

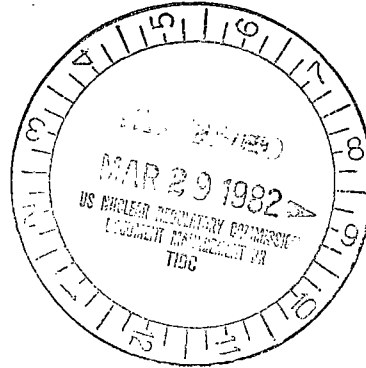


**Consumers  
Power  
Company**

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0550

March 25, 1982

Dennis M Crutchfield, Chief  
Operating Reactors Branch No 5  
Nuclear Reactor Regulation  
US Nuclear Regulatory Commission  
Washington, DC 20555



DOCKET 50-255 - LICENSE DPR-20 -  
PALISADES PLANT - TMI ACTION PLAN AND SAFETY EVALUATION RESPONSE -  
ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED ELECTRICAL EQUIPMENT -  
ADDITIONAL INFORMATION

NRC letter dated February 23, 1982 and entitled TMI Action Plan and Safety Evaluation Response - Environmental Qualification of Safety-Related Electrical Equipment Request for Additional Information, requested Consumers Power Company to provide Franklin Research Center with identified information which was needed to complete the review of our installed TMI Action Plan Items. Attached to this letter is our response to the request contained in the February 23, 1982 NRC letter. All items identified in Appendix A and B of our attachment ie SCEW Sheets and References are being sent to Franklin Research Center along with this letter as a full submittal. All NRC copies contain only the attachment as per your directions in the February 23, 1982 letter.

*Brian D Johnson*

Brian D Johnson  
Senior Licensing Engineer

CC Administrator, Region III, USNRC  
NRC Resident Inspector - Palisades

ATTACHMENT

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ATTACHMENT

ADDITIONAL INFORMATION  
EQUIPMENT ENVIRONMENTAL QUALIFICATION  
PALISADES PLANT  
DOCKET NO. 50-255

NCR REQUEST Ala.

Identification of all TMI Action Plan equipment installed as of 1/1/81 is requested.

RESPONSE TO REQUEST Ala.

Equipment installed prior to 1/1/81 is itemized in Table 1.

NRC REQUEST Alb.

Identification of TMI Action Plan equipment installed with implementation dates after 1/1/81 is requested.

RESPONSE TO REQUEST Alb.

Equipment installed after 1/1/81 is itemized in Table 1.

NRC REQUEST Alc.

The correlation of these equipment items with the specific sections of NUREG-0737 [7] presented below (as applicable) is requested.

IIE1.2, IIE4.2, IIE3.1, IIG1, IIF2,  
IID3, IIK3.12(Wx), IIK3.9(Wx),  
IIK2.10(B&W), IIB3, IIE4.1

RESPONSE TO REQUEST A1c

Applicable sections of NUREG-0737 are included in Table 1. Items IIE3.1, IIG1, IIK3.12(Wx), IIK3.9(Wx), IIK2.10(B&W) and IIE4.1 were determined to be not applicable. Items ID2, IIB1, IIB2, IIF1 and IIK1 were added.

NRC REQUEST A1d.

For all installed TMI Action Plan equipment identified, a System Component Evaluation Worksheet (SCEW) (in accordance with 79-01B format) is requested.

RESPONSE TO REQUEST A1d.

SCEW sheets for installed TMI Action Plan equipment are identified in Table 1. Appendix A lists the SCEW sheets which have been sent to Franklin Research Center as an enclosure to this letter.

NRC REQUEST A1e.

The approximate installation date for the TMI Action Plan equipment items is requested so that the appropriate qualification criteria (NUREG-0588 or DOR Guidelines) can be used in the EEQ evaluation.

RESPONSE TO REQUEST A1e.

Approximate installation dates for the TMI Action Plan equipment items are given in Table 1.

NRC REQUEST A2.

The qualification documents, e.g., the actual test reports and associated correspondence cited as evidence of qualification listed on the SCEW sheets, for all identified TMI Action Plan equipment are requested.

RESPONSE TO REQUEST A2.

