

Nebraska Public Power District

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NLS8400127

April 24, 1984

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. D. B. Vassallo, Chief
Operating Reactors Branch No. 2
Division of Licensing

- Reference: 1) Letter from J. M. Pilant to D. B. Vassallo dated March 22, 1984, "Determination of Equipment Within the Scope of 10CFR50.49(b)(2)"
- 2) Letter from J. M. Pilant to D. G. Eisenhut dated March 1, 1984, "NUREG-0737, Supplement 1 - Regulatory Guide 1.97"

Gentlemen:

Subject: Docket No. 50-298, DPR-46
Resolutions of Safety Evaluation Report for
Environmental Qualification of Safety-Related
Electrical Equipment
Cooper Nuclear Station, Unit 1

On December 20, 1982, Nebraska Public Power District received the Safety Evaluation Report (SER) regarding the Environmental Qualification of Safety-Related Electrical Equipment at Cooper Nuclear Station, Unit 1. The SER contained a Technical Evaluation Report (TER), written by Franklin Research Center under contract to the Nuclear Regulatory Commission (NRC), which noted a number of environmental qualification documentation deficiencies. On March 29, 1984, a meeting was held with members of your Staff to discuss Nebraska Public Power District's proposed method of resolution for each of those deficiencies. The proposed resolution, as discussed with your Staff, for each of the environmental qualification documentation deficiencies listed in the TER is summarized in Enclosure III to this letter. Discussions also took place at the meeting regarding Nebraska Public Power District's general methodology for compliance with 10CFR50.49, "Environmental Qualification of

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Electric Equipment Important to Safety for Nuclear Power Plants", which became effective February 22, 1983. The purpose of this letter is to provide documentation of the discussions held at the March 29, 1984, meeting.

The only generic deficiency listed in the SER and the attached TER for Cooper Nuclear Station was qualification of motor control centers. For meeting the intent of 10CFR50.49 the District is considering one or both of the following: 1) Reduction or elimination of external environmental conditions based on leak-before-break analysis or 2) implementation of a purge-air system to control internal environmental response. Nebraska Public Power District would like to leave open other avenues for qualification of the motor control centers as viable options are identified.

Enclosure V to this letter contains a revised "NPPD/CNS Master Equipment List" which lists all equipment that is currently identified at Cooper Nuclear Station within the scope of 10CFR50.49. The "Master Equipment List" contains a comment description stating current qualification status of all equipment. The equipment list is identical to the list of equipment submitted in response to paragraph (g) of 10CFR50.49 by our letter dated May 20, 1983, (revised April 24, 1984). The equipment list follows "Environmental Qualification of Electric Equipment Important to Safety Within the Scope of 10CFR50.49". For those equipment items for which documentation of environmental qualification is not yet completed and a previous Justification for Continued Operation was not submitted, those JCO's are provided in Enclosure IV.

At the March 29, 1984, meeting, your Staff also requested confirmation that all design-basis events at Cooper Nuclear Station which could result in a potentially harsh environment, including flooding outside containment, were addressed in identifying safety-related electrical equipment at Cooper Nuclear Station which was to be environmentally qualified. The flooding and environmental effects resulting from all postulated design-basis accidents documented in Chapter 14 of the Cooper Nuclear Station Updated Safety Analysis Report, including the Loss-of-Coolant Accident and the Steam Line Break Accident inside containment, were considered in the identification of safety-related electrical equipment which was to be environmentally qualified. The flooding and environmental effects resulting from High Energy Line Breaks outside containment, as documented in Appendix C of the Updated Safety Analysis Report, were also considered in the identification of this equipment. Therefore, all design-basis events for Cooper Nuclear Station, were considered in the identification of electrical equipment within the scope of paragraph (b)(1) of 10CFR50.49 (i.e., "Safety-related electric equipment . . . relied upon to

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remain functional during and following design basis events . . .").

The method of identification of electrical equipment within the scope of paragraph (b)(2) of 10CFR50.49 (i.e., "Nonsafety-related electrical equipment whose failure under postulated environmental conditions could prevent satisfactory accomplishment of safety functions . . .") is described in Reference 1, subject "Determination of Equipment Within the Scope of 10CFR50.49(b)(2)". No additional electrical equipment, which was not previously included in the "Master Equipment List", was identified during this review. The method used to identify electrical equipment within the scope of paragraph (b)(3) of 10CFR50.49 (i.e., "Certain post accident monitoring equipment") involved a variable-by-variable comparison of the specific requirements of Regulatory Guide 1.97, "Instrumentation . . . to Assess Plant and Environs Conditions During and Following an Accident", to the design of Cooper Nuclear Station. An evaluation of this comparison was then conducted to determine which instrumentation and sampling equipment at Cooper Nuclear Station required environmental qualification. The results of this evaluation are described in our March 1, 1984, letter regarding "NUREG-0737, Supplement 1 - Regulatory Guide 1.97". Instrumentation and sampling equipment identified as performing both a 1E and Regulatory Guide 1.97 function are denoted in the "Master Equipment List" contained in Enclosure V to this letter. In conclusion, we believe that the "Master Equipment List" attached hereto complies with the scope of requirements of paragraph (b) of 10CFR50.49.

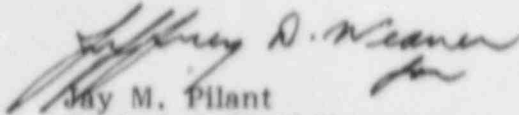
We believe the environmental qualification documentation maintained in the Cooper Nuclear Station Equipment Qualification Central File complies with the requirements of 10CFR50.49. Also, the post accident harsh environment assumed for the purpose of the equipment qualification program envelopes the worst case conditions and those environmental profiles and assumptions have been accepted by the Nuclear Regulatory Commission. In conclusion, we believe that Cooper Nuclear Station can continue to operate without undue risk to the public health and safety based on the level of qualification and JCO's previously submitted and those provided in Enclosure IV of this letter.

As was discussed at the March 29, 1984, meeting, it is requested that a supplemental SER be issued to indicate that Nebraska Public Power District's Equipment Qualification Program, as described in this letter, meets the requirements of 10CFR50.49 and that the deficiencies noted in the SER dated December 20, 1982, are considered resolved.

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We would be pleased to answer any questions you may have regarding the enclosed information or our request for the supplemental SER.

Sincerely,


Jay M. Pilant
Technical Staff Manager
Nuclear Power Group

JMP/SJJ:emz24/8
Enclosures

- I. Methodology for TER Deficiency Resolution
- II. Response to TER Generic Items
- IIIA. TER Equipment Qualification Open Item Resolution
- IIIB. Non-TER Equipment Qualification Status
- IV. Justifications for Continued Operation
- V. NPPD/CNS Master Equipment List

cc: J. T. Collins - U.S. Nuclear Regulatory Commission

ENCLOSURE I

Methodology for TER Deficiency Resolution

ENCLOSURE I

Methodology for TER Deficiency Resolution

Twenty qualification criteria were applied by Franklin Research Center (FRC) in their review of NPPD's qualification documentation (SER Response submittal 9/81 and additional information submitted 2/82). FRC's Technical Evaluation Report (TER) cited one or more deficiencies under fourteen of the qualification criteria as being applicable to equipment installed at Cooper Nuclear Station. Each of the fourteen criteria having equipment-specific deficiencies applicable to CNS are described below with a discussion of the general methodology used to resolve such deficiencies. Equipment specific resolutions are summarized in Enclosure III.

1. Documented Evidence of Qualification Adequate

This deficiency was cited in cases where an incorrect qualification reference was cited on the System Component Evaluation Worksheet (SCEW), e.g., a test plan instead of a test report; in cases where an equipment replacement was identified as being required; and in cases where the supplied qualification documentation did not support the stated qualification.

This deficiency was resolved by revising the SCEW, as necessary, to correct qualification references; by performing the equipment replacement as originally identified on the SCEW; and by identifying the pertinent qualification documentation to support the stated qualification. All pertinent qualification documentation for equipment qualified as installed and for equipment qualified as a result of replacement is contained in a Central File at Cooper Nuclear Station.

2. Adequate Similarity Between Equipment and Test Specimen Established

Similarity between the installed equipment and the tested equipment was established prior to completing the qualification evaluation. In virtually all cases, the equipment vendor was contacted to obtain test reports and component materials lists applicable to the installed equipment. An evaluation was also made to review the electrical interfaces used on the test specimen to identify interface requirements for the installed equipment. In cases where the test specimen was not identical to the installed equipment, an evaluation was made to ascertain the impact of the equipment differences on environmental qualification. On the basis of this evaluation, test report applicability was either established or rejected.

Documentation of the similarity evaluation is provided in equipment qualification calculation files, along with relevant vendor correspondence on equipment similarity, included in the Central File.

In some cases, only the calculation files were requested by FRC and not the various references, e.g., correspondence with the vendor. Thus, a deficiency may have been cited simply because all the referenced information was not requested by FRC. Resolution of this TER deficiency

was accomplished by either calling attention to the specific reference that establishes equipment similarity, or by performing additional vendor contact and similarity evaluation.

3. Aging Degradation Evaluated Adequately

Equipment aging is evaluated using the Arrhenius method as directed in the DOR Guidelines. Cases for which equipment aging is dependent on mechanical or radiation aging, as opposed to thermal aging, are evaluated on a case basis, as applicable. The aging evaluation was used to correlate the aging performed on the test specimen to the installed environment at Cooper. As necessary, self-heating of the constituent components due to motor operation or solenoid energization was considered in the aging evaluation.

Determination of the appropriate activation energy was based both on the function of the component and on material specific information. As available, vendor specific data was used. For example, if a specific nylon vendor was identified as supplying the material for a component within an equipment item, data on that particular nylon was obtained. The data used would consider the functional requirements of the components and the limiting failure mechanism for that application, e.g., tensile strength, elongation, flexural strength, etc. In cases where vendor specific data was not available, or when the material vendor was not known, data available on the general material category was used. Various sources for this information include EPRI Report NP-1558, materials handbooks, plastics encyclopedias, and Appendix C of the DOR Guidelines. Again, the functional requirements and limiting failure mechanism of the component were considered in the selection of the activation energy. In cases where the component materials within an equipment item were unknown, an activation energy of 0.5eV was used in the aging evaluation for conservatism. The most limiting component material within the equipment item was used to correlate the simulated aging on the test specimen to the Cooper Nuclear Station environment.

An aging evaluation, based on testing of the component materials within an equipment item, was used in cases where simulated aging tests were not performed on the entire equipment item. The materials evaluation used the DOR Guidelines as a general basis for the evaluation.

TER deficiencies were resolved, or are being resolved, by performing additional evaluations following the outline described above. These evaluations are documented in calculation files included in the Cooper Nuclear Station Qualification Central File.

4. Qualified Life or Replacement Schedule Established (If Required)

A qualified life and replacement schedule was established based on the aging evaluation described above. In some cases, a qualified life of greater than 40 years was established so replacement is not required in the plant life. These equipment items will have maintenance performed in accordance with the Cooper preventive maintenance program. Some equipment items have a qualified life in excess of 40 years providing certain components are replaced periodically. These qualification maintenance requirements are being factored into the plant maintenance program.

Finally, some equipment items contain component(s) with a defined qualified life less than the 40 year design life of the plant, for which replacement of the entire equipment item is more feasible than replacement of the component(s). The replacement of such equipment items is also being factored into the plant maintenance program.

TER deficiencies were resolved, or are being resolved, by performing additional evaluations following the outline described above for aging evaluations and the determination of qualified life/replacement schedules. These evaluations are documented in calculation files included in the Cooper Nuclear Station Qualification Central File.

5. Criteria Regarding Aging Simulation

The qualified life of an equipment item is preferentially based on extrapolation of accelerated thermal aging type test data where available. Pre-accident thermal aging is usually done in a dry air-oven environment. The Arrhenius method was then utilized with the activation energy associated with each of the non-metallic materials of construction to determine the qualified life of the equipment, based on the limiting material. In some test sequences, no pre-accident thermal aging was performed. For these cases, the Arrhenius method was used to compare applicable materials test data with normal and accident plant conditions to establish a qualified life.

6. Criteria Regarding Temperature/Pressure Exposure

6.A Peak Temperature Adequate

In a few cases, the required peak accident temperature was not totally enveloped by type testing. The duration of the peak accident temperature above the tested temperature is extremely short (less than 60 seconds). The heavy metal enclosures that surround this equipment, in conjunction with thermal mass, will protect the non-metallic internal components from the short duration temperature spike.

6.B Peak Pressure Adequate

The only items for which the required peak pressure is not enveloped by testing are the Fenwal temperature switches and some electric motors. Although the Fenwal temperature switches were tested to a maximum pressure of 10 psig, the required pressure of 16.9 psig was not enveloped. Further correspondence with Fenwal has determined that this equipment is capable of operation up to 500 psia, thereby providing assurance that this equipment will function under the required accident conditions. These electric motors are vented to ambient atmospheric conditions, and therefore no pressure differential will exist across the motor housing. In addition, the maximum accident pressure postulated for these motors is only 7.5 psig. Thus, there is no credible failure mode due to pressure for these motors. For all other equipment, the peak accident pressures are enveloped by type testing.

6.C Duration Adequate

For a few equipment items, available environmental testing was not of sufficient duration to completely envelope the required operating time. In such cases, materials test data were used to determine the activation energy of the non-metallic materials of construction. An Arrhenius evaluation was subsequently performed to compare the material aging imposed by the environmental testing with the aging that the materials would incur under postulated post-accident temperature conditions at installed locations for the required equipment operating time. All such equipment items were determined to be qualified for the required post accident operating time.

The required operating time for all other equipment items was enveloped by environmental type testing.

6.D Required Profile Enveloped Adequately

In most cases the required accident environmental profile is completely enveloped by the test profile for the duration of the required accident operating time. This is the preferred case for equipment qualification purposes. In some cases the test conditions closely approximate the severity of the postulated accident conditions but don't completely envelop the postulated profile. None of these specimens were tested to failure, and engineering analysis of material capabilities addressing non-enveloped parameters, such as peak temperature, provide sound technical basis for qualification. Several motors were qualified based on a review of materials test data which determined that the non-metallic materials of construction were qualified for peak and continuous temperatures in excess of the postulated accident conditions. These motors are exposed to a relatively mild environment and operate continuously so that condensation is unlikely to occur. Also, environmental conditions return to normal within 24 hours of accident initiation.

6.E Steam Exposure Adequate

The only equipment cited for steam exposure were the Fenwal temperature switches, NAMCO limit switches, and some electric motors. The Fenwal switches were functionally tested to 305°F in a dry-air oven. The switches were subsequently immersed in water. These switches were removed and found to function satisfactorily. This testing is considered to be considerably more severe than steam exposure. The NAMCO limit switch was tested in a steam environment with conduit seals. NPPD has committed to installing conduit penetration seals on these limit switches to exclude steam intrusion. This action will resolve this TER cited deficiency for the NAMCO limit switches. The electric motors were qualified on the basis of moisture absorption testing of motor insulation materials. For all other equipment items, FRC has deemed steam exposure to be adequate.

7. Criteria Regarding Spray Satisfied

Cooper Nuclear Station has a demineralized water containment spray. An investigation of the containment spray system has determined that only a

few equipment items are potentially subject to direct spray impingement. Those equipment items that are directly impinged upon are described in Calculation File No. 71, Rev. 1, "Containment Spray," dated 2-15-82. The FRC did not review this file. All equipment subject to spray has been type tested with either caustic chemical or demineralized water spray. This type testing provides reasonable assurance that the demineralized water spray requirements are satisfied.

8. Criteria Regarding Submergence Satisfied

EDS Report No. 01-0840-1115, Rev. 0 indicates that an 18" feedwater line break in the steam tunnel could cause flooding to a height of 19.0 feet above the 859' 9" floor level in the NE Quad. Flooding of this quad could subject the following equipment to submergence: CS-FT-40A, CS-MOT-CSPIA, CS-MO-MO5A, CS-MO-MO7A, and CS-PS-44A. This equipment is considered exempt from submergence qualification on the basis that the specific safety-related functions can be accomplished by the fully redundant B train of the Core Spray (CS) system. In addition, any failure of this submerged equipment will not mislead the operator or degrade the ability of B train of the Core Spray system to perform its required safety related function.

9. Criteria Regarding Radiation Satisfied

Qualification of equipment for gamma radiation is generally based on type testing of the equipment. When radiation tests were not performed, or were not performed to an enveloping dose, qualification was established by analyses which evaluated the radiation damage susceptibility of non-metallic component materials within the equipment item. Materials test data appropriate to the functional application of such components was used in this analysis.

The specific deficiencies raised in the TER were resolved by performing an evaluation similar to that described above. The results of this evaluation are documented in calculation files included in the Cooper Nuclear Station Qualification Central File.

10. Criteria Regarding Instrument Accuracy Satisfied

In cases where instrument accuracy is an essential element in qualification, a comparison of the acceptable accuracy and the accuracy demonstrated during testing was performed. Depending upon the function of the equipment item, i.e., pre-accident evaluation and/or post-accident monitoring, the required instrument accuracy may range from one-half to twenty percent. In addition, inaccuracies noted in testing may be due to environments that are not postulated for events that require the installed equipment's function. Thus, evaluation of equipment accuracies is both a qualitative and quantitative process.

Static-O-Ring Pressure Switches were the only equipment items that were deemed deficient for accuracy in the TER. The accuracy of these switches demonstrated by type testing, including simulated high temperature accident conditions, is 3.7% FSPE. This accuracy envelopes the accident accuracy requirements at Cooper. All other instruments at Cooper have demonstrated accuracies that are superior to the required accident accuracies.

ENCLOSURE II

Response to TER Generic Items

ENCLOSURE II

Response to TER Generic Items

GENERIC ITEM NUMBER 1

"The thermal aging analyses presented for this facility have attempted to extrapolate test data obtained from saturated steam tests using the Arrhenius technique to extend qualified duration or calculate qualified life estimates. The assumption used in justifying this procedure is that thermal degradation during the environmental test is greater than that accumulated during the postulated accident conditions. What the analyses have failed to recognize is the fact that the Arrhenius methodology is a theoretical relationship which attempts to predict how reaction rates vary with respect to increases in temperature. This technique is based on the premise that all organic materials degrade to some extent -- primarily by oxidation -- when exposed to elevated temperatures in the presence of air. The saturated steam tests, as a matter of procedure, purge the air from the test chamber prior to the onset of the environmental test. Therefore, the use of saturated steam, or superheated steam for that matter, in conjunction with the Arrhenius technique is not technically justified as an aging procedure. In addition, the Arrhenius technique does not take into account variations in the reaction rates due to changes in pressure (as would be experienced in a LOCA/MSLB/HELB test), nor does it account for possible anomalies due to the presence of moisture in the chamber atmosphere. The application of the Arrhenius methodology is limited to data obtained from air-oven thermal aging tests (minimum of three tests at different times and temperatures) where the only parameter affecting the reaction rate is temperature. Any application of this technique to thermodynamically different systems must be technically justified with valid analytical procedures."

RESPONSE TO GENERIC ITEM NUMBER 1

In cases where equipment had insufficient pre-accident aging or where equipment was tested for a duration shorter than the plant-specific operating time, the Arrhenius method was used to compare the total thermal input to the tested equipment as a result of testing to the thermal input that would occur in postulated accident conditions. This method provides the best estimate of qualified life or qualified post-accident operating time capability based on the following considerations:

- The materials used in the test specimen provide the most accurate indication of how the materials in the installed equipment will age. The materials used in the test specimen are in most cases identical to the materials used in the installed equipment. Where differences exist, the tested materials usually meet the same functional design specifications.
- The steam test chamber atmosphere is acceptably similar to plant conditions to simulate in-service aging. No accelerated aging test environment can accurately simulate all aspects of plant aging. However, the air oven aging method results in an extremely dry environment which

excludes the potentially significant aging effects of moisture. The test chamber atmosphere during LOCA/HELB accident testing also has disadvantages, in that it has a lower than normal concentration of oxygen. Oxygen is present in the chamber in some quantity at the start of testing and, as chamber temperature rises, gases (including oxygen) are driven out of solution from water present in the chamber in the form of spray solution or a vapor source pool. This oxygen is available to participate in aging reactions. Thus, test chamber conditions are adequate to provide reasonable assurance of the thermal aging capability of the equipment being tested.

The Arrhenius method predicts the effects of normal aging mechanisms by modeling them as chemical reactions. The most rapid reaction rate produces the most significant aging mechanism and therefore the lowest activation energy. Since most activation energies are experimentally derived from air oven aging tests, they predict the most rapid degradation reaction rate exhibited by the material being tested (usually oxidation). Use of this activation energy to extrapolate accident simulation testing yields a significant benefit. If oxidation is the controlling aging mechanism, then life estimates extrapolated from accident test data are biased towards this mechanism by use of the lower activation energy associated with oxidation. However, if a moisture-induced aging mechanism is predominant, the test data will reflect resulting failures. In either case, use of accident test data leads to conservative estimates of equipment aging capability because such testing does not usually take the equipment to failure.

Additional conservatism is included in all Arrhenius calculations in the following manner:

- a. The lowest apparent activation energy listed for a material was used unless a justification for a higher value was provided.
- b. A conservative activation energy of 0.5 eV was assumed for materials where adequate aging data was unavailable.
- c. A conservatively high normal operating temperature was used to calculate a qualified life.
- d. A conservative high material temperature was assumed when evaluating equipment items that generate heat, such as energized solenoids and running motors.

GENERIC ITEM NUMBER 2

"Materials analysis to establish qualification for thermal aging at Cooper Station were frequently supported by data taken from the Underwriters Laboratories' 'Recognized Component Directory' and/or 'Polymeric Materials Long-Term Properties Evaluations'.

These data were obtained by testing performed on specific materials and their lifetimes measured by a 50% loss of one of three properties: tensile strength, impact strength, or dielectric strength. The information taken from

the referenced source can be used in the Arrhenius technique and technically justified if the following conditions are met:

- A. The material is known and can be traced to that tested. With respect to polymeric materials, the manufacturer must be the same. Dissimilar manufacturing techniques can yield polymeric materials with slightly different properties. Frequently different batches from the same manufacturing plant can have anomalous characteristics.
- B. The measured property (dielectric strength, etc.) is the parameter applicable to the problem in question.
- C. The material can withstand the design basis accident (DBA) with a 50% reduction in the applicable property."

RESPONSE TO GENERIC ITEM NUMBER 2

- A. NRC IE Bulletin 79-01B established the DOR Guidelines as the criteria for evaluating the qualification and associated documentation of safety-related electrical equipment. The DOR Guidelines state that type testing of equipment identical in design and construction to the installed component is the preferred qualification method, although alternatives are acceptable provided justification is presented. Appendix C of the DOR Guidelines contains a partial listing of materials which may be found in nuclear power plants, along with an indication of the material susceptibility to thermal and radiation aging. Other data sources may be used by the licensee in evaluating the radiation and thermal aging qualification of equipment and materials.

Appendix C shows the generic nature of materials categories. Categories include nylon, silicone rubber, polyethylene, EPR, cross-linked polyethylene, etc. It is clear that by providing these generic categories the NRC is indicating the level of detail to which qualification needs to be established and that a more detailed review is at the licensee's discretion.

