



**Consumers  
Power  
Company**

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

June 15, 1984

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

DOCKET 50-255 - LICENSE DPR-20 -  
PALISADES PLANT - ENVIRONMENTAL QUALIFICATION OF EQUIPMENT IMPORTANT TO  
SAFETY, RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

NRC letter dated May 9, 1984 requested Consumers Power Company to submit additional information regarding Environmental Qualification of Equipment Important to Safety in order to complete the review of that subject. The requests from the May 9, 1984 letter and Consumers Power Company's responses are as follows:

1. Submit all applicable JCO's that are currently being relied upon and certify the following for each JCO associated with equipment that is assumed to fail:

No significant degradation of any safety function or misleading information to the operator as a result of failure of equipment under the accident environment resulting from a design basis event will occur.

Consumers Power Company letter dated February 14, 1984, Attachment 2 provides the list of equipment that Consumers Power Company considers safety related for equipment qualification purposes. This table has been revised to reflect recently replaced equipment and is provided here as Attachment 1. The right hand "status" column of this table states that each piece of equipment is either qualified or it has been scheduled for replacement. Each piece of equipment which is to be replaced has a current JCO associated with it. Each of these JCO's is detailed in Attached 2 to this letter. Consumers Power Company can certify that the failure of equipment will not adversely mislead the operator because he has an alternate qualified means of obtaining the necessary information in order to perform the appropriate safety function.

2. The licensee should certify that in performing its review of the methodology to identify equipment within the scope of 10 CFR 50.49(b)(2) that the following steps have been addressed:

OC0684-0008A-NL02

8406210322 840615  
PDR ADDCK 05000255  
PDR

A046  
11

- a. A list was generated of safety-related electric equipment as defined in paragraph (b)(1) of 10 CFR 50.49 required to remain functional during or following design-basis Loss-of-Coolant Accident (LOCA) or High Energy Line Break (HELB) Accidents. The LOCA/HELB accidents are the only design-basis accidents which result in significantly adverse environments to electrical equipment which is required for safe shutdown or accident mitigation. The list was based on reviews of the Final Safety Analysis Report (FSAR), Technical Specifications, Emergency Operating Procedures, Piping and Instrumentation Diagrams (P&IDs), and electrical distribution diagrams;

The table provided in Attachment 1 is the list of safety-related equipment that was generated as defined in paragraph (b)(1) of 10 CFR 50.49. The list was based on reviews of the FSAR, Technical Specifications, Emergency Operating Procedures, P&IDs and numerous other procedures and design documents including the Plant Q-list. The original list has been revised several times to incorporate and delete equipment which resulted from plant modifications for TMI and other reasons.

- b. The elementary wiring diagrams of the safety-related electrical equipment identified in Step a were reviewed to identify any auxiliary devices electrically connected directly into the control or power circuitry of the safety-related equipment (e.g., automatic trips) whose failure due to postulated environmental conditions could prevent required operation of the safety-related equipment;

A review of all wiring diagrams of electrical components environmentally qualified was completed by Consumers Power Company for the Palisades Plant. Five schemes were identified containing a combination of qualified and not qualified components served off the same fuse. Each of these schemes involves solenoid valve operators and valve position switches. During the present refueling outage Consumers Power Company modified each of the identified circuits to provide primary and secondary protection of the qualified circuits from unqualified device failure. This was achieved by separately fusing all unqualified devices. These fuses have been sized to clear any faults prior to losing the common supply fuse or breaker.

- c. The operation of the safety-related systems and equipment were reviewed to identify any directly mechanically connected auxiliary systems with electrical components which are necessary for the required operation of the safety-related equipment (e.g., cooling water or lubricating systems).

The operation of all support systems and equipment either directly or indirectly connected were reviewed and the equipment was included on the qualification list as appropriate. This included room ventilation, component cooling, etc.

DMCrutchfield, Chief  
Palisades Plant  
EEQ - ADDITIONAL INFO  
June 15, 1984

3

- d. Nonsafety-related electrical circuits indirectly associated with the electrically equipment identified in Step a by common power supply or physical proximity were considered by a review of the electrical design including the use of applicable industry standards (e.g., IEEE, NEMA, ANSI, UL, and NEC) and the use of properly coordinated protective relays, circuit breakers, and fuses for electrical fault protection.

All safety-related qualified equipment is electrically isolated via properly coordinated protective relays, circuit breakers, and/or fuses in accordance with applicable industry standards and NRC regulations.

3. Provide certification that all design basis events which could potentially result in a harsh environment, including flooding outside containment, were addressed in identifying safety-related electrical equipment within the scope of 10 CFR 50.49(b)(1).

The following is a quote from page 2 of the Consumers Power Company submittal to the NRC dated February 14, 1984.

The NRC staff requested that Consumers Power Company confirm that all design basis events at the Palisades Plant which could result in a potentially harsh environment, including flooding outside containment, were addressed in identifying safety-related electrical equipment which has to be environmentally qualified.

Consumers Power Company Equipment Qualification submittal dated September 1, 1981 provided a detailed summary of the design basis events that were considered in the selection of safety-related electrical equipment which has to be environmentally qualified. The following design-basis accidents were considered in the equipment selection: LOCA and MSLB inside containment (reference FSAR Chapter 14 and SEP Topic VI-3 "Containment Pressure and Heat Removal Capability"), MSLB outside containment (reference Special Report No 6 "Analysis of Postulated High Energy Line Breaks Outside of Containment", June 30, 1975) and flooding outside containment (reference SEP Topic IX-3 "Station Service and Cooling Water Systems - SER dated February 22, 1982").