All qualification documents which are being sent to the Franklin Research Center are listed in Appendix B. The enclosure to FRC includes both the qualification documents specifically requested in the NRC letter of February 23, 1982 and the qualification documents listed on the SCEW sheets which are being provided to FRC as an enclosure to this letter.

NRC REQUEST A3.

Where the Licensee has a standard Owners' Group position with respect to a NUREG-0737 technical area or has requested extensions of implementation dates, this information is requested in order to incorporate it into the review.

RESPONSE TO REQUEST A3.

Consumers Power Company has adopted the C-E Owners' Group position on item II.F.2.

NRC REQUEST B1.

NRC requested 23 specific qualification documents on behalf of the Franklin Research Center.

RESPONSE TO REQUEST B1.

Qualification documents to be sent to the Franklin Research Center as an enclosure to this letter are listed in Appendix B.

TABLE I  
 PALISADES PLANT  
 REQUEST FOR ADDITIONAL INFORMATION - TMI ACTION PLAN

<u>TMI Action Plan Item No</u>	<u>Description</u>	<u>Facility Change Number</u>	<u>Safety-Related Equipment In Harsh Environment</u>	<u>Date Installed</u>	<u>Date To Be Installed</u>	<u>EQR Page Number</u>
I.D.2	Plant Safety Parameter Display Console (C-E Critical Functions Monitoring System)		None			
II.B.1	Reactor Coolant System Vents (Reactor Coolant Gas Vent System)	FC-487	Power & Control Cables	Dec 1981		E-48 CABLE-23
			Raychem Shrink Tubing	Dec 1981		E-48 MISC-11
			Target Rock Solenoid Valves (PRV-1067, 1068, 1069, 1070, 1071, 1072)	Dec 1981		E-48 SV-20
II.B.2	Plant Shielding	FC-510-2	Limitorque Motor Operators	Nov 1981		E-48 MOV-2
			Power & Control Cable	Nov 1981		E-48 CABLE-20
			Terminal Blocks	Nov 1981		E-48 MISC-8
II.B.3	Post-Accident Sampling	FC-494-2	Solenoid Valves	Dec 1981		E-48 SV-13
			Cable	Dec 1981		E-48 CABLE-18
			Terminal Blocks	Dec 1981		E-48 MISC-7
			Junction Box	Dec 1981		See Note 1
II.D.3	Valve Position Indication	FC-467	B&W Acoustical Monitor	May 1980		See Note 3

TABLE 1  
 PALISADES PLANT  
 REQUEST FOR ADDITIONAL INFORMATION - TMI ACTION PLAN

<u>TMI Action Plan Item No</u>	<u>Description</u>	<u>Facility Change Number</u>	<u>Safety-Related Equipment In Harsh Environment</u>	<u>Date Installed</u>	<u>Date To Be Installed</u>	<u>EQR Page Number</u>
11.E.1.2	Auxiliary Feedwater System Indication & Flow	FC-492	Flow Transmitters	Dec 1981		J-48 FT-2
			Electropneumatic Converters	Dec 1981		See Note 2
			Cable	Dec 1981		E-48 CABLE-19
			Terminal Blocks	Dec 1981		E-48 MISC-7
			Junction Boxes	Dec 1981		See Note 1
11.E.4.2	Containment Isolation Dependability		None			
11.F.1	Accident Monitoring					
11.F.1(1)	Noble Gas Effluent Monitor	FC-494-3	None			
11.F.1(2)	Sampling and Analysis of Plant Effluents (Iodine Gas Sample Collection System)	FC-494-2	None			
11.F.1(3)	Containment High - Range Radiation Monitor	FC-494-1	Victoreen Radiation Monitors	Dec 1981		J-48 RE-2
			Cable	Dec 1981		E-48 CABLE-21
			FC-514-1	General Atomics Radiation Monitors		1983
			Cable		1983	( <u>Later</u> )

