Revision 1
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ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E EQUIPMENT
FOR
SHOREHAM NUCLEAR POWER STATION - UNIT 1
LONG ISLAND LIGHTING COMPANY

STONE & WEBSTER ENGINEERING CORPORATION

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SUMMARY

This report is produced for NRC review of environmental qualification of safety-related electrical equipment at the Shoreham Nuclear Power Station - Unit 1.

Section 1 discusses the purpose and scope of the program, and the Shoreham position on environmental qualification.

Section 2 defines the methodology for determining the safety-related electrical equipment requiring qualification for a harsh environment. The systems and safety functions reviewed to make this determination are also given.

Section 3 presents the environment considered as applicable under accident conditions. Because specific areas of the plant will be subject to different environmental conditions during an accident, the plant has been divided into "zones" as shown in Appendix C. The bases for the determination of particular environmental conditions are also given. The environment calculated for each zone is given in Appendix D. Appendix E contains the description of calculations which provide the bases for the selection of appropriate environmental conditions.

Section 4 discusses the methodology used for determining the qualification status of equipment. The equipment is listed in Appendix F, the Environmental Qualification Status Report (EQSR), with the qualification status of each piece of equipment and data which provide the requirements for that qualification. Equipment from the EQSR for which qualification documentation is considered deficient is listed in Appendix G. Appendix G also presents additional information and/or proposed resolution for the deficiencies in qualification documentation. Appendix H provides a list of the abbreviations used in the EQSR and in Appendix G.

Section 5 describes qualification aspects of the surveillance and preventive maintenance program for the station.

Based on the information contained herein, this report provides the assurance that the Shoreham Nuclear Power Station - Unit 1 can be brought to safe shutdown following a LOCA, HELB, or MELB without harm to the environment or public health and safety.

SECTION 1

INTRODUCTION

1.1 PURPOSE

The purpose of the Environmental Qualification (EQ) Program for the Shoreham Nuclear Power Station is to provide assurance that all electrical equipment (safety-related Class 1E equipment and equipment required by Regulatory Guide 1.97) located in potential harsh environments maintain functional operability when required to mitigate the consequences of a postulated accident or to bring the plant to a cold shutdown condition afterwards. This assurance is provided by comparing environmental information contained in electrical equipment qualification documents against the postulated environment to which the equipment may be subjected. This review results in one of the following:

a. documentation of environmental qualification of equipment to demonstrate that requirements are adequately met, or

b. upgrading of qualification or requalification of equipment which does not meet minimum requirements, or

c. modification of design to meet the applicable requirements, or

d. replacement of any equipment which lacks sufficient evidence of qualification with qualified equipment.

1.2 SCOPE

The equipment identified for environmental qualification include:

a. safety-related Class 1E Electrical Equipment (hereafter referred to as equipment) located in potentially harsh environments, and required to operate during or after such an environment,

b. sensing devices located in potentially harsh environments for display instruments which monitor the condition of the plant during and after postulated accidents as required by Regulatory Guide 1.97, (these are designated with "RG" in the rightmost column of the Equipment Qualification Status Report (EQSR) in Appendix F), and

c. Three Mile Island (TMI) Lessons Learned modifications to safety-related systems including control and monitoring devices located in potentially harsh environments.

Environmental conditions to which the above equipment may be subjected consist of the following:

a. pressure

b. temperature

c. relative humidity

d. radiation

e. flooding/submergence

f. fluid spray

Equipment qualification documents are reviewed with respect to the following:

a. service conditions to which equipment is subjected,

b. design basis events (LOCA, MELB, HELB) which equipment is to mitigate,

c. operating time, or the time during which the equipment is required to perform a function so as to mitigate the consequences of the design basis event, and

d. qualification methodology based on the Operating Codes defined in Appendix E of NUREG-0588

e. aging considerations

f. margins

The review is documented on the Environmental Qualification Report Evaluation Form (EQREF), the Environmental Qualification Summary Sheet (EQSS), and tabulated in the computerized Environmental Qualification Status Report (EQSR).

Equipment successfully tested for an environmental profile which meets or exceeds postulated service conditions satisfies the qualification conditions and the qualification report is approved.

If a qualification report does not provide sufficient evidence of qualification, then alternative qualification methods are evaluated, including:

a. obtain additional qualification documentation,

b. perform additional environmental testing or analysis,

c. modify the equipment design or material selection,

d. further analyze the equipment's environment and/or its function to refine the adverse service conditions that pertain to the actual location and use of the component,

e. provide enclosure or shielding,

f. relocate in a less severe environmental zone,

g. include considerations of potential equipment degradation in the plant preventive maintenance program to provide a basis for extension of equipment qualified life,

h. establish a limited qualified life and a schedule for future replacement, or

i. select better qualified equipment as replacement.

Qualification programs for specific equipment, such as cables, valves, motors, and electrical penetrations, that are designed to conform with the requirements of daughter standards of IEEE-323, are acceptable for demonstrating compliance with the objectives of IEEE Std. 323. The daughter standards include IEEE Std. 383 for cables, IEEE Std. 382 for motor operated valves, IEEE Std. 334 for electric motors, and IEEE Std. 317 for electrical penetrations.

Dynamic qualification of equipment is performed in accordance with the requirements of IEEE Std. 344 and is addressed in separate documentation.

LILCO maintains primary responsibility for the Environmental Qualification Program for the Shoreham Nuclear Power Station. LILCO is also responsible for the performance of those organizations who have been assigned specific tasks, and imposes upon them the requirements of the LILCO Quality Assurance Program. The review of Balance of Plant (BOP) equipment has been assigned to the Stone & Webster Engineering Corp. (SWEC) and the review of Nuclear Steam Supply System (NSSS) equipment to EDS Nuclear Inc. Both these organizations have acceptable Quality Assurance Programs which meet the requirements of 10CFR50 Appendix B, and implementation of the respective programs specific to the assigned tasks is monitored by LILCO.

1.3 SHOREHAM POSITION

Shoreham Nuclear Power Station Class 1E electrical equipment are qualified as follows:

a. Equipment purchased through May 23, 1980 is evaluated and considered environmentally qualified if it satisfies IEEE Standard 323-1971 and NUREG-0588 Category II positions as a minimum.

b. Equipment purchased after May 23, 1980 is evaluated and accepted to IEEE Standard 323-1974 and NUREG-0588 Category I positions, where possible. If such equipment is not available and cannot be made available, equipment is evaluated and considered environmentally qualified if it satisfies IEEE Standard 323-1971 and NUREG-0588, Category II positions as a minimum.

In some cases, the DOR Guidelines may be used to clarify the requirements of IEEE Standard 323 and NUREG-0588.

SECTION 2

DEFINITION OF SAFETY-RELATED ELECTRICAL EQUIPMENT

2.1 METHODOLOGY

The identification of equipment for environmental qualification requires the examination of the applicable project documents. These documents include flow diagrams, electrical one-line diagrams, logic diagrams, elementary diagrams, and instrument loop diagrams. Examination of these documents entails the following:

a. Review of electrical one-line diagrams to identify electrical equipment which distributes safety-related power to safety-related electrical systems.

b. Review of system flow diagrams, related system descriptions, and FSAR system function sections (including Chapter 15 - accident analysis and Appendix 3C - pipe failure outside primary containment) to identify the electrical equipment within each system, analyze and tabulate emergency events for each equipment item and the corresponding safety function required to mitigate the emergency event, define operating codes as referenced in Appendix E of NUREG-0588, and determine the amount of time required for performance of the operability requirement.

c. Review of elementary and loop diagrams for each Class 1E electrical equipment item on marked-up flow diagrams to identify miscellaneous safety-related equipment required to control or monitor the equipment.

Equipment identified in this manner is listed on the Environmental Qualification Status Report (EQSR), and is cross-referenced against the Project Equipment System (PES) computer listing to confirm the identification and location of the equipment, and to aid in the location of applicable procurement documents.