- B. Wherever possible, the most applicable data available is used. That is, the test data selected has failure criteria (i.e. tensile or compressive strength, dielectric strength, etc) which most closely correlates to the materials application in the component being evaluated. However, when the only data available is not based on the specific property of interest, use of less directly applicable data can be justified. An example of this would be a component whose critical property is dielectric strength but the only available aging test data is based on flexural strength. This would be valid information to use since it is generally held that mechanical failure precedes electrical failure [1]. Moreover, Underwriters Laboratories (UL) has stated that "When there is no information as to which of the properties (flammability, dielectric strength, flexural strength, etc.) might be the first to degrade to an unacceptable value, complete testing is to be generally carried out for each property. However, where specific properties are known to degrade more rapidly, and the relative thermal index is to be based on these

properties, the other properties in the program are to be measured only at the end point of the property that is tested full scale." The property that degrades most rapidly and is monitored throughout the program is referred to as the primary property. This directly implies that when Arrhenius aging data is based on a 50 percent loss of the primary property, all other properties will retain 50 percent or more of their original values. Thus, it is conservative to use this data for other properties of interest since the primary property is known to degrade more rapidly.

- C. The Institute of Electrical and Electronic Engineers (IEEE) standards do not specify the method of determining end of life, although several alternatives are presented. Fixed property level and percent of unaged property level are two methods that appear to have the most significance in relation to end-use applications. Product design normally involves the factor of safety approach. Therefore, the UL-developed thermal index is based on the assumption that a factor of safety exists in the applicable property design value. UL does not expect that a 50 percent loss of property due to thermal degradation results in premature risk of failure. These considerations have led to a decision by UL to report the end-of-life at each aging temperature as the time at which a property value has decreased to 50 percent of its unaged level [2]. Thus, reasonable assurance exists that the material will withstand the design basis accident (DBA) with a 50 percent reduction in the applicable property because conservative factors of safety are used in standard industry design practices.

REFERENCES

1. EPRI Report NP-1558, "A Review of Equipment Aging Theory and Technology," September 1980.
2. Underwriters Laboratories Standard for Safety, "UL746B Polymeric Materials - Long Term Property Evaluations", Second Edition, June 4, 1979.

ENCLOSURE IIIA

TER Equipment Qualification Open Item Resolutions

Table IIIA on the following pages provides the specific resolution for each equipment qualification open item identified in the TER.

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
TABLE IIIA DIRECTORY

- 1.0 MISCELLANEOUS TER ITEMS
 - 1.1 Indeeco Heater
 - 1.2 Honeywell Moisture Elements
- 2.0 CONTROLS
 - 2.1 Ruggles-Klingeman
 - 2.2 Woodward Governor
- 3.0 ELECTRICAL DISTRIBUTION EQUIPMENT
 - 3.1 Cables
 - 3.1.1 Boston
 - 3.1.2 Kerite
 - 3.1.3 Cerro
 - 3.1.4 Raychem
 - 3.2 Terminal Blocks
 - 3.2.1 Buchanan
 - 3.2.2 General Electric
 - 3.3 Penetrations
 - 3.3.1 General Electric
 - 3.4 Panelboards
 - 3.4.1 General Electric
 - 3.5 Motor Control Centers/Motor Starters
 - 3.5.1 ITE
 - 3.5.2 General Electric
- 4.0 ELECTRO/PNEUMATIC TRANSDUCERS
 - 4.1 Honeywell
- 5.0 MOTORS
 - 5.1 Baldor
 - 5.2 General Electric
 - 5.3 Reliance
 - 5.4 U.S.
- 6.0 MOTOR OPERATORS/ACTUATORS
 - 6.1 Crane/Teledyne
 - 6.2 Limitorque
- 7.0 RADIATION MONITORS
 - 7.1 General Electric
- 8.0 SOLENOID VALVES
 - 8.1 Atkomatic
 - 8.2 ASCO
 - 8.3 Automatic Valve Company
 - 8.4 Target Rock

NEBRASKA PUBLIC POWER DISTRICT
COOPER NUCLEAR STATION
TABLE IIIA DIRECTORY
(Continued)

9.0 SWITCHES: PRESSURE/LEVEL/FLOW/TEMPERATURE/LIMIT/DIFFERENTIAL PRESSURE

- 9.1 Ball
- 9.2 Barksdale
- 9.3 Barton
- 9.4 Burling
- 9.5 Fenwal
- 9.6 Magnetrol
- 9.7 Microswitch
- 9.8 NAMCo
- 9.9 Pressure Controls
- 9.10 Robertshaw
- 9.11 Static-O-Ring
- 9.12 Yarway

10.0 TEMPERATURE ELEMENTS

- 10.1 Burns
- 10.2 Claud S. Gordon
- 10.3 Omega Engineering
- 10.4 Thermo-Electric
- 10.5 Yellow Springs

11.0 TRANSMITTERS: FLOW/LEVEL/DIFFERENTIAL PRESSURE/PRESSURE

- 11.1 General Electric
- 11.2 Honeywell
- 11.3 Milton Roy

1.0 ELECTRICAL EQUIPMENT: MISCELLANEOUS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|---------------------------|---|-------------|---------------|---|--|
| 141 | SGT-HTR-SCHA, -SCHB | Indeeco Electric Coil Heater m/n TFX | I.B | Documentation | Additional information from vendor identified all materials of construction except inter-element cable insulation composition. Modification to replace this with qualified cable will be completed prior to 3/31/85. Item is located in a radiation only harsh environment and qualification is based on material analysis for thermal and radiation aging. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |
| 70 | SGT-ME-533A,B, -535A,B | Honeywell Moisture Element m/n SPP-129D | I.B | Documentation | SGT system analysis and modification to eliminate the safety function of SGT-ME-533A,B will be completed prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. SGT-ME-535A,B removed from master equipment list. Components do not provide a safety function. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required Pending Modification Qualification Not Required |

2.0 CONTROLS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------|--|-------------|---------------|--|-------------------------------|
| 161 | RCIC-ST-3068 | Ruggles-Klingeman Overspeed Trip s/n K60836 | II.A | Documentation | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 162 | HPCI-CHA-2792 | Woodward Governor EGR Control Hydraulic Actuator m/n R-8250-133 | II.A | Documentation | Additional analyses based on vendor information have been performed to resolve the identified deficiency. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 163 | RCIC-CHA-3067 | Woodward Governor Hydraulic Actuator m/n A8250-033 | II.A | Documentation | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 164 | RCIC-CRSM-3067 | Woodward Governor Turbine Control m/n 8250-190 | II.A | Documentation | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 165 | HPCI-CRSM-2792 | Woodward Governor Turbine Control m/n 8250-079 | II.A | Documentation | Item removed from master equipment list. A review of vendor information determined that this is a mechanical equipment item and, therefore not within the scope of the Final Rule, 10CFR50.49. | Qualification Not Required |

2.0 CONTROLS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------|---|-------------|---------------|--|--|
| 166 | HPCI-SC-2792 | Woodward Governor Signal Converter m/n 8271-083 | II.A | Documentation | Additional analyses based on vendor information have been performed to resolve the identified deficiency. A radiation shield enclosure for this component has been designed and will be installed prior to 3/31/85. Upon completion of this modification this item is fully qualified and documentation is available in the CNS EQ Central File. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |
| 167 | RCIC-SC-3067 | Woodward Governor Signal Converter m/n 8271-083 | II.A | Documentation | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 168 | HPCI-CBX-2792 | Woodward Governor EGM Control Box m/n 8270-811 | II.A | Documentation | Additional analyses based on vendor information have been performed to resolve the identified deficiency. A radiation shield enclosure for this component has been designed and will be installed prior to 3/31/85. Upon completion of this modification this item is fully qualified and documentation is available in the CNS EQ Central File. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |

2.0 CONTROLS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------|---|-------------|---------------|--|-------------------------------|
| 169 | RCIC-CBX-3067 | Woodward Governor EGM Control Box m/n 8270-849 | II.A | Documentation | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 170 | HPCI-SE-2792 | Woodward Governor Magnetic Pick-up m/n 1680-622 | II.A | Documentation | Additional analyses based on vendor information have been performed to resolve the identified deficiency. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 171 | RCIC-SE-3067 | Woodward Governor Magnetic Pick-up m/n 1680-622 | II.A | Documentation | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

3.1 ELECTRICAL EQUIPMENT: CABLES

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------|---|-------------|--------------|---|-------------------------|
| 148 | EE-Cable | BIW m/n 993H002 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 149 | EE-Cable | BIW m/n L5S1942B | I.A | None | Qualified | Qualified (Cat. I.A) |
| 150 | EE-Cable | Kerite FR Jacket w/ MTK Insulation | II.A | Similarity | Vendor supplied test report used to evaluate this item in response to a request for qualification documentation applicable to Kerite cable installed at CNS. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 151 | EE-Cable | Cerro Firewall SR Firewall III Pyrotrol III | II.A | Similarity | Firewall SR was qualified based on testing of Firewall SR cable. Model no., materials, and insulation thicknesses were identical, therefore testing is applicable. Firewall III and Pyrotrol III were qualified based on testing of Firewall III cable. Both are chemically crosslinked polyethylene insulated and neoprene sheathed cable. The tested and installed cables are identical in design and material construction. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 152 | EE-Cable | Raychem m/n 10483 | II.A | Similarity | Applicability of Raychem testing is based on the use of identical insulation and jacket materials of same thicknesses in both the test specimen and the installed cable. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

3.2 ELECTRICAL EQUIPMENT: TERMINAL BLOCKS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------|---------------------------------|-------------|---------------------------------|---|-------------------------------|
| 145 | EE-Terminal Block | Buchanan m/n 0514 | II.A | Similarity, Spray, Radiation | Item removed from master equipment list. All safety-related terminal blocks located inside containment have been replaced with fully qualified Weidmuller SAK-series blocks. | Qualification Not Required |
| 146 | EE-Terminal Block | General Electric m/n CR151A6 | II.A | Documentation, Similarity | Item removed from master equipment list. All safety-related terminal blocks located inside containment have been re- placed with fully qualified Weidmuller SAK-series blocks. | Qualification Not Required |
| 147 | EE-Terminal Block | General Electric m/n EB5 | II.A | Aging, Spray, Radiation | Item removed from master equipment list. All safety-related terminal blocks located inside containment have been replaced with fully qualified Weidmuller SAK-series blocks. | Qualification Not Required |

3.3 ELECTRICAL EQUIPMENT: PENETRATIONS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|---|-------------------------------------|-------------|---|--|-------------------------|
| 154 | PC-PENT-X100A, -X100E, -X100F, -X100G, -X100H, -X101A, -X101B, -X101C, -X101D, -X101F, -X102, -X103, -X104A, -X104B, -X104D, -X104E, -X105A, -X105D, -X106, -X230 | General Electric m/n 238X600NSGI | II.A | Similarity, Aging, Spray, Radiation | Vendor has verified test report applicability in documented correspondence for the penetrations installed at CNS. All non-metallic materials were identified and thermal and radiation aging analyses were performed. These items are not subject to direct spray impingement as determined by field inspection. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

3.4 ELECTRICAL EQUIPMENT: PANEL BOARDS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|----------------------------|-----------------------------|-------------|---------------|---|-------------------------|
| 153 | EE-PNL-CPP2, -AA3, -BB3 | General Electric m/n QMR | I.B | Documentation | Environmental qualification testing has recently been completed. This item is fully qualified and documen- tation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

3.5 ELECTRICAL EQUIPMENT:
MOTORS STARTERS/MOTOR CONTROL CENTERS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|---|-------------------------------|-------------|---------------|--|---|
| 134 | EE-STR-250HPCI (ALOP) | General Electric m/n IC406 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat.I.B) |
| 135 | EE-STR-250HPCI (M017) | General Electric m/n IC406 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO for this equipment was provided to the NRC in a letter dated 10/22/82 and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat.I.B) |
| 136 | EE-STR- 250DIV1(M025A) 250DIV2(M025B) 250DIV1(M053A) 250DIV2(M053B) | ITE m/n 17-40330-050 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO for this equipment was provided to the NRC in a letter dated 10/22/82 and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat.I.B) |
| 142 | EE-MCC-K,-S,-Q, -Y,-R,-RB | ITE m/n 9600 | I.B | Documentation | Items will be resolved prior to 3/31/85 by (a) reduction or elimination of external environmental conditions based on leak-before-break analysis or (b) implementation of a purge-air system to control internal environmental response. | Qualification Pending Modifi- cation (Cat.I.B) |
| 144 | EE-MCC-RA | m/n 9600 | | | | |
| 143 | EE-MCC-CA | m/n 5600 | | | A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | |

3.5 ELECTRICAL EQUIPMENT:
MOTORS STARTERS/MOTOR CONTROL CENTERS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|-------------------------------|-------------|---------------|--|---|
| 155 | EE-STR-125RX (M018) | General Electric m/n CR111 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO for this equipment was provided to the NRC in a letter dated 10/22/82 and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Mod- ification (Cat.I.B) |
| 156 | EE-STR-125HPCI (M016) | General Electric m/n CR111 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO for this equipment was provided to the NRC in a letter dated 10/22/82 and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Mod- ification (Cat.I.B) |
| 157 | EE-STR-125HPCI (M017) EE-STR-125HPCI (M058) | General Electric m/n CR111 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO for this equipment was provided to the NRC in a letter dated 10/22/82 and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Mod- ification (Cat.I.B) |
| 158 | EE-STR-125RC1C (M016) | General Electric m/n CR111 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO for this equipment was provided to the NRC in a letter dated 10/22/82 and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Mod- ification (Cat.I.B) |

3.5 ELECTRICAL EQUIPMENT:
MOTORS STARTERS/MOTOR CONTROL CENTERS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|---|-------------------------------|-------------|---------------|--|---|
| 159 | EE-STR-250HPCI (M014, M019, M020, M021, M024, M025) | General Electric m/n IC406 | I.B | Documentation | Item will be replaced with a fully qualified motor starter prior to 3/31/85. A JCO for this equipment was provided to the NRC in a letter dated 10/22/82 and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat.I.B) |
| 160 | EE-STR-125RCIC (M018, M030, M033, M020, M021, M027, M0131) | General Electric m/n CR111 | I.B | Documentation | Item removed from master equipment list. RCIC system is not credited to respond to LOCA and components do not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

4.0 ELECTRO/PNEUMATIC TRANSDUCERS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|------------------------|---------------------------|-------------|---------------|--|---|
| 140 | SGT-EP-546, -543A,B | Honeywell m/n 31201-03 | I.B | Documentation | Item will be replaced with qualified ITT Conoflow units prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modi- fication (Cat.I.B) |

5.0 MOTORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-----------------------------|---|-------------|--|---|---|
| 54 | HPC1-MOT-ALOP | Baldor s/n 1-G-1-7 | II.A | Aging, Qualified Life/ Replacement Schedule, Aging Simulation, Radiation | Additional analyses have been performed to resolve the cited deficiencies. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 55 | REC-MOT-RECP A,B,C,D | U.S. Electric s/n P4298271 P4297550 P4296075 P4297549 | II.A | Similarity, Aging, Qualified Life/ Replacement Schedule, Aging Simulation, Peak Temperature, Peak Pressure, Duration, Profile Envelope, Steam, Radiation | Additional analyses have been performed to resolve the cited deficiencies. Motor lead splice has been replaced with a tested and fully qualified tape wrap. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 56 | HV-MOT-FC-R-1G | U.S. Electric m/n F-1086-02-170 | I.B | Documentation | Item will be replaced with a qualified Reliance motor prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat.I.B) |
| 57 | HV-MOT-FC-R-1H | Reliance s/n P18G12DCW | I.B | Documentation | Item will be replaced with a qualified Reliance motor prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat.I.B) |
| 58 | HV-MOT-FC-R-1J, -1E, -1F | Reliance s/n P18G12DEX P18G11DEW P18G11DOW | I.B | Documentation | Item will be replaced with a qualified Reliance motor prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat.I.B) |

5.0 MOTORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|------------------------|-------------------------------------|-------------|---|---|--|
| 59 | SGT-MOT-EFRE, -EFRF | General Electric m/n 5K254AK2118 | I.B | Documentation | Item will be replaced with a qualified Reliance motor prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modifi- cation (Cat. I.B) |
| 60 | CS-MOT-CSP1A | General Electric m/n 5K6346NC83A | II.A | Similarity, Aging, Qualified Life/ Replacement Schedule, Aging Simulation, Radiation | Additional analyses have been performed to resolve the cited deficiencies. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 61 | CS-MOT-CSP1B | General Electric m/n 5K6346NC83A | II.A | Similarity, Aging, Qualified Life/ Replacement Schedule, Aging Simulation, Radiation | Additional analyses have been performed to resolve the cited deficiencies. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 62 | RHR-MOT-RHRP1A,C | General Electric m/n 5K6346NC74A | II.A | Similarity, Aging, Qualified Life/ Replacement Schedule, Aging Simulation, Radiation | Additional analyses have been performed to resolve the cited deficiencies. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 63 | RHR-MOT-RHRP1B,D | General Electric m/n 5K6346NC74A | II.A | Similarity, Aging, Qualified Life/ Replacement Schedule, Aging Simulation, Peak Temperature, Peak Pressure, Radiation | Additional analyses have been performed to resolve the cited deficiencies. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|--|-------------|--------------|---|--|
| 1 | ACAD-MO-M01301, -M01302, -M01304, -M01306, -M01312 | Límitorque m/n SMB-000 | III.A | None | N/A | Exempt (Cat. III.A) |
| 2 | HPCI-MO-M021 -M025, -M058, -M017, -M020 | Límitorque m/n SMB-00, SMB-1, SMB-3 | I.A | None | HPCI-MO-M021, -M025, -M017, and M020 are fully qualified. HPCI-MO-M058 has been changed out since FRC review. Vendor has been contacted for test report applicability. Item also has a rewind motor which will be replaced with a qualified motor. Docu- mentation and replacement will be completed prior to 3/31/85. See JCO 9 in Enclosure TV. | Qualified (Cat. I.A) Qualification Not Estab- lished (Cat.II.A) |
| 3 | CS-MO-M015A,B RHR-MO-M032 RHR-MO-M0274A,B | Límitorque m/n SMB-0, SMB-000, SMB-2 | II.A | Duration | A systems analysis was per- formed to determine the re- quired operating time of RHR-MO-M032 based on accident functional requirements. It was determined that 1 hour was appropriate and the ap- plicable qualification test data fully envelops the re- quired operating time/accí- dent conditions. This item is fully qualified and docu- mentation is available in the CNS EQ Central File. CS-MO-M015A,B and RHR-MO-M0274A,B have been removed from the master equipment list. This equipment is used to bypass testable check valves and has no required function under either normal or accident operating conditions. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualified (Cat. I.A) Qualification Not Required |