TABLE I  
 PALISADES PLANT  
 REQUEST FOR ADDITIONAL INFORMATION - TMI ACTION PLAN

<u>TMI Action Plan Item No</u>	<u>Description</u>	<u>Facility Change Number</u>	<u>Safety-Related Equipment In Harsh Environment</u>	<u>Date Installed</u>	<u>Date To Be Installed</u>	<u>EQR Page Number</u>
11.F.1(4)	Containment Pressure Monitor	FC-490	Pressure Transmitters	Dec 1981		J-48 PT-8
			Cable	Dec 1981		E-48 CABLE-18
11.F.1(5)	Containment Water Level Monitor	FC-491	Level Element	Dec 1981		J-48 LT-6
			Level Transmitter	Dec 1981		J-48 LT-6
			Cable	Dec 1981		E-48 CABLE-18
			Conax Connectors	Dec 1981		E-48 MISC-4
			Junction Box	Dec 1981		See Note 1
			Raychem Shrink Tubing	Dec 1981		E-48 MISC-9
11.F.1(6)	Containment Hydrogen Monitor	FC-494-4	Comsip Delphi III		May 1982	E-48 MISC-10
			Target Rock Solenoid Valves		May 1982	E-48 SV-16
			Anaconda Power & Control Cable		May 1982	E-48 CABLE-22
			Raychem Shrink Tubing		May 1982	E-48 MISC-9
11.F.2	Instrument for Detection of Inadequate Core Cooling	SFC-8126	Pressure Transmitters	May 1980		J-48 PT-6
			Cable	May 1980		E-48 CABLE-20
			Hot & Cold Leg RTDs		TBD	
			Reactor Vessel Level Monitoring System Heated Junction Thermocouples		1984	
			Core Exit Temperature Thermocouples		1984	

TABLE 1  
 PALISADES PLANT  
 REQUEST FOR ADDITIONAL INFORMATION - TMI ACTION PLAN

<u>TMI Action</u> <u>Plan Item No</u>	<u>Description</u>	<u>Facility</u> <u>Change Number</u>	<u>Safety-Related Equipment</u> <u>In Harsh Environment</u>	<u>Date</u> <u>Installed</u>	<u>Date To Be</u> <u>Installed</u>	<u>EQR</u> <u>Page Number</u>
11.K.1	1E Bulletins		None			

NOTE 1: Nema Type 4 junction boxes have been involved in several tests related to terminal blocks as described in J-48 MISC-2, 6 and 7.

NOTE 2: E/P 0736A and 0737A were replaced with Fisher controls Model E/P-546 and will be moved to a new location.

NOTE 3: The acoustical sensing system furnished by B&W is undergoing qualification testing as noted in the TMI Action Plan. It is expected to be qualified for operation by January 1, 1983.



APPENDIX A

LIST OF ENCLOSED SCEW SHEETS

E-48 Cable - 18	J-48	EP-4
E-48 Cable - 19	J-48	FT-2
E-48 Cable - 20	J-48	LT-6
E-48 Cable - 21		
E-48 Cable - 22		
E-48 Cable - 23		
E-48 Misc - 2	J-48	POS - 7
E-48 MISC - 4	J-48	POS - 9
E-48 MISC - 5	J-48	POS - 10
E-48 Misc - 6	J-48	POS - 20
E-48 MISC - 7	J-48	PT - 6
E-48 MISC - 8	J-48	PT - 7
E-48 MISC - 9	J-48	PT - 8
E-48 MISC - 10		
E-48 MISC - 11		
E-48 SV - 13	J-48	RE - 2
E-48 SV - 16		
E-48 SV - 20		
E-48 MOV - 2		
E-48 MOV - 3		