Brian D Johnson  
Staff Licensing Engineer

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

Attachment

OC0684-0008A-NL02

ATTACHMENT 1  
CONSUMERS POWER COMPANY  
PALISADES PLANT - DOCKET 50-255  
EEQ ADDITIONAL INFORMATION  
LIST OF EQUIPMENT AND REFERENCES

ELECTRICAL EQUIPMENT QUALIFICATION - PALISADES  
Response to NRC Safety Evaluation Report - Enclosure 2

Table 2.1 - List of Equipment and References

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u> | <u>Model/Type</u>              | <u>Equipment ID</u>                  | <u>Status(3)</u>       |
|------------------------------------|-----------------|---------------------|--------------------------------|--------------------------------------|------------------------|
| <u>Cable</u>                       |                 |                     |                                |                                      |                        |
| E-48 CABLE-1                       | 2               | GE                  | XLPE, PVC                      | Z62, Z63<br>Z62, Z63, Z66            | Qualified<br>Qualified |
| E-48 CABLE-2                       | 3               | GE                  | XLPE,<br>Neoprene              | 143, 147, 149,<br>P10, P12           | Qualified              |
|                                    |                 |                     |                                | 214, 143, 147, 149,<br>P10, P12, 092 | Qualified              |
|                                    |                 |                     |                                | 142, 145                             | Qualified              |
| E-48 CABLE-3                       | 1               | GE                  | Butyl, PVC                     | S04                                  | Qualified              |
| E-48 CABLE-4                       | 1               | Okonite             | Okolon                         | P08, P09                             | Qualified              |
| E-48 CABLE-5                       | 2               | Okonite             | Neoprene                       | L01, P10                             | Qualified              |
|                                    |                 |                     |                                | 214, 314, 514                        | Qualified              |
| E-48 CABLE-6                       |                 |                     |                                |                                      | Delete (Note 13)       |
| E-48 CABLE-7                       | 1               | Anaconda            | EPR                            | 214, 314, 514                        | Qualified              |
| E-48 CABLE-8                       | 2               | Rockbestos          | Firewall III<br>XLPE, Neoprene | 214                                  | Qualified              |
|                                    |                 |                     |                                | 214                                  | Qualified              |
| E-48 CABLE-9                       | 1               | Rockbestos          | Firewall III<br>XLPE, Neoprene | 191                                  | Qualified              |
| E-48 CABLE-10                      |                 |                     |                                |                                      | Delete (Note 13)       |
| E-48 CABLE-11                      | 2               | Rome                | XLPE, PVC                      | 142, 145                             | Qualified              |
|                                    |                 |                     |                                | 143, 147, 149                        | Qualified              |
|                                    |                 |                     |                                | 143, 147, 149,<br>092, 152           | Qualified              |
|                                    |                 |                     |                                | X21-X25                              | Qualified              |
| E-48 CABLE-12                      | 2               | Times Wire          | Polyethylene,<br>PVC           | ZCX                                  | Qualified              |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u>   | <u>Model/Type</u>                                                       | <u>Equipment ID</u>                    | <u>Status(3)</u> |
|------------------------------------|-----------------|-----------------------|-------------------------------------------------------------------------|----------------------------------------|------------------|
| E-48 CABLE-13                      | 2               | Moore                 | 1890-9                                                                  | T26                                    | Qualified        |
| E-48 CABLE-15                      |                 |                       |                                                                         |                                        | Delete (Note 13) |
| E-48 CABLE-16                      | 1               | Boston Ins Wire       | EP/CSPE                                                                 | I26                                    |                  |
| E-48 CABLE-17                      | 1               | Anaconda-<br>Ericcson | FR-EP/CPE<br>Power, Control<br>and Instrument<br>Cable                  | P10, 345, 184                          | Qualified        |
| E-48 CABLE-18                      | 1               | Rockbestos            | 600 V Power<br>Control<br>XLPolyolefin<br>Neo Jkt                       | 122,245, P10                           | Qualified        |
| E-48 CABLE-19                      | 1               | Samuel Moore          | EPDM/Hypalon<br>Instrument<br>Cable                                     |                                        | Qualified        |
| E-48 CABLE-20                      | 1               | Rockbestos            | 600 V Power<br>Control and<br>Instrument<br>Cable XLPoly<br>Ins Neo Jkt | For Celmark<br>Connectors              | Qualified        |
| E-48 CABLE-21                      | 2               | Brand-Rex             | RG-59 B/U<br>CS 75146                                                   |                                        | Qualified 1      |
| E-48 CABLE-22                      | 3               | Anaconda Co           | FR-EP/CPE                                                               |                                        | Qualified 1      |
| E-48 CABLE-23                      | 0               | Boston Ins Wire       | Shielded Multi-<br>Conductor Cable                                      |                                        | Qualified 1      |
| <u>2400 V Motors</u>               |                 |                       |                                                                         |                                        |                  |
| E-48 EMA-1                         | 0               | Louis-Allis           | COGX                                                                    | EMA-1208, 1116,<br>1109(CCW)           | Qualified        |
| E-48 EMA-2                         | 0               | Louis-Allis           | COGX                                                                    | EMA-1210, 1112,<br>1114(CS)            | Qualified        |
| E-48 EMA-3                         | 0               | Westinghouse          | 68F13512                                                                | EMA-1113, 1207 (HPSI)<br>1209 (Aux Fd) | Qualified        |
| E-48 EMA-4                         | 0               | GE                    | 5K818847A100                                                            | EMA-1111<br>(LPSI)                     | Qualified        |
| E-48 EMA-5                         | 0               | GE                    | 5K818849C56                                                             | EMA-1206<br>(LPSI)                     | Qualified        |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u> | <u>Model/Type</u>                                                       | <u>Equipment ID</u>                                           | <u>Status(3)</u>                            |
|------------------------------------|-----------------|---------------------|-------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------|
