

SEISMIC CONSULTATION
FOR SAFETY-RELATED ELECTRICAL EQUIPMENT
CONSUMERS POWER COMPANY
PALISADES PLANT
COVERT, MICHIGAN

Interim Report 1
EQUIPMENT CHECKLIST

prepared for
Consumers Power Corporation
Jackson, Michigan


March 20, 1980

prepared by
URS/Jonn A. Blume and Associates, Engineers
130 Jessie Street (at New Montgomery)
San Francisco, California 94105

8004090 394

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Equipment Check List

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Purpose

This report summarizes a walkdown inspection of all safety-related electrical equipment at Consumers Power Company's Palisades Plant near Covert, Michigan. The inspection was conducted by URS/Blume personnel between March 3 and 14, 1980.

Scope

The walkdown inspection included all safety-related electrical equipment. The equipment type and identification were recorded on the equipment checklist. Cover panels were removed to allow the inspection team to examine the equipment base. The presence or absence of a positive structural connection between the equipment and floor slabs or walls was recorded on the checklist. Positive anchorage is defined as any competent load carrying mechanism other than friction. Non-Category I items which could damage or interfere with the operation of safety-related equipment were noted on the checklist and tabulated on the checklist attachments.

Results

Table 1 is the equipment checklist. Attachments 1 through 27 tabulate non-Category I items and these attachments are cross-referenced on the checklist.

The adequacy of an equipment anchorage depends upon a number of factors, including the equipment weight and floor response spectrum at the mounting location. This information had not been compiled prior to the inspection walkdown; hence, the checklist presents no judgments as to the adequacy of existing anchorages. This issue will be verified by calculations and covered by Interim Report 2.

Design modifications are being prepared for items with no positive anchorage.

TABLE 1
EQUIPMENT CHECKLIST

Item Number	Equipment	ID	Positive Anchorage	Type of Anchorage ⁵	Attachment Number For Non-Category I Item ²	Comments
A.1.1	Diesel Generators Main Skids	1-1 & 1-2	Yes	BTCS	5 and 6	
A.1.2	Diesel Generator Control Panel	G20 ¹	Yes	BTE	5 and 6	
A.1.3	Diesel Generator Control Panel	G21 ¹	Yes	BTE	5 and 6	
A.1.4	Static Exciters	C22 & C26	No		5	
A.1.5	Air Tanks	-	Yes	BTCS	5	
A.1.6	Fuel Oil Day Tanks	-	Yes	BTCS	-	
A.2.1	2400V Busses	1-C & 1-D	Yes	WTEC	4 for 1-C, 9 for 1-D	
A.2.2	Relay Test Panels	C18 & C18A	Yes	BTE	4	
A.2.3	Relay Test Panels	C19 & C19A	Yes	BTE	9	
A.3.1	2400V Station Power Transformer	X11	Yes	WTEC	12	
A.3.2	2400V Station Power Transformer	X12	No		12	
A.4	480V Busses	B11 & B12	No		12	
A.5	480V Motor Control Centers	B01 & B02	Yes	WTEC	13	
A.6	Station Batteries #1 and #2	D01 & D02	Yes	BTCS	10	
A.7	Battery Chargers No. 1,2,3, & 4	D15, D16 D17, D18	Yes	BTCS	13	
A.8 ³	Inverters No. 1,2,3, & 4	D06, D07 D08, D09	Yes	BTCS	13	
A.9	DC Busses and DC Distribution Panels	D10, D11 D20, D21	Yes	BTCS	13	
A.10 ³	Preferred A.C. Busses No. 1,2,3, & 4	Y10, Y20 Y30, Y40	Yes	BTCS	13	
A.11	Bypass Regulator, Y01 Buss & Instru- Instrument AC Transformers	X21 and X22	Yes	BTCS	13	
A.12	480V Motor Control Centers	B07 & B08	No		7	

