

**PERRY NUCLEAR POWER PLANT
SYSTEM COMPONENT EVALUATION WORKSHEET
(FOR CLASS 1E EQUIPMENT IN HARSH ENVIRONMENT)**

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QUALIFICATION SUMMARY (FILE NO.) SP-594-00-12
 MANUFACTURER'S QUALIFICATION REPORT NO. CC-74-133 REV. 0
 QUALIFICATION METHOD Test
 EQUIPMENT DESCRIPTION Relays
 MANUFACTURER/MODEL NO. Gould/J10A6012, J10A4412
 TESTED DEVICE MODEL NO. J10

AGING SUMMARY:

NORMAL/ABNORMAL ENVELOPE	LIMITING ENVIRON.ZONE (1)	VALUE	DURATION
TEMPERATURE (°F): MAXIMUM	AB-9	107°F	8,410 Hours
AVERAGE	AB-9	93°F	338,486 Hours
MINIMUM	AB-9	86°F	3,504 Hours
ABNORMAL TEMP. TRANSIENTS (°F): Loss of HVAC	AB-9	126/107°F	49 Hours
RADIATION DOSE (RADS, TID)	AB-9	8.8 x 10 ² Rads(2)	40 Years

ACCELERATED AGING TEMP./TIMES 212°F/107 Hours
 QUALIFIED LIFE/MAINTENANCE INTERVAL 3.64 Years/None (Note 6)
 LIFE-LIMITING COMPONENT Phenolic Relay Base Material A.E. = 1.358 eV
 TEST RADIATION DOSE (TID) 1.0 x 10⁷ Rads (2)

OPERABILITY SUMMARY:

FUNCTION	REQUIREMENTS (3)	QUALIFICATION DEMONSTRATED
EQUIPMENT CATEGORY (EC)	A3	Baseline Functional Test Performed after Aging
FUNCTION TIME (FT)	J (180 Days)	30-Days Test Extended to 180 Days LOCA by Analysis
ACCURACY (ACC) (4)	N/A	N/A
RESPONSE TIME (RT)	N/A	N/A

ACCIDENT SUMMARY: (Note 5)

ENVIRONMENTAL PARAMETER	REQUIRED ENVELOPE		QUALIFICATION DEMONSTRATED	
	LIMITING ENVIRON.ZONE (1)	MAXIMUM VALUE	MAXIMUM VALUE	MARGIN
TEMPERATURE (°F)	AB-9	217°F	212°F R1	Note 5
PRESSURE (PSIG)	AB-9	1.6 PSIG	1.1 PSIG	Note 5
R.H. (%)	AB-9	100%	100%	N/A
SPRAY	N/A	N/A	N/A	N/A
SUBMERGENCE	N/A	N/A	N/A	N/A
RADIATION (RADS)	AB-9	1 x 10 ³ Rads	1.0 x 10 ⁷ Rads (2)	> 10%

(FOR SUPPLEMENTAL NOTES SEE PAGE 2)

REV.NO	DATE	INITIALS		
		REVIEW	CHECKED	APPROVED
/	/	/	/	/
/	/	/	/	/
/	/	/	/	/

REVIEWED BY Claude Gosch (GAI) / 2/1/84
 CHECKED BY Eddie B. Thomas 12-3-84
 APPROVED BY William Platter 12/6/84

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 PDR ADOCK 05000440
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SUPPLEMENTAL NOTES:

1. See FSAR Tables 3.11-1 thru 8.
2. A portion of the "TEST RADIATION DOSE (RADS, TID)" is applied to qualify the device for the required Normal/Abnormal radiation dose (for the desired qualified life). The remainder of the "TEST RADIATION DOSE (RADS, TID)" is applied to qualify the device for the required Accident radiation dose (for the required function time) plus 10% margin.

$$\text{TEST RAD. DOSE} \geq \text{NORMAL/ABNORMAL RAD (Qual.Life)} + (\text{ACCIDENT RAD DOSE (FT)} + 10\% \text{ MARGIN})$$

3. "OPERABILITY SUMMARY : REQUIREMENTS" are as specified in the Environmental Qualification Review List (EQRL) report titled "SAFETY RELATED EQUIPMENT IDENTIFICATION AND ENVIRONMENTAL QUALIFICATION SUMMARY."
4. Source of accuracy requirements:

N/A

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SUPPLEMENTAL NOTES (Continued):

5. The Gould relays located in Harsh Environment (Zone AB-9) are not required to operate to mitigate the consequences of the RWCU line break in AB-9 and their failure is deemed not detrimental to plant safety or accident mitigation. The coils of these relays are in non-1E circuits, thus their operating function is non-1E. Since the coils do not perform a 1E function, the status of the relay contacts (open or closed) is not a 1E function. In fact, these contacts are used only to provide a low-flow alarm light for the pump cooling units with which these relays are associated.