| <u>480 V Motors</u>                |                 |                     |                                                                         |                                                               |                                             |
| E-48 EMB-1                         | 1               | GE                  | 5K405YK232                                                              | EMB-1208, 1209,<br>1210, 1108<br>(Containment Air<br>Coolers) | Qualified                                   |
| E-48 EMB-2                         | 0               | GE                  | 5K256YK161                                                              | EMB-0131, 0133, 0211,<br>0221 (ESF Air<br>Coolers)            | Qualified                                   |
| E-48 EMB-3                         |                 |                     |                                                                         |                                                               | Delete (Note 17)                            |
| E-48 EMB-4                         | 0               | Reliance            | 11F06                                                                   | EMB-2123, 2423<br>(H2 Monitor Pumps)                          | Qualified                                   |
| <u>Electrical Penetrations</u>     |                 |                     |                                                                         |                                                               |                                             |
| E-48 EZ-1                          | 1               | Viking Ind          | 5 kV (Unpotted<br>Non-1E Con-<br>nectors)                               | P1, P2                                                        | Qualified                                   |
| E-48 EZ-2                          | 1               | Viking Ind          | 600 V (Potted<br>1E Connectors<br>Silicone Rubber<br>Cable Ins)         | P4, P5, P6, I1,<br>I3, C1                                     | Qualified                                   |
| E-48 EZ-3                          | 1               | Viking Ind          | 600 V (Unpotted<br>Non-1E Con-<br>nectors)                              | P3, P4, P5, P6, C1,<br>C2, I1, I2, I3, N1                     | Qualified                                   |
| E-48 EZ-4                          | 0               | Viking Ind          | 600 V (Potted<br>1E Connectors,<br>Polyethylene<br>Rubber Cable<br>Ins) | N1                                                            | Qualified                                   |
| E-48 EZ-5                          | 1               | Viking Ind          | 600 V (Unpotted<br>1E Connectors)                                       | C1, C2<br><br>I1, I3<br><br>N1                                | Qualified<br><br>Qualified<br><br>Qualified |
| <u>Miscellaneous Electrical</u>    |                 |                     |                                                                         |                                                               |                                             |
| E-48 MISC-1                        |                 |                     |                                                                         |                                                               | Delete (Note 14)                            |
| E-48 MISC-2                        |                 |                     |                                                                         |                                                               | Delete (Note 8)                             |
| E-48 MISC-3                        | 0               | Westinghouse        | A                                                                       | M69A, B<br>(H2 Recombiner)                                    | Qualified                                   |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u>       | <u>Model/Type</u>                                            | <u>Equipment ID</u>                                | <u>Status(3)</u>           |
|------------------------------------|-----------------|---------------------------|--------------------------------------------------------------|----------------------------------------------------|----------------------------|
| E-48 MISC-4                        | 1               | Celmark                   | 21-0006-3012<br>21-0006-1916<br>21-0006-1912<br>21-0006-8016 |                                                    | Qualified 1                |
| E-48 MISC-5                        | 0               | Conax                     | N-11003                                                      |                                                    | Qualified 1                |
| E-48 MISC-6                        | 1               | Control Products Division | Buchanan Type<br>NQB                                         |                                                    | Qualified 1                |
| E-48 MISC-7                        | 1               | States Co                 | ZWM                                                          |                                                    | Qualified 1                |
| E-48 MISC-8                        |                 |                           |                                                              |                                                    | Delete (Note 11)           |
| E-48 MISC-9                        | 0               | Raychem                   |                                                              |                                                    | Qualified 1                |
| E-48 MISC-10                       | 2               | Comsip, Inc               | Delphi, K-III                                                |                                                    | Qualified 1                |
| E-48 MISC-11                       | 0               | Raychem                   | WCSF-70-6N,<br>WCSF-115-6N                                   |                                                    | Qualified                  |
| E-48 MISC-12                       | 0               | Delphi Inst               | B-5                                                          | AE-2401L,R                                         | Qualified                  |
| E-48 MISC-13                       | 0               | Comsip                    | CD-9004-1                                                    | ASH-2401L,R                                        | Qualified                  |
| E-48 MISC-14                       | 0               | Comsip                    | CD-2004-1                                                    | ASHH-2401L,R,<br>ASL-2401L,R                       | Qualified                  |
| E-48 MISC-15                       | 0               | Nelson Elec               | Catalog Number<br>QA838K01207                                | Heat Trace Cable                                   | Qualified                  |
| <u>Solenoid Valves</u>             |                 |                           |                                                              |                                                    |                            |
| E-48 SV-1                          | 1               | ASCO                      | 206-381-3RF                                                  | SV-0947,0948,<br>0949,0950,0951                    | Qualified 1                |
| E-48 SV-2                          | 2               | ASCO                      | 206-381-3RF                                                  | SV-0879,0880,<br>0913                              | Qualified 1                |
| E-48 SV-3                          | 1               | ASCO                      | 206-381-3RF                                                  | SV-0738,0739,<br>0767,0768,<br>0770,0771           | Qualified 1                |
| E-48 SV-4                          | 3               | ASCO                      | NP 831654E                                                   | SV-0861,0862,<br>0864,0865,0867,<br>0869,0870,0873 | Qualified                  |
| E-48 SV-5                          | 2               | ASCO                      | X206-381-3VF<br>NP8320A185V                                  | SV-2113,2115<br>SV-2117                            | Qualified 1<br>Qualified 1 |



| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u> | <u>Model/Type</u> | <u>Equipment ID</u>                                                                                                                                  | <u>Status(3)</u> |
|------------------------------------|-----------------|---------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| E-48 SV-6                          | 1               | ASCO                | NPX831654E        | SV-0847, 0937,<br>0938, 0944A,<br>0910, 0911, 0940,<br>0945, 0946                                                                                    | Qualified 1      |
|                                    |                 |                     | 206-381-3RF       | SV-1038, 1044,<br>1045                                                                                                                               | Qualified 1      |
|                                    |                 |                     |                   | SV-0155, 0825,<br>0878, 0939, 1001,<br>1004, 1064, 1065,<br>1002, 1007, 1036,<br>1101, 1102, 1103,<br>1104, 1358, 1501,<br>1502, 1503, 2009,<br>2083 |                  |
|                                    | 1               | ASCO                | X206-381-3RF      | SV-1037, 1001, 1004,<br>1064, 1065                                                                                                                   | Qualified 1      |
| E-48 SV-7                          | 2               | ASCO                | NPX831654E        | SV-0845, 0876, 0877,<br>0844, 0857                                                                                                                   | Qualified 1      |
|                                    |                 |                     | NPX831654E        | SV-0846                                                                                                                                              | Qualified 1      |
| E-48 SV-8                          | 1               | ASCO                | NPX8320A185V      | SV-3001, 3002                                                                                                                                        | Qualified 1      |
|                                    |                 |                     | NP8316A74E        | SV-3030B                                                                                                                                             | Qualified 1      |
|                                    |                 |                     | NPX8316A74E       | SV-3018, 3036,<br>3059, 3070,<br>3071, 3212B                                                                                                         | Qualified 1      |
|                                    |                 |                     | NPX8316A76E       | SV-3027B, 3057B                                                                                                                                      | Qualified 1      |
|                                    |                 |                     | NP8316E34E        | SV-3029B                                                                                                                                             | Qualified 1      |
|                                    |                 |                     | NPX8316E34E       | SV-3031A, 3037,<br>3055B, 3056B<br>3057A, 3213A,<br>3223A, 3224B                                                                                     | Qualified 1      |
|                                    |                 |                     | NP8316E36E        | SV-3027A, 3029A,<br>3030A, 3031B,<br>3055A, 3056A,<br>3212A, 3213B,<br>3224A                                                                         | Qualified 1      |
|                                    |                 |                     | NPX8316E36E       | SV-3223B                                                                                                                                             | Qualified 1      |
| E-48 SV-9                          | 2               | ASCO                | NPX831654E        | SV-0824                                                                                                                                              | Qualified 1      |
| E-48 SV-10                         | 2               | ASCO                | NPX8320A183E      | SV-0522A                                                                                                                                             | Qualified 1      |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u> | <u>Model/Type</u> | <u>Equipment ID</u>                                        | <u>Status(3)</u> |
|------------------------------------|-----------------|---------------------|-------------------|------------------------------------------------------------|------------------|
| E-48 SV-11                         | 1               | ASCO                | NP8320A185V       | SV-0438A,0438B                                             | Qualified 1      |
| E-48 SV-12                         | 1               | ASCO                | NPX8320A184E      | SV-1910, 1911                                              | Qualified 1      |
| E-48 SV-13                         | 1               | ASCO                | NPX8320A184E      | SV-1901, 1902,<br>1903, 1904, 1905                         | Qualified 1      |
| E-48 SV-14                         | 1               | ASCO                | 206-381-3RF       | SV-3069, 0338,<br>0342, 0346, 0347                         | Qualified 1      |
| E-48 SV-15                         |                 |                     |                   |                                                            | Delete (Note 12) |
| E-48 SV-16                         | 0               | Target Rock         | 81QQ-001          | SV-2412A, B,<br>SV-2413A, B,<br>2414A, B<br>2415A, B       | Qualified 1      |
| E-48 SV-17                         | 2               | ASCO                | NP8321A6E         | SV-1813, 1814                                              | Qualified        |
| E-48 SV-18                         | 2               | ASCO                | NP831655E         | SV-1805, 1806,<br>1807, 1808                               | Qualified 1      |
| E-48 SV-19                         | 1               | ASCO                | NP8320A185V       | SV-3084, 3085                                              | Qualified 1      |
| E-48 SV-20                         | 0               | Target Rock         | 80B-001-5         | PRV-1067, 1068, 1069,<br>1070, 1071, 1072                  | Qualified 1      |
| E-48 SV-21                         | 0               | ASCO                | THT-8262C7N       | SV-2418L, R,<br>SV-2419L, R                                | Qualified        |
| E-48 SV-22                         | 0               | ASCO                | THT-8262A138N     | SV-2420L, R                                                | Qualified        |
| E-48 SV-23                         | 0               | Target Rock         | 81QQ-002          | SV-2424A, B                                                | Qualified        |
| <u>Motor-Operated Valves</u>       |                 |                     |                   |                                                            |                  |
