VIRGINIA ELECTRIC AND POWER COMPANYDISTRIBUTION RICHMOND, VIRGINIA 23261

October 31, 1980

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Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. B. Joe Youngblood, Chief
Licensing Branch 1
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Serial No. 886 NO/RGS:jmj Docket No.: 50-339 License No.: NPF-7

Dear Sir:

NORTH ANNA POWER STATION UNIT NO. 2

This is in response to NUREG-0588: "Environmental Qualification of Safety-Related Electrical Equipment" and the licensing requirement for compliance to the NRC "Memorandum and Order (CLI-80-21)" dated May 23, 1980 on environmental qualification of electrical components.

The results of this review are provided in the enclosed report:

VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANNA POWER STATION UNIT 2 NUREG-0588 REVIEW REVISION 1 NOVEMBER 1980

The details of any modifications or component environmental test programs resulting from this review will be submitted by December 1, 1980.

If we can be of assistance in clarifying or interpreting this report, please advise.

Very truly yours,

B. R/Sylvia
Mahager - Nuclear
Operations and Maintenance

Enclosures (7)

cc: Mr. Victor Stello, Director (Enclosures-2)
NRC Office of Inspection and Enforcement
Division of Reactor Operations Inspection
Washington, D.C. 20555

THIS DOCUMENT CONTAINS
POOR QUALITY PAGES

Dr. Zoltan R. Rosztoczy, Branch (hief (Enclosure-1) NRC Equipment Qualification Branch Division of Engineering Washington, D.C. 20555

8011040312

COMMONWEALTH OF VIRGINIA)		
)	S.	S.
CITY OF RICHMOND)		

Before me, a Notary Public, in and for the City and Common-wealth aforesaid, today personally appeared B. R. Sylvia, who being duly sworn, made oath and said (1) that he is Manager-Nuclear Operations and Maintenance of the Virginia Electric and Power Company, (2) that he is duly authorized to execute and file the foregoing statements in behalf of that Company, and (3) that the statements are true to the best of his knowledge and belief.

Given under my hand and notarial seal this 3/1/ day of

My Commission expires 100 .

Acolyof Motary Public

(SEAL)

VEPCO

NORTH ANNA POWER STATION

UNIT 2

NUREG-0588 REVIEW

REVISION 1

NOVEMBER 1980

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INTRODUCTION

Revision 1 November 1, 1980

INTRODUCTION

The review of electrical equipment qualification contained in this report is supplied in response to the February 19, 1980 NRC letter to nearterm operating plant licensees. That letter required that the previous submittals of reports for Class IE electrical equipment qualification be compared against the latest version of the draft NUREG-0588. The earlier reports on environment qualification of Class IE electrical equipment were generated in response to IE Bulletin 79-01. These reports were forwarded to the NRC by VEPCO letters dated September 17 and November 2, 1979; and February 25, 1980. A previous report on NUREG-0588 was issued by VEPCO letter dated June 20, 1980.

This report has been divided into the following sections:

Introduction

Discussion Section 1-7

This section includes a point by point response to NUREG-0588 and applicable questions from IE Bulletin 79-01B, Supplement 2.

Zone Conditions Section 8 Zones have been developed based on normal and accident environments. The zones are depicted and described on a plot plan of the site. The environmental parameters of each area are tabularized on the zone description tables.

Master List Section 9 This section includes the computerized Master List of all equipment required to operate for mitigation of the postulated accidents. The Master List gives the equipment mark number and description, manufacturer, system, accident function, and file number. The file number refers to a file in which is located the equipment specification, qualification documentation and zone definition. The file number is also the qualification sneet page number. Any 1E equipment which is not required to operate in a narsh environment to mitigate an accident does not have a file number or qualification sheet and is indicated by NA on the Master Lists.

The Master List provided has been sorted on the five following fields:

- A. File Number
- B. Equipment Description

- C. Manufacturer
- D. System
- E. Mark Number

sheet defining the various accident functions is also provided.

Section 10

Qualification and This section includes all equipment which will Evaluation Tables see a harsh environment while performing its function to mitigate an accident. On single sheet tables, the left column on the sheet equipment information, accident lists function, description of accident environment, and operability requirements. The right column gives the environment to which equipment is qualified, operability demonstrated, qualification documents, and deficiencies and recommended solutions.

References Section 11

The reference sheet includes listing of all the qualification documentation referenced in the report.

Conclusion Section 12

A detailed conclusion which lists all outstanding items and provides a replacement, testing schedule and/or justification. The conclusion section identifies all outstanding items. Included in this section is the justification for continued plant operation along with a replacement or re-test schedule. DISCUSSION

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Revision 1 November 1, 1980

ESTABLISHMENT OF THE QUALIFICATION PARAMETERS FOR DESIGN BASIS EVENTS (DBE)

This review of environmental qualification of Class IE electrical equipment and components for North Anna Unit 2 is based upon the guidelines outlined for Category II plants as defined by NUREG-0589, *Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment." NUREG-0588 is in draft form at this time; the version used for this review was issued to operating license applicants by an NRC letter on February 5, 1980. In addition to the guidelines listed in pages 5 through 17 and Appendices A through D of the subject document, discussions between VEPCO and NRC staff were considered in this review. Differences between the NUREG-0588 guidelines and the methods specifically employed in the reevaluation are detailed below.

The numbers in parentheses following the specific paragraphs reference the NUREG-0588 section numbers.

1.1 TEMPERATURE AND PRESSURE CONDITIONS INSIDE CONTAINMENT - LOSS-OF-COOLANT ACCIDENT (LOCA)

The time-dependent temperature and pressure established for the design of the containment structure are described in FSAR Section 6.2.1. These parameters have previously been found acceptable by the NRC staff, and are used for equipment qualification. (See NUREG-0588 Section 1.1, Subsection 1)

The methods used to calculate mass and energy release rates following a loss-of-coolant accident (LOCA) and a main steam line break (MSLB) have been accepted by the NRC for the containment functional design, as noted in the North Anna Safety Evaluation Report NUREG-0053 (Section 6.2.1 for a LOCA, and Section 6.2.1 of Supplement 3 for an MSLB). The mass and energy release rates for both the LOCA and MSLB were calculated with the LOCTIC computer code using data from the Westinghouse REFLOOD code for the reflood phase of the LOCA, and using data from the Westinghouse FROTH code for the post-reflood phase of the LOCA. (Sect 1.1, Subsect 1)

LOCTIC is also an equivalent industry code to CONTEMPT-LT and, therefore, is deemed acceptable for calculating containment transients. The assumption of partial revaporization, which was not used in the North Anna MSLB analysis, is now allowed. Lack of use of this assumption increases the conservatism of the present MSLB analysis. (Sect 1.1, Subsect 1)

The time-dependent temperature-pressure criteria for a LOCA are established by methods described in Sect 1.1 above; NUREG-0588 Section 1.1, Subsections 2, 3, and 4 do not apply for this review.

1.2 TEMPERATURE AND PRESSURE CONDITIONS INSIDE CONTAINMENT - MAIN STEAM LINE BREAK (MSLB)

Environmental profiles for an MSLB were developed for a plant-specific model in the FSAR and have been reviewed and accepted by the NRC staff. The model utilized for the MSLB environment is described in Section 1.1 above. (Section 1.2, Subsect 1 through 4)

The suitability of LOCA equipment qualification as a basis for qualification to MSLB is documented in FSAR Section 3C and the response to Comment 7.17, and has been reviewed and accepted by the NRC staff. (Sect 1.2, Subsect 5)

For most equipment, heat transfer calculations showed that the peak surface temperature of the component did not exceed the LOCA qualification temperature. For that equipment for which the peak surface temperature was shown to exceed the LOCA qualification temperature, further investigations were performed to show that this equipment maintained its functional capability at the higher temperature calculated for the MSLB. This procedure was found acceptable to the NRC staff as stated in Section 3.10.2 of Supplement No.8 to the Safety Evaluation Report (SER). (Sect 1.2, Subsect 5)

The peak equipment surface temperatures have been calculated for an MSLB using methods which result in higher temperatures than those methods listed in Appendix B of NUREG-0588. Appendix B, Item 2.b, states "A convective heat transfer coefficient should be used when the condensing heat flux is calculated to be less than the convective heat flux." The North Anna-2 equipment temperature transients were calculated by adding the heat flux from condensation and convective heat transfer. This calculation results in a slight overprediction of heat transfer to the equipment and is therefore a conservative assumption. (Sect 1.2, Subsect 5)

Appendix B, Item 2.b, of NUREG-0588 also gives a correlation of the velocity as a function of the blowdown rate and containment volume. A constant velocity of 30 ft/sec was used in the North Anna-2 analysis. For the North Anna-2 blowdown rates, the correlation gives a velocity greater than 30 ft/sec for a few seconds after the rupture. However, the velocity continually decreases with time as the blowdown rate decreases and is less than 30 ft/sec after the first few seconds. Use of a constant value of 30 ft/sec is conservative with respect to heat transfer to the equipment. (Sect 1.2, Subsect 5)

1.3 THE EFFECTS OF CHEMICAL SPRAY

The effects of caustic spray were addressed in Section 6.2.3 of the FSAR. Single failure was considered, so that the most severe caustic spray environment was addressed and is reflected on the equipment/component qualification and evaluation sheets. (Sect 1.3)

1.4 RADIATION CONDITIONS INSIDE AND OUTSIDE CONTAINMENT

The radiation environment for qualification of equipment and components is based on the normally expected radiation environment over the life of the plant (40 years), plus that associated with the most severe design basis accident (DBA). The radiation dose rates are based upon results obtained from the NUREG-0578, Section 2.1.6b design review. Consideration was given to source strength, source volume, structural shielding arrangements, and piping locations. (Sect 1.4)

The analysis to determine the LOCA radiation environment at North Anna is based on the instantaneous release from the fuel to the atmosphere of 100 percent of the noble gas, 50 percent of the iodines, and 1 percent of the remaining fission products. The only non-LOCA accident considered for radiological equipment qualification is an MSLB. The analysis to determine the MSLB radiation environment is based on instantaneous release from the fuel of 5 percent of the noble gases and 5 percent of the iodines in the fuel cladding gap. Additionally, the steam generator activity prior to MSLB was assumed to be that due to a 10 gpm primary-to-secondary leak with 1 percent failed fuel. (Sect 1.4, Subsect 1)

The radiation qualification for equipment required to operate for an MSLB is in excess of the calculated radiation environment using NUREG-0588 source terms. Using the NUREG-0588 LOCA source term, the containment centerline 120-day integrated dose for LOCA is calculated to be 1.8 x 107 rads. When added to the 40-year normal operating dose of 3 x 107 rads, the total dose is 4.8 x 107 rads, which is the value used in this review for components inside the crane wall. The use of LOCA doses for radiation qualification for MSLB results in conservative doses for MSLB radiation qualification. (Sect 1.4, Subsect 1)

The analysis for the radiation environment assumed a release uniformly distributed in the containment, which is consistent with NUREG-0588, Appendix D, Page D-5, for a PWR. (Sect 1.4, Subsect 2)

See response to the above paragraph which refers to NUREG-058, Sect 1.4, Subsect 3, Description of Activity.

The analysis for the LOCA or MSLB radiation environment does not take into account the removal of airborne activity in the containment by the engineered safety features (ESF) systems or leakage. It does account for radioactivity decay. It also assumes that 50 percent of the iodine released from the fuel plates—out in a very short time in accordance with Regulatory Guide 1.4. The present analysis results in higher airborne activities than those calculated by the method of NUREG-0588, Appendix D, and is therefore conservative. (Sect 1.4, Subsect 4)

The present LOCA and MSLB radiation environment assumes 50 percent instantaneous plate-out of the iodine released from the core in accordance with Regulatory Guide 1.4. This assumption is conservative as stated in NUREG-0588, Page D-6. (Sect 1.4, Subsect 5)

The present LOCA and MSLB radiation environment calculates the dose and dose rate at the center point of the containment; these values are used for unshielded equipment qualification. The dose rate for unshielded equipment is evaluated with respect to dose contribution of location-dependent sources, such as the sump water. (Sect 1.4, Subsect 6)

Integrated dose calculated for equipment qualification is based on a gamma source only. All cables used in the North Anna-2 containments, except the 300 V instrument cable supplied under Purchase Order No. NA-265/1265, and the electrical penetrations including splicing material, are qualified to 2 x 10° rads. When the beta dose was added to the presently calculated gamma dose in accordance with NUREG-0588, the total dose did not exceed 2 x 10° rads; this qualification affects all cables which are required for accident mitigation. The 2 x 10° rads dose has been found acceptable. (Sect 1.4, Subsect 7)

Shielded components were qualified based on a gamma source in accordance with NUREG-0588. (Sect 1.4, Subsect 8)

The beta dose to unshielded equipment and components has been evaluated for the 300 V instrument cable and electrical penetrations. NRC IE Bulletin 79-01B, Section 4.1-2, provides amplifying instructions to NUREG-0588 with regard to the effects of beta radiation dose to electrical equipment. IE Bulletin 79-01B, Section 4.1-2, states that "the conservative beta surface dose of 1.4 x 108 rads reported in Appendix D of NUREG-0588 would be reduced by approximately a factor of 10 within 30 mils of the electrical cable insulation of unit density. surface additional 40 mils insulation (total of 70 mils) results in another factor of 10 reduction in dose. Any structures or other equipment in the vicinity of the equipment of interest would act as shielding to further reduce beta doses. If it can be shown, by assuming a conservative unshielded beta surface dose of 2.0 x 100 rads and considering the shielding factors discussed

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here, the beta dose to radiation sensitive equipment internals would be less than or equal to 10% of the total gamma dose to which an item of equipment has been qualified, then that equipment or component may then be considered qualified for the total radiation environment (gamma plus beta). Since the 300 V instrument cable and electrical penetrations have been qualified to a gamma dose of 1 x 10° rads, they can be considered qualified for the total radiation environment (gamma plus beta) if 70 mils of insulation and/or jacketing is present. Review of equipment and components at North Anna-2 indicates that this requirement is satisfied. (Sect 1.4, Subsect 9)

The integrated dose calculated for the North Anna-2 containment paint coating is based on a gamma source only. Addition of the beta dose to the presently-calculated gamma dose results in a calculated dose in excess of 1 x 10 rads. (Sect 1.4, Subsect 10)

North Anna paint coatings that were used on steel are qualified for 1 x 10° rads. Paint coatings used on concrete were tested to 1 x 10° rads, and other data for tested coatings comparable to coatings used for containment indicated that good results were obtained for 1 x 10° rad dose. (Sect 1.4, Subsect 10)

The present analysis to determine the radiation environment for Emergency Core Cooling System (ECCS) components is in accordance with NUREG-0588. (Sect 1.4, Subsect 11)

During the evaluation of NRC IE Circular 78-08 and Bulletin 79-01, Stone & Webster (S&W) used a radiation "threshold" of 2,500 rads and considered all equipment exposed to less radiation to be exempt from specific qualification requirements. This threshold value was based on an engineering review of material susceptibility to radiation damage as presented in existing literature. This threshold of 2,500 rads is believed to be reasonable and acceptable. (Sect 1.4, Subsect 12)

See responses to (Section 1.4, Subsections 7-12) (Section 1.4, Subsect, Qualification Acceptance 13)

A conservative analysis of equipment has been used as detailed in responses to Section 1.4, Radiation Conditions Inside and Outside Containment. (Section 1.4, Subsect 14)

1.5 ENVIRONMENTAL CONDITIONS OUTSIDE CONTAINMENT

The high energy line break (HELB) analysis of equipment located outside containment is addressed in FSAR Appendix C, and Comment S7.17. Although specific environmental conditions and durations are not identified in these documents, S&W has utilized postulated worst-case conditions for the equipment qualification review. Required equipment whose qualification has not been

demonstrated to these worst-case conditions has been identified. In some cases, specific environmental conditions may be developed to demonstrate the acceptability of qualification to less severe environments. (Sect 1.5, Subsect 1)

The equipment required for accident mitigation located in general plant areas has been identified, as well as ventilation systems utilized in these areas and 40-year and accident radiation levels. (Sect 1.5, Subsect 2)

Equipment located in areas where a loss of the environmental support system may expose some equipment to environments that exceed their qualified limits are provided with ambient temperature monitors, which will alert the operator that abnormal conditions exist, and permit an assessment of these conditions in order to determine corrective action. (Sect 1.5, Subsect 3)

SECTION 2

QUALIFICATION METHODS

2.1 SELECTION OF METHODS

The qualification methods used conform to the requirements defined in IEEE Standard 323-1971, except for equipment procured prior to acceptance of IEEE-323 by the Atomic Energy Commission, or equipment qualified under the current daughter standards. A discussion of the qualification methods used is found in FSAR Section 3.11 and the response to NRC Questions referenced therein. (Sect 2.1, Subsect 1)

Testing is the primary method of qualification. Analysis has been used to verify or amplify test results. For equipment inside the containment exposed to MSLB conditions, special analytical methods were used in conjunction with type testing. The ten degree Celsius (10°C) rule was the primary means used to determine post-accident operability. (Sect 2.1, Subsect 2)

A detailed discussion of analytical techniques and conclusions is presented in Appendix 3C of the FSAR, the response to Comment 7.17, and Section 3.10.2 of Supplement 8 of the SER (NUREG-0053). (Sect 2.1, Subsect 2)

The basis for the time interval required for operability of a component is an analysis of the accident and the function of the component. The resulting operability requirements under harsh conditions are identified on the qualification and evaluation sheet for the component. Operability and failure criteria are discussed in Section 2.2; margins are discussed in Section 3. (Sect 2.1, Subsect 3)

Equipment that must function in a harsh environment resulting from an accident in order to mitigate the accident will be qualified to demonstrate its operability for the time required by test or as described in Sections 2.2 and 2.4. (Sect 2.1, Subsect 3a)

Analysis of equipment that need not function in order to mitigate an accident for its affects on plant operation will be handled by response to NUREG-0585 "TMI-2 Lessons Learned Task Force Final Report" when it is implemented by the NRC. (Sect 2.1, Subsect 3b, 3c)

The criteria used for North Anna-2 environmental qualification of equipment or components subject to events other than DBA are that qualification must be demonstrated by actual tests, analysis, or operating history, or a combination thereof. (Sect. 2.1, Subsect 4)

2.2 QUALIFICATION BY TEST

Operability requirements are defined in the procurement documents. Any failures identified during the environmental qualification effort are reviewed and evaluated relative to their effect on the ability of the component to perform its required function. (Sect 2.2, Subsect 1)

The results of the tests demonstrated that the equipment can perform its required functions. The subject of margins is addressed in Section 3. (Sect 2.2, Subsect 2)

The qualification methods and documentation concerning test procedures, when not specified in accordance with Section 5.2 of IEEE-323-1971, were judged to be acceptable as they specify the accident-based environmental conditions in which the equipment may be expected to function. (Sect 2.2, Subsect 3)

Separate profiles were developed for a LOCA and an MSLB, as described in the FSAR, Sections 15.4 and S7.17. (Sect 2.2, Subsect 4)

The flood level has been addressed as referenced on the equipment/component qualification and evaluation sheets. (Sect 2.2, Subsect 5)

The temperature to which equipment is qualified, when exposed to the simulated accident environments, is verified by temperature measurements consistent with the specified requirements. For example, if ambient temperature is specified, test reports were be reviewed to ensure that ambient temperature readings were taken during testing to verify the adequacy of the test. (Sect 2.2, Subsect 6)

Qualification documentation was reviewed to ensure that the operability of equipment (reference Section 2.1.3) demonstrated. Verification of equipment performance characteristics throughout its range of required operability did not necessarily require verification periodically during testing, nor was continuous monitoring of the operability status necessarily required. For example, when testing was being performed to simulate long-term effects on operability, testing and/or continuous monitoring during the test was not required. Operability of the equipment was verified before and after such testing. (Sect 2.2, Subsect 7)

When testing was being performed to verify performance characteristics over a range of environmental conditions, verification of operability at the most extreme conditions demonstrated operability for the intermediate conditions. (Sect 2.2, Subsect 7)

The temperature and pressure conditions at which caustic spray was applied during testing of components has been reviewed. Sect 2.2, Subsect 8)

The operability status of equipment in response to NUREG-0588 Section 2.2, Subsection 9, is justified above in the discussion of verification of performance in response to NUREG-0588 Section 2.2, Subsection 7.

(See response to Section 2.2, Subsection 7. (Sect 2.2, Subsec 9, Operability Status)

Application of expected extremes in power supply voltage range and frequency during testing to extreme environmental conditions was not specified in procurement specifications nor required by IEEE-323-1971. (Sect 2.2, Subsect 10)

The expected extremes in power supply voltage and frequency were specified as design parameters for all safety-related equipment. The results of an analysis of the 4 kV and 480 V power systems indicate that proper voltage levels are maintained. (Sect 2.2, Subsect 10)

In order to further ensure that adequate voltages exist on the emergency 4 kV and 480 V systems, a degraded bus voltage protection system has been installed. This system will ensure that the emergency power system voltage does not remain degraded below 90 percent (reference VEPCO letter to NRC, dated 10/29/78). (Sect 2.2, Subsect 10)

The vital bus system which provides power to safety-related instrumentation is powered from a regulated power source designed to maintain a voltage of 118 V ±2 percent and frequency of 60 Hz ±2 Hz (reference FSAR Section 8.3.1.2). (Sect 2.2, Subsect 10)

The 125 Vdc buses are normally fed from batteries that are maintained by battery chargers. All dc equipment is specified to operate over the voltage range encountered during normal and accident conditions. (Sect 2.2, Subsect 10)

All Class IE electrical equipment is enclosed in NEMA Type 1 through 12 enclosures as defined in Fublication No. IC4-1958, thereby guarding against the adverse affects of dust. (Sect 2.2, Subsect 11)

Cobalt 60 is considered an acceptable gamma radiation source for environmental qualification. (Sect 2.2, Subsect 12)

2.3 TEST SEQUENCE

The test sequence selected has been reviewed and, when determined to be unjustified, has been identified on the qualification sheets. (Sect 2.3, Subsect 1)

Tests performed were reviewed to ensure that postulated environments were simulated as closely as practicable. (Sect 2.3, Subsect 2)

The qualification methods and documentation concerning test procedures, when not in accordance with Section 5.2 of IEEE 323-1971, were considered to be acceptable if determined that they specified the required accident environmental conditions and equipment operability requirements. (Sect 2.3, Subsect 3)

Any deviation from sequential testing were addressed and evaluated on the applicable qualification sheets. (Sect 2.3, Subsect 4)

2.4 OTHER QUALIFICATION METHODS

Any deviation from actual qualification testing is addressed on the applicable qualification sheets. (Sect 2.4) 1

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SECTION 3

MARGINS

For equipment inside the containment, the discussion and conclusion of margins in the qualification program is discussed in Section 3.10.2 of the SER Supplement 8. (Sect 3, Subsect 1, 2, 3)

MSLB conditions are more severe than LOCA for all environmental parameters except for radiation. Radiation qualification is discussed in Section 3.10.3 of Supplement 9 of the SER. This report uses radiation values computed under the guidelines of NUREG-0578, thus adding to the conservatism of the enveloping parameters. (Sect 3, Subsect 1, 2, 3)

All equipment is qualified for time periods in excess of those required to provide equipment's safety function. The guideline that a minimum of 1-hour duration for qualified life be demonstrated was not promulgated at the time this equipment was tested. (Sect 3, Subsect 4)

AGING

Equipment that has known aging mechanisms is addressed on the applicable qualification sheets. (Sect 4, Subsect 1)

All Class IE electrical equipment is assessed for operability at specified time intervals by systematic application of the plant's periodic test program (see VEPCO's Technical Specifications for surveillance requirements of safety equipment). When this program detects any inoperable equipment, the equipment or component will be analyzed. If equipment inoperability is determined to be caused by aging, the equipment or component will be reviewed to determine necessary action. (Sect 4, Subsect 2)

Equipment or component operability is defined as that condition which meets the requirements of the manufacturer's technical specification. (Sect 4, Subsect 2)

The use of the periodic test program, coupled with a detailed analysis of all Class IE inoperable equipment and other sources of information, should satisfy the aging requirement and provide assurance that Class IE equipment and components will perform when needed. (Sect 4, Subsect 2)

The other sources of information principally would be derived from: (Sect 4, Subsect 2)

- 1. Licensee event reports filed by other utilities.
- NRC I&E Circulars and Bulletins.
- Vendor specific data reports.

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SECTION 5

QUALIFICATION DOCUMENTATION

During the review of submitted qualification documentation, when it is determined that actual test data were not submitted (i.e., test summaries and/or certificates of conformance only were submitted) actual test data was requested. If such data cannot be submitted because it is considered proprietary by the manufacturer, an audit of this data was made. Testing summaries and/or certificates of conformance was not considered acceptable on their own merit. (Sect 5, Subsect 1)

A final determination of the acceptability of qualification documentation considered the requirements of IEEE-323-71.

(Sect 5, Subsect 1)

In preparation of the NUREG-0588 response, equipment was classified into three categories: (Sect 5, Subsect 2)

1. Actual Test Report, or Audits of test data:

Reports supplied detailed information on the test methods. Direct correlation with actual plant environment were made.

When this form of documentation was used to qualify equipment, a copy of the actual test report or an audit of records was arranged to verify the contents.

Summary of Testing:

These documents provide a summary of the actual test data. In many cases, the acceptability of the equipment described was demonstrated.

Certification of Compliance:

No determination of environmental acceptability was made on the basis of the certificate. Vendors were contacted to provide the basis for certifying compliance with the technical requirements of the purchaser document. If the basis for compliance was a method described in NUREG-0588, arrangements were made for an audit of the data used.

SECTION 6

INSTALLATION INTERFACES

To ensure the validity of the listed information, an as-built QA test program (Reference Special Test-28) has been developed to verify the required component identification information and the installed termination method and cable entry sealing.

This has been done to ensure the applicability of the test documentation to installed equipment.

Any items found not to have sufficient qualification documentation will be replaced.

VEPCO's schedule for completion of this test program is February 1, 1981.

SECTION 7 RESPONSE TO SUPPLEMENT 2, 79-01B

- 7.1 COMMENTS ON GENERIC QUESTIONS AND ANSWERS TO 128-79-018 AND MEMORANDUM AND ORDER (CLI-80-21) DATED MAY 23, 1980
- Q.1 Derine the scope of review with respect to the June 1982 deadline. What is required beyond the June 1982 date for qualification?
- A. 1 By June 30, 1982, all sarety-related electrical equipment potentially exposed to a harsh environment in nuclear generating stations, licensed to operate on or before June 30, 1982, shall be qualified to either the DOR guidelines or NUREG-0588 (as applicable). Safetyrelated electrical equipment are those required in bringing the plant to a cold shutdown condition and to mitigate the consequences of the accident. qualfication of safety-related electrical equipment to function in environmental extremes, not associated with conditions, is the responsibility of the accident licensee to evaluate and document in a form that will be available for the NRC to aduit. Qualification to assure functioning in mild environments must be completed by June 30, 1982.

The qualification schedules are being developed for consideration of the dynamic loading of safety-related equipment (electrical and mechanical) and the environmental qualification review of mechanical equipment. It is the intention of the starf to initiate this effort as soon as possible.

VEPCO 1 Equipment addressed in this report includes all Class IE equipment affected by and required to mitigate an accident and/or safely shut down the plant, as defined by the guidelines of Enclosure 4 to 18 Bulletin 79-018, and as clarified by answers 1 and 2 from NRC letter dated February 29, 1980. This encompasses equipment exposed to harsh environments including those where fluids are being recirculated from inside containment to accomplish long-term cooling following a loss-or-coolant accident (LOCA). Equipment required to maintain minimum boration capability has been addressed as to the effect or any high energy line break (HELB) to which it may be subjected, even though it is not required to mitigate the HELB accident. Equipment necessary to bring the plant from hot to cold shutdown, however, is not included as this is not a licensing requirement to achieve safe shutdown for this plant. (kefer to NKC letter dated February 29, 1980, Generic Questions and Answers to IE Builetin 79-018, Answer 3, page 1.)

Prior to receipt of IE Bulletin 79-018 Supplement No. 2, we were addressing our licensing requirement - which is to hot shutdown. Due to time restraints between the receipt of Supplement No. 2 on October 6, 1980 and the required update of our review on November 1, 1980, the area of cold shutdown could not be addressed in the detail which is required. The equipment necessary to bring the plant from hot to cold shutdown will be addressed by a supplement to our equipment qualification review. (Reference VEPCO comment to Question 5, Page 7-9)

The question of equipment qualification to mild environment will be addressed prior to June 30, 1902.

Q.2 Clarify the required submittal dates for OPs, NTOLs, and CPs. What about OLs whose 100 percent license is not expected by June 1982?

VEPCO 2 No comment.

Q.3 Define the requirements and applicable criteria for ORs, NTOLs, and OLs. Specifically address the NTOLs whose CP SER is prior to July 1974 and after July 1974. Can a CP whose SER is prior to 1974 use the DOR guidelines?

VEPCO 3 No comment.

Q.4 Clarify the reporting requirements for LERs with respect to Part 50.55e vs 79-01B.

Are only those items known to be unqualified immediately reportable? Are items for which there are no data or for which there are insufficient data open items to be resolved, but are not immediately reportable?

A.4 The requirement for reporting in IEB 79-01B does not change the reporting requirements defined in the license conditions. In general, CPs should report via 50.55e. Operating plants should use the LER.

When a determination has been made that reasonable assurance does not exist to ensure that the Class IE electrical equipment component(s) can perform their safety-related function, that is reportable. Inadequate or no data are factors in this determination. The time and technical judgements required to make the determination should be based on the significance of this specific equipment, components, and the discrepancies.

VEPCO 4 LERs will be generated for any items required by FSAR and found not qualified to the accident environments specified in the FSAR.

- Q.5 How does the "Q" list review interface with the EQB effort? Can the NRC provide more specific guidance on how to pick out the required safety-related equipment?
- A.5 The "Q" list provides a source from which the required equipment may be selected. The information required to be submitted by November 1, 1980 is for safety-related electrical equipment potentially exposed to a harsh environment resulting from an accident. Safety-related equipment are those required to help bring the plant to cold shutdown and to mitigate the accident (LOCA, HELB inside or outside containment). "Mitigate" includes safety-related functions such as containment isolation and prevention of significant release of radioactive material.

In order to "pick out" the safety-related equipment, the licensee should generate a list of safety functions typically performed by plant safety systems. Examples are listed in Table II. For each safety function identified in Table II list the systems, subsystems, or components assumed available in the plant FSAR or emergency procedures to perform that function during an LOCA or any HELB inside or outside containment. If a plant-specific safety function not listed in Table II is identified, that function and the corresponding systems or equipment to perform the function should be added to the licensee's list.

The systems and equipment identified above should be included regardless of the original classification when the plant received its operating license; i.e., some control grade equipment will probably be named in emergency procedures. However, if plant emergency procedures specify a preferred mode of accident mitigation involving equipment recognized by the licensee as unlikely to meet environmental qualification criteria, an alternate mode of performing the safety function and qualifiable equipment may be identified. In such cases, the emergency procedures must clearly indicate how the operator is to use environmentally qualified safety-related display instrumentation to diagnose failure to perform such safety functions.

Plant emergency procedures typically include provisions for the operator to sample or monitor radioactivity levels or combustible gas levels, to confirm that valves are in the correct position, to monitor flow or temperature, etc. Some of these functions are essential for correct operator action to mitigate accidents and prevent radioactive releases. When this is the case, the radiation sensors, valve postion indicators, pressure transmitters, thermo-couples, etc., should be

qualified to function in the relavant accident environment.

Licensees should therefore, review their emergency procedures to determine the electrical components needed to perform the functions of Safety-Related Display Information, Post-accident Sampling and Monitoring, and Radiation Monitoring. When equipment implied by the emergency procedures is not listed, justification must be provided that failure of such equipment would not prevent accident mitigation or release of radioactivity.

Equipment now indicated in emergency procedures in response to TMI-2 Lessons Learned should be listed. Equipment which is or will be installed due to TMI Lessons Learned should be addressed similar to other existing safety-related equipment (e.g., saturation meter, sump level indicators, torus water volume, etc.).

The licensee should document anticipated service conditions in every portion of the plant where the environment could be influenced by the accident or its consequences. These service conditions should also be correlated with the safety-related systems and subsystems identified above. If an item of safety-related equipment may be located in an environment outside the range of normal conditions (due to the harsh environment resulting from the accident) and that equipment is needed to mitigate the consequences of the accident, place it on the list of equipment in a potentially hostile environment. Conclusions which show that equipment is unqualified should include a basis for continued plant operation.

TABLE II

TYPICAL EQUIPMENT/FUNCTIONS NEEDED FOR MITIGATION OF AN LOCA OR MSLB ACCIDENT

Engineered Safeguards Actuation

Reactor Protection

Containment Isolation

Steamline Isolation

Main Feedwater Shutdown and Isolation

Emergency Power

Emergency Core Cooling

Containment Heat Removal

Containment Fission Product Removal

Containment Combustible Gas Control

Auxiliary Feedwater

Containment Ventilation

Containment Radiation Monitoring

Control Room Habitability Systems (e.g., HVAC, Radiation Filters)

Ventilation for Areas Containing Safety Equipment

Component Cooling

Service Water

Emergency Shutdown

Post-accident Sampling and Monitoring

Radiation Monitoring

Safety Related Display Instrumentation

1. These systems will differ for PWRs and BWRs and for older and newer plants. In each case, the system features which allow for transfer to recirculation cooling mode and establishment of long-term cooling with boron precipitation control are to be considered as part of the system to be evaluated.

- 2. Emergency shutdown systems include those systems used to bring the plant to a cold shutdown condition following accidents which do not result in a breach of the reactor coolant pressure boundary together with a rapid depressurization of the reactor ccolant system. Examples of such systems and equipment are the RHR system, PORV, RCIC, pressurizer sprays, chemical and volume control system, and steam dump system.
- 3. More specific identification of these types of equipment can be found in the plant emergency procedures.
- VEPCO 5 Equipment addressed in this report includes all Class IE equpment affected by and required to mitigate accident and/or safely shut down the plant as defined by the guidelines of Enclosure 4 to IE Bulletin 79-01B, and as clarified by answers 1 and 2 from NRC letter dated February 29, 1980. This encompasses equipment exposed to harsh environments including those where fluids are being recirculated from inside containment to accomplish long term cooling following a loss-of-coolant accident (LOCA). Equipment required to maintain minimum boration capability has been addressed as to the effect of any high energy line break (HELB) to which it may be subjected, even though it is not required to mitigate the HELB accident. Equipment necessary to bring the plant from hot to cold shutdown, however, is not included as this is not a licensing requirement to achieve safe shutdown for this plant. (Refer to NRC letter dated February 29, 1980, Generic Questions and Answers to IE Bulletin 79-01B, Answer 3, page 1.)

We will complete our review of equipment qualification for equipment required for cold shutdown and for installed TMI action plan equipment by February 1, 1981 as indicated in Supplement 3 of IE Bulletin 79-01b. Q.6 NUREG-0588 was issued for comment. Will any changes impact the requirements established by the Commission memorandum and order? Will the daughter standards referenced be corrected/changed?

VEPCO 6 No comment.

Q.7 Can IEEE Std. 650 (Standards for Qualification of Class IE static battery chargers and invertors for nuclear power generating stations) be used for qualifying the balance of plant components which are not exposed to harsh environments?

VEPCO 7 No comment.

- Q.8 Provide the staff's definition of "central location" for qualification documentation. What documentation is expected to be maintained? Will it be acceptable to maintain summary test reports at the utility central file and provide a reference to the NSSS Vendor's file for actual test reports? Does NRC require test reports to be submitted to support qualification?
- The central location should be at the utilities corporate headquarters or plant site. Both the DOR guidelines and NUREG-0588 specify that sufficient information must be available to verify that the safety-related electrical equipment has been qualified in accordance with the guidance and requirements. Details for the information and documentation required for type tests, operating experience, analysis, and extrapolation of test data from operating experience are provided in Section 5 of NUREG-0588 and Section 8 of IEEE Std. 323-74.

The staff will accept summary test reports maintained at the utility's central file which references the actual test reports and data available in a single location at the NSSS vendor's facility. The Licensee/Applicant must make the determination that necessary information and documentation, to support qualification of equipment, is in conformance with DOR guidelines and NUREG-0588. This vendor information file must be maintained current, auditable and available throughout the life of the referencing plant.

Test reports are not required to be submitted. Test report references must be included in the plant submittals and these reports must be available for staff review on demand.

VEPCO 8 We are establishing the qualification files for all of our Nuclear Units in our central office. We will retain control over this documentation and will distribute the information to the stations. Should a discrepancy arise, the resolution will be controlled by the central office.

Once a resolution to all of the outstanding equipment qualification issues has been formulated and implemented at the stations, responsibility for IE equipment records will be turned over to the station. However, the central office will still be responsible for the resolution of any engineering assessments concerning the acceptability of qualification methods and criteria.

Q.9 The staff was directed to codity, by Technical Specification, some of the requirements of the Order. Can you give some of the details of this requirement, how the staff expects to meet this directive and when?

VEPCO 9 No comment.

Q.10 With respect to the NRC data base, how will utilities address and obtain information from it?

VEPCO 10 No comment.

Q.11 How should submittals containing data and qualification information be submitted? What format should we use if we have several facilities at different stages (Ok, NTOL, CP)?

VEPCO 11 No Comment.

- Q.12 Is testing required of equipment which completes its safety-related function within the first minute(s) of a LOCA or HELB (e.g., nuclear instrumentation or other instruments providing RPS inputs, isolation valves, etc.)
- A.12 The staff does not require that the nuclear instrumentation and its associated components be environmentally qualified for a LOCA or HELB. The nuclear instrumentation system is used for transient conditions but is not required for a LOCA or HELB.

The staff does require that equipment designed to perform its safety-related function within a short time into an event be qualified for a period of at least 1 hour in excess of the time assumed in the accident analysis. The staff has indicated that time is the most significant factor in terms or the margins required to provide an acceptable confidence level that a safety-related function will be completed. Our judgment or at least 1 hour is based on the acceptance of a type test for a single unit and the spectrum of accidents (small and large breaks) bounded by the single test. Also see answer to question 21.

VEPCO 12 The basis for the time interval required for operability of a component is determined by an analysis of the actident and the function of the component. The resulting operability requirements under harsh conditions are identified on the qualification and evaluation sheet for the component. Operability and failure criteria are discussed in Section 2.2; margins are discussed in Section 3. (Section 2.1, Subsection 3)

- Q.13 Testing is currently being performed on some equipment, and contracts have been issued for testing additional equipment specifying conformance to IEEE Std. 323-1971. For sequential testing, how do we ractor in aging? If early test failure occurs due to "non E-Q" mechanics, can the test be extrapolated using analytical methods?
- A.13 Sequential testing requirements are specified in NUREG-0588 and the DOR guidelines. Licensees must follow the test requirements of the applicable document.
 - If the test has been completed without aging in sequence, justification for such a deviation must be submitted.
 - If testing of a given component has been scheduled but not initiated, the test sequence/program should be modified to include aging.
 - 3. Test programs, in progress should be evaluated regarding the ability to comply by incorporating aging in the proper sequence. These would then fall in the first or second category.

When a failure occurs due to a non-EQ related mechanism, acceptability of analysis to extrapolate the test dots would be dependent on several considerations (e.g., the specific function being demonstrated, the failure mechanism, when the failure occurred, etc.), may be very difficult to achieve. If such a failure occurs it may be more prudent to correct the failure and continue with the test.

- VEPCO 13 1. Reference Discussion Section 4
 - 2. Further testing that is required on the subject of aging will be incorporated into the sequence. Credit will be taken for any natural aging as allowed under answer 22 of this supplement.
 - 3. No comment.

- Q.14 What is the definition of harsh environment? How are the environmental profiles defined outside containment?
- A.14 Harsh environment is defined by the limiting conditions, as specified in IE Bulletin 79-01B, resulting from the entire spectrum of LOCAs HELBs. Specifically, the harsh environment from a LOCA considers the worst parameters resulting over the spectrum of postulated break sizes, break locations and single failures. Similarly, the HELBs inside and outside of containment consider the spectrum of breaks including main steam and feedwater line breaks. The parameters to be considered are: temperature, pressure, humidity, caustic spray, radiation, duration of exposure, aging and submergence. Mechanical and flow-induced vibrations and seismic effects will be considered separately.

Environmer cal profiles for HELB outside of containment have not been generically established due to the uniqueness of each facility. Service conditions for areas outside containment exposed to a HELB must be evaluated on a plant-by-plant basis. Each of the parameters listed above must be considered. Acceptable engineering methods should be used for this calculation. Temperature and pressure history may be available from earlier HELB evaluations. The radiation source terms are discussed under Question 18 below. Further guidance for selecting the piping systems and conducting the review are delineated in Regulatory Guide 1.46 and Standard Review Plans 3.6.1 and 3.6.2.

VEPCO 14 Reterence Discussion Sections 1.1 through 1.5.

- Q.15 The DOR Guidelines and NUREG-0588 give time and temperature parameters. Can we use different values of these parameters? Will plant-specific profiles still be with the guidance provided?
- Q.15 For minimum high temperature conditions in pressure-suppression-type containments, we do not require that 340°F for 6 hours be used for BWR drywells or that 340°F for 3 hours be used for PWR ice condenser lower compartments. These values are a screening device, per the Guidelines, and can be used in lieu of a plant-specific profile, provided that expected pressure and humidity conditions as a function of time are accounted for.

In general, the containment temperature and pressure conditions as a function of time should be based on analyses in the FSAR. However, these conditions should bound those expected for coolant and steam line breaks inside the containment with due consideration of analytical uncertainties. The steam line break condition should include superheated conditions: the peak temperature, and subsequent temperature/pressure profile as a function of time. If containment spray is to be used, the impact of the spray on required equipment should be accounted for.

The adequacy of a plant-specific profile is dependent on the assumption and design considerations at the time the profiles were developed. The DOR guidelines and NUREG-U588 provide guidance and the considerations required to determine if the plant-specific profiles encompass the LOCA and HELB inside containment.

VEPCO 15 Reference Discussion Sections 1.1 through 1.5.

Q.16 Could you elaborate on what the staff expects with regard to quality assurance?

If parts or subcomponents are purchased from a vendor who does not have a quality assurance program, can it be qualified to meet IEEE Std. 232-74 requirements?

VEPCO 16 No comment.

- Q.17 Define the requirements for "replacement parts." Are they the same for "spare" parts? Clearly discuss the alternatives for existing inventories of parts/components. If equipment is ordered to meet IEEE Std. 323-1974 standard but lead time exceeds June 1982, can we use IEEE Std. 323-1971 qualified components in the interim?
- VEPCO 17 We have developed a replacement criteria for the purchase of equipment based on postulated normal and accident environment.

- Q.18 DOR Guidelines, NUREG-0588 and NUREG-0578, define or give guidance for calculating radiation cource terms. However, since one is more restrictive than the other, which do we use?
- A.18 Both the DOR guidelines and NUREG-0588 are similar in that they provide the methods for determining the radiation source term when considering LOCA events inside containment (100% noble gases/50% iodine/1% particulates). These methods consider the radiation source term resulting from an event which completely depressurizes the primary system and releases the source term inventory to the containment.

NUREG-0578 provides the radiation source term to be used for determining the qualification doses for equipment in close proximity to recirculating fluid systems inside and outside or containment as a result of LOCA. This method considers an LOCA event in which the primary system may not depressurize and the source term inventory remains in the coolant.

NUREG-0588 also provides the radiation source term to be used for qualifying equipment following non-LOCA events both inside and outside containment (10% noble gases/10% lodine/0% particulates).

When developing radiation source terms for equipment qualification, the licensee must ensure consideration is given to those events which provide the most bounding conditions. The following table summarizes these considerations:

	LOCA	NUN-LOCA HELB
Outside Containment	NUREG-0578 (100/50/1 in RCS)	NUREG-0588 (10/10/0 in RCS)
Inside Containment	Larger or	
	NUREG-0588 (100/50/1 in contain- ment)	NUREG-0588 (10/10/0 In RCS)
	or	
	NUREG-0578 (100/50/1 an RCS)	

- VEPCo 18 NUREG-0578 requires minimum source terms equivalent to source terms specified in Regulatory Guide 1.3, 1.4, 1.7, 1.89 and Standard Review Plan 15.6.5. The actual source term used was a combination of RG 1.4 (for pressurized water reactors), RG 1.7, and TID-14844. Three separate source terms were used in calculating radiation dose to equipment.
 - Activity in the primary coolant (assuming no release to containment atmosphere)

100% noble gas

RG 1.4/TID 14844

b. 50% halogens

TID-14844

C. 1% solid fission products

TID-14844

Activity in containment atmosphere (assuming activity release to containment atmosphere)

a. 100% noble gas

RG 1.4/TID-14844

25% halogens

RG 1.4

C. 0% solid fission products RG 1.4

Activity in containment sump water (assuming reactor coolant system is ruptured, spills to the containment sump, and is recirculated)

a. 0% noble gas

sump water devased

D. 50% nalogens

RG 1.7

c. 1% solid rission products kg 1.7

These source terms used in equipment qualification provide boundary conditions for radiation exposure. The LOCA event and source terms used for calculating doses from primary sample lines and RCS piping to equipment outside containment conservatively consider that activity inventory remains in the coolant. In addition, a dose is calculated which results from activity in the containment atmosphere, shine through walls penetrations, atmosphere sample lines, sump water recirculated through ECCs systems, drain lines, etc. The last two source terms consider that activity is depressurized and released outside the primary contant boundary.

For integrated doses to equipment inside containment, a conservative source term was used in which the activity is assumed to be released to the containment atmosphere.

It accounts for radioactive decay and assumes 50% of the iodine released platesout in a very short time (per RG 1.4). It does not account for removal of aircorne activity as a result of ESF systems operation and is therefore more conservative than the method given in NUREG-0588, Appendix D, Page D-6.

Q.19 Can gamma equivalents be used rather than beta exposure for radiation qualification?

VEPCO 19 No comment.

- Q.20 If a piece of equipment will become submerged after completing its required action, must it be qualified for submergence?
- A.20 If the equipment (1) meets the guidance and requirements of the DOR guidelines or NUREG-0588 for the LOCA and HELB (small and large breaks) accidents and (2) licenses demonstrate that its failure will not adversely affect any safety-related function or mislead the operator after submergence, the equipment could be considered exempt from that portion (submergence) of qualification.
- VEPCO 20 Equipment located below this level are identified on the system component qualification sheets and were reviewed for qualification in the submerged condition.

- Q.21 What qualification is required of Reactor Pressure Vessel internal instrumentation (e.g., thermocouples) and new instruments required as the result of TMI Lessons Learned?
- A.21 TMI Lessons Learned instrumentation will be considered in the February 1, 1981 SER. This equipment is subject to the same requirements as other safety-related electrical equipment. The guidance and requirements of NUREG-0588 referenced daughter standards, and keg Guides will be used by the staff in assessing the adequacy of the qualification information. The in-core environment should consider the worst source term for radiation effects, the worst humidity for the corresponding temperature, and high temperatures consistent with that of a damaged core.
- VEPCO 21 The thermocouples currently installed at Surry and North Anna in the Reactor Vessels were supplied by the NSSS vendor, Westinghouse. The thermocouple system was not designed as a Category IE system. The environment in which the thermocouples presently exist is quite extreme, >600°F, >2,000 psi, radiation consisting or gamma, beta, and neutrons, and humidity which is constantly 100%.

We feel that the installed thermocouple system will provide the necessary information during the postulated accidents. We do not plan to do any testing or replacement of these devices.

Q.22 Is qualification "by use" an acceptable method (e.g., CRIMs in BWRs)?

VEPCO 22 No comment.

- Q.23 How long should "long term" equipment be qualified for environmental qualification?
- *Long term* for the purpose of qualifying equipment for a harsh environment is variable. A determination of "long term* for qualification of equipment should be based on the considerations listed below for each postulated accident scenario. Justification for the value used should be provided with the equipment qualification documentation.
 - 1. The time period over which the equipment is required to bring the plant to cold shutdown and to mitigate the consequences of the accident.
 - 2. The ability to change, modify or add equipment during the course of the accident of in mitigating its effects which will provide the same saretyrelated function.
- VEPCO 23 1. Our licensing commitment for North Anna and Surry has always been for a hot shutdown condition regarding safety equipment. Therefore our basis for long term equipment qualification has been based on achieving a hot shutdown condition.
 - 2. We will evaluate the equipment required to reach a cold shutdown condition and we will take into account allowances for repair or replacement of this equipment.

 (Reference VEPCO Comment to Question 5 page 7-9).

Q.24 Why do we want component surface temperature rather than the bulk environment temperature?

VEPCO 24 No comment.

SECTION 8
ZONE CONDITIONS

Revision 1 November 1, 1980

NOTES TO ZONE DESCRIPTION TABLES

- 1. Ambient temperature monitoring alarms provided (104 oF).
- A specific calculation was performed for the following equipment (keterence No. 16):

H₂A-HC-100 & 200 800 rads 2.5x105 rads

3. Specific calculations were performed to determine LUCA doses for the following equipment:

Equipment Mark No.	6 yr LO	CA Dose	No.
TS-HV2229	130	rads	18
MOD-HV2229, 2230	190	rads	18
T5-HV2230	9.6x103	rads	18
480V Switchgear, 2-82-SS-04	1.7x10*	rads	15
480V Switchgear, 2-EE-SS-03	62	rads	20
2-HV-F-68A&B	190	rads	18

4. A specific calculation was performed to determine the LOCA dose for the following equipment (Reference No. 22):

1-HV-F-8A,B,C 40 yr Normal Dose 6 mos LOCA Dose

5. A specific calculation was performed to determine the LOCA doses for the following equipment (Reference No. 33):

Equipment Mark No.	40 yr Normal Dose	o mos Luca Dose
2-HV-F-40A	880 rags	<2500 rads
2-HV-F-40B	880 rads	<2500 rads

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RC-216A 8-17 RC-216B 8-18 RC-241A 8-19 RC-241B 8-20 RC-262A 8-21 RC-262B 8-22 RC-291A 8-23 RC-291B 8-24 SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	QSPA-271	В	8-15
RC-216B 8-18 RC-241A 8-19 RC-241B 8-20 RC-262A 8-21 RC-262B 8-22 RC-291A 8-23 RC-291B 8-24 SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	Recom-1		8-16
RC-241A 8-19 RC-241B 8-20 RC-262A 8-21 RC-262B 8-22 RC-291A 8-23 RC-291B 8-24 SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	RC-216A		8-17
RC-241B 8-20 RC-262B 8-21 RC-291A 8-23 RC-291B 8-24 SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	RC-216B		8-18
RC-262A 8-21 RC-262B 8-22 RC-291A 8-23 RC-291B 8-24 SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	RC-241A		8-19
RC-262B RC-291A RC-291B RC-29B	RC-241B		8-20
RC-291B 8-24 SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	RC-262A		8-21
RC-291B 8-24 SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	RC-262B		8-22
SB-254A 8-25 SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	RC-291A		8-23
SB-254B 8-26 SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	The state of the s		8-24
SB-271A 8-27 SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33			8-25
SB-271B 8-28 SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33			8-26
SB-291 8-29 SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33			8-27
SFGD-1 8-30 Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	SB-271B		8-28
Screen-1 8-31 SWPH-1 8-32 Valve-1 8-33	SB-291		8-29
SWPH-1 8-32 Valve-1 8-33	SFGD-1		8-30
Valve-1 8-33	The state of the s		8-31
	SWPH-1		8-32
Yard-1 8-34	Valve-1		8-33
	Yard-1		8-34

AB-244A

DESCRIPTION

Auxiliary Building - Elev. 244'-6" - Pipe Penetration Area, Ch. Pump Cubicles, and Nonregen. Hx Cubicles

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	50-120 See Note 1	11	NA		NA		104 to 176 in 3 sec 204 at 30 sec 192 at 5000 sec 124 at 24 hr	12
PRESSURE (PSIA)	14.7		NA		NA		14.96	12
RELATIVE HUMIDITY (Z)	NC		NA		NA		100	12
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	2×10 ⁶	14	3.6x10 ⁶	14	<100	26	<100	26
SUBMERGENCE (ELEV)	NA		NA		NA		NA	1

NA = Not applicable NR = Not required NC = Not calculated

8-2

Revision 1 November 1, 1980 Auxiliary Building - Elev. 224'-6" - General Areas DESCRIPTION

								-
PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	50-120 See Note 1	11	NA		NA		104 to 176 in 3 sec 204 at 30 sec 192 at 5000 sec 124 at 24 hr	12
PRESSURE (PSIA)	14.7		NA		NA		14.96	12
RELATIVE HUMIDITY (%)	NC		NA		NA		100	12
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	5.30×10³	15	1x10 ⁶	14	<100	26	<100	26
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = N.t. applicable NR = Not required NC = Not calculated

AB-259A

DESCRIPTION

Auxiliary Building - Elev. 259'-6" - General Areas

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	50-120 See Note 1	11	NA		NA		104 to 176 in 30 sec 204 at 30 sec 192 at 5000 sec 124 at 24 hr	12
PRESSURE (PSIA)	14.7		NA		NA		14-96	12
RELATIVE HUMIDITY (%)	NC		NA		NA		100	12
CHEMICAL SPRAY	NA		NA		NA.		NA	
RADIATION (RADS)	5.30x10 ³ See Note 2	15	1x10 ⁶ See Note 2	14	< 100	26	<100	26
SUBMERGENCE (ELEV)	NA		NA.		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

AB-259B

DESCRIPTION

Auxiliary Building - Elev. 259'-6" - Electrical Penetration Area

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TIMPERATURE (°F)	70-120 See Note 1	11	NA		NA		NA	
PRESSURE (PSTA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (%)	NC		NA		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	5.3x10°	1.7	3.1x10 ⁴	17	<100	26	< 100	26
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

AB-274

DESCRIPTION

Auxiliary Building - Elev. 274'-0" - General Areas

Revision 1 November 1, 1980

8-5

	NORMAT	T	1004		MSLB		HELB	T
PARAMETER	NORMAL. ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	ENVIRONMENT	REF.	ENVIRONMENT	RE
TEMPERATURE (°F)	50-120 See Note 1	11	NA		NA		104 to 176 in 3 sec 204 at 30 sec 192 at 5000 sec 124 at 24 hr	1:
PRESSURE (PSIA)	14.7		NA		NA		14.96	1:
RELATIVE HUMIDITY (%)	NC		NA		NA		100	1:
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	5.30x10 ³	15	1×10 ⁶	14	<100	26	< 100	20
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

AB-280A

DESCRIPTION

Auxiliary Building - Elev. 280' - MCC General Area

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	50-120 See Note 1	11	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (%)	NC		NA		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	8.8x10 ²	18	5.9x10 ⁴ See Note 3	18	< 100	26	NA	
SUBMERGENCE (ELEV)	NA		NA.		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

AB-291A

DESCRIPTION

Auxiliary Building - Elev. 291'-10" - General Area

Revision 1 November 1, 1980

8-7

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	50-120 See Note 1	11	NA		NA		104 at 0 sec 115 at 5 min 145 at 30 min to 7 hr 115 at 24 hr	12
PRESSURE (PSIA)	14.7		NA		NA NA		14.9	12
RELATIVE HUMIDITY (2)	NC		NA		NA		100	
CHFMICAL SPRAY	NA		NA		NA		N/.	
RADIATION (RADS)	5.30x10 ³ See Note 4	15	lx10 ⁶ See Note 4	14	<100	26	<100	26
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

AB-291B

DESCRIPTION

Auxiliary Building - Elev. 291'-10" - Charcoal Filter Cubicles

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF
TEMPERATURE (°F)	50-120 See Note 1	11	NA		NA		104 at 0 sec 115 at 5 min 145 at 30 min to 7 hr 115 at 24 hr	12
PRESSURE (PSIA)	14.7		NA		NA		14.9	12
RELATIVE HUMIDITY (%)	NC		NA		NA		100	12
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	2×10 ⁶	14	3.6x10 ⁶	14	<100	26	<100	26
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

6-1

						_		
PARAMETER	NORMAL	REF.	LOCA	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEME ERATURE (°F)	50-104		NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (2)	NC		NA		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	25	32	28	NA.		NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	i e

FB-1

DESCRIPTION Fuel Building

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF
TEMPERATURE (°F)	70-120	11	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (%)	NC		NC		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	5.3x10 ³	23	28	6	<100	26	NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

8-1

FOPH-I

DESCRIPTION

Fuel Oil Pump House

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)								
	15-104	11	NA NA		NA		NA	
PRESSURE (PSIA)								
	14.7		NA.		NA		NA	
RELATIVE HUMIDITY (%)								
	NC		NA		NA		NA.	
CHEMICAL SPRAY					file and the			
	NA		NA		NA		NA	
RADIATION (RADS)								
	260	31	43	31	NA		NA.	
SUBMERGENCE (ELEV)	NA		NA		NA.		NA	
	****				****			

8-1

MSVH-271A

DESCRIPTION

Main Steam Valve House - Elev. 271' and Above

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	40-120	11	NA		NA		325	
PRESSURE (PSIA)	14.7		NA		NA		16.33	
RELATIVE HUMIDITY (%)	NC		NA		100		100	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	23	1.5×10*	25	NA		1.3x10 ⁴	5
SUBMERGENCE (ELEV)	NA		NA		NA		NA.	

NA = Not applicable NR = Not required NC = Not calculated

8-13

The state of the s								
PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA	REF.	MSLB ENVIRONMENT	REF.	HELD ENVIRONMENT	REF.
TEMPERATURE (°F)	40-120	=	NA.		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (%)	NC		NA		NA		NA	
CHEMICAL SPRAY	NA		NA.		NA		NA	
RADIATION (RADS)	250	23	5,4×106	25	NA		1.3×10*	5
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

QSPA-271A

DESCRIPTION Quench Spr

Quench Spray Pump Area - Elev. 271' and Above

Revision 1 November 1, 1980

NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
70-120	11	NA		NA		NA	
14.7		NA		NA		NA	
NC		NA		NA		NA	
NA		NA		NA		NA	
							+
260	23	4.8x10 ²	25	NA		<100	26
NA		NA		NA		NA	
	70-120 14.7 NC NA	TO-120 11 14.7 NC NA 260 23	### ENVIRONMENT 70-120	### ENVIRONMENT REF. ENVIRONMENT REF.	ENVIRONMENT REF. ENVIRONMENT REF. ENVIRONMENT 70-120 11 NA NA NA 14.7 NA NA NA NA NC NA NA NA NA NA NA NA NA NA	ENVIRONMENT REF. ENVIRONMENT REF. ENVIRONMENT REF. 70-120 11 NA NA NA 14.7 NA NA NA NC NA NA NA NA NA NA NA 260 23 4.8×10² 25 NA	ENVIRONMENT

NA = Not applicable NR = Not required NC = Not calculated

1-15

	N		TOCA		al SW		HELB	
PARAMETER	ENVIRONMENT	REF.	ENVIRONMENT	REF.	ENVIRONMENT	REF.	ENVIRONMENT	REF.
TEMPERATURE (°F)	70-120	11	NA		N		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (%)	NC		NA		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	23	5.4x10 ⁶	25	NA		<100	56
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NC = Not calculated NA = Not applicable NR = Not required

RECOM-1

DESCRIPTION Hydrogen Recombiner Cubicles

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)								
	15-120	11	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
								-
RELATIVE HUMIDITY (%)	NC		NA		NA		NA.	
CHEMICAL SPRAY								
	NA		NA		NA		NA	
RADIATION (RADS)	880	23	1x10 ⁶ (120 days)	29	NA		NA	
SUBMERGENCE (ELEV)	NA		NA		NA "		NA.	

NA = Not applicable NR = Not required NC = Not calculated

RC-216 A

DESCRIPTION Reactor Containment Elev. 216'-11" - Inside Crane Wall

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86-105	1	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA.	
PRESSURE (PSIA)	9.5-14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 14.7 for 120 days	2	Use LOCA Parameters	3	NA NA	
RELATIVE HUMIDITY (%)	NC	5	100	2	100	3	NA	
CHEMICAL SPRAY	NA		Boric acid (2000- 2100 ppm boron) buffer- ed to a pH of 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days		Use LOCA Parameters		NA	4
RADIATION (RADS)	3.5×10 ⁵	10	1.8x10 ⁷	10	1.3x10 ⁴	5	NA	
SUBMERGENCE (ELEV)	NA		To 226'0" elev.	9	To 226'0" elev.	9	NA	

NA = Not applicable NR = Not required NC = Not calculated

All numbers in Reference Column are referenced in the back of this Section

8-17

RC-216B

DESCRIPTION Reactor Containment - Elev. 216'-11" - Outside Crane wall

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86-105	ì	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA	
PRESSURE (PSIA)	9.5 - 14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 14.7 for 120 days	2	Use LOCA Parameters	3	NA	
RELATIVE HUMIDITY (2)	NC		100	2	100	3	NA	
CHEMICAL SPRAY	NA		Boric acid (2000- 2100 ppm boron) buffer- ed to a pH at 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days	7	Use LOCA Parameters		NA	
RADIATION (RADS)	3.5x10 ⁴	8	7.5x10 ⁶	8	1.3×10 ⁴	5	NA	
SUBMERGENCE (ELEV)	NA		To 226'0" elev.	9	To 226'0" elev.	9	NA	

NA = Not applicable NR = Not required NC = Not calculated

RC-241A

DESCRIPTION Reactor Containment - Elev. 241'-0" - Inside Crane Wall

Revision 1 November 1, 1980

8-19

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86~105	1	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA	
PRESSURE (PSIA)	9.5 - 14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 14.7 for 120 days	2	Use LOCA Parameters	3	NA	
RELATIVE HUMIDITY (%)	NC		100	2	100	3	NA	
CHEMICAL SPRAY	NA		Boric acid (2000- 2100 ppm boron) buffer- ed to a pH at 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days	7	Use LOCA Parameters		NA	
RADIATION (RADS)	3.0x10 ⁷	10	1.8x10 ⁷	10	1.3×10 ⁴	5	NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated All numbers in Reference Column are referenced in the back of this Section

RC-241B

DESCRIPTION Reactor Containment - Elev. 241'-0" - Outside Crane Wall

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86-105	1	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA	
PRESSURE (PSIA)	9.5-14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 14.7 for 120 days	2	Use LOCA Parameters	3	NA	
RELATIVE HUMIDITY (%)	NC		100	2	100	3	NA	
CHEMICAL SPRAY	NA		Boric acid (2000- 2100 ppm boron) buffer- ed to a pH at 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days	7	Use LOCA Parameters		NA	
RADIATION (RADS)	3.4×10*	10	6.77×10 ⁶	10	1.3x10 ⁴	5	NA	
SUBMERGENCE (ELEV)	NA		NA.		NA NA		NA	

8-20

NA = Not applicable NR = Not required NC = Not calculated

RC-262A

DESCRIPTION Reactor Containment - Elev. 262'-10" - Inside Crane Wall

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86-105	1	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA	
PRESSURE (PSIA)	9.5 - 14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 14.7 for 120 days	2	Use LOCA Parameters	3	NA	
RELATIVE HUMIDITY (%)	NC		100	2	100	3	NA	
CHEMICAL SPRAY	NA		Boric acid (2000- 2100 ppm boron) buffer- ed to a pH at 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days		Use LOCA Parameters		NA	
RADIATION (RADS)	3.0x10 ⁷	10	1.8×10 ⁷	10	1.3x10 ⁴	5	NA	
SUBMERGENCE (ELEV)	NA.		NA		NA		NA NA	

RC-262B

DESCRIPTION Reactor Containment - Elev. 262'-10" - Outside Crane Wall

Revision 1 November 1, 1980

8-22

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86-105	1	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA	
PRESSURE (PSIA)	9.5 - 14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 150 for 120 days	2	Use LOCA Parameters	3	NA	
RELATIVE HUMIDITY (%)	NC		100	2	100	3	NA	
CHEMICAL SPRAY	NA.		Boric acid (2000- 2100 ppm boron) buffer- ed to a pH at 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days		Use LOCA Parameters		NA	
RADIATION (RADS)	3.4x10 ⁴	10	6.77×10 ⁶	10	1.3×10*	5	NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

RC-291A

DESCRIPTION Reactor Containment - Elev. 291'-10" - Inside Crane Wall

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86-105	1	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA	
PRESSURE (PSIA)	9.5-14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 14.7 for 120 days	2	Use LOCA Parameters	3	NA	
RELATIVE HUMIDITY (%)	NC		100	2	100	3	NA.	
CHEMICAL SPRAY	NA	1	Boric acid (2000- 2100 ppm boron) buffer- ed to a pH at 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days	7	Use LOCA Parameters		NA	
RADIATION (RADS)	3.0x10 ⁷	10	1.8x10 ⁷	10	1.3x10"	5	NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

NA = Not applicable NR = Not required NC = Not calculated

RC-291B

DESCRIPTION

Reactor Containment - Elev. 291'-10" - Outside Crane Wall

Revision 1 November 1, 1980

PARAMETER	NORMAL, ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	86-105	1	280 for 0-30 min 280 to 150 for 30-60 min 150 for 120 days	2	430 for 0-2 min 280 for 2 to 60 min 150 for 120 days	3	NA	
PRESSURE (PSIA)	9.5 - 14.7	4	59.7 for 0 to 30 min 59.7-14.7 for 30 to 60 min 14.7 for 120 days	2	Use Loca Parameters	3	NA	
RELATIVE HUMIDITY (2)	NC		100	2	100	3	NA	
CHEMICAL SPRAY	NA.		Boric acid (2000- 2100 ppm boron) buffer- ed to a pH at 8.5 to 11.0 with NaOH for 0 to 4 hrs pH then reduced to 7.8 to 9.0 for 120 days	7	Use LOCA Parameters	4	NA	
RADIATION (RADS)	3.4×10 ⁴	10	6.77x10 ⁶	10	1.3x10 ⁴	5	NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

8-24

SB-254A

DESCRIPTION

Service Building - Elev. 252 and 254 - General Areas (Except Chiller Room)

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF
TEMPERATURE (°F)								
	70-85	11	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA.	
RELATIVE HUMIDITY (%)								+
	-50	13	NA		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	23	<1,0	23	NA		<100	26
						-		+
SUBMERGENCE (ELEV)								1

NA = Not applicable NR = Not required NC = Not calculated

SB-254B

DESCRIPTION

Service Building - Elev. 252 - Chiller Room

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)	70–104	11	NA		NA		186	24
PRESSURE (PSIA)	14.7		NA		NA		NC	
RELATIVE HUMIDITY (%)	NC		NA		NA		100	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	23	<1.0	23	NA		<100	26
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

8-26

NA = Not applicable NR = Not required NC = Not calculated

SB-271A

ZONE

8-27 Revision 1 November 1, 1980 REF. 56 ENVIRONMENT HELB <100 NA NA NA NA NA REF. MSLB NA NA NA NA NA NA REF. 23 Service Building - Elev. 271'-6" - Diesel Generator Rooms LOCA NA NA NA NA NA 24 REF 23 17 NORMAL ENVIRONMENT 70-104 14.7 260 NA NA NC RELATIVE HUMIDITY (%) SUBMERGENCE (ELEV) RADIATION (RADS) TEMPERATURE (°F) PRESSURE (PSIA) CHEMICAL SPRAY PARAMETER DESCRIPTION

NA = Not applicable NR = Not required NC = Not calculated

ZONE SB-271B

Revision 1 November 1, 1980

						8-28
REF.					26	
HELB ENVIRONMENT	NA	NA	NA	NA	<100	N.A.
REF.						
MSLB ENVIROSIMENT	NA	NA	NA	NA	NA.	NA
REF.					23	
LOCA	NA	NA	NA	NA	<1.0	NA
REF.	17		13		23	
NORMAL ENVIRONMENT	70-85	14.7	~20	NA	260	NA
PARAMETER	TEMPERATURE (°F)	PRESSURE (PSIA)	RELATIVE HUMIDITY (2)	CHEMICAL SPRAY	RADIATION (RADS)	SUBMERGENCE (ELEV)

NA = Not applicable NR = Not required NC = Not calculated

PARAMETER	NORMAL	REF.	LOCA	REF.	MSLB	MEN.	HELB	78 (F)
TEMPERATURE (°F)								
	70-85	7	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (%)	-50	13	VV		NA		NA	
CHEMICAL SPRAY	N.A.		N.A.		NA		NA	
RADIATION (RADS)	260	73	25	23	NA		<100	26
SUBMERGENCF (ELEV)	NA		NA		NA		NA	

Revision 1	November
	Area
SPGD-1	Safeguards A
ZONE	DESCRIPTION

PARAMETER	NORMAL. ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSL.8 ENVIRONMENT	REF.	HEL.B ENVIRONMENT	184 (84) (84)
TEMPERATURE (°F)	75 - 120	11	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
RELATIVE HUMIDITY (%)	NC		NA		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	23	7.0x10 ⁶	8	NA		NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

Screen-1

DESCRIPTION Screenwell Cubicles - Intake Structure

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)								
	70-120	11	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	
	14.7							
RELATIVE HUMIDITY (%)	NC		NA		NA	抽	NA	
		1						_
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	31	43	31	NA		NA	
	200							
SUBMERGENCE (ELEV)			NA.		NA		NA	
	NA		NA		NA		NA	

8-31

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SWP	Spr	
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	TTC	DESCRIPT TO
(6/2)	DI.	100
NO	DECC	200
- 4		-1

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)								
	70-120 See Note 1	11	NA		NA		NA	
PRESSURE (PSIA)	14.7		NA		NA		NA	1 23
RELATIVE HUMIDITY (2)	NC		NA		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	NA		NA		NA		NA	
SUBMERGENCE (ELEV)	NA		NA		V X		NA	

Valve-1

DESCRIPTION

Service Water Valve Pit

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONME.T	REF.	HELB ENVIRONMENT	REF
TEMPERATURE (°F)	50-120	11	NA		NA		104 to 176 in 3 sec 204 at 30 sec 192 at 5000 sec 124 at 24 hr	12
PRESSURE (PSIA)	14.7		NA		NA		14.96	12
RELATIVE HUMIDITY (%)	NC		NA		NA		100	12
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	32	<1.0	32	<100		<100	26
SUBMERGENCE (ELEV)	NA		NA		NA		NA.	

Yard-1

DESCRIPTION

Yard

Revision 1 November 1, 1980

PARAMETER	NORMAL ENVIRONMENT	REF.	LOCA ENVIRONMENT	REF.	MSLB ENVIRONMENT	REF.	HELB ENVIRONMENT	REF.
TEMPERATURE (°F)						+		
	50 - 120		NA.		NA NA		NA	
PRESSURE (PSIA)	14.7		NA.		NA		NA	
RELATIVE HUMIDITY (%)	NC		NA.		NA		NA	
CHEMICAL SPRAY	NA		NA		NA		NA	
RADIATION (RADS)	260	23	NA		NA		NA	
SUBMERGENCE (ELEV)	NA		NA		NA		NA	

8-34

ZONE DESCRIPTION TABLE REFERENCES

- 1. Technical Specification 3/4.6-7.
- 2. FSAR Section 15.4, 6.2.1.
- 3. Safeguards Calc. 11715-ES-173-0.
- 4. Technical Specification 3/4.6.
- 5. Radiation Protection Calc. 12050-RP-066-0.
- 6. Radiation Protection Calc. *13075-PR(B)-025-0.
- 7. Safeguards Calcs. 11715-ES-186-1, 11715-ES-207-1, 13075.55-ES-231-0.
- 8. Radiation Protection Calc. 13075-PR(B)-026-0.
- 9. Safeguards Calc. 13075.49-ES-194-1.
- 10. Radiation Protection Calc. 12050-RP-106-0.
- 11. FSAR Table S7. 16-6.
- 12. Safeguards Calc. 13075.49-ES-230-0.
- 13. FSAR Section 9.4.1.1.
- 14. Radiation Protection Calc. 12050-RP-078-0.
- 15. Radiation Protection Calc. 13075-PR(B)-023-0.
- 16. Radiation Protection Calc. 12050-RP-117-0.
- 17. Radiation Protection Calc. 13075-PR(B)-027-0.
- 18. Radiation Protection Calc. 12050-RP-100-0.
- 19. Radiation Protection Calc. 12050-RP-104-0.
- 20. Radiation Protection Calc. 13075-PR(B)-024-0.
- 21. Safeguards Calc 13075.49-ES-232-0.
- 22. Radiation Protection Calc. 13075-PR(B)-017-0.
- 23. Radiation Protection Calc. 13075-PR(B)-023-0.
- 24. Radiation Calc. 11715-V-29.
- 25. Radiation Protection Calc. 13075-PR(B)-095-0.