NEBRASKA PUBLIC POWER DISTRICT

Cooper Nuclear Station

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------|-----------------------------------|--------------------------------|----------|---|--|---|
| 4 | HPCI-MO-M015 | Limiterque m/n SMB-1 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 5 | RWCU-MO-M015 | Limiterque m/n SMB-00 | I.B | Documentation | This actuator has been replaced with a Limitorque actuator which is fully qualified. Documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 6 | RR-MO-M053A,B | Limiterque m/n SMB-3 | II.A | Similarity, Aging, Qualified Life/Replacement Schedule, Radiation | Additional analyses based on vendor information have been performed to resolve the identified deficiencies. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 7 | RCIC-MO-M021 | Limiterque m/n SMB-00 | I.A | None | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 8 | RCIC-MO-M016 MS-MO-M077, -M078 | Limiterque m/n SMB-00, SMB-000 | I.A | None | MS-MO-M077, -M078 are fully qualified. RCIC-MO-M016 has a rewind motor which will be replaced with a qualified motor prior to 3/31/85. See JCO 6 in Enclosure IV. | Qualified (Cat. I.A) Qualification Pending Modification (Cat. I.B) |
| 9 | HPCI-MO-M057 | Limiterque m/n SMB-000 | I.A | None | Item removed from master equipment list. Component function is bypass for testable check valve. Item has no function under either normal or accident operating conditions. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|--|-------------|---|--|--|
| 10 | HPCT-MO-M019 | Limiterque m/n SMB-3 | I.A | None | Item has been changed out since FRC review. Vendor has been contacted for test report applicability. Documentation will be completed prior to 3/31/85. See JCO 8 in Enclosure IV. | Qualification Not Estab- lished (Cat.II.A) |
| 11 | RCIC-MO-M027, -M020, -M030, -M018, -M041 | Limiterque m/n SMB-0, SMB-00, SMB-000 | I.A | None | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 12 | RHR-MO-M015A,C -M038A, -M039A, -M034A, -M016A, -M013C | Limiterque m/n SMB-000, SMB-1, SMB-2, SMB-3 | I.A | None | Qualified RHR-MO-M015A has a rewound motor which will be replaced with a qualified motor prior to 3/31/85. See JCO 10 in Enclosure IV. | Qualified (Cat. I.A) Qualification Pending Modi- fication (Cat.I.B) |
| 13 | CS-MO-M026A,B | Limiterque m/n SMB-3 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 14 | RHR-MO-M013A | Limiterque m/n SMB-3 | II.A | Aging, Qualified Life/ Replacement Schedule, Radiation | Additional analyses have been performed to address the identified deficiencies. Field inspection determined that this item does not have teflon insulated lead wires. Item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 15 | RHR-MO-M013B,D | Limiterque m/n SMB-3 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 16 | HPCT-MO-M014 | Limiterque m/n SMB-1 | I.A | None | Qualified | Qualified (Cat. I.A) |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|--|-------------|---|---|--|
| 17 | RHR-MO-MO38B, -MO39B, -MO34B, -MO16B, -MO15B,D | Limatorque m/n SMB-000, SMB-1, SMB-2, SMB-3 | I.A | None | RHR-MO-MO38B, 39B, 34B, 16B, 15D are qualified. RHR-MO-MO15B has a rewind motor which will be replaced with a qualified motor prior to 3/31/85. See JCO 10 in Enclosure IV. | Qualified (Cat. I.A) Qualification Pending Modi- fication (Cat.I.B) |
| 18 | SW-MO-888MV, -889MV | Crane-Teledyne m/n T1-02 | I.B | Documentation | These actuators will be replaced with Limatorque actuators which are fully qualified prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaf- firmed in our 30 day res- ponse, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modi- fication (Cat.I.B) |
| 19 | RHR-MO-MO25A,B | Limatorque m/n SB-3 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 20 | RHR-MO-MO27A,B | Limatorque m/n SMB-4 | I.A | None | Item has been changed out since FRC review. Vendor has been contacted for test report applicability. Docu- mentation will be completed prior to 3/31/85. See JCO 15 in Enclosure IV. | Qualification Not Esta- blished (Cat.II.A) |
| 21 | RHR-MO-MO26A,B | Limatorque m/n SMB-0 | II.A | Aging, Qualified Life/ Replacement Schedule, Radiation | Additional analyses based on vendor information have been performed to address the identified deficiencies. Brake has been determined to have radiation resistant class H coil and is fully qualified. RHR-MO-MO26A is fully qualified and documentation is available in the CNS EQ Central File. RHR-MO-MO26B has a rewind motor which will be replaced with a qualified motor prior to 3/31/85. See JCO 11 in Enclosure IV. | Qualified (Cat. I.A) Qualification Pending Modi- fication (Cat.I.B) |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|-------------------------------------|-------------|---|--|---|
| 22 | RHR-MO-M021A,B -M065A,B, -M066A,B -M012A,B SW-MO-M089A, B | Limiterque m/n SMB-000, SMB-3 | I.A | None | RHR-MO-M021A and SW-MO-M089A,B have been changed out since FRC review. Vendor has been contacted for test report applicability. Documentation will be completed prior to 3/31/85. See JCO's 14 and 16 in Enclosure IV. | Qualification Not Esta- blished (Cat.II.A) |
| | | | | | Balance of equipment in item 22 is fully qualified. | Qualified (Cat. I.A) |
| 23 | REC-MO-702MV REC-MO-709MV | Limiterque m/n SMB-000 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 24 | RWCU-MO-M018 | Limiterque m/n SMB-00 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 25 | RHR-MO-M033 | Limiterque m/n SMB-00 | II.A | Documentation | Additional analyses based on vendor information have been performed to resolve the identified deficiency. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 26 | RHR-MO-M031A | Limiterque m/n SMB-0 | II.A | Aging, Qualified Life/Replacement Schedule, Radiation | Additional analyses based on vendor information have been performed to address the identified deficiencies. Brake has been determined to have radiation resistant class H coil and is fully qualified. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 27 | SW-MO-886MV SW-MO-887MV | Crane-Teledyne m/n T1-02 | I.B | Documentation | These actuators will be replaced with Limitorque actuators which are fully qualified prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaf- firmed in our 30 day res- ponse, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modi- fication (Cat.I.B) |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|-------------------------------------|-------------|--------------|--|--|
| 28 | REC-MO-1329MV | Limiterque m/n SMB-000 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 29 | REC-MO-700MV | Limiterque m/n SMB-000 | II.A | Radiation | Additional analyses based on vendor information have been performed to address the identified deficiencies. Brake has been determined to have radiation resistant class H coil and is fully qualified. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 30 | CS-MO-MO12A, -MO11B | Limiterque m/n SMB-2 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 31 | CS-MO-MO11A REC-MO-695MV, -711MV, -713MV, -714MV, -721MV, -722MV, -712MV | Limiterque m/n SMB-000, SMB-2 | I.A | None | Qualified CS-MO-MO11A has been changed out since the FRC review. Vendor has been contacted for test report applicability. Documentation will be completed prior to 3/31/85. See JCO 5 in Enclosure IV. | Qualified (Cat. I.A) Qualification Not Esta- blished (Cat.II.A) |
| 32 | RCIC-MO-MO131, -MO36A,B | Limiterque m/n SMB-0, SMB-00 | I.A | None | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|------------------------------|------------------------------------|-------------|--------------|--|---|
| 33 | CS-MO-M05A,B CS-MO-M07A,B | Limiterque m/n SMB-00, SMB-0 | II.A | Submergence | <p>Only CS-MO-M05A and -M07A may be subjected to submergence. These items are exempt from submergence qualification based on systems considerations.</p> <p>CS-MO-M07A is fully qualified.</p> <p>CS-MO-M07B has a class B brake coil which will be replaced with a fully qualified radiation resistant class H coil prior to 3/31/85. See JCO 2 in Enclosure IV.</p> <p>CS-MO-M05A has a changed out motor. Vendor has been contacted for test report applicability. Item also has a class B brake coil which will be replaced with a radiation resistant coil. Required actions will be completed prior to 3/31/85. See JCO 1 in Enclosure IV.</p> <p>CS-MO-M05B has a rewind motor which will be replaced with a qualified motor prior to 3/31/85. See JCO 1 in Enclosure IV.</p> | <p>Qualified (Cat. I.A)</p> <p>Qualified (Cat. I.A)</p> <p>Qualification Pending Modification (Cat.I.B)</p> <p>Qualification Pending Modification (Cat.I.B)</p> <p>Qualification Pending Modification (Cat.I.B)</p> |
| 34 | RHR-MO-M017 | Limiterque m/n SMB-2 | I.A | None | <p>Vendor has been contacted to determine insulation class of motor and test report applicability. Documentation will be completed prior to 3/31/85. See JCO 12 in Enclosure IV.</p> | <p>Qualification Not Established (Cat.II.A)</p> |
| 35 | HPCI-MO-M016 | Limiterque m/n SMB-1 | I.A | None | <p>Qualified</p> | <p>Qualified (Cat. I.A)</p> |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|---|---------------------------|-------------|---|--|-------------------------|
| 187 | HPCI-MO-M024 | Limiterque m/n SMB-1 | II.A | Aging, Qualified Life/ Replacement Schedule, Radiation | Additional analyses have been performed to resolve the identified deficiencies. Field inspection determined that this item does not have teflon insulated lead wires. Item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 188 | PC-MO-230MV -231MV, -232MV, -233MV | Limiterque m/n SMB-00 | I.A | None | Qualified | Qualified (Cat. I.A) |
| 189 | ACAD-MO-1303MV, -1305MV, -1308MV, -1310MV, 1311MV | Limiterque m/n SMB-000 | III.A | None | N/A | Exempt (Cat. III.A) |
| 190 | MS-MO-M074 RHR-MO-M018 RHR-MO-M018 | Limiterque m/n SMB-000 | II.A | Duration | A systems analysis was performed to determine the required operating time based on accident functional requirements. It was determined that a 6 day operating time was appropriate. The applicable qualification test data fully envelops the required operating time/accident conditions for both equipment items. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------------------|--------------------------------------|-------------|---|--|--|
| 191 | RCIC-MO-M015 RR-MO-M054A,B | Limiterque m/n SMB-00, SMB-000 | II.A | Documentation, Aging, Qualified Life/ Replacement Schedule, Radiation | Additional analyses based on vendor information have been performed to resolve the identified deficiencies. RCIC-MO-M015 has been changed out since the FRC review. Vendor has been contacted for test report applicability. Documentation will be completed prior to 3/31/85. See JCO 6 in Enclosure IV. Field inspection has determined that RR-MO-M054A,B are not subject to direct spray impingement. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualification Not Estab- lished (Cat.II.A) Qualified (Cat. I.A) |
| 192 | CS-MO-M012B | Limiterque m/n SMB-2 | II.A | Documentation, Radiation | Additional analyses based on vendor information have been performed to resolve the identified deficiencies. It has been determined that the actuator brake has class B coil. This coil will be replaced with a fully qualified radiation resistant class H coil prior to 3/31/85. See JCO 4 in Enclosure IV. | Qualification Pending Modi- fication (Cat.I.B) |
| 193 | RHR-MO-M031B | Limiterque m/n SMB-0 | II.A | Aging, Qualified Life/ Replacement Schedule, Radiation | Additional Analyses based on vendor information have been performed to address the identified deficiencies. Brake has been determined to have radiation resistant class H coil and is fully qualified. This item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

6.0 MOTORIZED VALVE OPERATORS/ACTUATORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------|--------------------------|-------------|---|---|-------------------------------|
| 194 | RCIC-MO-M033 | Limiterque m/n SMB-00 | II.A | Aging, Qualified Life/ Replacement Schedule, Radiation | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

7.0 RADIATION MONITORS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|-----------------------------------|-----------------------------|-------------------------------------|-------------|---------------|--|-------------------------------|
| 137 | RMP-17-333 | General Electric m/n 112C2276G1 | I.B | Documentation | Item removed from master equipment list. Component is service water effluent radiation monitor that provides no safety function in the event of a LOCA or HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 138 | RMP-17-332 | General Electric m/n 117B1681G1 | I.B | Documentation | Item removed from master equipment list. Component is service water effluent radiation monitor that provides no safety function in the event of a LOCA or HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 139 | RMP-17-230A,B,C,D | General Electric m/n 237X831G1 | I.B | Documentation | Item removed from master equipment list. Main steam line high radiation provides indication of fuel element failure. In the event of LOCA or HELB, main steam isolation and reactor scram provided by other signals. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 172- 175 and 177- 186 | RMA-RE-AV1 through -AV19 | General Electric m/n 194X927G012 | I.B | Documentation | Items removed from the master equipment list. These equipment items are located in areas where radiation monitoring is not required. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 176 | RMP-RE-430A | General Electric m/n 194X927G12 | I.B | Documentation | Item removed from master equipment list. A review of the functional requirements of this item has determined that it is only required to operate in a mild environment and, therefore is not within the scope of 10CFR50.49. | Qualification Not Required |

8.0 SOLENOID VALVES

NEBRASKA PUBLIC POWER DISTRICT
Coeber Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|--------------------------|-------------|--------------|--|-------------------------------|
| 36 | RHR-SOV-SV69A,B, -SV70A,B | ASCO m/n 8320A10 | II.A | Similarity | Additional analyses have been performed to address the identified deficiency. RHR-SOV-SV70A,B are in a radiation only harsh environment and qualification is based on thermal and radiation aging analyses of the non-metallic materials of construction. Since no type-test data was used, similarity is not an issue. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I,A) |
| | | | | | RHR-SOV-SV69A, B have been removed from the master equipment list. Components are designed to fail closed on loss of signal. Power to these items is interrupted by the initiation of containment isolation. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 37 | PC-SOV-SPV237, 238, 245, 246 SGT-SOV-SPV546A,B | ASCO m/n 8316B15 | II.A | Similarity | Additional analyses have been performed to address the identified deficiency. These items are in a radiation only harsh environment and qualification is based on thermal and radiation aging analyses of the non-metallic materials of construction. Since no type-test data was used, similarity is not an issue. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I,A) |

8.0 SOLENOID VALVES

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|--------------------------|-------------|--------------|---|--|
| 38 | SGT-SOV-SPV249, 250, 251, 252, 270, 271 | ASCO m/n 8321A6 | II.A | Similarity | Additional analyses have been performed to address the identified deficiency. SGT-SOV-SPV270,271 are in a radiation only harsh environment and qualification is based on thermal and radiation aging analyses of the non-metallic materials of construction. Since no type-test data was used, similarity is not an issue. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| | | | | | SGT-SOV-SPV249, 250, 251, 252 will be replaced with qualified ASCO NP solenoid valves as soon as replacements are received. See JCO 32 in Enclosure IV. | Qualification Pending Modification (Cat.I.B) |
| 39 | PC-SOV-SPV235, 243, 244 SGT-SOV-SPV255, 256 | ASCO m/n LB8344A5 | II.A | Similarity | Additional analyses have been performed to address the identified deficiency. These items are in a radiation only harsh environment and qualification is based on thermal and radiation aging analyses of the non-metallic materials of construction. Since no type-test data was used, similarity is not an issue. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| | | | | | PC-SOV-SPV235 removed from the master equipment list. Item does not provide a safety function for LOCA or HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

8.0 SOLENOID VALVES

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|------------------------|--------------------------|-------------|--------------|--|-------------------------------|
| 40 | REC-SOV-SPV861, 865 | ASCO n/n 8320A21 | II.A | Similarity | Item removed from master equipment list. These valves provide no active post-accident function. Item is deenergized post-accident to its passive position. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 41 | REC-SOV-SPV863 | ASCO n/n 8320A21 | II.A | Similarity | Item removed from master equipment list. These valves provide no active post-accident function. Item is deenergized post-accident to its passive position. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 42 | REC-SOV-SPV864 | ASCO n/n 8320A21 | II.A | Similarity | Item removed from master equipment list. These valves provide no active post-accident function. Item is deenergized post-accident to its passive position. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 43 | REC-SOV-SPV862 | ASCO n/n 8320A21 | II.A | Similarity | Item removed from master equipment list. These valves provide no active post-accident function. Item is deenergized post-accident to its passive position. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

8.0 SOLENOID VALVES

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-----------------------------|--|-------------|---|--|-------------------------------|
| 44 | RHR-SOV-SV80, 81, 95, 96 | Atkomatic m/n 15830 | II.A | Documentation | Item removed from master equipment list. These valves are the normal sample isolation valves for RHR heat exchangers 1A and 1B. These valves are normally closed, must be energized to open, and are automatically deenergized (closed) upon initiation of containment isolation. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 45 | MS-SOV-SV256A-B | ASCO m/n NP8320A193 | I.A | None | Item removed from master equipment list. System modification has resulted in physical removal of this component. | Qualification Not Required |
| 46 | MS-SOV-80A-D | AVCO m/n C5577, C514088, C514048 | II.A | Similarity, Aging, Aging Simulation, Spray, Radiation | Additional analyses based on vendor information have been performed to resolve the identified deficiencies. Cited model numbers are actually mechanical equipment. The 4988-15 solenoid assembly is the only electrical equipment portion of the C5140 manifold assembly and has been evaluated. Test report applicability is verified by the vendor. Materials of construction were identified by the vendor and thermal aging analyses were performed to establish a qualified life. Field inspection has determined that the installed valves are not subject to direct spray impingement. These items have been radiation type-tested in excess of the required dose. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

8.0 SOLENOID VALVES

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--------------------------------------|--|-------------|-------------------|---|--|
| 47 | MS-SOV-86A-D | AVCO w/n C5577, C51408H, C51404H | II.A | Similarity, Aging | See Resolution for TER Item No. 46. | Qualified (Cat. I.A) |
| 48 | RW-SOV-SPV732, 733, 765, 766 | ASCO m/n HI-8345C1 | II.A | Similarity | Additional analyses have been performed to address the identified deficiency. RW-SOV-SPV732,733 are in a radiation only harsh environment and qualification is based on thermal and radia- tion aging analyses of the non-metallic materials of construction. Since no type-test data was used, similarity is not an issue. These items are fully quali- fied and documentation is available in the CNS EQ Central File. RW-SOV-SPV765,766 removed from master equipment list. Components have no active post accident safety function. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualified (Cat. I.A) Qualification Not Required |
| 49 | CRD-SOV-S0117,118 CRD-SOV-S031A,B | ASCO m/n HVA90-405-2A | II.A | Similarity | Additional analyses were performed based on previously not referenced test data to resolve the cited deficiency. The tested and the installed models are identical. DBA steam, high temperature/pres- sure testing was performed. Thermal and radiation aging analyses were based on mate- rials analysis. This item is fully qualified and documen- tation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

8.0 SOLENOID VALVES

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-----------------------------------|--------------------------|-------------|--------------|---|--|
| 50 | CRD-SOV-S029 CRD-SOV-S0140A,B | ASCO m/n WPL8831636 | II.A | Similarity | CRD-SOV-S029 removed from master equipment list. Component used for testing purposes only and their failure could neither prevent or cause a SCRAM. Equipment was reviewed and determined not within the scope of 10CFR50.49. CRD-SOV-S0140A,B have been evaluated using applicable steam test data which was not referenced at the time of FRC's review. Both the installed and tested valves are general service 3-way solenoid valves and the test specimen had a general purpose solenoid enclosure while the installed model is a watertight (submersible) version. No pre-aging or radiation testing was performed. Thermal and radiation aging analyses were based on materials of construction and materials test data. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualification Not Required Qualified (Cat. I.A) |
| 51 | HPCT-SOV-SPV565, 566, 782, 783 | ASCO m/n 8317A29 | II.A | Similarity | Items removed from master equipment list. Components do not perform a safety function in the event of a LOCA or HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 52 | RCIC-AV-SPV780, -781 | ASCO m/n 83126B15 | II.A | Similarity | Item removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

8.0 SOLENOID VALVES

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|-------------|-------------------|--------------------------------|-------------|---------------|--|-------------------------|
| 53 | MS-SOV-SPV71A-H | Target Rock m/n 1/2SMS-A-01 | I.B | Documentation | Test documentation had not been received prior to the FRC review. Vendor has subsequently verified test report applicability. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

9.6 SWITCHES: PRESSURE/LEVEL/LIMIT/
FLOW/TEMPERATURE

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|---------------------------------|--------------------------|-------------|--|---|---|
| 87 | RCIC-PS-87A,B,C,D | Barksdale | II.A | Documentation Similarity, Aging, Qualified Life/ Replacement Schedule | TER Items 87, 90 and 91 have been removed from the master equipment list. RCIC system is not credited to respond to a LOCA and components do not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 88 | HPCI-PS-68A,B,C,D | m/n B2TM12SS, | | | | |
| 89 | RWCU-PS-171A,B | B2TA12SS, | | | | |
| 90 | RCIC-PS-67 | D2HM8OSS, | | | | |
| 91 | RCIC-PS-72A,B | D2HA15OSS | | | | |
| 92 | NBI-PS-51A-D, -52A,C, -55A-D | | | | TER Item 89 removed from the master equipment list. Item provides no safety function for LOCA or HELB or in isolation valve control circuit. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| | | | | | NBI-PS-55A-D and 51A-D of TER Item 92 have been removed from the master equipment list. These switches initiate reactor SCRAM on high pressure but provide no safety function for LOCA or HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| | | | | | A qualified seal assembly will be installed on NBI-PS-52A,C and HPCI-PS-68A,B,C, D prior to 3/31/85 to complete qualification. See JCO's 31 and 29 in Enclosure IV. | Qualification Pending Modification (Cat. I.B) |
| | | | | | For the balance of items listed, additional analyses based on vendor information has been performed to resolve the identified deficiencies. These switches are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

9.0 SWITCHES: PRESSURE/LEVEL/LIMIT/
FLOW/TEMPERATURE

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|----------------------------------|---|-------------|---|--|-------------------------------|
| 93 | PC-PS-12A-D, -100A-D, -101A-D | Static-O-Ring m/n 12NAA4X9TT, 12NBB5NX, 12NAA5X9TT, 12NBB4NX | II.A | Similarity, Aging, Qualified Life/ Replacement Schedule, Radiation, Accuracy | Additional analyses based on vendor information have been performed to resolve the identified deficiencies. Ac- curacies demonstrated during testing have been reviewed and determined to be accep- table for the installed ap- plications. This item is fully qualified and documen- tation is available in the CNS EQ Central File. | Qualified (Cat. IA) |
| 94 | NBI-PS-102A-D | Static-O-Ring | II.A | Similarity, Aging, | TER Item 94 removed from | Qualification |
| 95 | CS-PS-37A, -44A | m/n 9NAA45X9TT, | | Qualified Life/ | master equipment list. These | Not Required |
| 96 | CS-PS-37B, -44B | 5NAA32X, 5NAA3X9STT, | | Replacement Schedule, | switches provide high pres- | |
| 97 | RHR-PS-270 | 6NNY3SITTXC, | | Accuracy | sure trip signal for recirc | |
| 98 | HPCI-PS-85, -97A,B | GNAA21V, 5NAA3X | | | pumps and pumps are not trip- | |
| 99 | HPCI-PS-84-1 | | | | ped as part of reactor SCRAM | |
| 100 | RCIC-PS-88 | | | | therefore, components not re- quired to provide a safety function for a LOCA or HELB. Item was reviewed and deter- mined not within the scope of 10CFR50.49. | |
| | | | | | TER Item 97 removed from master equipment list. Item monitors RHR train A dis- charge pressure and initiates alarm on low pressure. The signal is not safety-related (no action taken based solely on this alarm). Item was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| | | | | | TER Item 100 removed from master equipment list. RCIC system is not credited to respond to a LOCA and compo- nent does not provide safety function for a HELB. Item was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |

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9.0 SWITCHES: PRESSURE/LEVEL/LIMIT/
FLOW/TEMPERATURE

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|-------------------------------------|----------------------------------|-------------|---|---|--|
| | | | | | For the balance of items listed, additional analyses based on vendor information have been performed to resolve the identified deficiencies. Accuracies demonstrated during testing have been reviewed and determined to be acceptable for the installed applications. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 101 | MS-PS-300A-H | Pressure Controls m/n PNA171P | I.B | Documentation | Test data for these items was received after the FRC review. Qualification evaluation has been performed and these items were determined to be fully qualified. Documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 84 | SGT-TS-539A,B | Burling Instruments m/n B-2C | I.B | Documentation | Item will be replaced with a qualified temperature switch prior to 3/31/85. A JCO was provided in the 9/81 SER Response and reaffirmed in our 30-day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |
| 102 | PC-PS-16 | Barton | II.A | Documentation, Similarity, Aging, Peak Temperature, Peak Pressure, Duration | SGT-DPIS-543A,B removed from master equipment list. Item provides alarm for high flow but does not perform a safety function. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 103 | MS-DPIS-116, -117, -118, -119A-D | m/n 288, 288A,289 | | | | |
| 104 | RWCU-DPIS-170A,B | | | | | |
| 105 | RHR-DPIS-125A | | | | | |
| 106 | RHR-DPIS-125B | | | | | |

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9.6 SWITCHES: PRESSURE/LEVEL/LIMIT/
FLOW/TEMPERATURE

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|---------------------|--------------------------|-------------|---|---|--|
| 107 | SGT-DPIS-543A,B | | | | RCIC-FIS-57 removed from master equipment list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 115 | PC-DPIS-516A,B | | | | | |
| 116 | HPCI-DPIS-76, -77 | | | | | |
| 117 | RCIC-DPIS-83, -84 | | | | | |
| 122 | NBI-LIS-101A-D | | | | | |
| 123 | NBI-DPIS-52B,D | | | | | |
| | RCIC-FIS-57 | | | | For balance of items listed, additional analyses based on vendor information have been performed to resolve the identified deficiencies. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 108 | HPCI-TS-101, -102 | Fenwal | II.A | Similarity, | Additional analyses based on vendor information have been performed to resolve the identified deficiencies. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. IA) |
| | -103, -104C,D | m/n 17023-6, | | Peak Pressure, | | |
| 109 | HPCI-TS-125, -126 | 17002-40 | | Radiation, | | |
| | -127, 128A-D | | | Steam Exposure | | |
| 110 | HPCI-TS-101, -102, | | | | | |
| | -103, -104A,B | | | | | |
| 111 | MS-TS-121, -122, | | | | | |
| | -123, -124A-D | | | | | |
| 112 | RWCU-TS-81A-H | | | | | |
| 113 | RCIC-TS-79, -80, | | | | | |
| | -81, -82A-D | | | | | |
| | RHR-TS-150, -152, | | | | | |
| | -153A-D | | | | | |
| 114 | RHR-TS-154, -155, | | | | | |
| | -156, -157, -158, | | | | | |
| | -159, -160, -161A-D | | | | | |
| 118 | NBI-LIS-57A,B, | Yarway | II.C | Aging, | Additional analyses have been performed to resolve the identified deficiencies. Qualification is contingent upon installation of sub-component modifications which will be completed prior to 3/31/85. See JCO 24 in Enclosure IV. | Qualification Pending Modification (Cat.I.B) |
| | -58A,B, -72A-D | m/n 4418C, | | Qualified Life/ Replacement Schedule | | |
| | -83A,B | 4418EC | | | | |
| | NBI-LIS-73A,B | | | | | |

9.0 SWITCHES: PRESSURE/LEVEL/LIMIT/
FLOW/TEMPERATURE

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--|--|-------------|---|--|--|
| 119 | HPC1-L1-91A,B | Robert Shaw m/n 83841A2 | II.C | Aging, Qualified Life/ Replacement Schedule | Additional analyses based on vendor information have been performed to resolve the identified deficiencies. The installed units must have their housings modified for test report applicability. Modification parts have been received from the vendor and will be installed prior to 3/31/85. A qualified life of 30 years plus accident operating time has been determined. Contingent upon completion of mod installation; item is fully qualified and documentation is available in the CNS EQ Central File. See JCO 30 in Enclosure IV. | Qualification Pending Modification (Cat.I.B) |
| 120 | CRD-LS-231A,B, -234A,B | Magnetrol m/n 751 | II.C | Aging, Qualified Life/ Replacement Schedule | Item removed from master equipment list. Failure of this equipment may initiate a SCRAM but component failure will not prevent a SCRAM. Component provides no safety function for a LOCA or HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 121 | SGT-FS-540A,B | Ball Mfg., Inc. m/n 3500S-S | I.B | Documentation | Additional analyses based on vendor information have been performed to resolve the identified deficiency. Item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A.) |
| 124 | SGT-LMS-249, -250 -251, -252, -270, -271AV | NAMCO m/n D2400X-RSR-R, EA740-80100, SL3CB2L, EA17031100 | I.C | Aging, Qualified Life/ Replacement Schedule | Item 124 removed from master equipment list. AOV position is not required for system interlocks or post-accident monitoring. Equipment was | Qualification Not Required |
| 125 | PC-LMS-243, -244AV | | | | | |