| E-48 MOV-1                         | 2               | Limitorque          | SMB-00-15         | MO-3007, 3009,<br>3011, 3013,<br>3062, 3064,<br>3066, 3068 | Qualified        |
| E-48 MOV-1                         | 2               | Limitorque          | SMB-3-100         | MO-3012, 3010,<br>3014                                     | Qualified        |
|                                    |                 |                     | SMB-3-100         | MO-3008                                                    | Qualified        |
|                                    |                 |                     | SMB-2-60          | MO-3015, 3016                                              | Qualified        |
| E-48 MOV-2                         | 1               | Limitorque          | SMB-0-25          | MO-3189, 3190,<br>3198, 3199                               | Qualified 1      |
| E-48 MOV-3                         | 2               | Limitorque          | SMB-0-025         | MO-3080, 3081                                              | Qualified 1      |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u> | <u>Model/Type</u> | <u>Equipment ID</u>                  | <u>Status(3)</u> |
|------------------------------------|-----------------|---------------------|-------------------|--------------------------------------|------------------|
| E-48 MOV-4                         | 2               | Limitorque          | SMB-00-10         | MO-3032, 3083                        | Qualified 1      |
| E-48 MOV-5                         | 0               | Limitorque          | SMB-00-10         | MO-0743, 0753,<br>0760, 0798         | Qualified        |
| E-48 MOV-6                         | 0               | Limitorque          | SMB-00-10         | MO-0748, 0754,<br>0755, 0759         | Qualified        |
| <u>Electropneumatic Converters</u> |                 |                     |                   |                                      |                  |
| J-48 E/P-2                         | 2               | Fischer Controls    | E/P-546           | E/P-1057, 1059                       | Qualified        |
| J-48 E/P-3                         | 1               | Masoneilan          | 8012              | E/P-3025                             | Qualified        |
| J-48 E/P-4                         | 1               | Fisher Controls     | E/P-546           | E/P-0736A, 0737A                     | Qualified        |
| <u>Flow Transmitters</u>           |                 |                     |                   |                                      |                  |
| J-48 FT-1                          | 1               | Rosemount           | 1153HA7           | FT-0316, 0317                        | Qualified 1      |
| J-48 FT-2                          | 3               | Rosemount           | 1152-DP4<br>A22PB | FT-0736A, FT-0737A                   | Qualified 1      |
| J-48 FT-3                          | 1               | Rosemount           | 1152-DP4<br>A22   | FT-0736, 0737                        | Qualified 1      |
| J-48 FT-3                          | 0               | Rosemount           | 1153DB5           | FT-0727, 0727A<br>0749, 0749A        | Qualified        |
| <u>Current Converters</u>          |                 |                     |                   |                                      |                  |
| J-48 I/P-1                         | 0               | ITT/Conflow         | GT25CA1826        | I/P-0727, 0749                       | Qualified        |
| J-48 I/P-2                         | 0               | ITT/Conflow         | GT25CA1826        | I/P-0736A, 0737A                     | Qualified        |
| <u>Level Elements</u>              |                 |                     |                   |                                      |                  |
| J-48 LE-1                          | 1               | Transamerica        | XM-54852A         | LE-0446A, 0446B                      | Qualified 1      |
| <u>Level Switches</u>              |                 |                     |                   |                                      |                  |
| J-48 LS-1                          |                 |                     |                   |                                      | Delete (Note 17) |
| <u>Level Transmitters</u>          |                 |                     |                   |                                      |                  |
| J-48 LT-1                          |                 |                     |                   |                                      | Delete (Note 10) |
| J-48 LT-2                          |                 |                     |                   |                                      | Delete (Note 9)  |
| J-48 LT-3                          | 1               | Foxboro             | 613DM             | LT-0751A, B, C, D,<br>0752A, B, C, D | Replace-1        |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u> | <u>Model/Type</u>                                                                         | <u>Equipment ID</u>                                           | <u>Status(3)</u>       |
|------------------------------------|-----------------|---------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------|------------------------|
| J-48 LT-4                          | 1               | Foxboro             | 613HM                                                                                     | LT-0103                                                       | Replace-1              |
| J-48 LT-5                          | 1               | Fischer & Porter    | 13D2465BA                                                                                 | LT-0701,0702,<br>0703,0704                                    | Replace-1              |
| J-48 LT-6                          | 2               | Rosemount           | 1152DP4A22                                                                                | LT-0383,0382                                                  | Qualified 1            |
| J-48 LT-7                          | 0               | Rosemount           | 1153DD5                                                                                   | LT-0757A, B<br>0758A, B                                       | Qualified              |
| <u>Neutron Detectors</u>           |                 |                     |                                                                                           |                                                               |                        |
| J-48 NI-1                          |                 |                     |                                                                                           |                                                               | Delete (Note 14)       |
| <u>Position and Limit Switches</u> |                 |                     |                                                                                           |                                                               |                        |
| J-48 POS-1                         | 0               | Namco               | EA-080-11100                                                                              | POS-0522A                                                     | Qualified              |