- 26. Radiation Protection Calc. 13075-RP-069-0.
- 27. Specification NAS-383, Yard-1, Temperature 400-1200F.
- 28. Radiation Protection Calc. 1307-PR(B)-008-0.
- 29. Radiation Protection Calc. 12050-RP-133-0.
- 30. Radiation Protection Calc. 12050-RP-091-0.
- 31. Assume same as Casing Cooling Pump House.
- 32. Assume same as 254 level of Service Building.
- 33. Radiation Protection Calc. 13075.49-PR (B) -029-0.

DOCUMENT/ PAGE PULLED

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SECTION 9
MASTER LIST

ACCIDENT FUNCTIONS REFERENCED IN MASTER LIST

- 1. Containment Isolation
- 2. Emergency Core Cooling/Core Heat Removal
- 3. Engineered Safety Feature
- 4. Post Accident Monitoring
- Design Basis Accident (Loss-of-Coolant Accident and/or Main Steam Line Break) Mitigation
- 6. Control Room Habitability
- 7. High Energy Line Break (Outside Containment) Mitigation
- 8. Supplies Power to Safety Systems
- Service Building Heating, Ventilation, and Air-Conditioning System
- 10. Safeguards Area Ventilation
- 11. Minimum Charging and Boration Capability for High Energy Line Break in Auxiliary Building
- 12. Rod Control Room Ventilation
- 13. Service Water Isolation
- 14. Ventilation to Safety-Related Equipment

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.			ACCIDENT FUNCT 12345678901234		PAGE
2-HV-E-4A	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-E-4B	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-E-4C	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-S-1A	STRAINERS, CHILLER ROOM	ELLIOT		HV	1299	6	02	
2-HV-S-1B	STRAINERS, CHILLER ROOM	ELLIOT		HV	1299	6	02	
2-HV-F-24	FAN, EQUIPMENT ROOM SUPPLY	AEROVENT FAN CO.		HV	1241	6	03	
2-HV-P-20A	PUMP, CHILLER POOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-20B	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-20C	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-22A	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-22B	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-22C	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-DB-P-10A	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05	
2-DB-P-10B	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05	
NGA-20	CABLE, 1/C 250 HCM	OKONITE		ED	1128	8	06	
NGA-21	CABLE, 1/C 2/0 AWG.	OKONITE		ED	1128	8	06	
NGB-15	CABLE, TRIPLEX #4 AWG	OKONITE		ED	1128	. 8	06	
NGB-16	CABLE, TRIPLEX #6 AWG	OKONITE		ED	1128	8	06	
NGB-17	CABLE, 3/C #8 AWG	OKONITE		ED	1128	8	06	
NGB-18	CABLE, 3/C #10 AWG	OKONITE		ED	1128	8	06	
NGB-19	CABLE, 3/C #12 AWG	OKONITE		ED	1128	8	06	
NGA-15	CABLE, TRIPLEX 250 MCM	CERRO WIRE		ED	1359	3 5	0.7	
NGA-19	CABLE, 2/C #2 AWS	CERRO WIRE		ED	1312	8	08	
NGA-34	CABLE, 1/C #14 ANG	CERRO WIRE		ED	1312	8	08	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGA-35	CABLE, 2/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA - 36	CABLE, 3/C #14 AWG	CERRO WIRE		FO	1312	8	0.8	
NGA-37	CABLE, 5/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-38	CABLE, 7/C #14 AWS	CERRO WIRE		ED	1312	8	08	
NGA-39	CABLE, 9/C #14 AWG	CERRO WIRE		ED	1312	8	0.8	
NGA-40	CABLE, 12/C #1+ AMG	CERRO WIRE		ED	1312	8	08	
NGA-44	CABLE, 1/C #12 AWG	CERRO WIRE		FD	1312	8	08	
NGA-45	CABLE, 2/C #12 AWG	CERRO WIRE		ED	1312	8	08	
NGA-47	CABLE, 4/C #12 AWG	CERRO WIRE		ED	1312	8	08	
NGA-49	CABLE, 7/C #12 AWG	CERRO WIRE		ED	1312	8	08	
NGA-57	CABLE, 4/C #10 AWG	CERPO WIRE		ED	1312	8	08	
NGA-77	CABLE, 4/C #10 AWG	CERRO WIRE		ED	1312	8	08	
NGB-43	CABLE, 2/C #8 AWG	CERRO WIRE		ED	1312	6	0.8	
NGB-44	CABLE, 2/C #6 AWG	CERRO WIRE		ED	1312	8	08	
NGB-45	CABLE, 4/C #6 AWG	CERRO WIRE		ED	1312	8	08	
NGA-67	CABLE, 19/C #16 AWG	BIW		ED	1265	2345	09	
NGA-68	CABLE, 12/C #16 AWG	BIW		ED	1265	2345 8	09	
NGA-69	CABLE, 2/C #16 AWG	BIW		ED	1265	2345	09	
NGA-70	CABLE, 18/C #16 AWG	BIW		ED	1265	2345	09	
NGB-35	CABLE, 2/C #16 ANG	BIW		ED	1265	2345	09	
NGB-39	CABLE, 3/C #16 AMG	BIM		ED	1265	2345	09	
NGB-40	CABLE, 4/C #16 AWG	BIM		ED	1265	2345	09	
NGB-55	CABLE, 45/C #16 AWG	BIW		ED	1265	2345	09	
NGA-10	CABLE, 1/C 2000 HCM	GENERAL CABLE		ED	1255	9	10	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGA-12	CABLE, 3/C 1000 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
NGA-13	CABLE, 3/C 4/0 AWG. ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
NGA-3	CABLE, TRIPLEX 1000 MCM	GENERAL CABLE		ED	1255	8	10	
NGA-4	CABLE, 3/C 500 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-5	CABLE, 3/C 1250 MCM STEEL ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-6	CABLE, 3/C 1250 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-9	CABLE, 1/C 1500 MCM	GENERAL CABLE		ED	1255	8	10	
NGA-13	CABLE, 3/C 4/0 AWG	OKONITE		ED	1375	8	11	
NGA-14	CABLE, TRIPLEX 4/0 AWG	OKONITE		ED	1375	8	11	
NGA-3	CABLE, TRIPLEX 1000 MCM	OKONITE		ED	1375	8	11	
NGA-4	CABLE, 3/C 500 MCM	OKONITE		ED	1375	8	11	
NGB-11	CABLE, TRIPLEX 2/0 AWG	OKONITE		ED	1384	8	12	
NGB-12	CABLE, TRIPLEX #1 ANG	OKONITE		ED	1384	8	12	
NGB-5	CABLE, TRIPLEX 500 MCH	OKONITE		ED	1384	8	12	
NGB-7	CABLE, TRIPLEX 250 MCM	OKONITE		ED	1384	8	12	
NGA-67	CABLE, 19/C #16 AWG	CERRO WIRE		ED	1392	123456 8	13	
NGA-68	CABLE, 12/C #16 AWG	CEFRO WIPE		ED	1392	123456	13	
NGA-70	CABLE, 18/C #16 ANG	CERRO WIRE		ED	1392	123456	13	
NGB-35	CABLE, 2/C #16 ANG	CERRO WIRE		ED	1392	2345	13	
NGB-39	CABLE, 3/C #16 AWG	CERRO WIRE		ED	1392	123456	13	
NGB-11	CABLE, TRIPLEX 2/0 AWG	GENERAL CABLE		ED	1256	8	14	
NGB-12	CABLE, TRIPLEX #1 AWG	GENERAL CABLE		ED	1256	8	14	
NGB-5	CABLE, TRIPLEX 500 MCM	GENERAL CABLE		ED	1256	8	14	
NGB-7	CABLE, TRIPLEX 250 MCM	GENERAL CABLE		ED	1256	8	14	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	SOV-DG-200A	SOV, PRIMARY DRAIN TRANSFER PUMP DISCHARG	ASCO	**********	CI	N/A	1	15	
	NGB-01	CABLE, 2/C #10 AWG	OKONITE		ED	1404	8	16	
	MOV-HV-215-1	MOV, FLUSH VALVE LEFT FOR STRAINER	ELLIOT		HV	1299	6	17	
	MOV-HV-215-2	MOV, FLUSH VALVE RIGHT FOR STRAINER	ELLIOT		HV	1299	6	17	
	MOV-HV-216-1	MOV, FLUSH VALVE LEFT FOR STRAINER	ELLIOT		HV	1299	6	17	
	MOV-HV-216-2	MOV, FLUSH VALVE RIGHT FOR STRAINER	ELLIOT		HV	1299	6	17	
	2-HV-F-40A	FAN, SAFEGAURDS AREA VENTILATION	BUFFALO FORGE		HV	1296	0	18	
	2-HV-F-40B	FAN, SAFEGAURDS AREA VENTILATION	BUFFALO FORGE		HV	1296	0	18	
	TB	TERMINAL BLOCKS	CONNECTION INC.		N/A	1313	9	19	
	LT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		PS	1333	4	20	
	LT-RS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	20	
	2-RV-F-71A	FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HV	1201	0	21	
	2-HV-F-71B	FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HV	1201	0	21	
	1-EP-MC-19	MCC-1H1-2N	KLOCKNER MOELLER		ED	1176	8	22	
i.	1-EP-MC-20	MCC-1H1-25	KLOCKNER MOELLER		ED	1176	8	22	
	1-EP-MC-21	MCC-1J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
	1-EP-MC-22	MCC-1J1-2S	KLOCKNER MOELLER		ED	1176	8	22	
	2-EP-MC-19	MCC-2HI-2N	KLOCKNER MOELLER		ED	1176	8	22	
	2-EP-MC-20	MCC-2H1-2S	KLOCKNER MOELLER		ED	1176	8	22	
	2-EP-MC-21	MCC-2J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
	2-EP-MC-22	MCC-2J1-2S	KLOCKNER MOELLER		ED	1176	8	22	
	MOV-95-201A	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23	
	MOV-00-201B	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23	
-	MOV-RS-255A	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. OPDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-PS-255B	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	
MOV-RS-256A	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
MOV-RS-256B	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	24	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	24	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	24	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE FWR)	CONAX		ED	1313	8	24	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE III	PENETRATION ASSEMBLIES (TRIAXIAL)	CONAX		ED	1313	8	24	
TYPE IV	PENETRATION ASSEMBLIES (THERMOCOUPLES)	CONAX		ED	1313	8	24	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	25	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	25	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE PMR)	CONAX		ED	1313	8	25	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
SP	SPLICES	COHAX		N/A	1313	9	26	
SP	SPLICES	CONAX		N/A	1313	9	27	
2-RS-P-1A	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	28	

Spirefold Frages, Inc. - 9

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-RS-P-18	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3	28	
2-RS-P-1A	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		PS	1355	3 5	29	
2-RS-P-1B	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3	29	
SOV-BD-200A	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-BD-200C	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-ED-200E	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125		30	
SOV-CC-200A	SOV, RECIPC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-200B	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-200C	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-201A	SOV, PCP THERMAL BARRIER RET HEADER	ASCO		CI	1125	1	30	
50V-CC-202A	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1,	30	
sov-cc-202C	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-202E	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-203A	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1	30	
SOV-CC-203B	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	ika lahan n	30	
SOV-CC-204A-1	SOV, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204A-2	sov, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204B-1	SOV, PCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204B-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	In property	30	
SOV-CC-204C-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204C-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-DA-200A	SOV, RC SUMP PUMP DISCHARGE	ASCO		CI	1125	1	30	
SOV-IA-200A	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200B	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.			ACCIDENT FUNCT 12345678901234		PAGE
SOV-IA-200C	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-202A	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-202B	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	4	30	
SOV-RM-200A	SOV, RADIATION MONITORING	ASCO		CI	1125	1	30	
SOV-PM-2008	SOV, PADIATION MONITORING	ASCO		CI	1125	1	30	
SOV-SI-200A	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-SI-200B	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-SI-201	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-VG-200A	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI	1125	1	30	
2-EE-55-03	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31	
2-EE-ST-01	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31	
TB	TERMINAL BLOCKS	MANY		N/A	MA	9	32	
11	TERMINATION TAPE	OKONITE		NA.	NA		33	
SP	SPLICES	RAYCHEM		N/A	HA	9	34	
FT-2474	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2475	TRANSMITTER, STEAM GEN. FLOW	POSEMOUNT		115	1486	23 5	35	
FT-2484	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2485	TRANSMITTER, STEAM GEN. FLOW	ROSEHOUNT		MS	1486	23 5	35	
FT-2494	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
_FT-2495	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
SOV-MS-211A	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	
SOV-MS-211B	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	
SDV-SS-200B	SOV, PRESSURIZER LIQUID SPACE	ASCO		CI	1163	1	37	
SOV-SS-201B	SOV, PRESSURIZER VAPOR SAMPLE	ASCO		CI	1163	1	37	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	SOV-SS-203A	SOV, RHR OUTBOARD ISOLATION VALVE	ASCO		CI		1	37	
	SOV-SS-2038	SOV, RHR DUTBOARD ISOLATION VALVE	ASCO		CI	1163	1	37	
	SOV-SS-204B	SOV, PRESSURE RELIEF TANK SAMPLE	ASCO		CI	1163	Appendix by the	37	
	50V-SS-212B	SOV, STEAM GON SAMPLE ISOLATION	ASCO		CI	1163	1	37	
	SOV-55-202B	SOV, PRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI	1163	1	38	
	SOV-SS-206B	SOV, PRIMARY COOLANT HOT LEG SAMPLE	ASCO		CI		1 4	38	
	тм	TERMINATIONS	RAYCHEM		N/A	N/A	9	39	
	SOV-LM-200A	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200B	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	50V-LM-200C	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-2000	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200E	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200F	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		cı	1163	1	40	
	SOV-LM-200G	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200H	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	2-5W-P-5	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
	2-SW-P-6	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
	2-SW-P-7	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
	2-SW-P-8	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
_	H2A-HC-100	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
	H2A-HC-200	HYDROGEN ANALYZER	BENDIX		нс	1332	4	42	
	1-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		HC	1365	3 5	43	
	2-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		HC	1365	3 5	43	
	2-RS-P-2A	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3	44	

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MARK NO.	DESCRIPTION	MANUFACTURER MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-RS-P-2B	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC	RS	1127	3	44	
1-HV-F-8A	FAN, AUX BLDG EXHAUST	WESTINGHOUSE	HV	HUS-71	23 1	45	
1-HV-F-8B	FAN, AUX BLDG EXHAUST	WESTINGHOUSE	HV	MUS-71	23 1	45	
1-HV-Y-85	FAN, AUX BLDG EXHAUST	WESTINGHOUSE	HV	NUS-71	23 1	45	
SOV-2204	SOV, REGEN HEAT EXC. DUTLET VALVE	ASCO	CI	1010	1	46	
SOV-2519A	SOV, FRIM GRADE WATER TO PRT	ASCO	CI	1010	1	46	
TE-AM-215	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT	AM	1363	7	47	
TE-AM-216	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT	AM	1363	7	47	
TE-AM-217A	AMBIENT TEMP. MONITOR SERV. BLDG.	POSEMOUNT	MA	1363	7	47	
TE-AM-217B	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT	AM	1363	7	47	
TE-AM-217C	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEHOUNT	MA	1363	7	47	
TE-AM-217D	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT	AH	1363	7	47	
PT-LM-200A	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO	LM	1215	1 3 5	48	
PT-LM-200B	TRANSMITTER, CONTAINMENT PRESSURE	FOXEORO	LM	1215	1 3 5	48	
PT-LM-200C	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO	LM	1215	1 3 5	48	
PT-LM-200D	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO	LM	1215	1 3 5	48	
LIT-PS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS	RS	1333	4	49	
LIT-PS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS	RS	1333	4	49	
MOV-5N-201A	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE	SH	1194	3 5	50	
MOV-SW-201B	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE	SW	1194	3 5	50	
MOV-5W-201C	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE	SW	1194	3 5	50	
MOV-SW-201D	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE	SW	1194	3 5	50	
MOV-514-203B	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE	514	1194	3 5	50	
MOV-SN-204A	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE	SW	1194	3 5	50	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	MOV-SW-205A	MOV, RECIPC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
	MOV-SW-205B	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		514	1194	3 5	50	
	MOV-514-205C	HOV, PECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		514	1194	3 5	50	
	MOV-5M-205D	MOV, RECIRC SPRAY HEAT EXC. HEADER CUTLET	LIMITORQUE		514	1194	3 5	50	
	MOV-SW-206A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
	MOV-514-206B	MOV, PECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
	50V-MS-209A	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-209B	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213A-1	SOV, STEAM GEN TPIP	ASCO		CI	1125	1	51	
	SOV-MS-213A-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SDV-MS-213B-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	100000	51	
	SOV-MS-213B-2	SOV, STEAM GEN TRIP	ASCO		LI	1125	1	51	
	SOV-MS-213C-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213C-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-SV-202-1	SOV, AIR EJECTOR VENT	ASCO		CI	1125	1	51	
	SOV-SV-203	SOV, AIR REMOVAL SYSTEM	ASCO		CI	1125	1	51	
	MOV-5N-203A	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
	MOV-5W-203C	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SN	1194	3 5	52	
	MOV-SW-203D	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
	MOV-SW-204B	MOV, SERVICE WATER FROM PECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
	MOV-5W-204C	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
	MOV-SW-204D	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
	MOV-SN-208A	MOV, INLET HEADER VALVE	LIMITORQUE		SW	1193	23 3	53	
_	MOV-SW-208B	MOV, INLET HEADER VALVE	LIMITORQUE		SW	1193	23 3	53	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-5W-213A	MOV, FUEL PIT COOLER VALVE	LIMITORQUE		SW	1193	23 3	53	
MOV-SW-213B	MOV, FUEL PIT COOLER VALVE	LIMITORQUE		SW	1193	23 3	53	
LT-2475	TRANSMITTER, STEAM GEN. LEVEL	POSEMOUNT		FW	1486	5	54	
LT-2484	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2485	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2496	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
SOV-IA-201A	SOV, CONTAINMENT INSTRUMENT AIR	ASCO		CI		1.	55	
50V-55-207A	SOV, RHR SAMPLE LINE	ASCO		CI	1163	1	56	
SOV-SS-207B	SOV, RHR SAMPLE LINE	ASCO		CI	1163	The Marie	56	
MOV-RS-200A	1 V, SUPPLY VALVE CC RECIPC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-200B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		PS.	1242	3 5	57	
MOV-PS-201A	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-201B	MOV. SUPPLY VALVE CC RECIPC SPRAY	LIMITORQUE		RS	1242	3 5	57	
SOV-CC-202B	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
50V-CC-202D	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
SOV-CC-202F	SOV, ECP BEARING COOLING	ASCO		CI		1	58	
MOV-HV-200B	MOV, RC PURGE SYSTEM VALVE	LIMITORQUE		HV		1	59	
MOV-HV-200D	MOV, RC PURGE SYSTEM EXHAUST	LIMITORQUE		HV		1	59	
MOV-HV-201	MOV, RC PURGE SYSTEM BYPASS	LIMITORQUE		HV		1	59	
SOV-MS-201A-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1.000.00	60	
50V-MS-201A-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		Applications	60	
_SOV-MS-201B-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	

Data field forms

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER		DENT FUNCT 5678901234	FILE	PAGE
SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1		60	
SOV-MS-201B-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1		60	
SOV-MS-201B-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1		60	
SOV-MS-201C-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1		60	
SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1.		60	
SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1		60	
SOV-MS-2010-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1		60	
E/P FC-2122	E/P, CHARGING FLOW CONTROL	COPES-VULCAN		СН				61	
SOV-CC-201B	SOV, RCP THERMAL BARRIER HEADER	ASCO		CI		1		62	
SOV-CC-205A	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		Cl		1		62	
SOV-CC-205B	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1		62	
SOV-CC-205C	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1		62	
SOV-DA-200B	SOV, CONTAINMENT SUMP DISCH ISOLATION	ASCO		CI		1		62	
SOV-DG-200B	SOV, PRIMARY DRAIN TRANSFER PUMP DISCHARG	ASCO		CI		1		62	
SOV-PM-200C	SOV, RADIATION MONITORING	ASCO		CI		1		62	
SOV-55-200A	SOV, PRESSURIZER LIQUID SPACE	ASCO		CI		1		62	
SOV-SS-201A	SOV, PRESSURIZER VAFOR SPACE SAMPLE	ASCO		CI		1		62	
SOV-SS-204A	SOV, FRESSURIZER RELIEF TANK GAS SPACE	ASCO		CI		1		62	
SOV-SS-206B,	SOV, PRIMARY CONLANT HOT LEG SAMPLE	ASCO		CI		1 4		62	
SOV-SS-212A	SOV, STEAM GEN SAMPLE	ASCO		CI		1		62	
SOV-VG-200B	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI		1		62	
SOV-BD-200B	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1	7	63	
SOV-BD-200D	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1	7	63	
SOV-BD-200F	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1	7	63	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-BD-200G	SOV. STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
SOV-ED-200H	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
SOV-80-200J	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
TS-HV2230	TEMPERATURE SWITCH	HONEYWELL		HV	NA	2	64	
MOV-HV200A	MOV, CONTAINMENT SUPPLY	LIMITORQUE		HV	198	1	65	
MOV-HV200C	MOV, CONTAINMENT PURGE	LIMITORQUE		HV	198	1	65	
MOD-HV163A	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYMELL		НΑ	22436	23 1	66	
MOD-HV1638	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66	
MOD-HV163C	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66	
SOV-CV-250A	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SOV-CV-250B	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
S0V-CV-250C	SOV, CONTAINMENT VACUM FUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SOV-CV-2500	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CZ	1125	1 3 5	67	
SOV-SS-202A	SOV, PRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI		1	68	
SOV-SS-206A	SOV, PRIMARY COOLANT HOT LEG SAMPLE	ASCO		CI		all territor	68	
SOV-LM-201A	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
SOV-LM-201B	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
50V-LM-201C	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
SOV-LM-201D	SOV, CONTAINMENT LEAKAGE MONTTOR	ASCO		CI	1163	1000000	69	
SOV-SW-201A-1	SOV, AIR COOLER EMERG SUPPLY	ASCO		SH		3	70	
SOV-SN-201A-2	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW		3	70	
SOV-SW-201B-1	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW		3	70	
	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW		3	70	
LT-2474	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	

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VIPGINIA ELECTRIC AND FOWER COMPANY NORTH ANNA POWER STATION UNIT 2 EQUIPMENT GALIFICATION MASTER LIST FILE/MARK NUMBER SORT

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. OPDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
LT-2476	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2486	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2494	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2495	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
TE-AM-100A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-100B	AMBIENT TEMPERATURE MONITORS	POSEMOUNT		AM	1363	8	72	
TE-AM-101A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-101B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-102A	AMBIENT TEMPERATURE MONITORS	POSEHOUNT		AM	1363	8	72	
TE-AM-102B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-103A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-103B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-104A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-104B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-105A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-1058	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-106A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-106B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-107A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-107B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-108A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-108B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
MOV-5W-230A	RECIPC. AIR COOLING COILS	LIMITORQUE		SW		3	73	
MOV-SW-210B	RECIRC. AIR COOLING COILS	LIMITORQUE		SH		3	73	

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VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANNA FOWER STATION UNIT 2 EQUIPMENT GALIFICATION MASTER LIST FILE/MARK NUMBER SORT

MARK NO.	DESCRIPTION	MANUFACTURER MODEL NO.			ACCIDENT FUNCT 12345678901234		
MOV-SW-214A	RECIRC. AIR COOLING COILS	LIMITORQUE	SH		3	73	-
MOV-SW-214B	RECIRC. AIR COOLING COILS	LIMITORQUE	SW		3	73	
MOV-QS-200A	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE	QS	1242	3 5	74	
MOV-Q5-200B	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE	QS	1242	3 5	74	
2-EE-SS-04	SWITCHGEAR 480V (2J1)	ITE	ED	1088	8	75	
2-EE-ST-02	TRANSFORMER 480V (2J1)	ITE	ED	1088	8	75	
FT-2414	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXEGRO	RC	1010	2 5	W01	
FT-2415	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXBORO	RC	1010	2 5	H01	
FT-2416	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXBORO	RC	1010	2 5	W01	
FT-2424	TRANSMITTER, REACTOR COOLANT FLOW L2	FOXBORO	RC	1010	2 5	K01	
FT-2425	TRANSMITTER, REACTOR COOLANT FLOW L2	FOXBORO	RC	1010	2 5	W01	
FT-2426	TRANSMITTER, REACTOR COOLANT FLOW L2	FOXBORO	RC	1010	2 5	W01	
FT-2434	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO	RC	1010	2 5	W01	
FT-2435	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO	PC	1010	2 5	W01	
FT-2436	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO	RC	1010	2 5	W01	
LT-2459	TRANSMITTER, PRESSURIZER LEVEL	BARTON	RC	1010	23 5	W02	
LT-2460	TRANSMITTER, PRESSURIZER LEVEL	BARTON	RC	1010	23 5	W02	
LT-2461	TRANSMITTER, PRESSURIZER LEVEL	BARTON	RC	1010	23 5	W02	
PT-2474	TRANSMITTER, STEAM GEN, 1 PRESSURE	FOXBORO	MS	N A	5	M03	
PT-2475	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXEORO	MS	A M	5	M03	
PT-2476	TRANSMITTER, STEAM GEN. 1 FRESSURE	FOXBORO	MS	N A	5	M03	
PT-2484	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO	MS	N A	5	W03	
PT-2485	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO	MS	N A	5	W03	
PT-2486	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO	MS	N A	5	W03	

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	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	PT-2494	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	W03	
	PT-2495	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	M03	
	PT-2496	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	M03	
	HCV-2200A	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
	HCV-2200B	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
	HCV-2200C	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
	MOV-2860A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
	MOV-2860B	MOV, LHSI PUMP SUCTION	LIMITORQLE		SI	1010	23 5	W05	
	MOV-2885A	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
	MOV-2885B	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	M05	
	MOV-2380	MOV, RCP SEALWATER RETURN	LIMITORQUE			1010	1 5	W06	
	PT-2455	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
	PT-2456	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
	PT-2457	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
	MOV-2890A	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	MOS	3
	SOV-2200A-1	SOV, LETDOWN LINE	ASCO		CI	1010	1	W09	,
	50V-2200B-1	SOV, LETDOWN LINE	ASCO		CI	1010	1	WOS	9
	SOV-2200C-1	SOV, LETDOWN LINE	ASCO		CI	1010	1	MOS	9
	SOV-2460A	SOV, LETDOWN LINE LOOP 1 & 2	ASCO		CI	1010	1	WIC	0
		SOV, LETDOWN LINE LOOP 1 & 2	ASCO		CI	1010	1	MI	5
-	SOV-2460B	MOV, LHSI FUMP SUCTION	LIMITORQUE		SI	1010	23 5	WII	1
	MOV-2862A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	MI	1
	MOV-2862B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	WI	2
	TE-2412B		ROSEMOUNT		RC	1010	1 345	WI	2
***	TE-2412D	RTD, RCS NARROW RANGE							

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VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANNA FOWER STATION UNIT 2 EQUIPMENT GALIFICATION MASTER LIST FILE/MARK NUMBER SORT

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	TE-2422B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
	TE-2422D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
	TE-2432B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
	TE-2432D	RTD, RCS NARROW PANGE	ROSEMOUNT		RC	1010	1 345	MIS	
	2-SI-P-1A	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5	W13	
	2-SI-P-18	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5	W13	
	MOV-2863A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
	MOV-2863B	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	25 5	W14	
	MOV-2864A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
	MOV-2864B	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
	MOV-2115C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W16	
	MOV-2350	MOV, EMERGENCY BORATION	LIMITORQUE		CH	1010	23 5	W17	
	MOV-2267B	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W18	
	MOV-2269B	MOV. LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
	MOV-2270B	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
	MOV-2370	MOV, CHARGING PUMP TO SEAL WATER RECIRC.	LIMITORQUE		СН	1010	23 5	W18	
	MOV-2373	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W18	
	MOV-2869A	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
	MOV-2869B	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
-	MOV-2286A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W19	
	MOV-2286B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W19	
	MOV-2286C	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	WI9	
	MOV-2287A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	1/19	
	MOV-2287B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-2287C	MOV, CHAPGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	
2-CH-P-1A	PUMP, CHANGING (HHSI)	WESTINGHOUSE		СН	1010	2 5	MSO	
2-CH-P-18	PUMP, CHARGING (HHSI)	WESTINGHOUSE		СН	1010	2 5	W20	
2-CH-P-1C	PUMP, CHARGING (HHSI)	WESTINGHOUSE		СН	1010	2 5	MSO	
MOV-2267A	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	MSI	
MOV-2269A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	MSI	
MOV-2270A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	MSI	
MOV-2289A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W21	
MOV-2289B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	MSI	
1:07-21158	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5 1	MSS	
MOV-2115D	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5 1	MSS	
FT-2940	TRANSMITTER, SI HEADER FLOW HOT LEG	BARTON		SI	1010		W23	
FT-2943	TRANSMITTER, BORON INJ, TK. HEADER FLOW	BARTON		SI	1010		W23	
MOV-2867C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1010	23 5	W24	
110V-2867A	MOV, CHARGING PUMP STOP VALVE	LIMITORALE		SI	1313	23 5	W25	
MOV-2867B	MOV, CHARGING FUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
MOV-2867D	MOV, CHAPGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
SOV-2859	SOV, SAFETY INJECTION ACCUMULATOR	ASCO		CI	1010	1	W26	
TE-2410	RTD. RCS WIDE RANGE	ROSEMOUNT		RC	1010	5	W2.7	
_TE-2413	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2420	PTD, RCS WIDE RANGE	POSEMOUNT		RC	1010	4	W27	
TE-2423	RTD, RCS WIDE RANGE	ROSEHOUNT		PC	1010	4	W27	
TE-2430	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2433	RTD, PCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.			ACCIDENT FUNCT 12345678901234		PAGE
MOV-2865A	MOV, ACCUMULATOR TANK 1 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
MOV-2865B	MOV, ACCUMULATOR TANK 2 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
10V-2865C	MOV, ACCUMULATOR TANK 3 COLD LEG	LIMITORQUE		SI	1010	23 5	H28	
10V-2836	MOV, COLD LEG CIRC VALVE	LIMITORQUE		SI	1010	23 5	W29	
50V-2884A	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
50V-2884B	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
SOV-2884C	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
P HCV2186	E/P FOR HAND CONTROL VALVE HCV-2186	FISHER					W31	
50V-2200A-2	SOV, LETDOWN LINE	ASCO		CI	1010	1	W32	
OV-2200B-2	SOV, LETDOWN LINE	ASCO		CI	1010	1	M35	
0V-2200C-2	SOV, LETDOWN LINE	ASCO		CI	1010	1	W32	
OV-2936	SOV, ACCUMULATOR VENT LINE FLOW	ASCO		CI	1010	1	M33	
OV-2275A	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W34	
OV-2275C	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W34	
OV-2381	MOV, SEAL WATER RETURN SV	LIMITORQUE		СН	1010	23 5	W35	
OV-2115E	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W36	
OV-2275B	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W37	
OV-2885C	MOV, LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	23 5	W38	
DV-2885D	MOV, LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	23 5	W38	
DV-2890B	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	
OV-2890C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		SI	1010	23 5	W39	
OV-2890D	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	
0V-2842	RADIATION MONITORING LINE	NAMCO		CI	1010	1	W40	
S-BD-203B	FLOW SWITCH			BD		6	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
FS-BD-203D	FLOW SWITCH			BD		6	*N/A	
FS-BD-203F	FLOW SWITCH			BD		6	*N/A	
FS-BD-203G	FLOW SWITCH			BD		7	*N/A	
FS-BD-203H	FLOW SWITCH			BD		7	*N/A	
FS-BD-203J	FLOW SWITCH			BD		7	*N/A	
FS-HV-2207A	FLOW SWITCH, BATTERY ROOM 2-1 VENT			HV		9	*N/A	
FS-HV-22078	FLOW SWITCH, BATTERY ROOM 2-2 VENT			HV		9	*N/A	
FS-HV-2207C	FLOW SWITCH, BATTERY ROOM 2-3 VENT			HA		9	*N/A	
HC-2186	E/P FOR SEAL WATER FLOW CONTROL			СН		2 5	*N/A	
HCV-FW-200A	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1A			FW		5 7	*N/A	
HCV-FW-200B	LIMIT SWITCH, FW CONTROL TO STEAM GEN 18			FW		5 7	*N/A	
HCV-FW-200C	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1C			FW		5 7	*N/A	
LCV-2460A	LCV, LOOP 1 LETDOWN LINE CONT. VV			CI		1	*11/A	
LT-QS-200A	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200B	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200C	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200D	TRANSMITTER, RF WATER STOPAGE TANK			QS		3 5	*N/A	
LT-2474	TRANSMITTER, STEAM GEN LEVEL			FW		5	*N/A	
LT-2475	TRANSMITTER, STEAM GEN LEVEL			FW		5	*N/A	
_LVC-2460B	LCV, LOOP 2 LETDOWN LINE CONT. VV			CI		1	*N/A	
MOV-FW-200A	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	
MOV-FW-200B	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	
MOV-FH-200C	MOV, AUX STEAM GEN FD PP DISCH VV			FW		5 7	×N∕A	
MOV-HV-204-1	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	

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MOV-HV-204-2 MOV-QS-202A MOV-QS-202B	MOV, CONTROL ROOM EMER AIR SUPFLY MOV, RF WATER CHEM. ADD TANK MOV, RF WATER CHEM ADD TANK MOV, SW RETURN TO RERVOIR ISOLATION		HV	7	*N/A	
	MOV, RF WATER CHEM ADD TANK		QS			
MOV-QS-2028				3 5	*h 'A	
	MOV, SW RETURN TO RERVOIR ISOLATION		QS	3 5	*N/A	
MOV-SW-100A			SH	23 5	*N/A	
MOV-SH-100B	MOV, SW RETURN TO RERVOIR ISOLATION		S14	23 5	*N/A	
MOV-SW-110A	MOV,		SW	3	*N/A	
MOV-SW-110B	MOV,		SM	3	*N/A	
MOV-SW-114A	MOV,		SM	3	*N/A	
MOV-SW-1148	MOV,		SW	3	*N/A	
MOV-SW-115A	MOV, AUX SW PUMP ISO VALVE		SW	23 5	*N/A	
MOV-SW-1158	MOV, AUX SW PUMP ISO VALVE		SW	23 5	*N/A	
MOV-SW-117	MOV, CIRC WIR SW PUMP ISOLATION		SM	23 5	*N/A	
MOV-SW-118	MOV, CIRC WIR INTAKE TO SW PUMP		SH	23 5	*N/A	
MOV-SW-119	MOV, MAKE-UP ISOLATION		SW	23 5	*N/A	
MOV-SW-200A	MOV, SW RETURN TO PERVOIR ISOLATION		SW	23 5	*N/A	
MOV-SW-200B	MOV, SW RETURN TO RERVOIR ISOLATION		SW	23 5	*N/A	
MOV-SW-203B	MOV, SW TO RECIRC SPRAY		SW	3 5	*N/A	
MOV-SW-210A	MOV,		SM	3	*N/A	
MOV-SW-210B	MOV,		SW	3	*N/A	
MOV-SW-214A	MOV,		SW	3	*N/A	
MOV-SW-2148	mov,		SW	3	*N/A	
MOV-SW-215A	MOV, AUX SW PUMP ISO VALVE		SW	23 5	*N/A	
MOV-SH-215B	MOV, AUX SW PUMP ISO VALVE		SW	23 5	*N/A	
MOV-5W-217	MOV, CIPC WTR SW PUMP ISOLATION		SW	23 5	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER		T FUNCT 78901234	FILE	PAGE
MOV-SH-219	MOV, MAKE-UP ISOLATION			SH		23 5		*N/A	
MOV-SH-220A	MOV, SW TO CIRC TUNNEL			SW			3	*N/A	
MOV-5W-220B	MOV, SW TO CIRC TUNNEL			SW			3	*N/A	
PS-EG-2JA	PRESSURE SWITCH, EMER GEN 2J COMP			ED			8	*N/A	
PS-EG-2J3	PRESSURE SWITCH, EMER GEN 2J COMP			ED			8	*N/A	
PT-MS-201A	TRANSMITTER, MAIN STM LP I PRES CONTROL			M5		2		*N/A	
PT-MS-2018	TRANSMITTER, MAIN STM LP II PRES CONTROL			MS		2		*N/A	
PT-MS-201C	TRANSMITTER, MAIN STM LP III PPES CONTROL			MS		2		¥N/A	
PT-2484	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4		*N/A	
PT-2485	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4		*N/A	
PT-2494	TRANSMITTER, STEAM GEN 3 PRESSURE			MS		4		*N/A	
PT-2495	TRANSMITTER, STEAM GEN 3 PRESSURE			MS		4		*N/A	
PM-SW-224	RADIATION MONITORS, SW PAD MONITORS			SW		4		*N/A	
RM-SW-225	RADIATION MONITORS, SW RAD MONITORS			SW		4		*N/A	
PM-SW-226	RADIATION MONITORS, SW RAD MONITORS			SW		4		*N/A	
RM-SW-227	RADIATION MONITORS, SW RAD MONITORS			SW		4		*N/A	
RFS-EG-2HA	PRESSURE SHITCH, EMERG GEN 2H COMP			ED			8	*N/A	
RPS-EG-2HB	PRESSURE SWITCH, EMERG GEN 2H COMP			ED			8	*N/A	
SOV-,S-201A-4	SOV, MAIN STEAM LINE TRIP			CI		1		*N/A	
SOV-CV-200	SOV, CONTAINMENT VACUUM EJECT INLET			CI		1		*N/A	
SOV-HV-160-1	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6		*N/A	
SOV-HV-160-2	SOV, CONTROL AND RELAY FOOM DAMPER			HV		6		*N/A	
SOV-HV-161-1	SOV, CONTROL AND RELAY ROOM DAMPER			НΛ		6		*N/A	
_SOV-HV-161-2	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6		*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-HV-215A-1	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
							*N/A	
SOV-HV-215A-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI				
SOV-HV-2158-1	SOV, FLUSH VALVE SERVICE BLDE STRAINER			CI		1	*N/A	
SOV-HV-215B-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
SOV-HV-2200A	SOV, VALVE FOR 2-HV-P-22A			HV		9	*N/A	
SOV-HV-2200B	SOV, VALVE FOR 2-HV-P-22B			HV		9	*N/A	
SOV-HV-2200C	SOV, VALVE FOR 2-HV-P-22C			HV		9	*N/A	
SOV-HV-2300A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300B	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300C	SOV, BOTTLED AIR SYSTEM			HV		6	*H/A	
SOV-HV-2300D	SOV, BOTTLED AIR SYSYTEM			HV		6	*N/A	
50V-HV-2306A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
50V-HV-2306B	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV228-1	SOV, EXHAUST TO IODINE FILTER BANK			HV		23 5	*N/A	
SOV-HV228-2	SOV, EXHAUST TO IODINE FILTER BANK			HV		23 5	*N/A	
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
50V-MS-201B-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
50V-MS-201C-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-210A	SOV,			CI		1	*N/A	
SOV-MS-210B	sov,			CI		1	*N/A	

VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANNA FOMER STATION UNIT 2 EQUIPMENT GALIFICATION MASTER LIST FILE/MARK NUMBER SORT

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER		HT FUNCT 78901234	FILE	PAGE
50V-2311	SOV,			CH		5		*N/A	
SPV-MS-201B-5	SOV, MAIN STEAM LINE TRIP			CI		1		*N/A	
TS-HV-2229	TEMPERATURE SNITCH			HV			3	*N/A	
TS-HV196B	TEMPERATURE SWITCH, EMER GEN ROOM 2H			HV			9	*N/A	
S-HV196D	TEMPERATURE SWITCH, EMER GEN ROOM 2J			HV			9	*N/A	
TV-SW-101A	TRIP VALVE,			SW			3	*N/A	
TV-SN-101B	TRIP VALVE,			SW			3	*N/A	
TV-SW-201A	TRIP VALVE,			SM			3	*N/A	
TV-SW-201B	MGV.			SH			3	*N/A	
L-HV-F-22B	FAN, EXHAUST FAN EMER GEN ROOM 2H			HV			9	*N/A	
-HV-F-22D	FAN, EXHAUST FAN EMER GEN ROOM 2J			HV			9	*N/A	
L-SW-P-1A	PUMP, SW PUMP MOTOR A			514		23 5		*N/A	
1-SW-P-1B	PUMP, SW PUMP MOTOR B			SW		23 5		*N/A	
L-SN-P-4	PUMP, AUX SERVICE WATER PUMP			SW		23 5		*N/A	
L-SW-S-1A	STRAINER, SW TRAVELING WATER SCREENS			Sh		23 5		*N/A	
L-SW-S-1B	STRAINER, SW TRAVELING WATER SCREENS			SII		23 5		*N/A	
P-BY-B-01A	BATTERY, STATION BATTERY 2-1			ED			8	*N/A	
2-BY-B-01B	BATTERY, STATION BATTERY 2-1			ED			8	*N/A	
2-BY-B-02A	BATTERY, STATION BATTERY 2-2			ED			8	*N/A	
2-BY-B-02B	BATTERY, STATION BATTERY 2-2			ED			8	*N/A	
2-BY-B-03A	BATTERY, STATION BATTERY 2-3			ED			8	*N/A	
2-BY-B-03B	BATTERY, STATION BATTERY 2-3			ED			8	*N/A	
2-BY-B-04A	BATTERY, STATION BATTERY 2-4			HV			8	*N/A	
2-BY-B-04B	BATTERY, STATION BATTERY 2-4			HV			8	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-BY-C-02	BATTERY CHARGER			ED		8	*N/A	
1-BY-C-03	BATTERY CHARGER			ED		8	*N/A	
P-BY-C-04	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-05	BATTERY CHARGER			ED		8	*N/A	
-BY-C-06	BATTERY CHARGER			ED		8	*N/A	
-BY-C-07	BATTERY CHARGER			ED		8	*N/A	
-DB-P-10B	PUMP, CHILLER ROOM SUMP					6	*N/A	
-EE-EG-OZA	GENERATOR, EMERGENCY GEN 2H			ED		8	*N/A	
-EE-EG-02B	GENERATOR, EMER GEN 2H CONTROL BOX			ED		8	*N/A	
-EE-EG-02C	GENERATOR, EMER GEN 2H CONTROL CAB			ED		8	*N/A	
-EE-EG-4A	GENERATOR, EMERGENCY GENERATOR 2J			ED		8	*N/A	
-EE-EG-4B	GENERATOR, EMERG GEN 2J CONTROL BOX			ED		8	*N/A	
-EE-EG-4C	GENERATOR, EMER GEN 2J CONTROL CAB			ED		8	*N/A	
-EE-SS-01	SWITCHGEAR, 480 V SS BUS 2H			ED		8	*N/A	
-EE-SS-02	SWITCHGEAR, 480 V SS BUS 2J			ED		8	*N/A	
-EE-SN-01	SWITCHGEAR, 4 KV BUS 2H			ED		8	*N/A	
-EE-2G-4D	GENERATOR, EMER GEN 2J BATTERY			ED		8	*N/A	
-EG-AC-2HA	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
E-EG-AC-2HB	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
-EG-AC-2JA	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
-EG-AC-2JB	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
-EG-B-02B	GENERATOR, EMER GEN 2H BATTERY			ED		8	*N/A	
-EG-C-2HA	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
2-EG-C-2HB	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EG-C-2JA	COMPRESSOR, EMERG GEN AIR COMP 1			ED	*****	8	*N/A	****
2-EG-C-2JB	COMPRESSOR, EMERG GEN AIR COMP 2			ED		8	*N/A	
2-EG-P-2HA	PUMP, EMERGENCY GFN 2H FUEL OIL PUMP			SN		8	*N/A	
2-EG-P-2HB	PUMP, EMERGENCY GEN 2H FUEL DIL PUMP			ED		8	*N/A	
2-EG-P-2JA	PUMP, EMERGENCY GEN 2J FUEL DIL PUMP			ED		8	*N/A	
2-EG-P-2JB	PUMP, EMERGENCY GEN 2J FUEL DIL PUMP			ED		8	*N/A	
2-EI-CB-01	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-02	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-03	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-04	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-05	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-06A	CABINET, AUX SPUTDOWN PANEL			ED		2345	*N/A	
2-EI-CB-06B	CABINET, AUX SHUTDOWN PANEL			ED		2345	*N/A	
2-EI-CB-07	CABINET, VENTILATION CONTROL BOARD			ED		6 9	*N/A	
2-EI-CB-08A	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-CB-08B	CABINET, LIER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-CB-156A	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-156B	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-23A	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23B	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23C	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23D	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-47A	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47B	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EI-CB-47C	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47D	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47E	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47F	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-51	CABINET, PROCESS PACK 1			ED		1 3 5	*N/A	
2-EI-CB-52	CABINET, FROCESS RACK 2			ED		1 3 5	*N/A	
2-EI-CB-53	CABINET, PROCESS RACK 3			ED		1 3 5	*N/A	
2-EI-CB-54	CABINET, PROCESS RACK 4			ED		1 3 5	*N/A	
2-EP-CB-04A	CABINET, VITAL BUS CAB 2-1			ED		8	*N/A	
2-EP-CB-04B	CABINET, VITAL BUS CAB 2-2			ED		8	*N/A	
2-EP-CB-04C	CABINET, VITAL BUS CAB 2-3			ED		8	*N/A	
2-EP-CB-040	CABINET, VITAL BUS CAB 2-4			ED		8	*N/A	
2-EP-CB-12A	CABINET, DC CABINET 2-1			ED		8	*N/A	
2-EP-CB-12B	CABINET, DC CABINET 2-2			ED		8	*N/A	
2-EP-CB-12B1	CABINET, DC DISTRIBUTION PANEL 2-2A			ED		8	*N/A	
2-EP-CB-12C	CABINET, DC CABINET 2-3			ED		8	*N/A	
2-EP-CB-12D	CABINET, DC CABINET 2-4			ED		8	*N/A	
2-EP-CB-12U1	CABINET, DC DISTRIBUTION PANEL 2-4A			ED		8	*N/A	
2-EP-CB-19A	CABINET, VITAL SOV PANEL			ED		8	*N/A	
2-EP-CB-19B	CABINET, VITAL SOV PANEL			ED		8	*N/A	
2-EP-CB-23A	CABINET, DC DISTRIBUTION PANEL 2A			ED		8	*N/A	
2-EP-CB-23B	CABINET, DC DISTRIBUTION PANEL 28			ED		6	*N/A	
2-EP-CB-28	CABINET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	
2-EP-CB-28	CABINET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	

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- 3	TROI	NIA	t.L	EL	INTE	ANU	PUN	NEW COM	PANT
	NOR	TH	AND	Δ	POME	R ST	ATIC	N UNIT	2
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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EP-CB-28A	CABINET - AUX PELAY CABINET A			ED		23 5 78	*N/A	
2-EP-CB-20B	CABINET, AUX RELAY CABINET B			ED		23 5 78	*N/A	
2-EP-CB-34	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	
2-EP-CB-35	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	
2-EP-CB-80A	CABINET, INST DISTRIBUTION PANNEL 1			ED		8	*N/A	
2-EP-CB-80B	CABINET, INST DISTRIBUTION PANNEL 2			ED		8	*N/A	
2-EP-CB-80C	CABINET, INST FISTRIBUTION PANNEL 3			ED		8	*N/A	
2-EP-CB-80D	CABINET, INST DISTRIBUTION PANNEL 4			ED		8	*N/A	
2-EP-MC-10	MCC, 2H1-1			ED		8	*N/A	
2-EP-MC-11	MCC, 2J1-1			ED		8	*N/A	
2-EP-MC-12	MCC, 2H1-1A			ED		8	*N/A	
2-EP-MC-13	MCC, 271-1A			ED		8	*N/A	
2-EP-MC-41	MCC, 2H1-4			ED		8	*N/A	
2-FW-P-3A	PUMP, STM GEN AUX DP MOT A			FW		5 7	*N/A	
2-FW-P-3B	PUMP, STM GEN AUX DP MOT B			FW		5 7	*N/A	
2-HV-AC-06	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
2-HV-AC-07	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
2-HV-AC-08	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-HV-AC-09	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-HV-F-41	FAN, CONTROL ROOM EMER VENT			HV		6 19-8	*N/A	
2-HV-F-42	FAN, EMERGENCY SWITCHGEAR VENT			HV		9	*N/A	
2-HV-F-52B	FAN, BATTERY ROOM 2-2 EXHAUST			HV		9	*N/A	
2-HV-F-57A	FAN, BATTERY ROOM 2-1 EXHAUST FAN			HV		9	*N/A	
2-HV-F-57C	FAN, BATTERY ROOM 2-3 EXHAUST			HV		9	*N/A	

VIRGINIA ELECTRIC AND FOLER COMPANY NORTH ANNA POWER STATION UNIT 2 EQUIPMENT GALIFICATION MASTER LIST FILE/MARK NUMBER SORT

MARK NO.	DESCRIPTION	MANUFACTURER M	ODEL NO.	SYS	PURCH. ORDER		T FUNCT 78901234	FILE	PAGE
-HV-F-57D	FAN, BATTERY ROOM 2-4 EXHAUST FAN			HV			9	*N/A	***
-HV-F-68A	FAN, IH SUPPLY FAN			HV			1	*N/A	
-HV-F-68B	FAN, 1J SUPPLY FAN			HV			1	*N/A	
-HV-2207D	FLOW SWITCH, BATTERY ROOM 2-4 VENT			HV			9	*N/A	
-QS-P-1A	PUMP, QUENCH SPRAY PUMP 1A			QS		3 5		*N/A	
-QS-P-1B	PUMP, QUENCH SPRAY PUMP 18			QS		3 5	3	*N/A	
-RS-P-3A	PUMP, CASING CLG RECIRC SPRAY FUMP			RS		3 5		*N/A	
-RS-P-3B	PUMP, CASING CLG RECIRC SPRAY PUMP			RS		3 5		*N/A	
-SW-P-1A	PUMP, SW PUMP MOTER A			SW		23 5		*N/A	
-SW-P-1B	PUMP, SW PUMP MOTOR B			SW		23 5		*N/A	
-SW-P-4	PUMP, AUX SERVICE WATER PUMP			SW		23 5		*N/A	
-SH-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5		*N/A	
-SN-S-1B	STRAINER, SW TRAVELING WATER SCREENS			SN		23 5		*N/A	
-VB-I-01	INVERTER, VITAL BUS INVERTER 2-1			ED			8	*N/A	
-VB-I-02	INVERTER, VITAL EUS INVERTER 2-2			ED			8	*N/A	
-VB-I-03	INVERTER, VITAL BUS INVERTER 2-3			ED			8	*N/A	
-VB-I-04	INVERTER, VITAL BUS INVERTER 2-4			ED			8	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TE-AM-217D	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47	
TE-AM-217C	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		MA	1363	7	47	
TE-AM-217B	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47	
TE-AM-217A	AMBIENT TEMP. MONITOR SERV. BLDG.	POSEMOUNT		MA	1363	7	47	
TE-AM-216	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEHOUNT		MA	1363	7	47	
TE-AM-215	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47	
TE-AM-100A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-101A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-100B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-103A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-102B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-102A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-101B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-1088	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM .	1363	8	72	
TE-AM-108A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-107B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-107A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-106B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-106A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-105B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-105A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-104B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-104A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-103B	AMBIENT TEMPERATURE MONITORS	POSEMOUNT		AM	1363	8	72	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-BY-C-07	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-06	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-05	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-04	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-03	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-02	BATTERY CHARGER			ED		8	*N/A	
2-BY-B-04B	BATTERY, STATION BATTERY 2-4			HV		8	*N/A	
2-BY-B-01B	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	
2-BY-B-01A	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	
2-BY-B-02B	BATTERY, STATION BATTERY 2-2			ED		8	*N/A	
2-BY-B-02A	BATTERY, STATION BATTERY 2-2			ED		8	*N/A	
2-BY-B-03B	BATTERY, STATION BATTERY 2-3			ED		8	*N/A	
2-BY-B-03A	BATTERY, STATION BATTERY 2-3			ED		8	*N/A	
2-BY-B-04A	BATTERY, STATION BATTERY 2-4			HV		*8	*N/A	
2-EP-CE-28	CABINET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	
2-EP-CB-28	CABINET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	
2-EP-CB-28A	CABINET, AUX RELAY CABINET A			ED		23 5 78	*N/A	
2-EP-CB-28B	CABINET, AUX RELAY CABINET B			ED		23 5 78	*N/A	
2-EI-CB-06B	CABINET, AUX SHUTDOWN PANEL			ED		2345	*N/A	
2-EI-CB-06A	CABINET, AUX SHUTDOWN PANEL			ED		2345	*N/A	
2-EI-CB-156E	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-156A	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EP-CB-35	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	
2-EP-CB-34	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
-EP-CB-12A	CABINET, DC CABINET 2-1			ED		8	*N/A	
-EP-CB-12B	CABINET, DC CABINET 2-2			ED		8	*N/A	
-EP-CB-12C	CABINET, DC CABINET 2-3			ED		8	*N/A	
-EP-CB-12D	CABINET, DC CABINET 2-4			ED		8	*N/A	
-EP-CB-12B1	CABINET, DC DISTRIBUTION PANEL 2-2A			ED		8	*N/A	
-EP-CB-12D1	CABINET, DC DISTRIBUTION PANEL 2-4A			ED		8	*N/A	
-EP-CB-23A	CABINET, DC DISTRIBUTION PANEL 2A			ED		8	*N/A	
-EP-CB-23B	CABINET, DC DISTRIBUTION PANEL 2B			ED		8	*N/A	
-EI-CB-08B	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
-EI-CB-08A	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
-EP-CB-80A	CABINET, INST DISTRIBUTION PANNEL 1			ED		8	*N/A	
-EP-CB-80B	CABINET, INST DISTRIBUTION PANNEL 2			ED		8	*N/A	
-EP-CB-80C	CABINET, INST DISTRIBUTION PANNEL 3			ED		8	*N/A	
-EP-CB-80D	CABINET, INST DISTRIBUTION PANNEL 4			ED		8	*N/A	
-EI-CB-05	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
-EI-CB-04	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
-EI-CB-03	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
-EI-CB-02	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
-EI-CB-01	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
-EI-CB-23A	CABINET, PROCESS RACK			ED		2345	*N/A	
-EI-CB-23C	CABINET, PROCESS RACK			ED		2345	*N/A	
-EI-CB-23B	CABINET, PROCESS RACK			ED		2345	*N/A	
-EI-CB-23D	CABINET, PROCESS RACK			ED		2345	*N/A	
-EI-CB-51	CABINET, PROCESS RACK 1			ED		1 3 5	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EI-CB-52	CABINET, PROCESS RACK 2			ED		1 3 5	*N/A	
2-EI-CB-53	CABINET, PROCESS RACK 3			ED		1 3 5	*N/A	
2-EI-CB-54	CABINET, PROCESS RACK 4			ED		1 3 5	*N/A	
2-EI-CB-47F	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47E	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47D	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47C	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47B	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47A	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-07	CABINET, VENTILATION CONTROL BOARD			ED		6 9	*N/A	
2-EP-CB-04A	CABINET, VITAL BUS CAB 2-1			ED		8	*N/A	
2-EP-CB-04B	CABINET, VITAL BUS CAB 2-2			ED		8	*N/A	
2-EP- CB-04C	CABINET, VITAL BUS CAB 2-3			ED		8	*N/A	
2-EP-CB-04D	CABINET, VITAL BUS CAB 2-4			ED		8	*N/A	
2-EP-CB-19B	CABINET, VITAL SOV PANEL			ED		8	*N/A	
2-EP-CB-19A	CABINET, VITAL SOV PANEL			ED		8	*N/A	
IGB-35	CABLE, 2/C #16 AWG	BIW		ED	1265	2345	09	
IGB-39	CABLE, 3/C #16 AWG	BIW		ED	1265	2345	09	
IGB-40	CABLE, 4/C #16 AWG	BIW		ED	1265	2345	09	
IGB -12	CABLE, TRIPLEX #1 AWG	GENERAL CABLE		ED	1256	8	14	
KGB-12	CABLE, TRIPLEX #1 AWG	OKONITE		ED	1384	8	12	
IGB-15	CABLE, TRIPLEX #4 AWG	OKONITE		ED	1128	8	06	
(GB-16	CABLE, TRIPLEX #6 AWG	OKONITE		ED	1128	8	06	
IGA-3	CABLE, TRIPLEX 1000 MCM	GENERAL CABLE		ED	1255	8	10	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
ISA-3	CABLE, TRIPLEY 1000 MCM	CKONITE		ED	1375	8	11	
KSB-11	CABLE, TRIPLEX 2/0 AWG	OKONITE		ED	1384	8	12	
NGB-11	CABLE, TRIPLEX 2/0 AWG	GENERAL CABLE		ED	1256	8	14	
(GA-15	CABLE, TRIPLEX 250 MCM	CERRO WIRE		ED	1359	3 5	07	
IGB-7	CABLE, TRIPLEX 250 MCM	OKONITE		ED	1384	8	12	
1GB-7	CABLE, TRIPLEX 250 MCM	GENERAL CABLE		ED	1256	8	14	
GA-14	CABLE, TRIPLEX 4/0 ANS	OKONITE		ED	1375	8	11	
IGB-5	CABLE, TRIPLEX 500 MCM	OKONITE		ED	1384	8	12	
ISB-5	CABLE, TRIPLEX 500 MCM	GENERAL CABLE		ED	1256	8	14	
GA-44	CABLE, 1/C #12 AWG	CERRO WIRE		ED	1312	8	08	
SA-34	CABLE, 1/C #14 AWS	CERRO WIRE		ED	1312	8	08	
GA-9	CABLE, 1/C 1500 MCM	GENERAL CABLE		ED	1255	8	10	
GA-21	CABLE, 1/C 2/0 ANG.	OKONITE		FD	1128	8	06	
GA-10	CABLE, 1/C 2000 MCM	GENERAL CABLE		ED	1255	9	10	
GA-20	CABLE, 1/C 250 MCM	OKONITE		ED	1128	8	06	
GA-40	CABLE, 12/C #14 AWG	CERRO WIRE		ED	1312	8	08	
GA-68	CABLE, 12/C #16 ANG	BIW		ED	1265	2345 8	09	
GA-68	CABLE, 12/C #16 ANG	CERRO WIRE		ED	1392	123456	13	
IGA-70	CABLE, 18/C #16 ANG	BIW		ED	1265	2345	09	
GA-70	CABLE, 18/C #16 ANG	CERRO WIRE		ED	1392	123456	13	
GA-67	CABLE, 19/C #16 AWG	BIW		ED	1265	2345	09	
GA-67	CABLE, 19/C #16 AWG	CERRO WIRE		ED	1392	123456 8	13	
GB-01	CABLE, 2/C #10 ANG	OKONITE		ED	1404	8	16	
GA-45	CABLE, 2/C #12 AWG	CERRO WIRE		ED	1312	8	08	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGA-35	CABLE, 2/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-69	CABLE, 2/C #16 ANG	BIW		ED	1265	2345	09	
NG8-35	CABLE, 2/C #16 AWG	CERRO WIRE		ED	1392	2345	13	
NGA-19	CABLE, 2/C #2 AWG	CERRO WIRE		ED	1312	8	08	
NGB-44	CABLE, 2/C #6 ANG	CERRO WIRE		ED	1312	8	08	
N08-43	CABLE, 2/C #8 AWG	CERRO MIRE		ED	1312	8	08	
NGB-18	CABLE, 3/C #10 ANG	OKONITE		ED	1128	8	06	
NGB-19	CABLE, 3/C #12 AWG	OKONITE		ED	1128	8	06	
NGA-36	CABLE, 3/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGB-39	CABLE, 3/C #16 AWG	CEPRO WIRE		ED	1392	123456	13	
NGB-17	CABLE, 3/C #8 AWG	OKONITE		ED	1128	8	06	
NGA-12	CABLE, 3/C 1000 HCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
NGA-6	CABLE, 3/C 1250 HCH ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-5	CABLE, 3/C 1250 MCM STEEL ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-13	CABLE, 3/C 4/0 ANG	OKONITE		ED	1375	8	11	
NGA-13	CABLE, 3/C 4/0 AWG. ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
NGA-4	CABLE, 3/C 500 HCM	OKONITE		ED	1375	8	11	
NGA-4	CABLE, 3/C 500 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-57	CABLE, 4/C #10 AWG	CERRO WIRE		ED	1312	8	08	
NGA-77	CABLE, 4/C #10 ANG	CERRO WIRE		ED	1312	8	08	
NGA-47	CABLE, 4/C #12 ANG	CERRO WIRE		ED	1312	8	08	
NG8-45	CABLE, 4/C #6 AWG	CERRO WIRE		ED	1.312	8	08	
NGB-55	CABLE, 45/C #16 AWG	BIW		ED	1265	2345	09	
NGA-37	CABLE, 5/C #14 AWG	CERRO WIRE		ED	1312	8	08	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. DRDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NSA-49	CABLE, 7/C #12 AWG	CERRO WIRE		ED	1312	8	08	****
NGA-38	CABLE, 7/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-39	CABLE, 9/C #14 AWG	CERRO WIRE		ED	1312	8	08	
2-HV-E-4C	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-E-40	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-E-4A	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-EG-C-2JA	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
2-EG-C-2HB	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
2-EG-C-2HA	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
2-EG-C-2JB	COMPRESSOR, EMERG GEN AIR COMP 2			ED		8	*N/A	
SOV-IA-202B	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-202A	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
2-HV-AC-09	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-HV-AC-08	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-EG-AC-2HB	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
2-EG-AC-2HA	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
2-EG-AC-2JB	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
2-EG-AC-2JA	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
2-HV-AC-06	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			ΗV		9	*N/A	
2-HV-AC-07	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
EP "ICV2186	E/P FOR HAND CONTROL VALVE HCV-2186	FISHER					W31	
HC-2186	E/P FOR SEAL WATER FLOW CONTROL			СН		2 5	*N/A	
E/P FC-2122	E/P, CHARGING FLOW CONTROL	COPES-VULCAN		СН			61	
1-HV-F-8C	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HV	NUS-71	23 1	45	

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MAPK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYG	PURCH. ORDER	ACCIDENT 12345678	FUNCT 8901234	FILE	PAGE
1-HV-F-68	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HA	NUS-71	23	1	45	
L-HV-F-8A	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HV	NUS-71	23	1	45	
-HV-F-57A	FAN, BATTERY ROOM 2-1 EXHAUST FAN			н٧			9	*N/A	
	FAN, BATTERY ROOM 2-2 EXHAUST			HV			9	*N/A	
-HV-F-52B	FAN, BATTERY ROOM 2-3 EXHAUST			HV			9	*N/A	
2-HV-F-57C	FAN, BATTERY ROGH 2-4 EXHAUST FAN			HV			9	*N/A	
-HV-F-57D	FAN, CONTROL ROOM EMER VENT			HV		6	10-8	*N/A	
1-HV-F-41	FAN, EMERGENCY SWITCHGEAR VENT			HV			9	*N/A	
2-HV-F-42	FAN, EQUIPMENT ROOM SUPPLY	AEROVENT FAN CO.		HV	1241	6		03	
2-HV-F-24	FAN, EXHAUST FAN EMER GEN ROOM 2H			н٧			9	*N/A	
L-HV-F-22B	FAN, EXHAUST FAN EMER GEN ROOM 2J			HV			9	*N/A	
L-HV-F-22D	FAN, SAFEGAURDS AREA VENTILATION	BUFFALO FORGE		HV	1296		С	18	
-HV-F-40A	FAN, SAFEGAURDS AREA VENTILATION	BUFFALO FORGE		HV	1296		0	18	
:-HV-F-40B	FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HV	1201		0	21	
2-HV-F-71A	FAN, SAFIGAURDS AREA VENTILATION	JOY MANUFACTURING		НΛ	1201		0	21	
2~HV-F-71B	FAN. 1H SUPPLY FAN			HV			1	*N/A	
-HV-F-68A	FAN, 1J SUPPLY FAN			НΛ			1	*N/A	
2-HV-F-68B				BO			7	*N/A	
FS-BD-203J	FLOW SWITCH			BD			7	*N/A	
FS-80-203H	FLOW SWITCH			80				*N/A	
FS 80-2036	FLOW SWITCH			BD		6		*N/A	
FS-BD-203D	FLOW SWITCH			BD				*N/A	
FS-BD-203B	FLOW SWITCH			BD		6		*N/A	
FS-BD-203F	FLOW SWITCH			HV			9	*N//	1
FS-HV-2207A	FLOW SWITCH, BATTERY ROOM 2-1 VENT								

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PUPCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
FS-HV-2207B	FLOW SWITCH, BATTERY ROOM 2-2 VENT			HV		9	*N/A	
FS-HV-2207C	FLOW SWITCH, BATTERY ROOM 2-3 VENT			HV		9	*N/A	
2-HV-2207D	FLOM SWITCH, BATTERY ROOM 2-4 VENT			HV		9	*N/A	
2-EG-B-02B	GENERATOR, EMER GEN 2H BATTERY			ED		8	*N/A	
2-EE-EG-02B	GENERATOR, EMER GEN 2H CONTROL BOX			ED		3	*N/A	
2-EE-EG-02C	GENERATOR, EMER GEN 2H CONTROL CAB			ED		8	*N/A	
2-EE-2G-4D	GENERATOR, EMER GEN 2J BATTERY			ED		8	*N/A	
2-EE-EG-4C	GENERATOR, EMER GEN 2J CONTROL CAB			ED		8	*N/A	
2-EE-EG-48	GENERATOR, EMERG GEN 2J CONTROL BOX			ED		8	*N/A	
2-EE-EG-02A	GENERATOR, EMERGENCY GEN 2H			ED		8	*N/A	
2-EE-EG-4A	GENERATOR, FMERGENCY GENERATOR 2J			ED		8	*N/A	
H2A-HC-100	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
H2A-HC-200	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
2-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		HC	1365	3 5	43	
1-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		нс	2.365	3 5	43	
2-VB-I-01	INVERTER, VITAL BUS INVERTER 2-1			ED		8	*N/A	
2-VB-I-02	INVERTER, VITAL BUS INVERTER 2-2			ED		8	*N/A	
2-VB-I-03	INVERTER, VITAL BUS INVERTER 2-3			ED		8	*N/A	
2-VB-I-04	INVERTER, VITAL BUS INVERTER 2-4			ED		8	*N/A	
_LCV-2460A	LCV, LOOP I LETDOWN LINE CONT. VV			CI		1	*N/A	
LVC-2460B	LCV, LOOP 2 LETDOWN LINE CONT. VV			CI		1	*N/A	
HCV-FW-200A	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1A			FW		5 7	*N/A	
HCV-FW-200B	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1B			FW		5 7	*N/A	
_HCV-FW-200C	LIMIT SWITCH, FW CONTROL TO STEAM GEN 10			FW		5 7	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
HCV-2200C	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200B	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200A	LIMIT SWITCH, REGEN. HEAT CUTLET	NAMCO		CI	1010	1	W04	
1-EP-MC-19	MCC-1H1-2N	KLOCKNER MOELLER		ED	1176	8	22	
1-EP-MC-20	MCC-1H1-2S	KLOCKNER MOELLER		ED	1176	8	22	
1-EP-MC-21	MCC-1J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
1-EP-MC-22	MCC-1J1-25	KLOCKNER MOELLER		ED	1176	3	22	
2-EP-MC-19	MCC-2H1-2N	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-20	th +11-25	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-21	MCC-2J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-22	MCC-2J1-2S	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-10	MCC, 2H1-1			ED		8	*N/A	
2-EP-MC-12	MCC, 2H1-1A			ED		8	*N/A	
2-EP-MC-41	MCC, 2H1-4			ED		8	*N/A	
2-EP-MC-11	MCC, 2J1-1			ED		8	*N/A	
2-EP-MC-13	MCC, 271-1A			ED		8	*N/A	
100-HV163C	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		ΗV	22436	23 1	66	
10D-HV163B	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66	
100-HV163A	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		ну	22436	23 1	66	
10V-2269B	MOV. LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W18	
10V-SW-210B	MOV,			SW		3	*N/A	
10V-SW-210A	MOV,			SIA		3	*N/A	
10V-SW-110B	MOV.			SW		3	*N/A	
10V-SW-110A	MOV,			SW		3	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TV-SW-201B	MOV,			SM		3	*N/A	
MOV-SW-214B	MOV,			SW		3	*N/A	
MOV-SW-214A	MOV,			SW		3	*N/A	
MOV-SW-114B	MOV,			SW		3	*N/A	
MOV-SW-114A	MOV,			514		3	*N/A	
MOV-2865A	MOV, ACCUMULATOR TANK 1 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
MOV-28658	MOV, ACCUMULATOR TANK 2 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
MOV-2865C	MOV, ACCUMULATOR TANK 3 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
MOV-FW-200B	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	
MOV-FW-200A	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	
MOV-FW-200C	MOV, AUX STEAM GEN FD PP DISCH VV			FW		5 7	*N/A	
MOV-5W-215B	MOV, AUX SH PUMP ISO VALVE			SW		23 5	*N/A	
MOV-5W-215A	MOV, AUX SW PUMP ISO VALVE			SW		23 5	*N/A	
MOV-SW-115B	MOV, AUX SN PUMP ISO VALVE			SW		23 5	*N/A	
MOV-SW-115A	MOV, AUX SW PUMP ISO VALVE			SN		23 5	*N/A	
MOV-2286A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W19	
MOV-2286C	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W19	
MOV-2286B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	MIO	
MOV-2289B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W21	
_MOV-2289A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W21	
MOV-2869B	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
MOV-2869A	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
MOV-2237C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	
MOV-2287B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	

	MAPK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	MOV-2287A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	
	MOV-2867C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1010	23 5	W24	
	MOV-28670	MOV, CHAPGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
	MOV-2867B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
	MOV-2867A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
	MOV-2115D	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5 1	MSS	
	MOV-21158	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5 1	MSS	
	MOV-2115C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W16	
	MOV-2115E	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W36	
	MOV-2890C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		SI	1010	23 5	W39	
	MOV-2373	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		CH	1010	23 5	W18	
	MOV-2275C	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W34	
	MOV-2275A	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W34	
	MOV-2275B	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		CH	1010	23 5	W37	
	MOV-2370	MOV, CHANGING PUMP TO SEAL WATER RECIRC.	LIMITORQUE		СН	1010	23 5	W18	
	MOV-SW-118	MOV, CIPC WTR INTAKE TO SW PUMP			SW		23 5	*N/A	
	MOV-SW-217	MOV, CIRC WTR SW PUMP ISOLATION			SM		23 5	*N/A	
	MOV-SW-117	MOV, CIRC WTR SW PUMP ISOLATION			SM		23 5	*N/A	
	MOV-2836	MOV, COLD LEG CIRC VALVE	LIMITORQUE		SI	1010	23 5	W29	
	MOV-HV200C	MOV, CONTAINMENT PURGE	LIMITORQUE		HV	198	1	65	
	MOV-HV200A	MOV, CONTAINMENT SUPPLY	LIMITORQUE		HV	198	1	65	
	MOV-HV-204-2	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	
	MOV-HV-204-1	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	
_	MOV-2350	MOV, EMERGENCY BORATION	LIMITORQUE		СН	1010	23 5	W17	