(Continued on Next Page)

(Continued on Next Page)

9.0 SWITCHES: PRESSURE/LEVEL/LIMIT/
FLOW/TEMPERATURE

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|----------|--|-----------------------|----------|----------------|--|---|
| 126 | PC-LMS-235, -236, -237, -238, 245 -245AV | | | | reviewed and determined not within the scope of 10CFR50.49. | |
| 127 | SGT-LMS-255, -256AV | | | | PC-LMS-235,236AV removed from master equipment list. Components have no post-accident function. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 131 | HPCI-LMS-782, -783AV | | | | Item 127 removed from master equipment list. Components not required for system interlocks or post-accident monitoring. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| | | | | | Item 131 removed from master equipment list. Component provides no safety function. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| | | | | | For balance of equipment listed, additional analyses have been performed to resolve the identified deficiencies. These items are fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |
| 129 | MS-LMS-A086A-D | NAMCo | II.A | Steam Exposure | Item 133 removed from master list. RCIC system is not credited to respond to a LOCA and component does not provide safety function for a HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 130 | MS-LMS-A080A-D | m/n EA18031302, | | | | |
| 133 | RCIC-LMS-780, -781AV | EA17031100 | | | Items 129 and 130 will have a qualified seal assembly installed prior to 3/31/85 to ensure switch is sealed for steam exposure. See JCO 7 in Enclosure IV. | Qualification Pending Modification (Cat. I.B) |

9.0 SWITCHES: PRESSURE/LEVEL/LIMIT/
FLOW/TEMPERATURE

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| TER Item No. | Component ID Code | Equipment Description | NRC Cat. | Deficiencies | Resolution | Current Status |
|--------------------|--------------------------|-------------------------------|-------------|---|--|-------------------------------|
| 128 | RMR-LMS-70A,B, -63A,B | MicroSwitch m/n OPDAR, OPN | II.C | Aging, Qualified Life/ Replacement Schedule | Item 128 removed from master equipment list. Components are designed to fail closed on loss of signal and power is interrupted by initiation of containment isolation. Also, components perform no safety function post-LOCA or post-HELB. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 132 | HPCI-LMS-A070, -A071 | | | | Additional analyses have been performed for Item 132 to resolve the identified deficiencies. Item is fully qualified and documentation is available in the CNS EQ Central File. | Qualified (Cat. I.A) |

10.0 TEMPERATURE ELEMENTS

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

111A-40

| Item No. | Component ID Code | Equipment Description | MRC Cat. | Deficiencies | Resolution | Current Status |
|----------|--------------------------|---------------------------------------|----------|---------------|--|--|
| 81 | SCT-TE-532A,B -537A,B | Claude S. Gordon n/n 402-3107-001 | I.B | Documentation | Items will be replaced with qualified RTDs prior to 3/31/85. A JCD was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |
| 82 | SCT-TE-533A,B | Burns Engineering n/n 87A10-5.5-3A | I.B | Documentation | SCT system analysis and modification to eliminate the safety function of SCT-TE-533A,B will be completed prior to 3/31/85. A JCD was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification |
| 83 | RS-TE-114A,B,C | Omega Engineering n/n CF-090-T | I.B | Documentation | Items will be replaced with qualified RTDs prior to 3/31/85. A JCD was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |
| 85 | SCT-TE-54 | Thermo Electric n/n AD14TEP | I.B | Documentation | Item will be replaced with qualified RTD prior to 3/31/85. A JCD was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |
| 86 | PC-TE-505, -510A-E | Yellow Springs Instr. n/n 4150 | I.B | Documentation | Items will be replaced with qualified RTDs prior to 3/31/85. A JCD was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat.I.B) |

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

11.4 TRANSMITTERS

| Transmitter No. | Component Id. Code | Equipment Description | MRC Cat. | Deficiencies | Resolution | Current Status |
|-----------------|--------------------|-----------------------------|----------|---------------|---|---|
| 64 | PC-27-417, -11 | Monitor | 1.B | Documentation | Items will be reviewed with a qualified Rosemount 1153 Series B transmitter prior to 3/31/83. | Qualification Pending Modification (Cat. 1.B) |
| 65 | 80C-PT-452 | | | | A JCO was provided in the 9/81 SFR Response and re-affirmed in our 30-day response, dated 1/26/83, to the NRC's Safety Evaluation. | |
| 66 | PC-27-417, -11 | | | | 80C-PT-452 and 80C-PT-473A,B removed from the master equipment list because they are not required in support safety function and are not required for post-accident monitoring. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 70 | 80C-PT-417, -11 | Response 11 | 1.B | Documentation | A JCO was provided in the 9/81 SFR Response and re-affirmed in our 30-day response, dated 1/26/83, to the NRC's Safety Evaluation. Subsequently, it was determined that this item performs only a R.O. 1.97 post-accident monitoring function. Item will be replaced with a qualified Rosemount 1153 Series B transmitter. Qualification will be completed in accordance with our NUREG 0737 Supplement 1 Plan. | Qualification Pending Modification (Cat. 1.B) |
| 68 | 80C-PT-545 | Millian Bay w/o 25244011932 | 1.B | Documentation | Item will be replaced with a qualified transmitter prior to 3/31/83. A JCO was provided in the 9/81 SFR Response and re-affirmed in our 30-day response, dated 1/26/83, to the NRC's Safety Evaluation. | Qualification Pending Modification (Cat. 1.B) |

11.6 TRANSMITTERS

MEHOGA PUBLIC POWER DISTRICT
Cooper Nuclear Station

| Item No. | Component, Tag Code | Equipment Description | MRC Cat. | Deficiencies | Resolution | Current Status |
|----------|---------------------|-----------------------|----------|---------------|---|---|
| 75 | SL1-LT-41 | General Electric | 1.B | Documentation | Items will be replaced with a qualified Rosemount 1153 Series B transmitter prior to 3/31/85. | Qualification Pending Modification (Cat. 1.B) |
| 76 | SPC1-FI-42 | n/a | | | | |
| 26 | 098-FI-109A | | | | | |
| | 58-FI-87A | | | | | |
| 79 | C1-FI-40B | | | | A 300 was provided in the 9/81 SER Response and reaffirmed in our 30-day response, dated 1/24/83, to the NRC's Safety Evaluation. | |
| 80 | CS-FI-40A | | | | | |
| | 50-FI-87B | | | | | |
| | 008-FI-109B | | | | | |
| | | | | | REL-LT-41 removed from the master equipment list because it is operated during refueling to monitor water level over the core and has no required function during either normal or accident operating conditions. Equipment was reviewed and determined not within the scope of 10CFR50.49. | Qualification Not Required |
| 77 | 003C-FI-58 | General Electric n/a | 1.B | Documentation | A 300 was provided in the 9/81 SER Response and reaffirmed in our 30 day response, dated 1/24/83, to the NRC's Safety Evaluation. Subsequently, it was determined that this item performs only a R.C. 1.97/post-accident monitoring function. Item will be replaced with a qualified Rosemount 1153 Series B transmitter. Qualification will be completed in accordance with our MREC 0737 Supplement 1 Plan. | Qualification Pending Modification (Cat. 1.B) |

ENCLOSURE IIIB

Non-TER Equipment Qualification Status

Table IIIB on the following pages provides the current status and proposed resolution plan for equipment items added to the CNS MEL subsequent to the TER.

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

Safety Related Equipment Not Included in TER

| <u>Component ID Code</u> | <u>Equipment Description</u> | <u>Qualification Status</u> |
|--|--|--|
| EE-Terminal Block | Weidmuller Model SAK10 | These items were installed to replace unqualified terminal blocks inside containment. Qualified by type test. Documentation is available in the CNS EQ Central File. |
| EE-Terminal Block | Square D Model 1828 | Item is in a radiation only harsh environment. Qualification is based on materials analyses for thermal and radiation aging. Item is fully qualified. |
| EE-Terminal Block | GE Model CR151A6 (RHR-MO-M015B only) | Equipment to be replaced with qualified units prior to 3/31/85. See JCO 18 in Enclosure IV. |
| EE-Terminal Block (NBI-LIS-101A-D only) | GE Model CR151B | Equipment to be replaced with qualified units prior to 3/31/85. See JCO 24 in Enclosure IV. |
| EE-Terminal Block | GE Model CR151D3 | Qualification is contingent upon upgrading of enclosures. See JCO's 13, 17, 18, 20, 21, 22, 23, and 24 in Enclosure IV. |
| EE-Terminal Block | GE Model EB25 | Qualification is contingent upon determination of tested and installed enclosure configurations. See JCO 19 in Enclosure IV. |
| EE-Terminal Block | Buchanan Model 0241 (Radiation Only) | Item is in a radiation only harsh environment. Qualification is based on materials analyses for thermal and radiation aging. Item is fully qualified. Documentation is available in the CNS EQ Central File. |
| EE-Terminal Block | Buchanan Model 0241 (Harsh Environment) | Equipment to be replaced with qualified units prior to 3/31/85. See JCO's 17 and 18 in Enclosure IV. |
| EE-Cable | Raychem Model 10481 Coax 7521D3330 Coax 7523D1330 Coax 7523D5330 Coax | Qualified by type test. Documentation is available in the CNS EQ Central File. |
| EE-STR-125RX(M077) | GE Model CR111 | Equipment to be replaced with qualified units prior to 3/31/85. A JCO was provided for this equipment in a letter to the NRC dated 10/22/82. |

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

Safety Related Equipment Not Included in TER

| Component ID Code | Equipment Description | Qualification Status |
|--|------------------------------------|---|
| EE-STR-125HPCI(M033) | GE Model CR111 | Equipment to be replaced with qualified units prior to 3/31/85. A JCO was provided for this equipment in a letter to the NRC dated 10/22/82. |
| EE-STR-1302MV -1303MV -1305MV -1311MV | Allen Bradley Bul.205 | Equipment to be replaced with qualified units prior to 3/31/85. See JCO's 25 and 26 in Enclosure IV. |
| EE-STR-1310MV -1308MV | ITE DC Starter | Equipment to be replaced with qualified units prior to 3/31/85. See JCO 25 in Enclosure IV. |
| EE-MCC-CB | ITE Series 5600 | Items will be resolved prior to 3/31/85 by (a) reduction or elimination of external environmental conditions based on leak-before-break analysis or (b) implementation of a purge-air system to control internal environmental response. See JCO 3 in Enclosure IV. |
| HPCI-PS-2787 | Square D Class 9012 Type ACW-22 | Item is in a radiation only harsh environment. Qualification is based on materials analysis for thermal and radiation aging. Item is fully qualified. Documentation is available in the CNS EQ Central File. |
| PC-MO-305MV, 306MV | Limitorque SMB-000 | Qualified by type test. Documentation is available in the CNS EQ Central File. |
| REC-PS-452 | MercoId DSW-7023-804 | Equipment to be replaced with qualified unit prior to 3/31/85. See JCO 27 in Enclosure IV. |
| RHR-MO-MO36A,B | Limitorque SMB-000 | Qualified by type test. Documentation is available in the CNS EQ Central File. |
| RHR-PS-105A,B,C,D RHR-PS-120A,B,C,D | Static-O-Ring | Qualified by type test. Documentation is available in the CNS EQ Central File. |
| RHR-TS-151A,B,C,D | Fenwal 17023-6 | Qualified by type test. Documentation is available in the CNS EQ Central File. |
| RW-LMS-732, 733AV RW-LMS-765, 766AV | Microswitch DTE 6 | Item is in a radiation only harsh environment. Qualification is based on materials analysis for thermal and radiation aging. Item is fully qualified. Documentation is available in the CNS EQ Central File. |

NEBRASKA PUBLIC POWER DISTRICT
Cooper Nuclear Station

Safety Related Equipment Not Included in TER

| <u>Component ID Code</u> | <u>Equipment Description</u> | <u>Qualification Status</u> |
|--------------------------|------------------------------|--|
| SGT-TE-535A,B | Burns Engineering | SGT-TE-535A,B removed from master equipment list. Components do not provide a safety function. Equipment was reviewed and determined not within the scope of 10CFR50.49. |
| SGT-TS-540A,B; 541A,B | Honeywell | Equipment to be replaced with qualified units prior to 3/31/85. See JCO 28 in Enclosure IV. |

ENCLOSURE IV

Justifications for Continued Operation

ENCLOSURE IV

JUSTIFICATIONS FOR CONTINUED OPERATIONS

Component Identification Code: CS-MO-MO5A,B [TER Item 33]

JUSTIFICATION
FOR CONTINUED
OPERATION 1:

The purpose of the core spray system is to protect against fuel overheating in the event that the core is uncovered by the loss of coolant following a break or rupture in the reactor systems inside containment. The core spray system automatically starts on reactor vessel low level or primary containment high pressure in conjunction with low reactor vessel pressure. The system is designed to provide water to the reactor vessel once the vessel pressure is below 450 psig.

The subject valves are normally positioned open to bypass core spray pump flow to the suppression pool in order to protect the pumps from operating against their shut off head. These valves are designed to automatically close to direct all available pump flow to the reactor vessel if the flow to the reactor vessel exceeds a set point.

By design, the CS system will begin spraydown of the core in the event of an accident once the reactor vessel pressure drops below 450 psig . If valves CS-MOV-MO5A and CS-MOV-MO5B fail to close, the system would still supply water to the reactor vessel but at a reduced rate, and the additional water inventory could be made up with the LPCI mode of RHR system. If the valves close, it would not be necessary to reopen them until after the accident had been mitigated and the plant was ready to startup.

On the basis of the discussion provided above, we believe there is a sound engineering basis exists for the continued operation of the plant until CS-MOT-MO5A is qualified (based on information requested from the vendor) or replaced, and until CS-MOT-MO5B is replaced with a fully qualified motor. These activities will be completed prior to March 31, 1985.

Component Identification Code: CS-MO-MO7B [TER Item 33]

JUSTIFICATION
FOR CONTINUED
OPERATION 2:

These valves are normally open and are required to stay open following an accident. These valves do not automatically open or close following an accident. Therefore, it can be concluded that these valves will stay open and the core spray pumps will take suction from the suppression pool.

In the highly unlikely event that valve CS-MOV-MO7A closes due to submergence associated with a (HELB) feedwater line break, flow via CS Train B and CS-MOV-MO7B would still be available because radiation due to the line break will not be significant and flooding of B Train equipment does not occur. For the LOCA conditions, which may result in a high radiation

environments, failure of the brake on CS-MOV-MO7B, will only lock the motor operator in the open position, which is the desired post accident position.

On the basis of the discussion provided above, we believe there is a sound engineering basis for the continued operation of the plant until the CS-MO-MO7B motor brake coils are replaced. This will be completed prior to March 31, 1985.

Component Identification Code: EE-MCC-CB [Non-TER Item; See Encl. IIIB]

JUSTIFICATION
FOR CONTINUED
OPERATION 3:

Motor control center EE-MCC-CB consists of individual fused disconnects and motor starters for ACAD-MO-1301MV, ACAD-MO-1312MV, ACAD-COMP-1B, and ACAD-COMP-1D. Failure of any one of these components will not affect the balance of the electrical distribution system and would not cause degradation of containment integrity due to operation of equipment within the ACAD system.

Valves ACAD-MOV-MO1301 and MOV-MO1312 are the outboard containment isolation valves for the B Train portion of the ACAD system. Together with the inboard valves, ACAD-MOV-MO1302 and MOV-MO1311, they perform the containment isolation function for the ACAD penetrations. The inboard valves are powered by the plant's safety related DC buses. Therefore, should the breaker for ACAD-MOV-MO1301 or MOV-MO1312 motor operators close in the direction to cause the valves to open, the presence of ACAD-MOV-MO1302 or MOV-MO1311 will preclude breaching of containment integrity which, for a high energy line break (HELB) inside the reactor building, is sufficient since concurrent fuel and piping failure inside containment is not assumed. The distribution center for valves ACAD-MOV-MO1302 and MOV-MO1311 is on different elevation than the elevation on which EE-MCC-CB is located. Therefore, it is not affected by the HELBs which affect EE-MCC-CB.

Energization of ACAD compressors 1B and 1D will result in pressurizing the ACAD piping up to flow control valves FCV-2102B and 2103B. When the pressure exceeds the setpoint of relief valves RV-1238 and 1942 they will open and unload the compressors. Since piping associated with the ACAD system is rated above the setting of the relief valves, potential cycling of the compressors and relief valves does not present a system problem.

On the basis of the discussion provided above, we believe there is a sound engineering basis for the continued operation of the plant until EE-MCC-CB is qualified. This is scheduled for completion prior to March 31, 1985.

Component Identification Code: CS-MO-MO12B [TER Item 192]

JUSTIFICATION FOR CONTINUED OPERATION 4: Valve CS-MOV-MO12B is normally closed and is opened automatically upon receiving core spray system automatic initiation signal. Once opened, the valve should stay open to provide a path for supplying water to the reactor vessel. Under LOCA conditions, the valve will be open prior to experiencing a harsh radiation environment. The failure of the brake coil will lock the valve stem/motor shaft and prevent any further change in the valve position. If the brake coil fails when the valve is in closed position, the other loop of the core spray system will be available for supplying the water to reactor vessel since the valve operator, CS-MO-MO12A, in loop "A" is completely qualified. If the CS-MO-MO12B motor brake coil fails when the valve is in open position, core spray system operation will be unaffected since the valve's safety related position is open.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the CS-MO-MO12B motor brake coils are replaced. This will be completed prior to March 31, 1985.

Component Identification Code: CS-MO-MO11A [TER Item 31]

JUSTIFICATION FOR CONTINUED OPERATION 5: The valve's normal and safe shutdown position is open. The valve does not have to perform any active function in mitigating an accident condition.

If the valve fails closed, the redundant B Train of the core spray system will provide water to the reactor vessel.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until CS-MO-MO11A is qualified (based on test report applicability information requested from the vendor), or replaced. These activities will be completed prior to March 31, 1985.

Component Identification Codes: RCIC-MO-MO15 [TER Item 191]
RCIC-MO-MO16 [TER Item 8]

JUSTIFICATION FOR CONTINUED OPERATION 6: These motor operators are in series and provide containment integrity for the RCIC steam line during accident conditions. These motor operators are required to operate within one hour of the accident to close the valves and thereby provide containment integrity.

Outboard Motor operator RCIC-MO-MO16 can be postulated to fail during HELB accidents. In this case, motor operator RCIC-MO-MO15, located in the drywell, will be able to close, as it will not be exposed to any harsh environment. Since the

integrity of the reactor vessel and piping systems inside containment will not be breached, single valve containment isolation is adequate.

In the event of a LOCA, the inboard motor operator RCIC-MO-MO15 can be postulated to fail. Motor operator RCIC-MO-MO16, which has a rewound motor for which no qualification data is available, will provide containment integrity. This motor operator is located in the steam tunnel and experiences a significant radiation dose (5 rads/hour) during normal power operation. The rewound motor was installed in 1974 and as per surveillance requirements, has been successfully tested at least once every 30 days since then. At the rate of 5 rads/hour the motor operator has been exposed to approximately $4.3E05$ rads, 10 years @ 5 rads/hour, and has demonstrated its operability. Per NEDO-24274 (August 1980), the maximum post-LOCA dose rate in the steam tunnel is 160 rads/hour, which is equivalent to 32 times the normal operational dose rate. In the one hour post-accident period that the operator RCIC-MO-MO16 would have to operate, it would experience an additional exposure of 160 rads or the equivalent of an additional 32 hours of normal operation. Since the operator has been functioning properly so far, it is reasonable to conclude that motor operator RCIC-MO-MO16 will function during LOCA conditions and will maintain containment integrity.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until RCIC-MO-MO15 is either qualified (based on test report applicability information requested from the vendor) or replaced, and until the motor on RCIC-MO-MO16 is replaced with a fully qualified motor. These activities will be completed prior to March 31, 1985.

Component Identification Codes: MS-LMS-A086A,B,C,D [TER Item 129]
MS-LMS-A080A,B,C,D [TER Item 130]

JUSTIFICATION
FOR CONTINUED
OPERATION 7:

These limit switches are susceptible to failure due to steam environment. These limit switches provide inboard and outboard main steam isolation valves position in the control room and are required to provide indication for one hour following the accident. For LOCA conditions, the outboard isolation valve limit switches MS-LMS-A086A,B,C,D would not be exposed to the steam environment and hence will provide proper position indication. For HELB conditions, the inboard isolation valve limit switches MS-LMS-A080A,B,C,D would not be exposed to steam environment and hence will provide proper position indication.

On the basis of discussion provided above, we believe there is a sound engineering basis for continued plant operation until the installation of conduit penetration seals on the conduit

to MS-LMS-A086A,B,C,D and MS-LMS-A080A,B,C,D. This will be completed prior to March 31, 1985.

Component Identification Code: HPCI-MO-M019 [TER Item 10]

JUSTIFICATION
FOR CONTINUED
OPERATION 8:

This valve is normally closed and is opened automatically upon receiving HPCI system automatic initiation signal. Once opened, the valve should stay open during HPCI system operation following an accident. In the event of an accident, the valve will be opened prior to experiencing any harsh environment. During a small break LOCA, the system provides water makeup inventory to the reactor vessel and depressurizes it so that the low pressure systems (CS and LPCI) can provide water makeup inventory to the reactor vessel. For the large break LOCA, the reactor vessel will be depressurized and operation of HPCI system may not be required. In case the motor operator fails and does not open the valve, the plant operator can depressurize the reactor vessel using the Automatic Depressurization System and use the CS system to provide water makeup inventory to the reactor vessel.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until HPCI-MO-M019 is either qualified (based on test report applicability information requested from the vendor) or replaced with a fully qualified operator. This will be completed prior to March 31, 1985.

Component Identification Code: HPCI-MO-M058 [TER Item 2]

JUSTIFICATION
FOR CONTINUED
OPERATION 9:

The valve is normally closed and is automatically opened either by high water level in the suppression pool or low water level in the condensate storage tank. Initially, the HPCI system takes its suction from the condensate storage tank and switches over to suppression pool after exhausting condensate storage inventory.

The subject motor operator does not experience high pressure or temperature conditions at its present location. The only harsh parameter is radiation. However, the motor operator will be exposed to high radiation from the recirculation fluid only after the valve is opened. Since it will not be exposed to harsh radiation conditions until it has opened the valve, it can be safely concluded the valve would open and provide its intended safety function.

In the highly unlikely situation that the motor operator fails to open the valve, the plant operator can depressurize the reactor vessel using Automatic Depressurization system and use the CS system to provide water to the reactor vessel.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the actuator is qualified (based on test report applicability information requested from the vendor) or replaced, and until the motor on this operator is replaced with a fully qualified motor. These activities will be completed prior to March 31, 1985.

Component Identification Code: RHR-MO-MO15A, B [TER Items 12 and 17]

JUSTIFICATION FOR CONTINUED OPERATION 10: Valves RHR-MOV-MO15A, 15B, 15C, and 15D are normally closed and are interlocked with the RHR suction valves from the torus. These valves are operated as part of aligning the RHR system to the reactor vessel when initiating long term shutdown core cooling. These valves do not perform any active functions during accident mitigation. If these valves fail to open while aligning for long term shutdown cooling following an accident, alternate means are available to provide long term cooling. Water from the reactor vessel can be directed to the suppression pool by opening one or more ADS valves and flooding the reactor. The RHR pumps can then take suction from the suppression pool through fully qualified suction valves RHR-MOV-MO13A,B,C,D.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the motors on RHR-MO-MO15A and B are replaced with fully qualified motors. This will be completed prior to March 31, 1985.