| J-48 POS-2                         | 1               | Namco               | EA-170-31100                                                                              | POS-0438A,0438B                                               | Qualified              |
| J-48 POS-3                         | 1               | Honeywell           | OP-AR                                                                                     | POS-0824                                                      | Qualified              |
| J-48 POS-4                         | 0               | Honeywell           | BZE-2RN                                                                                   | POS-1103,1104                                                 | Qualified              |
| J-48 POS-5                         |                 |                     |                                                                                           |                                                               | Delete (Note 15)       |
| J-48 POS-6                         | 0               | Honeywell           | BZE-2RN, EXD-Q<br>OPD-AR, BZE-2RN<br>BZE-2RN, EXD-Q<br>BZE-2RN, OPD-AR<br>BZE-2RN, OPD-AR | POS-1036<br>POS-1002,1007<br>POS-1038<br>POS-1044<br>POS-1045 | Qualified<br>(Note 15) |
| J-48 POS-7                         | 0               | Honeywell           | LSQ-051                                                                                   | POS-3027A,3056A                                               | Qualified              |
| J-48 POS-8                         | 0               | Honeywell           | BZE-2RN                                                                                   | POS-3031A,3057B,<br>3212A,3212B                               | Qualified              |
| J-48 POS-9                         | 0               | Namco               | D2400-1SR<br>D2400X-1SR                                                                   | POS-3029A<br>POS-3031B,3030B                                  | Qualified<br>Qualified |
| J-48 POS-10                        | 0               | Namco               | EA-170-31100                                                                              | POS-0437A, B                                                  | Qualified              |
| J-48 POS-11                        | 0               | Honeywell           | OP-AR                                                                                     | POS-0847                                                      | Qualified              |
| J-48 POS-12                        | 0               | Honeywell           | OP-AR                                                                                     | POS-0823,0826                                                 | Qualified              |
| J-48 POS-13                        | 0               | Honeywell           | OP-AR                                                                                     | POS-0879,0880                                                 | Qualified              |
| J-48 POS-14                        | 0               | Honeywell           | OP-AR                                                                                     | POS-0844,0845,0846,<br>0857,0876,0877                         | Qualified              |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u> | <u>Model/Type</u>            | <u>Equipment ID</u>                                                                           | <u>Status(3)</u> |
|------------------------------------|-----------------|---------------------|------------------------------|-----------------------------------------------------------------------------------------------|------------------|
| J-48 POS-15                        | 0               | Honeywell           | BZE-2RN<br>BZE6-2RN          | POS-0738, 0739, 0767,<br>0768, 0771<br>POS-0770                                               | Qualified        |
| J-48 POS-16                        | 0               | Honeywell           | 1LS1                         | POS-3018, 3036, 3037,<br>3059, 3027B, 3056B                                                   | Replace          |
| J-48 POS-17                        | 0               | Honeywell           | BZE6-2RN                     | POS-3070, 3071, 3213A,<br>3213B, 3223A, 3223B,<br>3224A, 3224B, 3030A,<br>3029B, 3055A, 3055B | Qualified        |
| J-48 POS-18                        | 1               | Honeywell           | OPD-AR                       | POS-3057A                                                                                     | Qualified        |
| J-48 POS-19                        | 0               | Honeywell           | OP-AR                        | POS-2117, 2113, 2115,<br>0861, 0862, 0864, 0865,<br>0867, 0869, 0870, 0873                    | Replace          |
| J-48 POS-20                        | 0               | Namco               | EA-170-31302                 | POS-1805, 1806, 1807,<br>1808                                                                 | Qualified        |
| J-48 POS-21                        | 0               | Honeywell           | OP-AR<br>BZE-2RN<br>OP-AR    | POS-0825, 0878, 0910<br>0911, 0940, 0913<br>POS-0939<br>POS-0944A, 0945, 0946,<br>0937, 0938  | Qualified        |
| J-48 POS-22                        | 0               | Honeywell           | OP-AR                        | POS-0947, 0948, 0949,<br>0950, 0951, 0977B                                                    | Qualified        |
| J-48 POS-23                        | 0               | Namco               | EA-180-11302<br>EA-180-12302 | POS-0727, 0749                                                                                | Qualified        |
| J-48 POS-24                        | 0               | Namco               | EA-180-11302<br>EA-180-12302 | POS-0736A, 0737A                                                                              | Qualified        |
| <u>Pressure Switches</u>           |                 |                     |                              |                                                                                               |                  |
| J-48 PS-1                          | 1               | United Electric     | J-302-553                    | PS-1801, 01A, 02,<br>02A, 03, 03A, 04, 04A                                                    | Qualified        |
| J-48 PS-2                          | 0               | Static-O-Ring       | 4N3-K5-MX-C1A                | PS-2401L, R<br>2402L, R                                                                       | Qualified        |
| J-48 PS-3                          | 0               | Static-O-Ring       | 54N3-K411-MX-C1A             | PS-2403L, R                                                                                   | Qualified        |
| J-48 PS-4                          | 0               | Bailey Controls     | 745210AAAN2                  | PS-0762A, B, C                                                                                | Qualified        |
| <u>Pressure Transmitters</u>       |                 |                     |                              |                                                                                               |                  |
| J-48 PT-1                          | 1               | Fischer & Porter    | 50EP1072A                    | PT-0306                                                                                       | Replace-1        |