To provide additional assurance that all required electrical equipment is identified, the plant Emergency Operating Procedures will be reviewed against the computerized report (EQSR).

2.2 SPECIFICATIONS WITH EQUIPMENT REQUIRING ENVIRONMENTAL QUALIFICATION

Using the procedure outlined in Section 2.1 and discussed in detail in the following sections, a list of BOP safety-related Class IE electrical equipment located in a potentially harsh environment has been developed. The specifications listed below are applicable to this equipment.

SPECIFICATIONS FOR
SAFETY-RELATED ELECTRICAL
EQUIPMENT LOCATED IN A
HARSH ENVIRONMENT

Specification Number	Title
SH1-39	4,160 V Metal Clad Switchgear
SH1-62G	Centrifugal Pumps
SH1-88AD	Carbon Steel MOVs
SH1-88V	Carbon Steel MOVs
SH1-102	Centrifugal Fans
SH1-105	Charcoal Filter Trains
SH1-111	Ventilation Butterfly Valves
SH1-115	480 V Motor Control Centers
SH1-124	Miscellaneous AC and DC Distribution Panelboards
SH1-127	5 KV Power Cable
SH1-128	600 V Power Cable
SH1-129	300 V and 600 V Fire-Resistant Control and Instrument Cable
SH1-130	Instrument Cable
SH1-131	Thermocouple Extension Wire
SH1-134	Reactor Containment Electrical Penetrations
SH1-159	Electrical Work

Specification Number	Title
SH1-168	DC Motor Control Centers
SH1-172	Primary Containment Isolation Valves
SH1-175	Drywell Floor Relief Valves
SH1-197	Motor Operated Butterfly Valves
SH1-203	Manually Operated Diaphragm Valves - Carbon Steel
SH1-214	Manually Operated Stainless Steel Valves
SH1-232	Special Check Valves
SH1-235	Loop Level Pumps
SH1-248	Miscellaneous Transformers
SH1-253	Motor Operated Steel Valves
SH1-270	Axial Flow Fans
SH1-276	Unit Coolers
SH1-281	Bronze Valves
SH1-289	Hydrogen Recombiner Units
SH1-310	Electric Motor Operated Controls Valves
SH1-318	Air Operated Control Valves
SH1-319	Automatic Temperature Control Systems for HVAC
SH1-332	Radiation Monitors
SH1-344	Primary Containment Gas Analyzers
SH1-348	Pressure and Temperature Switches
SH1-406	Electronic Transmitters and RTDs
SH1-406A	RTDs

Specification Number	Title
SH1-407	Level Switches
SH1-423	Air Operated Butterfly Valves ASME III
SH1-438	Automatic Transfer Switches
SH1-439	480 V Motor Generator Set
SH1-455	Low Capacitance Fire-Resistant Instrument Cable
SH1-456	Reactor Containment Electrical Penetrations
SH1-457	Leakage Return Pump
SH1-473	Level Transmitters
SH1-475	Post Accident Radiation Monitoring
SH1-484	Control & Instrument Cable
SH1-485	Thermocouple Extension Wire
15.54	Valcor Solenoid Valves

The equipment items within the NSSS scope of supply are included under Specification SH1-003.

2.3 MISCELLANEOUS COMPONENTS AND ACCESSORIES

The environmental qualification of miscellaneous electrical components and accessories is addressed in the same manner as the equipment which is identified from the review of project drawings. Examples of miscellaneous components include control stations, terminal lugs, splicing materials, and internal panel wire. These components are not identified with a specific equipment identification number but, instead, are documented on a separate list attached to the Environmental Qualification Status Report (EQSR) in Appendix F. Most of the miscellaneous electrical components and accessories have been procured under Specification SH1-159.

2.4 SYSTEMS REVIEWED

The systems reviewed to identify the equipment requiring environmental qualification are presented below. In parentheses alongside the systems are alternate names to describe the system or portions thereof.

SYSTEM	SYSTEM CODE
Nuclear Boiler (Includes Some Safeguards Activation)	1B21
Reactor Water Recirculation (Reactor Coolant)	1B31
Control Rod Drive Hydraulic Control	1C11
Standby Liquid Control	1C41
Neutron Monitoring	1C51
Reactor Plant Remote Shutdown	1C61
Reactor Protection	1C71
Process Radiation Monitoring	1D11
Area Radiation Monitoring	1D21
Residual Heat Removal (Includes Containment Spray)	1E11
Core Spray	1E21
MSIV Leakage Control	1E32
High Pressure Coolant Injection	1E41
Reactor Core Isolation Cooling	1E51
Radwaste	1G11
Reactor Water Cleanup	1G33
Fuel Pool Cooling and Cleanup	1G41
Main Control Room Panels	1H11
Local Panels and Racks	1H21
RBSVS & Control Room Chilled Water	1M50
Main Steam	1N11
Condensate and Feedwater	1N21
Miscellaneous Drains	1N23
Condensate Transfer and Storage	1P11
Demineralized & Makeup Water	1P21
Sample	1P33
Service Water	1P41
Reactor Building Closed Loop Cooling Water	1P42
Compressed Air	1P50
Metal Clad Switchgear	1R22
Unit Substations	1R23
Motor Control Centers	1R24
Power Cable & Wire	1R31
Control Cable & Wire	1R32
AC Control and Instrument Power	1R35
AC Uninterruptible Power	1R36
DC Instrument Power	1R41
Battery Power (125V D-C)	1R42
Diesel Emergency Power	1R43
Reactor Building Superstructure	1T22
Reactor Primary Containment	1T23
Primary Containment Inerting	1T24
Reactor Building Ventilation	1T41
Reactor Building Standby Ventilation (Standby	1T46

Gas Treatment)	
Primary Containment Cooling	1T47
Primary Containment Atmospheric Control (Combustible Gas Control)	1T48
Miscellaneous HVAC	1X41
Diesel Generator Ventilation	1X60
Control Room HVAC	1X61
Excess Flow Check Valves	1Z92
Post Accident Monitoring	1Z93
Post Accident Sampling	1Z96

(Emergency Condenser not applicable to Shoreham)

2.5 EQUIPMENT SAFETY FUNCTIONS

Safety-related electrical equipment in this qualification program perform safety functions required to mitigate the consequences of a Loss of Coolant Accident (LOCA), a High Energy Line Break (HELB), or a Moderate Energy Line Crack (MELB). The equipment also performs safety functions required to maintain the reactor in a safe shutdown condition. Safety functions and their abbreviations are listed below.

SAFETY FUNCTIONS

SAFETY FUNCTION	ABBREVIATION
Automatic Depressurization	ATDP
Component Auxiliary Cooling	CAUC
Containment Isolation	CISL
Core Spray	CSPR
Emergency Power	EMPO
Feedwater Isolation	FISL
Fuel Pool Cooling	FLCL
Post Accident Hydrogen Control	HCNT
HELB Mitigation	HELB
High Pressure Coolant Injection	HPCI
Residual Heat Removal	HTRM
Safety-Related HVAC	HVAC
Leakage Control	LCNT
Low Pressure Coolant Injection	LHSI
MELB Mitigation	MELB
Post Accident Monitoring	PACM
Reactivity Control	RCCL
Reactor Core Isolation Cooling	RCIC
Regulatory Guide 1.97 Criteria	REGG
Reactor Trip Protection	RTRP
Engineered Safety Function	SAFE
Main Steam Isolation	SISL
Suppression Pool Pump Back	SPPB
Service Water	SWAT
Ultimate Cooling	ULCL

To determine which equipment is safety-related, it is useful to assign specific safety functions to the systems. This is done most easily by regrouping, under larger system headings, the systems listed in Section 2.4.