Component Identification Code: RHR-MO-MO26B [TER Item 21]

JUSTIFICATION FOR CONTINUED OPERATION 11: The valve is normally closed and will be automatically closed by primary containment isolation signal. The valve does not have any automatic opening function during accident conditions. If the valve operator fails when the valve is in closed position, it would not have any adverse impact, as the close position is intended safety position.

Additionally, there is a fully qualified valve operator, RHR-MO-MO31B, in series with RHR-MO-26B, which will provide a redundant means of containment isolation.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the motor RHR-MO-MO26B is replaced with a fully qualified motor. This will be completed prior to March 31, 1985.

Component Identification Code: RHR-MO-MO17 [TER Item 34]

JUSTIFICATION
FOR CONTINUED
OPERATION 12:

This valve is normally closed and if open will automatically close upon receiving isolation signal. This valve does not have any active function during accident conditions. The valve is required to open for long term shutdown cooling. If this valve fails to open, the plant operator has alternate means available for providing long term cooling. Water from the reactor vessel can be directed to the suppression pool by opening one or more ADS valves and flooding the reactor. The RHR pumps can then take suction from the suppression pool through fully qualified suction valves RHR-MOV-MO13A,B,C,D.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the existing motor is qualified (based on test report applicability information requested from the vendor), or replaced with a fully qualified motor. This will be completed prior to March 31, 1985.

Component Identification Code: EE - Terminal Block Model GE CR151D3 For
HPCI-PS-84-1
HPCI-PS-85
HPCI-PS-97A,B
HPCI-PS-68A,B,C,D
HPCI-DPIS-76,77
HPCI-FT-82

JUSTIFICATION
FOR CONTINUED
OPERATION 13:

G.E. model CR151D3 terminal blocks which are used with HPCI instrumentation can be divided into two categories: instruments associated with HPCI steam line isolation; and instruments associated with HPCI system operation and shutdown. Of the HPCI instruments being considered, HPCI-DPIS-76 and 77 are associated with HPCI steam line isolation. These instruments experience a harsh environment in the event of a HPCI steamline break and must function within the initial minute to sense the steam line break, trip the HPCI turbine, and close valves HPCI-MOV-MO15 and HPCI-MOV-MO16. If the terminal blocks associated with either of these instruments shorts due to the relative humidity associated with the line break this is equivalent to indicating a high steam line flow rate. Therefore, shorting of terminal blocks due to a HPCI steam line break is failure in the safe direction for HPCI-DPIS-76,77. Failure of the terminals blocks due to other HELBs within the the reactor building is acceptable since the HPCI system is not needed initially following the break.

HPCI instrumentation associated with operation and shutdown consists of HPCI-PS-68A,B,C,D;-PS-84-1; -PS-85; -PS-97A,B and -FT-82. The pressure switches instruments are associated with the non accident shutdown of the HPCI turbine. Failure of these instruments or associated terminal blocks due to a

harsh environment associated with a HPCI HELB, is enveloped by the shutdown of the HPCI system caused by the line break. In the event of other HELB's inside the reactor building, failure of the instruments or associated terminal blocks is acceptable since the HPCI system is not needed initially following the break.

If subsequent HPCI operation is desired, the turbine trip logic can be manually reset by the plant operator in the control room.

On the basis of discussion provided above, we believe there is a sound engineering basis for continued plant operation unit until the enclosures for these terminal blocks are upgraded. This will be completed prior to March 31, 1985.

Component Identification Code: RHR-MO-MO21A [TER Item 22]

JUSTIFICATION FOR CONTINUED OPERATION 14: This valve's normal and safe shutdown position is closed. If the valve is open, it will be automatically closed by ECCS signal. The valve does not have any active function in mitigating an accident condition. If the operator fails when the valve is in the closed position, there will not be any impact on the safe shutdown of the plant as the closed position is the intended safe position. As the valve is normally closed and will automatically close if open, it is very highly unlikely that the valve will fail open. However, if it does fail open, it will bypass a small amount of flow to the suppression chamber. The bypass line size is 4 inch as compared with 24 inch line which provides flow to the reactor vessel.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until this valve operator is qualified (based on test report applicability information requested from the vendor), or replaced with a fully qualified operator. This will be completed prior to March 31, 1985.

Component Identification Code: RHR-MO-MO27A, B [TER Item 20]

JUSTIFICATION FOR CONTINUED OPERATION 15: These valves are normally open and if closed, will automatically open upon receiving LPCI initiation signal. The valves do not have any automatic closing function in mitigating an accident condition. If the operator fails when the valves are in the open position, there will not be any impact on the safe shutdown of the plant as the open position is intended safe shutdown position.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until these valve operators are qualified (based on

test report applicability information requested from the vendor), or are replaced with fully qualified operators. This will be completed prior to March 31, 1985.

Component Identification Code: SW-MO-M089A,B [TER Item 22]

JUSTIFICATION
FOR CONTINUED
OPERATION 16:

These motor operated valves are only needed when the RHR system is in the shutdown cooling mode of operation. The RHR system would not be placed in operation until some time after the HELB had been isolated and the plant had completed a normal shutdown and cool down to the point of initiating long-term shutdown core cooling. If these motor operated valves fail, they could be manually opened for the long-term shutdown.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until these valve operators are qualified based on test report applicability information requested from the vendor, or are replaced with fully qualified operators. This will be completed prior to March 31, 1985.

Component Identification Codes: EE - Terminal Block Model Buchanan 0241 For
PC-PT-513
EE - Terminal Block Model GE CR151D3 For
PC-PT-512A,B
PC-PS-12A,B,C,D
PC-PS-16

JUSTIFICATION
FOR CONTINUED
OPERATION 17:

Inerting with nitrogen is done in order to minimize the potential for a hydrogen explosion inside the containment following a LOCA which had significant fuel damage and subsequent hydrogen release. The event which exposes the terminal block associated with PC-PT-513 to 100% relative humidity is a high energy line break in the reactor building, which is not a LOCA and which does not pose a threat of hydrogen explosions inside the containment. Failure of PC-PT-513 would, at most, result in increasing the nitrogen pressure within the the containment which will not affect plant safety.

The fully qualified containment drywell pressure-high switches PC-PS-12A,B,C,D and PC-PS-16 are associated with initiation of a reactor trip, initiation of ECCS equipment, or annunciation of a high pressure in the drywell. As such, their proper performance in the event of a HELB in the reactor building is to not fail in a manner which prevents responding to the HELB. Failure of the intervening terminal block for two or more of the four pressure switches, PC-PS-12A,B,C,D, will initiate a reactor scram, which is in the safe direction for the plant.

Failure of the terminal block associated with fully qualified PC-PS-16, due to high humidity following a HELB in the reactor building, would result in a spurious annunciation of high drywell pressure. The containment pressure transmitters PC-PT-512A and 512B provide the operator indication of drywell pressure. Spurious pressure indication by PC-PT-512A, -512B or spurious annunciation following the occurrence of a HELB in the reactor building has been identified in the plant Emergency Operating Procedures.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until pressure transmitters PC-PT-512A,B and -513 are replaced with fully qualified Rosemount units and remaining PC instrument terminal block enclosures are sealed. This will be completed prior to March 31, 1985.

Component Identification Codes: EE - Terminal Block Model GE CR151D3 For
RHR-FT-109A,B
RHR-PS-105A,B,C,D
RHR-PS-120A,B,C,D
EE - Terminal Block Model GE CR151A6 For
RHR-MO-MO15B

JUSTIFICATION
FOR CONTINUED
OPERATION 18:

The RHR flow transmitters RHR-FT-109A and 109B provide flow indication to the control room. If these flow transmitters fail and provide spurious indication in the control room, the plant operator can verify the proper RHR system operation by monitoring the reactor vessel water level and RHR system status indications.

Fully qualified RHR pump discharge pressure switches RHR-PS-105A,B,C,D and 120A,B,C,D provide interlocks to the Automatic Depressurization System. The instruments and associated terminal blocks are exposed to the same line breaks as the other RHR instruments. Failure of two of the Train A terminal blocks by shorting and a simultaneous similar failure of two of the Train B terminal blocks would result in energizing part of the Automatic Depressurization System (ADS) logic. However, completion of the relay logic and opening of the ADS valves also requires that instruments PC-PS-100A,B,C,D, NBI-LIS-72A,B,C,D, and NBI-LIS-83A,B fail. Since the PC-PS-100 series of instruments and its associated spliced connections are qualified, the ADS valves will not open.

The motor for RHR operator RHR-MO-MO15B has been justified based on the valves being normally closed and opened only when aligning the plant for long term shutdown core cooling. Since the motor operator would not be operated immediately following the event and, if subsequently used when aligning for long term shutdown core cooling, motor operator failure caused by the associated terminal board being exposed to a harsh environment would not prevent use of the B Train flow path since the valve can still be manually positioned.

On the basis of the discussions provided above, we believe there is a sound engineering basis for continued plant operation until RHR-FT-109A,B are replaced with fully qualified Rosemount transmitters and remaining RHR terminal block enclosures are sealed. This will be completed prior to March 31, 1985.

Component Identification Code: EE - Terminal Block Model GE EB25 For
RWCU-DPIS-170A, 170B

JUSTIFICATION
FOR CONTINUED
OPERATION 19:

In the event that the HELB is a RWCU line break, failure of the terminal blocks by shorting is equivalent to indicating a high differential pressure, i.e., a high flow rate, and would cause the RWCU system to isolate itself which is the desired action. Similar action in the event of other HELBs is acceptable since isolation of the RWCU system does not affect the safety of the plant.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the subject terminal block enclosures are sealed. This will be completed prior to March 31, 1985.

Component Identification Code: EE - Terminal Block Model GE CR151D3 For
CS-PS-44A,B
CS-PS-37A,B

JUSTIFICATION
FOR CONTINUED
OPERATION 20:

The core spray (CS) system is needed immediately only in the event of a large break LOCA. These instruments and their associated terminal blocks are exposed to a harsh environment due to a HELB inside the reactor building. Shorting of the terminal blocks associated with fully qualified CS-PS-44A, 44B, 37A or 37B would satisfy one of the four conditions needed to activate the automatic depressurization system. However, the ADS valves would not be opened because two of the three necessary concurrent conditions would not be present (containment high pressure and reactor vessel low level signal) because pressure switches PC-PS-100A,B,C,D and their associated spliced connections are fully qualified.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until CS-FT-40A,B are replaced with fully qualified Rosemount transmitters and CS-PS-44 and -37 terminal block enclosures are sealed. This will be completed prior to March 31, 1985.

Component Identification Code: EE - Terminal Block Model GE CR151D3 For
RCIC-DPIS-83,84

JUSTIFICATION FOR CONTINUED OPERATION 21: Fully qualified instruments RCIC-DPIS-83 and 84 are associated with detecting a break in the RCIC steam line to the RCIC pump turbine. They are exposed to a harsh environment when the RCIC line breaks but in this case failure by shorting of the terminal blocks is equivalent to indicating a line break and is the desired action. In the event of other HELBs inside the reactor building, the shorting of the terminal blocks would again cause the RCIC steam line containment isolation valves to close. Since no credit is taken for the RCIC system in shutting down the plant following a HELB, this action does not effect the safety of the plant.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the subject RCIC instrument terminal block enclosures are sealed. This will be completed prior to March 31, 1985.

Component Identification Code: EE - Terminal Block Model GE CR151D3 For
SW-FT-97A,B

JUSTIFICATION FOR CONTINUED OPERATION 22: The service water (SW) flow transmitters are only needed when the RHR system is in the cooldown mode of operation. The RHR system would not be placed in operation until some time after the HELB had been isolated and the plant had completed a normal shutdown and cool down to the point of initiating long term shutdown core cooling. By this time if any residual condensation is left inside the instrument or on the terminal block, the spurious operation of the instrument could be corrected by drying the instrument or the block with compressed air.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the subject SW instruments are replaced with fully qualified Rosemount transmitters and until the associated instrument terminal block enclosures are sealed. This will be completed prior to March 31, 1985.

Component Identification Code: EE - Terminal Block Model GE CR151D3 For
MS-DPIS-116A,B,C,D
MS-DPIS-117A,B,C,D
MS-DPIS-118A,B,C,D
MS-DPIS-119A,B,C,D

JUSTIFICATION FOR CONTINUED OPERATION 23: The function of MS-DPIS-116A-D through MS-DPIS-119A-D is to detect a break in one of the main steam line pipes inside the steam tunnel or the turbine building and, if detected, to initiate main steam line isolation. The logic utilizes normally closed switches which open to indicate a high steam flow condition. Failure of the terminal blocks associated

with these fully qualified DPISs, by shorting due to the 100% R.H. of a HELB inside the reactor building, would disable one method of initiating main steam isolation. Due to location of the terminal blocks, these switches will be able to open prior to experiencing high humidity environment due to main steam line break inside the steam tunnel. If however they should fail to initiate isolation, isolation could still be achieved via fully qualified, high temperature instrumentation as well as by manual actuation.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued plant operation until the subject instrument terminal block enclosures are sealed. This will be completed prior to March 31, 1985.

Component Identification Codes: EE - Terminal Block Model GE CR151B For
NBI-LIS-101A,B,C,D
EE - Terminal Block Model GE CR151D3 For
NBI-DPIS-52B,D
Instruments and Associated EE - Terminal
Block Model GE CR151D3 For
NBI-LIS-57A,B
NBI-LIS-58A,B
NBI-LIS 83A,B
NBI-LITS-73A,B
Instruments NBI-LIS-72A,B,C,D

JUSTIFICATION
FOR CONTINUED
OPERATION 24:

The purpose of these switches is to sense the conditions within the reactor vessel and initiate the corresponding automatic actions. The first instruments, NBI-LIS-101A,B,C,D are used to (1) isolate the HPCI steam line when a high level condition exists within the reactor vessel, (2) initiate a reactor trip on low reactor vessel water level if it has not already been tripped, and (3) isolate the RHR shutdown cooling and containment spray valves. If, due to a HELB, the instrument or their associated terminal blocks shorted, indicating an abnormal condition inside the RV, then a reactor scram would be initiated, the open circuits for the HPCI steam line valves would be isolated, and the RHR shutdown cooling mode suction isolation and containment spray isolation valves would close. However, since initial RV inventory makeup could be supplied via the RFW system and once the HELB had been isolated and the decision had been made to cool the plant down via several combinations of RCIC, ADS, CS and RHR system, the failure of these instruments and/or their associated terminal blocks does not affect plant safety.

Level Instruments NBI-DPIS-52B,D provide signals to close the reactor recirculation inlet and outlet valves and enable opening the CS injection discharge valves. Their failure due to shorting in the event of a HELB inside the reactor building will complete part of the circuits needed to open the CS

injection valves. The valves will not open unless either the valve's control switch is in the "OPEN" position or the CS system has been automatically started on reactor vessel low water level or containment high pressure. Even if the circuit is completed and valves CS-MO-MO12A and MO12B open, the CS system is protected from Reactor vessel pressure by check valves CS-V-684AV and -678AV, until the vessel pressure has decreased to below CS pump discharge pressure. The closure of the reactor recirculation (RR) valves is acceptable since one of the immediate actions in the event of a HELB inside the Reactor building is to check that the reactor has been scrammed, and the recirculation pumps deenergized.

Level instruments NBI-LIS-57A,B and LIS-58A,B provide signals to the main steam isolation system to close the MSIV's on Low Low RV water level. Failure of the instruments or their associated terminal blocks due to shorting is equivalent to indicating an acceptable water level within the RV. Their exposure to the 100% RH of a HELB inside the reactor building is acceptable since automatic main steam isolation is not required except in the case of a break in the main steam or feedwater piping. In these two cases other qualified sensors are available to initiate main steam line isolation.

Level instruments NBI-LIS-72A,B,C,D provide reactor vessel low level signals to initiate the HPCI, RCIC, CS and RHR systems. The failure of instruments NBI-LIS-72A,B,C,D would not initiate the ADS system because the high containment drywell pressure signal would not be present due to qualified PC-PS-100A,B,C,D instruments and their associated qualified spliced connections. The failure of instruments NBI-LIS-72A,B,C,D may initiate HPCI, RCIC, CS and RHR systems. If these systems are initiated, HPCI system will provide water makeup inventory to the reactor vessel and will be automatically isolated by the high reactor vessel water level. The low pressure systems (RHR system and CS system) will be operating in minimum bypass flow mode. The operator can take appropriate actions and bring the plant to safe shutdown.

Reactor vessel water level low instruments NBI-LIS-83A, and B provide signals to the ADS logic. Failure of the instrument or its associated terminal block due to the 100% RH associated with a HELB inside the reactor building is acceptable because spurious operation of the ADS system is not possible without the presence of concurrent low reactor vessel water level and high containment drywell pressure via instruments NBI-LIS-72A,B,C,D and PC-PS-100A,B,C,D.

The reactor vessel shroud high water level instrument, NBI-LITS-73A,B, provides an interlock to the RHR containment spray mode valves RHR-MV-510,-511,-514,-515,-516 and MV-520,-521,-524,-525,-526. Failure of the switches or their associated terminal blocks due to the 100% RH of a HELB inside

the reactor building would not affect the RHR system unless it was already in service. Failure of an instrument or its terminal block results in disabling the automatic open circuit for one train of valves and completing part of the corresponding closure circuit but valve motion does not occur since the manual "containment spray reset" pushbutton in the control room is not assumed to have failed. Since the valves would normally be closed prior to a HELB, even spurious actuation in the closed direction is acceptable.

On the basis of the discussion provided above, we believe there is a sound engineering basis for the continued operation of the plant until the NBI terminal block junction boxes are sealed and NBI instrument subcomponent modifications are installed. This will be completed prior to March 31, 1985.

Component Identification Codes: EE-STR-1302,-1308,-1310,-1311
[Non-TER Item; See Encl IIIB]

JUSTIFICATION FOR CONTINUED OPERATION 25: Failure of the motor starters associated with ACAD-MO-1302,1308,1310 and 1311 due to 100% RH from a HELB inside the reactor building would result in either the valves being repositioned or the breaker isolating itself. The breakers are sized so that their failure would occur before tripping the MCC feeder breaker. The later action is acceptable since the ACAD system is normally isolated from the primary containment and no valve operation is required in the event of a HELB. If the motor starters failed causing the valves to open aligning the ACAD system to the containment, the ACAD would become part of the containment boundary. Since the ACAD system is a closed system and since the initiating event, a HELB inside the reactor building does not result in the release of fission products to the inside of containment and therefore require containment isolation, this is acceptable.

On the basis of the discussion provided above, we believe there is sound engineering basis for the continued operation of the plant until these starters are replaced with qualified starters. This will be completed prior to March 31, 1985.

Component Identification Codes: EE-STR-1303, 1305
[Non-TER Item; See Encl. IIIB]

JUSTIFICATION FOR CONTINUED OPERATION 26: Failure of the motor starters associated with ACAD-MO-1303 and 1305 due to 100% RH from a HELB inside the reactor building would result in either the valves being opened or the breakers isolating themselves. The breakers are sized so that failure of either motor starter would not cause battery bus B1 or B2 to fail. Since both the normal and post HELB positions for the ACAD system valves is closed, failure of the motor starters by open circuiting which leaves the valve in their

normal position is acceptable. Failure of the motor starter by repositioning the valves is also acceptable since containment integrity is maintained by inboard valves ACAD-MO-1304 and ACAD-MO-1306.

On the basis of the discussion provided above, we believe there is sound engineering basis for the continued operation of the plant until these starters are replaced with qualified starters. This will be completed prior to March 31, 1985.

Component Identification Code: REC-PS-452 [Non-Ter Item; See Encl. IIIB]

JUSTIFICATION
FOR CONTINUED
OPERATION 27:

Upon sensing the low pressure in the outlet header of the Reactor Equipment Cooling system, the pressure switch initiates the closure of the qualified motor operated valves REC-MO-700MV and REC-MO-1329MV, thus isolating critical service supply header from non-critical supply header and Auxiliary Radwaste supply header. The pressure switch contacts are normally open and close upon sensing low header pressure.

During LOCA conditions, the switch will be able to sense the low header pressure, which will be created due to transferring of REC pumps to an on-site diesel generator, in a short time prior to experiencing any harsh radiation environment and will be able to perform its intended safety functions. During HELB conditions, the switch will experience high humidity environment and if it fails close it would not have any impact on safe shutdown of the plant as the closed position is its intended safe shutdown position. In the very highly unlikely situation that the switch fails in the open position, the operator can manually close the valves from the control room. As part of the emergency operating procedure, the operator verifies the operation of REC system.

On the basis of discussion provided above, we believe there is a sound engineering basis for continued operation of the plant until REC-PS-452 is replaced with a qualified pressure switch. This will be completed prior to March 31, 1985.

Component Identification Codes: SGT-TS-540A,B [Non-TER Item; See Encl. IIIB]
SGT-TS-541A,B [Non-TER Item; See Encl. IIIB]

JUSTIFICATION
FOR CONTINUED
OPERATION 28:

These switches are normally closed and provide thermal overload protection to the electric heaters. These switches are set to open at 170°F. Once opened, these switches have to be reset manually. The function of electric heaters is to maintain relative humidity of exhaust air below 70% so as to protect HEPA and charcoal filters of standby gas treatment system. Due to their inherent design, these temperature switches should not fail open inadvertently and radiation and moisture environments will not open the switch's normally closed contacts. Therefore, these switches would function properly.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued operation of the plant until these temperature switches are replaced with qualified temperature switches. This will be completed prior to March 31, 1985.

Component Identification Code: HPCI-PS-68A,B,C,D [TER Item 88]

JUSTIFICATION
FOR CONTINUED
OPERATION 29:

These pressure switches sense steam pressure in the HPCI steam line and generate a signal to isolate the steam supply to the HPCI turbine when low pressure indicates that the HPCI system has performed its intended safety function. These pressure switches experience a 100% relative humidity environment in the event of a HELB inside the reactor building. For a HPCI steam line break, HPCI-DPIS-76, 77 will sense the steamline break and isolate the HPCI system and operation of these switches will not be required. If, the HELB is not due to a HPCI line break and if after the HELB has been isolated, it is desired to start the HPCI system these switches can, if needed, be isolated. These switches are qualified to a post-LOCA radiation only environment. Therefore, the pressure switches will perform their safety function during LOCA and are not required for HELB conditions.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued operation of the plant until conduit penetration seals are installed on these pressure switches. This will be completed prior to March 31, 1985.

Component Identification Code: HPCI-LS-91A,B [TER Item 119]

JUSTIFICATION
FOR CONTINUED
OPERATION 30:

These level switches sense the high water level in the suppression chamber and generate a signal to open the suppression chamber suction valve HPCI-MO-M058 thus allowing HPCI pump to take suction from the suppression chamber. These switches are normally open and close on sensing high water level in suppression chamber. These switches experience a 100% relative humidity environment only in the event of a HELB inside the reactor building. In case of HPCI steamline break, HPCI-DPIS-76,77 will sense the break and isolate the HPCI system and operation of these switches will not be required. For the other HELB's within the reactor building the HPCI system may automatically start. If the HPCI system is started after the HELB has been isolated and these switches have failed, they can, be isolated. These switches are qualified to a post-LOCA radiation only environment. Therefore, the level switches will perform their safety function during LOCA and other HELB conditions.

On the basis of the discussion provided above, we believe there is a sound engineering basis for continued operation of the plant until conduit penetration seals are installed on these level switches. This will be completed prior to March 31, 1985.