| <u>Qualification Specification</u> | <u>Revision</u> | <u>Manufacturer</u>        | <u>Model/Type</u>          | <u>Equipment ID</u>                                                                       | <u>Status(3)</u>       |
|------------------------------------|-----------------|----------------------------|----------------------------|-------------------------------------------------------------------------------------------|------------------------|
| J-48 PT-2                          | 1               | Fischer & Porter           | 50EP1021ACX<br>50EP1071ACX | PT-1812, 1815<br>PT-1805, 1814                                                            | Qualified<br>Qualified |
| J-48 PT-3                          |                 |                            |                            |                                                                                           | Delete (Note 16)       |
| J-48 PT-4                          | 3               | Rosemount                  | 1153GD9PA                  | PT-0102A, B, C, D                                                                         | Qualified              |
| J-48 PT-5                          | 0               | Foxboro                    | 611GM                      | PT-0752A, B, C, D,<br>0751A, B, C, D                                                      | Replace-1              |
| J-48 PT-6                          | 1               | Rosemount                  | 1153GA9                    | PT-0105A, B                                                                               | Qualified              |
| J-48 PT-7                          | 1               | Rosemount                  | 1153GA9                    | PT-0377                                                                                   | Qualified 1            |
| J-48 PT-8                          | 1               | Rosemount                  | 1152AP7A22                 | PT-1812A, 1805A                                                                           | Qualified 1            |
| J-48 PT-9                          | 0               | Rosemount                  | 1153AB5                    | PT-0762A, B, C                                                                            | Qualified              |
| J-48 PT-10                         | 0               | Rosemount                  | 1153GB9                    | PT-0750                                                                                   | Qualified              |
| <u>Radiation Monitors</u>          |                 |                            |                            |                                                                                           |                        |
| J-48 RE-1                          | 2               | Victoreen                  | 847-1                      | RE-1805, 1806,<br>1807, 1808                                                              | Replace-1              |
| J-48 RE-2                          | 1               | Victoreen                  | 877-1                      | RE-2321, 2322                                                                             | Qualified 1            |
| <u>Temperature Elements</u>        |                 |                            |                            |                                                                                           |                        |
| J-48 TE-1                          | 1               | Rosemount                  | 104-VCX                    | TE-0112, 0122CA,<br>CB, CC, CD, HA, HB,<br>HC, HD<br>TE-0111, A, B, H<br>TE-0121, A, B, H | Replace-1              |
| <u>Temperature Switches</u>        |                 |                            |                            |                                                                                           |                        |
| J-48 TS-1                          | 0               | Johnson                    | T-7170                     | TS-1849, 1850,<br>1851, 1852, 1856,<br>1857, 1858, 1859                                   | Replace-1              |
| J-48 TS-2                          | 0               | Fenwell                    | 22000                      | TS-2401L, R                                                                               | Qualified              |
| J-48 TS-3                          | 0               | Nelson/<br>United Electric | TH-4X65                    | TS-2401A, B,<br>2402A, B,<br>2403, 2404                                                   | Qualified              |