Safety functions for applicable systems are listed below:

SYSTEM SAFETY FUNCTIONS

SYSTEM	SAFETY FUNCTIONS
Main & Auxiliary Steam Nuclear Boiler (1B21)	CISL, SISL, HTRM, ATDP, LHSI, CSPR, HELB, MELB, SAFE, LCNT, REGG
Feedwater (1B21, 1N21)	LCNT, CISL, FISL, HPCI, RCIC
Reactor Building Sampling (1B31, 1P33)	CISL, LCNT
Reactor Water Recirculation (1B31)	SAFE, HTRM, LHSI
Radiation Monitoring (1D11)	PACM, REGG, LCNT, RTRP, SAFE, CISL
Control Rod Drive (1C11)	RTRP, LCNT, REGG
Standby Liquid Control (1C41)	RCCL, CISL, REGG
Neutron Monitoring (1C51, 1C61)	CISL, REGG
Residual Heat Removal (1E11)	LHSI, HTRM, CISL, SAFE, LCNT, ATDP, REGG, HCNT
Core Spray (1E21)	CSPR, CISL, LCNT, SAFE, ATDP, REGG
Main Steam Isolation Valve Leakage Control (1E32)	CISL, SISL, LCNT
Reactor Core Isolation Cooling (1E51)	RCIC, REGG, LCNT, CISL, HELB, MELB
Reactor Building Vents and Drains (1G11)	CISL, LCNT, SPPB, HELB, REGG
Reactor Water Cleanup (1G33)	CISL, HELB, LCNT
Fuel Pool Cooling and Cleanup (1G41)	CISL, FLCL, ULCL, REGG

SYSTEM	SAFETY FUNCTIONS
Local Panels and Racks (1H21)	SAFE
Main Steam-Turbine Side of Main Steam Isolation Valves (1N11, 1B21, 1C71)	LCNT, SISL, SAFE
Secondary Plant Drains (1N23)	LCNT, SISL
Metal Clad Switchgear (1R22)	EMPO, SAFE
Motor Control Centers (1R24)	EMPO, SAFE
Power Cable and Wire (1R31)	EMPO, SAFE
Control Cable and Wire (1R32)	EMPO, SAFE
AC Control and Instrument Power (1R35)	EMPO, SAFE, REGG
125 V DC Battery Power (1R42)	EMPO, SAFE
Fuel Oil Transfer (1R43)	EMPO, SAFE
High Pressure Coolant Injection (1E41, 1Z93)	REGG, HPCI, HELB, CISL, LCNT
Drywell Floor Seal Pressure Monitoring (1T23)	CISL
Demineralized and Make-Up Water (1P11, 1P21)	HPCI, SAFE
Service Water (1P41)	SWAT, PACM, HTRM, FLCL, SAFE
Reactor Building Closed Loop Cooling Water (1P42)	CISL, CAUC
Instrument and Service Air (1P50)	CISL, SAFE
Reactor Primary Containment (1T23)	CISL, SAFE, EMPO
Reactor Building Normal & RBSVS Ventilation (1T41, 1T46, 1T47)	SAFE, CISL, HVAC

SYSTEM	SAFETY FUNCTIONS
Primary Containment Atmospheric Control and Inerting (1T48, 1T24)	CISL, SAFE, HCNT, REGG

The system safety functions for equipment items identified are documented in the S&W Engineering Files and will be provided in a report to LILCO.

SECTION 3

ENVIRONMENT APPLICABLE UNDER ACCIDENT CONDITIONS

3.1 METHODOLOGY

In order to determine what safety-related electrical equipment is located in a harsh environment, it is necessary to establish the environmental conditions experienced in the areas of the plant in which the equipment is located.

Environmental profiles are determined for defined spatial zones both inside and outside the primary containment. Radiation source terms are developed in accordance with the requirements of NUREG-0737. Temperature, pressure, and humidity data are based upon applicable sections of the FSAR including Appendix 3C (Pipe Failure Outside Primary Containment). The following environmental parameters are included in the analyses of equipment environmental qualification:

a. Normal Environment

   1. Radiation - 40 year integrated dose

   2. Temperature - expected range

   3. Humidity - expected range

   4. Pressure - expected range

b. Postulated Accident Environment

   1. Radiation - radiation dose received from the accident environment for the time period of interest.

   2. Temperature - temperature expressed as a function of time for the duration of the accident transient.

   3. Humidity - highest relative humidity levels during the accident transient, conservatively assumed at 100 percent for both the primary and secondary containments of the Reactor Building.

   4. Pressure - maximum levels postulated for the accident transient.

3.2 ENVIRONMENTAL ZONE MAPS

Environmental zone maps illustrating the harsh environmental spatial zones are shown in Appendix C. The harsh environmental

service conditions experienced by each zone are given in Appendix D.

3.3 SERVICE CONDITIONS

The environmental parameters for each zone are determined for the normal and postulated accident service conditions. These parameters are the specific qualification requirements for the equipment to be qualified. The normal and accident profiles (temperature, pressure, and radiation) for each zone are illustrated as a function of time in Appendix D.

3.3.1 Normal Service Conditions

Normal service conditions are the environmental conditions in each zone which are maintained during normal plant operations. This includes all levels of power generation, start-up, hot standby, shutdown, and refueling. For equipment qualification, normal service conditions are assumed continuous over the 40 year life of the plant. Pressure, temperature, and humidity values are based on normally operating HVAC systems and are shown on Table 3-1. Radiation values are based on normal radionuclide inventory and are cumulative during the 40 year plant life.

3.3.2 Postulated Accident Conditions

Accident conditions generate the most severe environmental parameters for the environmental qualification of equipment. Values of temperature, pressure, humidity, and radiation are postulated to occur at the end of the 40 year plant life. Specific environmental parameters are determined by investigating the postulated accident conditions discussed below:

3.3.2.1 Loss of Coolant Accident

a. The method of analysis for pressure and temperature response for Loss of Coolant Accident (LOCA) within the primary containment is described in Section 6.2 of the FSAR.

b. The pressure and temperature for the secondary containment are defined in Appendix D as taken from Section 6.2.3 of the FSAR. The pressure transient in the secondary containment due to a LOCA is also shown in Figure D-43 as taken from FSAR Figure 6.2.3-2.

c. The Turbine and Control Buildings do not experience extremes of temperature and/or pressure due to LOCA within the Reactor Building.

3.3.2.2 Pipe Break Outside Containment

a. Short-Term Response to High Energy Line Breaks (HELB)

High energy line breaks have been selected and analyzed in accordance with the specific criteria outlined in Appendix 3C of the FSAR. Achieving cold shutdown during a HELB event is discussed in FSAR Appendix 3C together with the required systems and postulated conditions. The analysis described in Appendix E, Section E.2 provides further detail of particular HELBs and their effect upon additional areas of the plant through the use of more refined temperature zones.

b. Short-term Response to Moderate Energy Line Cracks (MELB)

The following moderate energy line failure is considered and represents the limiting design condition for temperature effects due to MELBs: Twenty-four inch RHR pipe crack in the Reactor Building, elevation 40 ft. Calculations are described in Appendix E, Section E.3. This failure and other MELBs are listed in Appendix 3C of the FSAR and are analyzed with the applicable criteria of that section.

c. Long-Term Response

The long-term response analysis for all breaks is a determination of the elapsed time from the moment the break occurs to the time the building environment returns to the initial starting temperature (generally 104°F).

The Reactor Building secondary containment is considered one volume.

The amount of energy in BTU's discharged into the secondary containment by the break is determined based on a reference of 104°F.

Heat is removed from the building by one of two trains of RBSVS coolers and by air exchange with the atmosphere.

The elapsed time is calculated by dividing the total energy discharged by the sum of the RBSVS cooler and atmospheric air exchange heat removal rates.

No credit is taken for heat sinks and the entire secondary containment is assumed to cool down uniformly.

d. Summary of Conservatisms Used in the Analyses

1. Frictionless flow is assumed for blowdowns.

2. No credit is taken for air coolers during the short-term analyses of Section a.

3. No automatic closure signals for isolation valves occur until the entire zone rises to the setpoint temperature.

4. Metal heat sinks are neglected.

5. The Reactor Building remains isolated to mass and energy transfer out of the building until the sheet metal roof panels relieve during the short-term analyses.