6. No maintenance interval is required to maintain the qualified life of 3.64 years.

TABLE 1

MISCELLANEOUS PARTS AND MATERIALS LIST
FOR SPECIFICATION SP-594-4549-00
(MATERIALS OF CONSTRUCTION)

The items listed under Part A of this table are used in the equipment assemblies listed under Part B.

A. Items List

<u>Item No.</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Type No.</u>
1.	Indicating Lamps	General Electric	ET-16
2.	Terminal Boards	General Electric	CR151B2
3.	Cable	General Electric	Vulkene Supreme SP-57279
4.	Terminal Lugs	Thomas & Betts	Sta-Kon RBT853
5.	Fuse Blocks	Buchanan	NQ0361
6.	Section Blocks	Buchanan	NQ0211
7.	BIW Wire	Boston	BOSTRAD XL
8.	Auxiliary Logic Relays	Agastat	7012

TABLE 1, Part A (continued)

page two

<u>Item No.</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Type No.</u>
9.	Auxiliary Logic Relays	General Electric	HMA111B
10.	Auxiliary Logic Relays	ITT-Gould	J10
11.	Control Switches	General Electric	CR2940Y
12.	Indicating Differential Pressure Switches	ITT Barton	580A-1
13.	Temperature Transmitters	Weed	4000
14.	Pressure Transmitters	Rosemount	1153

Table 1 (continued)

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B. Equipment Assemblies List (Panels and Racks)

Panel/Rack MPL No.	Panel/Rack Description	Service Description System/Function	Location: Building - Elevation		Environmental Zone	Manufacturer & Mfr. Dwg. No./CAI Dwg.	Items Used Per Part A
OH51 P 0036A	Control Panel, Wall Mounted Box	ECC Pump Area HVAC Control Station	Control	574 ft.	CB-5 Mild	Cowsip - Customline 44-056/B-201-142	1, 2, 3, 4, 11
OH51 P 0036B	Control Panel, Wall Mounted Box	ECC Pump Area HVAC Control Station	Control	574 ft.	CB-5 Mild	Cowsip - Customline 44-155/B-201-142	1, 2, 3, 4, 11
OH51 P 0039	Open Rack, Free Standing	Emergency Closed Cooling System Instr. Rack	Control	574 ft.	CB-5 Mild	Cowsip - Customline 44-057/B-809-247	2, 3, 4, 14
OH51 P 0177A	Control Panel, Free Standing, Enclosed	MCC, Swgr. & Batt. Rooms HVAC Control Panel (Divn.1)	Control	679 ft.	CB-5 Mild	Cowsip - Customline 44-055/B-809-076	1 thru 6, 8 thru 11
OH51 P 0177B	Control Panel, Free Standing, Enclosed	MCC, Swgr. & Batt. Rooms HVAC Control Panel (Divn.2)	Control	679 ft.	CB-5 Mild	Cowsip - Customline 44-188/B-809-081	1 thru 11
OH51 P 0178	Open Rack, Free Standing	Emergency Closed Cooling System Instr. Rack	Control	574 ft.	CB-5 Mild	Cowsip - Customline 44-144/B-809-243	2, 3, 4, 14
OH51 P 0193	Open Rack, Free Standing	ECCW Pumps & CC Chilled Water Instr. Rack "A"	Control	574 ft.	CB-5 Mild	Cowsip - Customline 44-147/B-809-237	2, 3, 4, 12, 13
OH51 P 0194	Open Rack, Free Standing	ECCW Pumps & CC Chilled Water Instr. Rack "C"	Control	574 ft.	CB-5 Mild	Cowsip - Customline 44-146/B-809-238	2, 3, 4, 12, 13
OH51 P 0195	Open Rack, Free Standing	ECCW Pumps & CC Chilled Water Instr. Rack "B"	Control	574 ft.	CB-5 Mild	Cowsip - Customline 44-145/B-809-239	2, 3, 4, 12, 13
1H51 P 0133	Control Panel, Floor Mounted, Enclosed	Pump Room Cooling HVAC Control Panel	Auxiliary	599 ft.	AB-9 Mild	Cowsip - Customline 44-151/B-809-073	1 thru 6, 8, 10, 11
1H51 P 0134A	Open Rack, Free Standing	Containment Atmospheric Monitoring Instr. Rack "A"	Auxiliary	620 ft.	AB-1 Mild	Cowsip - Customline 44-148/B-809-230	2, 3, 4, 14
1H51 P 0134B	Open Rack, Free Standing	Containment Atmospheric Monitoring Instr. Rack "B"	Intermediate	654 ft.	FB-4 Mild	Cowsip - Customline 44-058/B-209-248	2, 3, 4, 14
1H51 P 0142	Wall Mounted Box	Containment System Temp. Trans. Enclosure (Divn.1)	Intermediate	620 ft.	FB-5 Mild	Cowsip - Customline 44-149/B-201-142	13
1H51 P 0143	Wall Mounted Box	Containment System Temp. Trans. Enclosure (Divn.2)	Intermediate	620 ft.	FB-5 Mild	Cowsip - Customline 44-154/B-201-142	13