	MARK NO.		DESCRIPTION	MANUFACTURER	MODEL NO.	gyg	PURCH.	ACCIDENT FUNCT	FILE	PAGE
			WE COLLET TOWN	TIANSI AGTOREA	HOUSE HO.	313	ORDER	12345678901234	1266	FAGE
	MOV-HV-215-1	MOV, F	FLUSH VALVE LEFT FOR STRAINER	ELLIOT		HV	1299	6	17	
	MOV-HV-216-1	MOV, F	FLUSH VALVE LEFT FOR STRAINER	ELLIOT		н.	1299	6	17	
	MOV-HV-215-2	MOV, F	FLUSH VALVE RIGHT FOR STRAINER	ELLIOT		HV	1299	6	17	
	MOV-HV-216-2	MOV, F	FLUSH VALVE RIGHT FOR STRAINER	ELLIOT		нV	1299	6	17	
	MOV-SH-213B	MOV, F	FUEL PIT COOLER VALVE	LIMITORQUE		SW	1193	23 3	53	
	MOV-SW-213A	MOV, F	FUEL PIT COOLER VALVE	LIMITORQUE		SW	1193	23 3	53	
	MOV-SW-2088	MOV, I	INLET HEADER VALVE	LIMITORQUE		SW	1193	23 3	53	
	MOV-SW-208A	MOV, I	INLET HEADER VALVE	LIMITORQUE		SW	1193	23 3	53	
	MOV-2270B	MOV, L	LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
	MOV-2270A	MOV, L	LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	
	MOV-2269A	MOV, L	LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	
	MOV-2863B	MOV, L	LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
	MOV-2863A	MOV, L	LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
	MOV-2864A	MOV, L	LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
	MOV-2864B	MOV, t	LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
	MOV-2890A	MOV, L	LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W08	
	MOV-2890B	MOV, L	LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	
	MOV-2890D	MOV, L	LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	
	MOV-2860A	MOV, L	LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
_	MOV-2860B	MOV, E	LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
	MOV-2862A	MOV, L	LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	WII	
	MOV-2862B	MOV, L	LHSI FUMP SUCTION	LIMITORQUE		SI	1010	23 5	Wll	
	MOV-2885D	MOV, L	LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	25 5	W38	
-	MOV-2885C	MOV, L	LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	23 5	W38	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-2885B	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
MOV-2885A	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
MOV-2267B	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W18	
MOV-2267A	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	
MOV-SW-219	MOV, MAKE-UP ISOLATION			SW		23 5	*N/A	
MOV-5W-119	MOV, MAKE-UP ISOLATION			SW		23 5	*N/A	
MOV-QS-201B	MOV, QUENCH SPRAY PUMP DISCH	LIMITOPQUE		QS	1242	3 5	23	
MOV-QS-201A	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23	
MOV-HV-201	MOV, RC PURSE SYSTEM BYFASS	LIMITORQUE		HV		1	59	
MOV-HV-2000	MOV, RC PURGE SYSTEM EXHAUST	LIMITORQUE		HV		1	59	
MOV-HV-2008	MOV, RC PURGE SYSTEM VALVE	LIMITORQUE		HV		1	59	
MOV-2380	MOV, RCP SEALWATER RETURN	LIMITORQUE			1010	1 5	W06	
MOV-RS-256B	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
MOV-PS-256A	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
MOV-5W-2010	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITOPQUE		SW	1194	3 5	50	
MOV-SH-201C	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-201B	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-201A	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-206B	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-206A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-2050	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-205C	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-205B	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-205A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-RS-255B	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	~~~
MOV-RS-255A	MOV, RECIPC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	
MOV-93-200B	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
MOV-RS-200A	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
MOV-QS-202B	MOV, RF WATER CHEM ADD TANK			QS		3 5	*N/A	
MOV-QS-202A	MOV, RF WATER CHEM. AND TANK			QS		3 5	*N/A	
MOV-2381	MOV, SEAL WATER RETURN SV	LIMITORQUE		СН	1010	23 5	W35	
MOV-SW-204A	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-2040	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
MOV-5W-204C	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
MOV-5W-2048	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
MOV-SW-203B	MCV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-203D	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SN	1194	3 5	52	
MOV-SW-203C	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
MOV-SN-203A	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
MOV-RS-201B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-PS-201A	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-200B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-200A	MOV, SUPPLY VALVE CC RECIRC SFRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-SW-200B	MOV, SH RETURN TO RERVOIR ISOLATION			SW		23 5	*N/A	
MOV-SW-200A	MOV, SH RETURN TO RERVOIR ISOLATION			SM		23 5	*N/A	
MOV-SW-100B	MOV, SW RETURN TO RERVOIR ISOLATION			SW		23 5	*N/A	
MOV-SW-100A	MOV, SW RETURN TO RERVOIR ISOLATION			SW		23 5	*N/A	
MOV-SW-220B	MOV, SW TO CIRC TUNNEL			SW		3	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS		ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-SW-220A	MOV, SH TO CIRC TUNNEL			SW		3	*N/A	
MOV-SW-203B	MOV, SW TO RECIRC SPRAY			SW		3 5	*N/A	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	24	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	25	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	24	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	25	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	24	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PMR)	CONAX		ED	1313	8	24	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	24	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	24	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PMR)	CONAX		ED	1313	8	24	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	25	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	25	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	25	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIR	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IV	PENETRATION ASSEMBLIES (THERMOCOUPLES)	CONAX		ED	1313	8	24	
TYPE III	PENETRATION ASSEMBLIES (TRIAXIAL)	CONAX		ED	1313	8	24	
PS-EG-2JB	PRESSURE SWITCH, EMER GEN 2J COMP			ED		8	*N/A	
PS-EG-2JA	PRESSURE SWITCH, EMER GEN 2J COMP			ED		8	*N/A	
RPS-EG-2HB	PRESSURE SWITCH, EMERG GEN 2H COMP			ED		8	*N./A	
RPS-EG-2HA	PRESSURE SWITCH, EMERG GEN 2H COMP			ED		8	*N/A	

MA	RK NO.		DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
1-54-	P-4	PUMP,	AUX SERVICE WATER PUMP			SW.	*****	23 5	*N/A	
2-54-	P-4	PUMP,	AUX SERVICE WATER PUMP			SH		23 5	*N/A	
2-R3-	P-3B	PUMP,	CASING CLG RECIRC SPRAY PUMP			PS		5 5	*N/A	
2-RS-	P-3A	PUMP,	CASING CLG RECIRC SPRAY PUMP			PS		3 5	*N/A	
2-CH-	P-1A	PUMP,	CHARGING (HHSI)	WESTINGHOUSE		CH	1010	2 5	WZO	
2-CH-	P-1C	PUMP,	CHARGING (HHSI)	WESTINGHOUSE		СН	1010	2 5	W20	
2-CH-	P-1B	PUMP,	CHARGING (HHSI)	WESTINGHOUSE		СН	1010	2 5	W20	
2-HV-	P-20B	PUMP,	CHILLER ROOM A/C	BINGHAM-WINIAMETTE		НΛ	1276	6	64	
5-HA-	P-20A	PUMP,	CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	5	04	
2-HV-	P-22C	PUMP,	CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-	2-22B	PUMP,	CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-	P-22A	PUMP,	CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-	P-20C	PUMP,	CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-08-	P-10B	PUMP,	CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05	
2-DB-	P-10A	PUMP,	CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05	
2-08-1	P-10B	PUMP,	CHILLER ROOM SUMP					6	*N/A	
2-EG-	P-2HB	PUMP,	EMERGENCY GEN 2H FUEL OIL PUMP			ED		8	*N/A	
2-EG-	P-2HA	PUMP,	EMERGENCY GEN 2H FUEL OIL FUMP			SW		8	*N/A	
2-EG-1	P-2JA	PUMP,	EMERGENCY GEN 2J FUEL OIL PUMP			ED		8	*N/A	
2-EG-I	P-2JB	PUMP,	EMERGENCY GEN 2J FUEL OIL PUMP			ED		8	#N/A	
2-RS-I	P-1A	PUMP,	INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	28	
2-85-1	P-18	PUMP,	INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3	28	
2-RS-	P-18	PUMP,	INSIDE RECIRC. SFF XY	GENERAL ELECTRIC		RS	1355	3	29	
2-RS-1	P-1A	PUMP.	INSIDE RECIRC. SPRAY	GEMERAL ELECTRIC		RS	1355	3 5	29	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT 12345678		FILE	PAGE
-SI-P-18	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5		W13	
P-SI-P-1A	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5		W13	
-QS-P-1A	PUMP, QUENCH SPRAY PUMP 1A			QS		3 5		*N/A	
2-93-P-1B	PUMP, QUENCH SPRAY PUMP 18			Q3		3 5	3	*N/A	
2-SW-P-6	PUMP, RADIATION MONITOR	MARATHON ELECT.		514	1083	4		41	
2-SH-P-5	FUMP, RADIATION MONITOR	MARATHON ELECT.		SH	1083	4		41	
-SW-P-8	PUMP, RADIATION MONITOR	MARATHON ELECT.		514	1083	4		41	
-SW-P-7	PUMP, RADIATION MONTER	MARATHON ELECT.		SM	1083	4		41	
PS-P-2A	PUMP, RECIRC. SPRA	GENERAL ELECTRIC		RS	1127	3		44	
PS-P-2B	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3		44	
-FW-P-3A	PUMP, STM GEN AUX DP MOT A			FW		5 7		*N/A	
2-FW-P-3B	PUMP, STM GEN AUX DP MOT B			FW		5 7		*N/A	
P-SW-P-1A	PUMP, SW PUMP MOTER A			SW		23 5		*N/A	
L-SW-P-1A	PUMP, SW PUMP HOTOR A			SM		23 5		*N/A	
-5W-P-1B	PUMP, SW PUMP MOTOR B			SW		23 5		*N/A	
2-5W-P-18	PUMP, SW PUMP MOTOR B			SW		23 5		*N/A	
SOV-2842	RADIATION MONITORING LINE	NAMCO		CI	1010	1		W40	
711-54-224	RADIATION MONITORS, SW RAD MONITORS			SW		4		*N/A	
M-SW-227	RADIATION MONITORS, SW RAD MONITORS			SW		4		*N/A	
M-5W-226	RADIATION MONITORS, SW RAD MONITORS			SW		4		*N/A	
M-SW-225	RADIATION MONITORS, SW RAD MONITORS			SW		4		*N/A	
10V-SW-210B	RECIRC. AIR COOLING COILS	LIMITORQUE		SM		3		73	
10V-SW-210A	RECIRC. AIR COOLING COILS	LIMITORQUE		SW		3		73	
10V-SW-214B	RECIRC. AIR COOLING COILS	LIMITORQUE		SW		3		73	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-SW-214A	RECIRC. AIR COOLING COILS	LIMITORQUE		SW	*****	3	73	
TE-2432D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2432B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2422D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2422B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	MIS	
TE-2412D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2412B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2420	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2413	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2410	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	5	W27	
TE-2430	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2423	RTD, RCS WIDE RANGE	ROSEHOUNT		RC	1010	4	W27	
TE-2433	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
SOV-MS-210A	sov,			CI		1	*N/A	
SOV-MS-2108	sov,			CI		the country of	*N/A	
SOV-2311	sov,			CH		5	*N/A	
SOV-2936	SOV, ACCUMULATOR VENT LINE FLOW	ASCO		CI	1010	4	W33	
SOV-SW-201A-1	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW		3	70	
SOV-SW-201B-2	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW		3	70	
_SOV-SW-201B-1	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW		3	70	
SOV-SW-201A-2	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW		3	70	
SOV-SV-202-1	SOV, AIR EJECTOR VENT	ASCO		CI	1125	1	51	
SOV-SV-203	SOV, AIR REMOVAL SYSTEM	ASCO		CI	1125	1	51	
SOV-MS-211B	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-MS-211A	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	
SOV-2884A	SOV, BOPON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	M30	
SOV-2884C	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
SOV-2884B	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
SOV-HV-2306B	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2306A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300C	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-23008	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300D	SOV, BOTTLED AIR SYSYTEM			HV		6	*N/A	
SUV-IA-200C	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200B	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200A	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-201A	SOV, CONTAINMENT INSTRUMENT AIR	ASCO		CI		1	55	
SOV-LM-200B	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200A	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200H	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200G	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200F	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200E	SOV, CONTAINMENT LEAKAGE MUNITOR	ASCO		CI	1163	1	40	
SOV-LM-2000	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1.	40	
SOV-LM-2000	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-201B	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		cı	1163	1	69	
SOV-LM-201A	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	

MARK NO.	DESCRIPTION	MANUFACTURER MODE	EL NO. SY	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-LM-2010	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO	CI	1163	1	69	
SOV-LM-201C	SOV, CONTAINHENT LEAKAGE MONITOR	ASCO	CI	1163	3	69	
SOV-DA-200B	SOV, CONTAINHENT SUMP DISCH ISOLATION	ASCO	CI		10.00	62	
SOV-CV-250D	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO	CI	1125	1 3 5	67	
SOV-CV-250C	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO	CI	1125	1 3 5	67	
SOV-CV-250B	SOV, CONTAINHENT VACUM FUMP SUCTION	ASCO	CI	1125	1 3 5	67	
SOV-CV-250A	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO	CI	1125	1 3 5	67	
SOV-CV-200	SOV, CONTAINMENT VACUUM EJECT INLET		CI		1	*N/A	
SOV-HV-160-1	SOV, CONTROL AND RELAY ROOM DAMPER		HV		6	*N/A	
SOV-HV-161-2	SOV, CONTROL AND RELAY ROOM DAMPER		HV		6	*N/A	
SOV-HV-161-1	SOV, CONTROL AND RELAY ROOM DAMPER		HV		6	*N/A	
SOV-HV-160-2	SOV, CONTROL AND RELAY ROOM DAMPER		HV		6	*N/A	
SOV-HV228-2	SOV, EXHAUST TO IODINE FILTER BANK		HV		23 5	*11/A	
SOV-HV228-1	SOV, EXHAUST TO IODINE FILTER BANK		HV		23 5	*N/A	
SOV-HV-215B-1	SOV, FLUSH MALVE SERVICE BLDE STRAINER		cı		1.00	*N/A	
SOV-HV-2158-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER		CI		1	*N/A	
SOV-HV-215A-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER		CI		1	*N/A	
SOV-HV-215A-1	SOV, FLUSH VALVE SERVICE BLDG STRAINER		cı		1	*N/A	
SOV-2200C-1	SOV, LETDOWN LINE	ASCO	CI	1010	1	W09	
SOV-22008-1	SOV, LETDOUN LINE	ASCO	CI	1010	1	W09	
SOV-2200A-1	SOV, LETDOWN LINE	ASCO	CI	1010	1 2 2 2 2 2	M09	
SOV-2200A-2	SOV, LETDOWN LINE	ASCO	CI	1010	1	W32	
SOV-2200C-2	SOV, LETDOWN LINE	ASCO	CI	1010	1	52	
SOV-2200B-2	SOV, LETDOWN LINE	ASCO	CI	1010	1	W32	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-2460B	SOV, LETDOWN LINE LOOP 1 & 2	ASCO		CI	1010	1	W10	
SOV-2460A	SOV, LETDOWN LINE LOOP 1 * 2	ASCO		CI	1010	1	W10	
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		automotivi a	€0	
SOV-MS-201A-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		Lists of entre	60	
SOV-MS-2018-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2010-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		10,000,000	60	
SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		18:00	60	
SOV-MS-2010-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SDV-MS-201C-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SDV-,S-201A-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SPV-MS-2018-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-2018-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-SI-201	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-SI-200B	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-SI-200A	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-SS-204B	SOV, PRESSURE RELIEF TANK SAMPLE	ASCO		CI	1163	1	37	
SOV-55-200B	SOV, PRESSURIZER LIQUID SPACE	ASCO		CI	1163	1-15-15	37	
30V-55-200A	SOV, PRESSURIZER LIQUID SPACE	ASCO		CI		1	62	
SOV-SS-204A	SOV, PRESSURIZER RELIEF TANK GAS SPACE	ASCO		CI		1	62	
SOV-SS-201B	SOV, PRESSURIZER VAPOR SAMPLE	ASCO		CI	1163	1	37	
SOV-SS-201A	SOV, PRESSURIZER VAPOR SPACE SAMPLE	ASCO		CI		1	62	
50V-2519A	SOV, PRIM GRADE WATER TO PRT	ASCO		CI	1010	1	46	
SOV-SS-202B	SOV, FRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI	1163	1	38	
SOV-SS-202A	SOV, PRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI		1	68	
SOV-SS-206B	SOV, FRIMARY COOLANT HOT LEG SAMPLE	ASCO		CI		1 4	38	
SOV-SS-206B,	SOV, PRIMARY COOLANT HOT LEG SAMPLE	ASCO		CI		1 4	62	
SOV-SS-206A	SOV, FRIMARY COOLANT HOT LEG SAMPLE	ASCO		CI		1	68	
SOV-DG-200A	SOV, FRIMARY DRAIN TRANSFER PUMP DISCHARG	ASCO		CI	N/A	1	15	
SOV-DG-200B	SOV, FRIMARY DRAIN TRANSFER FUMP DISCHARG	ASCO		CI		1	62	
SOV-VG-200A	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI	1125	1	30	
SOV-VG-200B	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI		1	62	
SOV-RM-200B	SOV, RADIATION MONITORING	ASCO		CI	1125	1	30	
SOV-RM-200A	SOV, RADIATION MONITORING	ASCO		CI	1125	1	30	
SOV-RM-200C	SOV, RADIATION MONITORING	ASCO		CI		1	62	
SOV-DA-200A	SOV, PC SUMP PUMP DISCHARGE	ASCO		CI	1125	1	30	
SOV-CC-202F	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
SOV-CC-202D	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
S0V-CC-202B	SOV, RCP BEARING COOLING	ASCO		CI		1	58	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-CC-204A-1	SOV, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204A-2	SOV, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-202C	SOV, RCP COOLEP RETURN HEADER	ASCO		CI	1125	1 - 1 - 1	30	
SOV-CC-202E	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-202A	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
50V-CC-2048-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204C-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204B-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204C-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1.	30	
SOV-CC-201B	SOV, RCP THERMAL BARRIER HEADER	ASCO		CI		1	62	
SOV-CC-201A	SOV, RCP THERMAL BARRIER RET HEADER	ASCO		CI	1125	1	30	
SOV-CC-205A	SOV, RECIRC ALR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
SOV-CC-205C	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
SOV-CC-205B	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
SOV-CC-200C	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-200B	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-200A	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	117.	30	
SOV-2204	SOV, REGEN HEAT EXC. OUTLET VALVE	ASCO		CI	1010	1	46	
SOV-CC-203B	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1	30	
SOV-CC-203A	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1	30	
SOV-SS-203B	SOV, RHR OUTBOARD ISOLATION VALVE	ASCO		CI	1163	1	37	
SOV-SS-203A	SOV, RHR OUTBOARD ISOLATION VALVE	ASCO		CI		1	37	
SOV-SS-207B	SOV, RHR SAMPLE LINE	ASCO		CI	1163	1	56	
SOV-SS-207A	SOV, PHR SAMPLE LINE	ASCO		CI	1163	1	56	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
50V-2859	SOV, SAFETY INJECTION ACCUMULATOR	ASCO		CI	1010	1	W26	
SOV-ED-200J	SOV, ST. AM GEN BLONDONN ISOLATION VALV	E ASCO		CI	1125	7	63	
SOV-ED-200H	SOV, STEAM GEN BLOWDOWN ISOLATION VALV	E ASCO		CI	1125	7	63	
SOV-BD-200G	SOV, STEAM GEN BLOWDOWN ISOLATION VALV	E ASCO		CI	1125	7	63	
50V-BD-200F	SOV, STEAM GEN BLOWDOWN ISOLATION VALV	E ASCO		CI	1125	1 7	63	
SOV-ED-200D	SOV, STEAM GEN BLOWDOWN ISOLATION VALV	E ASCO		CI	1125	1 7	63	
SOV-BD-200B	SOV, STEAM GEN BLOWDOWN ISOLATION VALV	E ASCO		CI	1125	1 7	63	
50V-SS-212A	SOV, STEAM GEN SAMPLE	ASCO		CI		1	62	
50V-55-212B	SOV, STEAM GEN SAMPLE ISOLATION	ASCO		CI	1163	1.7	37	
SOV-MS-213C-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-213C-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-213B-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-213A-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1-1-1	51	
SOV-MS-213A-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-213B-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-209B	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-209A	SOV, STEAM GEN TRIP	ASCO		CI	1125	1,100	51	
SOV-DD-200C	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-BD-200A	SOV, STEAM GEN. BLOMDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-BD-200E	SOV, STEAM GEN. BLOMDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-HV-2200A	SOV, VALVE FOR 2-HV-P-22A	1 Total Pro 1 Total St.		HV		9	*N/A	
SOV-HV-2200B	SOV, VALVE FOR 2-HV-P-22B			HV		9	*N/A	
SDV-HV-2200C	SOV, VALVE FOR 2-HV-P-22C			HV		9	*N/A	
SP	SPLICES	CONAX		N/A	1313	9	26	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SP	SPLICES	CONAX		N/A	1313	9	27	
SP	SPLICES	RAYCHEM		N/A	NA	9	34	
2-SW-5-1B	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
2-SW-S-1A	STRAINER, SH TRAVELING WATER SCREENS			514		23 5	*N/A	
1-SW-S-1B	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
1-SW-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
2-HV-S-1B	STRAINERS, CHILLER ROOM	ELLIOT		HV	1299	6	02	
2-HV-S-1A	STRAINERS, CHILLER ROOM	ELLIOT		HV	1299	6	02	
2-EE-SS-03	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31	
2-EE-ST-01	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31	
0-EE-SS-04	SWITCHGEAR 480V (2J1)	ITE		ED	1088	8 (75	
2-EE-SW-01	SWITCHGEAR, 4 KV BUS 2H			ED		8	*N/A	
2-EE-SS-01	SWITCHGEAR, 480 V SS BUS 2H			ED		8	*N/A	
2-EE-SS-02	SWITCHGEAR, 480 V SS BUS 2J			ED		8	*N/A	
SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP			CI		Applications	*N/A	
TS-HV2230	TEMPERATURE SWITCH	HONEYWELL		HV	NA	2	64	
TS-HV-2229	TEMPERATURE SWITCH			HV		3	*N/A	
TS-HV196B	TEMPERATURE SWITCH, EMER GEN ROOM 2H			HV		9	*N/A	
TS-HV196D	TEMPERATURE SWITCH, EMER GEN ROOM 2J			HV		9	*N/A	
тв	TERMINAL BLOCKS	CONNECTION INC.		N/A	1313	9	19	
тв	TERMINAL BLOCKS	MANY		N/A	NA	9	32	
TT	TERMINATION TAPE	OKONITE		NA	NA	9	33	
TM	TERMINATIONS	RAYCHEM		N/A	N/A	9	39	
2-EE-ST-02	TRANSFORMER 480V (2J1)	ITE		ED	1088	8	75	

Deligicard Priems In

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
FT-2943	TRANSMITTER, BORON INJ, TK. HEADER FLOW	BARTON		SI	1010		W23	
LT-RS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	20	
LT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		PS	1333	4	20	
LIT-PS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	49	
LIT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		PS	1333	4	49	
PT-LM-200A	TRANSMITTER, CONTAINMENT PRESSURE	FOXEORO		LH	1215	1 3 5	48	
PT-LM-200D	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
PT-LM-200C	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
PT-LM-200B	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
PT-MS-201A	TRANSMITTER, MAIN STH LP I PRES CONTROL			MS		2	*N/A	
PT-MS-201B	TRANSMITTER, MAIN STM LP II PRES CONTROL			MS		2	*N/A	
PT-MS-201C	TRANSMITTER, MAIN STM LP III PRES CONTROL			MS		2	*N/A	
LT-2461	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	M02	
LT-2460	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	M05	
LT-2459	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	W02	
PT-2455	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
PT-2457	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
PT-2456	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
FT-2436	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO		RC	1010	2 5	WOl	
FT-2435	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO		RC	1010	2 5	WUI	
FT-2434	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXEORO		RC	1010	2 5	WOI	
FT-2414	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXBORO		RC	1010	2 5	W01	
FT-2416	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXEORO		RC	1010	2 5	W01	
FT-2415	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXBORO		PC	1010	2 5	MOI	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
FT-2426	TRANSMITTER, REACTOR COOLANT FLOW LZ	FOXBORO		RC	1010	2 5	W01	
FT-2425	TRANSMITTER, REACTOR COOLANT FLOW L2	FOXBORO		RC	1010	2 5	W01	
FT-2424	TRANSMITTER, PEACTOR COOLANT FLOW L2	FOXBORO		RC	1010	2 5	W01	
LT-95-200D	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200C	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-95-200B	TRANSMITTER, RF WATER STORAGE TANK			qs		3 5	*N/A	
LT-QS-200A	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
FT-2940	TRANSMITTER, SI HEADER FLOW HOT LEG	BARTON		SI	1010		W23	
LT-2475	TRANSMITTER, STEAM GEN LEVEL			FW		5	*N/A	
LT-2474	TRANSMITTER, STEAM GEN LEVEL			FN		5	*N/A	
PT-2484	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4	*N/A	
PT-2485	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4	*N/A	
PT-2494	TRANSMITTER, STEAM GEN 3 PRESSURE			MS		4	*N/A	
PT-2495	TRANSMITTER, STEAM GEN 3 PRESSURE			MS		4	*N/A	
FT-2495	TRANSHITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2494	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2485	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2484	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2475	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2474	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
LT-2475	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2485	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2484	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
_LT-2496	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
T-2495	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	****
T-2494	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
T-2486	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1485	5	71	
T-2476	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
T-2474	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
T-2475	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXBORO		MS	N A	5	W03	
T-2474	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXEORO		MS	N A	5	M03	
T-2476	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXBORO		MS	N A	5	M03	
T-2486	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	N A	5	W03	
T-2434	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	N A	5	W03	
T-2485	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	H A	5	M03	
T-2495	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	W03	
T-2494	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	W03	
T-2496	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	W03	
V-SW-101B	TRIP VALVE,			SW		3	*N/A	
V-SW-101A	TRIP VALVE,			SW		3	*N/A	
V-SW-201A	TRIP VALVE,			SW		3	*N/A	

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	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	eve	DUDCH	ACCIDENT FUNCT	FTIF	PAGE
ij	THE TOTAL		TIATO ROTOREA	HOUSE NO.	313	ORDER	12345678901234		1 AUE
	1-HV-F-22D	FAN, EXHAUST FAN EMER GEN ROOM 2J			HV		9	*N/A	
ĺ	2-EE-2G-4D	GENERATOR, EMER GEN 2J BATTERY			ED		8	*N/A	
	2-EE-EG-4C	GENERATOR, EMER GEN 2J CONTROL CAB			ED		8	*N/A	
6	2-EE-EG-4B	GENERATOR, EMERG GEN 2J CONTPOL BOX			ED		8	*N/A	
	2-EE-EG-4A	GENERATOR, EMERGENCY GENERATOR 2J			ED		8	*N/A	
	2-EP-MC-13	MCC, 271-1A			ED		8	*N/A	
	2-EG-C-2JB	COMPRESSOR, EMERG GEN AIR COMP 2			ED		8	*N/A	
	2-EG-C-2JA	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
	2-EG-AC-2JB	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
ĺ	2-EG-AC-2JA	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
	RPS-EG-2HB	PRESSURE SWITCH, EMERG GEN 2H COMP			ED		8	*N/A	
۱	RPS-EG-2HA	PRESSURE SWITCH, EMERG GEN 2H COMP			ED		8	*N/A	
1	TS-HV196B	TEMPERATURE SWITCH, EMER GEN ROOM 2H			HV		9	*N/A	
	1-HV-F-22B	FAN, EXHAUST FAN EMER GEN ROOM 2H			HV		9	*N/A	
	2-EG-B-02B	GENERATOR, EMER GEN 2H BATTERY			ED		8	*N/A	
	2-EE-EG-02C	GENERATOR, EMER GEN 2H CONTROL CAB			ED		8	*N/A	
	2-EE-EG-02B	GENERATOR, EMER GEN 2H CONTROL BOX			ED		8	*N/A	
	2-EE-EG-02A	GENERATOR, EMERGENCY GEN 2H			ED		8	*N/A	
	2-EP-MC-12	MCC, 2H1-1A			ED		8	*N/A	
	2-EG-C-2HB	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
	2-EG-C-2HA	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
	SOV-HV-161-2	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6	*N/A	
	SOV-HV-161-1	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6	*N/A	
	SOV-HV-160-2	SOV, CONTROL AND RELAY ROOM DAMPER			н٧		6	*N/A	

Aphaland Fount, to

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-HV-160-1	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6	*N/A	
MOV-54-200B	MOV, SW RETURN TO RERVOIR ISOLATION			SW		23 5	*N/A	
MOV-SN-200A	MOV, SW RETURN TO PERVOIR ISOLATION			SW		23 5	*N/A	
MOV-SW-100B	MOV, SW RETURN TO RERVOIR ISOLATION			SW		23 5	*N/A	
MOV-SN-100A	MOV, SW RETURN TO RERVOIR ISOLATION			SW		23 5	*N/A	
2-SW-P-1B	PUMP, SW PUMP MOTOR B			SW		23 5	*N/A	
2-SW-P-1A	PUMP, SW PUMP MOTER A			SW		23 5	*N/A	
1-SW-P-1B	PUMP, SW PUMP MOTOR B			SW		23 5	*N/A	
1-5W-P-1A	PUMP, SW PUMP MOTOR A			SW		23 5	*N/A	
SOV-HV228-2	SOV, EXHAUST TO IDDINE FILTER BANK			HV		23 5	*N/A	
SOV-HV228-1	SOV, EXHAUST TO IDDINE FILTER BANK			HV		23 5	*N/A	
PT-MS-201C	TRANSMITTER, MAIN STM LP III PRES CONTROL			115		2	*N/A	
PT-MS-201B	TRANSMITTER, MAIN STM LP II FRES CONTROL			MS		2	*N/A	
PT-MS-201A	TRANSMITTER, MAIN STM LP I PRES CONTROL			MS		2	*N/A	
2-PS-P-3B	PUMP, CASING CLG RECIRC SPRAY PUMP			RS		3 5	*N/A	
2-RS-P-3A	PUMP, CASING CLG RECIRC SPRAY PUMP			RS		3 5	*N/A	
HCV-FW-200C	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1C			FW		5 7	*N/A	
HCV-FW-200B	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1B			FW		5 7	*N/A	
HCV-FW-200A	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1A			FW		5 7	*N/A	
_2-FW-P-3B	PUMP, STM GEN AUX DP MOT B			FW		5 7	*N/A	
2-FW-P-3A	PUMP, STM GEN AUX DP MOT A			FW		5 7	*N/A	
MOV-FW-200C	MOV, AUX STEAM GEN FD PP DISCH VV			FW		5 7	*N/A	
MOV-FW-200B	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	
MOV-FW-200A	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	

Dolbista Forms, for .-

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-SH-219	MOV, MAKE-UP ISOLATION			SW		23 5	*N/A	
MOV-SH-119	MOV, MAKE-UP ISOLATION			SW		23 5	*N/A	
MOV-5W-118	MOV, CIRC WTR INTAKE TO SW PUMP			514		23 5	*N/A	
MOV-SW-217	MOV, CIRC WTR SW PUMP ISOLATION			SW		23 5	*N/A	
MOV-SW-117	MOV, CIRC WTR SW PUMP ISOLATION			SW		23 5	*N/A	
RM-SW-227	RADIATION MONITORS, SH RAD MONITORS			SH		4	*N/A	
RM-SW-226	RADIATION MONITORS, SW RAD MONITORS			SW		4	*N/A	
RM-SW-225	RADIATION MONITORS, SH RAD MONITORS			SW		4	*N/A	
RM-SH-224	RADIATION MONITORS, SW RAD MONITORS			SW		4	*N/A	
MOV-5H-215B	MOV, AUX SW PUMP ISO VALVE			SW		23 5	#N/A	
MOV-SW-215A	MOV, AUX SH PUMP ISO VALVE			SW		23 5	*N/A	
MOV-SH-115B	MOV, AUX SW PUMP ISO VALVE			SW		23 5	*N/A	
MOV-SW-115A	MOV, AUX SW PUMP ISO VALVE			SW		23 5	*N/A	
MOV-SH-220B	MOV, SW TO CIRC TUNNEL			SM		3	*N/A	
MOV-5H-220A	MOV, SW TO CIRC TUNNEL			SW		3	*N/A	
PT-2495	TRANSMITTER, STEAM GEN 3 PRESSURE			MS		4	*N/A	
PT-2494	TRANSMITTER, STEAM GEN 3 PRESSURE			MS		4	*N/A	
PT-2485	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4	*N/A	
PT-2484	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4	*N/A	
FS-BD-203F	FLOW SWITCH			BD		6	*N/A	
FS-BD-203D	FLOW SWITCH			BD		6	*N/A	
FS-BD-203B	FLOW SWITCH			BD		6	*N/A	
HC-2186	E/P FOR SEAL WATER FLOW CONTROL			СН		2 5	*N/A	
2-DB-P-10B	PUMP, CHILLER ROOM SUMP					6	*N/A	

Dotafolu famili, Inc. - 8

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	FURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
LVC-2460B	LCV, LOOP 2 LETDOWN LINE CONY. VV			CI	*****	1	*N/A	***
LCV-2460A	LCV, LOOP 1 LETDOWN LINE CONT. VV			CI		1	*N/A	
SOV-CV-200	SOV, CONTAINMENT VACUUM EJECT INLET			CI		1	*N/A	
SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-2010-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-,S-201A-4	SOV, MAIN STEAM LINE TRIP			CI		1	#N/A	
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SPV-MS-2018-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201B-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP			CI		1 ,	*N/A	
MOV-SH-203B	MOV, SW TO RECIRC SPRAY			SW		3 5	*N/A	
LT-2475	TRANSMITTER, STEAM GEN LEVEL			FW		5	*N/A	
LT-2474	TRANSMITTER, STEAM GEN LEVEL			FW		5	*N/A	
SOV-2311	sov,			CH		5	*N/A	
TV-SW-101B	TRIP VALVE,			SW		3	*N/A	
TV-SW-101A	TRIP VALVE,			SW		3	*N/A	
FS-ED-203J	FLOW SWITCH			BD		7	*N/A	
 FS-BD-203H	FLOW SWITCH			ED		7	*N/A	
FS-BD-203G	FLOW SWITCH			BD		7	*N/A	
SOV-MS-210B	sov,			CI		1	*N/A	
SOV-MS-210A	sov,			CI		1	*N/A	
MOV-SW-210B	MOV.			SW		3	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234		PAGE
MOV-SW-210A	MOV.			SN		3	*N/A	
1107-514-1103	MOV,			SW		3	*N/A	
MOV-SW-110A	MOV,			SW		3	*N/A	
TV-SH-201B	MOV,			SH		3	*N/A	
TV-SW-201A	TRIP VALVE,			SW		3	*N/A	
MOV-SW-214B	MOV,			SH		3	*N/A	
MOV-SH-214A	MOV,			SW		3	*N/A	
MOV-5W-114B	MOV,			SW			*N/A	
MOV-SW-114A	MOV,			SW		3	*N/A	
2-QS-P-1B	FUMP, QUENCH SPRAY PUMP 1B			QS		3 5 3	*N/A	
2-QS-P-1A	PUMP, QUENCH SPRAY PUMP 1A			QS		3 5	*N/A	
TS-HV-2229	TEMPERATURE SWITCH			HV		3	*N/A	
2-HV-F-68B	FAN, 1J SUPPLY FAN			ΗV		1	*N/A	
2-HV-F-68A	FAN, 1H SUPPLY FAN			HV		1	*N/A	
MOV-QS-202B	MOV, RF WATER CHEM ADD TANK			QS		3 5	*N/A	
MOV-QS-202A	MOV, RF MATER CHEM. ADD TANK			QS		3 5	*N/A	
LT-QS-200D	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200C	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200B	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
_LT-QS-200A	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
2-EG-P-2JA	PUMP, EMERGENCY GEN 2J FUEL OIL PUMP			ED		8	*N/A	
2-EG-P-2JB	PUMP, EMERGENCY GEN 2J FUEL DIL PUMP			ED		8	*N/A	
2-EG-P-2HB	PUMP, EMERGENCY GEN 2H FUEL DIL PUMP			ED		8	*N/A	
2-5G-P-2HA	PUMP, EMERGENCY GEN 2H FUEL OIL PUMP			SH		8	*N/A	

Date Sold French Inc. - F.

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-SW-S-1B	STRAINER, SW TRAVELING WATER SCREENS		*********	SH		23 5	*N/A	
2-5W-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
1-5H-S-1B	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
1-SW-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SM		23 5	*N/A	
1-SW-P-4	PUMP, AUX SERVICE WATER PUMP			SW		23 5	*N/A	
2-SH-P-4	PUMP, AUX SERVICE WATER PUMP			SW		23 5	*N/A	
2-EP-MC-11	MCC, 2J1-1			ED		8	*N/A	
2-EP-MC-41	MCC, 2H1-4			ED		8	*N/A	
2-EP-MC-10	MCC, 2H1-1			ED		8	*N/A	
2-VB-I-04	INVERTER, VITAL BUS INVERTER 2-4			ED		8	*N/A	
2-VB-I-03	INVERTER, VITAL BUS INVERTER 2-3			ED		8	*N/A	
2-VB-I-02	INVERTER, VITAL BUS INVERTER 2-2			ED		8	*N/A	
2-VB-I-01	INVERTER, VITAL BUS INVERTER 2-1			ED		8	*N/A	
2-EP-CB-12D	CABINET, DC CABINET 2-4			ED		8	*N/A	
2-EP-CB-12C	CABINET, DC CABINET 2-3			ED		8	*N/A	
2-EP-CB-12B	CABINET, DC CABINET 2-2			ED		8	*N/A	
2-EP-CB-12A	CABINET, DC CABINET 2-1			ED		8	*N/A	
2-EP-CB-28B	CABINET, AUX RELAY CABINET B			ED		23 5 78	*N/A	
2-EP-CB-28A	CABINET, AUX RELAY CABINET A			ED		23 5 78	*N/A	
2-BY-C-07	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-06	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-05	BATTERY CHARGER			ED		8	*N/A	
2-BY-C-04	BATTERY CHARGER			ED		8	*N/A	
_2-BY-C-03	BATTERY CHARGER			ED		8	*N/A	

Bally and Ferrilly, Lot -

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-BY-C-02	BATTERY CHARGER			ED		8	*N/A	
2-EI-CB-23D	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23C	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23B	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23A	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-06B	CABINET, AUX SHUTDOWN PANEL			ED		2345	*N/A	
2-EI-CB-06A	CABINET, AUX SHUTDOWN PANEL			ED		2345	*N/A	
2-EE-SW-01	SWITCHGEAR, 4 KV BUS 2H			ED		8	*N/A	
2-EI-CB-53	CABINET, PROCESS RACK 3			ED		1 3 5	*N/A	
2-EI-CB-52	CABINET, PROCESS RACK 2			ED		1 3 5	*N/A	
2-EI-CB-51	CABINET, PROCESS RACK 1			ED		1 3 5	*N/A	
2-EI-CB-47F	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47E	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47D	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47C	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47B	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47A	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
SOV-HV-2306B	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2306A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300D	SOV, BOTTLED AIR SYSYTEM			HV		6	*N/A	
SOV-HV-2300C	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300B	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2200C	SOV, VALVE FOR 2-HV-P-22C			HV		9	*N/A	

Superold tupos, the

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-HV-2200B	SOV, VALVE FOR 2-HV-P-22B			HV		9	*N/A	
10V-HV-2200A	SOV, VALVE FOR 2-HV-P-22A			HV		9	*N/A	
2-HV-F-42	FAN, EMERGENCY SWITCHGEAR VENT			HV		9	*N/A	
-HV-AC-07	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
-HV-AC-06	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
2-EI-CB-54	CABINET, PROCESS RACK 4			ED		1 3 5	*N/A	
E-EE-SS-02	SWITCHGEAR, 480 V SS BUS 2J			ED		8	*N/A	
2-EE-5S-01	SWITCHGEAR, 480 V SS BUS 2H			ED		8	*N/A	
SOV-HV-215B-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
SOV-HV-215B-1	SOV, FLUSH VALVE SERVICE BLDE STRAINER			CI		1	*N/A	
OV-HV-215A-2	SOV, FLUSH VALVE SERVICE BLDS STRAINER			CI		 X), 75, 76, 76, 76 	*N/A	
SOV-HV-215A-1	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
S-HV-2207B	FLOW SWITCH, BATTERY ROOM 2-2 VENT			HV		9	*N/A	
2-HV-F-52B	FAN, BATTERY ROOM 2-2 EXHAUST			HV		9	*N/A	
-BY-B-02B	BATTERY, STATION BATTERY 2-2			ED		8	*N/A	
-BY-B-02A	BATTERY, STATION BATTERY 2-2			ED		8	*N/A	
-HV-2207D	FLOW SWITCH, BATTERY ROOM 2-4 VENT			HV		9	*N/A	
-HV-F-57D	FAN, BATTERY ROOM 2-4 EXHAUST FAN			HV		9	*N/A	
-BY-B-04B	BATTERY, STATION BATTERY 2-4			HV		8	*N/A	
-BY-B-04A	BATTERY, STATION BATTERY 2-4			HV		8	*N/A	
-HV-F-57C	FAN, BATTERY ROOM 2-3 EXHAUST			HV		9	*N/A	
S-HY-2207C	FLOW SWITCH, BATTERY ROOM 2-3 VENT			HV		9	*N/A	
-BY-B-03B	BATTERY, STATION BATTERY 2-3			ED		8	*N/A	
-BY-B-03A	BATTERY, STATION BATTERY 2-3			ED		8	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
0 BV E E76	FAN, BATTERY ROOM 2-1 EXHAUST FAN			HV		9	*N/A	
2-HV-F-57A	FLOW SWITCH, BATTERY ROOM 2-1 VENT			HV		9	*N/A	
FS-HV-2207A				ED		8	*N/A	
2-BY-B-01B	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	
2-BY-B-01A	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	
2-EP-CB-04D	CABINET, VITAL BUS CAB 2-4						*N/A	
2-EP-CB-04C	CABINET, VITAL BUS CAB 2-3			ED		8		
2-EP-CB-04B	CABINET, VITAL BUS CAB 2-2			ED		8	*N/A	
2-EP-CB-04A	CABINET, VITAL BUS CAB 2-1			ED		8	*N/A	
2-EP-CB-23B	CABINET, DC DISTRIBUTION PANEL 2B			ED		8	*N/A	
2-EP-CB-23A	CABINET, DC DISTRIBUTION PANEL 2A			ED		8	*N/A	
2-EP-CB-19B	CABINET, VITAL SOV PANEL			ED		8	*N/A	
2-EP-CB-19A	CABINET, VITAL SOV PANEL			ED		8	*N/A	
2-EP-CB-35	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	
2-EP-CB-34	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	
2-EP-CB-28	CABINET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	
2-EP-CB-28	CABINET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	
MOV-HV-204-2	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	
MOV-HV-204-1	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	
2-EP-CB-12D1	CABINET, DC DISTRIBUTION PANEL 2-4A			ED		8	*N/A	
2-EP-CB-12B1	CABINET, DC DISTRIBUTION PANEL 2-2A			ED		8	*N/A	
2-EP-CB-80D	CABINET, INST DISTRIBUTION PANNEL 4			ED		В	*N/A	
2-EP-CB-80C	CABINET, INST DISTRIBUTION PANNEL 3			ED		8	*N/A	
2-EP-CB-80B	CABINET, INST DISTRIBUTION PANNEL 2			ED		8	*N/A	
2-EP-CB-80A	CABINET, INST DISTRIBUTION PANNEL 1			ED		8	*N/A	
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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EI-CB-156B	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-156A	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-08B	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-CB-08A	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-CB-07	CABINET, VENTILATION CONTROL EGARD			ED		6 9	*N/A	
2-EI-CB-05	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-04	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-03	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-02	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-01	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-HV-F-41	FAN, CONTROL ROOM EMER VENT			HV		6 19-3	*N/A	
2-HV-AC-09	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-HV-AC-08	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-EG-AC-2HB	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
2-EG-AC-2HA	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
PS-EG-2JB	PRESSURE SWITCH, EMER GEN CJ COMP			ED		8	*N/A	
PS-EG-2JA	PRESSURE SWITCH, EMER GEN 2J COMP			ED		8	*N/A	
TS-HV196D	TEMPERATURE SWITCH, EMER GEN ROOM 2J			HV		9	*N/A	
2-HV-F-24	FAN, EQUIPMENT ROOM SUPPLY	AEROVENT FAN CO.		HV	1241	6	03	
SOV-DG-200A	SOV, PRIMARY DRAIN TRANSFER PUMP DISCHARG	ASCO		CI	N/A	1	15	
SOV-IA-202B	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-202A	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200C	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200B	SOV. CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-IA-200A	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	***
SOV-DA-200A	SOV, RC SUMP PUMP DISCHARGE	ASCO		CI	1125	1	30	
SOV-CC-204C-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204C-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204B-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204B-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204A-2	SOV, RCP COOLER INLET OUTSIDE	' SCO		CI	1125	1	30	
SOV-CC-204A-1	SOV COOLER INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-203B	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	10/10/15 129	30	
SOV-CC-203A	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1	30	
SOV-CC-202E	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-202C	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-202A	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-201A	SOV, RCP THERMAL BARRIER RET HEADER	ASCO		CI	1125	1	30	
SOV-CC-200C	SOV, RECIRC. AIR COOLER DUTLET DUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-200B	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-200A	SOV, RECIRC. AIR COOLER OUTLE: OUTSIDE	ASCO		CI	1125	1	30	
SOV-BD-200E	SOV, STEAM GEN. BLONDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-ED-200C	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-BD-200A	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		Ci	1125	1	30	
SOV-VG-200A	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI	1125	1	30	
SOV-SI-201	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125		30	
50V-SI-200B	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	4	30	
SOV-SI-200A	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	

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	MARK NO.		DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	SOV-RM-200B	SOV, RADIATIO	N MONITORING	ASCO		CI	1125	1	30	****
	SOV-RM-200A	SOV, RADIATIO	N MONITORING	ASCO		CI	1125	1	30	
	SOV-MS-211B	SOV, AUX FEED	PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	
	SOV-MS-211A	SOV, AUX FEED	PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	
	SOV-SS-200B	SOV, PRESSURI	ZER LIQUID SPACE	ASCO		CI	1163	1	37	
	SOV-SS-212B	SOV, STEAM GE	N SAMPLE ISOLATION	ASCO		CI	1163	1	37	
	SOV-SS-204B	SOV, PRESSURE	RELIEF TANK SAMPLE	ASCO		CI	1163	1	37	
	SOV-SS-203B	SOV, RHR OUTB	OARD ISULATION VALVE	ASCO		CI	1163	1	37	
	SOV-SS-203A	SOV, RHR OUTB	OARD ISOLATION VALVE	ASCO		CI		and the second	37	
	SOV-SS-201B	SOV, PRESSURI	ZER VAPOR SAMPLE	ASCO		CI	1163	1	37	
	SOV-\$3-202B	SOV, PRIMARY	COOLANT COLD LEG SAMPLE	ASCO		CI	1163	4010-00-0	38	
	SOV-SS-206B	SOV, PRIMARY	COOLANT HOT LEG SAMPLE	ASCO		CI		1 4	38	
	SOV-LM-200B	SOV. CONTAINM	ENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200A	SOV, CONTAINM	ENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200H	SOV, CONTAINM	ENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200G	SOV, CONTAINM	ENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SGV-LM-200F	SOV, CONTAINM	ENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200E	SOV, CONTAINM	ENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200D	SOV, CONTAINM	ENT LEAKAGE MCNITOR	ASCO		Cl	1163	1	40	
-	SOV-LM-200C	SO., CONTAINM	ENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-2519A	SOV, PRIM GRA	DE WATER TO FRT	ASCO		CI	1010	1	46	
	SOV-2204	SOV, REGEN HE	AT EXC. DUTLET VALVE	ASCO		CI	1010	1	46	
	SOV-SV-203	SOV, AIR REMO	VAL SYSTEM	ASCO		CI	1125	1	51	
-	SOV-SV-202-1	SOV, AIR EJEC	TOR VENT	ASCO		CI	1125	1	51	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PACE
	SOV-MS-213A-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213A-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213C-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213C-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213B-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213B-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-209B	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
le.	SOV-MS-209A	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-IA-201A	SOV, CONTAINMENT INSTRUMENT AIR	ASCO		CI		1	55	
	SOV-SS-207B	SOV, RHR SAMPLE LINE	ASCO		CI	1163	1	56	
	SOV-SS-207A	SOV. RHR SAMPLE LINE	ASCO		CI	1163	1	56	
	SOV-CC-202B	SOV, RCP BEARING COOLING	ASCO		CI		1 .	58	
j	SOV-CC-202D	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
	SOV-CC-202F	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
	SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-MS-201C-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-MS-2018-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	_SOV-MS-201B-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-1/S-201B-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
	SOV-MS-201A-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-DG-200B	SOV, PRIMARY DRAIN TRANSFER PUMP DISCHA	RG ASCO		CI		1	62	
SOV-DA-200B	SOV, CONTAINMENT SUMP DISCH ISOLATION	ASCO		CI		1	62	
SOV-CC-201B	SOV, RCP THERMAL BARRIER HEADER	ASCO		CI		1	62	
SOV-CC-205A	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
SOV-CC-205C	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
SOV-CC-2058	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
SOV-SS-212A	SOV, STEAM GEN SAMPLE	ASCO		CI		1	62	
SOV-SS-206B,	SOV, PRIMARY CODEANT HOT LEG SAMPLE	ASCO		CI		1 4	62	
SOV-SS-204A	SOV, PRESSURIZER RELIEF TANK GAS SPACE	ASCO		CI		1	62	
SOV-SS-201A	SOV, PRESSURIZER VAPOR SPACE SAMPLE	ASCO		CI		1	62	
SOV-SS 200A	SOV. PRESSURIZER LIQUID SPACE	ASCO		CI		1	62	
SOV-RM-200C	SOV, RADIATION MONITORING	ASCO		CI		1	62	
SOV-VG-200B	SOV, FRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI		1	62	
SOV-ED-200J	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	E ASCO		CI	1125	7	63	
SOV-ED-200H	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
SOV-BD-200B	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1 7	63	
SOV-BD-200D	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1 7	63	
SOV-BD-200G	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
SOV-BD-200F	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1 7	63	
SOV-CY-250D	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SDV-CV-250C	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SOV-CV-250B	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	

	MARK NO.	DESCRIPTIO	ON	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	SOV-CV-250A	SOV, CONTAINMENT VACUM PU	JMP SUCTION	ASCO		CI	1125	1 3 5	67	
	SOV-SS-206A	SOV, PRIMARY COOLANT HOT	LEG SAMPLE	ASCO		CI		1	68	
	50V-SS-202A	SOV, PRIMARY COOLANT COL	LEG SAMPLE	ASCO		CI		1	68	
	SOV-LM-201B	SOV, CONTAINMENT LEAKAGE	MONITOR	ASCO		CI	1163	1	69	
	SOV-LM-201A	SOV, CONTAINMENT LEAKAGE	MONITOR	ASCO		CI	1163	1	69	
	SOV-LM-2010	SOV, CONTAINMENT LEAKAGE	MONITOR	ASCO		CI	1163	1	69	
	SOV-LM-201C	SOV, CONTAINMENT LEAKAGE	MONITOR	ASCO		CI	1163	1	69	
	SOV-SH-201B-2	SOV, AIR COOLER EMERG SUF	PLY	ASCO		SW		3	70	
	SOV-SW-201B-1	SOV, AIR COOLER EMERG SUF	PLY	ASCO		SW		3	70	
	SOV-SW-201A-2	SOV, AIR COOLER EMERG SUF	PLY	ASCO		SH		3	70	
	SOV-SW-201A-1	SOV, AIR COOLER EMERG SUF	PLY	ASCO		SW		3	70	
	SOV-22008-1	SOV, LETDOWN LINE		ASCO		CI	1010	1	W09	
	SOV-2200A-1	SOV, LETDOWN LINE		ASCO		CI	1010	1	M09	
	SOV-2200C-1	SOV, LETDOWN LINE		ASCO		CI	1010	1	M09	
	SOV-2460B	SOV, LETDOWN LINE LOOP 1	8 2	ASCO		CI	1010	1	W10	
	SOV-2460A	SOV, LETDOWN LINE LOOP 1	& 2	ASCO		CI	1010	1	W10	
	SOV-2859	SOV, SAFETY INJECTION ACC	UMULATOR	ASCO		CI	1010	1	W26	
	SOV-2884C	SOV, BORON INJECTION TANK	TO BATCH TK	ASCO		SI	1010	23 5	W30	
	SOV-2884B	SOV, BORON INJECTION TANK	TO BATCH TK	ASCO		SI	1010	23 5	W30	
_	SOV-2884A	SOV, BORON INJECTION TANK	TO BATCH TK	ASCO		SI	1010	23 5	W30	
	SOV-2200A-2	SOV, LETDOWN LINE		ASCO		CI	1010	1	W32	
	SOV-2200C-2	SOV, LETDOWN LINE		ASCO		CI	1010	1	W32	
	SOV-2200B-2	SOV, LETDOWN LINE		ASCO		CI	1010	1	W32	
	SOV-2936	SOV, ACCUMULATOR VENT LIN	E FLOW	ASCO		CI	1010	1	W33	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
.T-2461	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	W02	
T-2460	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	W02	
T-2459	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	M05	
T-2457	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
YT-2456	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
T-2455	TRANSMITTER, FRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
T-2943	TRANSMITTER, BORON INJ, TK. HEADER FLOW	BARTON		SI	1010		W23	
T-2940	TRANSMITTER, SI HEADER FLOW HOT LEG	EARTON		SI	1010		W23	
12A-HC-200	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
12A-HC-100	HYDROGEN ANALYZER	BENDIX		НС	1332	4	42	
-HV-P-20B	PUTP, CHILLER ROOM A/C	STNGHAM-WINIAMETTE		НΛ	1276	6	04	
-HV-P-20A	PULIF, CHILLER ROOM A/C	EIN PAM-WINIAMETTE		HV	1276	6	04	
-HV-P-22C	PUMP, CHILLER ROOM A/C	AN-WINIAMETTE		HV	1276	6	04	
-HV-P-22B	FUMP, CHILLER ROOM A/C	自由語 AM-WINIAMETTE		н٧	1276	6	04	
-HV-P-22A	PUMP, CHILLER ROOM A/C	EINGHAM-WINIAMETTE		HV	1276	6	04	
-HV-P-20C	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
iGB-55	CABLE, 45/C #16 ANG	BIW		ED	1265	2345	09	
ISB-40	CABLE, 4/C #16 AHG	BIM		ED	1265	2345	09	
IGB-39	CABLE, 3/C #16 AWG	BIW		ED	1265	2345	09	
GB-35	CABLE, 2/C #16 ANG	BIW		ED	1265	2345	09	
GA-70	CABLE, 18/C #16 AWG	BIW		ED	1265	2345	09	
GA-69	CABLE, 2/C #16 AWG	BIW		ED	1265	2345	09	
GA-68	CABLE, 12/C #16 AWG	BIM		ED	1265	2345 8	09	
IGA-67	CABLE, 19/C #16 AWG	BIW		ED	1205	2345	09	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-HV-F-40B	FAN, SAFEGAURDS AREA VENTILATION	EUFFALO FORGE		HV	1296	0	18	
2-HV-F-40A	FAN, SAFEGAURDS AREA VENTILATION	BUFFALD FORGE		HV	1296	0	18	
NGA-15	CABLE, TRIPLEX 250 MCM	CERRO WIRE		ED	1359	3 5	0.7	
NGA-19	CABLE, 2/C #2 ANG	CERRO WIRE		ED	1312	8	08	
NGA-39	CABLE, 9/C #14 ANG	CERRO WIRE		ED	1312	8	08	
NGA-38	CABLE, 7/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-37	CABLE, 5/C #14 AMG	CERRO WIRE		ED	1312	8	08	
NGA-36	CABLE, 3/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-35	CABLE, 2/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-34	CABLE, 1/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-57	CABLE, 4/C #10 AWG	CERRO WIRE		ED	1312	8	08	
NGA-49	CABLE, 7/C #12 AWS	CERRO WIRE		ED	1312	8	08	
NGA-47	CABLE, 4/C #12 ANG	CERRO WIRE		ED	1312	8	08	
NGA-45	CABLE, 2/C #12 AMG	CERRO WIRE		ED	1312	8	08	
NGA-44	CABLE, 1/C #12 AMG	CERRO WIRE		ED	1312	8	08	
NGA-40	CABLE, 12/C #14 ANG	CERRO WIRE		ED	1312	8	08	
NGB-43	CABLE, 2/C #8 ANG	CERRO WIRE		ED	1312	8	08	
NGA-77	CABLE, 4/C #10 AWG	CERRO WIRE		ED	1312	8	03	
NGB-45	CABLE, 4/C #6 AWS	CERRO WIRE		ED	1312	8	08	
NGB-44	CABLE, 2/C #6 ANG	CERRO WIRE		ED	1312	8	08	
NGB-39	CABLE, 3/C #16 AWG	CERRO WIRE		ED	1392	123456	13	
NGB-35	CABLE, 2/C #16 AWG	CERRO WIRE		ED	1.392	2345	13	
NGA-67	CABLE, 19/C #16 AWG	CERRO WIRE		ED	1392	123456 8	13	
NGA-68	CABLE, 12/C #16 AMG	CERRO WIRE		ED	1392	123456	13	

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MARK NO.	DESCRIPTION	MANUFACTURER MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGA-70	CABLE, 18/C #16 AWG	CERRO WIRE	ED	1392	123456	13	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX	ED	1313	8	24	
TYPE IV	PENETRATION ASSEMBLIES (THERMOCOUPLES)	CONAX	ED	1313	8	24	
TYPE III	PENETRATION ASSEMBLIES (TRIAXIAL)	CONAX	ED	1313	8	24	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	24	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	24	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	24	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE FWR)	CONAX	ED	1313	8	24	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	24	
TYPE IC	PENETPATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	24	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX	0	1313	8	24	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX	ED	1313	8	25	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	25	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	25	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE PHR)	CONAX	ED	1313	8	25	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	25	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX	ED	1313	8	25	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX	ED	1313	8	25	
TYPE JA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX	ED	1313	8	25	
SP	SPLICES	CONAX	N/A	1313	9	26	
SP	SPLICES	CONAX	N/A	1313	9	^=	
тв	TERMINAL BLOCKS	CONNECTION INC.	N/A	1313	9	19	
E/P FC-2122	E/P, CHARGING FLOW CONTROL	COPES-VULCAN	СН			61	
2-HV-S-1B	STRAINERS, CHILLER ROOM	ELLIOT	HV	1299	6	02	

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-HV-S-1A	STRAINERS, CHILLER ROOM		ELLIOT		HV	1299	6	02	
S-912-AH-AC	MOV, FLUSH VALVE RIGHT FOR STRAIN	IER	ELLIOT		HV	1299	6	17	
1-615-VH-VC	MOV, FLUSH VALVE LEFT FOR STRAINE	P	ELLIOT		HV	1299	6	17	
OV-HV-215-2	MOV, FLUSH VALVE RIGHT FOR STRAIN	IER	ELLIOT		HV	1299	6	17	
OV-HV -215-1	MOV, FLUSH VALVE LEFT FOR STRAINE	R	ELLIOT		HV	1299	6	17	
P HCV 2186	E/P FOR HAND CONTROL VALVE HCV-21	186	FISHER					W31	
T-LM-200A	TRANSMITTER, CONTAINMENT PRESSURE	gl-ligh	FOXBORO		LH	1215	1 3 5	48	
1-LM-200D	TRANSMITTER, CONTAINMENT 'ESSURE		FOXEORO		LM	1215	1 3 5	48	
T-LM-200C	TR NSMITTER, CONTAINHEN PRESSURE		FOXBORO		LM	1215	1 3 5	48	
T-LM-200B	TRANSMITTER, CONTAINMENT PRESSURE		FOXBORO		LM	1215	1 3 5	48	
T-2414	TRANSPITTER, REACTOR COOLANT FLOR	L1	FOXBORO		RC	1010	2 5	W01	
T-2416	TRANSHITTER, REACTOR COOLANT FLOW	LI	FOXBORO		RC	1010	2 5	W01	
T-2415	TRANSMIT ER, REACTOR COOLANT FLOR	L1	FOXECRO		RC	1010	2 5	W01	
T-2436	TR EP, REACTOR COLLANT FLOW	L3	FOXEORO		RC	1010	2 5	W01	
T-2435	TRANSMITTER, REACTOR COLLANT FLOW	L3	FOXBORO		RC	1010	2 5	W01	
T-2434	TRANSMITTER, REACTOR COLLANT FLOW	1 L3	FOXBORO		RC	1010	2 5	WOI	
T-2426	TRANSMITTER, REACTOR COOLANT FLOW	1 L2	FOXBORO		RC	1010	2 5	M01	
T-2425	TRANSMITTER, REACTOR COOLANT FLOW	1 L2	FOXBORO		RC	1010	2 5	W01	
T-2424	TRANSMITTER, REACTOR COOLANT FLOW	L2	FOXBORO		RC	1010	2 5	W01	
T-2486	TRANSMITTER, STEAM GEN. 2 PRESSUR	E	FOXBORO		MS	N A	5	W03	
T-2476	TRANSMITTER, STEAM GEN. 1 PRESSUR	E	FOXBORO		MS	N A	5	W03	
T-2495	TRANSMITTER, STEAM GEN. 3 PRESSUR	E	FOXBORO		MS	N A	5	~03	
T-2485	TRANSMITTER, STEAM GEN. 2 PRESSUR	E	FOXBORO		MS	N A	5	1403	
r-2475	TRANSMITTER, STEAM GEN. 1 PRESSUR	E	FOXBORO		MS	NA	5	W03	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	PT-2494	TRANSMITTER, STEAM GEN. 3 FRESSURE	FOXBORO		MS	N A	5	W03	
	PT-2484	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXEORO		MS	NA	5	W03	
	PT-2474	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXBORO		MS	н д	5	W03	
	PT-2496	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	на	5	W03	
	LT-RS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	20	
	LT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	20	
	LIT-RS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	49	
	LIT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	49	
	NGA-6	CABLE, 3/C 1250 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
	NGA-5	CABLE, 3/C 1250 MCM STEEL ARMOR	GENERAL CABLE		ED	1255	8	10	
	NGA-9	CABLE, 1/C 1500 HCM	GENERAL CABLE		ED	1255	8	10	
	NGA-4	CABLE, 3/C 500 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
	NGA-3	CABLE, TRIPLEX 1000 MCM	GENERAL CABLE		ED	1255	8	10	
9.	NGA-13	CABLE, 3/C 4/0 ANG. ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
	NGA-12	CABLE, 3/C 1000 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
	NGA-10	CABLE, 1/C 2000 MCM	GENERAL CABLE		ED	1255	9	10	
	NGB-11	CABLE, TRIPLEX 2/0 AMG	GENERAL CABLE		ED	1256	8	14	
	NGB-12	CABLE, TRIPLEX #1 AMG	GENERAL CABLE		ED	1256	8	14	
	NGB-7	CABLE, TRIPLEX 250 MCM	GENERAL CABLE		ED	1256	8	14	
	NGB-5	CABLE, TRIPLEX 500 MCM	GENERAL CABLE		ED	1256	8	14	
	2-RS-P-1A	PUMP, INSIDE PECIPC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	28	
	2-RS-P-18	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3	28	
	2-RS-P-1B	PUMP, INSIDE RECIPC. SPRAY	GENERAL ELECTRIC		RS	1355	3	29	
	2-RS-P-1A	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	29	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE PAG
-RS-P-2A	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3	44
2-RS-P-2B	FUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3	44
S-HV2230	TEMPERATURE SWITCH	HONEYWELL		HV	NA	2	64
10D-HV163C	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66
100-HV163B	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66
100-HV163A	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66
-EE-ST-01	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31
-EE-SS-03	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31
-EE-SS-04	SWITCHGEAR 480V (2J1)	ITE		ED	1088	8	75
E-EE-ST-02	TRANSFORMER 480V (2J1)	ITE		ED	1088	8	75
-DB-P-10B	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05
-DB-P-10A	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05
-HV-F-71A	FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HA	1201	0	21
-HV-F-71B	FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HV	1201	0	21
-EP-MC-22	MCC-1J1-25	KLOCKNER MOELLER		ED	1176	8	22
-EP-MC-21	MCC-1J1-2N	KLOCKNER MOELLER		ED	1176	8	22
-EP-MC-20	MCC-2H1-2S	KLOCKNER MOELLER		ED	1176	8	22
-EP-MC-19	MCC-2H1-2N	KLOCKNER MOELLER		ED	1176	8	22
-EP-MC-20	MCC-1H1-25	KLOCKNER MOELLER		ED	1176	8	22
-EP-MC-19	MCC-1H1-2N	KLOCKNER MOELLER		ED	1176	8	22
-EP-MC-22	MCC-2J1-25	KLOCKNER MOELLER		ED	1176	8	22
-EP-MC-21	MCC-2J1-2N	KLOCKNER MOELLER		FC	1176	8	22
OV-QS-201B	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23
OV-QS-201A	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-RS-256B	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
MOV-RS-256A	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
MOV-RS-2558	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		PS	1242	3 5	23	
MOV-RS-255A	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	
MOV-SW-2010	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-201C	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SH	1194	3 5	50	
MOV-SW-201B	MOV, RECIRC SFRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-201A	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-203B	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SH	1194	3 5	50	
MOV-SW-204A	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-206B	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-206A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SH	1194	3 5	50	
MOV-SW-2050	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-205C	MOV, RECIRC SFRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-2058	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-205A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SN-203D	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
MOV-SW-203C	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
MOV-5H-203A	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SH	1194	3 5	52	
MOV-SW-2048	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
MOV-SH-204D	MOV. SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SM	1194	3 5	52	
MOV-SH-204C	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SH	1194	3 5	52	
MOV-SW-208B	MOV, INLET HEADER VALVE	LIMITORQUE		SM	1193	23 3	53	
MOV-SW-208A	MOV, INLET HEADER VALVE	LIMITORQUE		SW	1193	23 3	53	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-SW-213B	MOV, FUEL PIT COOLER VALVE	LIMITORQUE		SW	1193	23 3	53	
MOV-SW-213A	MOV, FUEL PIT COOLER VALVE	LIMITORQUE		SW	1193	23 3	53	
MOV-FS-201B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-201A	HOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-200B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-200A	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-HV-201	MOV, RC PURGE SYSTEM BYPASS	LIMITORQUE		HV		1	59	
MOV-HV-200D	MOV, RC PURGE SYSTEM EXHAUST	LIMITORQUE		HV		1	59	
MOV-HV-200B	MOV, RC PURSE SYSTEM VALVE	LIMITORQUE		HV		1	59	
MOV-HV200C	MOV, CONTAINMENT PURGE	LIMITORQUE		HV	198	1	65	
MOV-HV200A	MOV, CONTAINMENT SUPPLY	LIMITORQUE		HV	198	1	65	
MOV-SW-210B	RECIPC. AIR COOLING COILS	LIMITORQUE		SW		3	73	
MOV-SW-210A	RECIPC, AIR COOLING COILS	LIMITORQUE		SW		3	73	
MOV-SW-214B	RECIRC. AIR COOLING COILS	LIMITORQUE		SM		3	73	
MOV-SW-214A	RECIRC, AIR COOLING COILS	LIMITORQUE		SW		3	73	
MOV-QS-200B	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
MOV-QS-200A	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
MOV-2885B	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
MOV-2885A	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
HOV-2860B	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
MOV-2860A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
MOV-2380	MOV, RCP SEALWATER RETUPN	LIMITORQUE			1010	1 5	W06	
MOV-2890A	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W08	
MOV-2862A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	WII	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
10V-2862B	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W11	
10V-2863A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
10V-2863B	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
10V-2864A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
10V-2864B	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
10V-2115C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W16	
10V-2350	MOV, EMERGENCY BORATION	LIMITORQUE		CH	1010	23 5	W17	
10V-2270B	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
10V-2269B	MOV. LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	WIS	
OV-2373	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W18	
OV-2370	MOV, CHARGING PUMP TO SEAL WATER RECIRC.	LIMITORQUE		СН	1010	23 5	W18	
OV-2869B	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
OV-2869A	HOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
OV-2267B	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
OV-2286A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W19	
OV-2287C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	
OV-2287B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		CH	1010	23 5	W19	
OV-2287A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	
10V-2286C	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W19	
10V-2286B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W19	
10V-2289A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W21	
OV-2289B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W21	
OV-2269A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	
10V-2270A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	

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	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT 12345676		FILE	PAGE
	MOV-2267A	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5		W21	
	MOV-2115D	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5	1	W22	
	MOV-2115B	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5	1	MSS	
	MOV-2867C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1010	23 5		W24	
	MOV-2867D	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5		W25	
	MOV-2867B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5		W25	
	MOV-2867A	MOV, CHARGING FUMP STOP VALVE	LIMITORQUE		SI	1313	23 5		W25	
	MOV-2865A	MOV, ACCUMULATOR TANK 1 COLD LEG	LIMITORQUE		SI	1010	23 5		MS8	
	MOV-2865C	MOV, ACCUMULATOR TANK 3 COLD LEG	LIMITORQUE		SI	1010	23 5		W28	
	MOV-2865B	MOV, ACCUMULATOR TANK 2 COLD LEG	LIMITORQUE		SI	1010	23 5		W28	
	MOV-2836	MOV, COLD LEG CIRC VALVE	LIMITORQUE		SI	1010	23 5		W29	
	MOV-2275C	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5		W34	
	MOV-2275A	MOV, CHARGING FUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5		W34	
	MOV-2381	MOV, SEAL WATER RETURN SV	LIMITORQUE		CH	1010	23 5		W35	
	MOV-2115E	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		CH	1010	23 5		W36	
	MOV-2275B	MOV, CHARGING FUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5		W37	
	MOV-2885D	MOV, LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	23 5		W38	
	MOV-2885C	MOV, LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	23 5		W38	
	MOV-2890B	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5		W39	
_	MOV-2890D	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5		W39	
	MOV-2890C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		SI	1010	23 5		W39	
	ТВ	TERMINAL BLOCKS	MANY		N/A	NA		9	32	
	2-SW-P-6	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4		41	
	2-SW-P-5	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4		41	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-SW-P-8	FUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
2-SU-P-7	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
HCV-2200C	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200B	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200A	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
50V-2842	RADIATION MONITORING LINE	NAMCO		CI	1010	1	W40	
NGA-21	CABLE, 1/C 2/0 AWG.	OKONITE		ED	1128	8	08	
NGA-20	CABLE, 1/C 250 MCM	OKONITE		ED	1128	8	06	
NGB-15	CABLE, TRIPLEX #4 AWS	OKONITE		ED	1128	8	06	
NGB-17	CABLE, 3/C #8 ANG	OKONITE		ED	1128	8	06	
VGB-16	CABLE, TRIPLEX #6 AWG	OKONITE		ED	1128	8	06	
4GB-19	CABLE, 3/C #12 AWG	OKONITE		ED	1128	8	06	
KGB-18	CABLE, 3/C #10 AWG	OKONITE		ED	1128	8	06	
IGA-4	CABLE, 3/C 500 MCH	OKONITE		ED	1375	8	11	
VGA-13	CABLE, 3/C 4/0 AWG	OKONITE		ED	1375	8	11	
VGA-14	CABLE, TRIPLEX 4/0 AWG	OKONITE		ED	1375	8	11	
IGA-3	CABLE, TRIPLEX 1000 MCM	OKONITE		ED	1375	8	11	
G8-5	CABLE, TRIPLEX 500 MCM	OKONITE		ED	1384	8	12	
IGB-7	CABLE, TRIPLEX 250 MCM	OKONITE		ED	1384	8	12	
GB-12	CABLE, TRIPLEX #1 ANG	OKONITE		ED	1384	8	12	
G8-11	CABLE, TRIPLEX 2/0 ANG	OKONITE		ED	1384	8	12	
IGB-01	CABLE, 2/C #10 AWG	OKONITE		ED	1404	8	16	
Т	TERMINATION TAPE	OKONITE		NA	NA	2	33	
P	SPLICES	RAYCHEM		N/A	NA.	9	34	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. OPDER	ACCIDENT FUNCT 12345678901234	FILE PAGE
TM	TERMINATIONS	RAYCHEM		N/A	N/A	9	39
1-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		НС	1365	3 5	43
2-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		HC	1365	3 5	43
FT-2475	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35
FT-2474	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35
FT-2495	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35
FT-2494	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35
FT-2485	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35
FT-2484	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35
TE-AM-215	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47
TE-AM-217C	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47
TE-AM-217B	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47
TE-AM-217A	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47
TE-AM-216	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47
TE-AM-217D	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		MA	1363	7	47
LT-2475	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54
LT-2485	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54
LT-2484	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54
LT-2496	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54
LT-2495	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71
LT-2494	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71
LT-2486	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71
LT-2476	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71
LT-2474	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1466	5	71