Component Identification Code: NBI-PS-52A,C [TER Item 92]

JUSTIFICATION FOR CONTINUED OPERATION 31: Level Instruments NBI-PS-52A,C provide signals to close the reactor recirculation inlet and outlet valves and enable opening the CS injection discharge valves. Their failure due to shorting in the event of a HELB inside the reactor building will complete part of the circuits needed to open the CS injection valves. The valves will not open unless either the valve's control switch is in the "OPEN" position or the CS system has been automatically started on reactor vessel low water level or containment high pressure. Even if the circuit is completed and valves CS-MO-MO12A and MO12B open, the CS system is protected from Reactor vessel pressure by check valves CS-684AV and -678AV, until the vessel pressure has decreased to below CS pump discharge pressure. The closure of the reactor recirculation (RR) valves is acceptable since one of the immediate actions in the event of a HELB inside the Reactor building is to check that the reactor has been scrammed, and the recirculation pumps deenergized.

On the basis of discussion provided above, we believe there is a sound engineering basis for continued operation of the plant until these are replaced with qualified pressure switches. This will be completed prior to March 31, 1985.

Component Identification Codes: SGT-SOV-SPV 249 [All TER Item 38]
SGT-SOV-SPV 251
SGT-SOV-SPV 250
SGT-SOV-SPV 252

JUSTIFICATION: Solenoid pilot valves SGT-SOV-SPV249 and SGT-SOV-SPV251 control the inlet (SGT-AO-249) and discharge (SGT-AO-251) valves of the Standby Gas Treatment System Train A and solenoid pilot valves SGT-SOV-SPV250 and SGT-SOV-SPV252 control the inlet (SGT-AO-250) and discharge (SGT-AO-252) valves of the Standby Gas Treatment System Train B. The inlet (SGT-AO-249 and SGT-AO-250) valves and discharge (SGT-AO-251 and SGT-AO-252) valves are normally closed and automatically open upon receiving automatic initiation signal. Additionally, the inlet and discharge valves are designed to fail open, which is their safe intended position.

Solenoid pilot valve contains disc holder which is made of acetal homopolymer. Acetal homopolymer has a radiation threshold damage limit of 6.0E05 rads. Solenoid pilot valves will be subjected to a total integrated dose of 1.22E06 rads.

Solenoid pilot valve will experience threshold damage limit radiation dose within 10 days to 30 days after the LOCA condition. The disc holder may fail due to the cycling of the solenoid pilot valve thus preventing the proper operation of the valve.

Upon receiving auto initiation signal, the solenoid pilot valves will be deenergized and open the air operated valves (SGT-AO-249, -250, -251, -252) and both the Standby Gas Treatment System Trains will start and continue operating until the plant operator secures one train. Plant operator would secure one SGT system train only after the plant conditions are stabilized. The solenoid pilot valves associated with secured SGT train will be cycled and may be susceptible to failure. However, one SGT train will be functioning properly and would be providing its intended safety function.

On the basis of the discussion provided above, we believe there is a sound engineering basis for the continued operation of the plant until the solenoid pilot valves are replaced with qualified solenoid pilot valves. This will be completed prior to March 31, 1985.

ENCLOSURE V

NPPD/CNS Master Equipment List

NEBRASKA PUBLIC POWER DISTRICT

Cooper Nuclear Station Functional Assurance Program

Master Equipment List

Revision II, April 24, 1984

(Revision 0 Submitted May 20, 1983)

A description of the acronyms used in this list:

CRD - Control Rod Drive
CS - Core Spray
EE - Electrical Equipment
HV - Heating & Ventilation
HPCI - High Pressure Coolant Injection
MS - Main Steam
NEI - Nuclear Boiler Instrumentation
PC - Primary Containment
RCIC - Reactor Core Isolation Cooling

REC - Reactor Equipment Cooling
RHR - Residual Heat Removal
RR - Reactor Recirculation
RW - Radwaste
RWCU - Reactor Water Clean Up
SCT - Standby-Gas Treatment
SW - Service Water