6. No credit is taken for radwaste sump pumps.

7. No credit is taken for passive heat sinks in the long-term analyses.

3.3.2.3 Radiation

The accident radiation sources and integrated radiation doses are derived as discussed in Appendix E, Section E.4 in accordance with NUREG 0737, Section II. B.2.

3.3.2.4 Sprays

The only equipment subject to spray is that equipment within the primary containment during the post accident containment cooling mode of RHR (refer to FSAR Section 6.2). The design of this system causes a uniform mist within the containment, which is bounded by the 100 percent humidity/saturated steam conditions specified for the qualification of equipment. Refer to Appendix 3C of the FSAR for the detailed analysis of HELB and MELB fluid effects outside the primary containment.

An analysis was performed to evaluate the effects of containment spray due to the drywell and wetwell spray nozzles. The impinging effect is assumed to be considerable only when the spray droplet velocity has a horizontal component. This is a conservative assumption because the horizontal component of the velocity in some areas can be larger than the terminal velocity of the droplets. The area outside the spray impingement zone is assumed to be equivalent to 100 percent humidity due to the small size of the droplets and gravity as the only driving force. Based on these assumptions, qualification of equipment in the following areas requires consideration of the spray impingement effect:

Drywell: An annular volume from 10' above to 10' 11" below elevation 109' 9" (elevation 98' to 120') and radially 33' outward from the location of nozzles on elevation 109' 9".

Wetwell: An annular volume from elevation 41' to 54' (2' 1" above and 10'2" below elevation 51'9") and radially 17'2" outward from the location of nozzles on elevation 51'9".

3.3.2.5 Flooding

Equipment required for accident mitigation is not subject to submergence in the Shoreham design. A detailed evaluation of possible flooding effects outside the primary containment due to HELBs and MELBs is presented in Appendix 3C of the FSAR.

3.4 METHODOLOGY FOR AGING CONSIDERATIONS

3.4.1 Introduction

The intent of aging in the qualification process is to bring the tested equipment to the equivalent of its "end of life" condition prior to subjecting it to the conditions of the Design Basis Event (DBE). The time period corresponding to this "end of life" condition becomes the "qualified life" of the tested equipment when the equipment demonstrates operability when subjected to its required service conditions.

The aging mechanisms that equipment are exposed to during qualified life are: radiation, cycling, and heat.

3.4.2 Radiation

The determination of qualified life includes assurance that the equipment was radiation aged to an amount equivalent to its 40 year plus accident integrated radiation dose. The preferred method for this type of qualification is type-testing. However, in some cases, type-testing was insufficient to qualify the device for its required radiation dose. In these cases, an analysis of the materials used in the tested equipment has been performed to determine the sensitivity of these materials (based on previous testing experience) to its applicable radiation environment. The radiation tolerence of the most sensitive material was assumed to be the radiation tolerance of the entire tested equipment.

3.4.3 Cycle Aging

For devices which have moving parts or function in some repeatable manner, the devices are cycle aged for the number of postulated operations that can be expected during the installed life. In the qualification test process, cycle aging is typically performed prior to initiation of the thermal and design basis accident tests.

3.4.4 Thermal Aging

Thermal aging is the deterioration of equipment components when subjected to elevated temperatures over a period of time. During qualification testing, this process is intended to produce the actual installed end-of-life condition of the equipment prior to application of the accident environment. In the case of thermal aging, analysis may be used to augment actual type testing.

One of the methods used in consideration of thermal aging is the determination that the materials in the equipment are not sensitive to thermal degradation. This determination may include either recognizing that the materials are metallic or utilizing the Arrhenius parameters for each material to determine an "expected life." Expected life can be defined as the amount of time a material can be expected to retain a certain property in a purely thermal environment without the imposition of other aging mechanisms. When this time is much greater than the 40 yr plant life, it can be concluded that thermal degradation is insignificant in relation to other harsh envirnomental effects and the DBE, and thus the component may be exempted from the artificial thermal pre-aging.

When the expected life does not greatly exceed the 40 year plant life, accelerated thermal aging may be included in the qualification test program. Arrhenius parameters are utilized to determine the time and temperature of the accelerated aging required to bring the equipment to an equivalent age of 40 years at normal service temperatures. When the accelerated aging parameters are less than those required for a 40-year equivalent, a determination is made of the actual equivalent. This equivalent age is the "qualified life" of the equipment, if it successfully completes other applicable aging tests and the accident simulation.

3.4.5 Arrhenius Methodology

Section 4.4 of NUREG 0588 and Paragraph 5.2.4 of the DOR guidelines defines Arrhenius techniques as an acceptable method for aging determinations. This methodology allows the relative thermal life of nonmetallic materials to be determined by the extrapolation of an Arrhenius plot of the natural log of life as a function of reciprocal absolute temperature for that particular material.

For many nonmetallic materials, it is known that the degradation process can be defined by a single temperature-dependent reaction that follows the Arrhenius equation:

$$K = A \exp\left(-\left(E_a / k_B T\right)\right) \qquad (1)$$

where:

k = reaction rate

A = frequency factor

exp = exponent to base e

E_a = activation energy

k_B = Boltzmann's Constant

T = absolute temperature

It is further noted, that for many reactions, the activation energy can be considered to be constant over the applicable temperature range. That is, that a single aging mechanism or reaction, is controlling the rate of thermal degradation.

Equation (1) can be transformed into a form which yields a time compression factor.

The equation is:

$$t_1/t_2 = \exp\left((E_a/k_B)\ (1/T_1 - 1/T_2)\right) \qquad (2)$$

where:

t_1 = accelerated aging time at temperature T_1

t_2 = normal service time at temperature T_2

exp = exponent to base e

E_a = activation energy (eV)

k_B = Boltzmann's Constant (8.617×10^{-5} eV/°K)

T_1 = accelerated aging temperature (°K)

T_2 = normal service temperature (°K)

It is this equation which is used to provide a qualified life of devices at T_2 (normal service temperatures) when the activation energy of the most temperature sensitive material in the device can be determined by material textbook references or actual type testing.

3.4.6 10°C Rule Methodology

The qualified life for certain equipment was determined by the 10°C rule, rather than Arrhenius techniques. The 10°C rule (each 10°C rise shortens life by one-half) was the state of the art for aging prior to the development of Arrhenius techniques. Where the 10°C rule was used as the qualification basis, the results

are verified by obtaining activation energies from published data and calculating service life via the Arrhenius method as discussed above or by demonstrating that application of the 10°C rule yields a more conservative qualified life than the Arrhenius methodology for the equipment involved.

3.5 MARGINS

The analyses used to determine environmental parameters for normal and accident service conditions include various conservative assumptions as described previously. Therefore, the postulated values of pressure, temperature, humidity, and radiation for each environmental zone are in excess of the values that would be realistically expected for the conditions analyzed. Equipment which is required to operate must be qualified to an environmental profile which envelopes the postulated profile and results in a supplemental margin. In addition, equipment is qualified for time periods in excess of that required to provide the equipment's safety function. The operability time requirement listed in the EQSR includes a margin of at least one hour or 10 percent, whichever is greater, in excess of the time duration required by the accident analyses.

SECTION 4

DETERMINATION OF QUALIFICATION STATUS

4.1 EQUIPMENT STATUS

The qualification status of safety-related electrical equipment located in harsh environments is listed in the attached computer listing (EQ Status Report) in Appendix F. Appendix G addresses the equipment with deficient qualification documentation, along with resolution plans and, if needed, justification for interim operation.

4.2 METHODOLOGY FOR EQUIPMENT QUALIFICATION

The environmental qualification documents for the equipment are typically obtained for engineering evaluation from equipment vendors, equipment manufacturers and/or testing facilities. These documents in the form of qualification procedures, reports, and supplementary information are evaluated in accordance with NUREG-0588, IEEE Std. 323, and the associated daughter standards included in Section 6. Review of these documents includes assurance that they are technically adequate and conform to the environmental qualification requirements of the applicable emergency conditions, operability times, and service conditions.