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TE-AM-100A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-101A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-100B	AMBIENT TEMPERATURE MONITORS	ROSEM UNT		MA	1363	8	72	
TE-AM-103A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-102B	AMBIENT TEMPERATURE MONITORS	POSEMOUNT		AM	1363	8	72	
TE-AM-102A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	В	72	
TE-AM-101B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-108B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-108A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-107B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-107A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-106B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-106A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-105B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-105A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-104B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-104A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-103B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-2412D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 7 (5	W12	
_TE-2412B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2432D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2432B	RTD, RCS NARROW PANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2422D	RTD. RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
_TE-2422B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	

Opticability Forms, Inc.-

MAI	RK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER		T FUNCT 8901234	FILE	PAGE
TE-24	30 RID, RCS WI	DE RANGE	 ROSEMOUNT		RC	1010	4		W27	
TE-24	23 RTD, RCS WI	DE RANGE	POSEMOUNT		RC	1010	4		W27	
TE-24	33 RTD, RCS WI	DE RANGE	ROSEMOUNT		RC	1010	4		W27	
TE-24	20 PTD, RCS WI	DE RANGE	POSEMOUNT		RC	1010	4		W27	
TE-24	13 RTD, RCS WI	DE PANGE	ROSEMOUNT		RC	1010	4		W27	
TE-24	10 RTD, RCS WI	DE RANGE	ROSEMOUNT		RC	1010	5		W27	
2-HV-I	E-4A CHILLER, CO	NTPOL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6		01	
2-HV-1	E-4C CHILLER, CO	MOOR YALER DNA LCRTM	WESTINGHOUSE		HV	1247	6		01	
2-HV-I	E-4B CHILLER, CO	NTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6		01	
1-HV-I	F-8A FAN, AUX BL	DG EXHAUST	WESTINGHOUSE		HV	NUS-71	23	1	45	
1-HV-	F-8C FAN, AUX BL	DG EXHAUST	WESTINGHOUSE		HV	NUS-71	23	1	45	
1-HV-	F-8B FAN, AUX BL	DG EXHAUST	WESTINGHOUSE		HV	NUS-71	23	1	45	
2-51-	P-18 PUMP, LOW H	EAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5		W13	
2-51-	P-1A PUMP, LOW H	EAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5		W13	
2-CH-I	P-1A PUMP, CHARG	ING (HHSI)	WESTINGHOUSE		СН	1010	2 5		W20	
5-CH-I	P-1C PUMP, CHARG	ING (HHSI)	WESTINGHOUSE		СН	1010	2 5		MSO	
2-CH-	P-1B FUMP, CHARG	ING (HHSI)	WESTINGHOUSE		СН	1010	2 5		M20	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-2380	MOV, RCP SEALWATER RETURN	LIMITORQUE			1010	1 5	M06	
EP HCV2186	E/P FOR HAND CONTROL VALVE HCV-2186	FISHER					W31	
2-08-P-10B	PUMP, CHILLER ROOM SUMP					6	*N/A	
TE-AM-217D	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		MA	1363	7	47	
TE-AM-217C	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47	
TE-AM-217B	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		MA	1363	7	47	
TE-AM-217A	AMBIENT TEMP. MONITOR SERV. BLOG.	ROSEMOUNT		MA	1363	7	47	
TE-AM-216	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		MA	1363	7	47	
TE-AM-215	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM	1363	7	47	
TE-AM-100A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-101A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-100B	AMBIENT TEMPERATURE MOMITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-103A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-102B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-102A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-101B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-108B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-108A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-107B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-107A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-106B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-106A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	
TE-AM-105B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-105A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		MA	1363	8	72	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TE-AM-104B	AMBIENT TEMPERATURE MONITORS	POSEMOUNT		AM	1363	8	72	
TE-AM-104A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
TE-AM-103B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM	1363	8	72	
FS-BD-203D	FLOW SWITCH			BD		6	*N/A	
FS-BD-203B	FLOW SWITCH			BD		6	*N/A	
FS-BD-203F	FLOW SWITCH			BD		6	*N/A	
FS-80-203J	FLOW SWITCH			BD		7	*N/A	
FS-BD-203H	FLOW SWITCH			BD		7	*N/A	
FS-BD-203G	FLOW SWITCH			BD		7	*N/A	
E/P FC-2122	E/P, CHARGING FLOW CONTROL	COPES-VULCAN		СН			61	
MOV-2115C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W16	
MOV-2350	MOV, EMERGENCY BORATION	LIMITORQUE		CH	1010	23 5	W17	
MOV-2270B	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W18	
MOV-2269B	MOV. LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
MOV-2373	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		CH	1010	23 5	W18	
MOV-2370	MOV, CHARGING PUMP TO SEAL MATER RECIRC.	LIMITORQUE		CH	1010	23 5	WI8	
MOV-2267B	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W18	
MOV-2286A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W19	
MOV-2287C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	WI9	
 MOV-2287B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	
MOV-2287A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		СН	1010	23 5	W19	
MOV-2286C	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W19	
MOV-2286B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W19	
 2-CH-P-1C	PUMP, CHARGING (HHSI)	WESTINGHOUSE		CH	1010	2 5	W20	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-CH-P-18	PUMP, CHARGING (HHSI)	WESTINGHOUSE		CH	1010	2 5	W20	
2-CH-P-1A	PUMP, CHARGING (HHSI)	WESTINGHOUSE		СН	1010	2 5	W20	
MOV-2289A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		СН	1010	23 5	W21	
MOV-2289B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W21	
MOV-2269A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	MSI	
MOV-2270A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	
MOV-2267A	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	
MSV-2115D	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5 1	MSS	
MOV-21158	MOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		СН	1010	23 5 1	W22	
MOV-2275C	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W34	
MOV-2275A	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W34	
MOV-2381	MOV, SEAL WATER RETURN SV	LIMITORQUE		СН	1010	23 5	W35	
MOV-2115E	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W36	
MOV-22758	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		СН	1010	23 5	W37	
HC-2186	E/P FOR SEAL WATER FLOW CONTROL			СН		2 5	*N/A	
SOV-2311	sov,			СН		5	*N/A	
SOV-DG-200A	SOV, PRIMARY DRAIN TRANSFER PUMP DISCHARG	ASCO		CI	N/A	1	15	
SOV-IA-202B	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-202A	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200C	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200B	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200A	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-DA-200A	SOV, RC SUMP PUMP DISCHARGE	ASCO		CI	1125	1	30	
_SOV-CC-204C-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-CC-204C-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204B-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204B-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204A-2	SOV, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-204A-1	SOV, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-CC-203B	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1	30	
SOV-CC-203A	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1	30	
SOV-CC-202E	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
50V-CC-202C	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-202A	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1	30	
SOV-CC-201A	SOV, RCP THERMAL BARRIER RET HEADER	ASCO		cı	1125	1	30	
SOV-CC-200C	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		Cl	1125	1	30	
50V-CC-200B	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		cı	1125	1	30	
SOV-CC-200A	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1	30	
SOV-BD-200E	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-BD-200C	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-BD-200A	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SOV-VG-200A	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI	1125	1	30	
SOV-SI-201	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-SI-200B	SCV, NITROSEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-SI-200A	SOY, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30	
SOV-RM-200B	SOV, RADIATION MONITORING	ASCO		CI	1125	1	30	
SOV-RM-200A	SOY, RADIATION MONITORING	ASCO		CI	1125	1	30	
SOV-SS-200B	SO', PRESSURIZER LIQUID SPACE	ASCO		CI	1163	1	37	

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	MARK NO.		DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	SOV-SS-2128	50V,	STEAM GEN SAMPLE ISOLATION	ASCO		CI	1163	1	37	
	SOV-SS-2048	sov,	PRESSURE RELIEF TANK SAMPLE	ASCO		CI	1163	1	37	
	SOV-SS-2038	sov,	RHR OUTBOARD ISOLATION VALVE	ASCO		cı	1163	1	37	
	SOV-SS-203A	sov,	RHR OUTBOARD ISOLATION VALVE	ASCO		CI		1	37	
	SOV-SS-201B	sov,	PRESSURIZER VAPOR SAMPLE	ASCO		CI	1163	1	37	
	SOV-SS-202B	sov,	PRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI	1163	1	38	
	SOV-SS-206B	sov,	PRIMARY COOLANT HOT LEG SAMPLE	ASCO		CI		1 4	38	
	SOV-LM-200B	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200A	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200H	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200G	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200F	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200E	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-2000	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-LM-200C	sov,	CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
	SOV-2519A	sov,	PRIM GRADE WATER TO PRT	ASCO		CI	1010	1	46	
	SOV-2204	sov,	REGEN HEAT EXC. OUTLET VALVE	ASCO		CI	1010	1 2 2 3 7 7 7 7 7	46	
	S0V-SV-203	sov,	AIR REMOVAL SYSTEM	100		CI	1125	1	51	
	SOV-SV-202-1	sov,	AIR EJECTOR VENT	ASLL		CI	1125	1	51	
	SOV-MS-213C-2	sov,	STEAM GEN TRIP	ASCO		CI	1125	1	51	
-	SOV-MS-213C-1	sov,	STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213B-1	sov,	STEAM GEN TRIP	ASCO		CI	1125	1	51	
	SOV-MS-213A-2	SOV,	STEAM GEN TRIP	ASCO		CI	1125	1	51	
		sov,	STEAM GEN TRIP	ASCO		CI	1125	1	51	
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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-MS-213B-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-209B	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-209A	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-IA-201A	SOV, CONTAINMENT INSTRUMENT AIR	ASCO		CI		1	55	
S0V-SS-207B	SOV, PHR SAMPLE LINE	ASCO		CI	1163	1	56	
SOV-SS-207A	SOV, RHR SAMPLE LINE	ASCO		CI	1163	1	56	
SOV-CC-202B	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
SOV-CC-2020	SOV, RCP BEARING COOLING	ASCO		CI		1	58	
SOV-CC-202F	SOV, RCP BEARING COOLING	ASCO		cı		1	58	
SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP	ASCO		cı		1	60	
SOV-MS-201A-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-DG-200B	SOV, PRIMARY CRAIN TRANSFER PUMP DISCHARG	ASCO .		CI		1	62	
SOV-DA-200B	SOV, CONTAINMENT SUMP DISCH ISOLATION	ASCO		CI		1	62	
SOV-CC-201B	SOV, RCP THERMAL BARRIER HEADER	ASCO		CI		1	62	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-CC-205A	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
SOV-CC-205C	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
50V-CC-205B	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
50V-SS-212A	SOV, STEAM GEN SAMPLE	ASCO		CI		1	62	
50V-SS-206B,	SOV, PRIMARY COOLANT HOT LEG SAMPLE	ASCG		CI		1 4	62	
SOV-SS-204A	SOV, PRESSURIZER RELIEF TANK GAS SPACE	ASCO		CI		1	62	
SOV-SS-201A	SOV, PRESSURIZER VAPOR SPACE SAMPLE	ASCO		CI		1	62	
SOV-SS-200A	SOV, PRESSURIZER LIQUID SPACE	ASCO		CI		1	62	
50V-RH-200C	SOV, RADIATION MONITORING	ASCO		CI		1	62	
SOV-VG-200B	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI		1	62	
SOV-BD-200J	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
SOV-BD-200H	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
SOV-BD-200B	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1 7	63	
SOV-BD-2000	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1 7	63	
SOV-80-200G	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	7	63	
SOV-8D-200F	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1 7	63	
SOV-CV-2500	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SOV-CV-250C	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SOV-CV-250B	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SOV-CV-250A	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
SOV-SS-206A	SOV, PRIMARY CODLANT HOT LEG SAMPLE	ASCO		CI		1	68	
SOV-SS-202A	SOV, PRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI		1	68	
SOV-LM-201B	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
50V-LM-201A	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-LM-201D	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
SOV-LM-201C	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
HCV-2200C	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200B	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200A	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
SOV-2200B-1	SOV, LETDOWN LINE	ASCO		CI	1010	1	W09	
SOV-2200A-1	SOV, LETDOWN LINE	ASCO		CI	1010	1	W09	
SOV-2200C-1	SOV, LETDOWN LINE	ASCO		CI	1010	1	W09	
SOV-2460B	SOV, LETDOWN LINE LOOP 1 & 2	ASCO		CI	1010	1	W10	
50V-2460A	SOV, LETDOWN LINE LOOP 1 & 2	ASCO		CI	1010	1	W10	
SOV-2859	SOV, SAFETY INJECTION ACCUMULATOR	ASCO		CI	1010	1	M56	
SOV-2200A-2	SOV, LETDOWN LINE	ASCO		CI	1010	1	W32	
SOV-2200C-2	SOV, LETDOWN LINE	ASCO		CI	1010	1	M35	
SOV-2200B-2	SOV, LETDOWN LINE	ASCO		CI	1010	1	W32	
SOV-2936	SOV, ACCUMULATOR VENT LINE FLOW	ASCO		CI	1010	1	И33	
SOV-2842	RADIATION MONITORING LINE	NAMCO		CI	1010	1	W40	
SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-,S-201A-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201A-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SPV-MS-2018-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-2018-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
LVC-24608	LCV, LOOP 2 LETDOWN LINE CONT. VV			CI		1	*N/A	
LCV-2460A	LCV, LOOP 1 LETDOWN LINE CONT. VV			cı		1	*N/A	
SOV-CV-200	SOV, CONTAINMENT VACUUM EJECT INLET			CI		1	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-210B	sov,			CI		1	*N/A	
SOV-MS-210A	sov,			CI		1	*N/A	
SOV-HV-215B-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
SOV-HV-215B-1	SOV, FLUSH VALVE SERVICE BLDE STRAINER			CI		1	*N/A	
SOV-HV-215A-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
SOV-HV-215A-1	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
2-08-P-10B	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05	
2-08-P-10/	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421	6	05	
NGB-19	CABLE, 3/C #12 AWG	OKONITE		ED	1128	8	06	
NGB-13	CABLE, 3/C #10 AWG	OKONITE		ED	1128	8	06	
NGB-17	CABLE, 3/C #8 AWG	OKONITE		ED	1128	8	06	
NGB-16	CABLE, TRIPLEX #6 AWG	OKONITE		ED	1128	8	06	
NGB-15	CABLE, TRIPLEX #4 AWG	OKONITE		ED	1128	8	06	
NGA-21	CABLE, 1/C 2/0 AWG.	OKONITE		ED	1128	8	06	
NGA-20	CABLE, 1/C 250 MCM	OKONITE		ED	1128	8	06	
_NGA-15	CABLE, TRIPLEX 250 MCM	CERRO WIRE		ED	1359	3 5	07	
NGA-19	CABLE, 2/C #2 AWG	CERRO WIRE		ED	1312	8	08	
NGA-39	CABLE, 9/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-38	CABLE, 7/C #14 AWG	CERPO WIRE		ED	1312	8	08	
NGA-37	CABLE, 5/C #14 AWG	CERRO WIRE		ED	1312	8	80	

MARK NO.	- N -	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGA-36	CABLE, 3	5/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-35	CABLE, 2	/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-34	CABLE, 1	/C #14 ANG	CERRO WIRE		ED	1312	8	08	
NGA-77	CABLE, 4	/C #10 AWG	CERRO WIRE		ED	1312	8	08	
NGB-43	CABLE, 2	C/C #8 AHG	CERRO WIRE		ED	1312	8	08	
NGA-57	CABLE, 4	/C #10 AWG	CERRO WIRE		ED	1312	8	08	
NGA-49	CABLE, 7	7/C #12 AWG	CERRO WIRE		ED	1312	8	08	
NGA-47	CABLE, 4	/C #12 AWG	CERRO WIRE		ED	1312	8	08	
NGA-45	CABLE, 2	/C #1_ AWG	CERRO WIRE		ED	1312	6	08	
NGA-44	CABLE, 1	/C #12 AWG	CEPRO WIRE		ED	1312	8	08	
NGA-40	CABLE, 1	2/C #14 AWG	CERRO WIRE		ED	1712	8	08	
NGB-45	CABLE, 4	/C #6 ANG	CEPRO WIRE		ED	1312	8	08	
NGB-44	CABLE, 2	/C #6 AWG	CERRO WIRE		ED	1312	8	08	
NG8-55	CABLE, 4	5/C #16 AWG	BIW		ED	1265	2345	0.7	
NGA-70	CABLE, 1	8/C #16 AWG	BIW		ED	1265	2345	0.9	
NGA-69	CABLE, 2	2/C #16 AWG	BIN		ED	1265	2345	09	
NGA-68	CABLE, 1	2/C #16 AWG	вім		ED	1265	2345 8	0.9	
NGA-67	CABLE, 1	9/C #16 AWG	BIN		ED	1265	2345	09	
NGB-40	CABLE,	4/C #16 AWG	BIW		ED	1265	2345	09	
NGB-39	CABLE,	3/C #16 ANG	BIW		ED	1265	2345	09	
NGB-35	CABLE,	2/C #16 AWG	BIW		ED	1265	2345	09	
NGA-9	CABLE, 1	/C 1500 MCM	GENERAL CABLE		ED	1255	8	10	
NGA-6	CABLE, 3	C 1250 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-5	CABLE, 3	C 1250 MCM STEEL ARMOR	GENERAL CABLE		ED	1255	8	10	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGA-4	CABLE, 3/C 500 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	6	10	
NGA-3	CABLE, TRIPLEX 1000 MCM	GENERAL CABLE		ED	1255	8	10	
NGA-13	CABLE, 3/C 4/0 AWG. ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
NGA-12	CABLE, 3/C 1000 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	1.0	
NGA-10	CABLE, 1/C 2000 MCM	GENERAL CABLE		ED	1255	9	10	
NGA-13	CABLE, 3/C 4/0 AWG	OKONITE		ED	1375	8	11	
NGA-14	CABLE, TRIPLEX 4/0 AWG	OKONITE		ED	1375	8	11	
NGA-3	CABLE, TRIPLEX 1000 MCM	OKONITE		ED	1375	8	11	
NGA-4	CABLE, 3/C 500 MCM	OKONITE		ED	1375	8	11	
NGB-7	CABLE, TRIPLEX 250 MCM	OKONITE		ED	1384	8	12	
NGB-5	CABLE, TRIPLEX 500 MCM	OKONITE		ED	1384	8	12	
NGB-12	CABLE, TRIPLEX #1 AWG	OKONITE		ED	1384	8	12	
KGB-11	CABLE, TRIPLEX 2/0 AWG	OKONITE		ED	1384	8	12	
NGA-67	CABLE, 19/C #16 AWG	CERRO WIRE		ED	1392	123456 8	13	
NGA-68	CABLE, 12/C #16 AWG	CERRO WIRE		ED	1392	123456	13	
NGA-70	CABLE, 18/C #16 AWG	CERRO WIRE		ED	1392	123456	13	
NGB-35	CABLE, 2/C #16 AWG	CERRO WIRE		ED	1392	2345	13	
NGB-39	CABLE, 3/C #16 AWG	CERRO WIRE		ED	1392	123456	13	
NGB-11	CABLE, TRIPLEX 2/0 AWG	GENERAL CABLE		ED	1256	8	14	
NGB-12	CABLE, TRIPLEX #1 AWG	GENERAL CABLE		ED	1256	8	14	
NGB-5	CABLE, TRIPLEX 500 MCM	GENERAL CABLE		ED	1256	8	14	
NGB-7	CABLE, TRIPLEX 250 MCM	GENERAL CABLE		ED	1256	8	14	
NGB-01	CABLE, 2/C #10 AWG	OKONITE		ED	1404	8	16	
1-EP-MC-20	MCC-1H1-2S	KLOCKNER MOELLER		ED	1176	8	22	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
1-EP-MC-19	MCC-1H1-2N	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-22	MCC-2J1-2S	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-21	MCC-2J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-20	MCC-2H1-2S	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-19	MCC-2H1-2N	KLOCKHER MOELLER		ED	1176	8	22	
1-EP-MC-22	MCC-1J1-2S	KLOCKNER MOELLER		ED	1176	8	22	
1-EP-MC-21	MCC-1J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
TYPE IV	PENETRATION ASSEMBLIES (THERMOCOUPLES)	CONAX		ED	1313	8	24	
TYPE III	PENETRATION ASSEMBLIES (TRIAXIAL)	CONAX		ED	1313	8	24	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PHR)	CONAX		ED	1313	8	24	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	24	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	24	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	25	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	25	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PHR)	CONAX		ED	1313	8	25	
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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PAR)	CONAX		ED	1313	8	25	
2-EE-ST-01	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31	
2-EE-SS-03	SWITCHGEAR 480V (2H1)	ITE		ED	1088	8	31	
2-EE-SS-04	SWITCHGEAR 483V (2J1)	ITE		ED	1088	8	75	
2-EE-ST-02	TRANSFORMER 480V (2J1)	ITE		ED	1088	8	75	
2-EE-2G-4D	GENERATOR, EMER GEN 2J BATTERY			ED		8	*N/A	
2-EE-EG-4C	GENERATOR, EMER GEN 2J CONTROL CAB			ED		8	*N/A	
2-EE-EG-4B	GENERATOR, EMERG GEN 2J CONTROL BOX			ED		8	*N/A	
2-EE-EG-4A	GENERATOR, EMERGENCY GENERATOR 2J			ED		8	*N/A	
2-EP-MC-13	MCC, 271-1A			ED		8	*N/A	
2-EG-C-2JB	COMPRESSOR, EMERG GEN AIR COMP 2			ED		8	*N/A	
2-EG-C-2JA	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
2-EG-AC-2JB	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
2-EG-AC-2JA	COOLER, AFTER COOLER EMERG GEN ROOM 2J			ED		8	*N/A	
RPS-EG-2HB	PRESSURE SWITCH, EMERG GEN 2H COMP			ED		8	*N/A	
RPS-EG-2HA	PRESSURE SWITCH, EMERG GEN 2H COMP			ED		8	*N/A	
2-EG-B-02B	GENERATOR, EMER GEN 2H BATTERY			ED		8	*N/A	
2-EE-EG-02C	GENERATOR, EMER GEN 2H CONTROL CAB			ED		8	*N/A	
2-EE-EG-02B	GENERATOR, EMER GEN 2H CONTROL BOX			ED		8	*N/A	
2-EE-EG-02A	GENERATOR, EMERGENCY GEN 2H			ED		8	*N/A	
2-EP-MC-12	MCC, 2H1-1A			ED		8	*N/A	
2-EG-C-2HB	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
2-EG-C-2HA	COMPRESSOR, EMERG GEN AIR COMP 1			ED		8	*N/A	
2-BY-B-02B	BATTERY, STATION BATTERY 2-2			ED		8	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-BY-B-02A	BATTERY, STATION BATTERY 2-2		-	ED		8	#N/A	
2-EE-SS-02	SWITCHGEAR, 480 V SS BUS 2J			ED		8	*N/A	
2-EE-SS-01	SWITCHGEAR, 480 V SS BUS 2H			ED		8	*N/A	
2-EI-CB-54	CABINET, PROCESS RACK 4			ED		1 3 5	*N/A	
2-BY-B-03B	BATTERY, STATION BATTERY 2-3			ED		8	*N/A	
2-BY-B-03A	BATTERY, STATION BATTERY 2-3			ED		8	*N/A	
2-BY-8-01B	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	
2-BY-B-01A	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	
2-EP-CB-04D	CABINET, VITAL BUS CAB 2-4			ED		8	*N/A	
2-EP-CB-04C	CABINET, VITAL BUS CAB 2-3			ED		8	*N/A	
P-EP-CB-04B	CABINET, VITAL BUS CAB 2-2			ED		8	*N/A	
C-EP-CB-04A	CABINET, VITAL BUS CAB 2-1			ED		8	*N/A	
-EP-CB-23B	CABINET, DC DISTRIBUTION PANEL 2B			ED		8	*N/A	
2-EP-CB-23A	CABINET, DC DISTRIBUTION PANEL 2A			ED		8	*N/A	
2-EP-CB-19B	CABINET, VITAL SOV PANEL			ED		8	*N/A	
2-EP-CB-19A	CABINET, VITAL SOV PANEL			ED		8	*N/A	
2-EP-CB-35	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	
2-EP-CB-34	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED		6	*N/A	
2-EP-CB-28	CAELNET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	
:-EP-CB-28	CAEINET, AUX RELAY CAB CASING COOLING			ED		2	*N/A	
-EP-CB-12D1	CABINET, DC DISTRIBUTION PANEL 2-4A			ED		8	*N/A	
-EF-CB-1281	CABINET, DC DISTRIBUTION PANEL 2-2A			ED		8	*N/A	
-EP-CB-80D	CABINET, INST DISTRIBUTION PANNEL 4			ED		8	*N/A	
-EP-CB-80C	CABINET, INST DISTRIBUTION PANNEL 3			ED		8	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EP-C8-80B	CABINET, INST DISTRIBUTION PANNEL 2			ED		8	*N/A	
2-EP-CB-80A	CABINET, INST DISTRIBUTION PANNEL 1			ED		8	*N/A	
2-EI-C8-156B	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-C8-156A	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-08B	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-C8-08A	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-CB-07	CABINET, VENTILATION CONTROL BOARD			ED		6 9	*N/A	
2-EI-C8-05	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-04	CABINET, MAIN CONTPOL BOARD			ED		2345	*N/A	
2-EI-CB-03	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-02	CABINET, MAIN CONTROL BOARD			E()		2345	*N/A	U.
2-EI-C8-01	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
c-HV-AC-09	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-HV-AC-08	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-EG-AC-2HB	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
2-EG-AC-2HA	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		8	*N/A	
PS-EG-2JB	PRESSURE SWITCH, EMER GEN 2J COMP			ED		8	*N/A	
PS-EG-2JA	PRESSURE SWITCH, EMER GEN 2J COMP			ED		8	*N/A	
2-EG-P-2JA	PUMP, EMERGENCY GEN 2J FUEL OIL PUMP			ED		8	*N/A	
2-EG-P-2J3	PUMP, EMERGENCY GEN 2J FUEL OIL PUMP			ED		8	*N/A	
2-EG-P-2HB	PUMP, EMERGENCY GEN 2H FUEL OIL PUMP			ED		8	*N/A	
2-EP-MC-11	MCC, 2J1-1			ED		8	*N/A	
2-EP-MC-41	MCC, 2H1-4			ED		8	*N/A	
2-EP-MC-10	MCC, 2H1-1			ED		8	*N/A	

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MARK NO.	DESCRIPTION	MANUCACTURER MO	DEL NO. SYS	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-V8-I-04	INVERTER, VITAL BUS INVERTER 2-4		ED	 8	*N/A	
2-VB-I-03	INVERTER, VITAL BUS INVERTER 2-3		ED	8	*N/A	
2-VB-I-02	INVERTER, VITAL BUS INVERTER 2-2		ED	8	*N/A	
2-VB-I-01	INVERTER, VITAL BUS INVERTER 2-1		ED	8	*N/A	
2-EP-CB-12D	CABINET, DC CABINET 2-4		ED	8	*N/A	
2-EP-CB-12C	CABINET, DC CABINET 2-3		ED	8	*N/A	
2-EP-CB-128	CABINET, DC CABINET 2-2		ED	8	*N/A	
2-EP-CB-12A	CABINET, DC CABINET 2-1		ED	8	*N/A	
2-EP-CB-28B	CABINET, AUX RELAY CABINET B		EO	23 5 78	*N/A	
2-EP-CB-28A	CABINET, AUX RELAY CABINET A		ED	23 5 78	*N/A	
2-BY-C-07	BATTERY CHARGER		ED	8	*N/A	
2-BY-C-06	BATTERY CHARGER		ED	8	*N/A	
2-BY-C-05	BATTERY CHARGER		ED	8	*N/A	
2-EY-C-04	BATTERY CHARGER		ED	8	*N/A	
2-BY-C-03	BATTERY CHARGER		ED	8	*N/A	
2-BY-C-02	BATTERY CHARGER		ED	8	*N/A	
2-EI-CB-230	CABINET, PROCESS RACK		ED	2345	*N/A	
2-EI-CB-23C	CABINET, PROCESS RACK		0	2345	*N/A	
2-EI-CB-23B	CABINET, PROCESS PACK		ED	2345	*N/A	
2-EI-CB-23A	CABINET, PROCESS RACK		ED	2345	*N/A	
2-EI-CB-06B	CABINET, AUX SHUTDOWN PANEL		ED	2345	*N/A	
2-EI-CB-06A	CABINET, AUX SHUTDOWN PANEL		ED	2345	*N/A	
2-EE-SW-01	SWITCHGEAR, 4 KV BUS 2H		ED	8	*N/A	
2-EI-CB-53	CABINET, PROCESS RACK 3		ED	1 3 5	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
Z-EI-CB-52	CABINET, PROCESS RACK 2			ED		1 3 5	*N/A	
2-EI-CB-51	CABINET, PROCESS RACK 1			ED		1 3 5	¥N/A	
2-EI-CB-47F	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-C8-47E	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47D	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47C	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47B	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47A	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
LT-2475	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2496	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2485	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2484	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2476	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FN	1486	5	71	
LT-2495	TRANSMITTER, STEAM GEN. LEVEL	POSEMOUNT		FW	1486	5	71	
LT-2494	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2486	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2474	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
HCV-FW-200C	LIMIT SWITCH, FW CONTPOL TO STEAM GEN 1C			FW		5 7	*N/A	
HCV-FW-200B	LIMIT SWITCH, FW CONTROL TO STEAM GEN 18			FW		5 7	*N/A	
_HCV-FW-200A	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1A			FW		5 7	*N/A	
2-FH-P-3B	PUMP, STM GEN AUX DP MOT B			FW		5 7	*N/A	
2-FW-P-3A	PUMP, STM GEN AUX DP MOT A			FW		5 7	*N/A	
MOV-FW-200C	MOV, AUX STEAM GEN FO PP DISCH VV			FW		5 7	*N/A	
_MOV-FW-200B	MOV, AUX STEAM GEN FO PP DISCH			FW		5 7	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
10V-FW-200A	MOV, AUX STEAM GEN FO PP DISCH			FW		5 7	HN/A	
LT-2475	TRANSMITTER, STEAM GEN LEVEL			FW		5	*NZA	
LT-2474	TRANSMITTER, STEAM GEN LEVEL			FW		5	*N/A	
H2A-HC-100	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
H2A-HC-200	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
2-HC-PG-1	HYDROGEN RECOMBINER	ROCKWELL INT.		HC	1365	3 5	43	
1-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		HC	1365	3 5	43	
2-HV-E-4A	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-E-40	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
-HV-E-4B	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
-HV-S-18	STRAINERS, CHILLER ROOM	ELLTOT		HV	1299	6	02	
-HV-S-IA	STRAINERS, CHILLER ROOM	ELLIOT		HV	1299	6	0.2	
-HV-F-24	FAN, EQUIPMENT ROOM SUPPLY	. AEROVENT FAN CO.		HV	1241	6	03	
-HV-P-20B	FUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
-HV-P-20A	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
-HV-P-22C	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-22B	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
-HV-P-22A	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
1-HV-P-20C	PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
10V-HV-216-2	MOV, FLUSH VALVE RIGHT FOR STRAINER	ELLIOT		HV	1299	6	17	
10V-HV-216-1	MOV, FLUSH VALVE LEFT FOR STRAINER	ELLIOT		HV	1299	6	17	
10V-HV-215-2	MOV, FLUSH VALVE RIGHT FOR STRAINER	ELLI07		HV	1299	6	17	
OV-HV-215-1	MOV, FLUSH VALVE LEFT FOR STRAINER	ELLIOT		HV	1299	6	17	
-HV-F-40B	FAN, SAFEGAURDS AREA VENTILATION	BUFFALO FORGE		HV	1296	0	18	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT 123456789		FILE	PAGE
2-HV-F-40A	FAN, SAFEGAURDS AREA VENTILATION	EUFFALO FORGE		HV	1296		0	18	
2-HV-F-71A	FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HY	1201		0	21	
2-HV-F-718	FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HV	1201		0	21	
1-HV-F-8A	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HV	NUS-71	23	1	45	
1-HV-F-8C	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		НΔ	NUS-71	23	1	45	
1-HV-F-8B	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HV	NUS-71	23	1	45	
MOV-HV-2008	MOV, RC PURGE SYSTEM VALVE	LIMITORQUE		HV		1		59	
MOV-HV-201	MOV, RC PURGE SYSTEM BYPASS	LIMITORQUE		HV		1		59	
MOV-HV-200D	MOV, RC PURGE SYSTEM EXHAUST	LIMITORQUE		HV		1		59	
TS-HV2230	TEMPERATURE SMITCH	HONEYWELL		НΛ	NA		2	64	
MOV-HV200C	MOV, CONTAINMENT PURGE	LIMITORQUE		HV	198	1		65	
MOV-HV200A	MOV, CONTAINMENT SUPPLY	LIMITORQUE		HV	198	1		65	
MOD-HV163C	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23	1	66	
MOD-HV163B	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23	1	66	
MOD-HV163A	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23	1	66	
50V-HV228-2	SOV, EXHAUST TO IODINE FILTER BANK			HV		23 5		*N/A	
50V-HV228-1	SOV, EXHAUST TO IDDINE FILTER BANK			НΛ		23 5		*N/A	
SOV-HV-161-2	SOV, CONTROL AND PELAY ROOM DAMPER			HV		6		*N/A	
SOV-HV-161-1	SOV, CONTROL AND RELAY ROOM DAMPER			HA		6		*N/A	
SOV-HV-160-2	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6		*N/A	
SOV-NV-160-1	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6		*N/A	
TS-HV196B	TEMPERATURE SMITCH, EMER GEN ROOM 2H			HV			•	*N/A	
1-HV-F-22B	FAN, EXHAUST FAN EMER GEN ROOM 2H			HV)	*N/A	
1-HV-F-22D	FAN, EXHAUST FAN EMER GEN ROOM 2J			HV			,	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-HV-23068	SOV, BOTTLED AIR SYSTEM	*************		HV	*****	6	#N/A	
SOV-HV-2306A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-23000	SOV, BOTTLED AIR SYSYTEM			НĀ		6	*N/A	
SOV-HV-2300C	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300B	SOV, BOTTLED AIR SYSTEM			HV		6	#N/A	
SOV-HV-2300A	SOV, BOTTLED AIR SYSTEM			HV		6	#N/A	
SOV-HV-2200C	SOV, VALVE FOR 2-HV-P-22C			HV		9	*N/A	
SOV-HV-2200B	SOV, VALVE FOR 2-HV-P-22B			HV		9	*N/A	
SOV-HV-22GOA	SOV, VALVE FOR 2-HV-P-22A			HV		9	*N/A	
TS-HV-2229	TEMPERATURE SWITCH			HV.		3	*N/4	
2-HV-F-688	FAN, 1J SUPPLY FAN			HV		1	*N/A	
2-HV-F-68A	FAN, 1H SUPPLY FAN			HV		1	*N/A	
TS-HV196D	*EMPERATURE SWITCH, EMER GEN ROOM 2J			HV		9	*N/A	
2-HV-F-0"	", CONTROL ROOM EMER VENT			HV		6 10-8	*N/A	
MOV-HV-204-2	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		. 7	*N/A	
MOV-HV-204-1	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	
2-HV-F-57A	FAN, BATTERY ROOM 2-1 EXHAUST FAN			HV		9	*N/A	
FS-HV-2207A	FLOW SWITCH, BATTERY ROOM 2-1 VENT			HV		9	*N/A	
2-BY-B-04B	BATTERY, STATION BATTERY 2-4			HV		8	*N/A	
_2-BY-B-04A	BATTERY, STATION BATTERY 2-4			HV		8	*N/A	
2-HV-F-57C	FAN, BATTERY ROOM 2-3 EXHAUST			HV		9	*N/A	
FS-HV-2207C	FLOW SWITCH, BATTERY ROOM 2-3 VENT			HV		9	*N/A	
2-HV-AC-06	COOLER, EMERGENCY SWITCHGEAP ROOM A/C			HV		9	*N/A	
2-HV-F-42	FAN, EMERGENCY SWITCHGEAR VENT			HV		9	*N/A	
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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. CROER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-HV-AC-07	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
2-HV-22070	FLOW SWITCH, BATTERY ROOM 2-4 VENT			HV		9	*N/A	
2-HV-F-57D	FAN, BATTERY ROOM 2-4 EXHAUST FAN			ЧV		9	WN/A	
FS-HV-2207B	FLOW SWITCH, BATTERY ROOM 2-2 VENT			HV		9	*N/A	
2-HV-F-52B	FAN, BATTERY ROOM 2-2 EXHAUST			HV		9	*N/A	
PT-LM-200A	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
PT-LM-200D	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
PT-LM-200C	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LH	1215	1 3 5	48	
PT-LM-200B	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
FT-2495	TRANSMITTER, STEAM GEN. FLOW	ROSEHOUNT		MS	1486	23 5	35	
FT-2494	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2485	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2484	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2475	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2474	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
50V-MS-211	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	
SOV-MS-211A	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36	
PT-2486	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	N A	5	M03	
PT-2476	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXEOPO		MS	N A	5	W03	
PT-2495	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	W03	
PT-2485	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	N A	5	W03	
PT-2475	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXEORO		MS	N A	5	M03	
PT-2494	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	NA	5	W03	
PT-2484	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	N A	5	M03	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
PT-2474	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXBORO		MS	N A	5	W03	
PT-2496	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	5	M03	
PT-MS-201C	TRANSHITTER, MAIN STM LP III PRES CONTROL			MS		2	*N/A	
PT-MS-201B	TRANSMITTER, MAIN STM LP II PRES CONTROL			MS		2	*N/A	
PT-MS-201A	TRANSMITTER, MAIN STM LP I PRES CONTROL			MS		2	*N/A	
PT-2495	TRANSHITTER, STEAM GEN 3 PRESSURE			MS		4	*N/A	
PT-2484	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4	»N/A	
PT-2494	TRANSMITTER, STEAM GEN 3 PRESSURE			MS		4	*N/A	
PT-2485	TRANSMITTER, STEAM GEN 2 PRESSURE			MS		4	*N/A	
тв	TERMINAL BLOCKS	CONNECTION INC.		N/A	1313	9	19	
SP	SPLICES	CONAX		N/A	1313	9	26	
SP	SPLICES	CONAX		N/A	1313	9	27	
тв	TERMINAL BLOCKS	MANY		N/A	NA	9	32	
SP	SPLICES	RAYCHEM		N/A	NA	9	34	
TM	TERMINATIONS	RAYCHEM		N/A	N/A	9	39	
TT	TERMINATION TAPE	OKONITE		NA	NA	9	33	
h0V-QS-2018	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23	
MOV-QS-201A	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		Q5	1242	3 5	23	
MOV-95-200B	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
MOV-QS-200A	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
2-95-P-1A	PUMP, QUENCH SPRAY PUMP 1A			QS		3 5	*N/A	
MOV-QS-202B	MOV. RF WATER CHEM ADD TANK			QS		3 5	*N/A	
MOV-QS-202A	MOV, RF WATER CHEM. ADD TANK			QS		3 5	*N/A	
LT-QS-200D	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	

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MARK NO.	Line was	DESCRIPTION		MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
LT-95-200C	TRANSMITTER,	PF WATER STORAGE TANK				QS		3 5	*N/A	
LT-QS-200B	TRANSMITTER,	RF WATER STORAGE TANK				QS		3 5	*N/A	
LT-QS-200A	TRANSMITTER,	RF WATER STORAGE TANK				QS		3 5	*N/A	
2-95-P-1B	PUMP, QUENCH	SPRAY PUMP 18				qs		3 5 3	#tt/A	
FT-2436	TRANSMITTER,	REACTOR COLLANT FLOW	L3	FOXBORO		RC	1010	2 5	W01	
FT-2435	TRANSMITTER,	REACTOR COLLANT FLOW	L3	FOXBORO		RC	1010	2 5	W01	
FT-2434	TRANSMITTER,	REACTOR COLLANT FLOW	L3	FOXBORO		RC	1010	2 5	W01	
FT-2426	TRANSMITTER,	PEACTOR COOLANT FLOW	L2	FOXBORO		RC	1010	2 5	MOI	
FT-2425	TRANSMITTER,	REACTOR COOLANT FLOW	L2	FOXBORO		RC	1010	2 5	W01	
FT-2424	TRANSMITTER,	REACTOR COOLANT FLOW	LZ	FOXBORO		RC	1010	2 5	W01	
FT-2414	TRANSMITTER,	REACTOR COOLANT FLOW	Ll	FOXBORO		RC	1010	2 5	WOI	
FT-2416	TRANSMITTER,	REACTOR COOLANT FLOW	Ll	FOXBORO		RC	1010	2 5	MOI	
FT-2415	TRANSMITTER,	REACTOR COOLANT FLOW	Ll	FOXBORO		RC	1010	2 5	MOI	
LT-2460	TRANSMITTER	PRESSURIZER LEVEL		BARTON		RC	1010	23 5	W02	
LT-2459	TRANSMITTER,	PRESSURIZER LEVEL		BARTON		RC	1010	23 5	W02	
LT-2461	TRANSMITTER,	PRESSURIZER LEVEL		BARTON		RC	1010	23 5	W02	
PT-2457	TRANSMITTER,	PRESSURIZER PRESSURE		BARTON		RC	1010	23 5	W07	
PT-2456	TRANSMITTER,	PRESSURIZER PRESSURE		BARTON		RC	1010	23 5	W07	
PT-2455	TRANSMITTER,	PRESSURIZER PRESSURE		BARTON		RC	1010	23 5	W07	
TE-2432D	RTD. RCS NAR	ROW PANGE		ROSEMOUNT		RC	1010	1 345	W12	
TE-2432B	RTD, RCS NAR	RON RANGE		ROSEMOUNT		RC	1010	1 345	W12	
TE-2422D	RTD, RCS NAR	ROW PANGE		ROSEMOUNT		RC	1010	1 345	W12	
TE-2922B	RTD, RCS NAR	ROW RANGE		ROSEMOUNT		RC	1010	1 345	W12	
_TE-2412D	RTD, RCS NAR	ROW RANGE		ROSEMOUNT		RC	1010	1 345	W12	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TE-2412B	RTO, RCS NAPROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2420	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2413	RTD, PCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2410	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	5	W27	
TE-2430	RTD, PCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2423	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
TE-2433	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
LT-RS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	20	
LT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	20	
MOV-RS-2568	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
10V-RS-256A	MOV. RECIRC SPRAY DISCH	LINITORQUE		RS	1242	3 5	23	
10V-RS-255B	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	
10V-RS-255A	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	
2-R5-P-1A	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	28	
2-RS-P-1B	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3	28	
2-RS-P-1B	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3	29	
2-RS-P-1A	FUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	29	
2-RS-P-2A	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3	44	
2-RS-P-2B	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3	44	
LIT-RS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	49	
IT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	49	
MOV-RS-201B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
10V-RS-201A	MOV. SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		PS	1242	3 5	57	
MOV-RS-200B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-R5-200A	MOV. SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
2-R5-P-3B	PUMP, CASING CLG RECIRC SPRAY PUMP			RS		3 5	*N/A	
2-RS-P-3A	PUMP, CASING CLG RECIRC SPRAY PUMP			RS		3 5	*N/A	
MOV-2885B	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
MOV-2885A	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
MOV-2860B	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
MOV-2860A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
MOV-2890A	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	wos	
MOV-2862A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	Wll	
MOV-2862B	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	Wll	
2-SI-P-1B	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5	W13	
2-SI-P-1A	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5	W13	
MOV-2863A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
MOV-28638	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	WI4	
MOV-2864A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
MOV-2664B	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
MOV-2869B	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
MOV-2869A	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
FT-2943	TRANSMITTER, BORON INJ, TK. HEADER FLOW	BARTON		SI	1010		W23	
FT-2940	TRANSMITTER, SI HEADER FLOW HOT LEG	BARTON		SI	1010		W23	
MOV-2867C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1010	23 5	W24	
MOV-2867D	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
MOV-2867B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
MOV-2867A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	

Charling Sures, for-48

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-2865A	MOV, ACCUMULATOR TANK 1 COLD LEG	LIMITORQUE	********	SI	1010	23 5	W28	
MOV-2865C	MOV, ACCUMULATOR TANK 3 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
MOV-2865B	MOV, ACCUMULATOR TANK 2 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
MOV-2836	MOV, COLD LEG CIRC VALVE	LIMITORQUE		SI	1010	23 5	W29	
SOV-2884A	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
50V-2884C	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
SOV-2884B	SOV, BORON INJECTION TANK TO BATCH TK	ASCO		SI	1010	23 5	W30	
MOV-2885D	MOV, LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1610	23 5	W38	
MOV-2885C	MOV, LHSI RECIPC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	23 5	W38	
MOV-2890B	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	
110V-28900	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	
MOV-2890C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		SI	1010	23 5	W39	
2-5W-P-6	PUMP, RADIATION MONITOR	MARATHON ELECT.		SI4	1083	4	41	
2-SW-P-5	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
2-SW-P-8	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
2-5W-P-7	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
MOV-SW-201D	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-201C	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-201B	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SN	1194	3 5	50	
MOV-SH-201A	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3.5	50	
MOV-5W-203B	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITOFQUE		SW	1194	3 5	50	
MOV-SN-204A	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		514	1194	3 5	50	
MOV-SW-206B	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-206A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	

Deficield Sames, for R.

VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANEWA POWER STATION UNIT 2 EQUIPMENT GALIFICATION MASTER LIST SYSTEM/FILE SORT

++++++++++++++++++++++++++++++++++++++	MARK ND.	DESCRIPTION	MANUFACTURER	HODEL NO.	SYS	PURCH.	ACCIDENT FUNCT 12345678901234	FILE	PAGE
96 HOY, ECCINC SPRAY HEAT EXC. HEADER OUTLET LIMITOROUE SH 1194 3 5 H 194 3 5 H 194<	MOV-SM-205D	SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	1	50	1
53 MOY, RECIRC SPRAY HEAT EXC. HEADER OUTLET LIMITORAGE SH 1194 3 5 30 MOY, SERVICE MATER TO PECIENC SPRAY COLLER LIMITORAGE SH 1194 3 5 1194 3 5 31 MOY, SERVICE MATER TO PECIENC SPRAY COLLER LIMITORAGE SH 1194 3 5 1 5 40 MOY, SERVICE MATER TOR RECIRC SPRAY COLLER LIMITORAGE SH 1194 3 5 1 5 40 MOY, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORAGE SH 1194 3 5 3 5 40 MOY, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORAGE SH 1194 3 5 3 5 50 MOY, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORAGE SH 1193 2 3 3 5 50 MOY, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORAGE SH 1194 3 5 3 5 50 MOY, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORAGE SH 1194 3 5 3 5 51 MOY, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORAGE LIMITORAGE	MOV-SM-205C	RECIRC SPRAY HEAT EXC. HEADER OUTLET			5M	1194	3 20	50	
32 HOY, SERVICE MATER TO RECIBE SPRAY COOLER LIMITORAUE SH 1194 3 5 32 HOY, SERVICE MATER TO RECIBE SPRAY COOLER LIMITORAUE SH 1194 3 5 33 HOY, SERVICE MATER FROM RECIBE SPRAY COLER LIMITORAUE SH 1194 3 5 40 HOY, SERVICE MATER FROM RECIBE SPRAY CLR LIMITORAUE SH 1194 3 5 40 HOY, SERVICE MATER FROM RECIBE SPRAY CLR LIMITORAUE SH 1194 3 5 40 HOY, SERVICE MATER FROM RECIBE SPRAY CLR LIMITORAUE SH 1193 2 3 80 HOY, INLET HEADER VALVE LIMITORAUE SH 1193 2 3 3 80 HOY, FUEL PIT COOLER VALVE LIMITORAUE SH 1193 2 3 3 80 HOY, FUEL PIT COOLER VALVE LIMITORAUE SH 1193 2 3 3 81 HOY, FUEL PIT COOLER VALVE LIMITORAUE SH 1193 2 3 3 81 HOY, FUEL PIT COOLER VALVE LIMITORAUE SH 1193	MOV-5W-2058	RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		30	1194		50	
30 HOW, SERVICE MATER TO PECIFIC SPRAY COOLER LIMITORIQUE SM 1194 3 5 31 HOW, SERVICE MATER TO PECIFIC SPRAY COOLER LIMITORIQUE SM 1194 3 5 40 HOW, SERVICE MATER TO RECIPIC SPRAY CLR LIMITORIQUE SM 1194 3 5 40 HOW, SERVICE MATER FROM RECIPIC SPRAY CLR LIMITORIQUE SM 1194 3 5 40 HOW, SERVICE MATER FROM RECIPIC SPRAY CLR LIMITORIQUE SM 1194 3 5 40 HOW, SERVICE MATER FROM RECIPIC SPRAY CLR LIMITORIQUE SM 1194 3 5 80 HOW, SERVICE MATER FROM RECIPIC SPRAY CLR LIMITORIQUE SM 1193 2 3 3 81 HOW, SERVICE MATER FROM RECIPIC SPRAY CLR LIMITORIQUE SM 1193 2 3 3 82 HOW, FUEL PIT COOLER VALVE LIMITORIQUE SM 1193 2 3 3 11A-1 SOV, AIR COOLER FRES SUPPLY ASCO SM 1193 2 3 3 12A-2 SOV, AIR COOLER FRES SUPPLY ASCO	MDV-5W-205A	RECIRC SPRAY HEAT EXC. HEADER GUTLET	LIMITORQUE		SE	1194		20	
32 HOW, SERVICE MATER TO RECIRC SPRAY COOLER LIMITORQUE SM 1194 3 5 49 HOW, SERVICE MATER TOOR RECIRC SPRAY CLR LIMITORQUE SM 1194 3 5 40 HOW, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORQUE SM 1194 3 5 40 HOW, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORQUE SM 1194 3 5 40 HOW, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORQUE SM 1193 2 3 3 50 HOW, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORQUE SM 1193 2 3 3 50 HOW, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORQUE LIMITORQUE SM 1193 2 3 3 50 HOW, NUEL PIT COOLER VALVE LIMITORQUE LIMITORQUE SM 1193 2 3 3 51 SOV, AIR COOLER VERBO SUPPLY ASCO SM ASCO SM ASCO SM ASCO SM ASCO ASCO SM ASCO ASCO ASCO ASCO ASCO	HDV-54-203D	SERVICE MATER TO RECIRC SPRAY COOLER	LIMITORQUE		MS	1194		52	
3A HOW, SERVICE WATER TOO RECIPIC SPRAY CLR LIMITORQUE SM 1194 3 S 4B HOW, SERVICE WATER FROM PECIFIC SPRAY CLR LIMITORQUE SM 1194 3 S 4C HOW, SERVICE WATER FROM PECIFIC SPRAY CLR LIMITORQUE SM 1194 3 S 5A HOW, SERVICE WATER FROM PECIFIC SPRAY CLR LIMITORQUE SM 1193 2 3 3 5B HOW, SERVICE WATER FROM PECIFIC SPRAY CLR LIMITORQUE LIMITORQUE SM 1193 2 3 3 5B HOW, NILET HEADER VALVE LIMITORQUE LIMITORQUE SM 1193 2 3 3 5B HOW, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 2 3 3 1A-1 SOW, AIR COOLER VALVE LIMITORQUE SM 1193 2 3 3 1B-2 SOW, AIR COOLER VERGE SUPPLY ASCO SM SM SA 3 1B-3 SOW, AIR COOLER VERGE SUPPLY ASCO SM SM SA A 1B-3 SOW, AIR COOLE	MOV-5W-203C	SERVICE MATER TO RECIRC SPRAY COOLER	LIMITORQUE		MS	1194		52	
46 HOVY, SERVICE WATER FROM RECIPE SPRAY CLR LIMITORQUE SM 1194 3 5 40 HOV, SERVICE WATER FROM RECIPE SPRAY CLR LIMITORQUE SM 1194 3 5 58 HOV, SERVICE WATER FROM RECIPE SPRAY CLR LIMITORQUE SM 1193 2 3 3 68 HOV, INLET HEADER VALVE LIMITORQUE SM 1193 2 3 3 58 HOV, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 2 3 3 14-1 SOV, AIR COOLER EHERG SUPPLY ASCO SM 1193 2 3 3 18-2 SOV, AIR COOLER EHERG SUPPLY ASCO SM 1193 2 3 3 18-1 SOV, AIR COOLER EHERG SUPPLY ASCO SM 1193 2 3 3 18-2 SOV, AIR COOLER EHERG SUPPLY ASCO SM 1193 2 3 3 18-3 SOV, AIR COOLER EHERG SUPPLY ASCO SM ASCO SM ASCO AR RECIRC. AIR COOLING COILS LIMITORQUE LIMITORQ	M-203A	SERVICE MATER TO RECIRC SPRA, COOLER	LIMITORQUE		MS	1194	10 10	52	
40 HOV, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORQUE SM 1194 3.5 46 HOV, SERVICE MATER FROM RECIRC SPRAY CLR LIMITORQUE SM 1193 23 3 58 HOV, INLET HEADER VALVE LIMITORQUE SM 1193 23 3 58 HOV, INLET HEADER VALVE LIMITORQUE SM 1193 23 3 58 HOV, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 23 3 59 HOV, FUEL PIT COOLER WALVE LIMITORQUE SM 1193 23 3 51 HOV, FUEL PIT COOLER WALVE LIMITORQUE SM 25CO	MOV-SW-204B	SERVICE MATER FROM RECIPC SPRAY CLR	LIMITORQUE		MS	1194	3 55	52	
SERVICE HATER FROM RECIPC SPRAY CLR LIMITORAUE SM 1193 23 3 INLET HEADER VALVE LIMITORAUE SM 1193 23 3 INLET HEADER VALVE LIMITORAUE SM 1193 23 3 FUEL PIT COOLER VALVE LIMITORAUE SM 1193 23 3 ALR COOLER EMERG SUPPLY ASCO SM 1193 23 3 ALR COOLER EMERG SUPPLY ASCO SM 1193 23 3 ALR COOLER EMERG SUPPLY ASCO SM 1193 23 3 ALR COOLER EMERG SUPPLY ASCO SM 13 3 3 C. ALR COOLING COILS LIMITORAUE SM 3 3 A C. ALR COOLING COILS LIMITORAUE SM 3 A A C. ALR COOLING COILS LIMITORAUE SM 3 A A SM 10 RECIRC SPRAY SM 3 A A A A SM 10 RECIRC SPRAY SM <td>MOV-5M-204D</td> <td>SERVICE WATER FROM RECIRC SPRAY CLR</td> <td>LINITORQUE</td> <td></td> <td>30</td> <td>1194</td> <td></td> <td>52</td> <td></td>	MOV-5M-204D	SERVICE WATER FROM RECIRC SPRAY CLR	LINITORQUE		30	1194		52	
68 MOV, INLET HEADER VALVE LIMITORQUE SM 1193 23 3 38 HOV, INLET HEADER VALVE LIMITORQUE SM 1193 23 3 38 HOV, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 23 3 14-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 1193 23 3 18-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 1193 23 3 18-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 193 23 3 18-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 3 18-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 3 18-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 3 18-3 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 3 18-4 SECIRC. AIR COOLING COILS LIMITORQUE SM 3 3	M-204C	SERVICE MATER FROM RECIRC SPRAY CLR	LIMITORQUE		MS	1194		57	
SAM MOV, FULET HEADER VALVE LIMITORQUE SM 1193 23 3 SAM MOV, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 23 3 SAM MOV, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 23 3 SAM MOV, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 23 3 SASCO SOV, AIR COOLER EMERG SUPPLY ASCO SM SM 3 SAM SOV, AIR COOLER EMERG SUPPLY ASCO SM SM 3 SAM RECIRC. AIR COOLING COILS LIMITORQUE SM 3 3 AB RECIRC. AIR COOLING COILS LIMITORQUE SM 3 3 AB RECIRC. AIR COOLING COILS LIMITORQUE SM 3 3 AB RECIRC. AIR COOLING COILS LIMITORQUE SM 3 3 AB RECIRC. AIR COOLING COILS LIMITORQUE SM 3 3 BB MOV, SM TO RECIRC SPRAY SM	M-2088	INLET HEADER VALVE	LIMITORQUE		SH	1193		53	
38 MOV, FUEL PIT COOLER VALVE LIMITORQUE SM 1193 23 3 1A-1 SOV, AIR COOLER VALVE LIMITORQUE SM 1193 23 3 1B-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-3 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-4 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-5 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-6 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-7 SOV, AIR COOLER EMERG SUPPLY LIMITORQUE SM 3 3 1B-8 RECIRC. AIR COOLING COILS LIMITORQUE SM 3 4 1B-9 ROV, SM TO RECIRC SPRAY LIMITORQUE SM 3	M-203A	INLET HEADER VALVE	LIMITORQUE		MS	1193		53	
1A-1 SOV, AIR COOLER VALVE LIMITORQUE SM 1193 23 3 1B-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 3 1B-2 SOV, AIR COOLER EMERG SUPPLY LIMITORQUE SM 3 3 1B-2 SOV, AIR COOLING COILS LIMITORQUE SM 3 3 4B RECIRC. AIR COOLING COILS LIMITORQUE SM 3 3 4B RECIRC. AIR COOLING COILS LIMITORQUE SM 3 MN 5B MOV, SW TO RECIRC SPRAY SM 3 SM 3 MN FUNDP. SW PUMP MOTOR A SW PUMP MOTOR A SM 3 SM NM	W-213B	FUEL PIT COOLER VALVE	LIMITORQUE		MS	1193		53	
1A-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1A-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-3 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-4 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-5 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-6 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-7 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-8 RECIRC, AIR COOLING COILS LIMITORQUE SM 3 1B-9 MCV, SM TO RECIRC SPRAY SM 3 SM 1B-1 MCV, SM TO RECIRC SPRAY SM 3 SM 1B-1 MCV, SM TO RECIRC SPRAY SM 3	H-213A	FUEL PIT COOLER VALVE	LIMITORQUE		MS	1193		53	
1B-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1B-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 1A-2 SOV, AIR COOLER EMERG SUPPLY ASCO SM 3 0B RECIRC. AIR COOLING COILS LIMITORQUE SM 3 1A RECIRC. AIR COOLING COILS LIMITORQUE SM 3 4A RECIRC. AIR COOLING COILS LIMITORQUE SW 3 5B MOV, SW TO RECIRC SPRAY SW 3 S *N FUHP, SW PUMP MOTOR A SW 23 S *N	4-201A-1	AIR COOLER EMERG SUPPLY	ASCO		SE		м	70	
18-1 SOV, AIR COOLER EMERG SUPPLY ASCO SM	4-2018-2	AIR COOLE? EMERG SUPPLY	ASCO		SM		м	70	
1A-2 SOV, AIR COOLER EMERG SUPPLY ASCO 0B RECIRC. AIR COOLING COILS LIMITORQUE SM 3 0A RECIRC. AIR COOLING COILS LIMITORQUE SM 3 4A RECIRC. AIR COOLING COILS LIMITORQUE SW 3 4A RECIRC. AIR COOLING COILS LIMITORQUE SW 3 5B MOV, SW TO RECIRC SPRAY SW 3 5 *N PUMP, SW PUMP MOTOR A SW PUMP, SW PUMP MOTOR A SW 23 5 *N	4-2018-1		ASCO		SM		Ю	7.0	
OB RECIRC. AIR COOLING COILS LIMITORQUE SM 3 RECIRC. AIR COOLING COILS LIMITORQUE SM 3 RUW, SM TO RECIRC SPRAY PUMP, SW PUMP MOTOR A SM 23 5 **N	W-201A-2		ASCO		H.		3	7.0	
AB RECIRC. AIR COOLING COILS LIMITORQUE SM 3 LIMITORQUE SM 3 LIMITORQUE SM 3 5 *N PUMP, SM TO RECIRC SPRAY SM 23 5 *N PUMP, SW PUMP MOTOR A 23 5 *N	W-210B		LIMITORQUE		MS		10	73	
48 RECIRC, AIR COOLING COILS LIMITORQUE SW 3 LIMITORQUE SW 3 MOV, SW TO RECIRC SPRAY PUMP, SW PUMP MOTOR A SS *** **N	M-210A		LIMITORQUE		MS		м	73	
4A RECIRC, AIR COOLING COILS SB MOV, SW TO RECIRC SPRAY PUMP, SW PUMP MOTOR A SM 23 5 **N	M-214B		LIMITORQUE		SM		2	73	
SB MOV, SW TO RECIRC SPRAY PUMP, SW PUMP MOTOR A 23.5	W-214A		LIMITORQUE		N.		10	73	
PUMP, SW PUMP MOTOR A 23.5	4-203B	MOV, SW TO RECIRC SPRAY			38			*N/A	
	5-1A	PUMP, SW PUMP MOTOR A			35			*N/A	

VIRGINIA LLECTRIC AND POWER COMPANY NORTH ANNA POWER STATION UNIT 2 EQUIPMENT GALIFICATION HASTER LIST SYSTEM/FILE SORT

	NOT LATEROOM	MANUFACTURER	MODEL NO.	SYS	PURCH.	12345678901234	344	FAGE
MOV-5W-220A	MOV, SW TO CIRC TUNNEL			Sit	1 1 1	F	*N/A	
MOV-5W-115A	MOV, AUX SW PUMP ISO VALVE			SM		23.5	*N/A	
MOV-5W-220B	MOV, SH TO CIRC TURNEL			SW		М	*N/A	
PM-5W-224	RADIATION MONITORS, SW RAD MONITORS			SE		4	*N/A	
MOV-SW-2158	MOV, AUX SW PUMP ISO VALVE			SW		23.5	*N/A	
MOV-5W-215A	MOV, AUX SW PUMP ISO VALVE			SW		23.5	*N/A	
MOV-SW-1158	MOV, AUX SW PUMP ISO VALVE			SM		23.5	*N/A	
HDV-5M-219	MOV, MAKE-UP ISOLATION			SH		23.5	*N/A	
MOV-5W-119	MOV, MAKE-UP ISOLATIO";			SM		23 5	W/A	
MOV-SM-118	HOV, CIRC WIR INT "E TO SW PUMP			SM		23.5	*N/A	
MOV-SW-217	MOV, CIRC WIR SW PUMP ISOLATION			SH		23.5	*N/A	
MOV-SW-117	MOV, CIRC WTR SW PUMP ISOLATION			MS		23.5	*N/A	
RM-5W-227	RADIATION MONITORS, SW RAD MONITORS			SH		4	*N/A	
PM-5W-226	RADIATION HONITORS, SW RAD MONITORS			SW		4	*N/A	
RM-5W-225	RADIATION MONITORS, SW RAD MONITORS			SH		4	*N/A	
MOV-SW-200B	MOV, SW RETURN TO RERVOIR ISOLATION			MS		23.5	*N/A	
MOV-SW-200A	MOV, SW RETURN TO RERVOIR ISOLATION			SM		23 5	*N/A	
HOV-SM-1008	MOV, SW RETURN TO RERVOTR ISOLATION			SW		23.5	*N/A	
MOV-SW-100A	MOV, SW RETURN TO RERVOIR ISOLATION			SH		23.5	*N/A	
2-5W-P-1B	PUMP, SW PUMP NOTOR B			S		23.5	*N/A	
2-SM-P-1A	PUMP, SW PUMP MOTER A			SW		23.5	*N/A	
1-SW-P-1B	PUMP, SW PUMP MOTOR B			SM		23 5	*N/A	
MOV-5W-114A	MOV,			SW		m	*N/A	
				613		14	WAS ZA	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAG
DV-5W-1148	MOV,			SW		3	*N/A	
OV-SH-110A	MOV,			SW		3	*N/A	
V-SH-201B	MOV,			SW		3	*N/A	
/-SW-201A	TRIP VALVE,			514		3	*N/A	
OV-SW-214B	mov,			SN		3	*N/A	
OV-SW-210B	MOV,			SW		3	*N/A	
0V-SW-210A	MOV,			SW		3	*N/A	
OV-54-110B	MOV,			SW		3	*N/A	
/-SW-1018	TRIP VALVE,			SW		3	*N/A	
/-SW-101A	TRIP VALVE,			SW		3	*N/A	
-EG-P-2HA	PUMP, EMERGENCY GEN 2H FUEL OIL PUMP			SW		8	*N/A	
-SW-S-18	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
-SW-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
-SH-S-1B	STRAINER, SW TRAVELING WATER SCREENS			SH		23 5	*N/A	
-SW-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
-SH-P-4	PUMP, AUX SERVICE WATER PUMP			SW		23 5	*N/A	
-SW-P-4	PUMP, AUX SERVICE WATER PUMP			SW		23 5	*N/A	

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MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
E/P FC-2122	E/P, CHARGING FLOW CONTROL	COPES-VULCAN		СН			61	
EP HCV2186	E/P FOR HAND CONTROL VALVE HCV-2186	FISHER					W31	
FS-BD-203B	FLOW SWITCH			BD		6	*H/A	
FS-BD-203D	FLOW SWITCH			BD		6	*N/A	
FS-BD-203F	FLOW SWITCH			BD		6	*N/A	
FS-BD-203G	FLOW SWITCH			BD		7	*N/A	
FS-BD-203H	FLOW SWITCH			ED		7	*N/A	
FS-BD-203J	FLOW SWITCH			BD		7	*N/A	
FS-HV-2207A	FLOW SWITCH, BATTERY ROOM 2-1 VENT			ΗV		9	*N/A	
FS-HV-2207B	FLOW SWITCH, BATTERY ROOM 2-2 VENT			HV		9	*N/A	
FS-HV-2207C	FLOW SWITCH, BATTERY ROOM 2-3 VENT			HV		9	*N/A	
FT-2414	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXBORO		RC	1010	2 5	W01	
FT-2415	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXBORO		RC	1010	2 5	W01	
FT-2416	TRANSMITTER, REACTOR COOLANT FLOW L1	FOXBORO		RC	1010	2 5	W01	
FT-2424	TRANSMITTER, PEACTOR COOLANT FLOW L2	FOXBORO		RC	1010	2 5	MOI	
FT-2425	TRANSMITTER, REACTOR COOLANT FLOW L2	FOXBORO		RC	1010	2 5	MOI	
FT-2426	TRANSMITTER, REACTOR COOLANT FLOW L2	FOXBORO		RC	1010	2 5	MOI	
FT-2434	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO		RC	1010	2 5	Mol	
FT-2435	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO		RC	1010	2 5	W01	
_FT-2436	TRANSMITTER, REACTOR COLLANT FLOW L3	FOXBORO		RC	1010	2 5	W01	
FT-2474	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2475	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2484	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
_FT-2485	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
FT-2494	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2495	TRANSMITTER, STEAM GEN. FLOW	ROSEMOUNT		MS	1486	23 5	35	
FT-2940	TRANSMITTER, SI HEADER FLOW HOT LEG	BARTON		SI	1010		W23	
FT-2943	TRANSMITTER, BORON INJ, TK. HEADER FLOW	BARTON		SI	1010		W23	
HC-2186	E/P FOR SEAL WATER FLOW CONTROL			СН		2 5	*N/A	
HCV-FW-200A	LIMIT SWITCH, FW CONTROL TO STEAM GEN 1A			FW		5 7	*N/A	
HC1-FW-2008	LIMIT SWITCH, FW CONTROL TO STEAM GEN 18			FW		5 7	*N/A	
HCV-FW-200C	LIMIT SWITCH, FW CONTROL TO STEAM GEN 10			FW		5 7	*N/A	
HCV-2200A	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200B	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	W04	
HCV-2200C	LIMIT SWITCH, REGEN. HEAT OUTLET	NAMCO		CI	1010	1	N04	
H2A-HC-100	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
H2A-HC-200	HYDROGEN ANALYZER	BENDIX		HC	1332	4	42	
LCV-2460A	LCV, LOOP 1 LETDOWN LINE CONT. VV			CI		1	*N/A	
LIT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	1.041.0 Units	49	
LIT-RS-251B	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	49	
LT-QS-200A	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200B	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-QS-200C	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-95-200D	TRANSMITTER, RF WATER STORAGE TANK			QS		3 5	*N/A	
LT-RS-251A	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	20	
LT-RS-2518	TRANSMITTER, CONT WATER LEVEL	GEMS		RS	1333	4	25	
LT-2459	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	M05	
LT-2460	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	W02	