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement G.Y. | Comments |
|----------------------------------|--------------|---------------|-----------------------------|----------|------|---------|---------------------|-----------|
| | | | | | T/P | Rad. | | |
| CRD-SOV-S031A,B | ASCO | HVA90-405-2A | SCRAM Disch Vol. Vent Drain | R-903-SE | H | 7.95E05 | 1b(H) | Qualified |
| CRD-SOV-S0140A,B | ASCO | WPHT8316E36 | Back-up SCRAM Valve | R-903-SE | H | 1.93E04 | 1b(H) | Qualified |
| CRD-SOV-S0117(XX-XX) | ASCO | HVA-90-405-2A | SCRAM Valve | R-903 | H | 7.95E05 | 1b(H) | Qualified |
| CRD-SOV-S0118(XX-XX) | ASCO | HVA-90-405-2A | SCRAM Valve | R-903 | H | 7.95E05 | 1b(H) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.L. | Comments |
|----------------------------------|---------------|--------------|--------------------------|--------------------------------|------|---------|---------------------|--|
| | | | | | T/P | Rad. | | |
| CS-FI-40A,B | GE | 555 | CS Pump Flow Xmitter | R-859-NE & SE Quad | C,S | 6.15E05 | 6m(L) | S/N#4537178,9; [5] [8] |
| CS-MOT-CSP1A | GE | 5K6346XC83A | Pump A Prime Mover | R-859-NE Quad | C,S | 7.95E05 | 6m(L) | Qualified |
| CS-MOT-CSP1B | GE | 5K6346XC83A | Pump B Prime Mover | R-859-SE Quad | C | 7.95E05 | 6m(L) | Qualified |
| CS-MO-M011A | Limiterque | SMB-2 | Injection Valve Operator | R-931-NE Platform | J | 7.95E05 | 6m(L) | [14] |
| CS-MOT-M011A | Reliance | | Injection Valve Operator | R-931-NE Platform | J | 7.95E05 | 6m(L) | Dings 6-71010-6 Brake, S/N 201166 [14] |
| CS-MO-M011B | Limiterque | SMB-2 | Injection Valve Operator | R-931-RWCU HX RM (Platform) | J | 7.95E05 | 6m(L) | Qualified |
| CS-MOT-M011B | Reliance | | Injection Valve Operator | R-931-RWCU HX RM (Platform) | J | 7.95E05 | 6m(L) | Dings 6-71010-6 Brake, S/N 201165; Qualified |
| CS-MO-M012A | Limiterque | SMB-2 | Injection Valve Operator | R-931-NE Platform | J | 7.95E05 | 6m(L) | Qualified |
| CS-MOT-M012A | Reliance | | Injection Valve Operator | R-931-NE Platform | J | 7.95E05 | 6m(L) | Dings 6-71010-6 Brake, S/N 201167; Qualified |
| CS-MO-M012B | Limiterque | SMB-2 | Injection Valve Operator | R-931-RWCU HX RM | J | 7.95E05 | 6m(L) | [14] |
| CS-MOT-M012B | Reliance | | Injection Valve Operator | R-931-RWCU HX RM | J | 7.95E05 | 6m(L) | Dings 6-71010-29S Brake, S/N 72961; [14], [16] |
| CS-MO-M026A | Limiterque | SMB-3 | Torus Test Control | R-881-NE Quad | C,S | 6.21E05 | 6m(L) | Qualified |
| CS-MOT-M026A | Reliance | | Torus Test Control | R-881-NE Quad | C,S | 6.21E05 | 6m(L) | Dings 6-72025-6 Brake, S/N 73573; Qualified |
| CS-MO-M026B | Limiterque | SMB-3 | Torus Test Control | R-881-SE Quad | C | 6.21E06 | 6m(L) | Qualified |
| CS-MOT-M026B | Reliance | | Torus Test Control | R-881-SE Quad | C | 6.21E06 | 6m(L) | Dings 6-72025-6 Brake, S/N 201162; Qualified |
| CS-PS-44A | Static-O-Ring | 5N-AA3-2X | Pump Discharge | R-859-NE Quad | C,S | 6.15E05 | 6m(L) | Qualified |
| CS-PS-44B | Static-O-Ring | 5N-AA3-X9STT | Pump Discharge | R-859-SE Quad | C | 6.15E05 | 6m(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|---------------|-----------|-----------------------------|---------------|------|---------|---------------------|--|
| | | | | | T/P | Rad. | | |
| CS-MO-M05A | Limitorque | SMB-00 | Min. Flow Control | R-859-NE Quad | C,S | 1.20E06 | 6m(L) | Qualified |
| CS-MOT-M05A | Reliance | | Min. Flow Control | R-859-NE Quad | C,S | 1.20E06 | 6m(L) | Dings VO4-61003-30 Brake SN 200930; [16], [16] |
| CS-MO-M05B | Limitorque | SMB-00 | Min. Flow Control | R-859-SE Quad | C | 1.20E06 | 6m(L) | Qualified |
| CS-MOT-M05B | Reliance | | Min. Flow Control | R-859-SE Quad | C | 1.20E06 | 6m(L) | Dings XV4-61003-30 Brake SN 200930 [5] |
| CS-MO-M07A | Limitorque | SMB-0 | Pump Suction Valve Operator | R-859-NE Quad | C,S | 2.67E05 | 6m(L) | Qualified |
| CS-MOT-M07A | Reliance | | Pump Suction Valve Operator | R-859-NE Quad | C,S | 2.67E05 | 6m(L) | Dings XV4-62006-30 Brake SN 200928; Qualified |
| CS-MO-M07B | Limitorque | SMB-0 | Pump Suction Valve Operator | R-859-SE Quad | C | 2.67E05 | 6m(L) | Qualified |
| CS-MOT-M07B | Reliance | | Pump Suction Valve Operator | R-859-SE Quad | C | 2.67E05 | 6m(L) | Dings VO4-62006-30 Brake SN 63197; [16] |
| CS-PS-37A | Static-O-Ring | 5N-AA3-2X | CS Pump Discharge ADS | R-859-NE Quad | C,S | 6.15E05 | 6m(L) | Qualified |
| CS-PS-37B | Static-O-Ring | 5N-AA3-2X | CS Pump Discharge ADS | R-859-SE Quad | C | 6.15E05 | 6m(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-------------------------------|--|--|-----------------|------|---------|---------------------|-----------|
| | | | | | T/P | Rad. | | |
| EE - Terminal Block | Weidmuller | SAK10 | Circuit Connection | Drywell | A | 4.4E07 | 6m(L) | Qualified |
| EE - Terminal Block | Square D | 1828 | Circuit Connection | R-859-HPCI Room | NA | 7.95E05 | 6m(L) | Qualified |
| EE - Terminal Block | GE | 151D3 | Circuit Connection | RX Building | C-Y | 7.95E05 | 6m(L) | [7] |
| EE - Terminal Block | GE | EB25 | Circuit Connection | RX Building | C-Y | 7.95E05 | 6m(L) | [12] |
| EE - Terminal Block | Buchanan | 0241 | Circuit Connection | RX Building | C-Y | 8.27E05 | 6m(L) | [5]; [13] |
| EE - Terminal Block | GE | CR151B | Circuit Connection | RX Building | J | 2.14E05 | 6m(L) | [5] |
| EE - Terminal Block | GE | CR151A6 | Circuit Connection | RX Building | G | 7.95E05 | 6m(L) | [5] |
| EE - Cable | Boston Insulated Wire & Cable | LSS1942B | Instrumentation and Control Cable | Containment | A | 4.4E07 | 6m(L) | Qualified |
| EE - Cable | Boston Insulated Wire & Cable | 9993H002 | Instrumentation and Control Cable | Containment | A | 4.4E07 | 6m(L) | Qualified |
| EE - Cable | Kerite | FR Jacket with HTK Insulation | Control and Metering Cable | Containment | A | 4.4E07 | 6m(L) | Qualified |
| EE - Cable | Cerro | Firewall SR, Firewall III, Pyrotrol III | Control, Power Cable | Containment | A | 4.4E07 | 6m(L) | Qualified |
| EE - Cable | Raychem | 10483 Coax | Perm. HI-Range Monitor | Containment | A | 4.4E07 | 6m(L) | Qualified |
| EE - Cable | Raychem | Model 10481 Coax 7521D3330 Coax 7523D1330 Coax 7523D5330 Coax | Instrument Cable | Containment | A | 4.4E07 | 6m(L) | Qualified |
| EE-TNL-GPP2,AA3,BB3 | GE | OMR | Electrical Control, Power Distribution | R-903 | H | 7.95E05 | 6m(L) | Qualified |
| EE-MCC-S,Q,Y,R,RB | ITE | Series 9600 | 480 VAC Dist Center | R-903-W Side | H | 7.95E05 | 6m(L) | [18] |
| EE-MCC-K | ITE | Series 9600 | 480 VAC Dist Center | R-903-NE | H | 7.95E05 | 6m(L) | [18] |
| EE-MCC-CA,CB | ITE | Series 5600 | 480 VAC Dist Center | R-931-W side | J | 7.95E05 | 6m(L) | [18] |
| EE-MCC-RA | ITE | Series 9600 | 480 VAC Dist Center | R-958 | L | 1.7E05 | 6m(L) | [18] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|---------------|---------|-------------------------|-----------------|------|---------|---------------------|----------|
| | | | | | T/P | Rad. | | |
| EE-STR-1302MV | Allen Bradley | Bul.205 | ACAD-MOT-1302HV Starter | R-881-SW Quad | G | 7.95E05 | 6m(L) | [5] |
| EE-STR-1303MV | Allen Bradley | Bul.205 | ACAD-MOT-1303MV Starter | R-881-SW Quad | G | 7.95E05 | 6m(L) | [5] |
| EE-STR-1305MV | Allen Bradley | Bul.205 | ACAD-MOT-1305MV Starter | R-881-SE Quad | G | 7.95E05 | 6m(L) | [5] |
| EE-STR-1311MV | Allen Bradley | Bul.205 | ACAD-MOT-1311MV Starter | R-903-SW | H | 7.95E05 | 6m(L) | [5] |
| EE-STR-1310MV | ITE | DC | ACAD-MOT-1310HV Starter | R-958-NE | L | 7.95E05 | 6m(L) | [5] |
| EE-STR-1308MV | ITE | DC | ACAD-MOT-1305MV Starter | R-881-NE Quad | C,S | 7.95E05 | 6m(L) | [5] |
| EE-STR-250HPCI (M014) | GE | IC406 | HPCI-M014 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-125HPCI (M016) | GE | CR111 | HPCI-M016 Starter | R-859-HPCI Room | F | 7.95E05 | 1h(L) | [5],[11] |
| EE-STR-125HPCI (M033) | GE | CR111 | RHR-MOT-M033 Starter | R-859-HPCI Room | F | 7.95E05 | 6m(L) | [5],[11] |
| EE-STR-125HPCI (M017) | GE | CR111 | HPCI-M017 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-250HPCI (M019) | GE | IC406 | HPCI-M019 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-250HPCI (M020) | GE | IC406 | HPCI-M020 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-250HPCI (M021) | GE | IC406 | HPCI-M021 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-250HPCI (M024) | GE | IC406 | HPCI-M024 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-250HPCI (M025) | GE | IC406 | HPCI-M025 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-125HPCI (M058) | GE | CR111 | HPCI-M058 Starter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| EE-STR-125RX (M077) | GE | CR111 | MS-M077 Starter | R-958-NW | L | 7.95E05 | 1h(L)(H) | [5] |
| EE-STR-125RCIC (M016) | GE | CR111 | RCIC-M016 Starter | R-903-NE | NA | 5.0E05 | 1h(H) | [5] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|--------------|-----------------------|--|-----------------|------|---------|---------------------|-----------|
| | | | | | T/P | Rad. | | |
| EE-STR-250HPCI (MO17) | GE | IC406 | RHR-MO17 Starter | R-859-HPCI Room | F | 7.95E05 | 6m(L) | [5], [11] |
| EE-STR-250DIV1 (MO25A) | ITE | S/O 17 40330-050 | RHR-MO25A Starter | R-903-W | H | 7.95E05 | 6m(L) | [5] |
| EE-STR-250DIV2 (MO25B) | ITE | S/O 17 40330-050 | RHR-MO25B Starter | R-903-W | H | 7.95E05 | 6m(L) | [5] |
| EE-STR-125RX (MO18) | GE | CR111 | RWC-MO18 Starter | R-958-NW | L | 7.95E05 | 1h(L) | [5] |
| EE-STR-250DIV1 (MO53A) | ITE | S/O #17- 40330-050 | Motor Starter for MO-53A | R-903-W | H | 7.95E05 | 1h(L) | [5] |
| EE-STR-250DIV2 (MO53B) | ITE | S/O #17- 40330-050 | Motor Starter for MO-53B | R-903-W | H | 7.95E05 | 1h(L) | [5] |
| EE-STR-250HPCI (ALOP) | GE | IC406 | Motor Starter for HPCI Auxiliary Oil Pump | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-------------------------|---------------|-----------------|-----------------|------|---------|---------------------|----------|
| | | | | | T/P | Rad. | | |
| HV-MOT-(FC-R-1H) | Reliance | S/NP18G12DGM | Operates HV Fan | R-881-SM Quad | G | 7.95E05 | 6m(H) | [5] |
| HV-MOT-(FC-R-1G) | U.S. Electric Motors | F-1086-02-170 | Operates HV Fan | R-859-IPCI Room | F | 7.95E05 | 6m(H) | [5] |
| HV-MOT-(FC-R-1E) | Reliance | S/NP18G11DEW | Operates HV Fan | R-881-SE Quad | C | 7.95E05 | 6m(H) | [5] |
| HV-MOT-(FC-R-1F) | Reliance | S/NP18G11DDW | Operates HV Fan | R-881-NE Quad | C,S | 7.95E05 | 6m(H) | [5] |
| HV-MOT-(FC-R-1J) | Reliance | S/NP18G12DEX | Operates HV Fan | R-881-MW Quad | C | 7.95E05 | 6m(H) | [5] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|------------------------------------|----------------------|---------------------------|--|-------------------------|------|---------|---------------------|--------------------------|
| | | | | | T/P | Rad. | | |
| HPCI-TS-101,102,103 104:A,B | Fenwal | 17023-6 | Steam Leak Detection | R-903-Inj. Valve Room | R | 7.95E05 | 1h(L) | Qualified |
| HPCI-TS-101,102,103 104:C,D | Fenwal | 17023-6 | Steam Leak Detection | R-881-SW Torus | D | 7.95E05 | 1h(L) | Qualified |
| HPCI-TS-125,126,127 128:A,B,C,D | Fenwal | 17023-6 | Steam Leak Detection | R-859-HPCI Room/SW Quad | F | 7.95E05 | 1h(L) | Qualified |
| HPCI-PS-(84-1) | Static-O-Ring | 6N-AA21V | Sp. Suction Low Pressure | R-859-SW Quad | U | 7.95E04 | 8h(L) | Rack 25-50; Qualified |
| HPCI-PS-85 | Static-O-Ring | 5N-AA3-X9STT | Sp. Disch High Pressure | R-859-SW Quad | U | 7.95E04 | 8h(L) | Rack 25-50; Qualified |
| HPCI-PS-97A,B | Static-O-Ring | 5N-AA3-X | Turb Exh Steam High Pressure | R-859-SW Quad | U | 3.17E04 | 8h(L) | Rack 25-50; Qualified |
| HPCI-PS-68A,C,D | Barksdale | 82T-M12SS | Steam Line Low Pressure | R-859-SW Quad | E | 3.17E04 | 1h(L) | Rack 25-50; [7] |
| HPCI-PS-68B | Barksdale | 82T-A12SS | Steam Line Low Pressure | R-859-SW Quad | E | 3.17E04 | 1h(L) | Rack 25-50; [7] |
| HPCI-DPTS-76,77 | Barton | 289A | High Differential Pressure | R-859-SW Quad | E | 3.17E04 | 1h(L) | Rack 25-50; Qualified |
| HPCI-LS-91A,B | Robertshaw | 83841A2 | Torus High Water Level | R-859-W Torus | D | 7.96E05 | 6m(L) | [12] |
| HPCI-PS-7787 | Square-D | Class 9012 Type ACW-22 | Turbine-Oil Pressure | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-CBX-2792 | Woodward Governor | 8270-811 | Turbine Control: EGM Control Box | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [11] |
| HPCI-CBA-2792 | Woodward Governor | R-8250-133 | Turbine Control: EGR Hydraulic Actuator | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-SC-7792 | Woodward Governor | 8271-083 | Turbine Control: Signal Converter | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [11] |
| HPCI-SE-2792 | Woodward Governor | 1680-622 | Turbine Control: Magnetic Pick-up | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|--------|-------------------------|------------------------------------|------|---------|---------------------|----------------------|
| | | | | | T/P | Rad. | | |
| HPCI-LMS-A070 | Microswitch | OP-N | Indication - HPCI-A070 | R-859-HPCI Room | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| HPCI-LMS-A071 | Microswitch | OP-N | Indication - HPCI-A071 | R-859-HPCI Room | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| HPCI-FI-82 | GE | 555 | Pump Discharge Flow | R-859-SW Quad | U | 7.95E04 | 8h(L) | S/N 4537174; [5] [8] |
| HPCI-MO-M014 | Limiterque | SMB-1 | Main Steam HPCI Turbine | R-859-HPCI Room | F | 7.95E05 | 8h(L) | Qualified |
| HPCI-MOT-M014 | Reliance | | Main Steam HPCI Turbine | R-859-HPCI Room | F | 7.95E05 | 8h(L) | Qualified |
| HPCI-MO-M015 | Limiterque | SMB-1 | Steam Inbd Isolation | DW-521 | A | 4.4E07 | 1h(L) | Qualified; [8] |
| HPCI-MOT-M015 | Reliance | | Steam Inbd Isolation | DW-521 | A | 4.4E07 | 1h(L) | Qualified; [8] |
| HPCI-MO-M016 | Limiterque | SMB-1 | Main Steam Outboard | R-903-Inj. Valve Room Isolation | W | 7.95E05 | 1h(L) | Qualified; [8] |
| HPCI-MOT-M016 | Porter Peerless | | Main Steam Outboard | R-903-Inj. Valve Room Isolation | W | 7.95E05 | 1h(L) | Qualified; [8] |
| HPCI-MO-M017 | Limiterque | SMB-00 | Suction from ECST | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MOT-M017 | Reliance | | Suction from ECST | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MO-M019 | Limiterque | SMB-3 | Injection Valve | R-903-Steam Tunnel | B | 1.84E06 | 8h(L) | [14] |
| HPCI-MOT-M019 | Porter Peerless | | Injection Valve | R-903-Steam Tunnel | B | 1.84E06 | 8h(L) | [14] |
| HPCI-MO-M020 | Limiterque | SMB-3 | Injection Valve | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MOT-M020 | Reliance | | Injection Valve | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MO-M021 | Limiterque | SMB-3 | Test Dischg. to ECST | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MOT-M021 | Reliance | | Test Dischg. to ECST | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|-------------|---------------------|-----------------|------|---------|---------------------|--|
| | | | | | I/P | Rad. | | |
| HPCI-MO-MO24 | Limitorque | SMB-1 | Disch. to ECST | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MOT-MO24 | Porter Peerless | | Disch. to ECST | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MO-MO25 | Limitorque | SMB-1 | Min. Flow Valve | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |
| HPCI-MOT-MO25 | Reliance | | Min. Flow Valve | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Stearns 1-087-026 Brake, S/N 771519; Qualified |
| HPCI-MO-MO58 | Limitorque | SMB-00 | Suction from Torus | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [14] |
| HPCI-MOT-MO58 | Porter Peerless | | Suction from Torus | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | [5] |
| HPCI-MOT-ALOP | Baldor | S/N 1-G-1-7 | Oil to HPCI Turbine | R-859-HPCI Room | NA | 7.95E05 | 8h(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|--|------------------------------|--------------------|--|--------------------|------|---------|---------------------|--|
| | | | | | T/F | Rad. | | |
| MS-MO-MO74 | Limatorque | SMB-000 | Header Drain | DW-901 | A | 4.4E07 | 1h(L) | Qualified; [8] |
| MS-MOT-MO74 | Reliance | | Header Drain | DW-901 | A | 4.4E07 | 1h(L) | Qualified; [8] |
| MS-SOV-86A(PV1,2,3), B(PV1,2,3), C(PV1,2,3), D(PV1,2,3) | Snap-Tite Inc./ AVCO [10] | 320X-30 320X-39 | MSIV Control | R-901-Steam Tunnel | B | 1.84E06 | 1h(L) | For Order Information See EQDP; Qualified |
| MS-LMS-A086A,B,C,D | NAMCO | EA180 | Indication & Control | R-901-Steam Tunnel | R | 1.84E06 | 1h(L) | [8] [7] |
| MS-SOV-80A(PV1,2,3), B(PV1,2,3), C(PV1,2,3), D(PV1,2,3) | Snap-Tite Inc./ AVCO [10] | 320X-30 320X-39 | MSIV Control | DW-901 (Zone 5) | A | 2.7E06 | 1h(L) | For Order Information See EQDP; Qualified |
| MS-LMS-A080A,B,C,D | NAMCO | EA180 | Indication & Control | DW-901 (Zone 5) | A | 2.7E06 | 1h(L) | [8] [7] |
| MS-MO-MO77 | Limatorque | SMB-000 | MS Line Drain | R-901-Steam Tunnel | B | 1.84E06 | 1h(L) | Qualified; [8] |
| MS-MOT-MO77 | Reliance | | MS Line Drain | R-901-Steam Tunnel | B | 1.84E06 | 1h(L) | Qualified; [8] |
| MS-MO-MO78 | Limatorque | SMB-000 | MS Line Drain | R-901-Steam Tunnel | B | 1.84E06 | 1h(L) | Qualified |
| MS-MOT-MO78 | Reliance | | MS Line Drain | R-901-Steam Tunnel | B | 1.84E06 | 1h(L) | Qualified |
| MS-DPIS-116,117, 118,119:A,B,C,D | Barton | 288A | MSL High Flow Isolation | R-901 | H | 7.95E05 | 1h(L) | Rack 25-56; Qualified |
| MS-TS-121,122, 123,124:A,B,C,D | Fenwal | 17002-40 | Steam Leak Detection | R-901-Steam Tunnel | B | 1.84E06 | 1h(H) | Qualified |
| MS-SOV-SPV71A-H | Target Rock | 1/2 SMS-A-01 | Safety Relief Valve-Main Steam Lines A-D | DW-921 | A | 3.05E07 | 6m(H) | Qualified |
| MS-PS-300A-H | Pressure Controls Inc. | P/N A171P | Relief Valve Leak Indication | DW-921 | A | 4.4E07 | 1h(L) | Qualified; [8] |
| MS-TE-114A,B,C | Omega Engineering | CF-090-T | Measures Temp Downstream of Safety Valves | DW-921 | A | 4.4E07 | 1h(L) | [5] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|--------------|-----------|---|----------|------|---------|---------------------|-----------------------------|
| | | | | | T/P | Rad. | | |
| NBI-PS-52A | Barksdale | B2T-M12SS | Reactor Pressure | R-931-NW | J | 3.77E04 | 6m(L) | Rack 25-5, [7] |
| NBI-PS-52C | Barksdale | B2T-M12SS | Reactor Pressure | R-903-NW | H | 7.95E05 | 6m(L) | Rack 25-51, [7] |
| NBI-LIS-101A,B,C,D | Barton | 288A | Rx High-Water Level | R-931-NW | J | 2.14E05 | 6m(L) | Rack 25-5,6; Qualified |
| NBI-DPIS-52B | Barton | 288A | Rx Pressure | R-931 | J | 7.95E05 | 6m(L) | Rack 25-6; Qualified |
| NBI-DPIS-52D | Barton | 288A | Rx Pressure | R-903-SE | J | 7.95E05 | 6m(L) | Rack 25-52; Qualified |
| NBI-LIS-57A,B | Yarway | 4418C | Rx Low-Water Level | R-931 | J | 3.77E04 | 6m(L) | Rack 25-5; [17] |
| NBI-LIS-58A,B | Yarway | 4418C | Rx Low-Water Level | R-931 | J | 2.14E05 | 6m(L) | Rack 25-6; [17] |
| NBI-LIS-72A,C | Yarway | 4418C | Rx Low-Water Level | R-931 | J | 3.77E04 | 6m(L) | Rack 25-5; [15] |
| NBI-LIS-72B,D | Yarway | 4418C | Rx Low-Water Level | R-931 | J | 2.14E05 | 6m(L) | Rack 25-6; [15] |
| NBI-LIS-83A | Yarway | 4418C | Rx Low-Water Level - ADS | R-931 | J | 9.32E03 | 6m(L) | Rack 25-5; [15] |
| NBI-LIS-83B | Yarway | 4418C | Rx Low-Water Level - ADS | R-931 | J | 3.76E05 | 6m(L) | Rack 25-6; [15] |
| NBI-LITS-73A,B | Yarway | 4418EC | Rx Shroud High-Water, RIHR Interlock | R-903 | H | 4.77E05 | 6m(L) | Rack 25-51, 52; [15] [8] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement G.T. | Comments |
|----------------------------------|-----------------------------------|-----------------------------|---|-------------------|------|---------|---------------------|-------------------------|
| | | | | | T/F | Rad. | | |
| PC-DPIS-516A,B | Barton | 289A | Atmosphere-Torus Differential Pressure | R-903-RHR HX Room | NA | 7.95E05 | 6m(L) | Qualified |
| PC-PS-16 | Barton | 288A | DW Hi-Pressure Alarm | R-931-NW | J | 9.32E03 | 6m(L) | Rack 25-5; Qualified |
| PC-PS-12A | Static-O-Ring | 12N-AA4-X9TT | DW Hi-Pressure | R-931-NW | J | 3.76E05 | 6m(L) | Rack 25-5; Qualified |
| PC-PS-12B | Static-O-Ring | 12N-BB5-NX | DW Hi-Pressure | R-931-NW | J | 3.76E05 | 6m(L) | Rack 25-5; Qualified |
| PC-PS-101A,C | Static-O-Ring | 12N-BB4-NX | DW Hi-Pressure | R-931-NW | J | 3.77E05 | 6m(L) | Rack 25-5; Qualified |
| PC-PS-100A | Static-O-Ring | 12N-AA5-X9TT | DW Hi-Pressure | R-931-NW | J | 3.77E05 | 6m(L) | Rack 25-5; Qualified |
| PC-PS-100C | Static-O-Ring | 12N-BB4-NX | DW Hi-Pressure | R-931-NW | J | 3.76E05 | 6m(L) | Rack 25-5; Qualified |
| PC-PT-512A | Honeywell | 302010202 | DW Pressure Xmitter | R-931-NW | J | 9.32E03 | 6m(L) | S/N 4537183; [5]; [8] |
| PC-PS-100B,D | Static-O-Ring | 12N-BB4-NX | DW Hi-Pressure | R-931-SE | J | 3.76E05 | 6m(L) | Rack 25-6; Qualified |
| PC-PS-101B,D | Static-O-Ring | 12N-BB4-NX | DW Hi-Pressure | R-931-SE | J | 3.77E05 | 6m(L) | Rack 25-6; Qualified |
| PC-PS-12C,D | Static-O-Ring | 12N-BB5-NX | Primary Cont Hi Press | R-931-SE | J | 3.76E05 | 6m(L) | Rack 25-6; Qualified |
| PC-PT-512B | Honeywell | 302010202 | DW Pressure Xmitter | R-931-SE | J | 3.76E05 | 6m(L) | S/N 4537184; [5]; [8] |
| PC-TE-505A-E | Yellow Springs Instrumentation | 4150 | Drywell Zone 2B Air Temp. | DW-921 | A | 4.4E07 | 6m(L) | [5]; [8] |
| PC-TE-510A-E | Yellow Springs Instrumentation | 4150 | Drywell Zone 2C Air Temp. | DW-921 | A | 4.4E07 | 6m(L) | [5]; [8] |
| PC-PT-70 | Honeywell | 41105-11-02- 07-U102-122 | Suppression Pool Pressure | R-903-NE | H | 4.77E05 | 6m(L) | S/N 4537182; [5]; [8] |
| PC-LT-10 | Honeywell | 292110103 | Suppression Pool Level | R-859-SE Torus | D | 1.29E08 | 6m(L) | S/N 4537185; [5] |
| PC-LT-13 | Honeywell | 292130101 | Torus Level Xmitter | R-859-SE Torus | D | 1.29E08 | 6m(L) | S/N 4537188; [5] |
| PC-PT-513 | Honeywell | 30201130 | DW Pressure | R-903-W Side | H | 7.95E05 | 6m(L) | S/N 4537181; [5]; [8] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|-------------|-------------------------------------|----------------|------|---------|---------------------|-----------------------|
| | | | | | I/P | Rad. | | |
| PC-LT-11 | Honeywell | 292110103 | Torus Narrow Range Level Xmitter | R-859-NE Torus | D | 1.29E08 | 6m(L) | S/N 4537186; [5]; [8] |
| PC-LT-12 | Honeywell | 292130101 | Torus Narrow Range Level Xmitter | R-859-NE Torus | D | 1.29E08 | 6m(L) | S/N 4537187; [5] |
| PC-MO-305MV | Limitorque | SMB-000 | 230MV Bypass Operator | R-881-NE Torus | NA | 9E06 | 2D(L) | Qualified; [8] |
| PC-MOT-305MV | Reliance | | 230MV Bypass Operator | R-881-NE Torus | NA | 9E06 | 2D(L) | Qualified; [8] |
| PC-MO-306MV | Limitorque | SMB-000 | 231MV Bypass Operator | R-958-NE | NA | 5E06 | 2D(L) | Qualified; [8] |
| PC-MOT-306MV | Factor Peerless | | 231MV Bypass Operator | R-958-NE | NA | 5E06 | 2D(L) | Qualified; [8] |
| PC-SOV-SPV237 | ASCO | 8316B15 | Suppression Chmbr Isolation | R-859-SW Torus | NA | 1.93E04 | 1h(L) | Qualified |
| PC-LMS-237AV | NAMCO | D2400X | Iso Valve Position Sensor | R-881-SW Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-SOV-SPV238 | ASCO | 8316B15 | DW-Air Purge Isolation | R-859-SE Torus | NA | 1.93E04 | 1h(L) | Qualified |
| PC-LMS-238AV | NAMCO | D2400X | Iso Valve Position Sensor | R-881-SE Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-SOV-SPV243 | ASCO | LB8344A5 | Torus Area Isolation | R-859-SW Torus | NA | 1.93E04 | 1h(L) | Qualified |
| PC-LMS-243AV | NAMCO | EA740-80100 | Iso Valve Position Ind | R-881-SW Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-SOV-SPV244 | ASCO | LB8344A5 | Torus/Secondary Cont. Isolation | R-859-SW Torus | NA | 1.93E04 | 1h(L) | Qualified |
| PC-LMS-244AV | NAMCO | EA740-80100 | Iso Valve Position Sensor | R-881-SW Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-SOV-SPV245 | ASCO | 8316B15M0 | Purge & Vent Line Isolation | R-859-NE Torus | NA | 1.93E04 | 1h(L) | Qualified |
| PC-LMS-245AV | NAMCO | D2400X | Iso Valve Position Sensor | R-881-NE Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-SOV-SPV246 | ASCO | 8316B15M0 | Purge & Vent Line Isolation | R-958-NE | NA | 1.93E04 | 1h(L) | Qualified |
| PC-LMS-246AV | NAMCO | D2400X | Iso Valve Position Sensor | R-958-NE | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-MO-230MV | Limitorque | SMB-00 | Purge & Vent Valve Operator | R-881-NE Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-MOT-230MV | Reliance | | Purge & Vent Valve Operator | R-881-NE Torus | NA | 7.95E05 | 6m(L) | Brake; Qualified; [8] |
| PC-MO-231MV | Limitorque | SMB-00 | Control DW Ex Inbd Iso Valve | R-958-NE | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-MOT-231MV | Reliance | | Control DW Ex Inbd Iso Valve | R-958-NE | NA | 7.95E05 | 6m(L) | Brake; Qualified; [8] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|--------------|-------------|--|----------------|------|---------|---------------------|-----------------------|
| | | | | | T/F | Rad. | | |
| PC-MU-232HV | Limitorque | SMP-00 | DW-Inlet Inbd Iso Operator | R-881-SE Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-MU-232NV | Reliance | | DW-Inlet Inbd Iso Operator | R-881-SE Torus | NA | 7.95E05 | 6m(L) | Brake; Qualified; [8] |
| PC-MU-233HV | Limitorque | SMP-00 | Torus Inlet Inbd Iso Operator | R-881-SW Torus | NA | 7.95E05 | 6m(L) | Qualified; [8] |
| PC-MU-233NV | Reliance | | Torus Inlet Inbd Iso Operator | R-881-SW Torus | NA | 7.95E05 | 6m(L) | Brake; Qualified; [8] |
| PC-PENT-X106 | CE | 238X600NSCI | Electrical Cable Penetration Neutron Monitoring Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X100E | CE | 238X600NSCI | Electrical Cable Penetration Neutron Monitoring Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X101B | CE | 238X600NSCI | Electrical Cable Penetration Neutron Monitoring Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X100F | CE | 238X600NSCI | Electrical Cable Penetration Neutron Monitoring Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X104B | CE | 238X600NSCI | Electrical Cable Penetration Instrument and Control | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X104D | CE | 238X600NSCI | Electrical Cable Penetration Instrument and Control | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X104A | CE | 238X600NSCI | Electrical Cable Penetration Instrument and Control | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X104E | CE | 238X600NSCI | Electrical Cable Penetration Instrument and Control | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X101A | CE | 238X600NSCI | Electrical Cable Penetration Medium Voltage Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X105B | CE | 238X600NSCI | Electrical Cable Penetration Medium Voltage Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X101C | CE | 238X600NSCI | Electrical Cable Penetration Medium Voltage Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X101D | CE | 238X600NSCI | Electrical Cable Penetration Medium Voltage Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X101F | CE | 238X600NSCI | Electrical Cable Penetration Medium Voltage Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|--------------|-------------|---|----------------|------|--------|---------------------|-----------|
| | | | | | T/F | Rad. | | |
| PC-PENT-X100A | GE | 238X600NSCI | Electrical Cable Penetration Low Voltage Misc. Power Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X100B | GE | 238X600NSCI | Electrical Cable Penetration Low Voltage Misc. Power Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X100C | GE | 238X600NSCI | Electrical Cable Penetration Low Voltage Misc. Power Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X102 | GE | 238X600NSCI | Electrical Cable Penetration Low Voltage Misc. Power Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X105A | GE | 238X600NSCI | Electrical Cable Penetration Low Voltage Misc. Power Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X230 | GE | 238X600NSCI | Electrical Cable Penetration Low Voltage Misc. Power Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |
| PC-PENT-X103 | GE | 238X600NSCI | Electrical Cable Penetration Thermocouple Signals | DW/Rx Building | A | 4.4E07 | 6m(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|---------|--|--------------------|------|---------|---------------------|--------------------------|
| | | | | | T/F | Rad. | | |
| BCIC-DPTS-83,84 | Karton | 288 | Steam Line HI Differential Pressure Sensor | R-881-NF Quad | C,S | 2.2004 | 1b(H) | Rack 25-50; Qualified |
| BCIC-TS-79,80,81, 82:A,B,C,D | Fossil | 17023-6 | Steam Leak Detection | R-859-Ni Torus | - | 7.95E05 | 1b(L) | Qualified |
| BCIC-MD-M015 | Limitorque | SPB-000 | Main Steam Inbd Isolation | DW-921 | A | 4.4E07 | 1b(H) | [8]; [16] |
| BCIC-MIT-M015 | Porter Peerless | | Main Steam Inbd Isolation | DW-921 | A | 4.4E07 | 1b(H) | [8]; [16] |
| BCIC-MD-M016 | Limitorque | SPB-000 | Main Steam Outbd Isolation | R-903-Steam Tunnel | B | 1.84E06 | 1b(H) | Qualified; [8] |
| BCIC-MIT-M016 | Reliance | | Main Steam Outbd Isolation | R-903-Steam Tunnel | B | 1.84E06 | 1b(H) | [8]; [5] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|--|--|---|--------------------|------|---------|---------------------|---|
| | | | | | T/P | Rad. | | |
| REC-PS-452 | Mecoid | DSW-7023-804 | Outlet Header Low Pressure | R-931-NE | J | 7.95E05 | 6m(H) | S/N 3D935660; [5] |
| REC-MO-695HV | Limitorque | SMB-000 | REC HX Intertie | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-695MV | Reliance | | REC HX Intertie | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MO-700HV | Limitorque | SMB-000 | REC Supply to Non-Crit HDR | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-700MV | Reliance | | REC Supply to Non-Crit HDR | R-931-NE | J | 7.95E05 | 6m(H) | Dings 4-61003-30 Brake, S/N 200932; Qualified |
| REC-MOT-RECP A, B C, D | U.S. Electric Motor/Emerson Electric | S/N P4298271 S/N P4297550 S/N P4296075 S/N P4297549 | Provides System Circulation Pump Motors 1A-D | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MO-712HV | Limitorque | SMB-000 | REC HX 1B Inlet | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-712MV | Reliance | | REC HX 1B Inlet | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MO-713HV | Limitorque | SMB-000 | REC HX 1A Inlet | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-713MV | Reliance | | REC HX 1A Inlet | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MO-702HV | Limitorque | SMB-000 | REC to DW Supply Hdr. | R-931-RWCU HX Room | K | 5.57E06 | 6m(H) | Qualified |
| REC-MOT-702MV | Porter Peerless | | REC to DW Supply Hdr. | R-931-RWCU HX Room | K | 5.57E06 | 6m(H) | Qualified |
| REC-MO-709HV | Limitorque | SMB-000 | DW Return Block | R-931-RWCU HX Room | K | 5.57E06 | 6m(H) | Qualified |
| REC-MOT-709MV | Porter Peerless | | DW Return Block | R-931-RWCU HX Room | K | 5.57E06 | 6m(H) | Qualified |
| REC-MO-714HV | Limitorque | SMB-000 | North Critical Loop Supply | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-714MV | Porter Peerless | | North Critical Loop Supply | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MO-711HV | Limitorque | SMB-000 | South Critical Loop Supply/ REC to RHR, CS Coolers | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-711MV | Porter Peerless | | South Critical Loop Supply/ REC to RHR, CS Coolers | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.I. | Comments |
|----------------------------------|--------------|---------|--|----------|------|---------|---------------------|-----------|
| | | | | | T/F | Red. | | |
| REC-MO-1329HV | Linitorque | SMB-000 | Isolation Valves/RBCCW to ARW | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-1329HV | Reliance | | Isolation Valves/RBCCW to ARW | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MO-721MV | Linitorque | SMB-000 | REC Pump Suction from Non-Critical Header | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-721MV | Reliance | | REC Pump Suction from Non-Critical Header | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MO-722MV | Linitorque | SMB-000 | REC Pump Suction from Non-Critical Header | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |
| REC-MOT-722MV | Reliance | | REC Pump Suction from Non-Critical Header | R-931-NE | J | 7.95E05 | 6m(H) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|------------------------------------|-----------------|---------|-------------------------------------|---------------------|------|---------|---------------------|---------------------|
| | | | | | T/F | Rad. | | |
| RHR-DP1S-125A | Barton | 289A | HX Dischg Min Flow Control | R-859-NW Quad | C | 8.27E05 | 6m(L) | Qualified |
| RHR-DP1S-125B | Barton | 289A | HX Dischg Min Flow Control | R-859-SW Quad | E | 8.27E05 | 6m(L) | Qualified |
| RHR-FI-109A | GE | 555 | RHR System A Flow | R-859-NW Quad | C | 8.27E05 | 6m(L) | S/N 4537176; [5][8] |
| RHR-FI-109B | GE | 555 | RHR System B Flow | R-859-SW Quad | E | 8.27E05 | 6m(L) | S/N 4537177; [5][8] |
| RHR-TS-150,151, 152,153:A,B,C,D | Fenwal | 17023-6 | Steam Leak Detection | R-881-SW & NW Torus | D | 7.95E05 | 1h(H) | Qualified |
| RHR-TS-154,155, 156,157:A,C | Fenwal | 17023-6 | Steam Leak Detection | R-903-RHR HX Room | I | 7.95E05 | 1h(H) | Qualified |
| RHR-TS-154,155, 156,157:B,D | Fenwal | 17023-6 | Steam Leak Detection | R-903-RHR HX Room | I | 7.95E05 | 1h(H) | Qualified |
| RHR-TS-158,159, 160,161:A,C | Fenwal | 17023-6 | Steam Leak Detection | R-931-RHR HX Room | I | 7.95E05 | 1h(H) | Qualified |
| RHR-TS-158,159, 160,161:B,D | Fenwal | 17023-6 | Steam Leak Detection | R-931-RHR HX Room | I | 7.95E05 | 1h(H) | Qualified |
| RHR-MO-MO15A | Limitorque | SMB-0 | Shut Down Cooling Pump A Suction | R-881-NW Quad | C | 3.2E05 | 6m(L) | Qualified |
| RHR-MOT-MO15A | Porter Peerless | | Shut Down Cooling Pump A Suction | R-881-NW Quad | C | 3.2E05 | 6m(L) | [5] |
| RHR-MO-MO15C | Limitorque | SMB-0 | Shut Down Cooling Pump C Suction | R-881-NW Quad | C | 3.2E05 | 6m(L) | Qualified |
| RHR-MOT-MO15C | Porter Peerless | | Shut Down Cooling Pump C Suction | R-881-NW Quad | C | 3.2E05 | 6m(L) | Qualified |
| RHR-MO-MO15B | Limitorque | SMB-0 | Shut Down Cooling Pump B Suction | R-881-SW Quad | C | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO15B | Porter Peerless | | Shut Down Cooling Pump B Suction | R-881-SW Quad | C | 7.95E05 | 6m(L) | [5] |
| RHR-MO-MO15D | Limitorque | SMB-0 | Shut Down Cooling Pump D Suction | R-881-SW Quad | C | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO15D | Porter Peerless | | Shut Down Cooling Pump D Suction | R-881-SW Quad | C | 7.95E05 | 6m(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|--------------------|---------|----------------------------------|-----------------------|------|---------|---------------------|-----------|
| | | | | | I/F | Rad. | | |
| RHR-MO-MO13A | Limitorque | SMB-0 | RHR Pp. A Torus Suction | R-859-NW Quad | C | 5.9E05 | 6m(L) | Qualified |
| RHR-MOT-MO13A | Porter Peerless | | RHR Pp. A Torus Suction | R-859-NW Quad | C | 5.9E05 | 6m(L) | Qualified |
| RHR-MO-MO13C | Limitorque | SMB-0 | RHR Pp. C Torus Suction | R-859-NW Quad | C | 1.7E06 | 6m(L) | Qualified |
| RHR-MOT-MO13C | Porter Peerless | | RHR Pp. C Torus Suction | R-859-NW Quad | C | 1.7E06 | 6m(L) | Qualified |
| RHR-MO-MO13B | Limitorque | SMB-0 | RHR Pp. B Torus Suction | R-859-SW Quad | E | 1.7E06 | 6m(L) | Qualified |
| RHR-MOT-MO13B | Porter Peerless | | RHR Pp. B Torus Suction | R-859-SW Quad | E | 1.7E06 | 6m(L) | Qualified |
| RHR-MO-MO13D | Limitorque | SMB-0 | RHR Pp. D Torus Suction | R-859-SW Quad | E | 5.9E05 | 6m(L) | Qualified |
| RHR-MOT-MO13D | Porter Peerless | | RHR Pp. D Torus Suction | R-859-SW Quad | E | 5.9E05 | 6m(L) | Qualified |
| RHR-SOV-SPV70A,B | ASCO | 8320A10 | Residual HX Isolation | R-931 | NA | 1.93E04 | 1h(L) | Qualified |
| RHR-MO-MO17 | Limitorque | SMB-2 | Shut Down Cooling Outbd Valve | R-903-Inj. Valve Room | R | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO17 | Reliance | | Shut Down Cooling Outbd Valve | R-903-Inj. Valve Room | R | 7.95E05 | 6m(L) | [14] |
| RHR-MO-MO18 | Limitorque | SMB-2 | RHR Shut Down Inbd Isolation | DW-901 | A | 4.4E07 | 6D(L) | Qualified |
| RHR-MOT-MO18 | Reliance | | RHR Shut Down Inbd Isolation | DW-901 | A | 4.4E07 | 6D(L) | Qualified |
| RHR-MO-MO25A | Limitorque | SB-3 | Loop A Inbd Inj Block | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO25A | Porter Peerless | | Loop A Inbd Inj Block | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO25B | Limitorque | SB-3 | Loop B Inbd Inj Block | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO25B | Porter Peerless | | Loop B Inbd Inj Block | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO27A | Limitorque | SMB-4 | Loop A RHR Injection Control | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | [14] |
| RHR-MOT-MO27A | Electric Apparatus | | Loop A RHR Injection Control | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | [14] |
| RHR-MO-MO27B | Limitorque | SMB-4 | Loop B RHR Injection Control | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | [14] |
| RHR-MOT-MO27B | Electric Apparatus | | Loop B RHR Injection Control | R-903-Inj. Valve Room | H | 7.95E05 | 6m(L) | [14] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|---------|--|---------------------|------|---------|---------------------|-----------|
| | | | | | T/P | Rad. | | |
| RHR-MO-MO65A | Limitorque | SMB-1 | RHR Inlet to HX A | R-931-RHR HX Room A | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO65A | Porter Peerless | | RHR Inlet to HX A | R-931-RHR HX Room A | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO65B | Limitorque | SMB-1 | RHR Inlet to HX B | R-931-RHR HX Room B | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO65B | Porter Peerless | | RHR Inlet to HX B | R-931-RHR HX Room B | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO66A | Limitorque | SMB-3 | RHR HX A Bypass | R-903-RHR HX Room A | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO66A | Reliance | | RHR HX A Bypass | R-903-RHR HX Room A | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO66B | Limitorque | SMB-3 | RHR HX B Bypass | R-903-RHR HX Room B | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO66B | Reliance | | RHR HX B Bypass | R-903-RHR HX Room B | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO33 | Limitorque | SMB-00 | Head Spray Outbd Isolation | R-958 | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO33 | Reliance | | Head Spray Outbd Isolation | R-958 | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO12A | Limitorque | SMB-1 | RHR HX A Outlet Control | R-903-RHR HX Room A | I | 1.27E06 | 6m(L) | Qualified |
| RHR-MOT-MO12A | Porter Peerless | | RHR HX A Outlet Control | R-903-RHR HX Room A | I | 1.27E06 | 6m(L) | Qualified |
| RHR-MO-MO12B | Limitorque | SMB-1 | RHR HX B Outlet Control | R-903-RHR HX Room B | I | 1.27E06 | 6m(L) | Qualified |
| RHR-MOT-MO12B | Porter Peerless | | RHR HX B Outlet Control | R-903-RHR HX Room B | I | 1.27E06 | 6m(L) | Qualified |
| RHR-MO-MO16A | Limitorque | SMB-000 | Min. Flow Valve Control | R-881-NW Quad | C | 7.1E05 | 6m(L) | Qualified |
| RHR-MOT-MO16A | Porter Peerless | | Min. Flow Valve Control | R-881-NW Quad | C | 7.1E05 | 6m(L) | Qualified |
| RHR-MO-MO16B | Limitorque | SMB-000 | Min. Flow Valve Control | R-881-SW Quad | G | 7.1E05 | 6m(L) | Qualified |
| RHR-MOT-MO16B | Porter Peerless | | Min. Flow Valve Control | R-881-SW Quad | G | 7.1E05 | 6m(L) | Qualified |
| RHR-MO-MO34A | Limitorque | SMB-4 | Loop A Supp Chmbr Cooling Throttle Control | R-881-NW Quad | C | 6.36E05 | 6m(L) | Qualified |
| RHR-MOT-MO34A | Reliance | | Loop A Supp Chmbr Cooling Throttle Control | R-881-NW Quad | C | 6.36E05 | 6m(L) | Qualified |
| RHR-MO-MO34B | Limitorque | SMB-4 | Loop B Supp Chmbr Cooling Throttle Control | R-881-SW Quad | G | 6.36E05 | 6m(L) | Qualified |
| RHR-MOT-MO34B | Reliance | | Loop B Supp Chmbr Cooling Throttle Control | R-881-SW Quad | G | 6.36E05 | 6m(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement U.T. | Comments |
|----------------------------------|-----------------|-------------|----------------------------------|---------------------|------|---------|---------------------|---|
| | | | | | T/F | Rad. | | |
| RHR-MO-MO38A | Limitorque | SMB-0 | Loop A Torus Spray Valve Control | R-881-NW Quad | C | 9.18E05 | 6m(L) | Qualified |
| RHR-MO-MO38A | Reliance | | Loop A Torus Spray Valve Control | R-881-NW Quad | C | 9.18E05 | 6m(L) | Qualified |
| RHR-MO-MO39A | Limitorque | SMB-1 | Loop A Torus Spray Valve Control | R-881-NW Quad | C | 1.19E06 | 6m(L) | Qualified |
| RHR-MO-MO39A | Porter Peerless | | Loop A Torus Spray Valve Control | R-881-NW Quad | C | 1.19E06 | 6m(L) | Qualified |
| RHR-MO-MO38B | Limitorque | SMB-0 | Loop B Torus Spray Valve Control | R-881-SW Quad | C | 9.18E05 | 6m(L) | Qualified |
| RHR-MO-MO38B | Reliance | | Loop B Torus Spray Valve Control | R-881-SW Quad | C | 9.18E05 | 6m(L) | Qualified |
| RHR-MO-MO39B | Limitorque | SMB-1 | Loop B Torus Spray Valve Control | R-881-SW Quad | C | 1.19E06 | 6m(L) | Qualified |
| RHR-MO-MO39B | Porter Peerless | | Loop B Torus Spray Valve Control | R-881-SW Quad | C | 1.19E06 | 6m(L) | Qualified |
| RHR-MO-MO31A,C | CE | SK6346XC74A | Prime Mover for RHR Pumps | R-859-NW Quad | C | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO31A,D | CE | SK6346XC74A | Prime Mover for RHR Pumps | R-859-SW Quad | E | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO31A | Limitorque | SMB-0 | DW Spray Inbd Block | R-931-NW(ceiling) | J | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO31A | Reliance | | DW Spray Inbd Block | R-931-NW(ceiling) | J | 7.95E05 | 6m(L) | Dings XV4-62006-30 Brake SN 200925; Qualified |
| RHR-MO-MO31B | Limitorque | SMB-0 | DW Spray Inbd Block | R-903-SW | H | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO31B | Reliance | | DW Spray Inbd Block | R-903-SW | H | 7.95E05 | 6m(L) | Dings XV4-62006-30 Brake SN 200924; Qualified |
| RHR-MO-MO26A | Limitorque | SMB-0 | DW Spray Outbd Block | R-903-RHR IX Room A | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO26A | Reliance | | DW Spray Outbd Block | R-903-RHR IX Room A | I | 7.95E05 | 6m(L) | Dings XV4-62006-30 Brake SN 200929; Qualified |
| RHR-MO-MO26B | Limitorque | SMB-0 | DW Spray Outbd Block | R-903-RHR IX Room B | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO26B | Reliance | | DW Spray Outbd Block | R-903-RHR IX Room B | I | 7.95E05 | 6m(L) | Dings XV4-62006-30 Brake [5]; SN 200926 |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|--------------|-----------------------------------|---------------------------------|------|---------|---------------------|---|
| | | | | | T/F | Rad. | | |
| RHR-MO-MO32 | Limitorque | SHB-00 | Head Spray Isolation | DW-Flg. Area | A | 4.4E07 | 1h(L) | Qualified |
| RHR-MOT-MO32 | Reliance | | Head Spray Isolation | DW-Flg. Area | A | 4.4E07 | 1h(L) | Qualified |
| RHR-MO-MO21A | Limitorque | SMB-000 | HX A Drain to Torus Control | R-903-HX Room A | I | 7.95E05 | 6m(L) | [14] |
| RHR-MOT-MO21A | Reliance | | HX A Drain to Torus Control | R-903-HX Room A | I | 7.95E05 | 6m(L) | [14] |
| RHR-MO-MO21B | Limitorque | SMB-000 | HX B Drain to Torus Control | R-903-HX Room B | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO21B | Porter Peerless | | HX B Drain to Torus Control | R-903-HX Room B | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO36A | Limitorque | SHB-000 | RHR HX A To RCIC Suction Control | R-903-RHR HX Room A | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO36A | Porter Peerless | | RHR HX A To RCIC Suction Control | R-903-RHR HX Room A | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MO-MO36B | Limitorque | SHB-000 | RHR HX B To RCIC Suction Control | R-903-RHR HX Room | I | 7.95E05 | 6m(L) | Qualified |
| RHR-MOT-MO36B | Porter Peerless | | RHR HX B To RCIC Suction Control | R-903-RHR HX Room | I | 7.95E05 | 6m(L) | Qualified |
| RHR-PS-120B,C,D | Static-O-Ring | SN-AA3-X | RHR Pump Discharge ADS Permissive | R-859-NW Quad, R-859-SW Quad | C,E | 7.95E05 | 6m(L) | Rack 25-59, Rack 25-62; Qualified |
| RHR-PS-120A | Static-O-Ring | SN-AA3-X9STT | RHR Pump Discharge ADS Permissive | R-859-NW Quad | C | 7.95E05 | 6m(L) | Rack 25-59; Qualified |
| RHR-PS-105A,B,D | Static-O-Ring | SN-AA3-X | RHR Pump Discharge ADS Permissive | R-859-NW Quad, R-859-SW Quad | C,E | 7.95E05 | 6m(L) | Rack 25-59, Rack 25-62; Qualified |
| RHR-PS-105C | Static-O-Ring | SN-AA3-X9STT | RHR Pump Discharge ADS Permissive | R-859-NW Quad | C | 7.95E05 | 6m(L) | Rack 25-59; Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|---------|-----------------------------------|----------|------|--------|---------------------|-----------|
| | | | | | T/F | Rad. | | |
| RR-MO-M053A | Limiterque | SMB-3 | Recirc Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |
| RR-MOT-M053A | Porter Peerless | | Recirc Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |
| RR-MO-M053B | Limiterque | SMB-3 | Recirc Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |
| RR-MOT-M053B | Porter Peerless | | Recirc Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |
| RR-MO-M054A | Limiterque | SMB-000 | Recirc Bypass Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |
| RR-MOT-M054A | Reliance | | Recirc Bypass Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |
| RR-MO-M054B | Limiterque | SMB-000 | Recirc Bypass Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |
| RR-MOT-M054B | Reliance | | Recirc Bypass Disch Valve Control | DW-888 | A | 4.4E07 | 1h(L) | Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement v.t. | Comments |
|----------------------------------|--------------|-----------|--|----------------|------|---------|---------------------|----------------|
| | | | | | T/P | Rad. | | |
| RW-SOV-SPV732 | ASCO | HT-8345D1 | Isolates DW from Equipment Drain | R-859-NW Quad | NA | 7.95E05 | 6m(L) | [8]; Qualified |
| RW-LMS-732AV | Microswitch | DTE67RQ62 | Indication for Equipment Drain Isolation Valve | R-881-NW Torus | NA | 7.95E05 | 6m(L) | [8]; Qualified |
| RW-SOV-SPV733 | ASCO | HT-8345D1 | Isolates DW from Equipment Drain | R-859-NW Quad | NA | 7.95E05 | 6m(L) | [8]; Qualified |
| RW-LMS-733AV | Microswitch | DTE67RQ62 | Indication for Equipment Drain Isolation Valve | R-881-NW Torus | NA | 7.95E05 | 6m(L) | [8]; Qualified |
| RW-LMS-765AV | Microswitch | DTE67RQ62 | Indication for Drain Isolation Valve | R-881-NW Torus | NA | 7.95E05 | 6m(L) | [8]; Qualified |
| RW-LMS-766AV | Microswitch | DTE67RQ62 | Indication for Drain Isolation Valve | R-881-NW Torus | NA | 7.95E05 | 6m(L) | [8]; Qualified |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|--------------|---------|----------------------|--------------------|------|---------|---------------------|----------------|
| | | | | | T/F | Rad. | | |
| RWCU-MO-MO18 | Limitorque | SHB-00 | RWCU Outbd Isolation | R-931-RWCU HX Room | K | 5.57E06 | 1h(L) | Qualified; [8] |
| RWCU-MOT-MO18 | Reliance | | RWCU Outbd Isolation | R-931-RWCU HX Room | K | 5.57E06 | 1h(L) | Qualified; [8] |
| RWCU-DPIS-170A,B | Barton | 289A | RWCU High Line Flow | R-931 | J | 7.95E05 | 1h(L) | Qualified |
| RWCU-TS-81A-H | Fenwal | 17023-6 | Steam Leak Detection | R-931 RWCU HX Room | T | 5.57E06 | 1h(L) | Qualified |
| RWCU-MO-MO15 | Limitorque | SHB-00 | RWCU Inbd Isolation | DW-921 | A | 4.4E07 | 1h(L) | Qualified; [8] |
| RWCU-MOT-MO15 | Reliance | | RWCU Inbd Isolation | DW-921 | A | 4.4E07 | 1h(L) | Qualified; [8] |