APPENDIX B  
LIST OF ENCLOSED REFERENCES

- A. B.I.W. LOCA Test No 75A025 dated December 16, 1976
- B. Letter from G R Dietz of Isomedix to R Oppenheim of B.I.W. dated December 23, 1974 summarizing radiation test
- C. Rockbestos Test Report "Qualification of Firewall III Class 1E Electric Cables" irradiation cross-linked insulation with Factory Insulation Rework dated June 2, 1980. SCEW E-48 Cable 18-2
- D. Rockbestos Test Report "Qualification of KXL-420 Insulation Rework with Chemically Cross-Linked Firewall III Insulation" dated July 10, 1980. SCEW E-48 Cable 18-2
- E. Rockbestos "Addendum to 12447-039" dated September 10, 1980 (comparison of Rockbestos tests to Palisades tests at Palisades requirements). SCEW E-48 Cable 18-2
- F. Isomedix Test Report "Qualification Test of Electric Cables Under Two MSLB Simulations" dated June 1980. SCEW E-48 Cable 19-2. See Note 1
- G. [V/P 12447/039-E26H(Q)-2] method for determining 40-year equivalent aging. SCEW E-48 Cable 19-2
- H. Letter from J R Merwin of Rockbestos to C A St Onge of Bechtel dated June 16, 1981 (with attachments). (This certifies similarity to test specimens and quantities for hydrazine in chemical spray). SCEW E-48 Cable 20-2
- I. V/P 447-006/E20.01(Q)-21-1 (Letter from Celmark Engineering to C A St Onge, on Prototype Test report Analysis, Connectors, Consumers Power Company, Palisades Plant, dated February 18, 1981). SCEW E-48 Misc 4-2
- J. V/P-12447-025/E47(Q)-9 (Letter from Celmark Engineering to P K Smith on Certification Analysis to Extend Earlier Prototype Test Report for Class IE Connector Assemblies, dated September 18, 1981). SCEW E-48 Misc 4-2. See Note 2
- K. Conax Test Report IPS-353.10, Rev A, dated November 17, 1980, "Design Qualification Report for a 42/C #18 AWG Conax Low Voltage Service Classification Conductor Feedthrough Assembly." SCEW E-48 Misc 5-1
- L. Letter dated April 28, 1981 from W C Frederick of Conax Corp to L D Kinner of Bechtel Power Corporation. SCEW E-48 Misc 5-1

- M. Report on "Environmental Qualification of States company Terminal Blocks for Alabama Powercompany Joseph M Farley Nuclear Plant." SCEW E-48 Misc 7-1
  - N. Wyle Laboratories Nuclear Environmental qualification Report No 44354-1 dated March 8, 1979. SCEW E-48 Misc 7-1
  - O. Raychem Report EDR-2001 dated August 10, 1978, "Heat Aging Study of WCSF Compound." SCEW E-48 Misc 9-1
  - P. Wyle Laboratories Test Report 58442-2 dated April 3, 1981, "Environmental Qualification Test Report of Raychem Nuclear Cable Breakout and End Sealing Kits." SCEW E-48 Misc 9-1
  - Q. Limitorque Test Report B0050, "Nuclear Power Station Qualification Type Test Report, Limitorque Valve Actuators for PWR Service." SCEW E-48 MOV 3-1
  - R. Microswitch letter to W Morsfield dated November 13, 1981 with microswitch interoffice correspondence from V Hocraffer to A Youmans dated November 10, 1981. SCEW J-48 POS-7-1
  - S. NAMCO Control letter of 10 October 1980 to C A St Onge from Robert Kantner with attached part number listing. SCEW J-48 POS-9-1
  - T. NAMCO Report No QTR105, 28 August 1980. SCEW J-48 POS-10-1
  - U. NAMCO Report No QTR107, November 3, 1981. SCEW J-48 POS-20-1. See Note 3
  - V. rosemount Test Report No 37821, Rev B, dated April 16, 1978 - Nuclear Steam Test Performance Evaluation, Model 1153 GA9. SCEW J-48 PT 7-2
  - W. Letter from K E Stafford of Victoreen to J H Pressel of Commonwealth Associates dated August 18, 1981. SCEW J-48 RE-2-1
  - X. BIW Qualification Report - for C E Inc, PO 9070989 - D9488 Supp 2 - September 30, 1981. BIW Report included inabove supplement 80F017, 81A026 & 76I039. SCEW E-48 Cable 23-1
  - Y. Letter to: R Marusich  
From: C A St Onge  
Dated: October 3, 1980  
SCEW E-48 Cable 23-3
  - Z. Raychem Report EDR 5011 SCEW E-48 Misc-11
  - AA. Raychem Report EDR 5019 Palo Verde I Test Report SCEW E-48 Misc-11
  - AB. Target rock Report 2375C SCEW E-48 SV-20-1
- Doc ID 2318A

AC. Letter to: C R VanHorn  
 From: W D Meinert  
 Dated: February 12, 1982  
 SCEW E-48 SV-20-1