TABLE I

Item Number	Equipment	ID	Positive Anchorage	Type of Anchorage ⁵	Attachment Number Non-Category 1	Item ²	Comments
A.13.1	Pressurizer Heater Transformers No. 15 & 16	X15, X16	No		1		
A.13.2	Load Center Busses No. 15 & 16		No		2		
A.14.1	Data Logger Batteries	D204	Yes	BTCS	-		
A.14.2	Chargers	D206, D207	Yes	BTCS	9		
A.14.3	Inverters	Y210, Y220	Yes	BTCS	9		
A.15	Control Rod Drive Transformers	X45, X46	Yes	BTCW	14		
B.1.1	Control Room Panel	C01	Yes	BTCS	19		
B.1.2	Control Room Panel	C03	Yes	BTCS	19		
B.1.3	Control Room Panel	C02	Yes	BTCS	19		
B.1.4	Control Room Panel	C13	Yes	BTCS	-		
B.1.5	Control Room Panel	C11	Yes	BTCS	-		
B.1.6	Control Room Panel	C12	Yes	BTCS	-		
B.1.7	Control Room Panel	C04	Yes	BTCS	20		
B.1.8	Control Room Panel	C06	Yes	BTCS	20		
B.1.9	Control Room Panel	C07	Yes	BTCS	-		
B.1.10	Control Room Panel (Reactor Drive Calib. Cab.)	C27	Yes	BTCS	21		
B.1.11	Control Room Panel (Noise Analyzer)	-	Yes	BTCS	22		
B.1.12	DELETED						
B.1.13	Control Room Panel	C115	Yes	BTCS	23		
B.1.14	Control Room Panel (Feed Water Purity)	SP-4	Yes	BTCS	23		
B.1.15	Control Room Panel	C106	Yes	BTCS	24		
B.1.16	Control Room Panel	C126	Yes	BTCS	24		
B.1.17	Control Room Panel	C125	Yes	BTCS	-		
B.1.18	Control Room Panel	C51	Yes	BTCS	25		
B.1.19	Control Room Panel	C302	Yes	BTCS	25		
B.2.1	Alternate Shutdown Panel	C33	Yes	BTCS	7		
B.2.2	Alternate Shutdown Panel	C40	Yes	BTCS	7		
B.3	Speed Control for P55A Charging pump	C17	Yes	BTCW	-		
B.4	Air Compressor Panel	C35	Yes	BTE ⁴	-		
B.5.1	Diesel Fire Pump Control Panel	C37	No		16		
B.5.2	Diesel Fire Pump Control Panel	C137	No		15		
B.5.3	Diesel Fire Pump Batteries	D36, D38	No		18		

TABLE 1

Item Number	Equipment	ID	Positive Anchorage	Type of Anchorage ⁵	Attachment Number Non-Category 1 Item ²	Comments
B.6.1	Hydrogen Recombiner Power Panels	C122, C123	Yes	BTCS	11	
B.6.2	Hydrogen Recombiner Control Panels	C121, C124	Yes	BTCS & BTCW	11	
B.7	DELETED					
B.8	Conitel 2100 Computer Cabinet	C09	Yes	BTCS	13	
B.9	Control Room HVAC Panel		Yes	BTCW	8	
B.10	Rod Drive Control Logic and Contactor Panel	C15	Yes	BTCS	13	
B.11.1	Fire Mod. Panel in Battery Rm 1		Yes	BTCW	10	
B.11.2	Fire Mod. Panel in Battery Rm 2		Yes	BTBW	10	
B.12	Sample Station	C101	Yes	BTCS	27	
B.13	Sample Station	C106	Yes	BTCS	27	
C.1	Refueling Disconnect Panel		Yes	BTCS	3	
C.2.1	Cable Trays Above Buss 1-C		Yes	BTCS	4	
C.2.2	Cable Trays at Tunnel Cableway		Yes	BTCW	26	
C.2.3	Cable Trays at North Penetration (outside containment)		Yes	BTCW	-	
C.2.4	Cable Trays over Cable Spreading Rm		Yes	BTCS	-	
C.2.5	Cable Trays at North Penetration (inside containment)		Yes	BTCW	-	
C.2.6	Cable Trays at North Penetration (inside containment)		Yes	BTCW, & BTCS	-	
C.2.7	Cable Trays at S.W. Penetration (inside containment)		Yes	BTCS	-	
C.3.1	Terminal Board Near 1-D	J9401	Yes	BTCW	-	
C.3.2	Terminal Board Near 1-D	JL275	Yes	BTCW	-	

TABLE 1

Item Number	Equipment	ID	Positive Anchorage	Type of Anchorage ⁵	Attachment Number Non-Category 1 Item ²	Comments
C.3.3	Terminal Board Near 1-D	JL274	Yes	BTCW	-	
C.3.4	Terminal Board Data Logger Bypass Switch		Yes	BTCW	-	
C.3.5	Noah Tank Piping Prot. Panels	C145, C146	Yes	BTCW	11	
C.3.6	Power Available Light Boxes		Yes	BTCW	11	
C.3.7	Terminal Board	TCAC2	Yes	BTCW	-	
C.3.8	Terminal Board at Load Centers 15 & 16 SCR Control		Yes	BTE	2	

Notes:

1. One attached to Generator 1-1 and one to Generator 1-2.
2. Blank in this column indicates no non-category 1 items in vicinity.
3. Items A.8 and A.10 in same cabinet (Inverter No. 1 with Buss No. 1., etc)
4. Bolted to Motor Control Center 4.
5. Abbreviations used to describe type of anchorages as follows:

BTE = Bolted to Equipment
 WTEC = Welded to Embedded Channel
 BTCW = Bolted to Concrete Wall
 BTCS = Bolted to Concrete Slab
 BTBW = Bolted to Block Wall

Attachment I
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Pressurizer Heater Transformer X15 & X16	Fan	1' from X16	No
"	File Cabinet	6" from X16	No

Attachment 2
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Load Center Busses 15 & 16	Ducts	3' Up	Yes
Terminal Box at Load Center Busses 15 & 16	(Same As Above)		