MARK HQ.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
T-2461	TRANSMITTER, PRESSURIZER LEVEL	BARTON		RC	1010	23 5	W02	
T-2474	TRANSMITTER, STEAM GEN. LEVEL	ROSEHOUNT		FW	1486	5	71	
T-2474	TRANSMITTER, STEAM GEN LEVEL			FN		5	*N/A	
T-2475	TRANSMITTER, STEAM GEN LEVEL			FW		5	*N/A	
T-2475	TRANSMITTER, STEAM GCH. LEVEL	POSEMOUNT		EB.	1486	5	54	
T-2476	TRANSMITTER, STEAM GEN. LEVEL	ROSEHOUNT		FW	1486	5	71	
T-2484	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LT-2485	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
T-2486	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2494	TRANSHITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2495	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	71	
LT-2496	TRANSMITTER, STEAM GEN. LEVEL	ROSEMOUNT		FW	1486	5	54	
LVC-2460B	LCV, LOOP 2 LETDOWN LINE CONT. VV			CI		1	*N/A	
100-HV163A	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66	
100-HV1638	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66	
100-HV163C	MOD, CENTRAL AREA EXHAUST DISCH DAMPERS	HONEYWELL		HV	22436	23 1	66	
10V-FW-200A	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	
MOV-FW-200B	MOV, AUX STEAM GEN FD PP DISCH			FW		5 7	*N/A	
10V-FW-200C	MOV, AUX STEAM GEN FD PP DISCH VV			FW		5 7	*N/A	
10V-HV-200B	MOV, RC PURGE SYSTEM VALVE	LIMITORQUE		HV		1	59	
DOOS-VH-VOID	MOV, RC PURGE SYSTEM EXHAUST	LIMITORQUE		HV		1	59	
MOV-HV-201	MOV, RC PURGE SYSTEM BYPASS	LIMITORQUE		HV		1	59	
MOV-HV-204-1	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	
MOV-HV-204-2	MOV, CONTROL ROOM EMER AIR SUPPLY			HV		7	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-HV-215-1	MOV, FLUSH VALVE LEFT FOR STRAINER	ELLIOT		HV	1299	6	17	
MOV-HV-215-2	MOV, FLUSH VALVE RIGHT FOR STRAINER	ELLIOT		HV	1299	6	17	
MOV-HY-216-1	MOV, FLUSH VALVE LEFT FOR STRAINER	ELLIOT		HV	1299	6	17	
MOV-HV-216-2	MOV, FLUSH VALVE RIGHT FOR STRAINER	ELLIOT		HV	1299	6	17	
MOV-HV200A	MOV, CONTAINMENT SUPPLY	LIMITORQUE		ΗV	198	1	65	
HOV-HV200C	MOV, CONTAINMENT PURGE	LIMITORQUE		HV	198	1	65	
MOV-Q5-200A	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
MOV-QS-200B	MOV, REFUELING WATER STORAGE TANK	LIMITORQUE		QS	1242	3 5	74	
MOV-QS-201A	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23	
MOV-93-201B	MOV, QUENCH SPRAY PUMP DISCH	LIMITORQUE		QS	1242	3 5	23	
HOV-93-202A	MOV, RF WATER CHEM. ADD TANK			Q5		3 5	*N/A	
MOV-95-202B	MOV, RF WATER CHEM ADD TANK			QS		3 5	*N/A	
MOV-RS-200A	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-200B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-201A	MOV. SUPPLY VALVE CC RECIRC SFRAY	LIMITORQUE		RS	1242	3 5	57	
MOV-RS-201B	MOV, SUPPLY VALVE CC RECIRC SPRAY	LIMITORQUE		RS	1242	3 5	57	
MOV- PS-255A	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	
MOV-RS-255B	MOV, RECIRC SPRAY SUCTION	LIMITORQUE		RS	1242	3 5	23	
MOV-RS-256A	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
MOV-RS-256B	MOV, RECIRC SPRAY DISCH	LIMITORQUE		RS	1242	3 5	23	
MOV-3W-100A	MOV. SW RETURN TO RERVOIR ISOLATION			SH		23 5	*N/A	
10V-SN-100B	MOV, SW RETURN TO RERVOIR ISOLATION			SW		23 5	*N/A	
10V-SW-110A	MOV			SH		3	*N/A	
MOV-SW-110B	MOV,			SW		3	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-SW-114A	MOV,			SW		3	*N/A	****
MOV-SW-114B	Mov,			514		3	*N/A	
MOV-SH-115A	MOV, AUX SW PUMP ISO VALVE			SH		23 5	*N/A	
MOV-SW-115B	MOV, AUX SW FUMP ISO VALVE			SN		23 5	*N/A	
MOV-54-117	HOV, CIRC WTR SW FUMP ISOLATION			SW		23 5	*N/A	
MOV-5N-118	HOV, CIRC WIR INTAKE TO SW PUMP			SW		23 5	*N/A	
10V-SW-119	MOV, MAKE-UP ISOLATION			SW		23 5	*N/A	
10V-SW-200A	MOV, SW RETURN TO PERVOIR ISOLATION			SW		23 5	#N/A	
10V-SW-200B	MOV. SW RETURN TO PERVOIR ISOLATION			SW		23 5	*N/A	
10V-SW-201A	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
10V-SW-201B	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SH	1194	3 5	50	
OV-5W-201C	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SW	1194	3 5	50	
OV-SW-201D	MOV, RECIRC SPRAY HEAT EXC. HEADER INLET	LIMITORQUE		SH	1194	3 5	50	
AE05-W2-VC	MOV, SERVICE WATER TO RECIRC SFRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
OV-SW-203B	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SIA	1194	3 5	50	
10V-SN-203B	MOV, SH TO RECIRC SPRAY			SW		3 5	*N/A	
10V-5W-203C	MOV, SERVICE WATER TO RECIPC SFRAY COOLER	LIMITORQUE		SN	1194	3 5	52	
10V-5W-203D	MOV, SERVICE WATER TO RECIRC SPRAY COOLER	LIMITORQUE		SW	1194	3 5	52	
10V-SW-204A	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LINITORQUE		SH	1194	3 5	50	
10V-5W-204B	MOV, SERVICE WATER FROM FECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
:0V-SW-204C	MOV, SERVICE WATER FROM RECIPC SFRAY CLR	LIMITORQUE		SW	1194	3 5	52	
OV-SW-204D	MOV, SERVICE WATER FROM RECIRC SPRAY CLR	LIMITORQUE		SW	1194	3 5	52	
10V-SW-205A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	
10V-SN-205B	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SW	1194	3 5	50	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234		PACT.
MOV-5W-205C	MOV, RECIRC SPRAY HEAT EXC. HEADER DUTLET	LIMITORGUE		SN	1194	3.5	50	
MOV-514-2050	MOV, RECIPC SPRAY HEAT EXC. HEADER DUTLET	LIMITORQUE		SW	1194	3 5	50	
MOV-SW-206A	MOV, RECIRC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SN	1194	3 5	50	
MOV-SN-206B	MOV, RECIPC SPRAY HEAT EXC. HEADER OUTLET	LIMITORQUE		SN	1194	3 5	50	
MOV-SW-208A	MOV, INLET HEADER VALVE	LIMITORQUE		SM	1193	23 3	53	
MOV-SH-208B	MOV, INLET HEADER VALVE	LIHITORQUE		SW	1193	23 3	53	
MOV-SW-210A	RECIRC. AIR COOLING COILS	LIMITORQUE		SW		3	73	
HOV-SH-210A	HOV,			SW			*N/A	
MOV-SW-210B	MOV,			SW		3	*N/A	
MOV-SW-210B	RECIRC. AIR COOLING COILS	LIMITORQUE		SW		3	73	
MOV-SW-213A	MOV, FUEL PIT COOLER VALVE	LIMITORQUE		SM	1193	23 3	53	
HOV-SW-2138	MOV, FUEL PIT CODLER VALVE	LIMITORQUE		SW	1193	23 3	53	
MOV-SW-214A	PECIRC. AIR COOLING COILS	LIMITORQUE		SW		3	73	
MOV-SW-214A	MOV,			SW		3	*N/A	
MOV-SN-2148	MOV,			SM		3	*N/A	
MOV-SW-214B	RECIRC. AIR COOLING COILS	LIMITORQUE		SN		3	73	
MOV-SW-215A	MOV, AUX SW PUMP ISO VALVE			SH		23 5	*N/A	
MOV-SW-215B	MOV, AUX SW PUMP ISO VALVE			SW		23 5	*N/A	
MOV-SW-217	MOV, CIPC WTR SW PUMP ISOLATION			SW		23 5	*N/A	
MOV-SW-219	MOV, MAKE-UP ISOLATION			SM		23 5	*N/A	
MOV-5W-220A	MOV, SW TO CIRC TUNNEL			SW		3	*N/A	
MOV-5W-220B	MOV, SW TO CIRC TUNNEL			SN		3	*N/A	
MOV-2115B	MOV, CHARGING PUMP SUC FROM PWST	LIMITORQUE		СН	1010	23 5 1	MSS	
MOV-2115C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		СН	1010	23 5	W16	

MOV-21150 HOW, CHARGING PUMP SUC FROM RUST LIMITORQUE CH 1010 23 5 1 N22 MOV-2215E MOV, CHARGING PUMP LIMITORQUE CH 1010 23 5 M36 MOV-2267A MOV, LMSI TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M21 MDV-2267B MOV, LMSI TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M21 MOV-2269B HOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M21 MOV-2270A MOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M18 MOV-2270A MOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M18 MOV-2270A MOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M18 MOV-2270A MOV, CHARGING PUMP TO RECIPC. SV LIMITORQUE CH 1010 23 5 M34 MOV-2275C MOV, CHARGING PUMP TO RECIPC. SV LIMITORQUE CH		MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-2267A		MOV-21150	HOV, CHARGING PUMP SUC FROM RWST	LIMITORQUE		CH	1010	23 5 1	M22	
MOV-2267B		MOV-2115E	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		CH	1010	23 5	W36	
MOV-2269A MOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 N21 MOV-2269B MOV. LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 N18 MOV-2270A MOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 N18 MOV-2275A MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 N34 MOV-2275B MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 N37 MOV-2275C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 N34 MOV-2286A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 N19 MOV-2286B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 N19 MOV-2287B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 N19 MOV-2287B MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 N19<		MDV-2267A	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	W21	
HOV-22698 HOV. LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M18 HOV-22704 HOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M21 HOV-22708 HOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 M18 HOV-22754 HOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M34 HOV-22758 HOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M37 HOV-22756 HOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M37 HOV-2275C HOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 HOV-2266A HOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 HOV-2266B HOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 HOV-2267A HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 HOV-2267A HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 HOV-2267B HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 HOV-2267B HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 HOV-2267B HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 HOV-2269B HOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M21 HOV-2269B HOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M21 HOV-2269B HOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M21 HOV-2270 HOV, CHARGING PUMP TO SEAL MATER RECIRC. LIMITORQUE CH 1010 23 5 M19 HOV-2370 HOV, CHARGING PUMP TO SEAL MATER RECIRC. LIMITORQUE CH 1010 23 5 M16 HOV-2373 HOV, CHARGING PUMP TO RECIPC. 3+ LIMITORQUE CH 1010 23 5 M16 HOV-2380 HOV, CHARGING PUMP TO RECIPC. 3+ LIMITORQUE CH 1010 23 5 M16 HOV-2370 HOV, CHARGING PUMP TO RECIPC. 3+ LIMITORQUE CH 1010 23 5 M16		t:0V-2267B	MOV, LHSI TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
MOV-2270A MOV, LHSI & VCT TO CHARGINS PUMP LIMITORQUE CH 1010 23 5 M21 MOV-2270B MOV, LHSI & VCT TO CHARGINS PUMP LIMITORQUE CH 1010 23 5 M18 MOV-2275A MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M34 MOV-2275B MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M34 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2287A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2287B MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 MOV-2287C MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 M21 MOV-2370 MOV, CHARGING PUMP OISCH. LIMITORQUE CH 1010 23 5		MOV-2269A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		СН	1010	23 5	N21	
MOV-2270B MOV, LHSI & VCT TO CHARGING PUMP LIMITORQUE CH 1010 23 5 W18 MOV-2275A MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 W34 MOV-2275B MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 W37 MOV-2286A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W19 MOV-2286B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W19 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W19 MOV-2287B HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2287B HOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2287B MOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2289A MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 W21		MOV-22698	MOV. LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
MOV-2275A MOV, CHARGING PUMP TO RECIRC. SV LIHITORQUE CH 1010 23 5 M34 MOV-2275B MOV, CHARGING PUMP TO RECIRC. SV LIHITORQUE CH 1010 23 5 M37 MOV-2275C MOV, CHARGING PUMP DISCH. LIHITORQUE CH 1010 23 5 M34 MOV-2286B MOV, CHARGING PUMP DISCH. LIHITORQUE CH 1010 23 5 M19 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2287A MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 MOV-2287B MOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M21 MOV-2289B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M21 MOV-2370 MOV,		MOV-2270A	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W21	
MOV-2275B MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M37 MOV-2275C MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M34 MOV-2286A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2286B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2287B MOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 MOV-2287C MOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 M21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 M21 MOV-2350 MOV, CHARGING PUMP TO SEAL MATER RECIRC. LIMITORQUE CH 1010 23 5 M16 MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3* LIMITORQUE CH 1010 23 5 M		MO7-2270B	MOV, LHSI & VCT TO CHARGING PUMP	LIMITORQUE		CH	1010	23 5	W18	
MOV-2275C MOV, CHARGING PUMP TO RECIRC. SV LIMITORQUE CH 1010 23 5 M34 MOV-2286A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2286B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 M19 MOV-2287B MOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 MOV-2287C MOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 M19 MOV-2289A MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 M21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 M21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 M17 MOV-2373 MOV, CHARGING PUMP TO RECIRC. LIMITORQUE CH 1010 23 5 M16		MOV-2275A	MOV, CHARGING PUMP TO RECIPC. SV	LIMITORQUE		СН	1010	23 5	W34	
MOV-2286A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 H19 MOV-2286B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 H19 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 H19 MOV-2287A MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 H19 MOV-2287B MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 H19 MOV-2287C MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 H21 MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 H21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 H21 MOV-2370 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 H16 MOV-2373 MOV, CHARGING PUMP TO RECIPC. 3* LIMITORQUE CH 1010 23 5 H18 MOV-2380 MOV, RCP SEALMATER RETURN LIMITORQUE CH 1010 15 LIMITORQUE		MOV-2275B	MOV, CHARGING PUMP TO RECIRC, SV	LIMITORQUE		CH	1010	23 5	W37	
MOV-2286B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W19 MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W19 MOV-2287A MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2287B MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2287C MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W21 MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2389B MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE CH 1010 1 5 W06		MOV-22750	MOV, CHARGING PUMP TO RECIRC. SV	LIMITORQUE		CH	1010	23 5	W34	
MOV-2286C MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W19 MOV-2287A MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2287B MOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2287C MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W21 MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIPC. 3* LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE CH 1010 1 5 W06		MOV-2286A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W19	
HOV-2287A HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 HOV-2287B HOV, CHARGING FUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 HOV-2287C HOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W21 HOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W16 MOV-2373 MOV, CHARGING PUMP TO RECIPC. 3. LIMITORQUE CH 1010 23 5 W18 HOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE CH 1010 1 5 W06		MOV-2286B	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W19	
HOV-2287B MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2287C MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIRC. S. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE 1010 1 5 W06		MOV-2286C	MOV, CHARGING PUMP DISCH.	LIMITOPQUE		CH	1010	23 5	W19	
MOV-2287C MOV, CHARGING PUMP STOP VALVE LIMITORQUE CH 1010 23 5 W19 MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE 1010 1 5 W06		MOV-2287A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		CH	1010	23 5	W19	
MOV-2289A MOV, CHARGING PUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE 1010 1 5 W06		MOV-2287B	MOV, CHARGING FUMP STOP VALVE	1.IMITORQUE		CH	1010	23 5	W19	
MOV-2289B MOV, CHARGING FUMP DISCH. LIMITORQUE CH 1010 23 5 W21 MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 1 5 W06		MOV-2287C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		CH	1010	23 5	W19	
MOV-2350 MOV, EMERGENCY BORATION LIMITORQUE CH 1010 23 5 W17 HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE 1010 1 5 W06		MOV-2289A	MOV, CHARGING PUMP DISCH.	LIMITORQUE		CH	1010	23 5	W21	
HOV-2370 MOV, CHARGING PUMP TO SEAL WATER RECIRC. LIMITORQUE CH 1010 23 5 W18 MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE 1010 1 5 W06		MOV-2289B	MOV, CHARGING FUMP DISCH.	LIMITORQUE		CH	1010	23 5	W21	
MOV-2373 MOV, CHARGING PUMP TO RECIRC. 3. LIMITORQUE CH 1010 23 5 W18 MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE 1010 1 5 W06	_	MOV-2350	MOV, EMERGENCY BORATION	LIMITORQUE		CH	1010	23 5	W17	
MOV-2380 MOV, RCP SEALWATER RETURN LIMITORQUE 1010 1 5 W06		HOV-2370	MOV, CHARGING PUMP TO SEAL WATER RECIRC.	LIMITORQUE		CH	1010	23 5	W18	
		MOV-2373	MOV, CHARGING PUMP TO RECIPC. 3.	LIMITORQUE		CH	1010	23 5	W18	
_MOV-2381 MOV, SEAL WATER RETURN SV LIMITORQUE CH 1010 23 5 W35		MOV-2380	MOV, RCP SEALWATER RETUPN	LIMITORQUE			1010	1 5	W06	
	-	MOV-2381	MOV, SEAL WATER RETURN SV	LIMITORQUE		СН	1010	23 5	W35	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
HOV-2836	MOV, COLD LEG CIRC VALVE	LIMITORQUE		SI	1010	23 5	W29	
MDV-2866A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
MOV-2860B	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	W05	
MOV-2862A	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	23 5	Wll	
MOV-2862B	MOV, LHSI PUMP SUCTION	LIMITORQUE		SI	1010	2.5	W11	
MOV-2863A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
MOV-2863B	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W14	
MOV-2864A	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
MOV-2864B	MOV, LHSI DISCH VALVE	LIMITORQUE		SI	1010	23 5	W15	
10V-2865A	MOV, ACCUMULATOR TANK 1 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
10V-2865B	MOV, ACCUMULATOR TANK 2 COLD LEG	LIMITORQUE		SI	1010	23 5	W28	
10V-2865C	MOV, ACCUMULATOR TANK 3 COLD LEG	LIMITORQUE		SI	1010	23 5	K28	
10V-2867A	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
t0V-2867B	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
10V-2867C	MOV, CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1010	23 5	W24	
10V-2867D	MOV. CHARGING PUMP STOP VALVE	LIMITORQUE		SI	1313	23 5	W25	
10V-2869A	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
10V-2869B	MOV, CHARGING PUMP SI STOP VALVE	LIMITORQUE		SI	1010	23 5	W18	
10V-2885A	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
10V-2885B	MOV, LHSI RECIRC VALVE	LIMITORQUE		SI	1010	23 5	W05	
10V-2885C	MOV, LHSI RECIRC TO CHARGING PUMP VALVE	LIMITORQUE		SI	1010	23 5	W38	
10V-2885D	MOV, LHSI RECIRC TO CHARGING PIMP VALVE	LIMITORQUE		SI	1010	23 5	W38	
10V-2890A	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	WOS	
10V-2890B	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	

MARK NO.	DESCRIPTION	MANUFACTURER	HODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
MOV-2890C	MOV, CHARGING PUMP SUCT. FROM VCT	LIMITORQUE		SI	1010	23 5	W39	
MOV-2890D	MOV, LHSI LINE STOP VALVE	LIMITORQUE		SI	1010	23 5	W39	
NGA-10	CABLE, 1/C 2000 HCH	GENERAL CABLE		ED	1255	9	10	
NGA-12	CABLE, 3/C 1000 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
NGA-13	CABLE, 3/C 4/0 ANG	OKONITE		ED	1375	8	11	
NGA-13	CABLE, 3/C 4/0 AWG. ALUMINUM ARMOR	GENERAL CABLE		ED	1255	9	10	
NGA-14	CABLE, TRIPLEX 4/0 AWG	OKONITE		ED	1375	8	11	
NGA-15	CABLE, TRIPLEX 250 MCM	CERRO WIRE		ED	1359	3 5	07	
NGA-19	CABLE, 2/C #2 AWG	CERRO WIRE		ED	1312	8	08	
NGA-20	CABLE, 1/C 250 MCH	OKONITE		ED	1128	8	06	
NGA-21	CABLE, 1/C 2/0 ANG.	OKONITE		ED	1128	3	06	
NGA-3	CABLE, TRIPLEX 1000 MCH	GENERAL CABLE		ED	1255	8	10	
NGA-3	CABLE, TRIPLEX 1000 MCM	OKONITE		ED	1375	8	11	
NGA-34	CABLE, 1/C #14 AWG	CERRO WIRE		ED	1312	3	08	
NGA-35	CABLE, 2/C #14 ANG	CERRO WIRE		ED	1312	8	08	
NGA-36	CABLE, 3/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-37	CABLE, 5/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-38	CABLE, 7/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-39	CABLE, 9/C #14 ANG	CERRO WIRE		ED	1312	8	08	
_NGA-4	CABLE, 3/C 500 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-4	CABLE, 3/C 500 HCM	OKONITE		ED	1375	8	11	
NGA-40	CABLE, 12/C #14 AWG	CERRO WIRE		ED	1312	8	08	
NGA-44	CABLE, 1/C #12 AWG	CERRO WIRE		ED	1312	8	08	
_NGA-45	CABLE, 2/C #12 AWG	CERRO WIRE		ED	1312	8	08	

MARK NO.	DESCRIPTION	MANUFACTURER MODE	EL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGA-47	CABLE, 4/C #12 ANG	CERRO WIRE		ED	1312	8	08	****
11GA-49	CABLE, 7/C #12 AWG	CEPRO WIRE		ED	1312	8	08	
NGA-5	CABLE, 3/C 1250 MCM STEEL ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-57	CABLE, 4/C #10 ANG	CERRO WIRE		ED	1312	8	08	
NGA-6	CABLE, 3/C 1250 MCM ALUMINUM ARMOR	GENERAL CABLE		ED	1255	8	10	
NGA-67	CABLE, 19/C #16 AWG	BIW		ED .	1265	2345	09	
NGA-67	CABLE, 19/C #16 AWG	CERRO WIRE		ED	1392	123456 8	13	
MGA-68	CABLE, 12/C #16 ANG	BIW		ED	1265	2345 8	09	
NGA-68	CABLE, 12/C #16 AWS	CERPO WIPE		ED	1392	123456	13	
NGA-69	CABLE, 2/C #16 ANG	BIW		ED	1265	2345	09	
NGA-70	CABLE, 18/C #16 AWS	CERRO WIRE		ED	1392	123456	13	
NGA-70	CABLE, 18/C #16 AWG	BIM		ED	1265	2345	09	
NGA-77	CABLE, 4/C #10 AWG	CERRO WIRE		ED	1312	8	08	
HCA-9	CABLE, 1/C 1500 MCM	GENERAL CABLE		ED	1255	8	10	
NGB-01	CABLE, 2/C #10 AWG	OKONITE		ED	1404	8	16	
NGB-11	CABLE, TRIPLEX 2/0 AWG	GENERAL CABLE		ED	1256	8	14	
NGB-11	CABLE, TRIPLEX 2/0 AWG	OKONITE		ED	1384	8	12	
NGB-12	CABLE, TRIPLEX #1 AMG	OKONITE		ED	1384	8	12	
MG8-12	CABLE, TRIPLEX #1 AWG	GENERAL CABLE		ED	1256	8	14	
_NGB-15	CABLE, TRIPLEX #4 AWG	CKONITE		ED	1128	8	06	
NGB-16	CABLE, TRIPLEX #6 AWG	OKONITE .		ED	1128	8	06	
NGB-1	CABLE, 3/C #8 AWS	OKONITE		ED	1128	8	06	
NGB-18	CABLE, 3/C #10 AWG	OKONITE		ED	1128	8	06	
_NGB-19	CABLE, 3/C #12 AWG	OKONITE		ED	1128	8	06	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
NGB-35	CABLE, 2/C #16 AWG	BIW		ED	1265	2345	09	
NSB-35	CABLE, 2/C #16 AWG	CERRO WIRE		ED	1392	2345	13	
NGB-39	CABLE, 3/C #16 ANG	CERRO WIRE		60	1392	123456	13	
NSB-39	CABLE, 3/C #16 AWG	BIW		ED	1265	2345	09	
NGB-40	CABLE, 4/C #16 AMG	BIW		ED	1265	2345	09	
NSB-43	CABLE, 2/C #8 AWG	CERRO WIRE		ED	1312	8	08	
NS3-44	CABLE, 2/C #6 ANG	CERRO WIRE		ED	1312	8	08	
NGS-45	CABLE, 4/C #6 ANG	CEPRO WIRE		ED	1312	8	08	
NGB-5	CABLE, TRIPLEX 500 MCM	GENERAL CABLE		ED	1256		14	
NG8-5	CABLE, TRIPLEX 500 MCM	OKONITE		ED	1384	8	12	
NOB-55	CABLE, 45/C #16 ANG	BIW		ED	1265	2345	09	
NGB-7	CABLE, TRIPLEX 250 MCM	GENERAL CABLE		ED	1256	8	14	
NGB-7	CABLE, TRIPLEX 250 MCM	OKONITE		ED	1384	8	12	
PS-EG-2JA	PRESSURE SHITCH, EMER GEN 2J COMP			ED		8	*N/A	
PS-EG-2JB	PRESSURE SWITCH, EMER GEN 2J COMP			ED		8	*N/A	
PT-LM-200A	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
PT-LM-200B	TRANSMITTER, CONTAINMENT PRESSURE	FOXEORO		LM	1215	1 3 5	48	
PT-LM-200C	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LM	1215	1 3 5	48	
PT-LM-2000	TRANSMITTER, CONTAINMENT PRESSURE	FOXBORO		LH	1215	1 3 5	48	
PT-MS-201A	TRANSMITTER, MAIN STM LP I PRES CONTROL			MS		2	*N/A	
PT-MS-201B	TRANSMITTER, MAIN STM LP II PRES CONTROL			MS		2	*N/A	
PT-MS-201C	TRANSMITTER, MAIN STM LP III PRES CONTROL			MS		2	*N/A	
PT-2455	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	
PT-2456	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC	1010	23 5	W07	

	DESCRIPTION	MANUFACTURER	MODEL NO.	21.00	PURCH.	12345678901234	1700	FAGE
PT-2457	TRANSMITTER, PRESSURIZER PRESSURE	BARTON		RC :	1010	23.5	M07	1
PT-2474	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXBORO		MS	W N	2	M03	
PT-2475	TRANSMITTER, STEAM GEN. 1 PRESSURE	FDXBDRO		() E	N A	v.	M03	
PT-2476	TRANSMITTER, STEAM GEN. 1 PRESSURE	FOXBORO		HS	W Z	5	M03	
PT-2484	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		N.	¥ Z	S	M03	
PT-2464	TRANSMITTER, STEAM GEN 2 PRESSURE			HS		4	*N/A	
PT-2405	TRANSMITTER, STEAM GEN 2 PRESSURE			S		đ	*N/A	
PT-2485	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	W Z	5	M03	
PT-2486	TRANSMITTER, STEAM GEN. 2 PRESSURE	FOXBORO		MS	× z	ıń.	M03	
PT-2494	TRANSHITTER, STEAM GEN. 3 PRESSU'E	FOXBORO		ES ES	N A	5	M03	
PT-2494	TRANSHITTER, STEAM GEN 3 PRESSURE			M.S		4	*N/A	
PT-2495	TRANSHITTER, STEAM GEN 3 PRESSURE			MS		*	*N/A	
PT-2495	TRANSHITTER, STEAM GEN. 3 PRESSURE	FOXBORO		MS	N A	ŝ	M03	
PT-2496	TRANSMITTER, STEAM GEN. 3 PRESSURE	FOXBORO		HS.	e z	S	M03	
PM-SW-224	RADIATION MONITORS, SW RAD MONITORS			SW		4	*N/A	
RM-5W-225	RADIATION HONITORS, SW RAD MONITORS			MS		,	*N/A	
RM-SW-226	RADIATION MONITORS, SW RAD MONITORS			SH		4	*N/A	
RM-SW-227	RADIATION MONITORS, SW RAD MONITORS			MS		,	*N/A	
RPS-EG-2HA	PRESSURE SMITCH, EMERG GEN 2H COMP			ED		80	*N/A	
RPS-EG-2HB	PRESSURE SMITCH, EMERG GEN 2H COMP			60		8	*N/A	
SOV-, S-201A-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-BD-200A	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1	30	
SCV-5B-200B	SOV, STEAM GEM BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1 7	63	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER		DENT FUMET 5678901234	FILE	PAGE
	SOV-BD-200D	SOV, STEAM GEN BLONDOWN ISOLATION VALVE	ASCO		CI	1125	1	7	63	****
	SOV-ED-200E	SOV, STEAM GEN. BLOWDOWN ISOLATION	ASCO		CI	1125	1		30	
	SOV-80-200F	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125	1	7	63	
	SOV-BD-200G	SOV, STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125		7	63	
	SOV-E0-200H	SOV, STEAM GEN BLONDOWN ISOLATION VA. VE	ASCO		CI	1125		7	63	
	SOV-80-200J	SOV. STEAM GEN BLOWDOWN ISOLATION VALVE	ASCO		CI	1125		7	63	
	SOV-CC-200A	SOV, PECIFC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1		30	
	SOV-CC-200B	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1		30	
ì	SOV-CC-200C	SOV, RECIRC. AIR COOLER OUTLET OUTSIDE	ASCO		CI	1125	1		30	
١,	SOV-CC-201A	SOV, RCP THERMAL BARRIER RET HEADER	ASCO		CI	1125	1		30	
	SOV-CC-201B	SOV, RCP THERMAL BARRIER HEADER	ASCO		CI		1		62	
	SOV-CC-202A	SOV. RCP COOLER RETURN HEADER	ASCO		CI	1125	1		30	
	SOV-CC-202B	SOV, RCP BEARING COOLING	ASCO		CI		1		58	
	SOV-CC-202C	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1		30	
ì	SOV-CC-202D	SOV, RCP BEARING COOLING	ASCO		CI		1		58	
i.	SOV-CC-202E	SOV, RCP COOLER RETURN HEADER	ASCO		CI	1125	1		30	
	SOV-CC-202F	SOV, RCP BEARING COOLING	ASCO		CI		1		58	
	SOV-CC-203A	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1		30	
	SOV-CC-203B	SOV, RHR HEAT EXCH RETURN	ASCO		CI	1125	1		30	
_	SOV-CC-204A-1	SOV, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1		30	
	SOV-CC-204A-2	SOV, RCP COOLER INLET OUTSIDE	ASCO		CI	1125	1		30	
	SOV-CC-2048-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1		30	
	SOV-CC-2048-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1		30	
-	_SOV-CC-204C-1	SOV, RCP COOLERS INLET OUTSIDE	ASCO		CI	1125	1		30	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
	SOV-CC-204C-2	SOV, RCP COOLERS INLET OUTSIDE	ASCO	***	CI	1125	1	30	-
	SOV-CC-205A	SOV, PECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
	SOV-CC-205B	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
	SOV-CC-205C	SOV, RECIRC AIR COOLERS OUTLET INSIDE	ASCO		CI		1	62	
	50V-CV-200	SOV, CONTAINMENT VACUUM EJECT INLET			CI		1	#N/A	
	SOV-CV-250A	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
	SOV-CV-250B	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
	SOV-CV-250C	SOV, CONTAINMENT VACUM PUMP SUCTION	ASCO		CI	1125	1 3 5	67	
	SOV-CV-250D	SOV, CONTAINMENT VACUE FUMP SUCTION	ASCO		CI	1125	1 3 5	67	
	SOV-DA-200A	SOV, RC SUMP PUMP DISCHARGE	ASCO		CI	1125	1	30	
	SOV-DA-200B	SOV, CONTAINMENT SUMP DISCH ISOLATION	ASCO		CI		1	62	
	SOV-DG-200A	SOV, PRIMARY DRAIN TRANSFER PUMP DISCHARG	ASCO		CI	H/A	1	15	
	SOV-DG-200B	SOV, FRIMARY DRAIN TRANSFER PUMP DISCHARG	ASCO		.i		1	62	
	SOV-HV-160-1	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6	*N/A	
	SOV-HV-160-2	SOV. CONTROL AND RELAY ROOM DAMPER			HV		6	*N/A	
	SOV-HV-161-1	SOV, CONTROL AND RELAY ROOM DAMPER			HV	. Fe	6	*N/A	
	SOV-HV-161-2	SOV, CONTROL AND RELAY ROOM DAMPER			HV		6	*N/A	
	SOV-HV-215A-1	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
	SOV-HV-215A-2	SOV, FLUSH VALVE SERVICE BLDG STRATNER			CI		1	*N/A	
	SOV-HV-2158-1	SOV, FLUSH VALVE SERVICE BLDE STPAINER	Surface State Section		CI		1	*N/A	
	SOV-HV-215B-2	SOV, FLUSH VALVE SERVICE BLDG STRAINER			CI		1	*N/A	
	SOV-HV-2200A	SOV, VALVE FOR 2-HV-P-22A			HV		9	*N/A	
	SOV-HV-22008	SOV, VALVE FOR 2-HV-P-22B			HV		9	*N/A	
-	SOV-HV-2200C	SOV, VALVE FOR 2-HV-P-22C			HV		9	*H/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-HV-2300A	SOV, BOTTLED AIR SYSTEM			HV	****	6	*N/A	
SOV-HV-2300B	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300C	SOV. BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2300D	SOV, BOTTLED AIR SYSYTEM			HV		6	*N/A	
SOV-HV-2306A	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV-2306B	SOV, BOTTLED AIR SYSTEM			HV		6	*N/A	
SOV-HV228-1	SOV, EXHAUST TO IDDINE FILTER BANK			ΗV		23 5	*N/A	
SOV-HV228-2	SOV, EXHAUST TO IDDINE FILTER BANK			HV		23 5	*N/A	
SOV-IA-200A	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200B	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-200C	SOV, CONTAINMENT INST AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-201A	SOV, CONTAINMENT INSTRUMENT AIR	ASCO		CI		1	55	
SOV-IA-202A	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1	30	
SOV-IA-202B	CONTAINMENT INSTRUMENT AIR ISOLATION	ASCO		CI	1125	1- 7-77	30	
SOV-LM-200A	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200B	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1.00	40	
SOV-LM-200C	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200D	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1.0	40	
SOV-LM-200E	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200F	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200G	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-200H	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	40	
SOV-LM-201A	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
_SOV-LM-201B	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
SOV-LM-201C	SOV, CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	10 M M M
SOV-LM-201D	SOV. CONTAINMENT LEAKAGE MONITOR	ASCO		CI	1163	1	69	
SOV-MS-201A-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-#3-201A-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-2	SOV. MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-M3-201A-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201A-5	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201B-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201B-2	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201B-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201B-4	SOV, MAIN STERM LINE TRIP	ASCO		CI		1	60	
SOV-MS-2018-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-1	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-2	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-2	SOV. MAIN STEAM LINE TPIP			CI		1	*N/A	
SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP			CI		1	*N/A	
SOV-MS-201C-4	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP	ASCO		CI		1	60	
SOV-MS-201C-5	SOV, MAIN STEAM LINE TRIP			CI		1	HN/A	
SOV-M3-209A	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-209B	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51	
SOV-MS-210A	sov,			CI		1	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNC1 12345678901234	
SOV-MS-210B	sov,			CI		1	*N/A
S V-MS-211A	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36
SOV-MS-211B	SOV, AUX FEED PUMP TURB DRIVE	ASCO		MS	1125	2 6 7	36
SOV-MS-213A-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51
SOV-MS-213A-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51
SOV-MS-2138-1	SOV, STEAM FEN TRIP	ASCO		cı	1125	1	51
SOV-MS-213B-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51
SQV-MS-213C-1	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51
SOV-MS-213C-2	SOV, STEAM GEN TRIP	ASCO		CI	1125	1	51
SOV-RM-200A	SOV, RADIATION MONITORING	ASCO		CI	1125	1	30
SOV-RM-200B	SOV, RADIATION MONITORING	ASCO		CI	1125	1	30
SOV-RM-200C	SOV, RADIATION MONITORING	ASCO		CI		1	62
SOV-SI-200A	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30
SOV-SI-200B	SOV, NITROGEN SUPPLY LINE	ASCO		CI	1125	1	30
SOV-SI-201	SOV, HITROGEN SUPPLY LINE	ASCO		CI	1125	1	30
SOV-SS-200A	SOV, PRESSURIZER LIQUID SPACE	ASCO		cī		1	62
SOV-SS-200B	SOV, PRESSURIZER LIQUID SPACE	ASCO		CI	1163	1	37
SOV-SS-201A	SOV, PRESSUPIZER VAPOR SPACE SAMPLE	ASCO		CI		1	62
SOV-SS-201B	SOV, PRESSURIZER VAPOR SAMPLE	ASCO		CI	1163	1	37
SOV-SS-202A	SOV, PRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI		1	68
SOV-SS-202B	SOV, PRIMARY COOLANT COLD LEG SAMPLE	ASCO		CI	1163	1	38
SOV-SS-203A	SOV, RHR DUTBOARD ISOLATION VALVE	ASCO		CI		1	37
SOV-SS-203B	SOV, RHR OUTBOARD ISOLATION VALVE	ASCO		CI	1163	1	37
SOV-SS-204A	SOV, PRESSURIZER RELIEF TANK GAS SPACE	ASCO		CI		1	62

	MARK NO.	DESCRIPTION	MANUFACTURER	MOSEL NO.	SYS	PURCH. ORDER	ACCIDENT FUN 123456789012	Alexander and a second	ILE	PAGE
	SCV-SS-204B	SOV, PRESSURE RELIEF TANK SAMPLE	ASCO		CI	1163	1		37	
	SOV-SS-206A	SOV, PRIMARY CODLANT HOT LEG SAMPLE	ASCO		CI		1		68	
	SOV-53-206B	SOV, PRIMARY COOLANT HOT LEG SAMPLE	ASCO		CI		1 4		38	
	SOV-SS-206B,	SOV, PRIMARY CODEANT HOT LEG SAMPLE	ASCO		CI		1 4		62	
	SOV-53-207A	SOV, RHR SAMPLE LINE	ASCO		CI	1163	1		55	
	SOV-SS-207B	SCV, RHR SAMPLE LINE	ASCO		CI	1163	1		56	
	SOV-SS-212A	SOV, STEAM GEN SAMPLE	ASCO		CI		1		52	
	SCV-5S-212B	SOV, STEAM GEN SAMPLE ISOLATION	ASCO		CI	1163	1		37	
	SOV-SV-202-1	SOV, AIR EJECTOR VENT	ASCO		CI	1125	1		51	
	SOV-SV-203	SOV, AIR REMOVAL SYSTEM	ASCO		CI	1125	1		51	
	SOV-SW-201A-1	SOV, AIR COOLER EMERG SUPPLY	ASCO		SN			3	70	
	SOV-SW-201A-2	SOV, AIR COOLER EMERG SUPPLY	ASCO		SH			3	70	
	SOV-SW-2018-1	SOV, AIR COOLER EMERG SUPPLY	ASCO		SW			3	70	
	SOV-SW-201B-2	SOV, AIR COOLER EMERG SUPPLY	ASCO		SM			3	70	
	SOV-VG-200A	SOV, PRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI	1125	1		30	
	SOV-VG-200B	SOV, FRIMARY DRAIN TRANSFER TANK VENT	ASCO		CI		1		62	
	SOV-2200A-1	SOV, LETDONN LINE	ASCO		CI	1010	1		W09	
	SOV-2200A-2	SOV, LETDOWN LINE	ASCO		CI	1010	1		M35	
	SOV-2200B-1	SOV, LETDOWN LINE	ASCO		CI	1010	1		M0.8	
-	SOV-2200B-2	SOV, LETDOWN LINE	ASCO		CI	1010	1		W32	
	SOV-2200C-1	SOV, LETDOWN LINE	ASCO		CI	1010	1		W09	
	SOV-2200C-2	SOV, LETDOWN LINE	ASCO		CI	1010	1		W32	
	SOV-2204	SOV, REGEN HEAT EXC. OUTLET VALVE	ASCO		CI	1010	1		46	
-	SOV-2311	sov,			CH		5		*N./A	

MARK NO.	DESCRIPTION	MANUFACTURER MODEL NO.			ACCIDENT FUNCT 12345678901234		PAGE
SOV-2460A	SOV, LETDOWN LINE LOOP 1 & 2	ASCO	CI	1010	1	W10	
507-24608	SOV, LETDOWN LINE LOOP 1 & 2	ASCO	CI	1010	1 - 1	W10	
SOV-2519A	SOV, PRIM GRADE WATER TO PRT	ASCO	CI	1010	1	46	
SOV-2842	RADIATION MONITORING LINE	NAMCO	CI	1010	1	W40	
SOV-2859	SOV, SAFETY INJECTION ACCUMULATOR	ASCO	CI	1010	1	W26	
SOV-2884A	SOV, BORON INJECTION TANK TO BATCH TK	ASCO	SI	1010	23 5	M30	
SOV-2884B	SOV, BORON INJECTION TANK TO BATCH TK	ASCO	SI	1010	23 5	W30	
SOV-2884C	SOV, BORON INJECTION TANK TO BATCH TK	ASCO	SI	1010	23 5	W30	
SOV-2936	SOV, ACCUMULATOR VENT LINE FLOW	ASCO	CI	1010	1	M33	
SP	SPLICES	CONAX	N/A	1313	9	26	
SP	SFLICES	CONAX	N/A	1313	9	27	
SP	SPLICES	RAYCHEM	N.	NA .	9	34	
SPV-MS-2018-5	SOV, MAIN STEAM LINE TRIP		CI		1	*N/A	
TB	TERMINAL BLOCKS	CONNECTION INC.	N/A	1313	9	19	
TB	TERMINAL BLOCKS	MANY	N/A	NA	9	32	
TE-AM-100A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT	AM	1363	8	72	
TE-AM-100B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT	AM	1363	8	72	
TE-AM-101A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT	AM	1363	8	72	
TE-AM-101B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT	AM	1363	8	72	
TE-AM-102A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT	AM	1363	8	72	
TE-AM-102B	AMBIENT TEMPERATURE MONTTORS	ROSEMOUNT	AM	1363	8	72	
TE-AM-103A	AMBIENT TEMPERATUR JRS	ROSEMOUNT	AM	1363	8	72	
TE-AM-103B	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT	AM	1363	8	72	
4-104/	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT	AM	1363	Parker School	72	

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA FOWER STATION UNIT 2
EQUIPMENT GALIFICATION MASTER LIST
MARK NUMBER SORT

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	(C)	PURCH.	ACCIDENT FUNCT 12345678901234	FILE	7 7 7
TE-AM-1048	ALTIENT TEMPERATURE MONITORS	ROSEMOUNT	1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	T NA	363	0	7.5	
TE-AM-105A	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM I	363	8	72	
TE-AM-1058	AMBIENT TEMPERATURE MONITORS	ROSEMOUNT		AM 1	1363	10	72	
TE-AM-106A	AMBIENT TEMPERATURE MONITORS	ROSEHOUNT		AM 1	1363	10	72	
TE-AM-106B	AMBIENT TEMPERATURE MONITORS	ROSEHOUNT		AM 13	363	60	72	
TE-4M-107A	AMBIENT TEMPERATURE MONITORS	ROSEHOUNT		AM 13	1363	60	72	
TE-AM-107B	AMBIENT TEMPERATURE MONITORS	ROSEHOUNT		AM 1.	1363	60	72	,
TE-4M-108A	AMBIENT TEMPERATURE MONITCRS	ROSEMOUNT		AM 1.	1363	60	72	
TE-4M-108B	AMBIENT TEMPERATURE MONITORS	ROSEHOUNT		AM 13	1363	60	72	
TE-AM-215	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSENOUNT		AM 13	1343	4	47	
TE-AM-216	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEHOUNT		AM 13	1363	7	47	
TE-AM-217A	AMBIENT TEMP. MONITOR SERV. BLDG.	ROSEMOUNT		AM 13	1363	_	47	
TE-AM-217B	AMBIENT TEMP. HO .TOR SERV. BLDG.	ROSEMOUNT		AM 13	1363	1×	4.7	
TE-AM-217C	AMBIENT TEMP. MG (ITOR SERV. BLDG.	ROSEMOUNT		AM 13	1363	1	47	
TE-4M-217D	AMBIENT TEMP, HO TOR SERV. BLDG.	ROSENDUNT		AM 1	1363		47	
TE-2410	RTD, RCS WIDE RAM.	ROSEHOUNT		RC 10	010	2	W27	
TE-2412B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC 10	010	1 345	M12	
TE-2412D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC 10	010	1 345	M12	
TE-2413	RTD, RCS MIDE RANSE	ROSEMOUNT		RC 10	010	4	W27	
TE-2420	RTD, RCS MIDE RANGE	ROSEMOUNT		RC 10	1010	7	M27	
TE-2422B	RTD, RCS MARROW RANGE	ROSEMOUNT		RC 10	1010	1 345	W12	
TE-2422D	RTD, RCS NARROW RANGE	ROSEMOUNT		RC 10	1010	1 345	M12	
TE-2423	RTD, RCS WIDE RANGE	ROSEMOUNT		RC 10	010	4	M27	
TE-2430	RTD, RCS WIDE RANGE	ROSEMOUNT		RC 10	1010		W27	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TE-2432B	RTD, RCS NARROW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2432D	RTD, RCS NARPOW RANGE	ROSEMOUNT		RC	1010	1 345	W12	
TE-2433	RTD, RCS WIDE RANGE	ROSEMOUNT		RC	1010	4	W27	
тм	TERMINATIONS	RAYCHEM		N/A	N/A	9	39	
TS-HV-2229	TEMPERATURE SWITCH			HV		3	*N/A	
TS-HV1968	TEMPERATURE SWITCH, EMER GEN ROOM 2H			HV		9	*N/A	
TS-HV196D	TEMPERATURE SHITCH, EMER GEN ROOM 2J			HV		9	#N/A	
TS-HV2230	TEMPERATURE SWITCH	HONEYWELL		HV	NA	2	64	
11	TERMINATION TAPE	OKONITE		NA	NA	9	33	
TV-SW-101A	TRIP VALVE,			SW		3	*N/A	
TV-SW-101B	TRIP VALVE,			SW		3	*N/A	
TV-SW-201A	TRIP VALVE,			SW		3	*N/A	
TV-5W-201B	MOV,			SW		3	*N/A	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	24	
TYPE IA	PENETRATION ASSEMBLIES (INSTRUMENTATION)	CONAX		ED	1313	8	25	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	24	
TYPE IB	PENETRATION ASSEMBLIES (CONTROL)	CONAX		ED	1313	8	25	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	24	
TYPE IC	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	25	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIA	PENETRATION ASSEMBLIES (LOW VOLTAGE PHR)	CONAX		ED	1313	8	24	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	24	
TYPE IIB	PENETRATION ASSEMBLIES (LOW VOLTAGE PHR)	CONAX		ED	1313	8	25	
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
TYPE IIC	PENETRATION ASSEMBLIES (LOW VOLTAGE PAR)	CONAX		ED	1313	8	24	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PUR)	CONAX		ED	1313	8	24	
TYPE IID	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PAR)	CONAX		ED	1313	8	24	
TYPE IIE	PENETRATION ASSEMBLIES (LOW VOLTAGE PWR)	CONAX		ED	1313	8	25	
TYPE III	PENETRATION ASSEMBLIES (TRIAXIAL)	CONAX		ED	1313	8	24	
TYPE IV	PENETRATION ASSEMBLIES (THERMOCOUPLES)	CONAX		ED	1313	8	24	
1-EP-MC-19	MCC-1H1-2N	KLOCKNER MOELLER		ED	1176	8	22	
1-EP-MC-20	MCC-1H1-2S	KLOCKNER MOELLER		ED	1176	8	22	
1-EP-MC-21	MCC-1J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
1-EP-MC-22	MCC-1J1-25	KLOCKNER MOELLER		ED	1176	8	22	
1-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		нс	1365	3 5	43	
1-HV-F-22B	FAN, EXHAUST FAN EMER GEN ROOM 2H			HV		9	*N/A	
1-Hv-F-22D	FAN, EXHAUST FAN EMER GEN POOM 2J			HV		9	*N/A	
1-EV-F-8A	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HV	NUS-71	23 1	45	
1-HV-F-8B	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HV	NUS-71	23 1	45	
1-HV-F-8C	FAN, AUX BLDG EXHAUST	WESTINGHOUSE		HV	NUS-71	23 1	45	
1-SW-P-1A	PUMP, SW PUMP MOTOR A			2:1		23 5	*N/A	
1-SW-P-1B	FUMP, SW PUMP HOTOR B			SW		23 5	*N/A	
1-SW-P-4	PUMP, AUX SERVICE WATER PUMP			SI4		23 5	*N/A	
1-SW-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
1-SW-S-1B	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
2-BY-B-01A	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	
2-BY-B-01B	BATTERY, STATION BATTERY 2-1			ED		8	*N/A	

	MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS			IDENT FUNCT 45678901234	FILE	PAGE
	2-BY-B-02A	BATTERY, STATION BATTERY 2-2		********	ED		~ ~ ~	8	*N/A	
	2-BY-B-02B	BATTERY, STATION BATTERY 2-2			ED			8	*N/A	
	2-8Y-8-03A	BATTERY, STATION BATTERY 2-3			ED			8	*N/A	
	2-BY-B-03B	BATTERY, STATION BATTERY 2-3			ED			8	*N/A	
	2-BY-B-044	BATTERY, STATION BATTERY 2-4			HV			8	*N/A	
	2-BY-B-048	BATTERY, STATION BATTERY 2-4			HV			8	*N/A	
	2-BY-C-02	BATTERY CHARGER			ED			8	*N/A	
	2-BY-C-03	BATTERY CHARGER			ED			8	*N/A	
	2-BY-C-04	BATTERY CHARGER			ED			8	*N/A	
	2-BY-C-05	BATTERY CHARGER			ED			8	*N/A	
	2-BY-C-06	BATYERY CHARGER			ED			8	*N/A	
	2-BY-C-07	BATTERY CHARGER			ED			8	*N/A	
	2-CH-P-1A	PUMP, CHARGING (HHSI)	WESTINGHOUSE		СН	1010	2	5	W20	
	2-CH-P-18	PUMP, CHARGING (HHSI)	WESTINGHOUSE		CH	1010	2	5	M20	
	2-CH-P-1C	PUMP, CHARGING (HHSI)	WESTINGHOUSE		CH	1010	2	5	M50	
	2-DB-P-10A	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421		6	0.5	
	2-DB-P-10B	PUMP, CHILLER ROOM SUMP	JOHNSTON PUMP		DB	1421		6	05	
	2-DB-P-10B	PUMP, CHILLER ROOM SUMP						6	*N/A	
	2-EE-EG-OZA	GENERATOR, EMERGENCY GEN 2H			ED			8	*N/A	
_	2-EE-EG-02B	GENERATOR, EMER GEN 2H CONTROL BOX			ED			8	*N/A	
	2-EE-EG-02C	GENERATOR, EMER GEN 2H CONTROL CAB			ED			8	*N/A	
	2-EE-EG-4A	GENERATOR, EMERGENCY GENERATOR 2J			ED			8	*N/A	
	2-EE-EG-4B	GENERATOR, EMERG GEN 2J CONTROL BOX			ED			8	*N/A	
-	2-EE-EG-4C	GENERATOR, EMER GEN 2J CONTROL CAB			ED			. 8	*N/A	

VIRGINIA ELECTRIC AND POWER COMPANY NORTH ANNA ROWER STATION UNIT 2 EQUIPMENT GALIFICATION MASTER LIST MARK NUMBER SORT

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH.	ACCIDENT FUNCT 12345678901234	FILE PAGE
2-EE-55-01	SWITCHGEAR, 480 V SS BUS 2H	# \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	2 1 2 2 3 4 4 2 2 1 1 2 2 3 2 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	E0	1	60	*N/A
2-EE-55-02	SMITCHGEAR, 480 V SS BUS 2J			ED		8	*N/A
2-EE-53-03	SWITCHGEAR 480V (2H1)	ITE		ED	1088	60	31
2-EE-53-04	SWITCHGEAR 480V (2J1)	ITE		ED	1063	60	75
2-EE-ST-01	SWITCHGEAR 480V (2H1)	ITE		ED	1088	10	31
2-EE-ST-02	TRANSFORMER 480V (231)	ITE		60	1083	8	75
2-EE-SM-01	SWITCHGEAR, 4 KV BUS 2H			ED		ю	*N/A
2-55-33-2	GENERATOR, EMER GEN 2.) BATTERY			ED		80	*N/A
2-E5-AC-2HA	COOLER, AFTER COOLER ENER GEN ROOM 2H			ED		0	*N/A
2-EG-AC-2HB	COOLER, AFTER COOLER ENER GEN ROOM 2H			G3		8	*N/A
2-EG-AC-2JA	CODLER, AFTER COOLER EMERG GEN ROOM 2.			ED		60	*N/A
2-EG-AC-2JB	COOLER, AFTER COOLER EMERG GEN ROOM 23			ED		100	*N/A
2-E6-8-028	GENERATOR, EMER GEN 2H BATTERY			C3		0	*N/A
2-EG-C-2HA	COMPRESSOR, EMERG GEN AIR COMP I			ED		60	*N/A
2-EG-C-2HB	COMPRESSOR, EMERG GEN AIR COMP 1			G		8	*N/A
2-EG-C-2JA	COMPRESSOR, EMERG GEN AIR COMP 1			03		8	*N/A
2-EG-C-2JB	CUMPRESSOR, EMERG GEN AIR COMP 2			ED		8	*N/A
2-EG-P-2HA	PUMP, EMERGENCY GEN 2H FUEL FILL PUMP			SM		80	*N/A
2-EG-P-2HB	PUMP, EMERGENCY GEN 2H FUEL OIL PUMP			ED		8	*H/A
2-EG-P-2JA	PUMP, EMERGENCY GEN 2J FUEL OIL PUMP			ED		40	*N/A
2-EG-P-2JB	PUMP, EMERGENCY GEN 23 FUEL OIL PUMP			ED		89	*N/A
2-EI-CB-01	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A
2-EI-CB-02	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A
	Current Commence			ED		2345	*N/A

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EI-CB-04	CABINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-05	CAEINET, MAIN CONTROL BOARD			ED		2345	*N/A	
2-EI-CB-06A	CABINET, AUX SHUTDOWN PANEL			ED		2345	*N/A	
2-EI-C8-068	CABINET, AUX SHUTDOWN PANEL			ED		2345	*N/A	
2-EI-CB-07	CABINET, VENTILATION CONTROL BOARD			ED		6 9	*N/A	
2-EI-CB-08A	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-CB-08B	CABINET, EMER GEN 2H CONTROL PANNEL			ED		8	*N/A	
2-EI-CB-156A	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-156B	CABINET, CONTROL CAB FOR AIR SYS			ED		6	*N/A	
2-EI-CB-23A	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23B	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23C	CABINET, PROCESS RACK			ED		2345	*N/A	
2-EI-CB-23D	CABINET, PROCESS RACK			ED		2345	HN/A	
2-EI-CB-47A	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47B	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47C	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47D	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47E	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-47F	CABINET, SOLID STATE PROTECTION			ED		1 3 5	*N/A	
2-EI-CB-51	CABINET, PROCESS RACK 1			ED		1 3 5	*N/A	
2-EI-CB-52	CABINET, PROCESS RACK 2			ED		1 3 5	*N/A	
2-EI-CB-53	CABINET, PROCESS PACK 3			ED		1 3 5	*N/A	
2-EI-CB-54	CABINET, PROCESS RACK 4			ED		1 3 5	*N/A	
2-EP-CB-04A	CABINET, VITAL BUS CAB 2-1			ED		8	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EP-CB-04B	CABINET, VITAL BUS CAB 2-2			ED	 8	*N/A	
2-EP-CB-04C	CABINET, VITAL BUS CAB 2-3			ED	8	*N/A	
2-EP-CB-04D	CABINET, VITAL BUS CAB 2-4			ED	8	*N/A	
2-EP-CB-12A	CABINET, DC CABINET 2-1			ED	8	*N/A	
2-EP-CB-12B	CABINET, DC CABINET 2-2			ED	8	*N/A	
2-EP-C6-12B1	CABINET, DC DISTRIBUTION PANEL 2-2A			ED	8	*N/A	
2-EP-CB-12C	CABINET, DC CABINET 2-3			ED	8	*N/A	
2-EP-CB-12D	CABINET, DC CABINET 2-4			ED	8	*11/A	
2-EP-CB-1201	CABINET, DC DISTRIBUTION PANEL 2-4A			ED	8	*N/A	
2-EP-CB-19A	CABINET, VITAL SOV PANEL			ED	8	*N/A	
2-EP-CB-19B	CABINET, VITAL SOV PANEL			ED	8	*N/A	
2-EP-CB-23A	CABINET, DC DISTRIBUTION PANEL 2A			ED	8	*N/A	
2-EP-CB-23B	CABINET, DC DISTRIBUTION PANEL 2B			ED	8	*N/A	
2-EP-CB-28	CABINET, AUX RELAY CAB CASING COOLING			ED	5	*N/A	
2-EP-CB-28	CABINET, AUX RELAY CAB CASING COOLING			ED	2	*N/A	
2-EP-CB-28A	CABINET, AUX RELAY CABINET A			ED	23 5 78	*N/A	
2-EP-CB-28B	CABINET, AUX RELAY CABINET B			ED	23 5 78	*N/A	
2-EP-CB-34	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED	6	*N/A	
2-EP-CB-35	CABINET, CONTROL PANEL FOR CONTROL ROOM A			ED	6	*N/A	
2-EP-CB-80A	CABINET, INST DISTRIBUTION PANNEL 1			ED	8	*N/A	
2-EP-CB-80B	CABINET, INST DISTRIBUTION PANNEL 2			ED	8	*N/A	
2-EP-CB-80C	CABINET, INST DISTRIBUTION PANNEL 3			ED	8	*N/A	1
2-EP-CB-80D	CABINET, INST DISTRIBUTION PANNEL 4			ED		*11/4	1
2-EP-MC-10	MCC, 2H1-1			ED	8	*N/A	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-EP-MC-11	MCC, 2J1-1			ED		8	*N/A	
2-EP-MC-12	MCC, 2H1-1A			ED		8	*N/A	
2-EP-MC-13	MCC, 271-1A			ED		8	*N/A	
2-EP-MC-19	MCC-2H1-2N	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-20	MCC-2H1-2S	KLOCKNER MOELLER		ED	1176	6	22	
2-EP-MC-21	MCC-2J1-2N	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-22	MCC-2./1-2S	KLOCKNER MOELLER		ED	1176	8	22	
2-EP-MC-41	MCC, 2H1-4			ED		8	*N/A	
2-FW-P-3A	PUMP, STM GEN AUX DP MOT A			FW		5 7	*N/A	
2-FW-P-3B	PUMP, STH GEN AUX DP HOT B			FW		5 7	*N/A	
2-HC-HC-1	HYDROGEN RECOMBINER	ROCKWELL INT.		HC	1365	3 5	43	
2-HV-AC-06	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
2-HV-AC-07	COOLER, EMERGENCY SWITCHGEAR ROOM A/C			HV		9	*N/A	
2-HV-AC-08	COOLER, AFTER COOLER EMER GEN ROOM 2H			ED		6	*N/A	
2-HV-AC-09	COOLER, AFTER COOLER EMER GEN FOOM 2H			ED		6	*N/A	
2-HV-E-4A	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-E-4B	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-E-4C	CHILLER, CONTROL AND RELAY ROOM	WESTINGHOUSE		HV	1247	6	01	
2-HV-F-24	FAN, EQUIPMENT ROOM SUPPLY	AEROVENT FAN CO.		HV	1241	6	03	
2-HV-F-40A	FAN, SAFEGAURDS AREA VENTILATION	BUFFALO FORGE		HV	1296	0	18	
2-HV-F-40B	FAN, SAFEGAURDS AREA VENTILATION	BUFFALO FORGE		HV	1296	0	18	
2-HV-F-41	FAN, CONTROL ROOM EMER VENT			ΗV		6 19-8	*N/A	
2-HV-F-42	FAN, EMERGENCY SWITCHGEAR VENT			HV		9	*N/A	
2-HV-F-52B	FAN, BATTERY ROOM 2-2 EXHAUST			HV		9	*N/A	

MARK NO	D. DESCRIPTION	MANUFACTURER	MODEL NO.	SYS	PURCH. ORDER	ACCIDENT FUNCT 12345678901234	FILE	PAGE
2-HV-F-57/	A FAN, BATTERY ROOM 2-1 EXHAUST FAN			HV	*****	9	*N/A	
2-HV-F-570	C FAN, BATTERY ROOM 2-3 EXHAUST			HV		9	*N/A	
2-HV-F-570				HV		9	*N/A	
2-HV-F-68/				HV		1	*N/A	
2-HV-F-688				HV		1	*N/A	
2-HV-F-71	A FAN, SAFEGAURDS AREA VENTILATION	JOY MANUFACTURING		HV	1201	0	21	
2-HV-F-71E		JOY MANUFACTURING		HV	1201	0	21	
2-HV-P-201	A PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-208	B PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-200	C PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-22/	A PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-22E	B PUMP, CHILLER POOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-P-220	C PUMP, CHILLER ROOM A/C	BINGHAM-WINIAMETTE		HV	1276	6	04	
2-HV-S-1A	STRAINERS, CHILLER ROOM	ELLIOT		HV	1299	6	02	
2-HV-S-1B	STRAINERS, CHILLER ROOM	ELLIOT		HV	1299	6	02	
2-HV-22070	FLOW SHITCH, BATTERY ROOM 2-4 VENT			HV		9	*N/A	
2-QS-P-1A	PUMP, QUENCH SFRAY PUMP 1A			QS		3 5	*N/A	
2-QS-P-1B	PUMP, QUENCH SPRAY PUMP 1B			QS		3 5 3	*N/A	
2-RS-P-1A	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	29	
_2-RS-P-1A	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 5	28	
2-RS-P-1B	PUMP, INSIDE RECIPC. SFRAY	GENERAL ÉLECTRIC		RS	1355	3	29	
2-RS-P-1B	PUMP, INSIDE RECIRC. SPRAY	GENERAL ELECTRIC		RS	1355	3 3 4 4 5	28	
2-RS-P-2A	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3	44	
2-RS-P-2B	PUMP, RECIRC. SPRAY	GENERAL ELECTRIC		RS	1127	3	44	

MARK NO.	DESCRIPTION	MANUFACTURER	MODEL NO.		ORDER	ACCIDENT FUNCT 12345678901234		PAGE
-RS-P-3A	PUMP, CASING CLG RECIPC SPRAY PUMP			RS		3 5	*N/A	
-RS-P-38	FUMP, CASING CLG RECIRC SPRAY PUMP			RS		3 5	#N/A	
-SI-P-1A	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	1010	2 5	W13	
-SI-P-18	PUMP, LOW HEAD SAFETY INJECTION	WESTINGHOUSE		SI	10.0	2 5	W13	
-SW-P-1A	PUMP, SW PUMP MOTER A			SW		23 5	*N/A	
-SW-P-18	PUMP, SW PUMP MOTOR B			SW		23 5	*N/A	
-SW-P-4	PUMP, AUX SERVICE WATER FUMP			SW		23 5	*N/A	
-SW-P-5	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
-SW-P-6	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
-SW-P-7	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
-SW-P-8	PUMP, RADIATION MONITOR	MARATHON ELECT.		SW	1083	4	41	
-SH-S-1A	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
-SW-S-1B	STRAINER, SW TRAVELING WATER SCREENS			SW		23 5	*N/A	
-VB-I-01	INVERTER, VITAL BUS INVERTER 2-1			ED		8	*N/A	
-VB-I-02	INVERTER, VITAL BUS INVERTER 2-2			ED		8	*N/A	
-VB-I-03	INVERTER, VITAL BUS INVERTER 2-3			ED		8	*N/A	
-VB-I-04	INVERTER, VITAL BUS INVERTER 2-4			ED		8	*N/A	

689 RECORDS PRINTED

SECTION 10
QUALIFICATION AND EVALUATION SHEETS

Revision 1 November 1, 1980

Revision 1 November 1, 1980

TABLE 1

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: AC Chillers

MANUFACTURER: Westinghouse Electric Corporation, Model No. PC088W

SUPPLIER: Same as above

P.O.: NA-1247

FUNCTION; Control Room Habitability

LOCATION: SB-254B

MARK NO.:

2-HV-E-4A, Control and Relay Room AC Chiller 2-HV-E-45, Control and Relay Room AC Chiller 2-HV-E-4C, Control and Relay Room AC Chiller

DESCRIPTION OF ENVIRONMENT

LOCA: NA

MSLB in Turbine Building:

radn rads NA

temp

186

NA

100%

0-30 min

press

psia

hmd

OPERABILITY REQUIREMENTS

MSLB in Turbine Building: 30 min at 186°F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

MSLB in Turbine Building: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB in Turbine Building: None

MANNER OF QUALIFICATION

MSLB: None

QUALIFICATION DOCUMENT

MSLB: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB

A. Deficiencies:

Equipment not qualified for exposure to:

- 1. High ambient temperature, 186°F
- 2. Saturated atmosphere, 100% hmd

B. Solutions:

In the event of an MSLB in either turbine building and the corresponding failure of a main steam stop valve to shut, temperature in the control room AC chiller room will approach 186°F at 100 percent relative humidity due to steam blowdown entering the chiller room. AC chiller systems are not qualified to withstand these environmental conditions. In order to maintain habitable temperatures in both Units' control rooms under the above conditions it is necessary to operate two AC chillers in the unaffected unit.

Continued operation of Unit 2 can be justified on the basis of always having two Unit 1 AC chillers, one Unit 1 emergency diesel generator and two Unit 1 emergency buses available. Since the analysis assumes a main steam trip valve fails to shut, no other single failure need be postulated per Regulatory Guide 1.81. Therefore, only one Unit 1 diesel generator need be available to operate two AC chillers (this requires tying emergency buses 1H and 1J).

1

TABLE 2

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Air Conditioning Self-Cleaning Strainers

MANUFACTURER: Elliot Company, Model No. ECA

SUPPLIER: Same as above

P.O.: NA-1299

FUNCTION: Control Room Habitability

LOCATION: SB-254B

MARK NO.

2-HV-S-1A, Self-cleaning Strainers 2-HV-S-1B, Self-cleaning Strainers

DESCRIPTION OF ENVIRONMENT

LOCA: NA

MSLB in Turbine Building:

radn

NA 186

0-30 min

temp

press psia NA.

hind

100%

OPERABILITY REQUIREMENTS

MSLB in Turbine Building: 30 min at 186°F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

MSLB in Turbine Building: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLS in Turbine Building: None

MANNER OF QUALIFICATION

MLSB in Turbine Building: None

QUALIFICATION DOCUMENT

MSLB in Turbine Building: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB in Turbine Building:

A. Deficiencies:

- 1. High ambient temperature, 186°F
- 2. Saturated atmosphere, 100% had

B. Solutions:

In the event of an MSLB in either turbine building and the corresponding failure of a main steam stop valve to shut, temperature in the control room AC chiller room will approach 186°F at 100 percent relative humidity due to steam blowdown entering the chiller room. AC chiller systems are not qualified to withstand these environmental conditions.

In order to maintain habitable temperatures in both Units* control rooms under the above conditions it is necessary to operate two AC chillers in the unaffected unit.

Continued operation of Unit 2 can be justified on the basis of always having two Unit 1 AC chillers, one Unit 1 emergency diesel generator and two Unit 1 emergency buses available. Since the analysis assumes a main steam trip valve fails to shut, no other single failure need be postulated per Regulatory Guide 1.81. Therefore, only one Unit 1 diesel generator need be available to operate two AC chillers (this requires tying emergency buses 1H and 1J).

TABLE 3

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Propeller Fan

MANUFACTURER: Aerovent Pan Company, Inc., Model No. 7-216: Ins. Class P

SUPPLIER: Aerovent Fan Company, Inc., Model No. 7-216: Ins. Class F

P.O.: NA-1241

FUNCTION: Control Room Habitability

LOCATION: SB-254B

MARK NO.: 2-HV-F-24, Equipment Room Supply Pan

DESCRIPTION OF ENVIRONMENT

LOCA: NA

MSLB in Turbine Building:

radn rads

temp 186

temp 0-30 min

press psia

md 100%

OPERABILITY REQUIREMENTS

MSLB in Turbine Building: 30 min at 1860F

ACCURACY REQUIREMENTS: Not required

MSLB in Turbine Building: None

OPERABILITY DEMONSTRATED

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB in Turbine Building: None

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB

A. Deficiencies:

Equipment not qualified for exposure to:

1. High ambient temperature, 1860p

2. Saturated atmosphere, 100% hmd

B. Solutions:

In the event of an MSLB in either turbine building and the corresponding failure of a main steam stop valve to shut, temperature in the control room AC chiller room will approach 186°F at 100 percent relative humidity due to steam blowdown entering the chiller room. AC chiller systems are not qualified to withstand these environmental conditions. In order to maintain habitable temperatures in both Units' control rooms under the above conditions it is necessary to operate two AC chillers in the unaffected unit.

Continued operation of Unit 2 can be justified on the basis of always having two Unit 1 AC chillers, one Unit 1 emergency diesel generator and two Unit 1 emergency buses awailable. Since the analysis assumes a main steam trip valve fails to shut, no other single failure need be postulated per Regulatory Guide 1.81. Therefore, only one Unit 1 diesel generator need be available to operate two AC chillers (this requires tying emergency buses 1% and 1J).

Revision 1 November 1, 1980

TABLE W

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: In-line Pumps

MANUFACTURER:

Bingham-Williamette Company

Model 20*s No. 773B581G47 Type *8* insulation Model 22*s No. 773B581G31 Type *8* insulation

SUPPLIER: Same as above

P.O.: NA-1276

FUNCTION: Control room habitability

LOCATION: SB-254B

MARK NO.;

2-E /-P-20A, In-line pump - Air Conditioning 2-HV-P-20B, In-line pump - Air Conditioning 2-HV-P-20C. In-line pump - Air Conditioning 2-BV-P-22A, In-line pump - Air Conditioning 2-HV-P-22B, In-line pump - Air Conditioning 2-HV-P-22C. In-line pump - Air Conditioning

DESCRIPTION OF ENVIRONMENT

LOCA: NA

MSLB in Turbine Building:

rads

temp 186 30 min

press NA

paia

100%

OPERABILITY REQUIREMENTS

MSLB in Turbine Building: 30 min at 186°F

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

MSLB in Turbine Building: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB in Turbine Building: None

MANNER OF QUALIFICATION

MSLB in Turbine Building: None

QUALIFICATION DOCUMENT

MSLB in Turbine Building: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB in Turbine Building:

A. Deficiencies:

Equipment not qualified for exposure to:

- 1. High ambient temperature, 186°F
- 2. Saturated atmosphere, 100% hmd

B. Solutions:

In the event of an MSLB in either turbine building and the corresponding failure of a main steam stop valve to shut, temperature in the control room AC chiller room will approach 186°F at 100 percent relative humidity due to steam blowdown entering the chiller room. AC chiller systems are not qualified to withstand these environmental conditions.

In order to maintain habitable comperatures in both Units* control rooms under the above conditions it is necessary to operate two AC chillers in the unaffected unit.

Continued operation of Unit 2 can be justified on the basis of always having two Unit 1 AC chillers, one Unit 1 emergency diesel generator and two Unit emergency buses available. Since the analysis assumes a main steam trip valve fails to shut, no other single failure need be postulated per Regulatory Guide 1.81. Therefore, only one Unit 1 diesel generator need be available to operate two AC chillers (this requires tying emergency buses 18 and 131 .

TABLE 5

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Sump Pumps

MANUFACTURER: Johnston Pump Company, Model No. Type RGIV

SUPPLIER: Same as above

P.O .: NA-1421

FUNCTION: Control Room Habitability

LOCATION: SB-254B

MARK NO .:

2-DP-P-10A, Chiller Room Sump Pumps 2-DB-P-10B, Chiller Room Sump Pumps

DESCRIPTION OF ENVIRONMENT

LOCA: NA

MSLB in Turbine Building:

radn rads

NA 186

temp

0-30 min

press

-

hmd

100%

NA.

OPERABILITY REQUIREMENTS

MSLB in Turbine Building: 30 min at 186°F

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED

MSLB in Turbine Building: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: None

MANNER OF QUALIFICATION

MSLB in Furbine Building: Test

QUALIFICATION DOCUMENT

MSLB in Turbine Building: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB in Turbine Building:

A. Deficiencies:

Equipment not qualified for exposure to:

- 1. High ambient temperature, 186°F
- 2. Saturated atmosphere, 100% hmd

B. Solutions:

In the event of an MSLB in either turbine building and the corresponding failure of a main steam stop valve to shut, temperature in the control room AC chiller room will approach 186°F at 100 percent relative humidity due to steam blowdown entering the chiller room. AC chiller systems are not qualified to withstand these environmental conditions. In order to maintain habitable temperatures in both Units' control rooms under the above conditions it is necessary to operate two AC chillers in the unaffected unit.

Continued operation of Unit 2 can be justified on the basis of always having two Unit 1 AC chillers, one Unit 1 emergency diesel generator and two Unit 1 emergency buses available. Since the analysis assumes a main steam trip valve fails to shut, no other single failure need be postulisted per Regulatory Guide 1.81. Therefore, only one Unit 1 diesel generator need be available to operate two AC chillers (this requires tying emergency buses 18 and 13).

TARLE 6

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION: 600 V Cu Power Cable

MANUFACTURER: Omonite

Jacket: Neoprene

Insulation: Exhylene Propylene Rubber

SUPPLIER: Same as above

P.U.: NA-1128

FUNCTION: Supplies Power to Safety Systems

LOCATION: Inside and Outside Containment

MARK NO.:

NGA-20, 1/c 250 NCM NGA-21, 1/c 2/0 AMG NGB-15, Triplex No. 4 AMG NGB-16, Triplex No. 6 AMG NGB-17, 3/c No. 8 AMG NGB-18, 3/c No. 10 AMG NGB-19 3/c No. 12 AMG

DESCRIPTION OF ENVIRONMENT

LUCA:

radn 1.8 x 10* (LOCA) + 3.0 x 10* (40 yr) rads = 4.8 x 10*

temp 280 0-30 min %F 280 to 150 30-60 min 150 > 60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 > 60 min

spray Solution or noric 0-4 hr acid (2,000-2,100 ppm boron) buffered

to pH of 8.5-11

with Nauti

Similar solution > 4 hr with pH or 7.8

-9.0

MSLB:

radn 1.3 x 10* (MSLB) + (40 yr) rads = 3.0 x 10*

temp 430 0-2 min op 430-280 2-60 min 150 > 60 min

press 59.7 0-30 min 59.7-14.7 30-60 min 14.7 > 60 min

spray Same as LOCA OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

MSLB: 120 days at 150°F

ACCURACY REQUIREMENTS

LOCA 6 MSLB: Not required

OPERABILITY DEMONSTRATED

Post LAXX thermal aging is greater than 2.9 years at 150°F per 54W Calc. 13075.49-3.

See about

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLS

Aging 168 hr at 250°F

radn 2 x 10*

tiemo DWN 324 4 hr 252 7 days BWR 309 0-55 man 344 55 man-3 hr 20 man 320 3 hr 20 min 4 hr 27 min 1 day 25e 212 100 days 259 Last 10 hr press PMR 94.7 A hr 30.4 7 day BWR 118.7 0-55 man 116.7 55 min-3 ha 40 min 85.7 3 hr 20 min 4 hr 27 man 29.7 1 day 14.7 100 days 34.7 last 10 hr

The same cables that have been exposed to the PWR accident conditions were then exposed to a RWR similar accident condition.