Each equipment item is assigned an operability code in accordance with the categories discussed in Appendix E of NUREG-0588, and the qualification entails the following:

a. Equipment assigned an operability code "A" must have acceptable documentation which demonstrates that the equipment performs its required safety function(s) in the environment dictated by the zone in which the equipment is located.

b. Equipment assigned an operability code "B" does not have an active safety function. Essentially, "B" coded equipment is the equipment identified as connected to Category 1E power systems but not required to operate during the postulated accident condition. Therefore, this equipment is evaluated to ensure that the accident exposure does not result in any equipment failure which would alter the state of the 1E power system.

c. Equipment assigned an operability code "C" does not have a safety function and does not fail in any manner that would affect the safe shutdown of the plant. This equipment is not included in this report unless determined to be operability code "A" or "B" for a time less than the 180 day post accident duration and

operability code "C" for the remaining duration of the accident.

When this equipment operability code is determined, the length of time (operability time) into an accident during which the equipment must function or must not fail is also ascertained. The designation of this operability time is based on:

a. The system operating requirements for accident mitigation.

b. The function of each required equipment item in the system during and after accident mitigation.

All equipment is designated to be qualified for a maximum of 180 day post-accident duration. Equipment identified as operability code "A" for less than 180 days is designated operability code "B" for the remainder of the accident duration. However, if, at some time during the accident duration, it is determined that no postulated failure will be detrimental to the safe shutdown of the plant, an operability time of less than 180 days may be designated.

The methods of qualifying equipment are testing and analysis. Testing is the principal method of qualification used in this program. The evaluation of equipment testing includes the following considerations:

a. Acceptance criteria are established prior to the evaluation of test reports.

b. The environmental profiles for the applicable accident conditions and zones are examined for comparison to the environment simulated in the test report.

c. Continuous or discrete monitoring results are reviewed where relevant.

d. Margins are verified for the environmental parameters.

e. Documentation is reviewed to ensure that adequate information with respect to the equipment performing its required safety functions during the postulated service conditions is presented in a format that is verifiable in an independent audit.

For cases where test documentation is unavailable or incomplete, the services of reputable independent engineering testing laboratories or engineering consulting firms are contracted. These testing facilities or engineering consultants are selected based on their cognizance of the applicable standards and their experience in environmental equipment qualification. Qualification documentation may then be upgraded and reevaluated

based on additional test information, retesting, or analysis based on adequate data using acceptable engineering models.

4.3 ENVIRONMENTAL QUALIFICATION DOCUMENTS

As each qualification document is reviewed and assessed, a "Test Report Number" is assigned. This test report identification is prefixed with the letters "TR-" and suffixed with the digits of the equipment's procurement specification identification to facilitate future information retrieval. These digits of the specification identification are also used to identify the other forms of documentation used in the environmental qualification (EQ) review process. When one or more components or groups of components are addressed under one specification, additional digits are added to the identification code.

The actual review of the equipment qualification reports is documented on the Environmental Qualification Report Evaluation Form (EQREF), described more fully in Appendix A. This document identifies the equipment by system, vendor, manufacturer, and model number, while providing a review format that addresses the applicable zone service conditions as required per NUREG-0588. Upon completion of the qualification document review, final comments are recorded on the EQREF including justification for EQ acceptance, recommendations to rectify qualification document deficiencies, and limitations or conditions required in order to preserve qualification, as applicable.

The results of the EQREF review are summarized on the Environmental Qualification Summary Sheet (EQSS), described in more detail in Appendix B. Information including equipment description, IEEE Standards referenced, test sequence, environmental zones, and test parameters as described in the qualification report(s) is entered on this document. The test parameters recorded on the EQSS are compared to the required zone parameters for adequacy. Any discrepancies are noted on the applicable EQREF. A separate EQSS is generated for each specification or group of devices. Documentation packages which include the qualification reports, EQREF and EQSS are transmitted to LILCO and incorporated into the Shoreham permanent record file.

4.4 EQUIPMENT QUALIFICATION ACCEPTANCE CRITERIA

The information collected on the EQSS and EQSR provides the EQ status of each Class 1E electrical equipment. The equipment is considered qualified if the following requirements are met:

a. Acceptable documentation to all applicable referenced requirements.

b. Environmental tests and/or analyses are performed and meet all applicable referenced requirements for the

postulated conditions to which the equipment is subjected.

c. Acceptable performance characteristics in an environment as severe as the postulated zone environment is demonstrated.

d. A qualified life is determined and supported by qualification documents.

Equipment that does not satisfy the above criteria is not considered fully qualified and is addressed in Appendix G. The resolution of EQ deficiencies may include one or more of the alternatives listed in Section 1.1.

4.5 EQUIPMENT LIST UPDATE

As additional environmental qualification (EQ) reports and/or procedures are obtained, the appropriate EQ review and evaluation documents are revised to reflect changes in the qualification status of each piece of equipment. Evaluation of these documents is performed as previously described in this text. If changes in the qualification information occur, the appropriate EQSS is revised with a revision number to indicate the revision. Each revised EQSS supersedes, in entirety, all previous EQSSs with the same number. New data is entered into the master list (EQSR) to indicate changes and additional qualification documentation is added to the Shoreham records file as the changes are implemented.

4.6 ENVIRONMENTAL QUALIFICATION STATUS REPORT (EQSR)

The EQSR is a computerized report which summarizes the qualification status of each equipment item. The current issue of the EQSR is included in Appendix F.

SECTION 5

SURVEILLANCE AND MAINTENANCE

The Shoreham surveillance and maintenance programs include documented program plans, procedures, and results to assure that the safety-related equipment is maintained in a state of readiness and operability so that it will perform its intended safety function upon demand.

The results of the Equipment Qualification Program are directly input to the Shoreham maintenance and spare parts programs to ensure timely device or parts replacement as needed due to identified qualified life limitations and to ensure timely performance of any other identified maintenance activities required to preserve the applicability of the qualification.

SECTION 6

REFERENCES

Abbreviation	Year of Issue	Sponsor Organization, Document Title
IEEE 308	1971	Institute of Electrical and Electronics Engineers, Standard Criteria for Class 1E Electric Systems for Nuclear Power Generating Stations
IEEE 317	1972	Institute of Electrical and Electronics Engineers, Electrical Penetration Assemblies in Containment Structures for Nuclear Power Generating Stations.
IEEE 323	1971, 1974	Institute of Electrical and Electronics Engineers, General Guide for Qualifying Class I Electric Equipment for Nuclear Power Generating Stations
IEEE 334	1971	Institute of Electrical and Electronics Engineers, Trial-Use Guide for Type Tests of Continuous-duty Class I Motors Installed Inside the Containment of Nuclear Power Generating Stations
IEEE 344	1971, 1975	Institute of Electrical and Electronics Engineers, Trial-Use Guide for Seismic Qualification of Electronic Equipment for Nuclear Power Generating Stations
IEEE 382	1972	Institute of Electrical and Electronic Engineers, Trial-Use Guide for Type Test of Class I Electric Valve Operators for Nuclear Power Generating Stations

Abbreviation	Year of Issue	Sponsor Organization, Document Title
IEEE 383	1974	Institute of Electrical and Electronic Engineers, Type Test of Class I Electric Cables, Field Splices, and Connections for Nuclear Power Generating Power Stations
NUREG 0588 Rev. 1	1979 1981	Nuclear Regulatory Commission, Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment
NUREG 0737	1980	Nuclear Regulatory Commission, Clarification of Three Mile Island Action Plan Requirements

APPENDIX A

ENVIRONMENTAL QUALIFICATION REPORT EVALUATION FORM

APPENDIX A

ENVIRONMENTAL QUALIFICATION REPORT EVALUATION FORM (EQREF)

This form (a blank copy of which is included after this description) provides a summary of EQ document assessment and consists of four (4) pages. Each EQREF is numbered by specification number preceded by the letters TR. The first page includes data entries entitled EQUIPMENT IDENTIFICATION and QUALIFICATION DOCUMENTATION which are self-explanatory. The entry for "SQRT Form I.D.:" is not entered but the seismic qualifications for the equipment are filed separately. The assessment results (whether the EQ document is acceptable or not) are summarized under the REVIEWER'S CONCLUSION section where any exceptions, special conditions or correctable deficiencies are entered.