(1) Technical Evaluation Report, Equipment Environmental Qualification, Consumers Power Company Palisades Plant, Franklin Research Center, December 30, 1982.

- (2) Environmental Qualification of Safety-Related Electrical Equipment, Palisades Plant, September 1980. Transmitted to the NRC October 7, 1980 and revised October 30, 1980 and June 11, 1981.
- (3) Qualified: Qualified under DORGR subject to applicable surveillance and preventive maintenance to detect and correct possible aging. Entire component or parts may be replaced as part of the preventive maintenance program.  
  
Qualified 1: New equipment installed at the plant as a result of the TMI action plan, qualification commitment or plant replacement program. This equipment has not been reviewed in the SER or TER.  
  
Replace-1: Consumers Power Company committed to replace in the October 7, 1980 submittal. Continued operation is justified.  
  
Replace-2: Consumers Power Company committed to replace in the September 3, 1981 submittal. Continued operation is justified.
- (4) Controls to protect the safety injection tanks from overpressurization by leakage through the PCS and SI tank check valves. These were removed from the harsh environment list for reasons given on Page 399 of the 1980 Equipment Qualification Report. Failure of these controls following an accident would be of insignificant consequences.
- (5) Feedwater flow control instruments. The flow and pressure transmitters were removed from the list because the level transmitters are sufficient to prevent overflowing the steam generators. See J-48 LT-5.
- (8) The Westinghouse terminal blocks in J350, J355 and J521 were replaced with States Company terminal blocks type ZWM. See MISC-7 for qualification of ZWM terminal blocks. MISC-2 has been deleted.
- (9) Both LT-1107 and LT-1110 are located in Room 123 which experiences only MSLB. These LTs are used for LOCA only; therefore, they are in a mild environment and should be removed from this book.
- (10) The function of these transmitters, containment sump level, has been replaced by the equipment listed in LT-6 and LE-1. Therefore, LT-1 has been deleted.
- (11) The qualification of states, Control Products Div, Raychem and Rockbestos are adequately addressed by other specification numbers. Therefore, MISC-8 has been deleted. (12) This equipment is used only when it is in a mild environment. Therefore, it is being removed from the list.
- (12) This equipment is used only when it is in a mild environment. Therefore, it is being removed from the list.
- (13) An outage walkdown showed that none of qualified equipment is connected to this type of cable. Therefore, it is being removed from the list.
- (14) It has been determined that the neutron monitors (NI-1) and their connector (MISC-1) are not required to mitigate a LOCA or MSLB. Therefore, this equipment is being removed from the list.
- (15) POS-3001, 3002 (POS-5) and POS-1501, 1502, 1503, 2009, 2083, 1358, 1813, 1814, 0155, 1001, 1004, 1037, 1064, 1065, 1101, 1102, 1910, 1911, 0437A and 0437B (POS-6) are all located in a mild environment. Therefore, this equipment is being removed from the list.
- (16) The pressurizer wide-range pressure indicator was disconnected from PT-0103 and connected to PT-0105B (PT-6). Therefore, this equipment is being removed from the list.
- (17) The ESF room sump pumps and level switches have been deleted. See letter to NRC dated 4/30/84 concerning NUREG-0737, Item III.D.1.1 - Integrity of Systems Outside Containment.

ATTACHMENT 2  
CONSUMERS POWER COMPANY  
PALISADES PLANT - DOCKET 50-255  
EEQ ADDITIONAL INFORMATION  
JUSTIFICATIONS FOR CONTINUED OPERATION (JCOs)



Justifications for Continued Operation for equipment identified in Attachment 1 as being replaced.

J-48 LT-3

Equipment ID: LT-0751A,B,C,D, 0752A,B,C,D

Function: Steam Generator Level/Reactor Trip

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A Criteria:

1. Redundant equipment is available to substitute for the unqualified equipment.
3. The unqualified equipment will have performed its primary function, reactor trip, prior to failure.

J-48 LT-4

Equipment ID: LT-0103

Function: Pressurizer Level

JCO: This transmitter does not perform a safety function required to mitigate the effects of an accident. It is used, however, to minimize the flow of charging water to the containment floor for MSLEs and small break LOCAs. This in turn will minimize cleanup efforts after an accident and in the case of MSLE will allow the PCS to remain intact at all times. Therefore, the existing transmitter does not have to be qualified and no JCO is required. However, Consumers Power Company still intends to replace this transmitter with a new qualified one.

J-48 LT-5

Equipment ID: LT-0701, 0702, 0703, 0704

Function: Steam Generator Level/Feedwater Control

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

1. Redundant equipment is available to substitute for the unqualified equipment.
3. The unqualified equipment will have performed its primary function, feedwater trip, prior to failure.

J-48 POS-16

Equipment ID: POS-3018, 3036, 3037, 3059, 3027B, 3056B

Function: Position Indication-Safety Injection & Shutdown Cooling/SIRW Tank Level Control

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

1. Redundant equipment is available to substitute for the unqualified equipment.
3. The unqualified equipment will have performed its primary function prior to failure.

J-48 POS-19

Equipment ID: POS-2117, 2113, 2115, 0861, 0862, 0864, POS-0865, 0867, 0869, 0870, 0873

Function: Position Indication-Pressurizer Spray Valve, Charging System Stop Valve, Service Water for Containment Air Valve

JCO: POS-2113, 2115 - Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

1. Redundant equipment is available to substitute for the unqualified equipment.

POS-2117 - Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

1. Redundant equipment is available to substitute for the unqualified equipment.

POS-0861 thru 0873 - Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

3. The unqualified equipment will have performed its primary function prior to failure.

J-48 PT-1

Equipment ID: PT-0306

Function: Pressure Transmitter/Low-Pressure Safety Injection Discharge Pressure

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

2. Another system is capable of providing the required function of the system with unqualified equipment.

J-48 PT-5

Equipment ID: PT-0751A,B,C,D, 0752A,B,C,D

Function: Steam Generator Pressure/Reactor Trip

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

3. The unqualified equipment will have performed its primary function, reactor trip, prior to failure.

J-48 RE-1

Equipment ID: RE-1805, 1806, 1807, 1808

Function: Radiation Monitors/Containment Isolation

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

3. The unqualified equipment will have performed its primary function, containment isolation, prior to failure.

J-48 TE-1

Equipment ID: TE-0112, 0122CA,CB,CC,CD,HA,HB,HC,HD  
TE-0111A,B,H  
TE-0121A,B,H

Function: Primary Coolant Temperature Elements

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

1. Redundant equipment is available to substitute for the unqualified equipment.
3. The unqualified equipment will have performed its safety function prior to failure.

J-48 TS-1

Equipment ID: TS-1849, 1850, 1851, 1852, 1856, 1857, 1858, 1859

Function: ESF Room Air Cooler Thermostats

JCO: Interim operation is justified in lieu of qualified equipment based on the following FRC Appendix A criteria:

1. Redundant equipment is available to substitute for the unqualified equipment.