MANNER OF QUALIFICATION

LOCA: Test Sequential

MSLB: Test-Analysis

QUALIFICATION DOCUMENTATION

LACA: Okonite's Engineering Report No. 141 dated 2/29/72 IEEE Transaction Paper T 740-44-4

Additional Supporting Documents: Outline of Franklin Institute Research Laboratory Report C-3694

Stone 6 Webster Caic. No. ES-215-0, Cable Temperature Transcient; dated 8/10/79. Oxonite letter dated 8/21/80.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

Deficiencies: None

MSLB: Qualification based on independent test and analysis. Each of the qualification parameters (obtained from independent test and analysis) exceeds the corresponding MSLB requirements.

Amend PSAR as stated in "Qualification Document".

Maximum calculated surface temperature during limiting MSLb is 335°F which does not exceed qualification temperature of 34°F given in BMR exposure portion of LOCA qualification, per Calc. No. ES-215-0

6

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TABLE 7

QUALIFICATION AND EVALUATION

BOUIPMENT DESCRIPTION: High Temperature Cable

MANUFACTURES: Cerro Mire and Cable Company; Jacket: Asbestos Braid, Insulation: Silicone Rubber

SUPPLIER: Same as above

P.O.: NA-1359

PUNCTION

1. Engineered Safety Peature

2. DBA (LOCA & MSLB) Mitigation

LOCATION: Inside Containment

MARK NO.: 56A-15, Triplex 250 MCM

Note: NGA-95 is required for the inside recirculation spray pumps.

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 1.8 x 10° (LOCA) + 3.0 x 10° (40 yr) = 4.8 x 10° rads

150

280 280 - 150

0-30 min 30-60 min >60 min

press 59.7 59.7-14.7 psia

0-30 min 30-60 min >60 min

0-4 hr

14.7

Solution of boric acid (2,000-2,100 ppm boron) buffered to

pH of 8.5 to 11 with NaOB

Similar solution with >4 hr pH of 7.8 to 9.0

MSLB:

SDEAV

radn 1.3 x 104 (MSLB) + 3 x 107 (40 yr)

rads = 3 x 10 F

temp 430 0-2 min 280 2-60 min 150 >60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

MSLB: 120 days at 150°F ACCURACY REQUIREMENTS: NA OPERABILITY DEMONSTRATED: LOCA: 120 days, 150°F

MSLB: See above

ENVIRONMENT TO WEICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

radn rads

2 x 10*

temp

276

0-12 hr

Dress psia

64.7 19.7

0-12 hr 12-hr day

SDEAV

Solution of boric acid (1,720 ppm boron)

0-10 hr 10-12 hr

Same as above

12 hr to unspecified

<7 days

P-C2750 indicates that in an earlier test the spray was buffered with NaOB to ph of 9

MANNER OF QUALIFICATION

LOCA: Test - Sequential

MSLB:

Temperature - Analysis Pressure and Radiation - Test Refer to LOCA Qualifications

QUALIFICATION DOCUMENT

LOCA:

Franklin Institute Research Laboratory (FIRL), Report F-C2857 Cerro's Supplement to FIRL, Report F-C2857 FIRL, Report F-C2750 Cerro's Supplement to FIRL, Report F-C2750

MSLB:

FSAR Section 3C and response to Comment 7.17. Rockbestos letter dated 4/25/77 LOCA qualification documents. F-C2750 indicates that in an earlier test, the spray was buffered with NaOH to pH of 9. Each of the qualification parameters (obtained from independent test and analysis; exceeds the corresponding MSLB requirements.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

A. Deficiencies:

Qualification documents do not address:

- 1. 276°F, 0-30 min vs 280°F. 1,750 ppm boron vs 2,000 ppm
- Long-term post-accident

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B. Solutions:

- The above 276°F through first 30 min is within tolerance of the LOCA comperature transient profile - PSAR Fig. 6.2-82 (Amendment No. 65).
- 2. The cable jacket is of an asbestos braid which has been shown to be resistant to all diluted alkaline solutions. Therefore, since the LOCA spray is in the range of a diluted alkaline solution, it should have no significant effect on the cable.
- 3. The cable (NGA-15) insulation is rated for 125°C conductor temperature at rated capacity, and it can be shown by standard industry practices that the cable is capable of operating in a 150°P ambient continuously.

TABLE 8

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION: 600 V Control Cable

MANUFACTURER: Cerro Wire and Cable; Jacket: Neoprene; Insulation: Cross-Linked

Polyethylene: Pyro-thor II

SUPPLIER: Same as above

P.O.: NA-1312

FUNCTION: Supplies Power to Safety Systems

LOCATION: Inside and Outside Containment

MARK NO.:

NGA-19,	2/0	No.	2	AWG	NGA-45,	2/c	No.	12	AWG
NGA-34,	1/0	No.	74	AWG	NGA-47,				
NGA-35,	2/0	No.	14	AWG	NGA-49,				
NGA-36,	3/c	No.	14	AWG	NGA-57,	4/0	No.	10	AWG
NGA-37,	5/c	No.	14	AWG	NGA-77,	4/c	No.	10	ANG
NGA-38,	7/0	No.	1.0	AWG	NGB-43,				
NGA-39,	9/0	No.	14	AWG	NGB-44,				
NGA-40,	12/	e No.	. 1	4 AWG	NGB-45,				
NGA-44.	1/0	No.	12	AWG		-18.40			marrie .

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 4.8 x 10 * (LOCA) + 3.4 x 10* (40 yr) rads =4.8 x 10*

temp 280 0-30 min 280-150 30-60 min 150 >60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >60 min

spray Solution to boric acid 0-4 hr (2,000-2,100 ppm boron) buffered to pH of 8.5 to

11 with NaOH

Similar solution with pH >4 hr

of 7.8 to 9.0

MSLB:

radn 3.4 x 10*(40 yr) rads

temp 430 0-2 min 280 2-60 min 150 >60 min

psia 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >60 min

spray Same as LOCA OPERABILITY REQUIREMENTS

LOCA 5 MSLB: 120 days at 1500F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: 2700P for 12 hr, 1600F for 6 days

Post LACA thermal aging is equivalent to 71 days at 150°F.

per S&W Calc. 13075.49-3

MSLB: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA 6 MSLB:

Aging	1300 hr at 150°C	
rad	2 x 10*	
temp	276 164 160	0-1; hr 12 hr-unspecified 7 days-unspecified
	376 376 366 337 337–242	0-15 min 13-15 min 15-20 min 20-25 min 25 min-3 hr 36 min
press pala	64.7 19.7	0-12 hr 12 hr-7 days
	72.7 76.7 76.7 76.7 79.7 74.7	0-13 min 13-15 min 15-20 min 20-25 min 25 min to 3 hr 36 min
spray	Solution of boric acid (approx. 1,720 ppm boron)	10-12 hr
	Same as above	12 hr-unspecified

MANNER OF QUALIFICATION

LOCA: Sequential Test
MSLB: Sequential Test
QUALIFICATION DOCUMENT

LOCA:

Franklin Institute Research Laboratory Report (FIRL) P-C2857 Cerro's Supplement to FIRL Report F-C2857

Rockbestos Company Report (13-10407-E) S8-13-2 Test was performed on cable of a similar construction as that supplied in P.O. NA-312/1312

PSAR Section 3C and response to Comment 7.17

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. <u>Deficiencies</u>: Post LOCA & MSLB thermal operability not equivalent to 120 days at 150°P.

B. Solutions:

After testing, it was concluded that the performance of the cable was acceptable under simulated LOCA and MSLS conditions without any loss of performance. Therefore, it is believed the additional elevated temperature will have little effect.

MS1-B:

A. Deficiencies:

Qualification temperature 3% for 13 min is below proposed accident temperature, 430% for 2 min.

B. Solutions:

Surface temperature will reach a maximum of 3550F after 2 min at 4330F. Therefore, the temperature requirements are met.

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TABLE 9

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION: 300 V Instrument Cable

MANUFACTURERS: Boston Insulated Wire and Cable; Jacket: Neoprene; Insulation: Cross-linked Polyethlene

SUPPLIER: Same as above

P.O.: NA-1265

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Safety Peature 3. Post-accident monitoring 4. DBA (LOCA & MSLB) Mitigation

LOCATION: Inside and Outside Containment

MARK NO. :

NGA-67 19/c No. 16 AWG
NGA-68 12/c No. 16 AWG
NGA-69 2/c No. 16 AWG
NGB-10 16 AWG

*Denotes cables that are used inside containment on Class 1E circuits.

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 1.8 x 10° (LOCA) + 3.0 x 10° (40 yr) rads = 4.8 x 10°

temp 280

press 59.7 0-30 min 59.7-14.7 30-60 min 14.7

spray Solution of boric acid 0-4 hr

(2,000-2,100 ppm boron) buffered to pH of 8.5 to

11 with NaOH

Similar solution with >4 hr pH of 7.8 to 9.0

0-30 min

MSLB:

radn 1.3 x 10* (MSLB) + 3.0 x 10* (40 yr) rads = 3.0 x 10*

temp 430 0-2 min op 280 2-60 min 150 >60 min psia

59.7 59.7-14.7 0-30 min 30-60 min >60 min

spray

Same as LOCA

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F MSLB: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

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OPERACILITY DEMONSTRATED

LOCA: It has been concluded that the cable showed no evidence of blistering, cracking or other damage.

MSLB: See above

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB;

radn 1 x 10*
temp 60-310
op 310

310 10-25 min 290 25-85 min 210 85 min-26 hr

0-10 min

0-10 min

10-25 min

25-85 min

85 min-26 hr

press 0-94.7 psia 94.7 69.7 14.7

> 0.26 molar boric as boric acid with a 0.019 molar solution of NaOH to give a pB of 8.0-8.5

MANNER OF QUALIFICATION

LOCA: Sequential Test

QUALIFICATION DOCUMENT

LOCA:

spray

B.I.W. Letters dated: 1/17/72, 12/14/71 B.I.W. Letter dated 6/25/80

MSLB:

PSAR Appendix 3C Table 3.C-2 dated 9/28/77 B.I.W. Letter dated 10/12/76 LOCA Qualification documents B.I.W. Letter dated 6/25/80

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA & MSLB:

A. Deficiencies:

- 1. pH 8 to 8.5 vs pH 8.5 to 11
- 2. Does not meet qualification temperature

B. Solutions:

 The cable jacket is of a neoprene material which was shown to be resistant to all diluted alkaline solutions. Therefore, we believe that since the LOCA spray is in the range of a diluted alkaline solution, it should have no significant effect on the cable. Temperature - Analysis of maximum calculated surface temperature during limiting MSLB is 272°F, which does not exceed qualification temperature of 310°F.

0-9 sec

4-5 hr

5-48 hr

9-15 sec

15 sec-4 hr

TABLE 10

QUALIFICATION AND EVALUATION

EQUIPMENT 'MESCRIPTION: 5 kV Alum Power Cable

MANUFACTURER

General Cable; Jacket: Neoprene; Insulation: Ethylene Propylene Rubber

SUPPLIER: Same as above

P.O.: NA-1255

FUNCTION: Supplies Power to Safety Systems

LOCATION: Outside Containment

MARK NO .:

NGA-3, Triplex 1000 MCM

NGA-4, 3/C 500 MCM Aluminum Armor NGA-6, 3/C 1250 MCM Aluminum Armor

NGA-5, 3/C 1250 MCM Steel Armor

NGA-10, 1/C 2000 MCM

NGA-12, 3/C 1000 MCM Aluminum Armor

NGA-13, 3/C 4/O AWG. Aluminum Armor

NGA-9, 1/C 1500 MCM

DESCRIPTION OF ENVIRONMENT

LOCA;

radn

3.6 x 104 (LOCA)

(40 yr)

+2 X 10+

=5.6 x 10*

NA.

NA

rads temp

press

psia

spray NA

hmd

MSLB: Will not see a changing environment due to an MSLB.

HELB:

radn 2 x 104 (40 yr) rads

temp 212

op

press 14.96 psia

hmd 100%

OPERABILITY REQUIREMENTS

LOCA 6 HELB: 30 min at 212°F and ambient for 120 days

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA 6 HELB: Cable was concluded to be functional after simulated test.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA and HELB:

radn 2 x 10* rads

temp 340 0-4 hr ap 340-310 4-5 hr 260 5-48 hr

NA

press 74.7 psia 114.7 114.7 76.7 34.7

spray

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

LOCA: General Cable Letter dated 12/22/71; Audit performed on 8/27/80 at General Cable Co., Research Center, Edison, N.J. Reviewed Franklin Inst. Research Lab. Report 1F-C3125 dated 9/71. (Proprietary)

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: 5 Ev Aluminum Power Cable

MANUFACTURER: Oxonite

SUPPLIER: Same as above

P.O.: NA-1375

FUNCT: M: Supplies Power to Safety Systems

LOCATION: Outside Containment

MARK NU.:

NGA-4, 3/c 500 MCM NGA-14, Triplex 4/0 AWG NGA-3, Triplex 1000 MCM NGA-13, 3/c No. 4/0 AWG

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.6 x 10* (LOCA) + 2 x 10* (40 yr) rads

= 5.6 x 104

temp NA.

press psia

spray NA

head NA

MSLB: Will jut see a changing environment due to an MSLB.

HELB:

0.2 x 10*(40 yr) radn rads

temp 212 0-30 min

press 14.96 0-30 min psia

hmad 100%

OPERABILITY REQUIREMENTS

LOCA & HELB: 30 min at 212°F and ambient for 120 days

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED

LOCA 6 HELB: It was concluded that samples withstood accident conditions.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

radn rads	2 x 10*	
temp or	324 252	0 - 4hr 4 hr - 7 days
press psia	94.7 30.7	0-4 hr 4 hr - 7 days
spray	NA	
had	100%	

MANNER OF QUALIFICATION

LOCA: Test - Sequential MSLB: Test - Analysis

QUALIFICATION DOCUMENT

LOCA: Okonite's Engineering Report No. 141 dated 2-29-72

Additional Supporting Documents;

Outline or Franklin Institute Research Liboratory Report F-C3694 ISES Transaction Paper T740-44-4 Okonite letter dated 8/21/80

Stone & Webster Calc. No. ES-215-0, Cable Temperature Transient, dated 8/10/75

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

Deficiencies: None

MSLB:

Qualification based on independent test analysis, each of the qualification parameters (obtained from independent test and analysis exceeds the corresponding MSLB requirements.

Maximum calculated surface temperature during limiting Makb is 335°F, which does not exceed qualification temperature of 345°P given in SWR exposure portion of LOCA qualification, per Calc No. ES-215-0.

QUALIFICATION AND EVALUATION

EQUIPMENT	DESCRIPTION:	600 V	Alum.	Power	Cable

MANUPACTURE: Okonite; Jacket: Neoprene; Insulation: Ethylene Propylene Rubber

SUPPLIER: Same as above

P.O.: NA-1384

FUNCTION: Supplies Power to Safety Systems LOCATION: Inside and Outside Containment

MARK NO.;

NGB-5, Triplex 500 MCM NGB-7, Triplex 250 MCM NGB-11, Triplex No. 2/0 AWG NGB-12, Triplex No. 1 AWG

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads	1.8 x 10° (LOCA) + 3.0 ; = 4.8 x 10°	t 10*(40 yr)
temp	280 280-150 150	0-30 min 30-60 min >60 min
press paia	59.7 59.7-14.7 14.7	0-30 min 30-60 min >60 min
gnray	ALC: A CONTRACT OF THE PARTY OF	

spray Solution of 0-4 hr boric acid (2,000-

2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH

Similar solution with >4 hr pH of 7.8 to 9.0

MSLB:

radn rads	1.3 x 10*(MSLB + 3.0 x YO = 3.0 x 107	*(40 yr)
temp	430 280 150	0-2 min 2-6 min >60 min
press	59.7 59.7-14.7	0-30 min 30-60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: Post LOCA therma) aging is greater than 2.9 years at 150°F per SEW Calc. 13075.49-3

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

aging	250 0 p	168 hr
radn rads	2 x 10*	
temp ep		
PWR	324 252	4 hr 7 days
BWR	309 346 320 256 212 259	55 min- 3 hr 20 min 3 hr 20 min 4 hr 27 min 1 day 100 days last 10 hr
press psia		
PWR	94.7 30.4	4 hr 7 days
BWR	118.7 118.7 89.7 69.7 29.7 34.7	0-55 min 55 min - 3 hr 20 min 3 hr 20 min - 3 hr 27 min 1 day last 10 hr
spray	Solution of boric acid (10,000 ppm boron) buffered to pH of 10.5 with NaOH	0-7 days

The same cables that have been exposed to the PWR accident conditions were then exposed to a BWR simulated accident condition.

MAPNER OF QUALIFICATION

LOCA: Test - Sequential MSLB: Test - Analysis

QUALIFICATION DOCUMENT

LOCA: Okonite*s Engineering Report No. 141 dated February 19, 1972

IEEE Transaction Paper T 74 044 4

ADDITIONAL SUPPORTING DOCUMENTS:

Outline of Franklin Institute Research Laboratory Report F-C3694. Okonite letter, dated 8/21/80. Stone & Webster Calc. No. ES-215-0 Cable Temperature Transient, dated 8/10/75.

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QUALIFICATION DEPICIENCIES AND RECUMMENDED SOLUTIONS

LOCA:

Deficiencies: None

MSLB:

Qualification

Based on independent test and analysis, each of the qualification parameters (obtained from independent test analysis) exceeds to corresponding MSLB requirements.

Maximum calculated surface temperature during limiting MSLB is 335°F which does not exceed qualification temperature of 345°F given in BWR exposure portion of LOCA qualification per Caic. No. ES-215-0.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: 300 V Instrument Cable

MANUFACTURERS: Cerro Wire and Cable, Jacket: Neoprene Insulation: Cross-Linked Polyethylene

SUPPLIER: Same as above

P.O.: NA-1392

FUNCTION:

1. Containment Isolation

2. Emergency Core Cooling/Core Heat Removai

3. Engineered Safety Feature 4. Post-accident Monitoring

5. DBA (LOCA or MSLB) Mitigation

6. Service Building Babitability

LOCATION: Inside and Outside Containment

MARK NO:

NGA-67, 19/c No. 16 AWG NGA-68, 12/c No. 16 AWG MGA-70, 18/c No. 16 AWG NGB-35, 2/c No. 16 AWG NGB-39, 3/c No. 16 AWG

DESCRIPTION OF ENVIRONMENT

radn 1.8 x 10° (LOCA) + 3.0 x 10° (40 yr) rads = 4.8 x 10°

temp 280 0-30 min

op 280 -150 30-60 min 150 > 60 min

press 59.7 0-30 min paia 59.7-14.7 30-60 min 14.7 > 60 min

spray Solution of boric 0-4 hr acid (2,000-2100

ppm boron) buffered to

red to pH of 8.5 to 11 with NaOn

similar solution with pH of 7.8 to 9.0

> 4 nr

MSLB

radn 1.3 x 10* (MSLB) + 3.0 x 10* (40yr) rads = 3.0 x 10*

temp 430 0-2 mln op 280 2-60 min 150 > 60 mln

press 59.7 0-30 min 59.7-14.7 30-60 min 14.7 > 60 min Revision 1 November 1, 1980

spray same as LOCA

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F MSLB: 120 days at 150°F

ACCURACY REQUIREMENTS:

Not required

OPERABILITY DEMONSTRATED

LOCA: 30 days at or above 2120F

Post LOCA thermal aging is equivalent to 320 days at 150°F per S&W Calc. 13075.49-3.

MSLB: Same as LOCA

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LUCA & MSLB:

```
aging
           1300 hr at 150°C
radn
           2 x 10*
rads
temp
           280
                             0-10 sec
           280-346
                              10 sec-5 min
           346
                             5 man-3 hr
           346-140
                             3-5pr
           140-280
                             5 hr-5 hr 10 sec
           280-346
                             5 hr 10 sec-5 hr 5 min
           346
                             5 hr 5 min-8 hr
           335
                             8-11 hr
           315
                             11-15 hr
                             15 hr-4 days
           256
           212
                             4-30 days
```

After testing, exposed an additional 100 days at 2000F.

```
press
           84.7
                             0-10 sec
psia
           127.7
                             10 sec < 5 min
           127.7
                             5 man-3 hr
           127.7-84.7
                             3-5hr
           84.7
                             5 hr-5 hr 10 sec
                             5 hr 10 sec-5 hr 5 min
           127.7
           127.7
                             5 hr 5 min-9 hr
           107.7
                             8 hr-11 2
           83.7
                             11-15 hr
           42.7
                             15 hr-4 days
           14.7
                             4 days-30 days
```

solution of the 0-24 hr spray tollowing composition: 0.28 molar H, 80, 0.064 molar Na, S, 03 buffered to pH between 9-11 with NaOH 1-30 days

original solution at 200°F 30-100 days

MANNER OF QUALIFICATION

LOCA: Test - Sequential

MSLB: Temperature Analysis

QUALIFICATION DOCUMENT

LAX'A: Rockbestos (formerly Cerro) Letter dated 2-21-79 and its attached report

PSAR Section 3C and response to Comment 7.17, Rockbestos letter dated 4-25-77, LOCA qualification document

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

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LUCA

Deficiencies: None

MSLB: Comment

Qualification based on independent test and analysis. Each of the qualification parameters obtained from independent test and analysis exceeds the corresponding MSLB requirements.

Maximum calculated surface temperature during limiting MSLB is 3439 which does not exceed qualification temperature of 345° given in kockbestos (formerly Cerro) letter dated 4-25-77. Pressure and Radiation-test refer to LOCA Qualification.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: 600 V Alum. Power Cable

MANUFACTURER: General Cable (Pirelli); Jacket: Neoprene; Insulation: Ethylene Propylene Rubber

SUPPLIER: Same as above

P.O.: NA-1256

FUNCTION: Supplies Power to Safety Systems

LOCATION: Inside and Outside Containment

MARK N. .:

NGB-5, Triplex 500 MCM NGB-7, Triplex 250 MCM NGB-11, Triplex 2/0 AWG NGB-12, Triplex No.1 AWG

DESCRIPTION OF ENVIRONMENT

LOCA:

1.8 x 10° (LOCA) + 3.0 x 10° (40 yr) radn rads = 4.8 x 107 temp 280 0 - 30 min

280 - 150 30 - 60 min 150 > 60 min

0 - 30 min press 59.7 59.7 - 14.7 psia 30 - 60 min 14.7 > 60 min

Solution of boric acid spray 0 - 4 hr (2,000 - 2,100 ppm

boron) buffered to pH of 8.5 to 11 with NaOH

Similar solution with > 4 hr

pH of 7.8 to 9.0

MSLB:

1.3 x 10° (MSLB) + 3.0 x 10° (40 yr) radn rads = 3.0 x 107

430 temp 0 - 2 min op 280 2 - 60 min 150 > 60 min

press 59.7 0 - 30 min psia 59.7 - 14.7 30 - 60 min 14.7 7 - 60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

ACCURACY REQUIREMENTS

LOCA: Not required

OPERABILITY DEMONSTRATED

LOCA: 163 hr at 2600p

Post-LOCA thermal aging is equivalent to 490 days at 150°F per SEW Calc. 13075.49-3

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

radn 2 x 10* rads

temp 340 0 - 4 hr op 340 - 310 4 - 5 hr 260 5 - 48 hr press 74.7 0 - 4 br psia 114.7 9 - 15 sec 114.7 15 sec - 4 hr 76.7 4 - 5 hr

34.7

spray Solution of boric acid (2,000 ppm

boron) buffered to pH of 9.0 with NaOH 5 - 48 hr

MANNER OF QUALIFICATION

LOCA: Sequential Test

QUALIFICATION DOCUMENT

LOCA:

General Cable Letter dated 12-22-71.

Audit performed on 8-27-80 at General Cable Co. Research Center, Edison, N.J. Reviewed Pranklin Inst. Research Lab. Report No. F-C3125 dated September 1971 (Proprietary).

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valves

MANUFACTURER: Automatic Switch Company, Model No. HB-8302810

SUPPLIER: Same as above

P.O.:

FUNCTION: Containment Isolation

LOCATION: AB-244A

MARK NO.: SOV-DG-200A, Primary Drain Transfer Pump Discharge

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.6 x 10 * (LOCA) + 2 x 10 * (40 yr) 5.6 x 104 rads NA

temp OF

press NA psia

spray NA

OPERABILITY REQUIREMENTS

LOCA:

SOV will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: SOV performed required safety function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

radn rads	5 x 10*	
temp	450 340 338 240 244 158	0-2 min 2-8 min 8-25 min 25-35 min 35-45 min 45-61 min 5 days 7 hr 12 min - 13 days 21 hr 36 min
press psia	129 119 118 25 24 13.8	0-2 min 2-8 min 8-25 min 25-35 min 45-61 min 5 days 7 hr 12 min - 13 days 21 hr 36 min
hmd	100%	

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

LOCA:

Pranklin Institute Research Laboratories (FIRL) Test Report F-C4539, Westinghouse letter NS-SS7706

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

A. Deficiencies: Valve seat leakage detected in the energized condition.

When exposed to a radiation dose of 5 x 10^7 rads, some plastic internals of the SoV did disintegrate causing the valve to leak. However, the valve was able to exhaust its accumulated pressure and perform its safety function. (We letter NS-SS77060) and no valve seat leakage was detectable in the de-energized condition.

GUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: 600 V Cu Power Cable - Heat Tracing

MANUFACTURER:

Okonite, Jacket: Hypalon, Insulation: Cross-lnked Polyethylene

SUPPLIER: Same as above

P.O.: NA-1404

FUNCTION: Supplies Power to Safety System

LOCATION: Inside and Outside Containment

MARK NO.: NGb-01, 2/c No. 10 AWG

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 1.8 x 10 * (LOCA) + 3.0 x 10 * (40 yr) rads

= 4.8 x 107

temp 280 0-30 min 280-150 30-60 min 150 > 60 min

press 59.7 0-30min ps1a 59.7-14.7 30-60 man 14.7 > 60 min

spray Solution of boxic 0-4 hr

acid (2,000-2,100 ppm boron; buffered to pH of 8.5-11 with NaOH.

Similar solution with > 4 hr

pH of 7.8-9.0.

MSLB: Not required to mitigate an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

OPERABILITY DEMONSTRATED

LOCA: 27 days at 2120F.

Post LOCA thermal aging is equivalent to 291 days at 150°F per SEW

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

aging 14 days at 250°F; Irradiated to 5 x 10* rads and aged at 250°F for 7 days

radn 5 x 107 rads

temp

280 0-10 sec 346 10 sec-5 min 340 5 man-3 hr 140 3-5 nr 280 5-5 hr, 10 sec 346 5 hr 10 sec-5 hr 5 min 5 hr 5 min-8 hr 346 335 8-11 hr 3.15 11-15 hr 265 15 hr-4 day

212 4-31 day press 84.7 0-10 sec psia 127.7 10 sec-5 min 127.7 5 man-3 hr 84.7 3-5 nr 127.7 5 hr-5 min

147.7 5 hr 5 man-8 hr 109.7 8-11 hr 83.7 11-15 hr 42.7 15 hr-4 day spray 14.7 4-31 day

> Continuously for a 31 day period. Solution of 2,000 ppm boron as boric acid buffered with NaOH to a pH of 9 to 11. Irradiated to 1.5 x 10* rads during the 31 day period. Total 2 x 10* rads.

MANNER OF QUALIFICATION

LOCA: Sequential

QUALIFICATION DOCUMENT

LOCA: Franklin Institute Research Laboratory Report F-C3694

Additional Supporting Data: IEEE Transaction Paper T 74 044 04

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

Deficiencies: None

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TABLE 17

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve

MANUFACTURER: Elliot Company, Model No. MAR 25

SUPPLIER: Same as above

P.O.: NA-1299

PUNCTION: Control Room Habitability

LOCATION: SB254B

MARK NO .:

MOV-HV-215-1, Plush Valve Left for Strainer MOV-HV-215-2, Plush Valve Right for Strainer MOV-HV-216-1, Plush Valve Left for Strainer MOV-HV-216-2, Plush Valve Right for Strainer

DESCRIPTION OF ENVIRONMEN !

LOCA:

radn 260 (40 yr)

temp NA

op

press NA psia

spray NA

MSLB In Turbine Building:

radn N

rads

temp 186

0-30 min

press

press N psia

hmd 100%

OPERABILITY REQUIREMENTS

MSLB in Turbine Building: 30 min at 186 °F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

MSLB In Turbine Building: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB in Turbine Building: None

QUILIFICATION DOCUMENT

MSLB in Turbine Building: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB in Turbine Building:

A. Deficiencies:

- 1) High ambient temperature, 1860F
- 2) Saturated atmosphere

B. Solution:

In the event of an MSLB in either turbine building and the corresponding failure of a main steam stop valve to shut, temperature in the control room AC chiller room will approach 186°F at 100 percent relative humidity due to steam blowdown entering the chiller room. AC chiller systems are not qualified to withstand these environmental conditions.

In order to maintain habitable temperature in both units* control rooms under the above conditions it is necessary to operate two AC chillers in the unaffected unit.

Continued operation of Unit 2 can be justified on the basis of always having two Unit 1 AC chillers, one Unit 1 emergency diesel generator and the two Unit 1 emergency buses available. Since the analysis assumes a main steam trip valve fails to shut no other single failure need be postulated per Regulatory Guide 1.81. Therefore, only one Unit 1 diesel generator need be available to operate two AC chillers (this requires tying emergency buses 1H and 1J).

DELETED

TABLE 18*

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Centrifugal Fans

MANUFACTURER: Buffalo Porge Company, Model No. 680B101G57

SUPPLIER: Same as above

P.O.: NA-1296

PUNCTION: Safeguards Area Ventilation

LOCATION: AB-291A

MARK NO.:

2-HV-P-40A, Safeguard Area Ventilation 2-HV-P-40B, Safeguard Area Ventilation

DESCRIPTION OF ENVIRONMENT

LOCA:

radn <2500(LOCA)

-

temp NA

press NA

psia

spray NA

MSLB:

radn <2500 (MSLB)

NA

rads

temp NA

press

psia

ila

spray NA

OPERABILITY REQUIREMENTS

LOCA: NA

ACCURACY REQUIREMENTS: Not required

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UPERABILITY DEMONSTRATED

LOCA: NA

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

MANNER OF QUALIFICATION

LOCA:

QUALIFICATION DOCUMENT

LACA: NF

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: None

COMMENT: Endiation below threshold of 2500 raus

*Delete - No Qualification necessary; radiation below threshold

QUALIFICATION AND EVALUATION

<u>BOUIPMENT</u> <u>DESCRIPTION:</u> Polysulfone Terminal Blocks Supplied with keactor Containment Electrical Penetration - Conax

MANUFACTURER: Connection Inc., Model NSS3 polysulfone

SUPPLIER: Conax

P.O.: NA-1313

FUNCTION: Supplies Power to Safety Systems

LOCATION: Inside Containment

MARK NO.: NA

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads 6.8 x 10*

temp

280-150 150 0-30 min 30-60 min >60 min

press psia 59.7 59.7-14.7 14.7 0-30 min 30-60 min >60 min

0-4 hr

>4 hr

spray

Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11

with NaOH

Similar solution with pH of 7.8 to 9.0

MSLB:

radn rads 3.4 x 10* (40 yr)

temp op 430 280 150 0-2 min 2-60 min >60 min

press

59.7 59.7-14.7 14.7 0-30 min 30-60 min >60 min

spray

Same as LOCA

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

MSLB: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA & MSLB: Low Voltage Power/Control/Instrumentation 255°F for 190 hr. Post LOCA thermal aging is equivalent to 429 days at 150°F per SEW calc. 13075,49-3

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

aging	74 hr at 300°F	
radn rads	2.5 x 10 P	Minimum
temp op	253 282 285 298 282 289 300 293 297	0-30 sec 30-60 sec 60-90 sec 90-120 sec 2.5-4 min 4-5 min 5-10 min 10-15 min 15-30 min
press psia	39.7 59.7 59.7 72.2 62.7 63.7 70.7 61.7	0-30 sec 30-60 sec 60-90 sec 90-120 sec 2.5-4 min 4-5 min 5-10 min 10-15 min 15-30 min
spray	Solution of boric acid (1,900 ppm boron) buffered to pH of 7.7 at 190°F	0-30 min
	Same as above except 140°F	30 min-240 hr

MANNER OF QUALIFICATION

LOCA & MSLB: Test

QUALIFICATION DOCUMENT

Conax Corporation Test Report IPS-107. Conax letter "Qualification of electric Penetrations" No. IPS-411, P/N 7280-10001-01, IPS-369, IPS-325 dated 1/5/80. Letters from U ion Carbide, Belgium, NJ, dated 12/19/67, New Jersey, dated 1/22/68. Stone 6 Webster Calc. No. 11715-ES-169-0 dated 3/10/77.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies: Test solution - 1,900 ppm vs 2,000 - 2,100

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B. Solutions:

The terminal block is of a polysulfone material which has been shown to be resistant to all diluted alkaline solutions. Therefore, we believe that since the LOXA spray is in the range of a diluted alkaline solution, it should have no significant effect on the terminal blocks.

MSLB:

- A. Deficiencies: Does not meet maximum temperature for MSLB.
- B. Solutions:

Temperature qualifications acceptable since temperature reduced to 280°F after 2 min, due to thermal inertia, internal temperature rise stay within qualified limits. See Temperature Calculation Document Reference No. ES-169.

QUY IFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Level Transmitters

MANUFACTURER: Delaval Turbine, Gems Sensor Division, Model Gems No. XM-29400

SUPPLIER: 5. We as above

P.O.: NA-1333

FUNCTION: Post-accident Monitoring

LOCATION: RC216B

MARK NO.: LT-RS251A Containment Water Level, LT-RS251b Containment Water Level

DESCRIPTION OF ENVIRONMENT

LOCA;

radn 7.5 x 10* (LOCE) + 3.5 x 10* (40 yr) rads = 7.54 x 10*

temp 280 0-30 min op 280-150 30-60 min 150 > 60 min

press 59.7 0-30 min ps1a 59.7 - 14.7 30 - 60 man 14.7 > 60 man

spray Solution of boric 0 - 4 hr

acid (2,000-2,100 ppm boron) buffel of to pH of 8.5 to 11 with NauH

Similar solution > 4 hr

with pH of 7.8 to 9.0

MSLB:

radn 1.3 x 10* (MSLB) + 3.5 x 10* (40 yr)

= 4.8 x 10* rads

temp 430 0-2 min or 280 2-60 min 150 > 60 min

press 59.7 0-30 min psia 59.7 - 14.7 30 - 60 min 14.7 > 60 min

spray Solution of boric 0 - 4 hr

acid (2,000-2,100 ppm boron) burfered to pH of 8.5 to 11 with NaOH

Similar solution > 4 br

with pH of 7.8 to 9.0

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OPERABILITY MEQUIREMENTS

LOCA & MSLB: 120 days at 1500F

ACCURACY REQUIREMENTS

LOCA & MSLB: t 5% of range

OPERABILITY DEMONSTRATED

LOCA 6 MSLB: After test, transmitter functioned properly. Manufacture: 's normal environment is rated to 300°F.

ACCURACY DEMONSTRATED

LOCA 6 MSLB: 1.4% after test

ENV' COMMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

radn 2 x 10*

temp 282 0-60 min 280-150 > 60-180 min 150 180-140 days

7 ress 59.7 0-60 min 59.7-14.7 > 60-150 min 28.1 150-14 days

spray 15,000 ppm boric acid 4 hr

buffered to a pH of 10.5 with NaOH solution

Density: 0.15 gpm per ft2

MANNER OF QUALIFICATION

LOCA 6 MSLB:

FIRL Test - Sequential Radiation and Environmental Exposure Isomedix, Inc. Test - Sequential Environmental and Spray Exposure

QUALIFICATION DOCUMENT

LOCA 6 MSLB: Franklin Institute, Research Laboratories (FIRL), Report F-C3834

Isomedix, Inc. Test Report dated November 1975

QUALIFICATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies

Sequential radiation LOCA test was performed and a steam and chemical test was performed but the two tests were not performed sequentially to one another. Equipment has been qualified to IEEE 323-1971 and IEEE 344-1971.

B. Solutions:

- 1. Presently the equipment is the best available and it is also essentially the same as equipment currently being tested to IALE 323-1974 and IALE 344-1975 which the manufacturer is confident will be successful. Refer to Transamerica Delaval, Inc. (GEMS) letter to Stone 6 Webster dated 9/19/80. In addition, the testing to be performed on the equipment which has minor differences to the equipment installed will be performed sequentially.
- 2. based on the above, qualification is satisfactory.

MSLB

- A. Deficiencies: Test Temperature of 282°F is below accident temperature of 430°F
- B. Solutions:

As measured by thermocouple on circuit board, internal components reached qualification temperature 282°F only after 27 minute exposure to 450°F. Actual required exposure at 450°F is 2 minutes, therefore, qualification is satisfactory.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Axial Flow Fans

MANUFACTURER: Joy Manufacturing Company, Model No. 600263-5533

SUPPLIER: Same as above

P.O.: NA-1201

FUNCTION: Safeguards Area Ventilation

LOCATION: SPGD-1

MARK NO.:

2-HV-F-71A, Ventilation - Safeguard Area Z-HV-F-71B, Ventilation - Safeguard Area

DESCRIPTION OF ENVIRONMENT

LOCA: radn

7.0 x 10* (LOCA) +260 (40 yr) = 7.0 x 10*

rads

NA

press psia

spray

MSLB: Will not see a changing environment to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days integrated dose of 7 x 10° rads

ACCURACY DEQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: None

MANNER OF QUALIFICATION

LOCA: None

QUALIFICATION DOCUMENT

LOCA: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

A. Deficiencies: Equipment not qualified for exposure to 7 x 10* rads

B. Solutions:

Replace drivers with qualified motors.

Replacement motors have been purchased capable of withstanding the radiation dose of 7 x 10° rads.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Control Centers

MANUFACTURERS: Klockner Moeller

SUPPLIER: Same as above

P.O.: NA- 176

FUNCTION: Supplies Power to Safety Systems

LOCATION: AB259A

MARK NO.: UNIT 2 SIDE UNIT 1 SIDE

1-EP-MC-19 MCC-1H1-2N 2-EP-MC-19 MCC-2H1-2N 2-EP-MC-26 MCC-2H1-2S 1-EP-MC-20 MCC-1H1-2S 1-EP-MC-21 MCC-1J1-2N 1-EP-MC-22 MCC-1J1-2S 2-EP-MC-21 MCC-2J1-2N 2-EP-MC-ZZ MCC-ZJ1-ZS

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.1 x 10* (LOCA) + 5.3 x 10* (40 yr) rads

= 3.63 x 10*

temp

press NA

psia

spray

MSLB: Will not see a changing environment due to an MSLb.

HELB: Will not see a changing environment due to an HELB.

OPERABILITY REQUIREMENTS

LOCA: 1.04 x 10*, 120 day total integrated dose

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED

LOCA: 1.4 x 10* rads radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA, HELB, 5 MSLB: 1.4 x 10* rada total integrated dose

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

LOCA: American Environmental Company Report No. STR-13/2778-1 dated 2/5/79

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: None

OGALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve

MANUFACTURER: Limitorque Operator - Reliance Class & Insulation

SUPPLIER: Same as above

P-0 .: NA-1242

FUNCTION

1. Engineered Sarety Feature 2. DBA (LOCA 6 MSLb) Mitigation

LOCATION: SPGD-1

MARK NO.:

MOV-QS-201A, Quench Spray Pump Discharge MOV-QS-201B, Quench Spray Pump Discharge MOV-RS-255A, Recirculation Spray Suction MOV-RS-255B, Recirculation Spray Suction MOV-RS-255B, Recirculation Spray Discharge MOV-RS-2568, Recirculation Spray Discharge

DESCRIPTION OF ENVIRONMENT

LOCA

temp

radn 7 x 10* (LOCh) + 260 (40 yrs) rads = 7 10 4

NA

press NB psia

spray NA

MSLB:

Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days for total integrated dose of 2 x 10 7 rads

ACCURACY REQUIREMENTS; Not required

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1-16 days

OPERABILITY DEMONSTRATED

LOCA; Component operated satisfactorily after testing

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LUCA & MSLB

radn 2 x 107 rads

temp 250 0-30 man 250-120 30-120 min 250 2-12 hrs 200 1-16 days press 39.7 0-1 day

NA

psia 24.7 hmd 100% SDEAV

MANNER OF QUALIFICATION

LOCA; Test

QUALIFICATION DOCUMENTATION

LOCA:

Limetorque Report No. 80003

2.0 x 100 rads gamma radiation at Isomedix, Inc. Parsippany, N.J.

Qualification type test report Limitorque valve actuators for class IE service outside primary containment

Project No. 600461 Report No. B0003

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTION

LOCA: None

QUALIFICATION AND EVALUATION

SOUIPMENT DESCRIPTION: Penetration Assemblies

MANUFACTURER: Conax Corporation

SUPPLIER: Conax Corporation

P.O .: NA-1313

FUNCTION: Supplies Power to Safety Systems

LOCATION: Inside containment, outside cranewall, and Auxiliary Building (in containment wall)

MARK NO.:

Type IA - Instrumentation

Type IS - Control

Type IC, IIA, IIB, IIC, IID, AND IIE - Low Voltage Power

Type III - Triaxial

Type IV - Thermocouples

DESCRIPTION OF ENVIRONMENT

LOCA:

radn	6.77 x 10* (LOCA) + 3.4	x 10* (90 VT
rads	= 6.8 x 10*	
temp	280	0-30 min
op	280-150	30-60 min
	150	> 60 min
press	59.7	0-30 min
psia	59.7 - 14.7	30-60 min
	14.7	> 60 min
spray	Solution of boric acid {2,000-2,100 ppm	0-4 hr
	boron) buffered to	
	pa of 8.5 to 11	
	with NaOH	
	Similar solution	> 4 hr

MSLB:		
radn rads	1.3 x 10* (MSLB) + 3.4 x 10* (40 = 4.7 x 10*	yr)
temp ep	430 0-2 min 280 2-60 mi 150 > 60 mi	n
press	59.7 59.7 - 14.7 0-30 max 59.7 - 14.7 30-60 max > 60 max	ın
spray	Solution of boric 0-4 hr acid (2,000-2,100 ppm boron) buffered to	

pH of 8.5 to 11

Similar solution

with pH of 7.8 to 9.0

> 4 hr

with NaOR

with p8 of 7.8 to 9.0

OPERABILITY REQUIREMENTS

LACA: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: 190 hrs at 225°F, Post-LOCA thermal aging is equivalent to 429 days at 150°F per S4W Calc. 13075.49-3

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

1 × 10* TARK

temp 2000 0-30 min 280-245 30-60 man Verified between 1 hr-10 days

170 and 1sh

0-10 man

press 0-30 man psia 59.7-14.7 30-60 min 14.7 1 hr-10 days

spray No spray

Boron (.23 molar) 30 min-10 days

as H,BO,

NaO8 with pH 5.0 to 8.0

Note: MSLB Environment and Qualification continued on Table 25.

MANNER OF QUALIFICATION

LOCA:

Penetration assemblies were tested by using a prototype with characteristics pertinent to each individual type. This was first exposed to radiation then pressure and temperature and finally chemical spray.

QUALIFICATION DOCUMENT LOCA:

1. Conax Report "Maximum Emergency Environmental Test Report for Electrical Penetration Assemblies, No. IPS-73.4 dated 5/13/75

Radiation Pest almaraz service test Conax Report IPS-137. 3. Conax letter "Qualification of Electric Penetrations" No. IPS-411, P/N 7280-10001-01, IPS-369, IPS-325 dated 1/5/80

Qualification Report for Electric Penetration Assemblies for North Anna Power Station - Units 1 & 2 Virginia Electric and Power Company Conax W/O 7-02100.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

A. Deficiencies

- 1. pB of chemical spray was 5 to 8 for duration, not 8.5 to 11.0 for first 9 hr or 7.0 to 9.0 for remainder
- 2. Temperature range was 146° to 170° from 1 hr to end not 150°

B. Solutions:

- 1. The electrical penetration assemblies are fabricated from the following non-metallic materials; polyimides and polysuitone. These materials have been shown to be resistant to all diluted alkaline solutions. Therefore, we believe that since the LACA spray is in the range of a diluted alkaline solution it should have no significant effect on the penetration assemblies.
- 2. Very short duration of temperature below 150° when compared to total test duration makes this item acceptable.

EQUIPMENT DESCRIPTION: Penetration Assemblies

MANUFACTURER: COMAX CORDOLATION

SUPPLIER: Same as above

P.O.: NA-1313

FUNCTION: Supplies Power to Safety System

containment, outside cranewall, and Auxiliary Building (in LOCATION: Inside contain containment wall; Lone F

MARK NU.:

Penetration Assemblies
Type IA - Instrumentation
Type IB - Control
Type IC, IIA, IIb, IIC, IID, AND IIE - Low Voitage Power

DESCRIPTION OF ENVIRONMENT

LOCA;

6.77 x 10* (LUCA) + 3.4 x 10* (40 yr) = 6.8 x 10* radn temp

0-30 min 30-60 min > 60 min 0-30 ain 30-60 min > 60 min 7.41 -280-150

Solution of boric acid (4,000-2,100 ppm borom) buffered to pH of 5.5 to 11

spray

0-4 DE

> 4 nr Similar solution with pH of 7.8 to 9.0

> MSLB: radn

1.3 x 10* (MSLB) + 3.4 x 10* (40 yx) = 4.7 x 10*

0-30 min 30-60 min > 60 min 0-2 min 2-60 min > 60 min 0-4 nr Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 59.7 - 14.7 130

press

spray

temp

> 4 hr With pH of 7.8 to 9.0

PERABILITY DEMUNSTRATED

Revision : November 1,

Post-LUCA therman aging is equivalent to 419 days at 190 hrs at 225°F, S&W Calc. 13075.49-3.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB:

2.3 x 10F

0-30 min 30-60 min 60-1300 hr 0-30 min 30 min 14.7 292-220

Qualification Document No. Temperature qualification by analysis per Note:

LACA environment and qualification continued on Table 24. spray

MANNER OF CUALIFICATION

MSLB:

Penetration assemblies were tested by using a prototype with characteristics pertinent to each individual type. This was first exposed to radiation then pressure and temperature.

QUALIFICATION DOCUMENT

CONAX Report "Maximum thergency Environmental Test Report for Electrical Fenetration Assemblies," No. 1FS-73.4 dated 5/13/75.
FSAR Appendix 3C "Safety-Related Equipment Temperature Transients During the Limited Main Steam Line Break" and NRC Comment 7.17 of the same

and ject. Conax letter "Qualification of Electric Penetrations" No. IPS-411, P/N 7280-1001-01, IPS-369, IPS-325, dated 1/5/80. Outlification Report for Electric Penetration Assembl'es for North Anna Power Station - Units 1 & 2 Virginia Electric and Power Company Conax W/O 7-02100.

QUALIFICATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

ASLB:

Deficiencies

e0 minutes 30 minutes duration not Pressure excursion was maintained for

Solutions: · n

no significant effect on the penetration ha we should Pressure

OPERABILITY REQUIREMENTS

MSLE: 120 days at 150°F ACCURACY REQUIREMENTS

MSLB: Not required

TARLE 26

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Splices (Field and Factory) as part of penetration

MANUFACTURERS: Conax Corp., Insulation: Kapton

SUPPLIER: Same as above

P.O.: NA-1313

FUNCTION: Supplies Power to Safety Systems (used for terminating cables at

LOCATION: Inside Containment, Outside Cranewall and Auxiliary Building, Zone F

MARK NO.: NA

DESCRIPTION OF ENVIRONMENT

LOCA:

spray

radn 6.8 x 10* (LOCA) + 3.4 x 10* (40 yr)

rada = 6.8 x 100

temp

280-150 30-60 min 150

0-30 min

>60 min

press 59.7 0-30 min 59.7-14.7 peia 30-60 min 14.7 >60 min

> Solution of boric acid 0-4 hr

(2,000-2,100 ppm boron) buffered to pH of 8.5 to

11 with NaOH

Similar solution with pH >4 hr

of 7.8 to 9.0

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMCNSTRATED

LOCA: 190 hrs. at 225°p

Post-LOCA thermal aging is equivalent to #29 days at 1500F per S&W Calc. 13075.49-3.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

1 x 10*

rade

temp 290 0-30 min 280-148 30-60 min 140-150 1-240 hr

press psia

59.7 0-30 min 59.7-14.7 30-60 min

spray

Continuous spray with r. 0-240 br solution of Boron (.23 molar, 1,900 ppm) and NaOH (10-4 x 10-7 molar) with a pH of 7.7 to 7.8

Note: MSLB environment and qualification continued on page 27.

MANNER OF QUALIFICATION

LOCA:

Splices were made using various representative cable types and sizes which had been attached to a prototype penetration assembly. The prototype was first subjected to radiation exposure, then temperature, pressure, and chemical spray concurrently.

QUALIFICATION DOCUMENT

Conax Report "Test Procedure and Report on Electrical Terminations Subjected to Design Basis Accident Environment" No. IPS-107 dated October 5, 1973. Radiation: Almarez Service Test Conax Report IPS-137

Conax letter "Qualification of Electrical Penetrations" No. IPS-411, P/N 7280-10001-01, IPS-369, IPS-325 dated 1/5/80

Qualification Report for Electric Penetration Assemblies for North Anna Power Station - Units 1 & 2 Virginia Electric and Power Company Conax W/O 7-02100.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS LOCA:

Deficiencies:

- Chemnical spray solution had pH of 7.7 to 7.8 not 8.5 to 11.0 for first
- 2. Temperature range was 146°F to 120°F from hour to end, not 150°F.

B. Solutions:

- 1. The penetration splicing material is a polyoletin material which has been shown to be resistant to all diluted alkaline solutions. Therefore, we believe that since the LOCA spray is in the range of a diluted alkaline solution, it should have no significant effect on the splice material.
- 2. Very short duration of temperature below 150°F when compared to total test duration makes this item acceptable.

QUALIFICATION AND EVALUATION

BOUIPMENT DESCRIPTION: Splices (Field and Factory) as part of penetration assemblies

MANUFACTURER: Conax; Insulation: Kapton

SUPPLIER: Same as above

P.O.: NA-1313

FUNCTION: Supplies Power to Safety Systems (used for terminating cables at penetrations)

LOCATION: Inside Containment, Outside Cranewall and Auxiliary Building, Zone F.

MARK NO .: NA

DESCRIPTION OF ENVIRONMENT

MSLB:

spray

radn 3.4 x 10*(40 yr)

emp 430 0-2 min 280 2-00 min 150 >60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >-60 min

Same as LOCA

Refer to page 26

OPERABILITY REQUIREMENTS: 120 days at 150°F

ACCURACY REQUIREMENTS

MSLB: Not required

OPERABILITY DEMONSTRATED

MSLB: 190 hr at 225°F, Post LOCA thermal aging is equivalent to 429 days at 150°F per 56W Calc. 13075.49-3.
ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB:

radn 2.5 x 10 P

temp 109-250 0-30sec op 253-290 1-2 min 282 2-30 min 30-60 min

press 14.7-38.7 0-30 sec psia 59.7 1-30 min 14.7 30 min-240 hr

> Continuous spray with a solution of Boron (.23 molar, 1900 ppm) and NaOH (10-4 to 4 x 10-2 molar) with a pB of 7.7 to 7.8

MANNER OF QUALIFICATION

MSLB:

spray

Splices were made on various representative cable types and sizes which had been attached to a prototype penetration assembly. The prototype was first subjected to radiation exposure, then temperature and pressure concurrently.

QUALIFICATION DOCUMENT

MSLB:

Conax Report "Test Procedure and Report on Electrical Terminations Subjected to Design Basis Accident Environment" No. IPS-107 dated October 5, 1973.

FSAR Appendix 3C "Safety-Related Equipment Temperature Transients During the Limited Main Steam Line Break" and NRC Comment 7.17 of the same subject.

Conax letter "Qualfilication of Electric Penetrations: No. IPS-411, P/N 7280-10001-01, IPS-369, IPS-325 dated 1/5/80.

Qualification Report for Electric Penetration Assemblies for North Anna Power Station - Units 1 & 2 Virginia Electric and Power Company Conax W/O 7-02100.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB:

A. Deficiencies:

- 1. Pressure excursion was maintained for 30 min duration, not 60 min.
- 2. Post-operability based on letter referencing test reports.

B. Solutions:

 During the LOCA test, the pressure was held for the required time period.

Revision 1 November 1, 1980

0-240 hr

QUALIFICATION AND EVALUATION

SOUTHWENT DESCRIPTION: Inside Recirculation Spray Pump Notor

General Electric Company Model SK6319XJIB 300 HP, 460V 1.15 SF, Class H Insulation MANUPACTURER:

SUPPLIER: Same as above

P.O.: NA-1355

PUNCTION

Engineered Safety Feature DBA (LOCA & MSLB) Mitigation

AC-2 168 LOCATION:

MARK NO.: 2-RS-P-1A, Inside Recirculation Spray Pump 2-RS-P-1B, Inside Recirculation Spray Pump

DESCRIPTION OF ENVIRONMENT

LAXA;

7.5 x 104 rads radn

0-30 min 30-60 min > 60 min 0-30 min 30-60 min > 60 min 59.7-14.7 280 280-150 150 press temp

>4hr Boxic acid (2000-2100ppm) buffered to a pH or 7.0 to 9.0 with NaoH

0-4 hr

Boric acid (2000-2100 ppm) buffered to a pH of 8.5 to

Spray

OPERABILITY REQUIREMENTS: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

PERRBILLTY DEMONSTRATED: 750 days at 1300F

Revision 1

ENVIRONMENT TO WHICH SQUIPMENT IS QUALIFIED:

0-30 min 30-7 days	0-60 min-7 day
59.7	40 gpm
press	spray
	59.7

NUTE: MSLB qualifications on Page 29

MANNER OF QUALIFICATION

LOCA:

Motor was tested sequentially by first subjecting it to the cummilative radiation dose and then the steam-chemical spray with elevated temperature and pressure.

QUALIFICATION DOCUMENT

LOCA:

Topical Report on G.E. Vertical Induction Morors Inside Containment Sectrculation Spray Pump Motors-Surry Fower Station-Second Addendum to Cover Heat Aging, Radiation Exposure, Vibration, Steam/Chemical Spray Exposure, Vialification Fests - Eocket Number 50-280 and 50-281 M.W. Sheets, Vertical Motor Products Section General Libertic Company, San Jose, California June 12, 1973 (Pages 36 to 68).

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LUCA:

A. Deficiencies:

- Chemical spray pH levels Temperature varied from 275-280°F.

Solutions; ÷

- Lower pH levels (5.5 to 6.5) maintained during motor test have been revised with regard to motor materials and it has been determined that the higher design pH levels would not have any additional effect.

 Temperature variation of 2.75° to 2.80°F falls within the tolerance (265-280°F) of the LOCA remperature transient prolile (FSAK Fig. 2.4-2). -

QUALIFICATION AND EVALUATION

EQUIPMENT DES RIPTION: Inside Recirculation Spray Pump Motor

MANUFACTURER:

General Electric Company, Model SK63192J1B 300 dP, 400 V, 1.15 SF, Class H Insulation

SUPPLIER: Same as above

P.O.: NA-1355

FUNCTION:

1) Engineered Safety Feature

2) DBA (LOCA and/or MSLB) Mitigation

LOCATION: RC262B

MARK NO .:

2-RS-P-1A, Inside Recirculation Spray Pump 2-RS-P-1B, Inside Recirculation Spray Pump

DESCRIPTION OF ENVIRONMENT

MSLB

radn rads	3.4 x 10*(40 yr)	
temp	4 30 2 80 150	0-2 min 2-60 min > 60 min
press paia	59.7 59.7 - 14.7 14.7	0-30 min 30 - 60 min > 60 min
spray	Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH	0 - 4 hr

Similar solution

with pH of 7.8 to 9.0

> 4 hr

OPERABILITY REQUIREMENTS: \$20 days at 150°F

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED: 750 days at 130 °F

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB

radn 2 x 130 at a dose rate of < 5.0 x 105 rad/hr rads

temp Motor was qualitied to the design environment by analysis.

press See LOCA qualifications on page 28. psia

Note: LOCA environment and qualification continued on page 28.

MANNER OF QUALIFICATION

MSLB:

The motor was qualified by utilizing the LOCA qualification test results i.e., radiation exposure, temperature, pressure. A heat transfer calculation was performed (Ref. FSAR, Section 30) to obtain the maximum surface temperature that will be experienced during a MSLB. This value (2710F) was then compared to the value (280°F) that the motor was tested for. Since the motor was qualified for the LOCA at a temperature of 280°F, the lower surface temperature of 271°F proved the acceptable operation or the motor during MSLs.

QUALIFICATION DOCUMENT

MSLB:

- 1. Final Safety Analysis Report Section 3C, (pages 1 to 21)
- 2. Topical Report on GE Vertical Induction Motors Inside Containment Recirculation Spray Pump Motors - Surry Power Station - Second Addendum to Cover Heat Aging, Radiation exposure Vibration, and Steam/Chemical Spray Exposure Qualification Test - Docket Number 50-280 and 50-281 by M. W. Sneets. Vertical Motor Products Section, General Electric Company - 5an Jose, California, June 12, 1973 (pages 36 to 64)

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB

A. Deficiencies:

- 1. Accuracy not stated in test report for pressure.
- Test report is not dated on signature page.
 Pressure was maintained at 40 psig for 30 min and not 60 min.

B. Solutions:

- 1. The actual maximum design pressure is 40 psig. These motors were tested for 45 psig (ref. LAXA qualification for these motors). 40 psig is a conservative value and test pressure accuracy within 15 psig from 45 psig tested would be reasonable to assume.
- 2. Test report even though not dated on the signature page is dated on the cover sheet.
- 3. In the G.E. LOCA test, the motor was tested for five cycles at 45 psig for a period of 30 min per cycle. Therefore, the 60 min MSLB requirement at 40 psig was exceeded.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operator

MANUFACTUAR: Automatic Switch, Model No. HT8321A5

SUPPLIER: Same as above

P.O.: NA-1125

PUNCTION: Containment Isolation

LOCATION: AB-224A

MARK NO:

SOV-BD-200A, C, & Steam Generator Blowdown Isol Viv SOV-CC-200A, B, C Containment Recirculation Air Clr Outlet- Outside Containment SOW-CC-201A RCP Therm Barriers Return Hdr SOV-CC-202A, C, E RCP Coolers Return Hdr SOW-CC-203A, B kHR Heat Exchanger Return SOV-CC-204A-1,2 RCP Coolers Inlet - Outside Containment SOV-CC-204B-1,2 RCP Coolers Inlet - Outside Containment SOV-CC-204C-1, 2 RCP Cooler Inlet - Outside Containment SOV-IA-202 A & E SOV-DA-200A RC Sump Pump Discharge SOV-RM-200A, B Radiat_on Monitor SOV-SI-200A, B Nitrogen Supply Line SOV-SI-201 Natrogen Supply Line SOV-VG-200A Pri Drn Xfer Tk Vent SOV-IA-200A, B, C Cont. Air Isolation Valve Instrument SOV-IA-201 B DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.6 x 10° (LOCA) * 2 x 10° (40 yr) rads = 5.6 x 10°

temp

press N

paia

spray NA

MSLB:

Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA

SOV will perform its function of closing the isolation valve within 60 seconds of Receiving signal.

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED

LUCA:

SOV performed required safety function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Qualification Deficiencies

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

LOCA: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOULUTIONS

LOCA

A. Deficiencies: No qualification data available

B. Solutions:

SOVs to be replaced with ASCO's NP-series qualified to IEEE 323-74. Replacements to be installed at first available outage of sufficient duration.

DELETED

TABLE 31*

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: 480V Switchgear and Transformer

MANUFACTURERS: ITE Imperial Corporation

SUPPLIER: Same as above

P.O.: NA-1088

FUNCTION: Supplies Power to Safety Systems

LOCATION: AB-280

MARK NO .:

2-EE-SS-03, 480V Switch Lear (2h1) 2-EE-ST-01, 480V Transformer (2h1)

DESCRIPTION OF ENVIRONMENT

LOCA:

62 (LOCA) + 880 (40 yr) radn rads

= 943

temp

press psia

spray

MSLB:

radn 100 (HELB) + 880 (46 yr)

rads = 980

press psia

spray

HELB: Will not see a changing environment due to an HELB.

OPERABILITY REQUIREMENTS

LXA: NA

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED

LOCA: NA

LOCA: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: NA

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

LOCA: NA

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: None

*Delete - No Qualification Necessary, Radiation Below Threshold

QUALIFICATION AND EVALUATION

BUGIPMENT DESCRIPTION: Terminal Blocks

MANUFACTURERS:

Marathon Series 200 and 1500 Terminal Blocks (Phenolic) Connectron Type NSE 3, NSS-3, and PSD's Terminal Blocks (Nylon) Thermo-electric Terminal Block No. 3225 (Thermosetting Phenolic) GE Terminal Blocks EB5 and EB25 (Phenolic) Westinghouse Type TBAL Terminal Blocks (Nylon)

SUPPLISE: Same as above

P.O.: NA

FUNCTION: Supplies Power to Safety Systems

LOCATION: Outside Containment (general areas)

MARK NO.: NA

DESCRIPTION OF ENVIRONMENT

LOCA;

radn 1 x 10* (120 day LOCA) rads + 4 x 10* (40 yr)

= 1.04 x 10*

NA

temp

press NA psia

spray NA

OPERABILITY REQUIREMENTS

LOCA: 120 days for integrated dose of 1.04 x 104 rads

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONST ATED

LOCA:

Phenolic 1 x 10 arads Nylon 1 x 10 rads

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

Unfilled phenolic can withstand a gamma exposure dose of over 10* rams and show minimal effects due to radiation.

Nylon can withstand a gamma exposure dose of over 10* rads.

MANNER OF QUALIFICATION

LOCA:

Terminal Block material was compared with identical material for the effects of high level radiation.

QUALIFICATION DOCUMENT

LOCA:

REIC Report No. 21 Radiation Effect Information Center, Columbus, Ohio. Buchanan Product Manual Insert 2.1 Rev. 8/23/76.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: None

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION; Termination Tape - field purchased

MANUFACTURER: Okonite

T-95 Insulating Tape T-35 Jacketing Tape

SUPPLIER: Same as above

P.O .: NA

FUNCTION: Supplies Power to Safety Systems

LOCATION: Inside and Outside Containment

MARK NO .: NA

DESCRIPTION OF ENVIROPMENT:

LOCA:

radn 1.8 x 107 (LOCA) rads * 3.0 x 10" (40 yr) = 4.8 x 107

temp 280 0-3 min 280-150 30-60 min 150 > 60 min

press 0-3 min psia 59.7-14.7 30-60 min 14.7 > 60 man

spray solution of boric

acid (2,000-2,100 ppm boron) buffered to ph of 8.5 - 11 with NaOH

Similar solution with pH

0-4 hr

of 7.8 - 9.0 2 4 br

MSias:

radn 1.3 x 10* (MSLB) + 3.0 x 10* (40 yr) = 3.0 x 10*

rade

0-2 man temp 430 150 2 60 min

press 59.7 0-30 man 59.7-14.7 psia 30-60 min 14.7 > 60 man

spray same as LOCA

OPERABILITY REQUIREMENTS:

LOCA & MSLB: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA & MSLB: 100 days at 2329F

Post-LOCA thermal aging is equivalent to 2.9 years at 150°F per SSW calc. ANVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LANA

aging 2500F los nr radn 2 x 10+ rada temp 324 9 hr PWD 252 7 days BWR 304 0-55 man 346 55 min-3 ar ad min 320 3 hr 20 min-9 hr 27 min 256 1 day 212 100 days 259 last 10 hr press psia PWR 94.7 h hr 30.4 7 day 118.7 9-55 min 118.7 55 min-3 hr 20 min 89.7 3 hr 20 min-4 hr 27 min 29.7 1 day 14.7 100 days 34.7 last 10 hr The same items that have been exposed to PWR accident conditions were then exposed to a BWR simulated Accident condition. apray Sc. ution of boric acid

(10,000 ppm boron) buffered to ph of 10.5

with NaOd

MANNER OF QUALIFICATION

LOCA: Test - Sequential

MSLB:

Test - Analysis Pressure and kadiation - Test Refer to LOCA qualification

QUALIFICATION DOCUMENT

LOCA: Okonite's angineering Report No. 141, dated 2-29-72

MSLB:

SEW Calculation ES-189, "Equipment Temperature Transient for Oxonite Tape Splices"

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0-7 days

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QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

Deficiencies: None

MSLB

- A. Deficiencies: Does not meet qualification temperature
- B. Solution;

Maximum calculated surface temperature during limiting MSLB is 270°F which does not exceed qualification temperature of 324°F given in Okonite angineering Report No. 141.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Splicing Material

MANUFACTURER: Raychem, WCSF type coated with Type N adhesive Heat Shrinkable

Field Splicing Material

SUPPLIER: Same as above

P.O .: NA

FUNCTION: Supplies Fower to Safety Systems

LOCATION: Inside Containment

MARK NO.: NA

DESCRIPTION OF ENVIRONMENT

LOCA:

Manager .		
radn rads	1.8 x 10° (LOCA) + 3.0 x 10° = 4.8 x 10°	(#0 yr)
temp op	280 280 - 250 150	0-30 min 30 - 60 min > 60 min
press psia	59.7 59.7 - 14.7 14.7	0 - 30 min 30 - 60 min > 60 min
press psia	59.7 59.7 - 14.7 14.7	0 - 30 min 30 - 60 min > 60 min
вргау	Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH	0 - 4 hr
	Similar solution with	> 4 hr

	Similar solution with pH of 7.8 to 9.0	> 4 hr
MSLB:		
radn rads	3.0 x 10*(40 yr)	
temp	430 260 150	0 - 2 min 2 - 60 min > 60 min
press psia	59.7 59.7 - 14.7 14.7	0 - 30 min 30 - 60 min > 60 min
spray	Same as LOCA	

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F MSLB: 120 days at 150°F

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED

LOCA:

212°F for 100 days

Post LOCA thermal aging is greater than 2.9 years at 150°F per S&W calc. 13075.49-3

Irradiated by cobait - 60 gamma source

MSLB: See above

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LAXCA & MSLB:

radn

rads	at 0.27 Mrads/hr to a total dose of 200 Mrads	
	cotal dose of 200 Arads	
temp		
op	360	5 hr
	320	6 hr
	250	24 hr
	221	12 days
	221	100 days
press		
psia	84.7	5 hr
	84.7	6 hr
	35.7	24 nr
	17.2	12 days
	16.7	100 days
spray	0.2% boric acid spray buffered to a pH of	24 nr
	9.5 to 11.0	

MANNER OF QUALIFICATION

LOCA 6 MSLB:

Combined thermal and radiation aging period followed by a simultaneous exposure to steam, chemical spray and gamma radiation.

QUALIFICATION DOCUMENT

LOCA 6 MSLB:

Raychem Technical Report P-C4033 Stone & Webster Calc. No. 11715-ES-169-0, dated 3/10/77.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

- A. Deficiencies: Material was not qualified to 430°F as required for MSLB.
- B. Solutions:

Maximum calculated surface temperature during limiting MSLB is 270°F which does not exceed qualification temperature or 360°F given in Raychem Technical Report F-C4033.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Plow Transmitters

MANUFACTURER: Rosemount, Model 1152DP6A

SUPPLIER: See above

P.O.: NA-1486

FUNCTION:

1. Emergency Core Cooling/Core Heat kemoval

2. Engineered Safety Feature

3. DBA (LOCA & MSLB) Mitigation

LOCATION: RC 29 1B

MARK NO.

PT-2474, Steam Generator Plow Transmitters FT-2475, Steam Generator Flow Transmitters PT-2484, Steam Generator Flow Transmitters FT-2485, Steam Generator Flow Transmitters PT-2494, Steam Generator Flow Transmitters PT-2495, Steam Generator Flow Transmitters

DESCRIPTION OF ENVIRONMENT

LOCA:

6.8 x 10 7 (LOCA) + 3.4 x 10* = 6.8 x 10 7	40 yr
280 280-150 150	0-30 min 30-60 min >60 min
59.7 59.7-14.7 30-60 min 14.7 >60 min	
Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH	
Similar solution with a pH of 7 to 9	>4 hr
3.4 x 70*(40 yr)	
	= 6.8 x 107 280 280-150 150 59.7 59.7-14.7 14.7 Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH Similar solution with a pH of 7 to 9

430 temp 0-2 min 280 2-60 min 150 >60 min press 59.7 0-30 min 59.7-14.7 psia

14.7

spray Same as LOCA

OPERABILITY REQUIREMENTS: 120 days at 150°F

ACCURACY REQUIREMENTS: ±.5%

OPERABILITY DEMONSTRATED: 124 days at 150°F

ACCURACY DEMONSTRATED: 1.25%

AGING: Rosemount transmitter has been shown to exhibit an aging problem.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

radn rads	5 x 10*	
temp op	350 316 303 230	0-10 min 10 min-1 hr 1-8 hr 8-50 hr
press psia	74.7 84.7 70.1 20.7	0-1 min 10 min-1 hr 1-8 hr 8-50 hr
SDTAV	None	

MANNER OF QUALIFICATION

LOCA: Sequential Test

MSLB: Analysis

QUALIFICATION DOCUMENT

LOCA: Rosemount Test Report No. 117415

MSLB:

Rosemount Test Report No. 117415 PSAR Section 3C and response to Comment 7.17 Rosemount ordering information revised June 1976 P.C. NA-1486 for Electronic Transmitters VEPCO QA Certificate of Compliance for Electronic/Pneumatic Transmitters

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies:

- Radiation level
- Not subjected to Chemical Spray
- 3) Aging

B. Solutions:

- Transmitters are good for 40 yr radiation dose plus 200 hr into a LOCA. Optimum solution is still being investigated.
- 2) Will be replaced.
- 3) Will be replaced.

MSLB:

30-60 min

>60 min

A. Deficiencies: Temperature envelope

B. Solutions:

Qualification test of 350°F for ten min, 316°F for one hr whereas the environment is 430°F for two min, then dropping to 280°F after two min. The temperature environment does not exceed qualified limits due to thermal inertia and internal temperature. See Calculation No. ES-169. rwn

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QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valve

MANUPACTURER: Automatic Switch Company, Model No. HT8344A71

SUPPLIER: Same as above

P.O.: NA-1125

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. DBA (LOCA & MSLB) Mitigation

3. HELB Main Steam Valve House Accident Mitigation

LOCATION: QSPA 2718

MARK NO .:

SOV-MS-211A, Auxiliary Feed Pump Turbine Drive SOV-MS-211B, Auxiliary Feed Pump Turbine Drive

DESCRIPTION OF ENVIRONMENT

LOCA

radn 5.4 x 10* (LOCA) + 260 40 yr NA

rads = 5.4 x 104

temp op

press NA psia

NA spray

MSLB: Will not see a changing environment due to a MSLB

HELB: Will not see a changing environment due to a HELB.

OPERABILITY REQUIREMENTS:

MSLB: SOV will perform its function of opening isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

MSLB: SOV will have performed its function prior to failure.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Deficiencies and Solutions.

HELB: Will not see a changing environment due to a HELB.

MANNER OF QUALIFICATION

MSLB: See Qualification Deficiencies.

QUALIFICATION DOCUMENT

MSLB: See Qualification Deficiencies.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB:

A. Deficiencies: No qualification data

B. Solution:

SOVs to be replaced with ASCO'S NP-series qualified to IEEE 323-1974. Replacements to be installed at first available outage of sufficient duration.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valves

MANUFACTURER: Automatic Switch Company, Model No. HB83028IU

SUPPLIER: Same as above

P.O.: NA-1163

FUNCTION: Containment Isolation

LOCATION: A8-244A

MARK NG .:

SOV-SS-200B, Pressure Liquid Space Isol Valve SOW-SS-212B, Steam Generator Sample Isol Valve SOW_SS-201B, Pressurizer Vapor Sample SOW-SS-203B, RBR Outboard Isol Valve SOW-SS-203B, RBR Outboard Isol Valve SOW-SS-204B, Pressure Relief Tank Sample

Note: Two valves moved to Page 38.