Attachment 4

Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
2400V Buss I-C	Terminal Box 4 x 2-1/2 x 1 1/2	8' Up	Yes
2400V Buss I-C	Heating Steam Duct 1' dia.	8' Up 3' Off	Yes
Relay Test Panel C18 & C18A	(Same As Above)		
Cable Trays Above Buss I-C.	(Same As Above)		

Attachment 5
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Static Exciters C22 & C26	3' dia. Damper	3' Up 3' Off	Yes
Air Tanks	(Same As Above)		
Diesel Generators 1-1 and 1-2	(Same As Above)		
Diesel Generator Control Panels G20 & G21	(Same As Above)		

Attachement 6

Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Diesel Generators 1-1 and 1-2	4' dia. Vent Fan	1' Up	Yes
Diesel Generator Control Panels G20 and G21	(Same As Above)		

Attachment 7
Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Alternate Shutdown C33 and C40	Air Duct	2' Up 3' Off	Yes
480V MCC 7 & 8 (B07,B08)	(Same As Above)		

Attachment 9
Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
2400V Buss 1-D	Duct	3' Up	Yes
2400V Buss 1-D	Lights	3' Up	Yes (Chain)
2400V Buss 1-D	Dry Bulb Sensors	10' Away	No (Rollers)
2400V Buss 1-D	Dolly	10' Away	No (Rollers)
2400V Buss 1-D	Cabinet 36''W x 78''H x 21''D	0'	Yes (Bolted to 1-D)
Relay Test Panels C19 & C19A	(Same As Above)		
Chargers D06 & D07	(Same As Above)		
Inverters Y210 & Y220	(Same As Above)		

Attachment 10
Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Station Batteries D01 & D02	Ducts	5' Up	Yes
Fire Mod. Panel In Battery Rooms 1 & 2	(Same as above)		

Attachment 11
Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Hydrogen Recombiner Power Panels	Planks Scaffolding	6' Up	Yes
Hydrogen Recombiner Control Panels	Piping Sprinklers?	6' Up	Yes
Hydrogen Recombiner Control Panels	Portable Hoist		No (Rollers)
Noah Tank Piping Prot. Panels C145 and C146	(Same as above)		
Power Available Light Boxes	(Same as above)		

Attachment 12
Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
2400V to 480V Power Trnsf. X11 and X12	Duct	0' Up 2' Off	Yes
480V Busses B11 and B12	Lights	0' Up 2' Off	Yes

Attachment 13

Non-Category I Equipment

Category I Equipment & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
480V Motor Control Centers B01 & B02	Duct	2' Up	Yes
480V Motor Control Centers B01 & B02	Portable Hoist		No (Rollers)
Battery Chargers No. 1,2,3, & 4	(Same as above)		
Inverters No. 1,2,3, & 4	(Same as above)		
DC Busses and DC Distribution Panels	(Same as above)		
Preferred AC Busses No. 1,2,3, & 4	(Same as above)		
Conitel 2100 Computer Cabinet	(Same as above)		
Rod Drive Control Logic and Contactor Panel C15	(Same as above)		

Attachment 15
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Fire Pump Control Panel C137	Lights front & back	3' Offset 12' Up above floor	Yes (Chain)
Fire Pump Control Panel C137	Fire System Pipe 18" dia.	8' Above Controller	Yes
Fire Pump Control Panel C137	Steam & Condensate Lines	10' Above Controller	Yes

Attachment 18
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Fire Pump Battery D36	Cable Tray Tray 5' x 12' W	18' ± Overhead	Yes
Fire Pump Battery D38	Light Fixture	12' Overhead	Yes (chain)

Attachment 19
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Control Rm Panels C01, C02, C03	Desk	8'-10'	No
Control Rm Panels C01, C02, C03	Chairs (Rollers)	8'-10'	No
Control Rm Panels C01, C02, C03	Bookcase (Rollers)	8'-10'	No

Attachment 20

Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Control Rm Panel C04, C06	Teletype	5'	No
"	Tools	5'	No

Attachment 21
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Control Rm Panel C27 (Reactor Drive Calib. Cabinet)	Lights	1' Up 3' Offset	Yes

Attachment 23
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Control Rm Panels C115 and SP-4 (Feed Water Purity)	Supply Cabinet	2'	No
Control Rm Panels C115 and SP-4 (Feed Water Purity)	Lights	2 1/2' Up	Yes (Chain)
Control Rm Panels C115 & SP-4 (Feed Water Purity)	Vent Ducts	2 1/2' Up	Yes

Attachment 24
Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Control Rm Panels C106 and C126	2 File Cabinets	4-1/2' Offset	No
Control Rm Panels C106 and C126	Lights	3' Up	Yes (Chain)
Control Rm Panels C106 and C126	Ducts	3' Up	Yes
Control Rm Panels C106 and C126	Teletype Adjacent to 106	Adjacent	No

Attachment 25

Non-Category I Equipment

Category I Equipment Type & ID #	Non-Category I Equipment Type	Offset Dist. (ft)	Positive Anchorage (yes/no)
Control Rm Panels C51 and C302	File Cabinet	2'	No