On Page 2, data entries include TEST FACILITY - name and location of testing firm, and the APPLICABLE ZONE NUMBERS, for the environmental zones in which the tested equipment is installed.

The information that follows is a list of questions that pertain to the equipment. The response to these questions is either "YES", "NO", or "N/A" - not applicable. The technical content of these questions is intended to satisfy the requirements of IEEE Std 323-1971, 1974 and NUREG-0588, and addresses the following:

1. Equipment identification
2. Test Program Description and Procedure
3. Qualification and Performance of Tested Equipment.
4. Thermal Aging including mechanical wear and radiation exposure.
5. Post test inspection

On the final page of this form, the appropriate COMMENTS and RECOMMENDATIONS on all aspects of the qualification reports are entered. Additional pages may be attached to record any additional comments required to summarize the evaluation process.

ENVIRONMENTAL QUALIFICATION REPORT EVALUATION FORM FOR SHOREHAM NUCLEAR POWER STATION - UNIT 1

NRC NUREG-0588 Category I* and II Positions TR- _____

(Please type or print)

EQUIPMENT IDENTIFICATION

Equipment Type: _____

Vendor : _____

Specification No.: _____

Purchase(P.O.)No.: _____

Manufacturer: _____

Model No.: _____

Serial No.: _____

QUALIFICATION DOCUMENTATION

Title: _____

Author(Organization): _____

Identification No.: _____

Date: _____

SQRT Form I.D.: _____

REVIEWER'S CONCLUSION

Acceptable? YES NO

If YES, any limitations, exceptions, special conditions: _____

If NO, what specific deficiencies could be corrected in order to achieve acceptability? _____

REVIEWED BY: _____ _____ VERIFIED BY: _____ _____

Signature Date Signature Date

(*) Applicable to NUREG Category 1 positions only.

TEST FACILITY

Name: _____

City: _____

State: _____

APPLICABLE ZONE NUMBERS

Rad. Zones: _____

Temp./Pres. Zones: _____

_____

1. TEST CONDITIONS

   See Environmental Qualification Summary Sheet No.: _____

2. Does the model number of the component(s) tested coincide with the model number of the component(s) being reviewed?	YES	NO	
A. If not, is adequate justification provided showing that the component(s) tested adequately represent(s) component(s) being reviewed?	YES	NO	N/A
3. Does the Test Program Outline include:			
A. Test Objectives	YES	NO	
B. Test Sample Description	YES	NO	
C. Number of units to be tested	YES	NO	
D. Mounting requirements	YES	NO	N/A
1. If yes, is mounting justified?	YES	NO	N/A
2. If no, has justification been provided showing that equipment performance is not altered by the manner or position in which it is mounted?	YES	NO	N/A
E. Aging Simulation Procedure	YES	NO	
F. Parameters to be measured	YES	NO	
1. Accuracy	YES	NO	N/A
2. Response time	YES	NO	N/A
G. The range, sequence, and combination of environments to simulate DBA conditions?	YES	NO	N/A
H. Acceptance Criteria	YES	NO	
1. Are the acceptance criterial adequate to verify the ability of the equipment to perform its required safety function?	YES	NO	N/A
4. Are the tests methods in accordance with following:			
A. Does the test demonstrate that the equipment satisfies the acceptance criteria?	YES	NO	
B. Do the parameters in the qualification documentation at least meet accident requirements?	YES	NO	
1. If not, are deviations justified?	YES	NO	N/A

C. Have adequate margins been allowed in accordance with NUREG-0588, Section 3 (Cat. I or II)? (Circle appropriate Category)	YES	NO	
D. If the qualification uses analysis, are the basis, supporting data, and method for analysis included?	YES	NO	N/A
*E. Is test sequence justified as per IEEE 323-1974 Section 6.3.2 and NUREG-0588 Category I position?	YES	NO	
F. Is the test sequence justified as per IEEE 323-1971 and NUREG-0588 Category II position?	YES	NO	
G. Were performance characteristics verified before, during, and after testing?	YES	NO	
H. Were temperature readings obtained by thermocouple location on, or as near as practical to the surface of the component?	YES	NO	
1. If not, is adequate justification proviede showing that the component was exposed to the specified temperature environment?	YES	NO	N/A
5. Does the test report address thermal aging?	YES	NO	
A. Was a qualified life and/or replacement schedule established?	YES	NO	
*B. Was test sample thermally aged by an acceptable method?	YES	NO	
*C. Did thermal aging simulate design life at normal conditions (temperature)?	YES	NO	
*D. Was test sample operated to simulate expected mechanical wear over design life? (electromechanical equipment only)	YES	NO	N/A
*E. Was test sample irradiated to the normal service life dosage before seismic and DBA testing?	YES	NO	
*F. Was test sample irradiated to the combined normal service life dosage plus DBA dosage before and during DBA testing?	YES	NO	
6. Was equipment inspected after type testing?	YES	NO	
A. Are the results of the inspection recorded?	YES	NO	N/A
7. Were any failures identified during environmental qualifications?	YES	NO	
A. Are failures justified?	YES	NO	N/A
8. Is the test facility (set-up) described?	YES	NO	N/A
9. Is a description of the instrumentation provided?	YES	NO	
10. Are test conclusions consistent with test objectives and supported by test results?	YES	NO	

11. A. Operability time demonstrated _____

B. Accuracy demonstrated _____

C. Response time demonstrated _____

12. Does the report have an approval signature? YES NO N/A

13. Is this report acceptable? YES NO

COMMENTS: _____

RECOMMENDATIONS _____

APPENDIX B

ENVIRONMENTAL QUALIFICATION
SUMMARY SHEET

APPENDIX B

ENVIRONMENTAL QUALIFICATION SUMMARY SHEET (EQSS)

The EQSS is a one page summary (a blank copy of which is included after this description) of the qualification document(s) to record the test or analysis results.

The data entered on the EQSS is, for the most part, self-explanatory. Each EQSS is numbered by specification number, succeeded by a number to sequentially identify each component or group of components. When an EQSS is revised, a revision number is added beginning with "1".

Data entries include procurement document references and test report identifications with applicable IEEE standards and the qualified life of the equipment.

The TEST SEQUENCE entry details the specific steps performed during the environmental qualification test in the sequence that they were performed.

The TEST ENVIRONMENT data tabulates the temperature, pressure and humidity test parameters, and their duration. In addition, the reviewer must ascertain whether the operability time and the equipment accuracy performance is acceptable.

Other entries include the APPLICABLE ENVIRONMENT ZONES in which the equipment must be qualified, and RADIATION AGING, THERMAL AGING, and mechanical CYCLE AGING data from the test report.

Completed EQSS copies are indexed and included following the blank copy for those qualification documents which have been evaluated. Each EQSS is referenced in the Equipment Qualification Status Report (EQSR). The EQSR also gives the qualification status for the equipment items.

