment Qualification Test Report Materials Aging Analyses", WCAP-8687, Supplement 2, Appendix A2 (Proprietary).
13. Chang, S. M., "Seismic Evaluation of the Single Frequency Sine-Beat Inputs Employed During 1971 Qualification Testing," ST-STA-218 (Proprietary) In Progress.