| Component Identification Code | Manufacturer | Model | Part Name | Location | Env. Temp. T/F | Rad. R_{ad} | Req. comment V.I. | Comments |
|-------------------------------|--------------|------------|----------------------|----------------|------------------|---------------|----------------------|----------------------|
| SCT-800-EP02 | GE | 5825A02118 | EF-8-1E Fan Motor | R-976-SCT Room | NA | 4.3E06 | Sec(1) | [5] |
| SCT-800-EP03 | GE | 5825A02118 | EF-8-1E Fan Motor | R-976-SCT Room | NA | 4.3E06 | Sec(1) | [5] |
| SCT-800-EP04 | ASCO | 832146 | Pilot to AO-250 | R-976-SCT Room | NA | 1.22E06 | Sec(1) | [5] |
| SCT-800-EP05 | ASCO | 832146 | Pilot to AO-250 | R-976-SCT Room | NA | 1.22E06 | Sec(1) | [5] |
| SCT-800-EP06 | ASCO | 832146 | Pilot to AO-270 | R-976-SCT Room | NA | 9.64E02 | 1b(1) | Qualified |
| SCT-800-EP07 | ASCO | 832146 | Pilot to AO-271 | R-976-SCT Room | NA | 9.64E02 | 1b(1) | Qualified |
| SCT-800-EP08 | ASCO | 832146 | Pilot to AO-251 | R-976-SCT Room | NA | 1.72E06 | Sec(1) | [5] |
| SCT-800-EP09 | ASCO | 832146 | Pilot to AO-252 | R-976-SCT Room | NA | 1.72E06 | Sec(1) | [5] |
| SCT-800-EP10 | ASCO | 1283445 | Pilot to AO-255 | R-976-SCT Room | NA | 9.64E02 | 1b(1) | Qualified |
| SCT-800-EP11 | ASCO | 1283445 | Pilot to AO-255 | R-976-SCT Room | NA | 9.64E02 | 1b(1) | Qualified |
| SCT-800-EP12 | ASCO | 832146 | Pilot to EP-SCT 8.2 | R-976-SCT Room | NA | 9.64E02 | 1b(1) | Qualified |
| SCT-800-EP13 | Boysen-11 | 31201-03 | SCT Auto Test Signal | R-976-SCT Room | NA | 1.19E06 | Sec(1) | S/N R0005516011; [5] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|-------------------------------|----------------------|--------------|---|----------------------|------|---------|------------------|---------------------|
| | | | | | T/P | Rad. | | |
| SCT-007-543A,B | Honeywell | 297130101 | Measures d/p Across Train Filters. Controls Flow through Train and Actuates Other Train Fan on High d/p | R-976-SCT Room | NA | 1.14E06 | 6m(L) | S/N 4537194, 7; [5] |
| SCT-007-533A,B | Claude S. Gordon Co. | 402-3107-001 | Measures Temperature Downstream of Prefilter | R-976-SCT Room | NA | 1.25E07 | 6m(L) | [5] |
| SCT-007-533A,B | Claude S. Gordon Co. | 402-3107-001 | Measures Temperature Downstream of Iodine Absorber | R-976-SCT Room | NA | 7.14E07 | 6m(L) | [5] |
| SCT-007-533A,B | Burns Eng'r. | 87810-5.5-3A | Measures Temperature Downstream of Heaters | R-976-SCT Room | NA | 1.25E07 | 6m(L) | [5] |
| SCT-007-533A,B | Honeywell | 52P-1290 | Measures Moisture Downstream of Heaters | R-976-SCT Room | NA | 1.25E07 | 6m(L) | [5] |
| SCT-007-547 | Thermo-Electric Co. | AD-14-T-Q-P | Measures Temp of Flow to ERP | R-976-SCT Room | NA | 1.25E07 | 6m(L) | [5] |
| SCT-007-540A | Bell Mfg Inc. | 35005-S | Energizes "A" Heaters, or On Low Flow "A" Train Filters and Fans | R-976-SCT Room | NA | 1.22E06 | 6m(L) | Qualified |
| SCT-007-540B | Bell Mfg Inc. | 35005-S | Energizes "B" Heaters, or On Low Flow "B" Train Filters and Fans | R-976-SCT Room | NA | 1.22E06 | 6m(L) | Qualified |
| SCT-007-545 | Milltron Roy | 25.244033432 | SCT Flow to ERP Mitter | R-976-SCT Valve Room | L | 1.78E5 | 6m(B) | [5] |
| SCT-007-520 A,B | Indeco | EPX | Reduces Moisture Content by Heating Air | R-976-SCT Room | NA | 1.25E07 | 6m(L) | [2] |
| SCT-007-540 A,B | Honeywell | 14000E | Heater Thermal Output | R-976-SCT Room | NA | 1.25E07 | 6m(L) | [5] |
| SCT-007-541 A,B | Honeywell | 14000E | Heater Thermal Output | R-976-SCT Room | NA | 1.25E07 | 6m(L) | [5] |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. T/P | Rad. | Requirement O.T. | Comments |
|----------------------------------|-----------------------|----------|------------------------------------|----------------|-------------|---------|---------------------|----------|
| SGT-EP-343 A, B | Honeywell | 31701-03 | Inlet/Outlet DP Control | R-976-SGT Room | NA | 1.19E06 | 6m(L) | 151 |
| SGT-TS-539 A, B | Burling Instr. Co. | B-2C | Monitors Train A, B Outlet Temp | R-976-SGT Room | NA | 1.25E07 | 6m(L) | 151 |

| Component Identification Code | Manufacturer | Model | Function | Location | Env. | | Requirement O.T. | Comments |
|----------------------------------|-----------------|-------|------------------------------------|-----------------------|------|---------|---------------------|------------------------|
| | | | | | I/P | Rad. | | |
| SW-FT-97A | GE | 555 | Flow of SW to RHR HX | R-859-NW Quad | C | 7.95E05 | 6m(L) | S/N 4537189,90; [5][8] |
| SW-FT-97B | GE | 555 | Flow of SW to RHR HX | R-859-SW Quad | E | 7.95E05 | 6m(L) | S/N 4537189,90; [5][8] |
| SW-MO-MO89A | Limitorque | SMB-3 | Disch from RHR HX SW Valve Control | R-903-RHR HX Room A | I | 7.95E05 | 6m(L) | [14] |
| SW-MOT-MO89A | Porter Peerless | | Disch from RHR HX SW Valve Control | R-903-RHR HX Room A | I | 7.95E05 | 6m(L) | [14] |
| SW-MO-MO89B | Limitorque | SMB-3 | Disch from RHR HX SW Valve Control | R-903-RHR HX Room B | I | 7.95E05 | 6m(L) | [14] |
| SW-MOT-MO89B | Porter Peerless | | Disch from RHR HX SW Valve Control | R-903-RHR HX Room B | I | 7.95E05 | 6m(L) | [14] |
| SW-MO-886MV | Crane-Teledyne | T1-02 | SW to REC Inter-tie Control | R-931-NE | J | 7.95E05 | 6m(L) | [5] |
| SW-MOT-886MV | Porter Peerless | | SW to REC Inter-tie Control | R-931-NE | J | 7.95E05 | 6m(L) | [5] |
| SW-MO-887MV | Crane-Teledyne | T1-02 | SW to REC Inter-tie Control | R-931-Rec Pump Area | J | 7.95E05 | 6m(L) | [5] |
| SW-MOT-887MV | Porter Peerless | | SW to REC Inter-tie Control | R-931-Rec Pump Area | J | 7.95E05 | 6m(L) | [5] |
| SW-MO-888MV | Crane-Teledyne | T1-02 | SW Ret from REC Inter-tie Control | R-903-N of CRD Accum. | H | 7.95E05 | 6m(L) | [5] |
| SW-MOT-888MV | Porter Peerless | | SW Ret from REC Inter-tie Control | R-903-N of CRD Accum. | H | 7.95E05 | 6m(L) | [5] |
| SW-MO-889MV | Crane-Teledyne | T1-02 | SW Ret from REC Inter-tie Control | R-903-N of CRD Accum. | H | 7.95E05 | 6m(L) | [5] |
| SW-MOT-889MV | Porter Peerless | | SW Ret from REC Inter-tie Control | R-903-N of CRD Accum. | H | 7.95E05 | 6m(L) | [5] |

FOOTNOTES - INFORMATION ONLY

- [1] Qualification contingent upon relocation to shield enclosure.
- [2] Qualification contingent upon replacement of Continental wire.
- [3] [Deleted]
- [4] Limiting environmental requirements to be established. [Deleted]
- [5] Recommended for replacement.
- [6] Qualification contingent upon installation of Raychem motor connection kit. [Deleted]
- [7] Qualification contingent upon installation of a conduit penetration seal.
- [8] Also on RG 1.97 Equipment List.
- [9] Profile not developed. [Deleted]
- [10] Product is manufactured by Snap-Tite, but is purchased from AVCO.
- [11] Recommended for relocation to less harsh environment.
- [12] Qualification contingent upon upgrading of enclosure to NEMA 4.
- [13] Buchanan 0241 terminal blocks located in radiation only areas are qualified - see Calc. File.
- [14] Test Report applicability requested from Limiterque.
- [15] Qualification contingent upon replacement of internal Acro switch with qualified microswitch.
- [16] Qualification pending replacement of Brake coil.
- [17] Qualification contingent upon installation of qualified hook-up wire.
- [18] To be resolved by a) reduction or elimination of external environmental conditions based on leak-before-break analysis, b) implementation of a purge-air system to control internal environmental response, c) combination of a) and b) or other methods as they become identified.