INDEX
ENVIRONMENTAL QUALIFICATION STATUS SUMMARY
(EQSS)

EQSS NO.	EQUIPMENT TITLE	VENDOR	DATE REVIEWED
003-01	Limitorque Valve Actuators SMB2, SMB3	GE-NED	12/29/81
124-01 124-01A 124-01B	120VAC Distribution Panel	Systems Controls	6/29/81 6/29/81 6/29/81
127-01	5KV Power Cable	Kerite	1/4/82
128-01	600V Power Cable	Okonite	11/20/81
129-01 129-02	Instrument Cable	Rockbestos	11/27/81 12/31/81
130-01	Instrument Cable	Raychem	10/26/81
134-01	Electrical Penetration Series 200 Low Voltage	GE	11/30/81
134-02	Electrical Penetration Series 100 Medium Voltage	GE	11/06/81
159-01	Splicing Tapes T35, T95	Okonite	5/19/81
159-02	Lugs & Splices 52900 thru 53900	AMP	8/4/81
159-03	Switchboard Wire SIS 157279	GE	12/2/81
159-04	Switchboard Wire A830___6	Rockbestos	8/25/81
159-05	Raychem WCSF-N Splice & Termination	Raychem	11/7/81
197-01	Motor Operated Valve Actuators, Limitorque	Henry Pratt ITT Grinnell Contromatics	12/11/81
214-01 214-02	Motor Operated Valve Actuators, Limitorque	Velan	11/30/81 12/11/81
232-01	Solenoid Valve	Velan	8/18/81

EQSS NO.	EQUIPMENT TITLE	VENDOR	DATE REVIEWED
	ASCO WJKX-		
248-01	Miscellaneous Transformer	Magnetics	12/01/81
253-01	Motor Operated Valve	Velan	11/30/81
253-02	Actuators, Limitorque		12/01/81
253-02			12/08/81
276-01	Fan Motor 143TCZ Westinghouse	Buffalo Forge	1/13/82
289-01	Hydrogen Recombiner Unit	Atomics International (Rockwell)	12/11/81
289-02	Limitorque		12/11/81
289-03	Hydrogen Recombiner Blower Motor Reliance Electric Co.		1/6/82
310-01	Electric Motor Operated Control Valves Harold Beck & Sons	Fisher Controls	1/4/82
318-01	Solenoid Valve, ASCO NP-8320	Copes Vulcan	8/18/81
318-02	Solenoid Valve, ASCO HVA-206	Copes Vulcan	8/18/81
319-01	Veltron 800, Centerline 32046, Dwyer 1627, Powers 331-2792, Raymond MASR-49	MCC Powers	9/21/81
319-02	ITT General NH-91	MCC Powers	4/29/81
319-03	Solenoid Valve, ASCO WJHKX-	MCC Powers	9/1/81
344-01	Gas Analyzer	Comsip	12/3/81
344-01A			12/3/81
406-01	Pressure Transmitter, 1153 Series	Rosemount	9/09/81
406-02	Pressure Transmitter, 1152 Series E	Rosemount	12/22/81
406-03	RTD, 88-149	Rosemount	1/5/82
407-01	Level Switch 291-	Magnetrol	1/9/82

EQSS NO.	EQUIPMENT TITLE	VENDOR	DATE REVIEWED
423-01	Solenoid Valve ASCO WJHKX-	Fisher Controls	
439-01	480V MG Set Panel	Louis Allis	
439-01A			6/25/81
439-01B			1/6/82
439-01C			1/6/82
439-01D			1/6/82
439-01E			6/25/81
439-02			1/5/82
455-01	Instrument Cable	Brand Rex	4/5/81
456-01	Electrical Penetration	Conax	9/23/81
456-02	Electrical Penetrations, Adapter Module	Conax	9/29/81
15.54-01	Solenoid Valve, Valcor V526	Valcor	8/17/81
88AD-01	Motor Operated Valve	Anchor	11/30/81
88AD-02	Actuator, Limitorque	Darling	12/11/81
88V-01	Motor Operated Valve	Velan	11/30/81
88V-02	Actuator, Limitorque		12/1/81
88V-03			12/03/81
88V-04			12/21/81

ENVIRONMENTAL QUALIFICATION SUMMARY SHEET (EQSS) INDEX

EQSS NO.	EQUIPMENT TITLE	VENDOR	DATE REVIEWED
3018	Barksdale B1T Pressure Switch	GE-NED	12/31/81
3021	Barksdale D2H Pressure Switch	GE-NED	12/23/81
3025	Barksdale P1H Pressure Switch	GE-NED	12/31/81
3027	ITT Barton 288A and 2898 Differential Pressure Indicating Switches	GE-NED	1/11/82
3032	Static-O-Ring 5N and 6N Series Pressure Switches	GE-NED	12/31/81
3037	Yarway 4418C Level Indicator	GE-NED	12/30/81
3040	Fenwal Temperature Switch	GE-NED	12/30/81
3048	Rosemount 1151 Differential Pressure Transmitter	GE-NED	12/31/81
3096	ASCO HTX-8320A20 Solenoid Valve	GE-NED	12/28/81
3110	Pyco/California Alloy/ NECI Temperature Element	GE-NED	12/31/81
3111	General Electric ECCS Motors	GE-NED	12/23/81

ENVIRONMENTAL QUALIFICATION SUMMARY SHEET (EQSS) INDEX
(Continued)

EQSS NO.	EQUIPMENT TITLE	VENDOR	DATE REVIEWED
3143	Magnetrol 3.5-751X-MPG-M14HY Level Switch	GE-NED	12/31/81
3146	Conax 1832-159-01 Explosive Valve	GE-NED	1/11/82
3902	General Electric 47D518673 Electric Heater	GE-NED	12/31/81
3903	General Electric 2CH6-041-1U Blower	GE-NED	12/31/81
3904	Target Rock 1/2 SMS-A-01 Solenoid Valve	GE-NED	12/31/81
3906	PYCo 102-3171 Temperature Element	GE-NED	12/31/81
3909	ASCO NP8316C37 Solenoid Valve	GE-NED	12/29/81
3915	Rosemount 1152 Differential Pressure Transmitter	GE-NED	1/6/82

ENVIRONMENTAL QUALIFICATION SUMMARY NO. ____
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE _____

SPEC. NO. _____ P.O. _____ VENDOR _____

TEST ITEM DESC. _____

MAKE _____ MODEL _____

APPLICABLE STANDARDS _____ TEST REPORT NO. _____

IEEE _____ TEST METHOD _____

IEEE _____ DOCUMENTATION ACCEPTABILITY _____

IEEE _____

NUREG 0588 CAT. _____ QUALIFIED LIFE _____

TEST SEQUENCE (R: _____)

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

TEST ENVIRONMENT (R: _____)

TIME	
TEMP. °F	
PRES. PSIG	

OP. TIME DEMO _____ ACC/PERF DEMO _____

APPLICABLE ENV. ZONES			
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

RADIATION AGINC (R: _____)

DOSE RATE _____ RAD/HR

DOSE PRIOR TO ENV. TEST _____ RADS

DOSE DURING ENV. TEST _____ RADS

TOTAL DOSE _____ RADS

THERMAL AGING (R: _____)

AGED TO SIMULATED LIFE OF _____ YRS.

BASED ON AMBIENT TEMP OF _____ °F

AGING TEMP./ DURATION _____/_____

REL. HUMIDITY _____ %

NOT AGED-JUSTIFIED BY ANALYSIS TO _____ YRS.