DESCRIPTION OF ENVIRONMENT

LOCA:

psia

radn 3.6 x 10* (LOCA) + 2 x 10* 40 yr rads = 5.6 x 10*

temp

op

press

spray N

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

 $\underline{\text{LOCA}}$: soV will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

LOCA: Punctioned properly for 14 days at 150°F after 50 Mrad radiation exposure and will operate if SOV fails due to radiation.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

Manager 1		
radn	5 x 10*	
rads		
temp	46.0	0-2 min
ek	340	2-8 min
	338	8-45 min
	240	25-35 min
	244	35-45 min
	158	45-61 min
	150	5 days 7 hr 12 min -
		13 days 21 hr 6 min
press	129	0-2 min
psia	119	2-8 min
	118	8-25 min
	25	25-35 min
	24	45-61 min
	13.8	5 days 7 hr 12 min-
		13 days 21 hr 6 min
hmd	1001	

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

LOCA: Pranklin Institute Research Laboratories (PIRL) Test Report F-C4539 Westinghouse Letter NS-SS7706

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies: Valve seat leakage detected in the energized condition.

B. Solutions:

when exposed to a radiation dose of 5 x 107 rads, some plastic internals of the SOV did disintegrate, causing the valve to leak. However, the valve was able to exhaust its accumulated pressure and perform its safet function and no valve seat leakage was detectable in the de-energized condition (Westinghouse Letter NS-SS7706).

TADLE 38

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Soleno; d Operator

MANUFACTURER: Automatic Switch Company, Model No. HB83028 NU

SUPPLIER: Same as above

P.O.:

FUNCTION:

1. Containment Isolation 2. Post-accident monitoring

LOCATION: AB-244A

MARK NO.:

SOV-SS-20aB, PRI Coolant Hot Leg Sample Isolation Valve SOV-SS-202B, PRI Coolant Cold Leg Sample Isolation Valve

DES RIPTION OF ENVIRONMENT

LOCA:

radn rads 3.6 x 10* (LOCA) + 2 x 10* (40 yr) =5.6 x 10*

=5.6 x 10

temp

press

psia

hara

spray

NA

NA

NE

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA:

Punction 1: SOV will perform its function of closing isolation valve with 60 sec of receiving signal.

Punction 2: Valve may be required to reopen after containment isolation. This is a TMI post-accident requirement.

ACCURACY REQUIREMENTS: Not required

Revision V November 1, 1980

OPERABILITY DEMONSTRATED

LOCA: Punction properly after subjected to radiation exposure.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: 5 x 10 rads

MANNER OF QUALIFICATION

LOCA: None

QUALIFICATION DOCUMENT

 $\underline{\text{LOCA}}$: Report F-C, Franklin Institute Research Laboratories (FIRL) Test Report F-C4539.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

A. Deficiencies:

- 1) Valve seat lenkage was detected in the energized condition.
- 2) TMI requirement to reopen

B. Solutions:

- When exposed to a radiation does of 5 x 10° rads, some plastic internals of the SOV did disintegrate causing the valve to leak. However, the valve was able to exhaust its accumulated pressure and perform its safety function. No valve seat leakage was detectable in the deenergized condition.
- 2) Replacement valves ordered from Valcor on P.O. 34670 bought to IEEE 323-1974. Valves to be installed first available outage; estimated delivery date is 1/19/81.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Terminations and Connectors

MANUFACTURER: Raychem Incorporated; HVT Termination; HVMC Connectors

SUPPLIER: See above

P.O.: NA

FUNCTION: Supplies Power to Safety Systems

LOCATION: Outside Containment

MARK NO.: NA

DESCRIPTION OF ENVIRONMENT

LOCA;

radn rads 5 x 10* (LOCA) + 4 x 10* (40 yr)

= 5.04 x 104

temp

NA

press psia NA

spray

...

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LAXA: 120 days integrated dose of 5.04 x 100 rads

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

LACA: 2 x 10* rads

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

Terminations and Connectors:

Irradiation of the materials in a cobalt 60 gamma source at 0.50 Mrads per hr to a total dose of 2 x 10* rads.

MANNER OF QUALIFICATION

LOCA:

Test: Therman aging followed by irradiation for HVT and HVMC

QUALIFICATION DOCUMENT

LOCA:

Raychem Report No. 71100 Revision Letter from Raychem dated 4/24/79 and &PSERT PRO Raychem Report RT15081/1

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

DEFICIENCIES: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operators

MANUFACTURERS: Automatic Switch Company, Model No. THT 8320A104

SUPPLIER: Same as above

P.O.: NA-1163

PUNCTION: Containment Isolation

LOCATION: AB-259B

MARK NO.:

SOV-LM200A, Containment Leakage Monitoring SOV-LM200B, Containment Leakage Monitoring SOV-LM200C, Containment Leakage Monitoring SOV-LM200D, Containment Leakage Monitoring SOV-LM200E, Containment Leakage Monitoring SOV-LM200G, Containment Leakage Monitoring SOV-LM200G, Containment Leakage Monitoring SOV-LM200B, Containment Leakage Monitoring SOV-LM200B, Containment Leakage Monitoring

DESCRIPTION OF ENVIRONMENT

LOCA:

radn $3.1 \times 10^4 \text{ (LOCA)} + 5.3 \times 10^3 \text{ (40 yr)}$ rads = $3.63 \times 10^4 \text{ (40 yr)}$

temp NA

press NA

spray NA

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: SOV will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

LOCA: SOV performed required safety function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Qualification Deficiencies

MANNER OF QUALIFICATION

LOCA: Not known

QUALIFICATION DOCUMENT

LUCA: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies: No qualification data.

B. Solutions:

SOVs to be replaced with ASCUS NP-series qualified to IEEE 323-74. Replacements to the installed at first available outage of sufficient duration.

November 1, 1980

TABLE 41

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Radiation Monitoring Pump Motor

MANUFACTURER: Marathon Electric, Class A Insulation, Model No. BM56T170516A-W

SUPPLIER: Hayes Pump Company

P.O.: NA-1083

FUNCTION: Post-accident Monitoring

LOCATION: QSPA-271B

MARK NO.:

2-SW-P-5 Radiation Monitoring Pump 2-SW-P-6 Radiation Monitoring Pump 2-SW-P-7 Radiation Monitoring Pump 2-SW-P-8 Radiation Monitoring Pump

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads

5.4 x 10* (LOCA) + 260 (40 yr)

= 5.4 x 104

temp

NA

press psia

NA

spray

NA MSLB: Will not see a changing environment due to an MsLB.

OPERABILITY REQUIPEMENTS

LOCA: 120 days integrated dose of 5.4 x 104 rads

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: None

MANNER OF QUALIFICATION

LOCA: None

QUALIFICATION DOCUMENT

LOCA: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies: No nuclear qualification.

B. Solutions:

Replace motor (motor has been ordered with Class & Insulation, Purchase Order dated April 15, 1980).

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION: Hydrogen Analyzer

MANUFACTURER: Bendix, Model No. Bendix 400-1, T/C analyzer

SUPPLIER: Same as above

P.O.: NA-1332

PUNCTION: Post-accident monitoring

LOCATION: AB-259A

MARK NO.:

H₂A-HC-200, Hydrogen Analyzer H₂A-HC-100, Hydrogen Analyzer

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads 1 x 10* (LOCA) + 8.75 x 10 = (40 yr) =

1 x 104

temp

NA

press psia NA.

spray

NA

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days integrated dose 1 x 10* rads

ACCURACY REQUIREMENT: ±5% full scale

OPERABILITY DEMONSTRATED

LOCA: None

ACCURACY DEMONSTRATED: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: None

MANNER OF QUALIFICATION

LOCA: None

QUALIFICATION DOCUMENT

LOCA: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies: Qualification documentation is nonexistent.

B. Solutions:

Analyzer will be replaced by October 1981 with Category Is qualified equipment and documentation.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Hydrogen Recombiner

MANUFACTURER: Rockwell International

SUPPLIER: Same as above

P.O.: NA-1365

PUNCTION:

1. Engineered Safety Feature 2. DBA (LOCA 6 MSLB) Mitigation

LOCATION: RECOM-1

MARK NO .:

2-HC-HC-1, Hydrogen Recombiner 1-HC-HC-1, Hydrogen Recombiner

DESCRIPTION OF ENVIRONMENT

LUCA:

radn rads 1x10* (LOCA) + 880 (40 yr)

= 1 x 10*

temp

NA.

press

psia

NA

spray

NA

MSLB:

Will not see a changing environment due to a MSLB.

OPERABILITY REQUIREMENT

LOCA: 120 day total integrated dose 1.0 x 10*

ACCURACY REQUIREMENT: Not required

OPERABILITY DEMONSTRATED

LOCA: 1 x 100 rads

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: 1 x 10° rads total integrated dose

MANNER OF QUALIFICATION

LOCA: Analysis

QUALIFICATION DOCUMENT

LOCA: AI-ESG Report N139T1120002

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA; None

 $\rm H_2$ recombiner will not operate for first 30 min of accident. Therefore lowering the radiation dose to below qualification level of 1 x 10* rads.

QUALIFICATION AND EVALUATION

EVUIPMENT DESCRIPTION; Recirculation Spray Pump Motors

MANUPACTUREM: General Electric Company, Model SK6328xC264A, Class H Silicone insulation

SUPPLIER: Same as above

P.O.; NA-1127

PUNCTION: Angineered Safety Peature

LOCATION: SPGD-1

MARK NO.

2-RS-P-2A, Recirculation Spray Pumps 2-RS-P-2B, Recirculation Spray Pumps

DESCRIPTION OF ENVIRONMENT

LOCA

radn 7 x 10* (LOCA) + 260 (40 yr)

rads = 7 x 10*

temp NA

op

press Na

spray NA

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA; 120 days for total integrated dose of 7 x 10* rads

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: 1 x 10° rads

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFILD

LOCA

radn 1 x 10 (class H Silicone Insulation)

rads

MANNER OF QUALIFICATION

LOCA: Unknown

QUALIFICATION DOCUMENT

LOCA

Letter from Vendor C. sell (GE) March 10, 1979

Specification NAS No. 44

G.E. Sect. III, Radiation Resistance of the Class IE Motors

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

A. Deficiencies: Qualification Document is a general report for Class H.

B. <u>Solutions</u>: Information requested from wendor to link report to North Anna motors

Revision 1 November 1, 1980

QUALIFICATION AND EVALUATION

-kgti:	IPMENT	Dis.	3638	Der I	382 +	(R) ye	PERMIT	4.	Fan	-
-	F-1 3 190E-1-2	207 300	or care to		DOM: N	Ace of Sec.	1,000 50.50		E 20.54	

MANUFACTURER: Westinghouse Electric Corporation

SUPPLIER: Westinghouse Electric Corporation

P.O .: NUS-71

PUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Sarety Feature

3. Minimum Charging and Boration Capability for HELB in Auxiliary Building

MARK NO .:

1-BV-F-8A, Auxiliary Central Area Exhaust Fans 1-dV-F-8B, Auxiliary Central Area Exhaust Fans 1-BV-F-8C, Auxiliary Central Area Exhaust Fans

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads	3.6 x 10* (LOCA) + 2 x = 5.6 x 10*	100 (40 yr
Emmo.	100	

op N

press NA

spray NA

MSLB

radn 100 (MSLB) + 2 x 10* (40 yr) rads = 2 x 10*

temp NA

press NA psia

spray NA

HELB

radn 100 (HELB) x 2 x 10* (40 yr) rads = 2 x 10*

temp 104 0 sec og 115 5 min 145 30 min - 7 hr 115 24 hr

press 14.9

psia

hmd 100% spray NA

OPERABILITY REQUIREMENTS: 120 day at normal ambient and 35 min above normal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: see Qualificat on Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

MANNER OF QUALIFICATION: See Qualification Deticiencies

QUALIFICATION DOCUMENT: See Qualification deliciencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: No qualification data available

Solution: Have contacted manufacturer for qualification test data and information.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valves

MANUFACTURER: ASCO, Model No. HT-831654

SUPPLIER: Westinghouse

P.O.: NA-1010

FUNCTION: Containment Isolation

LOCATION: AB244A

MARK NO .:

SOV-2204, Regenerate Heat Exchanger Outlet Valve

SOV-2519A, Priming Grade Water to Pressurizer Relief Tank

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.6 x 10* (LOCA) + 2.0 x 10* (40 yr)

rads = 5.x 104

temp NA

press

NA psia

spray NA

MSLB:

Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS:

SOV will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

SOV perform its required safety function after receiving radiation dose.

MANNER OF QUALIFICATION: See Qualification Deficiencies.

QUALIFICATION DOCUMENT: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

- A. Deficiencies: No qualification data.
- B. Solutions:

SOVs to be replaced with ASCO's NP-Series qualified to IEEE 323-74. Replacements to be installed at first available outage of sufficient duration.

DELETED

TABLE 47*

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Ambient Temperature Monitors

MANUFACTURER: Rosemount Engineering 78-81-17

SUPPLIER: Same as above

P.O.: NA-1363

FUNCTION: HELB Mitigation

LOCATION:

AB-291A TE-AM215 AB-259A TE-AM216 SB-254A TE-AM217A SB-254A TE-AM217B SB-291 TE-AM217C SB-291 TE-AM217D

MARK NO. :

TE-AM215, Safeguards Area Exhaust Fan Temp. Monitoring TE-AM216, Cable Tunnel Area Temp. Monitoring TE-AM217A, Battery Room Temperature Monitoring TE-AM217B, Battery Room Temperature Monitoring TE-AM217C, Battery Room Temperature Monitoring TE-AM217D, Battery Room Temperature Monitoring

DESCRIPTION OF ENVIRONMENT

RELES:

100 (HELB) + 260 (40 yr) = 360 radn

rads

NA temp

oF

NA press

psin

NA spray

OPERABILITY REQUIREMENTS

HalB; Alarm Control Room of high temperature after reaching set point of 1040F

ACCURACY REQUIREMENTS

S&W Spec.

#1.0°F at operating Temperature over a span of 32°F to 212°F

±2.0°F at 212°F to 400°F

Sevision 1

OPERABILITY DEMONSTRATED

HELB:

Normal Operating Environment Range: - 100°C to 325°C

Sensor will perform its function before fallure

ACCURACY DEMUNSTRATED

Vendor Product Data sheet, 2179,76 Series

Accuracy Limits: ±0.25°C at 0°C ±0.5°C at 100°C 11.6°C at 325°C

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

HELB & MSLB:

radn

rads

temp 392

press NA

psia

MANNER OF QUALIFICATION: No test data

QUALIFICATION DOCUMENT: Rosemount Catalog Information

NA

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: None

Delete - not required to mitigate an accident.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Pressure Transmitter

MANUFACTURER: FOXDORO, Model Ellan

SUPPLIER: Same as above

P.O.: NA-1215

FUNCTION:

1) Containment Isolation 2) Engineered Safety Peatures 3) DaA Mitigation

LOCATION: AB2598

MARK NO.:

PT-LM200A, Containment Pressure PP-LM2003, Containment Pressure PT-LM200C, Containment Pressure PT-LM2000, Containment Pressure

DESCRIPTION OF ENVIRONMENT

IACA:

radn

3.1 x 10* (LACA) * 5.3 x 10* (40 yr) = 3.63 x 10*

5

press spray

ž

100 (MSLB) + 5.3 x 103 (40 yr) MSLB; radn

52

spray

HELB

100 (BELS) + 5.3 × 103 (40 yr) = 5.4 × 103 radn

25 55

OPERABILITY REQUIREMENTS

120 days for integrated dose of 3.63 x 10* rads

ACCURACY REQUIREMENTS: Accuracy to be determined

OPERABILITY DEMONSTRATED

7.6 x 10° rads - NO148ML 2.2 x 10° rads - NO148MD

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA

1 x 10 rads

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

Environmental Report Summaries of Foxboro Products, T3-1097-E10 Series, Radiation. Foxboro letter dated 10/27/80.

QUALIFICATION DEFICIENCES AND RECOMMENDED SOLUTIONS

LOCA:

None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Level Indicating Transmitter

MANUFACTURER: Delaval Turnine, GEMS Sensor Division RE-31320/31411

SUPPLIER: See above

P.O.: NA-1333

PUNCTION: Post-accident Monitoring

LOCATION: AB259B

MARK NO.:

LIT-Ro251A, Containment Water Level LIT-Ro251B, Containment Water Level

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.1 x 104 (LOCA) + 5.3 x 103 (40 yr)

rads = 3.63 x 10*

temp N

press

psia

spray NA

MSLB: radn rads

radn 100 rads (MSLB) + 5.3 x 10* (40 yr)

= 5.4 x 103

temp N

press 8

psia

spray NA

OPERABILITY REQUIREMENTS

LOCA: 120 days for total integrated dose of 3.63 X 10* rad

ACCURACY REQUIREMENTS: 1 .5% of range

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: See Qualification Deficiencies

ACCURACY DEMONSTRATED: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

MANNER OF QUALIFICATION: Sequentia: Test

QUALIFICATION DOCUMENT

LOCA: Franklin Institute Research Laboratories (FIRL) Report F-C3634

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

Deficiencies: No Qualification Data

Solutions: Transmitter to be relocated

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION Motor Operated Valve-Valve Operator

MANUFACTURER: Limitorque, Operator - Reliance B Class Insulation

SUPPLIER: Same as above

P.O.: NA-1194

FUNCTION:

Engineered Safety Feature
 DBA (LOCA & MSLB) Mitigation)

LOCATION: QSPA 271B

MARK NO.:

MOV-SW201A, Recirculation Spray Heat Exc. Header Inlet MOV-SW201B, Recirculation Spray Heat Exc. Header Inlet MOV-SW201C, Recirculation Spray Heat Exc. Header Inlet MOV-SW201D, Recirculation Spray Heat Exc. Header Inlet MOV-SW201B, Service Water to Recirculate Spray Coolers MOV-SW204A, Service Water From Recirculate Spray Coolers MOV-SW205A, Recirculation Spray Heat Exc. Header Outlet MOV-SW205B, Recirculation Spray Heat Exc. Header Outlet MOV-SW205D, Recirculation Spray Heat Exc. Header Outlet MOV-SW205D, Recirculation Spray Heat Exc. Header Outlet MOV-SW206A, Recirculation Spray Heat Exc. Header Outlet MOV-SW206A, Recirculation Spray Heat Exc. Header Outlet MOV-SW206B, Recirculation Spray Heat Exc. Header Outlet MOV-SW206B, Recirculation Spray Heat Exc. Header Outlet

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 5.4 x 10* (LOCA) + 260 (40 yr) rads = 5.4 x 10*

temp

can b

press

NA

NA

psia

spray

MSLB: Will not see a changing environment due to an MSLB.

HELB: Will not see a changing environment due to an HELB.

OPERABILITY REQUIREMENTS: 120 days for integrated dose of 5.4 x 10 ads.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: Component operated a tistactorily after testing.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

radn rads	2 × 10*	
temp	250 250-120 250 200	0-30 min 30-120 min 2-24 nr 1-16 days
press psia	39.7 24.7	0-1 days 1-16 days
spray	NA	
hmd	100%	

MANNER OF QUALIFICATION: Sequential test

QUALIFICATION DOCUMENT:

Limitorque Corp.
Nuclear Qualification Sheet
Dated 11/1/79

Qualification type test report limitorque valve actuators for Class % service outside primary containment.

Project No. 600461 Report No. 80003

Limitorque Corp. Letter dated September 19, 1980

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

ELUIPMANT DESCRIPTION: Solenoid Operated Valves

MANUPACTURER: ASCO, Model No. BT8321AS

SUPPLISE: Fisher

P.O.: NA-1125

FUNCTION: Containment Isolation

LUCATION: MSVM271h

MARK NO.:

SOV-MS-213A-1, Steam Generator Trip Valve SOV-MS-213A-2, Steam Generator Trip Valve SOV-MS-213B-1, Steam Generator Trip Valve SOV-MS-213B-2, Steam Generator Trip Valve SOV-MS-213C-1, Steam Generator Trip Valve SOV-MS-213C-2, Steam Generator Trip Valve SOV-MS-209B, Steam Generator Trip Valve SOV-SV-209B, Steam Generator Trip Valve SOV-SV-203-1, Air Ejector Vent

DESCRIPTION OF ANVIRONMENT

LOCA:

1.5 x 10* (LOCA) + 260 (40 yr) = 1.5 x 10* press spray radh temp psia

OPERABILITY REQUIREMENTS:

SUV will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DAMONSTRATED: SOW performed required safety function after tenestwing radiation dose.

Maillication feliciencies ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIEDS: See

MANNER OF PUALIFICATION

HALLS: None

QUALIFICATION DOCUMENT

LOCA: See Qualification Deliciencies

QUALIFICATION DEFICIENCIES AND RECUMMENDED SUDDITIONS

HELB:

A. Deficiencies: No qualification data.

Solutions:

replaced with ASCO'S Ne Series qualitied to lake 34.5-74. to be installed at first available outage of sufficient Sovs to be Replacements duration.

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER: Limitorque; Limitorque Motor Class B Insulation

SUPPLIER: Same as above

P.O.: NA-1194

FUNCTION:

1. Engineered Safety Feature

2. DBA (LOCA & MSLB) Mitigation

LOCATION: MSVH 271B

MARK NO .:

MOV-Sw203A, Service water to recirc spray coolers MOW-SW203C, Service water to recirc spray coolers MOV-SW203D, Service water to recirc spray coolers MOV-SW204B, Service water from recirc spray coolers MOV-SW204C, Service water from recirc spray coolers MOV-SW204D, Service water from recirc spray coolers

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 5.4 x 10* (LOCA) + 260 (40 yr) = rads

5-4 x 10*

temp NA

press NA psia

spray

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS:

120 days for 5.4 x 10* rads total integrated dose

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: Component operated satisfactorily after testing

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA 6 MSLB:

radn 2 x 10 7 rads

temp 250 0-30 min 30-120 min 250-120 250 2-24 hr 200 1-10 days

press 39.7 0-1 day psia 24.7 1-16 days

hmd 100%

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT:

Qualification type test report Limitorque valve actuators for Class %E service outside Primary Containment

Project No. 600461 Report No. B0003

Limitorque Corp. letter dated 9/19/80

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER: Limitorque,

Operator - Keliance Class B Insulation

SUPPLIER: Same as above

P.O.: NA-1193

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Safety Features

LOCATION: AB244B

MARK NO .:

MOV-SW208A, Inlet Header Valve MOV-SW208B, Inlet Header Valve MOV-SW213A, Puel Pit Cooler Valve MOV-SW213B, Fuel Pit Cooler Valve

DESCRIPTION OF ENVIRONMENT

LUCA:

press NA

spray NA

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS: 120 days for 1 x 104 rads total integrated dose

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: Component operated satisfactorily after testing ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA

radn 2 x 10 * rads temp 250 0- 30 man op 250-120 30-120 man 250 zeze hr 1-10 days 200 press 39.7 0-1 day

pela 24.7 1-1e days spray

hmd 100x MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT: Qualification Type Test Report

Limitorque valve actuation for Class % service cutside primary containment

Project No. 600461 Report No. 60003

Limitorque Corp Letter dated 9/19/1980

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Level Transmitter

MANUFACTURER: Rosemount Model No. 1152DP4A

SUPPLIEF: Same as above

P.O.: NA-14:16

FUNCTION: DBA (LUCA & MSLB) Mitigation

LOCATION: RC2418

MARK NO.;

LT-2475 Steam Generator Level Transmitter LT-2964 Steam Generator Level Transmitter LT-2485 Steam Generator Level Transmitter LT-2496 Steam Generator Level Transmitter

DESCRIPTION OF ENVIRONMENT

	w		

Maria Car		
radn rads	6.77 x 10* (LOCA) + 3.4 = 5.77 x 10*	x 10* (40 yr
temp oy	280 280-150 150	0-30 min 30-60 min > 60 min
press psia	59.7 59.7 - 14.7 14.7	0-30 min 30-60 min > 60 min
Spiray	Solution of boric acid (2,000-2,100 ppm boron) buffered to pp of 8.5 to 11 with NaOB	0-4 nr

MSLB:		
radn rads	1.3 x 10* (MSLB) + 3.4 = 4.7 x 10*	x 10* (40 yr
temp op	430 280 150	0-2 min 2-60 min > 60 min
press psia	59.7 59.7 - 14.7 14.7	0-30 min 30-60 min > 00 min
spray	Same as LOCA	

Similar solution

with pH of 7.8 to 9.0

> 4 nr

OPERABILITY REQUIREMENTS

LOCA: 120 days at 150°F

ACCURACY REQUIREMENTS: ± .5%

OPERABILITY DEMONSTRATED: 124 days at 150%;

ACCURACY DEMONSTRATED: 1 .25%

AGING: Rosemount transmitters have been shown to have an aging problem.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

radn rads	5 x 10+	
temp ep	350 316 303 439	0-10 min 10 min-1 nr 1-6 nr 6-50 nr
press psia	74.7 84.7 70.1 20.7	0-10 min 10 min-7 nr 1-8 hr 8-50 hr
spray	None	

MANNER OF QUALIFICATION

LOCA & MSLB: Test

QUALIFICATION DUCUMENT

LOCA: Rosemount Report No. 117415

MSLb:

Rosemount Report No. 117415 PSAK Section 3C and response to Comment 7.17 Stone & Webster Caic No. 11715-ES-109-0, dated 3/10/77 Rosemount ordering information revised June 1976 P.U. NA 1486 for electronic transmitters VEPCO QC Certification of Compilance for electronic/Pneumatic transmitters

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

A. Deticiencies:

- Transmitters were operational at 5 x 10° rags; however, needs further testing to assure compliance to 4.8 x 10 2 rads.
- 3. No Spray Test
- 4. Aging
- B. Solutions: Will be replaced.

MSLB

- A. Deficiencies: Temperature envelope
- B. Solution: Qualification test or 350°F for one your whereas the environment is 430°F for two minutes. The temperature environment does not exceed qualified limits due to thermal inertia and internal temperature. See referenced Calculation No. ES-169.

QUALIFICATION AND EVALUATION

byvarment DESCRIPTION: Solehold Operated Val	SCRIPTION: Solenoid Operati	d Valve	s
--	-----------------------------	---------	---

MANUFACTURERS: ASCU. No. HB-206-832-20

SUPPLIER: Same as above

P.U.: Fleid Purchased

PUNCTION: Containment Isolation

LOCATION: 80-24 15

MARK NO.: SOV-IA-201A Containment Instrument Air

DESCRIPTION OF ENVIRONMENT

LOCA

radn	6.77 x 10* (LOCA)	*
rads	3.4 x 10 * (40 yr)	
	= 6.9 - 106	

temp	280	0 - 30 min
op	280 - 150	30 - 60 min
	150	30 - 69 min

press	59.7 50.7 - 14.7 14.7	0 - 30 min 30 - 60 min >60 min
	14.7	>60 ma

Solution of Doric 0 - 4 hr acia (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH

> Similar solution with >4 hr

pH of 7.8 to 9.0

MSLB

spray

radn 1.3 x 10* (MSLB) + 3.4 x 10+ (40 yr) rads = 4.7 x 10* rags

temp 430 0 - 2 min 280 2 - 60 min 150 >60 min

press 59.7 0 - 30 min 59.7 - 14.7 psia 30 - 60 min 14.7 >60 man

apray Same as LOCA

OPERABILITY REQUIREMENTS

SOV will perform its runction of closing the isolation valve within 30 sec of receiving signal. Failure of SOV will not cause valve to reopen.

ACCURACY FEQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

Functioned properly for %+ days at 150°F after 50 Mrad radiation exposure.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB

radn	5 x 107	
temp op	460 460 - 340 340 - 240 150	0 - 2 min 2 - 8 min 5 - 35 min 52 min - 14 days
press psia	129 116 11a - 25 13.5	0 - 2 min 2 - 32 min 32 - 34 min 52 min - 14 days

MANNER OF QUALIFICATION: Test

QUALIFICATION DUCUMENT

LACA 6 MSLd: Isomedix test report AQ521678/TR Revision A

QUALIFICATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

LOCA & MSLB: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valves

MANUFACTURER: ASCO, Model No. PT-8320A102, HV-200-299-2U

SUPPLIER: Same as above

P.O.: NA-1163

FUNCTION: Containment Isolation

LOCATION: RC216B

MARK NO .:

SOV-SS-207A RHR sample line SOV-SS-207B RHR sample line

DESCRIPTION OF ENVIRONMENT

LOCA:

radn = 7.5 x 10* (LOCA) rads + 3.5 x 10* (40 yr)

= 7.5 x 10+

temp 280 U-30 min op 280-150 30-60 min 150 >60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >60 min

spray Solution of boric acid 0-4 hr

(2,000-2,100 ppm boron) buffered to pH of 8.5 to

11 with NaOH

Similar solution with >4 hr

with pH of 7.8 to 9.0

MSLB:

radn 3.0 x 10 (40 yr)

rads

temp 430 0-2 min 9p 150-280 2-60 min 150 >60 min

pre=4 59.7 0-30 min ps: 59.7-14.7 30-60 min 14.7 >60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS:

SOV will perform its function of closing the isolation valve within 60 seconds of receiving signal.

ACCURACY RECOUREMENTS: Not required

OPERABILITY DEMONSTRATED: SOV performed its required safety

function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

MANNER OF QUALIFICATION: See Qualification Deficiencies

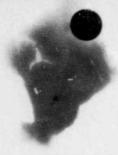
QUALIFICATION DOCUMENT: See Qualification Deficiencies

QUALIFICATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

A. Deficiencies: No qualification data

B. Solutions:

SOVs to be replaced with ASCO'S NP-series qualified to IEEE 323-74. Replacements to be installed at first available outage of sufficient duration.



QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve

MANUFACTURER: Limitorque, Operator - Reliance Class B Insulation

SUPPLIER: Same as above

P.O.: NA-1242

FUNCTION

1. Engineered Safety Feature

2. DBA (LOCA) Mitigation

LOCATION: SPG -1

MARK NO.:

MOV-RS-200A, Supply Valve Component Cooling Recirculation Spray MAV-RS-200B, Supply Valve Component Cooling Recirculation Spray MOV-RS-201A, Supply Valve Component Cooling Recirculation Spray MOV-RS-201B, Supply Valve Component Cooling Recirculation Spray

DESCRIPTION OF ENVIRONMENT

LOCA:

radn

7.0 x 10* (LOCA) + 260 (40 yr)

rads = 7.0 x 10*

temp

press NA

psia

spray

MSLB: Will not see a changing environment due to an MSLB.

NA

NA

OPERABILITY REQUIREMENTS

LOCA: 120 days for 7.0 x 10 rads total integrated dose

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: Component operated satisfactorily after testing

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

radn

2 x 10 *

rads

temp

250 250-120 250 0- 30 min 30-120 min 2-24 hr

200

39.7

1-16 days 0-1 day 1-16 days

24.7

psia spray

press

NA.

hmd

100%

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

Qualification Type Test Report

Limitorque valve actuation for Class 15 service outside primary containment

Project No. 600461 Report No. 80003

Limitorque Corp Letter dated 9/19/1980

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

MANUFACTURE2: Automatic Switch Company, Model RB 830281 U

SCOIPMENT DESCRIPTION: Solenoid Operated Valve.

Same as above SUPPLIER:

P.O. :

Containment Isolation PURCTION:

RC 2418 LOCATION:

MARK NO.:

SCW-CC2022 Reactor Coolant Pump Bearing Cooling Water SUW-CC202D Reactor Coolant Pump Bearing Cooling Water SCW-CC202F Reactor Coolant Pump Bearing Cooling Water

DESCRIPTION OF ENVIRONMENT

6.77 x 10 (LOCA) * 3.4 x 10 (40 yr)

59.7 - 14.7 280 - 150

press

0 - 30 min 30 - 60 min >60 min

0 - 30 min 30 - 60 min >60 min

0 - 4 hr

Solution of boric acid (2,000 - 2,100 pm boron) buffered to pH of 8.5 to 11

>4 hr Similar solution with pH of 7.8 to 9.0

radn

3.4 Z 10* (40 yT)

0 - 30 min 30 - 60 min >60 min 0 - 2 min 2 - 60 min >60 min 59.7 - 14.7 14.7

press

DBIA

Same as 1,0CA OPERABILITY RECUIREMENTS

spray

LOCA 6 MSLB:

SOV will perform its function of closing isolation valve within 60 seconds or receiving signal. Failure of SOV will not cause valve to reopen.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA & MSLB

Punctioned properly for 16 days at 1500F after 50 Mrad radiation exposure.

ENVIRONMENT TO WRICE EQUIPMENT IS QUALIFIED

LOCA & MSTB:

-		
rads	5 × 10 r	
temp or	4 6 0 0 3 3 8 0 0 0 3 3 8 0 0 0 0 0 0 0 0 0	0 - 2 min 2 - 8 min 8 - 25 min
	240 244 158 150	B 0 0 0
press psia	2 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 - 2 min 2 - 8 min 8 - 25 min 35 - 35 min
7	13.8	9 1 1
hand	100 K	

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT LOCA S MSLS:

Franklin Institute Research Laboratories (FIRL) Test Report F-C4539

SUBLIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA 6 MSLB:

Deficiencies:

- 1) Valve seat leakage was detected in the energized condition.
 - 2) Valves were not subjected to a chemical spray.

Solutions:

- When exposed to a radiation dose of 5 x 10? rads, some plastic internals of the SOV did disintegrate, causing the valve to leak. However, the valve was able to exhaust its accumulated pressure and the de-energized condition. No valve seat leakage was detectable in the de-energized condition. 1) When
- Valves were not subjected to spray since valves will have performed their intended function prior to initiation or spray. 53

nevision 1 -

DELETED

TABLE 59.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURES: Limitorque

SUPPLIER. Same as above

2.Q.: Unknown

FUNCTION: Containment Isolation

LOCATION: Angillary Building - Zone N, Rod Control Room

MARK NO .:

MOV-HV 200D RC Purge System Exhaust Valve MOV-HV 201 RC Purge System Bypass Valve

DESCRIPTION OF ENVIRONMENT: 5.9 x 10 * rads (based on 120 days LACA)

OPERABULTY REQUIREMENTS: NA

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: NA

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT:

QUALIFICATION DEPICIENCIES: None

*Delete - Administratively closed: Not required to operate to mitigat - > mident.

QUALIFICATION AND EVALUATION

EQUIPMEN's DESCRIPTION: Solenoid Operated Valve

MANUFACTURER: ASCO, Model No. HT-8316-D47

SUPPLIER: Fisher Porte

P.O.: Unknown

FUNCTION: Containment Isolation

LOCATION: QSPA-271B

MARK NO.:

SOV-MS201A-1,2,4,5, Main Steam line trip SOV-MS201B-1,2,4,5, Main Steam line trip SOV-MS201G-1,2,4,5, Main Steam line trip

DESCRIPTION OF ENVIRONMENT:

LOCA:

spray

rain 5.4 x 10* (LOCA) + 260 (40 yr) = rads 5.4 x 10*

temp NA

op.

press NA

psia

OPERABILITY REQUIREMENTS:

SOW will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED:

SOV performed required safety function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deticiencies

MANNER OF QUALIFICATION

HELD: Test and analysis

QUALIFICATION DOCUMENT

HELB: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SULUTIONS

HELB.

A. Deficiencies: No qualification data

B. Solutions:

SOVs to be replaced with ASCO's NP-Series Qualified to 15EE 323-74. Replacements to be installed at first available outage of sufficient duration.

DELETED

TABLE 61*

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: E/P for Flow Control Valve

MANUFACTURERS: Copes-Vulcan

SUPPLIER: Same as above

P.O .: NA

FUNCTION: Normal Charging Flow Control

LOCATION: AB-244A

MARK NO.:

P/P for FC-2122, Charging Flow Control to Regenerative Heat Exchange

DESCRIPTION OF ENVIRONMENT

LOCA:

radn

3.6x10* (LOCA) + 2 x 10* (40 yr)

= 5.6 x 100

temp

NA

press

NA

spray

N/A

OPERABILITY REQUIREMENTS

LOCA: 120 days for integrated dose of 5.04 x 10* rads

ACCURACY REQUIREMENTS: Accuracy to be determined

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Qualification Deficiencies

MANNER OF QUALIFICATION

LOCA: See Qualification Deficiencies

QUALIFICATION DOCUMENT

LOCA: Not required

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: Not required

*Delete: Not Safety Related

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Valve Operator

MANUFACTURER: ASCO, HB8302810

SUPPLIER: Same as above

9.0.:

FUNCTION: Containment Isolation

LOCATION: RC-241B

MARK NO .:

SOW-CC-2018, RCP Thermal Barrier Hdr

SOV-CC 205A, B, &C, Cont Recirc Air Clr Outlet & Ins Cont

SUV-DA-2008, Cont Sump Pp Disch Isol Vlv SOV-DG-200B, Pri Drn Xfer Pp Disch Isol Vlv

SOV-SS-200A, Press Liquid Space Cont Isol Vlv

SOV-SS-201A, Press Vapor Space Sample Cont Isol Viv SOV-SS-204A, Press Relief Tk Gas Space Cont Isol Viv

SOV-SS-212A, Stm Gen Sample Cont Isol Vlv

SOV-VG-2008, Pri Drn Xfer Tk Vent

SOV-RM-2000, Radiation Monitoring Isol Vlv

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 6.8 x 10* (LOCA) rads + 3.4 x 10* (40 yr)

=6.8 x 100

temp

280 280-150 150

0-30 min 30-60 min >60 min

press

59.7 59.7-14.7 0-30 min 30-60 min >60 min

psia

14.7 Solution of boric acid

0-4 hr

spray

(2,000-2,100 ppm boron) buffered to pH of 8.5 to

11 with NaOH

Similar solution with pH >4 hr

of 7.8 to 9.0

MSLB:

rada 3.4 x 10*(40 yr) rads

OF

temp 430 286 150

0-2 min 2-60 min >60 min

press psia

59.7 59.7-14.7 14.7

0-30 min 30-60 min >60 min

spray

Same as LOCA

OPERABILITY REQUIREMENTS

LOCA & MSLB:

SOV will perform its function of closing isolation valve within a0 sec of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA & MSLB:

SOV performed required safety function after receiving radiation dose

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

radn	5 x 10?	
rads		
temp	460	0-2 min
op	340	2-8 min
	338	8-25 min
	240	28-35 min
	244	38-45 min
	158	45-61 min
	150	5 days 7 hr 12 min -
		13 days 21 hr 36 min
press	129	0-2 min
psia	119	2-8 min
	118	8-25 min
	25	25-35 min
	24	45-61 min
	13.8	5 days 7 hr 12 min -
		13 days 21 hr 36 min
hmd	100%	
BDTAV	NA NA	

MANNER OF QUALIFICATION

LOCA 6 MSLB: Sequential Test, Radiation followed by environmental exposure

QUALIFICATION DOCUMENT

LOCA 5 MSLB: Franklin Institute Research Laboratories (FIRL) Test Report F-C4539

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA & MSLB:

A. Deficiencies:

- 1) Valve seat leakage was detected in the energized condition.
- Valves were not subjected to a chemical spray.

B. Solutions:

- 1) When exposed to a radiation dose of 5 x 10? rads, some plastic internals of the SOV did disintegrate causing the valve to leak. However, the valve was able to exhaust its accumulated pressure and perform its safety function. No valve seat leakage was detectable in the deenergized condition.
- Valves not subject to spray since valves will have performed their intended function prior to initiation of spray.

QUALIFICATION AND EVALUATION

BOUIPMENT DESCRIPT	M: Solenoid	d Valve Operator
--------------------	-------------	------------------

MANUFACTURER: ASCO, Model No. HB83028 1U

SUPPLIER: Same as above

P.O.: NA-1125

PUNCTION:

1. Containment Isolation

2. HELB Mitigation

LOCATION: RC-24 1B

MARK NO.: SOV-BD-200B,D,F,G,H,J, Steam Generator Blowdown Isolation Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads	6.8 x 10* (LOCA) + 3.4 x 1 = 6.8 x 10*	10*(40 yr)
temp op	280 280-150 150	0-30 min 30-60 min >60 min
press psia	59.7 59.7-14.7 14.7	0-30 min 30-60 min >60 min
spray	Solution of boric acid	0-4 hr

pray Solution of boric acid (2,000-2,100 ppm boron) buffered to ph of 8.5 to

11 with NaOH

Similar solution with >4 hr ph of 7.8 to 9.0

MSLB:

radn 3.4 x 10* (40 yr)

temp 430 0-2 min 260 2-60 min 150 >60 min 97 30-60 min 14.7 >60 min 50 min 50 7 30-60 min 14.7

spray Same as LOCA

OPERABILITY REQUIREMENTS:

SOV will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: See qualification deficiencies and recommended solution.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

radn rads	5 x 10*	
temp op	460 340 338 240 244 152	0-2 min 2-8 min 8-25 min 28-35 min 38-45 min 45-61 min 5 days 7 hr 12 min - 13 days 21 hr 36 min
press	129 119 118 25 24 13.8	0-2 min 2-8 min 8-25 min 25-35 min 45-61 min 5 days 7 hr 12 min - 13 days 21 hr 36 min
hmd	100%	
spray	NA	

MANNER OF QUALIFICATION

LOCA & MSLB: Sequential Test

QUALIFICATION DOCUMENT

LOCA 6 MSLB: Franklin Institute Research Laboratories (FIRL) Test Report F-C4539

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

A. Deficiencies:

- 1. Valves seat leakage was detected in the energized condition.
- 2. Valves were not subjected to a chemical spray.

B. Solutions:

When exposed to a radiation dose of 5×10^7 rads, some plastic internals of the SOV did disintegrate causing the valve to leak. However, the valve was able to exhaust its accumulated pressure and perform its sarety function. No valve seat leakage was detectable in the de-energized condition.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Temperature Switch

MANUFACTURERS: Honeywell

SUPPLIER: Same as above

PUNCTION: Rod Control Room Ventilation

LOCATION: AB-280

MARK NO.: TS-HV2230, Temperature Switch for 2-HV-F-68B

DESCRIPTION OF ENVIRONMENT

LOCA:

rada

radn 9.6 x 103

based on 120 day LOCA

temp

NA

press

NA

spray

NA

MSLB: Will not see a changing environment due to an MSLB.

HELB: Will not see a changing environment due to an HELB.

OPERABILITY REQUIREMENTS

LOCA: 120 days for integrated dose at 9.6 x 103 rads

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: See Qualification Deficiencies

ACCURACY DEMONSTRATED: See Qualification Deficiencies

MANNER OF QUALIFICATION: See Qualification Deficiencies

QUALIFICATION DOCUMENT: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

- A. Deficiencies: Temperature switch not qualified to withstand accident dose of 9.6×10^3 rads.
- B. Solutions: Proposed solution is to install a 2 inch thick lead crield in front of switch.

DELETED

TABLE 65*

QUALIFICATION AND EVALUATION

BUDIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTUREK: Limitorque, Operator - Reliance Class B Insulation

SUPPLIER: Same as above

P.O.: NA-198

FUNCTION: Containment isolation

LOCATION: RC-291B

MARK NO.:

MOV-HV200A Containment Supply MOV-HV200C Containment Purge

DE CRIPTION OF ENVIRONMENT

LOCA:

rads 6.8 x 10* radn

temp

280 0-30 min 280-150 30-60 min 150 >60 min

press 59.7 PSia 59.7-14.7

14.7

spray 0-4 hr

Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5

to 11 with NaOH

Similar solution with >4 hr

0-30 min

>60 min

30-60 min

a pH of 7.8 to 9.0

OPERABILITY REQUIREMENTS: NA

ACCURACY REQUIREMENTS: Not required

Revusion 1-November 1, 1980

OPERABILIT DEMONSTRATED: NA

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: NA

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT:

Limitorque Corp. Nuclear Qualification Sheet Dated November 1, 1979

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS:

Deficiencies: None

* Delete - Not kequired to Mitigate an Accident

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Damper - Damper Operator

MANUFACTURES: Honeywell, Model M845A Modutrol Motors

SUPPLIER: Same as above

P.O.:

NAC-22436 NAC-50457

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Safety Feature

3. Kinimum charging and poration capability for hELB in Auxiliary Building

LOCATION: AB291A

MARK NU.:

MOD-HV163A, B, and C Central Area Exhaust Discharge Lampers

DESCRIPTION OF ENVIRONMENT

HELB:

radn 100 (HELE + 5.3 x 10*(40 yr)

rads = 5.4 × 103

temp 104 0p 115

104 0 sec 115 5 min 145 30 min - 7 hrs

175 24 hrs

press 14.9

psia

hand 100%

spray NA

LOCA:

radn 1 x 10* (LOCA) + 5.3 x 10* (40 yr)

rads = 1 x 10*

temp NA

press NA

spray NA

obr ay N

MSLB:

radn 100 (MSLB) + 5.3 x 103(40 yr)

rads = 5.4 x 103

temp NA

press NA

spray NA

OPERABILITY REQUIREMENTS: 120 days at normal ambient and 35 min above normal

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1880

OPERABILITY DEMONSTRATED: See qualification Deficiencies

ENVIRONMENT TO WHICH SQUIPMENT IS QUALIFIED: See Qualification Deticiencies

MANNER OF QUALIFICATION: See Qualitication Deficiencies

QUALIFICATION DOCUMENT: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB:

Deficiencies: No qualification document available.

Solutions: Units to be replaced with qualified motors. Replacements to be installed at first available outage of sufficient duration.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operator

MANUPACTURER: Automatic Switch Model No. BT8321A5

SUPPLIER: Same as above

P.O.: NA-1125

PUNCTION:

1. Containment Isolation 2. Engineered Sarety Posture 3. Disk (LOCa & MSLis) Mitigation

ABSHUR LOCATION:

MARK NO.:

SOW-CV-250A Containment Vacuum Pump 2-CV-P-3A Suction Valve SOV-CV-250B Containment Vacuum Pump 2-CV-P-3A Suction Valve SOW-CV-250C Containment Vacuum Pump 2-CV-P-3B Suction Valve SOV-CV-250C Containment Vacuum Pump 2-CV-P-3B Suction Valve

DESCRIPTION OF ANVIRONMENT

LOCA:

3.6 x 10* (LOCA) + 2 x 10* (40 yr) = 5.6 x 10* total dose

ź

press

MLSB: Will not see a changing environment due to an MSLB.

NA

spray

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Qualification Deficiencies

OPERABILITY REQUIREMENTS

SOV will perform its function of closing the isolation valve within 60 sec of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

10.9:

SOW performed required safety function after receiving Landation Goss.

MANNER OF QUALIFICATION:

LOCA:

QUALIFICATION DOCUMENT:

LUCA:

QUALIFICATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

LAK'R & MSLOD

No qualification data A. Deficiencies:

B. Solutions:

SOVs to be replaced with ADCU'S NP-Series qualified to Lab. 323-74. Asplacements to be installed at first available cutage of sufficient duration.

MANNER OF QUALIFICATION

LOCA

on F.O. 34670 bought to IEEE available outage; estimated

See Qualification Deficiencies

Sequential Test

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies:
1) Valve seat liaxage was detected in the energized condition.

TMC requirement to reopen.

Solution;

0-30 min 30-60 min >60 min

280°F, 280°F-150°F 150°F

temp

59.7-14.7

6.8 x 10* (LOCA) + 3.4 x 10* (40 yr)

SOW-SS-202A, Pri Coolant Cold Leg Sample Cont. Isot Valve SOW-SS-206A, Pri Coolant Hot Leg Sample Cont. Isot Valve

DESCRIPTION OF ENVIRONMENT

1. Contaniment Isolation 2. Post-accident Monitoring

PUNCTION P.O.:

RC-241B

LOCATION:

0-30 min 30-60 min >60 min

0-4 hr

Solution of beric acid (2,000-2,100 ppm boron) buffered to pH ox 8.5 to 11

>4 hr

Similar Solution with pH of 7.8 to 9.0

3.4 x 10* (40 yr)

radn

- When exposed to a radiation dose of 5 10° rods, some plastic intervals of the SOV did disintegrate causing the valve to leak. Howver, the value was able to exhaust its accumulated pressure and perform its safety function and no valve seat leakage was detectable in the demengized condition, 17
- Replacement valve ordered from Valcor 323-1974. Valves to be installed first delivery date is 1/19/81. 23

OPERABILITY DEMONSTRATED

Punction property after subjected to radiation exposure

ENVIORNMENT TO WHICH EQUIPMENT IS QUALIFIED

MANUFACTURER: Automatic Switch Company, Model No. NB8302IU

Same as above

SUPPLIER:

BOUIDMENT DESCRIPTION Solenoid Operator

QUALIFICATION AND EVALUATION

TABLE 68

LOCA:

Function 1: SOV will perform its function of Closing isolation valve with 60 sec of receiving signal.

same as LOCA

OPERABILITY RECUIREMENTS

spray

hind

1001

0-30 min 30-60 min 7-60 min

59.7

press

0-2 min 2-60 min >60 min

Function 2: Valve may be required to required to reopen after containment isolation. This is a TMI post-accident requirement.

ACCURACY REQUIREMENT: Not required

Revision 1 November 1, 1985

TABLE 69

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operators

MANUFACTURER: Automatic Switch Company, Model TNT 8320A102

SUPPLIER: Same as above

P.O.: NA-1163

FUNCTION: Containment Isolation

LOCATION: AB-244A

MARK NO.: Zone C

SOV-LM201A, Containment Leakage Monitoring SOV-LM201B, Containment Leakage Monitoring SOV-LM201C, Containment Leakage Monitoring SOV-LM201D, Containment Leakage Monitoring

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.6 x 10* (LOCA) + 2 x 10* (40 yr)

rads = 5.6 x 10*

temp

press

psia

spray N

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA:

SUV will perform its function of closing isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: SOV performed required safety function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Qualification Deficiencies.

MANNER OF QUALIFICATION

LOCA: Not known

QUALIFICATION DOCUMENT

LOCA: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA & MSLB:

- A. Deficiencies: No qualification data.
- B. Solutions:

SOVs to be replaced with ASCO's NP-series qualified to 16£2 323-74 replacements to be installed at first available outage of sufficient duration.

Revision 1 November 1, 1980

TABLE 70

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION: Solenoid Operated Valves

MANUPACTURER: ASCO, Model HB8302810

SUPPLIER:

P-0.3

FUNCTION: Service Water Isolation

MSVH-2718 LOCATION:

MARK NO.:

SOV-SW-2014-1 Air Coolers Emergency Supply Valve SUV-SW-2014-2 Air Coolers Emergency Supply Valve SUV-SW-2018-1 Air Coolers Emergency Supply Valve SUV-SW-2018-1 Air Coolers Emergency Supply Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

5.4 x 10* (LUCA) + 260 (40 yr)

×

MSLB: WILL NOT SEE A CHANGING ENVIRONMENT DUE TO AN MSLB.

UPERABLISTY REQUIREMENTS: SOV will perform its function of closing the isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATELY

SOV performed salety function after exposure to radiation dose

ENVISHMENT TO WHICH EQUIPMENT IS QUALIFIED

LOLA & MSLB:

radh	5 × 10?	
t emp	460 340 340 244 244 158	0-2 min 4-8 min 6-25 min 55-35 min 35-45 min 95-47 min 24 min 13 days 7 nr 26 min
press	129 118 4.5 13.8	0-4 min 2-8 0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4
Spray	NA	
had	\$00\$	
MANNER OF DUALIFICATION	CATION	

TEST HELB: QUALIFICATION DOCUMENTATION

LOCA:

Frankiin Institute Research Laboratories (FLAL) test report 2-14539, tatalog No. 30 Westinghouse Letter NS-557706

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LACA & MSLB:

- 7. When exposed to a radiation dose of 5 x 107 rads, some plastic internals of the SOV did distintegrate causing the valve to leak, dowever, the valve was able to exhaust its accumulated pressure and perform its safety function and no valve seat leakage was detectable in the deenergized condition.
- 2. Valve seat leakage was detected in the energized condition.

November 1.

TABLE 71

QUALIFICATION AND EVALUATION

65	
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MANUFACTURER: Rosemount Model No. 115.2DP4A

SUPPLIER: Same as above

P.O.: NA-1480

FUNCTION: DEA (LACA & MSLB) MITIGATION

LOCATION: RCZ62B

MARK NO.;

Transmitter Transmitter Transmitter Transmitter LT-2474 Steam Generator Level LT-2495 Steam Generator Level LT-2475 Steam Generator Level LT-2476 Steam Generator Level LT-2476 Steam Generator Level

DESCRIPTION OF ENVIRONMENT

LOCA:

6.77 x 10* (LOCA) + 3.4 x 10* (40 yr) = 6.77 x 10* 0-30 min 30-60 min > 60 min 0-30 min 30-60 min > 60 min 0-4 hr Solution of boric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 - 14.7 280 280-150 150 press temp spray rads radn

MSLB:

3.4 x 10* (40 yr) radn temp

30-60 min 0-2 min 2-60 min > 60 min 0-30 min - 14.7 59.7 press

Similar solution with pH of 7.8 to 9.0 OPERABILITY REQUIREMENTS

> 4 hr

LOCA: 120 days at 1500p

ACCURACY REQUIREMENTS: x .5%

UPERABILITY DEMONSTRATED: 124 days at 1500F

ACCURACY DEMONSTRATED: # .25%

SHOWER OF CAMPE AL AGENCY PROFILER. Leen AGING: Mosembunt transmitters have

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLE;

102 212 0-10 min 10 min-1 1-6 nr 8-50 hr 0-10 man-7 n 10 man-7 n 1-8 hr 8-50 hr 5 x 10* 3363 press Spray rads

MANNER OF QUALIFICATION

LOCA & MSLAB: Test

QUALIFICATION DOCUMENT

LACA: Rosemount Report No. 117415

MSLB:

Rosemount Report No. 1779-15.
SAR Section 3C and response to Comment 7.17
Stone 6 Webster Calc No. 1775-E2-169-0, dated 3/10/77
Rosemount ordering information revised June 1976
P.O. NA 1986 for electronic transmitters
VEPCO UC Certification of Compliance for Electronic/Preumatic transmitters

MUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA;

> 4 hr

Similar solution with pH of 7.8 to 9.0

Deficiencies

Radiation

Transmitters were operational at 5 x 10* rads; however, needs further testing to assure compliance to *.8 x 10* rads.

Aging

Solutions: Will be replaced

MNLB:

0-4 hr

Solution of boric acid (2,000-2,100 ppm boron buffered to pH of 8.5 to 11

spray

Delicaencies: Temperature envelope

Solution: Qualification test of 350°F for one nour Whereas the environment is 430°F for two minutes. The temperature environment does not exceed qualified calculation No. ES-109.

11

QUALIFICATION AND EVALUATION

EVUIPMENT DESCRIPTION: Ambient Temperature Monitors

MANUFACTURAR: Rosemount Engineering, 78-81-17

SUPPLIER: Same as above

P.O.: NA-1363

FUNCTION: HELB MILIGATION

LACATION: Auxiliary Building

MARK NO.:

Auxiliary Building Ambient Air Temperature Monitoring TE-AM 100A,3 TE-AM 101A,8 TE-AM 102A,8 TE-AM 104A,8 TE-AM 105A,8 TE-AM 106A,8 TE-AM 106A,8

DESCRIPTION OF ANVIRONMENT

HELB:

30 sec 30 sec 5000 sec 24 hr 100 (HELB) + 5.3 x 103 (40 yr) = 5.4 x 103 104-176 204 192 124 radu temp

press

humidity

1001

OPERABILITY REQUIREMENTS

HALES: Alarm Control Room of high temperature after reaching serpoint or 1200P.

ACCURACY REQUIREMENTS

Spec.: #1.00P at operating temperature over a span of 320F-2120P, #4.90P at

OPERABILITY DEMONSTRATED

Pevision 1 November 1, 1980

Normal Operating Anvironment Range: - 100°C to 325°C Sensor will perform its innotion before failure

ACCURACY DEMONSTRATED: Vendor Froduct Data Sheet 2173,76 Series

Accuracy Lamits: 10.25-at 00C 10.59C at 1000C 11.69C at 3259C

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

: सम्ब

rads

press

100%

MANNER OF QUALIFICATION: Analysis

QUALIFICATION DOCUMENT: ROSemount Catalog Information

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: Area will be monitored periodically. If radiation dosage exceeds threshold value of 2500 rads, components will be replaced.

UDALIFICATION AND EVALUATION

BOUIPMANT DESCRIPTION: Notor Operated Valve - Valve Operator

MANUFACTURARS: Limitorque, Limitorque Notor Class B Insulation

SUPPLIEK: Same as above

F.0.:

PUNCTION: Service Water Isolation

LUCATION: MSVN-2716

MAKK NO.:

MOV-SW-2148 RECIFC. ALT COOLING COLIS MAY-SW-2148 RECIFC. ALT COOLING COLIS ADV-SW-2108 RECIFC. ALT COOLING COLIS MAY-SW-2108 RECIFC. ALT COOLING COLIS

DESCRIPTION OF ENVIRONMENT

LOCA:

5.4 x 10* (LOCA) + 260 (40 yr) = 5.4 x 10* Ladh rads

NA

NA press temp

MSLE: Will not see a changing environment due to an MSLb.

NA

spray

OPERABILITY REQUIREMENTS

MCA: 5.4 x 10* rads, 120 days total integrated dose

ACCURACY REQUIRED: Not required

Revision 7 November 1, 1980

OPERABILITY DEMONSTRATED: See Qualification Deliciencies

ANVIGORMANT TO WHICH AQUIPMENT IS QUALIFIAD: See gualification Deliciencies

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT: See Qualification Deliciencies

Lamitorque Nuclear Mualification Data Sceet, dated 11/1/79

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

A. Deliciencies: Qualification information was inadequate.

Solutions:

Have Supplied Limitorque with the serial and work adder numbers. Limitorque is in the process of determining schedule for providing any qualification data which is available.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve

MANUFACTURER: Limitorque Operator - Reliance Class B : naulation

SUPPLIER: Same as above

P.O.: NA-1242

PUNCTION:

1) angineered sarety Feature

2) DBA (LOCA) Mitagation

LACATION: SPGD-1

MARK NO .:

MOV-US-200A, Kefueling Water Storage Tank MOV-US-200B, Kefueling Water Storage Tank

DESCRIPTION OF ENVIRONMENT

:VXCA:

7.0 x 10* (LOCA) + 250 (40 yr) ads = 7.0 x 10*

NA

press

spray

psia

MSLB: Will not see a changing environment due to an MSL

2

OPERABILITY REQUIREMENTS

LOCA: 7.0 x 10* rads 120 day total in speced dose

Revision 1 November 1, 1930

OPERABILITY DEMONSTRATED

LOCA: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT to QUALIFIED: See Qualification Deficiencies

MANNER OF UNALIPICATION: Test

QUALIFICATION DOCUMENT: Limitorque Report No. B0003

QUALIFICATION DEFILIENCIES AND R. CARGENDED SOLUTIONS: have supplied Limitorque with the serial and work order numbers. Limitorque is in the process of determining schedule for providing information if supplied equipment will fail under the referenced document.

QUALIFICATION AND EVALUATION

SUGIPMENT DESCRIPTION: 48UV SWitchgear and Transformer

MANUFACTURER: ITE Imperial Corporation

SUPPLIER: Same as above P.O.: NA-1088 PUNCTION: Supplies Power to Salety Systems

LUCATION; AB-280

MARK NU.:

2-EE-SS-04, 480V Switch Gear (2J1) 2-EE-SI-02, 400V Transformer (2J1)

DESCRIPTION OF ENVIRONANT

LOCA:

5.9 x 10* (LOCA) + 8.8 x 10* (40 yr)

temp

press

spray MSLB:

100 (MSLB) * 8.8 x 102 (40 yr) = 980

radn temp

press

OPERABILITY REQUIREMENTS

spray

6.0 x 10* rads 1 or 120 day total integrated dose

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

1 x 10* rads

ENVIRONMENT TO WAICH EQUIPMENT IS COLLIFIED

LUCA 6 MS. 4:

1 x 10* (6 months) radh

NA NA press

42 spray

psia

LUCA; Test

MANNER OF QUALIFICATION

QUALIFICATION DOCUMENT

LAKA: Gould Letter dated April 25, and March 41, 1979

QUALIFICATION DEFICIENCIES AND RECUMPENDED SOLUTIONS

A. DEFICIENCIES: Qualification Document is a letter.

B. SOLUTIONS:

Contacted supplier requesting test Shielding

Revision 1 November 1, 1980

TABLE 76

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valve

MANUFACTURER: ASCO 8320A11

SUPPLIER: Same as above

P.U.: Field Purchased

PUNCTION: Sateguards Area Ventilation

LOCATION: AB29 1A

MARK NO.: SOV-HV-115B-1 Iodine Filter Bank Isolation Valve

SUV-HV-1158-2 Iodine Filter Bank Isolation Valve

DESCRIPTION OF ENVIRONMENT:

LOCA

radn .ads

1.0 x 104 (LOCA) + 5.30 x 103 (40 Yr) = 1.0 x 10

temp

NA

press N

psia

apray NA

MSLB:

will not see a changing environment due to an HSLB.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

OPERABILITY REQUIREMENTS: SUN will perform its function of closing the isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1982

OPERABILITY DEMONSTRATED: SOV performed required safety function after receiving radiation dose.

MANNER OF QUALIFICATION:

QUALIFICATION DOCUMENT: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS:

- A. Deficiencies: No qualification data available
- B. <u>Solutions</u>: sows to be replaced with ASCOS NP-series qualified to line 343-74. Replacements to be installed at first available outage of sufficient duration.

TABLA W-1*

QUALIFICATION AND EVALUATION

aQUIPMENT DESCRIPTION: Flow Transmitter

MANUFACTURERS: POXDOTO, Model EliDH

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O .: NA

FUNCTION:

LAXATION: Inside Containment

MARK NU.:

FT-2414, Loop 1 Reactor Coolant Flow Indication FT-2415, Loop 1 Reactor Coolant Flow Indication PT-24 to, Loop 1 Heactor Coolant Plow Indication PT-2424, Loop 2 Reactor Coolant Plow Indication PT-2425, Loop 2 Reactor Coolant Flow Indication PT-2426, Loop & Reactor Coolant Flow Indication FT-2434, Loop & Reactor Cools t Plow Indication PT-2435, Loop 3 Meactor Coolant Flow Indication PT-2436, Loop 3 Reactor Coolant Flow Indication

DESCRIPTION OF ENVIRONMENT

LOCA: radn

6.8 x 10* rads temp 280 0-30 man 280-150 30-60 min press 0-30 min psia 45-0 30-60 man >60 man

spray Solution of boric acid

(2,000-2,100 ppm boron) buffered to a ph of 8.5

to 11 with NaOH

Similar solution with a >4 pr

24 min

pH of 7 to 9

MSLB

radn 3.4 x 10° rads

430 temp 0-2 min 280 2-60 min 150 >60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >30-60 min

spray

OPERABILITY REQUIREMENTS

LOCA 8 MSLB: 120 days at 150°P

ACCURACY REQUIREMENTS: See Qualification Deficiencies

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

LOCA & MSLB:

380°F

280 oF 2800F-2200F

2200F

20 min - 24 nr 15 days

20 man

ACCURACY DEMONSTRATED: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LAXA:

radn 5 x 107 rads

temp 0-280 06 280 280-420

0-3 sec 3-1,200 Dec 20 man - 24 far 220 1-15 days

press

psia 39.7

3-1,200 sec

dw br

pray 1.14 wt a of boric acid

and 0.17 wt a NaOB dis-

solved water

MSLB:

radn 1.13 x 10°

rads

temp 380

press

89.7 psia

hmd

100%

MANNER OF QUALIFICATION

LAXCA 6 MSLB: Test

QUALIFICATION DOCUMENT

LOCA: WCAP-8541

FSLB: WCAP-6541

QUALIFICATION DEPICIENCIES AND RECOMMENDED SULUTIONS

LOCA 6 MSLB:

In the process of veritying that the transmitter at NA are those to which the qualifications data applies. Letter has been sent to manufacturer in this

*Delete - Not required for accident mitigation

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Level Transmitters

MANUFACTURER: Westinghouse Electric Corporation, NSSS

SUPPLISE: Barton, Model 386/752

P.O .: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Safety Peature

3. DBA (LOCA and/or MSLB) Mitigation

LOCATIONS RC 262B

MARK Was:

LT-2459 Pressurizer Level Transmitter LT-2460 Pressurizer Level Transmitter LT-2460, Pressurizer Level Transmitter

386/752 is prototype of 364.

not I testing is applicable to procotype.

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads	6.77 x 10* (LOCA) * 3 4 %	10* (40 yr
2 443	- 6.8 X 10*	
temp	280	0 man
or	280-150	30-0 min
	150	man
press	29.7	e-se aun
psia	59.7-14.7	30 min
	14.7	>60 min
spray	solution of boric acid (2,000-2,000 ppm boron) buffered to pH 8.5 to 11 with NaOH	0-14 hx
	Similar solution with pH	>4 hr

MSLB:

radn	1.3 x 10* (MSLB) + 3.4 x 10* (40 yr
rada	- 4.7 x 10*

of 7.8 to 9.0

temp op	430 430-280 150	0-2 min 2-60 min >60 min
		The second second

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS

LOCA: 120 days at 1500F

ACCURACY REQUIREMENTS: ±10% for 55 min

ACCURACY REQUIRMENTS: 0 to 5 min <5%

Maximum error 5 minutes to 4 months 17%

OPERABILITY DEMONSTRATED

LOCA: 212 days at 1500F

ENVIRONMENT TO WHICH EQUIPMENT IS YUALIFIED

LUCA & MSLB:

radn 5 x 10 7 rads

temp 380 0g U-280 280

0-280 0-3 sec 280 3-1200 sec 280-220 20 min-24 fr 220 1-15 days

3-1/00 sec

press dy.7

spray

solution of boric acid 0-24 fir

(1.14 wt%) and NaOm (0.17 wt%) dissolved

in water

MANNER OF QUALIFICATION

LOCA: Sequential Test

QUALIFICATION DOCUMENT

LOCA:

Westinghouse Electric Corporation NS-TMA-1950 Anderson to Stolz NS-TMA-2120 Anderson to Stolz Test Stone & Webster Calc No. 11715-ES-169-0 dated 3/10/77

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

Deficiencies: None

MSLB

A. Deficiencies: Qualified to 380°F ASLA, peak temperature is 430°F.

B. Solutions:

Temperature qualification is acceptable since temperature reduced to 200% after 2 minute, due to thermal inertia, internal temperature rise stays within qualified limits. See Temperature Calculation No. ES-165.

Will be replaced,

QUALIFICATION AND EVALUATION

BUNLEMENT DESCRIPTION: Steam Pressure Transmitter

MANUFACTURER: Poxboro, Model Ellow

SUPPLIER: Westingnouse Electric Corporation, NSSS

P.O.: NA

FUNCTION: DBA (LOCA & MSLB) Mitigation

LOCATION: QSPA-2718

MARK NO. :

PT-2476, Steam Generator 1 Steam Pressure Transmitter
PT-2499, Steam Generator 2 Steam Pressure Transmitter
PT-2494, Steam Generator 1 Steam Pressure Transmitter
PT-2494, Steam Generator 1 Steam Pressure Transmitter
PT-2494, Steam Generator 2 Steam Pressure Transmitter
PT-2497, Steam Generator 1 Steam Pressure Transmitter
PT-2495, Steam Generator 2 Steam Pressure Transmitter
P1-2495, Steam Generator 3 Steam Pressure Transmitter

DESCRIPTION OF ENVIRONMENT

LOCAL

radn 5.4 x 10* (LOCA) + 260 (40 yr) rads = 5.4 x 10*

temp

op

press

psia

gry av Na

MSLB: Will not see a changing environment due to an MSLb.

OPERABILITY REQUIREMENTS: 90 seconds at 220°F

ACCURACY REQUIREMENTS: See Qualification Deficiencies

Nevision 1 November 1, 1973

OPERABILITY DEMONSTRATED: 2 hr at 300 or

ACCURACY DEMONSTRATED: See Qualification Deliciencies

ENVIRONMENT TO Which equipment is qualified

LOCA 6 MSLB:

radn

Gamma radiation dose or 1 x 10* rads/hr for a total of 7.6 x 10* rads for NoTweNL unplitter assemblies, which consist of prototype amplifier designed for nuclear service and having a radiation resistant waring harness. A total dose of 2.2 x 10* rads for NoTweND amplifier assemblies, which consist of standard and 10 units with radiation resistant wiring markets.

temp 300 0-2 hr 2-44 br press 74.7

press 74.7 69-2 hr psia 34.7 2-24 hr

spray hado, spray with a pH of 0-2 hr

9.25 - 10.0 reduced 2-24 fir to ph of 8.5 spray

rate of 4 gal/hr/it2

MANNER OF QUALIFICATION:

LOCA & MSLB:

QUALIFICATION DOCUMENT

LOCA: WCAP-8541 MSLB: WCAP-8541

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

DEFICIENCY: No qualification data

SOLUTION: Transmitters to be replaced.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Limit Switches (Located on Valve)

MANUFACTURERS: NAMCO, EA-180

SUPPLIER: Westinghouse Electric Corp., NSSS

P.O.: NA-1010

FUNCTION: Containment Isolation

LOCATION: RC-216

MARK NO.:

HCV-2200A Regeneration Heat Outlet HCV-2∠00B kegeneration Heat Outlet HCV-2200C Regeneration deat Outlet

DESCRIPTION OF ENVIRONMENT

LCCA:

radn 1.8 x 10 7 (LOCA) + 3.5 x 10 5 (40 yr) rads = 1.8 x 107

temp 280 0-30 min OF 280-150 30-60 min 150 >60 man

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >60 min

spray Solution of boric acid 0-4 nr

(2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NauH

Similar solution with >4 nr

pH of 7.8 to 9.0

MSLB:

radn 1.3 x 104 (MSLB) + 3.5 x 105 (40 yr) rads

= 3.6 x 105

temp 430 0-2 min op 280 2-60 min 150 >60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 >60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS

LACA 6 MSLB: Valve to close within 60 seconds of isolation signal. Switches shall not fail so as to reopen valves.

See Qualification Deficiencies.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

LOCA 6 MSLB: Limit switches shown to operate after sequential testing.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

OP

aging 200 nr at 2000F

Mechanical aging 100,000 cycles under elec. load

radn 2.04 x 108

rads

temp 340

0-3 nr 340-120 3-5 hr 250 3.5 days 200 3.5-30 days

press 84.7 0-8 hr DELA 24.7 b-30 days

spray Boric acid solution 0-4 days

buffered to a pH of 10-11 With NaOH

Water spray 4-30 days Spray density =

0.015 gpm/rt2 MSLB: Maximum surface temperature is 265°F per abs c to lation 11715-15-197-0, dated 3/16/78.

MANNER OF COALIFICATION

LACA: Sequential Test

QUALIFICATION DOCUMENT

LOCA: Report entitled "Qualification of NAMCO controls limit switch Mode &A-TeU to IEEE Standards 344 (*75), 323 (*74), and 362 (*72), * Gatec 3/78 and revised

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER: Limitorque, Operator - Reliance Class RH Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION

1. EmergencyCore Cooling/Core Heat Removal

2. Engineering Safety Feature

3. DBA (LOCA & MSLB) Mitigation

LOCATION: SPGD-1

MARK NO .:

MOV-2860 A, Low Head Safety Injection Pump Suction Valve MUV-2860 E, Low Head Safety Injection Pump Suction Valve MOV-2885 A, Low Head Safety Injection Recirculation Valve MOV-2885 B, Low Head Safety Injection Recirculation Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 7.0x10* (LOCA) + 260 (40 yr)

temp NA

press psia

NA NA

MSLB: Will not see a changing environment due to an MSLB.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

radn 2×10* rads temp 329 0-1 hr 312 1-3 hr 287 3-5 hr 256 5-24 hr 247 1-7 days press 104.7 0-1 hr psia 84.7 1-3 hr 54.7 3-5 hr 34.7 5-24 hr 29.7 1-7 days spray 1.5% boric acid 4 hr buffered with NaOH to pH 7.67

OPERABILITY REQUIREMENTS

LOCA: 120 days for an integrated dose of 7x10* rads

ACCURACY REQUIREMENTS: Not required



Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: Component operated satisfactory after test.