AD. Limitorque Reports B00003 & B00058 SCEW E-48 MOV-2

AE. ASCO Report AWS21678/TR Rev A SCEW E-48SV-13-1

AF. ASCO Certificate of Compliance (2) SCEW E-48 SV-13-1

AG. Telcon between K Flint & W Maclehose, December 1, 1981 SCEW E-48 SV-13-1

AH. Qualification of Firewall III Class 1E Electric Cables Chemically  
 Cross-linked Insulation w/factory Insulation Rework SCEW E-48 Cable 18-1

AI. Letter to: C A St Onge  
 From: F R Postma  
 Dated: September 12, 1980  
 SCEW E-48 Cable 18-1

AJ. Rosemount Pressure Transmitters Model 1152 #117415 Rev B SCEW J-48 FT-2

AK. Report: Wyle LAB5 Final Report on Consulting Services E/P-0736 &  
 E/P-0737

AL. Report: Isomedix dated June 1978 "Qualification Test of Electric Cables  
 Under a Simulated LOCA/DBE" SCEW E-48 Cable 19-1

AM. Report: V/P 12447-.006/E.2001(Q)-16 (Report No 548-8296 by approved  
 Engineering Test Lab's) SCEW E-48 Misc-4

AN. Report: Raychem WCSF-N Nuclear In-line Cable Splice Assemblies 5-15-80  
 SCEW E-48 Misc-9-2

AO. Report: 1 EEE 323-1974 Prototype Qual for Hydrogen Analyzer Systems  
 K-III & KIV dated September 1981 SCEW E-48 Misc-10-1

AP. Letter to: J Pressel CAI  
 From: G T Budris Target Rock Corp  
 Dated: August 8, 1981  
 SCEW E-48 SV-16-1

AQ. Report: F-C4969-1 FRC for Anaconda Co July 1979 SCEW E-48  
 Cable-22-3 Attachment AT-1 June 1981 to Firl Technical Report  
 F-C 4969-1 Attachment AT-2 Firl Technical Report F-C4836-2 &  
 F-C 4969-1 July 1980 SCEW E-48 Cable-22-4

AR. Qualification of Firewall III Class 1E Elec Cables (Chemically  
 Cross-Linked Insulation) July 7, 1977 Rev November 26, 1979

- AS. Report: Qualification Test of CoAxial-Type Cables in a simulated steam line break (SLB) & Loss-of-Coolant Accident (LOCA) Environment #F-C5120-2 SCEW #-48 Cable 21
- AT. Report: Qualification Type Test Data Report for class 1E Victoreen High Range Containment Radiation Area Monitor System Wyle Test-Report #45050-1 SCEW J-48 RE-2
- AU. Report: Qualification Type Test Data Report for class 1E Victoreen High Range Containment Radiation Area Monitor System #950.301 SCEW J-48 RE-2
- AV. Report: Report on Terminal Block/Junction Box Environmental Testing Northeast Utilities Ref 1 SCEW E-48 Misc-2
- AW. Report: Test Report on effect of a LOCA on Electrical Performance of four terminal blocks Westinghouse Electric Corporation Ref 2 SCEW E-48 Misc-2
- AX. Report: Westinghouse Terminal Blocks Ref 3 SCEW E-48 Misc-2
- AY. Letter To: R Marusich, Consumers Power Company  
From: C A St Onge, Bechtel  
Dated: October 3, 1980 Ref 4  
SCEW E-48 Misc-2
- AZ. Report: Qualification Test of Terminal and Fuse blocks for control products SCEW E-48 Misc-6

Note 1

Isomedix Test Report

"Qualification Test of Electric Cables Under Two MSLB Simulations" dated June 1980 on SCEW E-48 Cable 19-2 should be dated January 1980

Note 2

V/P-12447-025/E47(Q)-9 (Letter from Celmark Engineering to P K Smith on Certification Analysis to Extend Earlier Prototype Test Report for Class IE Connector Assemblies dated September 18, 1981) on SCEW E-48 Misc 4-2 should be dated September 28, 1981

Note 3

NAMCO Report No QTR-107, November 3, 1981 on SCEW J-48 POS-20-1 should be dated 3/11/81

Note 4

Qualification Test of Terminal and Fuse Blocks FRC Final Report F-C5132 prepared for Control Products Division. On SCEW E-48 Misc 6-1 should be Report #F-C5143