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT:

Test of Limitorque Valve Operator to meet general requirements of an Electric Valve Actuator in Nuclear Reactor Containment Environment Engineering Order No. 600 PMs.

Nuclear Power Station Qualification Test Report Limitorque Valve Actuators for BMR Service
Project No. 600376A
Limitorque Corp letter dated 9/19/80

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve

MANUFACTURER: Limitorque

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O .: NA-1010

FUNCTION: Containment Isolation

LOCATION: RC-24 1B

MARK NO.: MOV_2380 RCP Sealwater return

DESCRIPTION OF ENVIRONMENT

radn	6.77 x 10* (LOCA) + 3.4 x 1 = 6.8 x 10*	0* (40 yr)
rads	= 6.0 X 10*	
temp	280	0 - 30 min
ay	280 - 150	30 - 60 mir
	150	> 60 min
press	59.7	0 - 30 min
paid	59.7 - 14.7	30 - 60 man
	14.7	> 60 man
spray	Solution of boric	0 - 4 nr
	acid (2,000-2,1000 ppm	

boron) burfered to pH of 8.5 to 11

with NaOH

Similar solution with > 4 hr

pH of 7.8 to 9.0

MSLB:

radn 1.3 x 10° (MSLB) + 3.4 x 10° (40 yr) = 4-7 m 804 rads

130 0 - 2 man temp 2 - 60 min ep 380 100 > 60 man

59.7 0 - 30 min 20093 59.7 - 14.7 30 - 60 min psia 14.7 > 60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS: 120 days at 150%

A CURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: 2 x 10 7 rads

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB

radn 2 x 10* rads

250 temp

100%

Test duration 15 days

MANNER OF QUALIFICATION: See Qualification Deficiencies

<u>QUALIFICATION DOCUMENT</u>: Westinghouse was audited on May 29 and 30, 1980. Insufficient qualification information was available to determine acceptability of Limitorque operators to accident environment.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA & MSLB:

- A. Deficiencies: Qualification information was inadequate.
- B. Solutions: Have supplied Limitorque with the serial and work order numbers. Limitorque is in the process of determining schedule for providing any qualification data which is available.

QUALIFICATION AND SVALUATION

EQUIPMENT OF SCRIPTION: Pressure Transmitters

MANUPACTURER: Barton, Model 763 (Lot 1)

SUPPLIER: Westinghouse Electric Corporation, NoSS

P.O.: NA-1010

PUNCTION

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Safety Features

3. DbA (LOCA and /or MSL&) Mitigation

LOCATION: RC 262b

MARK NO .;

PT-2455, Pressurizer Pressure Transmitters PT-2456, Pressurizer Pressure Transmitters PT-2457, Pressurizer Pressure Transmitters

DESCRIPTION OF ENVIRONMENT

150

LOCA

radn 6.77 x 104 (LOCA) + 3.4 x 104 (40 yr) rads = 6.77 x 104

temp 260 0-30 min OF 280-150 30-60 min

press 0-30 min psia 59.7-14.7 30-60 min

14.7 > 60 man spray Solution of 0-4 hr

poric acid (2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH

Similar solution > 4 hr with pH of 7.8 to 9.0

MSLB radn

rads 3.4 x 104 40 yr 430 0-2 min

280 2-60 min 150 > 60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min 14.7 7-60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS

LOCA 6 MSLB: 120 days at 150°F

ACCURACY REQUIREMENTS:

+10% for 55 min #5 min to 4 months +25%

Revision 1 November 1, 1980

ACCURACY DEMONSTRATED:

<5% for 5 min maximum Error 5 min to 4 months 17 %

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

radn rads

5 x 10 7

dissolved water

temp 0-280 280 OP 200-220 220

3 sec - 20 min 20 min - 24 hr 1 - 15 days

0-3 sec

Dress 89.7

psia Spray

3 sec-20 min

1.14 Wt. & Boric Acid and 0.17 wt. & NaOH

24 hr

MANNER OF QUALIFICATION: Test - Sequential

QUALIFICATION DOCUMENT

Westinghouse Electric Corp. NS-TMA-210 Anderson to Stolz (Test) Stone & Webscer Calc No. 11715-ES-169-0 dated 3/10/77

QUALIFICATION DEFICIENCI"S AND RECOMMENDED SOLUTIONS

LOCA

- A. Deficiencies; Test data does not match.
- B. Solutions: Test satisfies overall envelope requirements.

MSLB

- A. <u>Deficiencies</u>: Qualified to 380° MSLb, peak temperature is 430°F.
- B. Solutions; Temperature qualification is acceptable since temperature reduced to 280°F after 2 min, due 12 thermal inertia, internal temperature rise stays within qualified limits. See Temperature Calculation No. ES-169.
- C. Comments: Will be replaced.

QUALIFICATION AND EVALUATION

EXELPMENT DESCRIPTION: Motor operated Valve - Valve Operator

SANUFACTURER: Limitorque Operator - Electrical Apparatus Class H Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineering Safety Feature 3. DBS (LOCA & MSLB) Mitigation

LOCATION: SPGD-1

MARK NO.: MOV-2890A, Low Head Sarety Injection Line Stop Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

radn

7.0 x 10* (LOCA) + 260 (40 yr)

= 7.0 x 104

temp

NA NA

press psia

NA.

spra,

NA.

MSLB;

Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

WCA: 120 days for an integrated dose of 7.0 x 10* rads.

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: Component operated satisfactorily after testing

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

radn 2 x 10 7

rads

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT: Qualification type test report Limitorque valve actuators for Class IE service outside primar; containment. Project No. 000461, keport No. 50003 Limitorque corp. letter dated 9/19/80

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

A. Deficiencies:

This unit was supplied with control transformer and fuse which is not qualified.

B. Solutions:

Transformer and fuse are not connected as part of the control circuit.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valve

MANUFACTURERS: ASCO LB831654

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

PUNCTION: Containment Isolation

LOCATION: RC2 MB

MARK NU.:

SOW-2200A-1 Letdown line SOV-22008-1 Letdown line SOV-2200C-1 Letdown line

DESCRIPTION OF ENVIRONMENT

LOCA

radn rads	7.5 x 10* (LCCA) * 3.5 x = 7.5 x 10*	10* (40 yr)
temp op	280 280 - 150 150	0-30 min 30 - 60 min > 60 min
press pala	59.7 59.7 - 14.7 14.7	0 - 30 min 30 - 60 min > 60 min

Solution of boric acid

spray

(2,000-2,100 ppm boron) buffered to pH of 8.5 to 11 with NaOH

Similar solution with

ph of 7.8 to 9.0 > 4 hr

OPERABILITY REQUIREMENTS:

SOW will perform its function of closing the isolation valve within 60 seconds of receiving signal.

0 - 4 hr

ACCURACY REQUIREMENTS: Not required

Seviator 1 Movember 1, 1950

OPERABILITY DEMONSTRATED:

SOV performed required safety function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

MANNER OF QUALIFICATION LOCA & MSLB:

QUALIFICATION DUCUMENT: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

- A. Deficiencies:
 - 1. No qualification data
 - 2. Submergence (valve below submergence level).
- B. Solutions:
 - 1. SOWs to be replaced with ASCU'S Nr series qualified to face 323-74, replacements to be installed at first available outage of sufficient
 - 2. This model is or waterproof type. Replacement valves will be located above flood level.

QUALIFICATION AND EVALUATION

SUUIPMENT DESCRIPTION: Solenoid Valve Operator

MANUFACTURER: ASCO HT831654

SUPPLIER: Westinghouse Electric Corporation, NSSS P.O.: NA-1010

FUNCTION: Containment Isolation

LOCATION: RC241A

MARK NO.:

SOV-2460A, B Letdown Line Loop 1 6 2

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 1.8 x 10° + 3 x 10° (40 yr)

rads = 4.8 x 107

temp 280 0-30 min ep 280-150 30-50 min 150 >60 min

press 59.7 0-30 min psia 59.7-14.7 30-60 min

14.7 > 60 min

spray Solution of boric >-4 hr

acid (2,00 - 2,100 ppm boron) buffered to ph of 8.5 to 11

with NaOH

Similar solution with > 4 hr

pH of 7.8 to 9.0

MSLB:

radn 3.4 x 10*(40 yr)

rada

temp 430 0-4 min op 280 2-60 min 150 > 60 min

press 59.7-14.7 0-30 min psia 59.7-14.7 30-60 min

spray same as LOCA

OPERABILITY REQUIREMENTS:

SOV will perform its function of closing the isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: SOV Performed required safety function after

receiving radiation deae.

ENVIRONMENT TO WRICH EQUIPMENT IS QUALIFIED

LOCA & MSLb: see Conlitication Deliciencies

MANNER OF QUALIFICATION

LOCA & MSLB: None

QUALIFICATION DOCUMENT

LOCA MSLB: None

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LUCA & MSLB

Deficiencies: No yualification Data

Solutions:

SUWs to be replaced with ASCO's MP-series qualified to IsEs 323-74. Replacements to be installed at first available outage of sufficient duration.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER

Limitotope

Operator - Peerless Motor Class B Insulation

SUPPLIER: Westinghouse Electric Corporation

P.O .: NA - 1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2 Angineered Safety Peature 3. DBA (LOCA & MS).B) Mitigation

LOCATION: SFGD-1

MARK NO .:

MOV-2862A, Low Head Safety Injection Suction Valve MOV-2862B, Low Head Safety Injection Suction Valve

DESCRIPTION OF ENVIRONMENT

LOCA;

7.0 x 100 (LOCA) + 260 (40 yr) radn

rads = 7.0 x 100

t-mp NA

press pela

spray NA

MSLB:

Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days for 5.6 x 100 rads total integrated dose

ACCURACY REQUIREMENTS: Not required

Movember 1, 1980

OPERABILITY DEMONSTRATED: Component operated satisfactorily after testing

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA

spray

race 2 x 10 P zads

temp 250 0-30 min op 250-120 30-120 man 250 2-24 DI 1-10 days 200

press 39.7 0-1 day psia 24.7 1-16 days

NA

hmd 100%

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT:

Qualification Type Test Report Limitorque valve actuation for Class Is service outside primary containment. Project No. 600461 Report No. 80003 Limitorque Corp Letter dated 9/19/1980

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Resistive Temperature Detectors

MANUFACTURER: Rosemount, 176KS

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1. Containment Isolation 2. Post-accident Monitoring 3. Engineered Safety Feature 4. DBA (LOCA & MSLB) Mitigation

LOCATION: RC24 1A in piping

MARK NO .:

TE-2412B, RCS Temperature Narrow Range RTD TE-2412D, RCS Temperature Narrow Range RTD TE-2422B, RCS Temperature Narrow Range RTD TE-2422D, RCS Temperature Narrow Range RTD TE-2432D, RCS Temperature Narrow Range RTD TE-2432D, RCS Temperature Narrow Range RTD

DESCRIPTION OF ENVIRONMENT

LOCA:

These RTDs have been addressed during licensing for OL. The method of determining radiation environment was identified by the ARC (see SER, Supplement 10). The agreement reached is listed under Qualification Deficiencies and Solutions.

MSLB: Same as LOCA

OPERABILITY REQUIREMENTS: 30 seconds post MSLB & LOCA

ACCURACY REQUIREMENTS: ±0.2%

OPERABILITY DEMONSTRATED: 30 seconds post MSLB & LOCA

1 x 10*

ACCURACY DENCE TRATED: ±0.2%

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED:

radn

temp 320 op 320

press 80.7

MANNER OF QUALIFICATION: Sequential Test

QUALIFICATION DOCUMENT

LOCA & MSLB: WCAP-9157

VEPCO Submittal No. 855A for NA 1 and 2 dated 11/1/79.

QUALIFICATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

LOCA & MSLB:

As part of the licensing commitment, these RTDs will be replaced during each refueling outage, until qualified components are available.

OPERABILITY DEMONSTRATED

LOCA: 2 x 10* rads

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFICAT: Class H insulation has been qualified to 2 x 10* rads

Revision 1 November 1, 1980

MANNER OF QUALIFICATION:

LOCA: Test of Insulation Material

QUALIFICATION DOCUMENT

LOCA: See Qualification Dericiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: Insufficient Test Data.

WCAP-8754 and WCAP-7829 inter radiation qualification of 4 x 10* rads for the insulation system. Westinghouse to provide copy of WCAP-8754 and WCAP-7849

ACUIPMENT DESCRIPTION: Low Head - Safety Injection Pumps

QUALIFICATION AND EVALUATION

TABLE W-13

SUPPLIER: Westinghouse Electric Corporation, NSSS

MANUFACTURER: Westinghouse Electric Corporation

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal 2. DBA (LKCA & MSLB) Mitigation

LOCATION: SPGD-1

MARK NO.:

2-SI-P-1A, Low Head Safety Injection Pumps A 2-SI-P-1B, Low Head Safety Injection Pumps s

DESCRIPTION OF ENVIRONMENT

LOCA:

radn

7 x 10* (LOCA) + 260 (40 yr) = 7.0 x 10*

NA

NA press psia MSLB: Will not see a changing environment due to an MSLB.

NA

spray

OPERABILITY REQUIREMENTS

LOCA: 120 days for total integrated dose of 7 x 10* rads.

ACCURACY REQUIREMENTS: Not required

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURERS:

Valve - Limitorque

Operator - Reliance Class B Insulation

SUPPLIER:

Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Safety Feature

LOCATION: AB-244A

MARK NO .:

MOV-2863A, Low Head Safety Injection Discharge Value MOV-2863B, Low Head Safety Injection Discharge Value

DESCRIPTION OF ENVIRONMENT

LOCA:

rads = 5.6 x 10*

temp

press

psia

spray

MSLB:

Will not see a changing environment due to an Milb.

OPERABILITY REQUIREMENTS: 5.6 x 10 rads 120-day total integrated dose

3.6 x 10° (LOCA) + 2 x 10° (40 yr)

ACCURACY REQUIREMENT: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: 4 x 10 rads

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB:

xadn 2 x 10 ₹

rads

temp

press psia 250 250-**1**20

20

0 - 30 man 30 - 120 min

200

NA

1 - 10 days

39.7 24.7 0 - 1 day 1 - 16 days

had

spray

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENTS:

Qualification type test report Limitorque valve actuators for class IL service

outside primary containment Project No. 600461

Report No. B0003

Limitorque Corp. letter, date Sept. 19, 1980

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor-Operate Valve - Valve Operator

MANUFACTURER: Limitorque, Operator - Peerless Class B Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

PUNCTION

1) Emergency Core Cooling/Core Heat Removal

2) Engineering Safety Feature

LOCATION: SPGD-1

MARK NO .:

MOV-2864A, Low Head Safety Injection Discharge Valve MOV-2864B, Low Head Safety Injection Discharge Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

radn rads 7 x 10 * (pased on 120 days LOCA) total

integrated dose

temp

NA

press

psia

NA

spray

NA

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days for 7 x 10* rads total integrated dose

ACCURACY REQUIREMENTS: Not required

Revision 7 November 1, 1930

OPERABILITY DEMONSTRATED: Component operated satisfactorily after testing.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

radn rads	2 x 10*	
temp op	250 250-120 250 200	0-3 min 30-120 min 2-24 hr 1-16 days
press psia	39.7 24.7	0-1 day 1-16 days
apray	NA	
had	100%	

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT:

Qualification type test report Limitorque valve actuators for Class IE service outside primary containment Project No. 600461, Report No. B0003, Limitorque Corp. letter dated September 19, 1980.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

Revision 1 1980 November 1, 1980

TABLE W- 16

QUALIFICATION AND EVALUATION

MANUFACTURER: Limitorque, Operator - Reliance Class B Insulation BOUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1) Emergency Core Cooling/Core Heat Removal 2) Engineered Safety Peature 3) DBA (LACA & MSLB) Mitigation.

LOCATION: AB-274A

MARK NO .: MOV-2115C, Charging Pump Suction - Vol. Control Tank

DESCRIPTION OF ENVIRONMENT

IOCA:

radn

1 x 10* (LOCA) + 5.3 x 10* (40 yr) = 1 x 10*

NA

NA press

NA spray MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days for integrated dose of 1 x 10* rads

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED:

ENVIRONMENT TO WHICH SQUIPMENT IS QUALIFIED

LOCA 6 MSL3:

radn none	210 210-155 155	press 14.95
	0-6 hr 6-9 hr 9-12 hr	12 hr

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT

Qualification Test of Limitorgue Valve Actuator in a Steam Environment, Report No. F-C3271

QUALIFICATION DEFICIENCES AND RECOMMENDED SOLUTIONS

- Deficiencies: No Qualification document for radiation
- Solution: Field to verify the presence of brake. If no brake installed, Limitorque Report No. 800003 is applicable and qualifies valve for 2 x 10 rads.

QUALIFICATION AND EVALUATION

AULIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANNUFACTURES: Limitorque, Operator - Reliance Class B Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

7. Emergency Core Cooling/Core Heat Kemoval 2. Engineered Sarety Peature 3. DEA (LOCA & MSLE) Mitigation

LOCATION: Ab 274

MARK NO.: MOV-2350, Emergency Soration Valve

DESCRIPTION OF ENVIRONMENT

LACA:

radn cemp

1 x 10* (LOCA) + 5.3 x 16* (40 yr) = 1.005 x 10*

NA press

NA spray MSLB:

100 (MSL8) + 5.3 x 10* (40 yr) radn

N

5 press temp

CYNABILITY KEQUIKLARENTS: 1 x 10 rads 120 day total integrated dose

ACCURACY KEQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: See gualification Deliciencies

Revision 1 Rovember 7, 1980

ENVIRONMENT TO WHICH EQUIPMENT to CUALIFIED: See Challication believes

MANNER OF QUALIFICATION: Test

dated Data Siret, Nuclear gualification MALIFICATION DXCUMENT: Limitorque

COALIFICATION DEFICTENCIES AND PECONNENDED SOLUTIONS

Deficiencies: gualification information was inadequate.

Solution:
Have supplied Limitorgue with the sexial and work order numbers, Limit-orgue is in the process or determining schedule providing any qualification data which is available.

W-17

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURERS: Limitorque; Operator - Reliance Class B Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

PUNCTION:

Emergency Core Cooling/Core Heat Removal Engineering Safety Feature DbA (LOCA & MSLB) Mitigation

LOCATION: AB-244A

MARK NO .:

MOW-2667 B, Low Head safety injection to charging pump MCW-2269 B, Low Head 6 Volume control tank discharge to charging pump MCW-2370 B, Low Head 6 Volume control tank discharge to charging pump MCW-2370, Charging pump to seal water recirculation stop valve MCW-2373, Charging pump to seal water recirculation stop valve MGW-2873, Charging pump safety injection stop valve MCW-2869 B, Charging pump safety injection stop valve

SCRIPTION OF ENVIRONMENT

LOCA:

3.6 x 10* (LOCA) + 2 x 10* (40 yr) = 5.6 x 10* NA rads

NA psia

MA spray MSLB: Will not see a changing environment due to an MSLB.

HELB:

3 sec 30 sec 5,000 sec 24 hr 100 (HELB) + 2 x 10* (40 yr) = 2 x 10* 104-176 204 192 124 radn rads

14.96

press

DRIA

OPERABILITY REQUIREMENTS: 120 days for an integrated dose of 5 x 10° rads

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: Component operated satisfactorily after test

1, 1980

Revision

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA 6 MSLB:

0-30 min 30-120 min 2-24 hr 1-16 days 0-1 days 250-120 250-120 250 200 2 x 10 P 39.7 N. press spray temp rads

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT:

Qualification type test report Limitorque Valve actuators for Class 1E Service Outside Primary Containment

Project No. 600461 Report No. B0003

Limitorque Corp. letter dated 9/19/80

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: None

PUBLIFICATION AND EVALUATION

Motor-Operated Valve - Valve Operator QUIPMENT DESCRIPTION

NANUFACTURER

Lintorque Operator - Reliance Class B Insulation

SUP'LLER: Westinghouse Electric Corporation, NSSS

P.U. : NA-1010

FUNCT. ON:

Emergency Core Cooling/Core Heat Removal Engineered Safety Peature DBM (LOCA & MSLB) Mitigation

AB-244A LOCATION:

MARK NO.:

MOV-2286A, Charging Pump Discharge Valve MOV-2286, Charging Pump Discharge Valve MOV-2286, Charging Pump Discharge Valve MOV-2287A, Charging Pump Stop Valve MOV-2287A, Charging Pump Stop Valve MOV-2287A, Charging Pump Stop Valve

DESCRIPTION OF ENVIRONMENT

INCA:

radn

3.6 x 10* (LGCA) + 2 x 10* (40 yr) = 5.6 x 10* total integrated dose

NA

press para

ž

spray

N

MSLB: Will not see a changing environment due to a MSLB.

HELB:

Based on a review of the postulated Hala's, it was determined that safety-related equipment required to mixigate the HELS and bring the plant back to a safe shutdown are not affected by the breax. However, this equipment is being reviewed aga'nst the effects of a Helb to determine our ability to maintain minimum boration capability, to ensure additional plant operational capability.

3 sec 30 sec 5,000 sec 24 hr 104-176 124

OPERABILITY REQUIREMENTS

1001

LOCA: Unly requirements - operate to isolate charging line break.

HELE: Not required to operate under adverse conditions for maintaining capability to norate after letdown line break. Valve normally open and does not require change of position under addressed accident condition.

OPERABILITY DEMONSTRATED: Component operated satisfactorily after testing.

ACCURACY REVUINIMENTS: Not required

Revision 1 November 1, 1980

ENVIRONMENT TO WHICH EQUIPMENT IS JURILIFIED

LACA 6 HELLS

250-120 250-120 39.7 24.7 NA	rads	2 × 10 *	
39.7 24.7 NA 100*	temp of	250-120	0-30 ma
100x	press	39.7	1-10 day
	spray	NA	
	hmd	100*	

The sta

QUALIFICATION DOCUMENT:

report Limitorque valve actuators for Class IL service Qualification type test report Limitorque valve actuoutaide primary containment.

Project No. 600461

Report No. 60003

Lamitorque Corporation letter dated September 19, 1980

QUALIFICATION DEFICIENCIES AND RACOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Charging Pumps

MANUFACTURER: Westinghouse Electric Corporation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

PUNCTION:

1. Emergency Core Cooling/Heat Removal

2. DBA (LOCA & ASLB) Mitigation

LOCATION: AB-244A

MARK NO .:

2-CH-P-1A, Charging Pumps A (High Head Safety Injection Pump) 2-CH-P-1B, Charging Pumps B (High Head Safety Injection Pump) 2-CH-P-1C, Charging Pumps C (High Head Safety Injection Pump)

DESCRIPTION OF ENVIRONMENT

LOCA

radn 3.6 x 10° (LOCA) + 2 x 10° (40 yr) rads = 5.6 x 10°

temp NA

press NA

spray

MSLB: Will not see a changing environment due to an MSLb.

HELD: Based on a review of the postulated HELD's it was determined that safetyrelated equipment required to mitigate the Halb and bring the plant to a safe shutdown are not affected by the break. However, this equipment is being reviewed against the affects of Halb to determine our ability to maintain minimum boration capability to assure additional plant operational capability.

radn 100 (HELB) * 2 x 10* (40 yr) rads = 2 x 10*

temp 104 - 17e 3 sec op 204 30 sec 192 5,000 sec 124 24 hrs

press 14.96 psia

OPERABILITY REQUIREMENTS

LOCA: 5.6 x 100 rads 120 days total integrated dose

HELB: 220°F for 90 sec

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED

LOCA 6 HELB: Z x 10 * rads

ENVIRONMENT TO WELCH EQUIPMENT IS VORLIFIED: Class H insulation has been qualified to a x 10" rads.

HELD: See Qualification Dericiencies

MANNER OF QUALIFICATION:

LAKA: Test

HELB: See Qualific tion Dericiencies

QUALIFICATION DY CUMENT

LOCA: See Qua .ification Deliciencies

HELB: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LAXA: Insufficient Test Data WCAP-8754 infer radiation qualification of z x 10* rads for the insulation system. Westinghouse to provide copy of WCAP-8754.

<u>HSLB</u>: No Qualification Documentation available, actual accident environment will be developed.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER: Limitorque Operator - Reliance Class & Insulation

SUPPLIER: Westinghouse Electric Corporation, NSCS

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineered Safety Feature

3. DBA (LOCA & MSLB) Mitigation

4. Minimum charging and boration capacity for HeLB in Auxiliary Building

LOCATION: AB-244A

MARK NO .:

Zone B

MOV-2267A LBSI to charging pump valve

MOV-2269A LSHI & valve control tank discharge to pump valve

MOV-2270A LHSI & volume control tank discharge valve

Zone C

MOV-2289A Charging pump discharge line stop valve

MOV-2289B Charging pump discharge line stop valve

DESCRIPTION OF ENVIRONMENT

LUCA

radn 3.6 x 10° (LOCA) * 2 x 10° (40 yr) rads = 5.6 x 10°

NA

temp

press -

psia

spray NA

HELD

Based on a review of postulated HELB's it was determined that safety-related equipment required to mitigate the Shis and bring the plant to a safe shutdown are not affected by the break. However, this equipment is being reviewed against the affects of Hkis to determine our ability to maintain minimum poration capability to assure additional plant operational capability.

temp 104-176 3 sec op 204 30 sec

192 5000 sec 124 24 nr

press 14.96

psia

hmd 100%

MSLB: Wast not see a changing environment due to an MSLB.

OPERABILITY MEDUIREMENTS

LOCA: 129 days for 5.0 x 10* rads total integrated dose

Revision 1 November 1, 1980

HELD: 2200F for less than 90 seconds, 100% RH

Comments:

Valve normally $\sigma_z\text{-}\text{in}$ and does not require change or position under addressed accident conditions.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1980

OPERABILITY THE MEET ED

LOCA: Component operated satisfactorily after testing

BENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA 6 HELE

radn 2 x 107 rads

0-30 min 30-120 min 250 250-120 temp 250 3-2' hrs 200

1-10 days

press 39.7 9-1 day psia 24.7 1-16 days

hmd 100%

NA spray

MANNER OF QUALIFICATION: Test

Qualification Type Test Report

QUALIFICATION DOCUMENT:

Limitorque valve actuation for Class 16 service outside primary containment. Project No. 600401, Report No. 60003, Limitorque Corp Letter dated 9/19/1980.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

QUALIFICATION AND EVALUATION

SQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER: Limitorque Operator - Reliance Class B Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Heat Removal

2. Engineering Sarety Peature

3. DBA (LOCA & MSLB) Mitigation

4. Minimum charging and boration capability for HalB in Auxiliary Building

LOCATION: AB244A

MARK NO.:

MOV-2115B, Charging pump suction from refueling water storage tank valve MOV-2115D, Charging pump suction from refueling water storage tank valve

DESCRIPTION OF ENVIRONMENT

LOCA:

3.6 x 10* (LOCA) + 2 x 10*(40 yr)

Cads = 5.6 x 106

temp NA

press NA psia

spray NA

MSLB

radn 100 (MSLB) + 2 x 10 * (40 yr) =

rads 2 x 100

NA

press NA psia

spray NA

HELB:

hmd 100% 14.96

Letdown line break

Based on a review of the postulated HELBs, it was determined that safety-related equipment required to mitigate the HELB and bring the plant to a safe shutdown are not affected by the break. However, this equipment being reviewed against the effects of HELB to determine our ability to aintain minimum poration capability to assures additional plant operational capability.

OPERABILITY REPUTERMENTS

LOCA: 120 days for an integrated dose of 5.6 x 10° rads.

Halb: 220°F for less than 90 sec, 100% hmd

Required to maintain boration and charging capability after letdown line break.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1988

OPERABILITY DEMONSTRATED

LOCA & HELB: None

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & RELB

radn 5.6 x 10* rads

temp 210 0-6 hr £ 10-155 5-9 DE 155 9-12 hr

press 14.95 12 hr psia

spray NA

hmd 100 %

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT

LOCA: None

MSLB: Qualification Test or Limitorque valve actuator in a steam environment.

Report No. F-C3271

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: No qualification data

HELB: Insufficient qualification

SOLUTIONS: Operator to be replaced with operator qualified to lack 523-74. keplacements to be installed at first available outage of sufficient ouration. DELETED

TABLE W-23*

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Flow Transmitter

MANUFACTURER: Barton, Model No. 384

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

LOCATION: AB-244A

MARK NO.:

PT-2940, Safety Injection Header Flow Hot Leg

F7-2943, Boron Injection Tank Header Flow

DESCRIPTION OF ENVIRONMENT

LUCA:

radn rads 1 x 10+

based on 120 day LOCA

temp

NA

press

NA

spray

SEE

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 1.04 x 100 rads

ACCURACY REQUIREMENTS: See Qualification Deficiencies

Revasion 1 Your base 1, 1980

OPERABILITY DEMONSTRATED: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Qualification Deficiencies

MANNER OF QUALIFICATION

LOCA: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA

A. Deficiencies: No environmental qualification data available from supplier.

B. Solutions: Have contacted manufacturer for qualifications test information.

*Delete - Not required for accidient mitigation

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURERS: Limitorque, Operator - Peerless Motor Class B Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

Engineered Safety Peature
 DCA (LOCA 6 MSLb) Mitigation

4. Minimum charging and boration for HELB in Auxiliary Building

LOCATION: AB-244A

MARK NO.: MOV-2867C, Charging Pump Stop Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

3.6 x 10* (LOCA) + 2 x 10* (40 yr)

rads = 5.6 x 10*

temp NA

op

press NA

spray NA

HELB:

Based on a review of the postulated HELBs it was determined that safety-related equipment required to mitigate the HELB and bring the plant to a safe shutdown are not affected by the break. However, this equipment is being reviewed against the affects of HELB to determine our ability to maintain minimum boration capability to assure additional plant operational capability.

temp 104-176 3 sec op 204 30 sec 192 5,000 sec 124 24 hr

100%

press psia

hmd

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days for an integrated dose of 5.6 x 10* rads

HELB: 220 F for 90 sec, hmd

Comments: Valve normally open and does not require change of position under addressed accident condition.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA & HELB: Component operated satisfactorily after testing.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

radn 2 x 107

temp 250 0-30 min 250-120 30-120 min 250 2-24 hr 200 1-16 days

press 39.7 0-1 day psia 24.7 1-16 days spray NA

hmd 100%

MANNER OF QUALIFICATION

LOCA: Test

QUALIFICATION DOCUMENT

LOCA & HELB:

Qualification Type Test Report %imitorque valve actuators for Class 1% service outside primary containment.

Project No. 600461, Report No. 80003, Limitorque Corp. Letter dated September 19,

QUALIFICATION DEFICIENCIES AND RECUMENDES SOLUTIONS

LOCA & HELB: None

QUALIFICATION AND EVALUATION

QUIPMENT DESCRIPTION: Motor-Operated Valve - Valve Operator

MANUFACTURER: Limitorque Operator - Reliance Class & Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal

2. Engineering Sarety Feature

LOCATION: AB 284A

MARK NO .:

MOV-2867A, Charging pump stop valve MOV-2867B, Charging pump stop valve MOV-2867D, Charging pump stop valve

DI SCRIPTION OF ENVIRONMENT

LECA:

radn 3.6 x 10* (LOCA) +2 x 10* (40 vr)

= 5.6 x 10* rads

temp NA

press NA

psia

spray NA

MSLB: Will not see a changing environment due to a MSLB.

HELB

Based on a review of postulated HELB's, it was determined that safety-related equipment required to mitigate the HELB and bring the plant to a safe shutdown are not affected by the break. However, this equipment is being reviewed against the effects of a HELB to determine our ability to maintain minimum boration capability to ensure additional plant operational capability.

temp

104-176 204 912

30 sec 5,000 sec 124 24 hr

3 sec

press 14.96

100%

OPERABILITY REQUIREMENTS

LOCA: 120 days for integrated dose of 5.6 x 10* rads

HELB: 220°F less than 90 sec, 100% hand

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: Components operated satisfactorily after testing.

ENVIRONMENT TO WHICH EULIPMENT IS QUALIFIED

LOCA & HELB

radn 2 x 107 rads

temp

op 250 0-30 min 250-120 30-120 min 250 2-24 hr 200 1-16 days 39.7 press 0-1 days 1-16 days

24.7 hmd 100%

NA

MANNER OF QUALIFICATION Test

QUALIFICATION DOCUMENT:

Qualification type test report Limitorque valve actuators for Class IE Service outside primary containment Project No. 600461 Report No. B0003 Limitorque Corporation letter dated September 19, 1980

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS: None

Revision 1 November 1, 1980

TABLE W-26

QUALIFICATION AND EVALUATION

EQUIPMENT D SARIPTION: Solenoid Operated Valves

MANUFACTURER: ASCO, MODEL NO. HT831654

SUPPLIER: Westinghouse Electric Corporation

P.O.: NA-1010

FUNCTION: Containment Isolation

LOCATION: AB-244A

MARK NO.: SOV-2859 - Safety Injection Accumulator

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.6 x 10° (LOCA) * 2 x 10° (40 yr) = 5.6 x 10° cotal dose rada

temp

press psia

spray

MSGB: will not see a changing environment due to an MSLB.

OPERAPILITY REQUIREMENTS;

SOV will perform its function of closing the isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED:

SOV performed required safety function after receiving radiation dose.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

MANNER OF QUALIFICATION

HELB: Test

QUALIFICATION DOCUMENT

HELB: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

HELB:

A. Deficiencies:

No qualification data available.

B. Solutions:

SOVs to be replaced with ASCO*s NP-series qualified to IEEE 323-74. Replacements to be installed at first available outage of sufficient duration.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Resistive Temperature Detectors

MANUFACTURERS: Rosemount, Model No. 176KS

SUPPLIED: Westinghouse Electri Corporation, NSSS

P.O.: NA-1010

PUNLTION Post-accident Monitoring

LOCATION In piping RC-241A

MARK NO .:

TE-241 RCS Temperature Wide Range RTD TE-2413, KCS Temperature Wide Range RTD TE-2420, RCS Temperature Wide Range RTD TE-2423, RCS Temperature Wide Range RTD TE-2430, RCS Temperature Wide Kange RTD TE-2433, RCS Temperature Wide Range RTD

DESCRIPTION OF ENVIRONMENT

LOCA & MSLB:

These RTDs have been addressed during licensing for OL. The method of determining radiation environment was identified by the NRC (see SER, Supplement 10). The agreement reached is listed under Qualification Deficiencies and Solutions.

OPERABILITY REQUIREMENTS: Two weeks post MSLB

ACCURACY REQUIPEMENTS: ±0.2%

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: Two weeks post MSLB

ACCURACY DEMONSTRATED: ±0.2%

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

MSLB:

radn 1 x 10 a rads

temp >320

press 80.7 psia

MANNER OF QUALIFICATION: Sequential Test

QUALIFICATION DOCUMENT

MSLB: WCAP-9157 VEPCO Submittal No. 855 dated 11/1/79 and No. 855A for NA 1 and 4.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

MSLB:

As part of the licensing commitment, these RTDs will be replaced during each refueling outage, until qualified components are available.

TABLE W-28*

QUALIFICATION AND EVALUATION

EAUIPMENT DESCRIPTION: Motor Operated Valve

MANUFALTURER: LARL Lorque

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION: Engineered Safety Features

LOCATION: RC-216

MARK NO .:

MOV-2865A ACCUMULATOR TANK 1 Cold Leg MOV-2865B ACCUMULATOR TANK 2 Cold Leg MOV-2865C ACCUMULATOR TANK 2 Cold Leg

DESCRIPTION OF ENVIRONMENT

LOCA:

0 - 30 min 30 - 60 min > 60 min 0 - 30 min 30 - 60 min > 60 min Solution of boric acid (2,000-2,1000 ppm borons) Ewgfered to pH of 8.5 to 11 1.8 x 10° (LOCA) + 3.0 x 10° (40 yz) = 4.8 x 10° 59.7 - 14.7 280 - 150 150 press Spray temp radn rads

> 4 hr Similar solution with pH of 7.8 to 9.0

1 + - 0

3.0 x 10* (40 yr)

MSLD:

radn temp

0 - 30 mis 30 - 60 min > 60 min 0 - 2 min 2 - 60 min > 60 min 59.7 - 14.7 430

Same as LOCA

spray

press

OPERABILITY REQUIREMENTS: NA.

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: NA

Revision 1 November 1, 1980

ENVIRONMENT TO WHICH EQUIPMENT IS VESTIFIL.

LOCA: None

MANNER OF QUALIFICATION: See Qualification Deliciencies

QUALIFICATION DOCUMENT:

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

WACA 6 NISLB: None

*Delete - Not Required to Operace to Miligate An Accident

87-M

QUALIFICATION AND EVACUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURERS: Limitorque Operator

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

1) Emergency Core Cooling/Core Heat Removal 2) Engineered Safety Feature

3) DBA (LoCA & MSLB) Mitigation

LOCATION: AB-244A

MARK NO.: MOV-2836, Cold Leg Circulation Valve

DESCRIPTION OF JVIRONMENT

LOCA:

3.0 x 10* (LOCA) + 2 x 10* (40 yr) radn rads

= 5.0 x 10*

temp NA

op

press NA

psia

spray NA

MSLB

rads

109 (MALB) + 2 x 100 (40 yr) radn

* # × 10*

temp No

press

NA psia

NA apray

OPERABILITY REQUIREMENTS

LOCA: 120 days for an integrated dose of 5.6 x 10° rads.

ACCOMACY REQUIRED: Not required

Revision 1 November 1, 1980

OPERABILITY DEMONSTRATED: Later

ENVIRONMENT TO WHICE EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

MANNER OF QUALIFICATION: Later

QUALIFICATION DUCUMENT: See Qualification Deticiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

- A. Deticiencies: Qualification information was inadequate.
- B. Solutions: Have supplied Limitorque with the serial and work order numbers. Limitorque is in the process or determining schedule for providing any qualification data which is available.



QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Valve Operator

MANUFACTURER: ASCO, LB831654

SUPPLIER: Westinghouse Electric Corp ration, NSSS

P.O.: NA-1010

FUNCTION:

Emergency Core Cooling/Core Heat Removal
 Engineered Safety Features

LOCATION: AB-244A

MARK NO.

SOV-2884A, Boron Dry Tank to Batch Tank SOV-2884B, Boron Dry Tank to Batch Tank SOV-2884C, Boron Dry Tank to Batch Tank

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 3.6 x 100 (CACA) + 2 x 104 40 yr rads

= 5.6 x 100 total dose

temp

press

NA NA

psia

spray NA

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA:

SOV will perform its function of closing the isolation valve within 60 seconds of receiving signal.

ACCURACY RECTIREMENTS: Not required

OPERABILITY DEMONSTRATED

LOCA: SOV performed required safety function after receiving radiation most.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: See Qualification Deticiencies

MANNER OF QUALIFICATION: See Qualification Deficiencies

QUALIFICATION DOCUMENT

WCA: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA:

SOVs to be replaced with ASCO'S NP-Services qualified to IEst 323-74. Replacements to be installed at first available outage of sufficient duration.

DELETED

TABLE W-31*

QUALIFICATION AND EVALUATION

EQDIPMENT DESCRIPTION: E/P for Hand Control Valve

MANUFACTURER: Fisher, Model No. 546

SUPPLIER: Westinghouse Electric Corporation

P.O.:

FUNCTION: NA

LOCATION: AB-244A

MARK NO.: E/P for HCV-2186, Seal Water Flow Control

DESCRIPTION OF ENVIRONMENT

LOCA: NA

OPERABILITY REQUIREMENTS

LOCA: NA

ACCURACY REQUIREMENTS: NA

Revision 1 November 1, 1983

OPERABILITY DEMONSTRATED

LOCA: NA

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA: NA

MANNER OF QUALIFICATION

LOCA:

QUALIFICATION DOCUMENT

LOCA:

QUALIFICATION DEFICIENCIES AND "ECOMMENDED SOLUTIONS

LOCA: None

* Delete - Not Required to Mitigate an Accident

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solenoid Operated Valve

MANUFACTURERS: ASCO, LB8300B64RV

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION: Containment Isolation

LOCATION: RC216B

MARK NO.:

SOV-2200A-2 Letdown line SOV-2200B-2 Letdown line SOV-2200C-2 Letdown line

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 7.5 x 10* (LOCA) + 3.5 x 10* (40 yr) rads = 7.5 x 10*

temp 280 0-30 min 9 280 - 150 30 - 60 min > 60 min

press 59.7 psia 59.7 - 1e.7 0 - 30 min 14.7 30 - 60 min

spray Solution of boric acid 0 = 8 hr (2,000-2,100 ppm boron) buffered to ph of 8.5 to 11 with Naon

MSLB:

radn 1.3 x 104 (MSLB) + 3.5 x 104 (40 yr) rads = 4.5 x 104

temp 430 0-2 min 9 280 2-60 min 50 59.7 0-30 min 59.7 - 14.7 30-60 min > 60 min > 60

apray Same as LOCA

OPERABILITY REQUIREMENTS

LOCA & MSLB:

SOW will perform its functions of closing the isolation valve within 60 seconds of receiving signal.

ACCURACY REQUIREMENTS: Not required

Revision 1 November 1, 1330

OPERABILITY DEMONSTRATED:

SOV performed required safety function after receiving radiation dost.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA & MSLB: See Qualification Deficiencies

MANNER OF QUALIFICATION

LOCA & MSLB: Sequential Test

QUALIFICATION DOCUMENT

LOCA & MSLB: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

A. Deficiencies:

- 1. No qualification data
- 2. Sufmergence

B. Solutions:

- SOVs to be replaced with ASCO'S NP series qualified to IEEE 323-74, replacements to be installed at first available outage of surficient duration.
- This model is of waterproof type. Replacement valves will be relocated above flood level.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Solehold Operator Valve

MANUFACTURER: ASCO, HV2023021RV

SUPPLIER Westinghouse Electric Corporation, NSSS

E-021 188-1070

FU COST COST Inment Isolation

LATION: Inside Containment RC-216B

MARK NO.: SOV-2936 Accumulator Vent Line Files Control

DESCRIPTION OF ENVIRONMENT

LOCA:

MSLB:

>* hr

Similar solution with pH of 7.8 to 9.0

Latin		
rads	1.3 x 10* (MSLB) + 3.5 x 10* (40 yr) = 4.8 x 10*	(40 yr)
tone; or	430 280 150	0-2 min 2-60 min >60 min
press	59.7 59.7-14.7 14.7	0-30 min 30-60 min >60 min

OPERABILITY REQUIREMENTS:

SILBY

SOV will perform its function of closing the isolation valve within 60 seconds of receiving signs.

Some as LOCA

ACCURACY REQUIREMENTS: MOT SWEDLINED

OPERABILITY DEMONSTRATED.

Som performed required sagary functions after receaving radiation dose.

ENT. ANGENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Deficiencies

MAGNER OF QUALIFICATION: None

QUALIFICATION COCUMENT: See Qualification Deficiencies

QUE EXCATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: No qualification data available.

. Solutions:

SOVs to be replaced with ASCO's NP-series qualified to IREE 323-74 replacements to be installed at first available outage of sufficient duration.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUPACTURER: Limitorque; Operator - Reliance Class B Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSE

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Heat Removal 2. Engineering Safety Peature 3. DBA (LOCA & MSLB) Mitigation

LOCATION: AB-244A

MARK NO.:

MOV-2275A MOV-22, JC

DESCRIPTION OF ENVIRONMENT

LOCA: NA

MALL IN TURBINE BUILDING:

3 t x 10 (LOCA) + 2 x 10 t 40 yr = 5.6 x 10

NA

NA

N spray MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY SECURREMENTS: 12 days for an integrated dosm of 5 x 10 " rads

ACCURACY REQUIREMENTS: Not required

OPERABILATY DEMCANSTRATED: Component operated satisfactorily after test.

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED:

0-1 hr 1-3 fr 3-5 hr 5-24 hr 1-7 days 0-1 hr 3-5 hr 5-24 hr 4 hr 1.5 % boric acid buffered with NaOH to pH 7.67 2 x 10* 104.7 84.7 54.7 34.7 29.7 press temp Radn

MANNER OF QUALIFICATION:

QUALIFICATION DOCUMENT:

Test of Limitorque Valve Operator to meet general requirements of an Electric Valve Actuator in Nuclear Containment Environment Engineering Order No. 606198.

Nuclear Power Station Qualification Test Report, Limitorque Valve Actuators for BWR Service Project No. 600376A. Limitorque Coxp. letter dated 9/19/60.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: None

QUALIFICATION AND SYSLUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER: Limitorque; Cperator - Relience Class B Insulation

SJPTLI'R: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION: Containment Isolation

LOCATION: AB-244A

MARK NO .:

MOV-2381, Seal Water Return Stop Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

radn

3.6 x 10* (LOCA) + 12 x 10* (40 yr) 5.6 x 10*

MA

N press MSLB: Will not see a changing environment due to an MSLB.

NA

spray

OPERABILITY REQUIREMENTS: 120 days for an integrated dose of 5 x 10* rads

ACCURACY REQUIREMENTS: Not required

OPERABILITY DEMONSTRATED: Component operated satisfactorily after test

BRUIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA 6 MSLB:

0-30 min 30-120 min 7-24 hr 1-16 days 1-1 day 250 250-120 250 200 2 x 10 x 39.7 1004 press radn temp

MANNER OF QUALIFICATION:

QUALIFICATION DOCUMENTS

Qualitication Type Yest Report

Limitorque Valve Actuators for Class 1E service outside Primary Containment Project No. 600461, Report No. 80003.

Limitorque Corporation Letter, dated 9/19/80.

QUALIET ATION DEPICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: None

QUALIFICATION AND EVALUATION

EQUIPMEN. DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURERS: Limitorque Operator - Reliance Class & Insulation

SUPPLIER: Westingnouse Electric Corporation, NSSS

P.O.: NA-1010

PUNCTION:

Emergency Core Cooling/Core Heat Kemoval
 Engineered Safety Peature
 DBA (LOCA & MoLb) Mitigation

LOCATION: AB-274

MOV-2115E, Charging pump Suction - Vol. Control Tank

DESCRIPTION OF ENVIRONMENT

LOCA:

1 x 10° (LOCA) + 5.3 x 10° (40 yr) = 1.0 x 10° rads

NA temp

press NA. psia

spray NA

MSLB:

radn 100 (MSLB) + 5.3 x 103 rads = 5.4 x 103

NA temp

press

psia

spray NA

HE :

radn 100 (HELB) + 5.3 x 103 rags = 5.4 x 103

рвла

NA spray

OPERABILITY REQUIREMENTS: 120 day total integrated dose of 1.0 x 10 rads.

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED: See Qualification Deficiencies

ENVIRONMENT TO WHICH SQUIPMENT IS QUALIFIED; See Qualification Deficiencies

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT: Limitorque Nuclear Qualification Data Sheet, dated 11/1/79.

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

- A. Deficiencies: Qualification information was inadequate.
- B. <u>Solution</u>: Limitorque has been supplied with serial and work order numbers. Limitorque is in the piecess of determining schedule for providing any qualification data which is available.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valves

MANUFACTURER: Limitorque Operator - Reliance Class & Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

FUNCTION:

imergency Core Cooling/Core Heat Removal
 ingineered Safety Feature

LOCATION: AB-244A

MARK NO.:

MOV-2275B, Charging pump to recirculation stop valve

DESCRIPTION OF ENVIRONMENT

LOCA:

3.6 x 10* (LOCA) + 2 x 10*(40 yr) radn = 5.6 x 10* rads

temp

press NA

ps1a

NA spray

MSLB:

radn 100 (MSLB) + 2 x 10* (40 yr)

= 2 x 10* rads

temp

press

psia

NA spray

OPERABILITY REQUIREMENTS: 120 days for an integrated gose of 5.6 x 100 rads.

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED: See Qualification Deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED: See Qualification Dericiencies

MANNER OF QUALIFICATION: Test

QUALIFICATION DOCUMENT: See Qualification Deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

A. Deticiencies:

Qualification information was inadequate.

B. Solutions:

Have supplied Limitorque with the serial and work order numbers. Limitorque is in the process of determining schedule for providing any qualification data which is available.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURERS: Limitorque, Operator - Peerless Class B Insulation

SUPPLIER: Westinghouse Electric Corporation, NSSS

P.O.: NA-1010

PUNCTION:

1) Emergency Core Cooling/Core Heat Removal,

2) Engineered Safety Feature

LOCATION: SPGD-1

MARK NO .:

KOV-2885C, Low Head Safety Injection Recirculation to Charging Valve MOV-2885D, Low Bead Safety injection Recirculation to Charging Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

radn

7.0 x 10* (LOCA) + 260 (40 yr)

rads = 7.0 x 106

temp

press NA

psia

spray

MSLB: Will not see a changing environment due to an MSLB.

OPERABILITY REQUIREMENTS

LOCA: 120 days for an integrated dose of 7.0 x 10 ands.

OPERABILITY DEMONSTRATED

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ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED:

LOCA:

radn 2 x 10° rads

*F

temp 250 0-30 min 250-120 30-120 min 250 2-24 hr 200 1-16 days

press psia

39.7 24.7

0-1 day 1-16 days

spray 100%

QUALIFICATION DOCUMENT: Qualification Type Test Report Limitorque Valve Actuation for Class IE service outside Primary Containment Project No. 600461

Project No. 130003

Qualification Test of Limitorque Valve Actuator in a Steam Environment, Report No. F-C 3271, Limitorque Corp. Letter dated 9/19/80.

MANNER OF QUALIFICATION: Test

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

Deficiencies: None

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Motor Operated Valve - Valve Operator

MANUFACTURER: Limitorque, Operator - Reliance Class & Insulation

SUPPLIER: Westinghouse Electric Corporation

P.O.: NA-1010

FUNCTION:

1. Emergency Core Cooling/Core Head Removal

2. Engineered Safety Feature 3. DUA (LOCA & MSLb) Mitigation

LOCATION: SFGD-1

MARK NO.:

MOV-28905, Low Head Safety Injection Lines Stop Valve MOV-2890C, Low Head Safety Injection Lines Stop Valve MOV-2890D, Low Head Sarety Injection Lines Stop Valve

DESCRIPTION OF ENVIRONMENT

LOCA:

radn 7.0 x 10* (LOCA) + 260 (40 yr) rads

= 7.0 x 104

temp

press

psia spray

Will not see a changing environment due to an MSLb.

OPERABILITY REQUIREMENTS

LOCA: 120 days for total integrated dose of 7.0 x 10° rads

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OPERABILITY DEMONSTRATED: See qualification deficiencies

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

See qualification deficiencies

MANNER OF QUALIFICATION: Tes

QUALIFICATION DOCUMENT:

See qualification deficiencies

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

A. Deficiencies: Not qualified for radiation

B. Solution:

Operator to be replaced with operator qualified to Lake 323.74, replacements to be installed at first available outage or sufficient duration.

QUALIFICATION AND EVALUATION

EQUIPMENT DESCRIPTION: Limit Switches (Located on Valve)

MANUFACTURER: NAMCO, EA-180

SUPPLIER: Westingnouse Electric Corp., NSSS

P.O.: NA-1010

FUNCTION: Containment Isolation

LOCATION: RC-241B

MARK NO.: SOV-2842 RADIATION MONITURING LINE

DESCRIPTION OF ENVIRONMENT

LOCA:

6.77 x 10* (LOCA) + 3.4 x 10* (40 yr) radn rads

= 6.8 x 10*

temp 280 0-30 man op 280-150 30-60 min 150 >60 min

press 59.7 0-30 min 59.7-14.7 psia 30-60 min 14.7 >60 min

spray Solution or poric acid 0-4 hr

(2,000-2,100 ppm boron) buffered to pH of 8.5 -

11 with NaOH

Similar solution with >4 hr

pH of 7.8 - 9.0

MSLB:

radn 1.3 x 10* (MSLB) + 3.4 x 10*(40 yr)

rads = 4.7 x 10+

temp 430 0-2 min 280 2-60 min 150 >60 min

press 59.7 0-30 min 59.7-14.7 psia 30-60 min 14.7 >60 min

spray Same as LOCA

OPERABILITY REQUIREMENTS

LOCA 6 MSLB: Valve to close within 60 seconds of isolation signal. Switches shall not rail so as to reopen valves.

See Qualification Deficiencies

ACCURACY REQUIREMENTS: Not required

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OPERABILITY DEMONSTRATED

LOCA 6 MSLd: Limit switches shown to operate after sequential testing.

MANNER OF QUALIFICATION

LOCA: Sequential Test

ENVIRONMENT TO WHICH EQUIPMENT IS QUALIFIED

LOCA:

aging 200°F 200 hr Mechanical aging 100,000 cycles under elec. Load

radn 2.04 x 10* rads

rads

temp 340 0-3 nr 340-120 3-5 nr 250 3.5 days 200 3.5-30 days

press 84.7 U-e nr psia 24.7 8-30 days

spray soric acid solution 0-4 days buffered to a pH of

10-11 with NaOH

Water spray 4-30 days

Spray density = 0.015 gpm/re*

MSLB:

Maximum surface temperature is 285°F per LSG calculation 11715-ES-197-0, dated 3/16/78.

QUALIFICATION DUCUMENT

LOCA: Report entitled: "Qualification of NAMCO controls limit switch Mode &A-180 to IEEE Standards 344 (*75), 323 (*74), and 382 (*74), " Gated 3/7s and revised

QUALIFICATION DEFICIENCIES AND RECOMMENDED SOLUTIONS

LOCA: None

SECTION 11

REFERENCES

SECTION 11

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SECTION 12

CONCLUSIONS

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SECTION 12

CONCLUSIONS

12.1 COMPONENTS REQUIRING COUROBORATING INFORMATION

As a result of our NUREG-0588 keview for North Anna Unit 2, it has been determined that the components having environmental qualification data requiring further corroborating information are as follows:

- 1. Limitorque Motor Operators Motor Operated Valves
 - a. Outside Containment

Prant ID No.	Qualification Sheet No.
MOV-US-200A, B	74
MOV-2350	W-17
MOV-2836	W-29
MUV-5W-214A,B	74
MOV-5W-210A, B	73
MUV-2115E	W-36
MUV-2275B	W-36

These valves are of the same general type and were purchased during the same time period as those which have been determined to be qualified. We do not foresee any problem in having these components qualified for outside containment use. Furthermore, these components will have performed their accident safety function prior to receiving a radiation dose above the threshold of 2500 rads.

p. Inside Containment

Flant ID No.	Qualification Sheet No.
MUV-2380	₩-6

This valve is located inside containment and is required for containment isolation of seal water return manifold. The valve will perform its intended safety function prior to being subjected to an adverse environment which could cause the component to become inoperatable. These valves are of the same general type and were purchased during the same time period as those which have been determined to be qualified for harsh environment use.

1

- 2. Westingnouse Electric Corporation (Low Head Safety Injection Pump Motors/Changing Pump Motors)
 - a. Low head Safety Injection Pump Motors

Plant ID No.

qualification Sheet No.

2-51-P-1A, b

W-13

The radiation qualification documentation for the Westinghouse NSSS supplied pump motor are found under WCAP-8754 and WCAP-7829. These WCAP's provide radiation qualification for the motor's insulation system.

We are also replacing motor lube oil and bearing grease with indicant qualified to z x 10° rads, which is above the accident dose level.

Furthermore, we have been in contact with Westinghouse Corporation to determine if there are any other materials that may be affected by the postulated radiation levels.

We expect to have completed this determination by December 1, 1981.

b. Charging Pump Motors

Plant ID No.

Qualification Fage No.

2-CH-P-1A, 2-CH-P-1B 2-CH-P-1C

W-20 W-20

LOCA qualification

The radiation qualification documentation for the Westinghouse NSSS Supplied pump motor is found under WCAP-8754 and WCAP-7829. These WCAP's provide radiation qualification for the motor's insulation system.

We are also replacing the motor lube oil with lubricant qualified to z x 100 rads, which is above the accident dose level.

rurthermore, we have been in contact with Westinghouse Corporation to determine if there are any other materials that may be affected by the postulated radiation levels.

We expect to have completed this determination by December 1, 1980.

HELB Qualification

The charging pumps are not required to mitigate a high energy line break (made) in the auxiliary building; however, they are provided for minimum charging and boration capability to maintain the plant in a safe shutdown condition.

conservative temperature profiles induced by the postulated makes have been developed and transmitted to Westinghouse for review. We have received indications from Westinghouse that the charging pump motors can be justified to operate within the break-induced environment to the extent required to add sufficient boron and water inventory to maintain the plant in the safe shutdown condition. Westinghouse has also indicated that the motors hot operating at the time of the break can be staited after horizal temperature conditions are returned to the area. This will allow further cooldown of the auxiliary building.

Ambient temperature monitors in the area or the charging pumps will alarm upon a high temperature and a station emergency procedure will be initiated in order to minimize the severity of the narsh environment seen by the charging pumps, thereby maintaining the plant's minimum boration capacity following an Helbs.

Final actions will include, but are not limited to, the isolation of the charging pump cubicle from the naish environments and/or testing of the motors for the anticipated environments. We will determine which course or courses of action to take by December 1, 1980.

3. Gould-Brown Bovers (480 V Switchgear)

Plant ID No.	Qualification sheet No.
Z-EE-ST-0Z	75
Z-EE-SS-04	75

A Purchase Order has been placed for a report or radiation test data qualifying North Anna Units 1 and 2 switchgear and transformer. In previous letters, Gould-Brown Boveria stated that an integrated dose of 1 x 10° rads would not adversely affect the transformer and switchgear. In a letter dated October 24, 1980, Gould indicated there should be no difficulty in qualifying the equipment to the required 2 x 10° rads. We reel that the switchgear and transformer are qualified for the accident environments in which it will be operating and expect to receive documentation by December 1, 1980.

4. General Electric Corporation Outside Recirculation Spray

Plant ID No.

Qualification sheet No.

Z-RS-P-ZA,B

44

The radiation qualification document "kadiation kesistance Of The Class Is Motors" was supplied by General Electric Corporation as qualification for its Class H silicon and Class B epoxy VPI MICA MAT insulation systems. This qualification meets the requirements for postulated radiation levels for North Anna Unit 2. We are also replacing the motor lube oil and bearing grease which is qualified for radiation levels that are above the accident radiation dose levels of 5 x 10° rads.

We have placed a purchase order with General Electric Corporation to obtain the detailed test data to confirm General Electric's statements. The test data are scheduled to be submitted by February 1981.

5. Westinghouse Electric Corp (Central Area Exhaust Fans)

Flant ID No.	qualification sheet No.
1-HV-F-8A	45
1-HV-F-8B	45
1-HV-F-0C	45

The central Area Exhaust Fans, 1-HV-F-0A,B,C provide Ventilation to charging pump motors. Westinghouse has been requested to provide justification that the charging pumps will operate for a minimum of 1 hour under the existing HELB temperature profile. During this time, no benefit is gained by operating of the exhaust rans as the fans would only draw steam into the motors. Therefore, it can be concluded that the Central Area Exhaust Fans are not required for the first hour following a HELE.

The existing temperature profile for the Central Area Exhaust Fan location shows the temperature as reaching 120°F at approximately 30 minutes after the HELB. Should this temperature condition render the rans inoperable, temporary rans will be available to provide alternate means of ventilation after the auxiliary building temperatures have returned to normal levels.

Further calculations of the temperature profile in the auxiliary building are being performed and we anticipate the profile will be lowered to acceptable levels. We will make final determination by December 1, 1980.

6. Honeywell Corporation (Motor Operated Damper)

Plant ID No.

Qualification Sheet No.

MUD-HV-163A,B,C

43

The Central Area Exhaust Pans, 1-HV-F-8A,B, and C, provide ventilation the charging pump motors. Westinghouse has been requested to provide justification that the charging pumps will operate for a minimum of 1 hour under the existing halb temperature profile. During this time, no benefit is gained by operation of the exhaust fans as the fans would only draw steam into the motors. Therefore, it can be concluded that the Central Area Exhaust Fans, and dampers are not required for the first hour following an Halb.

The existing temperature profile for the Central Area Exhaust Fandamper location shows the temperature as reaching 120°F at approximately 30 minutes after the HELS. Should this temperature condition render the dampers inoperable, the dampers can be manually positioned after the auxiliary building temperatures have returned to normal levels.

Further calculations of the the temperature profile in the Auxiliary Building are being performed and we anticipate the profile will be lowered to acceptable levels. We will make final determination by December 1, 1980.

12.2 COMPONENTS RELOCATED AND/OR REPLACED

Other components were determined to be relocated and/or replaced due to time and cost involved in further qualification testing. These include:

1. sendix (H2 Analyzers)

Plant ID No.	Model	Qualification Sheet No.
H2 A-HC-100	400-1, T/C Analyzer	42
H2 A-HC-200	400-1, T/C Analyzer	42

These analyzers do not provide an accident mitigation function and are used for post-accident monitoring. These analyzers will be replaced by January 1982.

 Joy Manufacturing Auxiliary Safeguards Area Ventilation Fan Motors

Plant ID No.

Quallilication sheet No.

z-HV-F-71 A,B

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These tans are back-up safeguards area ventilation tans and are required to operate only upon loss of the primary ventilation tans (2-HV-F-40 A,b). The primary rans are not affected by the postulated accidents that will disable the back-up tans.

Qualified fan motors have been obtained and will be installed by January 1, 1982.

3. Rosemount - (Steam Generator Transmitters)

Plant ID No.	Model No.	Qualification Sheet No.
FT-2474,75,84,85,94,95	1152DP6A	35
LT-2475,84,85,96	1152DP4A	54
LT-2474,76,94,95	1152DP4A	71

These transmitters have been previously committed to be replaced during and refueling (reference North Anna Unit 2 Safety Evaluation Report, supplement 10, Page 3-2). Since we are presently participating in a transmitter qualification program which is scheduled to be completed by the end of 1981 and upon successful completion of the test program and recipt of materials, these transmitters will be replaced at the first outage of sufficient duration.

4. Barton Pressurizer Level Transmitters

Plant ID No.	Model No.	Qualification Sheet No.
LT-2459	386/752	W-2
LT-2460	386/752	W-2
LT-2461	386/752	W-2

These transmitters have been previously committed to be replaced during and requeiling (reference North Anna Unit a Safety Evaluation Report, Supplement 10, Page 3-2). Since we are presently participating in a transmitter qualification program which is scheduled to be completed by the end of 1901 and upon successful completion of the test program and receipt of materials, these transmitters will be replaced at the first outage of sufficient duration.

5. parton - Pressurizer Pressure Transmitters

Plant 1D No.	Model No.	Qualitication sheet No.
PT-2455	763 (Lot 1)	W-7
PT-2456	763 (Lot 1)	w-7
PP-2457	703 (Lut 1)	w-7

These transmitters have been previously committed to be replaced during and refueling (reference North Anna Unit & Salety

Evaluation Report, Supplement 10, Page 3-2). Since we are presently participating in a transmitter qualification program which is scheduled to be completed by the end of 1981 and upon successful completion of the test program and receipt of materials, these transmitters will be replaced at the first outage of sufficient duration.

o. Foxboro (Steam Generator Steam Pressure Transmitters)

Plant ID No.	Model No.	Qualification Sheet No.
PT-2474,5,6	E11GM	₩-3
PT-2484,5,6	E11GM	W-3
PT-2494,5,6	£11GM	W-3

We are presently participating in a transmitter qualification program which is scheduled to be completed by the end 1981. Subsequent to successful completion of the test program and recipt of materials these transmitters will be replaced at the firts outage of sufficient duration (reference North Anna Unit & Safety Evaluation Report, Supplement 10, Page 3-2).

7. Rosemount (RCS Temperature Narrow kange RTD)

Plant ID No	Mod	lei No.	<u>yuallflcation</u>	Sheet No.
TE-24125, L	176	KS	W-12	
TE-2422B, I	176	KS	W-12	
TE-24328, L	716	KS	w-12	

These resistance temperature detectors (RTD) have Leen addressed in the North Anna Unit 2 Safety Evaluation Report, Supplement 10, Page 3-3. (Technical specifications will require the replacement of RTDs at each refueling.) We will continue to replace these RTDs every requeling until components with long-term qualification are available.

8. Rosemount - KCS Wide Kange KTD

Plant ID No.	Model No.	Qualification Sheet No.
TE-2410, 2413	176 KS	W-27
TE-2420, 2423	176 KS	w-27
TE-2430, 2433	176 AS	W-27

These resistance temperature detectors have been addressed in the North Anna Unit 2 Sarety Evaluation Report, Supplement 10, Page 3-3. (Technical Specifications will require the replacement or kTDs at each refueling.) We will continue to replace these kTDs every rerueling until components equal with long-term qualification are available.

9. Limitorque Valve Operators

Plant ID No.	Qualification Sheets No.
MOV-2890B	W-39
M 1V-2440D	W-19

These operators were supplied with brakes for which we do not have qualification data; similar motors without brakes are qualified by limitorque Report 80003.

Due to the fact that these valves must be cycled approximately every 24 hours we will replace these operators with components that have appropriate qualification.

Furthermore, we are investigating the possibility of removing the brake, until qualified units are obtained.

10. Marathon Electric (Radiation Monitoring Pump Motors)

Plant 1D No.	Qualification Sheet No) .
2-5W-P5,0,7,8	41	

It one or all or these sample pumps should fall to operate during the postulated accident, grab samples can be obtained from the service water system. New motor drives have been ordered and will be replaced by January 1, 1982.

11. ASCO Solenoid Valves

Plant ID No.	Model No.	Qualification	Sneet No.
SOV-SS-207A	FT8320A102	56	
SOV-SS-207B	FT8320A102	56	
SUV-2884A	LB831654		
SOV-2884B	LB831654		
SOV-2884C	Lib831654		
SUV-2859	8321A5	WZb	
SOV-2936	HT8300B04Rr	WJ3	
SOV-MS-211A	HT344A71	36	
SUV-MS-211B	HT344A71	36	
SUV-2200A	HT8300B64-RV	Wy	
SOV-2200b	HT8300B64-RV	Wy	
SUV-2200C	HT8300B64-KV	Wy	
SOV-2204	HT-831654	46	
SOV-2519	HT-831654	46	
SUV-2460A	HT-831654	w10	
SUV-2460B	HT-831054	W10	
SOV-2842	HT-831654	W 10	
SOV-MS-201A1	HT8316-D47	60	

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Plant ID No.	Model No.	Qualification Sneet No.
SOV-MS-201A2	HT8316-D47	60
SUV-MS-201A4	HT8316-D47	60
SUV-MS-201A5	HT8316-D47	60
SUV-MS-20181	HT8316-D47	60
SOV-MS-201B2	HT8316-D47	00
SOV-MS-20184	HT8316-D47	60
SUV-MS-20185	HT8316-D47	60
SOV-MS-201C1	HT8316-D47	60
SOV-MS-201C2	HT8316-D47	60
SOV-MS-201C4	HT8316-D47	60
SOV-MS-201C5	HT8316-D47	60
SOV-LM-200A	THT8320A102	40
SUV-LM-200b	THT8320A102	40
SOV-1M-200C	THT8320A102	40
SUV-1M-200D	THT8320A102	40
SOV-LM-200E	THT8320A102	40
SOV-1M-400F	THT8320A102	40
SOV-1M-200G	THT8320A 102	40
SOV-LM-200H	THT8320A102	40
SOV-LM-ZOTA	THT832UA102	40
SOV-LM-201b	THT8320A 102	40
SOV-LM-2010	THT8320A102	40
50V-LM-2010	THT8320A102	40
SOV-CC-200A	HT8321A5	30
SOV-CC-200B	HT8321A5	30
SOV-CC-400C	HT8321A5	30
SOV-CC-201A	HT8321A5	30
SUV-CC-ZOZA	HT8321A5	30
SUV-CC-202C	HT8321A5	30
SOV-CC-2026	HT8321A5	30
SOV-CC-203A	HT8321A5	30
SUV-CC-203B	HT8321A5	30
SOV-CC-204A1	HT8321A5	30
SOV-CC-204AZ	HT8321A5	30
SOV-CC-20481	HT8321A5	30
SOV-CC-20482	hT8321A5	30
SUV-CC-204C1	HT8321A5	30
SUV-CC-204C2	HT8341A5	30
SOV-SI-200A	HT8321A5	30
SOV-SI-200B	HT8321A5	30
SOV-51-201A	HT8321A5	30
SOV-51-201B	HT8321A5	62
SOV-MS-2 13A1	HT8341A5	51
SOV-MS-4 13A2	HT8321A5	51
SUV-MS-213B1	HT8321A5	51
SOV-MS-21301	HT8321A5	51
SOV-MS-213C2	HT8341A5	51
SUV-MS-209A	nT8321A5	51
SUV-MS-209B	HT8321A5	51
SUV-SV-202-1	HT8321A5	51
501 50 202 1	1120021120	

Plant ID No.	model No.	Qualification Sheet	No.
SOV-SV-203	HT8321A5	51	
SOV-VG-200A	HT8321A5	30	
SOV-DA-200A	HT8321A5	30	
SOV-RM-200A	HT8321A5	30	
SOV-BD-200A	HT8321A5	30	
SOV-BD-200C	HT8321A5	30	
SOV-BD-200E	HT8321A5	30	

The ASCO solenoid valves are required to perform a safety function of containment isolation only. These components are fail Safe (closing isolation valves) and failure of the solenoid will not reopen the valve. They will close the containment isolation trip valves within 60 seconds of the receipt of a containment isolation signal.

We are in the process of replacing all solenoids which lacks complete qualification documentation with qualified components. We expect to complete our upgrading by June 1982.

12. Gems Sensor Division (Containment Level Signal Processors)

Plant ID No.	Model No.	Qualification Page No.
LIT-RS-251A,B	RE-31320/31411	49

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The signal processors generate no automatic functions; therefore, no adverse consequence will result. An erroneous level indication will not prevent the proper functioning of the containment sateguards systems.

Reactor operators have been alerted to possible erroneous indication of the sump level channels under accident conditions.

The existing components will be relocated to a non-harsh location. It was indicated in our October 1, 1980 90-day review submittal that the LIT's would be relocated by October 1, 1980. However, based on the engineering efforts required for this activity, the relocation of these components will not be completed until January 1, 1981.

- 12.3 COMPONENTS QUALIFIED BY ANALYSIS OF VENDOR SUPPLIED DATA
- 1. kosemount Incorporated (Ambient Temperature Monitors)

Plant ID No.	Model No.	Q"allfication Sheet No.
TE-AM-100A,B	78-81-17	74
TE-AM-101A, B	78-81-17	72
TE-AM- 102A, B	78-81-17	72
TE-AM-103A, B	78-81-17	72
TE-AM-104A, B	78-81-17	72
TE-AM-105A, B	78-81-17	72
TE-AM-106A, B	78-81-17	72
TE-AM0 7A, B	78-81-17	72
TS-AM- 108A, B	78-81-17	74

kosemount Inc. catalog temperature rating information states that the maximum rating of the sensor head up to 752°F. The wire leads of the sensor are rated for 392°F. The ambient temperature monitor set point is 120°F, which is well below the sensor rating. Once the set point has been reached and the alarm has been sounded the ambient temperature monitors will have completed their function. The maximum accident environment temperature to which the sensor would be subjected is 220°F, which again is well below the rating of the sensor and beyond the point at which the sensor performs its function. While no test data for qualification to the maximum temperature environment 220°F exist per the requirements of NOREG 0588, the maximum ambient temperature is well within the capability of the sensor to perform its intended accion.

The review of the vendors information indicates that these components will perform their intended function.

2. Gems Sensor Division (Level Transmitters)

Plant ID No.	Model No.	Qualification Sheet No.
LT-RS-251A,B	XM-29400	20

The Gems transmitters performed satisfactorily during radiation and chemical spray tests. The chemical spray and radiation tests were performed, however, on two different units with the same model number. This model transmitter is currently the best available unit. Gems is currently planning to test similar model transmitter to the requirements of ILLE-323-1974 and ILLE-344-1975.

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3. Limitorque Corporation (Motor Operated Valve)

Plant ID No.	Qualification Sheet No.
MOV-2115B	16
MUV-2115D	22
MOV-SW-208b	53

These operators were supplied with brakes for which we do not have qualification data. Similar motors without brakes are qualified by limitorque Report 80003.

Based upon engineering calculations, it has been determined that these valves will perform their intended safety function prior to reaching the radiation threshold. If the brake should become inoperable after the valve performs its safety function, it would lock the valve in its accident position there by preventing repositioning.

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