CYCLE AGING (R: _____)

CYCLES REQUIRED _____

CYCLES PERFORMED _____
(Electro-Mechanical Equip. only)

REVIEWER: _____ DATE: _____

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 003-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE NUCLEAR STEAM SUPPLY SYSTEM
SPEC. NO. SHI-003 P.O. 370010/310011 VENDOR GE-NED
TEST ITEM DESC. MOTOR OPERATED VALVE
MAKE SMB-0 MODEL AC RELIANCE, H-INSULATION
VENDOR TEST REPORT NO. 600198, F-C2232-01 + App I, 600376A (RAD ONLY)
APPLICABLE STANDARDS TEST REPORT NO.
IEEE - 323-1971 TEST METHOD SEQUENTIAL TESTING
IEEE - 344 DOCUMENTATION ACCEPTABILITY NOT ACCEPTABLE
IEEE - 382-1972
NUREG 0588 CAT. II QUALIFIED LIFE NOT GIVEN

TEST SEQUENCE (R: pg 3-7 600198)

1. PRELIMINARY HEAT TEST ON COMPONENT PARTS
2. PRELIMINARY HEAT TESTS ON ACTUATOR
3. PRE.-LIVE STEAM TEST ON ACTUATOR
4. HEAT AGING TEST-MOTOR-MOTOR WITH BRAKES
5. SHOCK + VIBRATION TEST OF ACTUATOR
6. 150 CYCLE TEST
7. POST-ACCIDENT STEAM + CHEMICAL ENVIORMENT TEST

TEST ENVIRONMENT (R: pg 11 + App I FC2232-01)

	0-1hr	1-3hr	3-5hrs	5-24hrs	24hr-7days
TIME AVG TEMP. °F	329	318.5	287	264	249
PRES. PSIG	90	70	40	20	15

R.H. 100 %
OP. TIME DEMO 7 days ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD D
T/P 22

RADIATION AGING (R: Pg 4, 600376A *)
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST $204. \times 10^6$ RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE $204. \times 10^6$ RADS

THERMAL AGING (R: pg 5 600198)
AGED TO SIMULATED LIFE OF 40 * YRS.
BASED ON AMBIENT TEMP OF NOT GIVEN °F
AGING TEMP./ DURATION 180° / 100
REL. HUMIDITY NOT GIVEN %
NOT AGED-JUSTIFIED BY ANALYSIS TO YRS.

CYCLE AGING (R: pg 6 600198)
CYCLES REQUIRED 2000 (IEEE-382)
CYCLES PERFORMED 150
(Electro-Mechanical Equip. only)

REVIEWER: Scott W. Smith
* ACTUATOR ONLY - MOTOR FILES MUST BE REVIEWED
DATE: 12/28/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 124-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Miscellaneous AC and DC Distribution Boards

SPEC. NO. 124 P.O. 310713 VENDOR Systems Control

TEST ITEM DESC. See Attached EQS sheets 124-01A+B

MAKE _____ MODEL _____

VENDOR TEST REPORT NO. _____

APPLICABLE STANDARDS

IEEE 323-1974

IEEE 344-1975

IEEE _____

NUREG 0588 CAT. _____

TEST REPORT NO. _____

TEST METHOD _____

DOCUMENTATION ACCEPTABILITY _____

QUALIFIED LIFE _____

TEST SEQUENCE (R: _____)

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

TEST ENVIRONMENT (R: _____)

TIME _____

TEMP. °F _____

PRES. PSIG _____

R.H. _____ %

OP. TIME DEMO _____ ACC/PERF DEMO _____

APPLICABLE ENV. ZONES

RAD _____

T/P _____

RADIATION AGING (R: _____)

DOSE RATE _____ RAD/HR

DOSE PRIOR TO ENV. TEST _____ RADS

DOSE DURING ENV. TEST _____ RADS

TOTAL DOSE _____ RADS

THERMAL AGING (R: _____)

AGED TO SIMULATED LIFE OF _____ YRS.

BASED ON AMBIENT TEMP OF _____ °F

AGING TEMP./ DURATION _____ / _____

REL. HUMIDITY _____ %

NOT AGED-JUSTIFIED BY ANALYSIS TO _____ YRS.

CYCLE AGING (R: _____)

CYCLES REQUIRED _____

CYCLES PERFORMED _____
(Electro-Mechanical Equip. only)

REVIEWER: R. M. Snyder DATE: 6-24-81

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 124-01A
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Miscellaneous AC and DC Distribution Boards
SPEC. NO. 124 P.O. 310713 VENDOR Systems Control
TEST ITEM DESC. Magnetic Molded Case Circuit Breakers
MAKE Westinghouse MODEL See Attachment 1
VENDOR TEST REPORT NO. 16295

APPLICABLE STANDARDS
IEEE 323-1974
IEEE 344-1975
IEEE
NUREG 0588 CAT. I

TEST REPORT NO. 124-01
TEST METHOD Test/Analysis
DOCUMENTATION ACCEPTABILITY Unacceptable, further supporting data, and analysis required
QUALIFIED LIFE > 40 years

TEST SEQUENCE (R: Appendix II)

1. Functional Test
2. Radiation Aging
3. Functional Test
4. 1200 HRS Temp Aging 150°C
5. Calibration Test
6. Vibration Test
7. Calibration Test
8. 1200 HRS Temp Aging 150°C
9. Calibration + Dielectric Test
10. Vibration + Calibration Test

TEST ENVIRONMENT (R: N/A, No DBA test performed)

TIME
TEMP. °F
PRES. PSIG
R.H. N/A %
OP. TIME DEMO N/A ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD N
T/P 21

RADIATION AGING (R: Sec 4.1.1 & App IV)

DOSE RATE Not provided RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 1.1×10^5 RADS

THERMAL AGING (R: Sec 4.1.3 & App IV)

AGED TO SIMULATED LIFE OF * 10 YRS.
BASED ON AMBIENT TEMP OF 104 °F
AGING TEMP./ DURATION 302°F / 2400 HRS
REL. HUMIDITY Not Addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO 89 YRS.

CYCLE AGING (R: Sec 4.1.2 & App IV)

CYCLES REQUIRED 10,000 *
CYCLES PERFORMED 4,000
(Electro-Mechanical Equip. only)
* See note 2 on attachment 1

* See note 1 on attachment 1

REVIEWER: Ron M Snyder DATE: 6/24/81

R: Test Report Page No. Reference

Attachment 1 to EQS-124-01A

The following types of circuit breakers are addressed by EQS-124-01A

Thermal-Magnetic Circuit Breakers

- QBH
- QPH
- QCH
- EB
- EHB
- FB
- HFB
- FB Tri-Pac

Magnetic Trip Only Circuit Breakers

- FB
- MCP
- HFB

Notes

1. (See thermal aging section of EQS-124-01A) The thermal aging time and temp used simulated at least 40 years at 25°C (87°F) for all parts of the breaker except molded, polyester-glass bases which were aged to the equivalent of 10 years. Subsequent analysis based on the activation energy of the weak link material (glass tape) showed equivalent aging of 89 years at 40°C (104°F)

2. (See cycle aging section of EQS-124-01A) The test report references UL standard 489 for their cycle aging requirement. The standard calls for 6000 load operations, 4000 No load operations for a total of 10,000 operations.

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 124-013
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Miscellaneous AC and DC Distribution Boards

SPEC. NO. 124 P.O. 310713 VENDOR Systems Control

TEST ITEM DESC. Ground Bus Insulator and Bus Support/Insul. Barrier

MAKE Fenn Custom Moldings MODEL Plenco-466

VENDOR TEST REPORT NO. Acton 16295

APPLICABLE STANDARDS

IEEE 323-1974

IEEE 344-1975

IEEE

NUREG 0588 CAT. I

TEST REPORT NO. 124-01

TEST METHOD Analysis

DOCUMENTATION ACCEPTABILITY Unacceptable, radiation analysis not sufficiently documented

QUALIFIED LIFE > 40 years

TEST SEQUENCE (R: N/A)

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

TEST ENVIRONMENT (R: N/A, No DBA test performed)

TIME

TEMP. °F

PRES. PSIG

R.H. N/A %

OP. TIME DEMO N/A ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD N

T/P 21

RADIATION AGING (R: Section 4.2.2)

DOSE RATE N/A by analysis RAD/HR

DOSE PRIOR TO ENV. TEST N/A RADS

DOSE DURING ENV. TEST N/A RADS

TOTAL DOSE 2×10^7 RADS

THERMAL AGING (R: Section 4.2.1)

AGED TO SIMULATED LIFE OF N/A YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION N/A / N/A

REL. HUMIDITY Not Addressed %

NOT AGED-JUSTIFIED BY ANALYSIS TO 225.15 YRS.

CYCLE AGING (R: Not required)

CYCLES REQUIRED

CYCLES PERFORMED (Electro-Mechanical Equip. only)

REVIEWER: Ron M Snyder DATE: 6-24-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 127-01 Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 5 KV Power Cable
SPEC. NO. 127 P.O. 310561 VENDOR Kerite Company
TEST ITEM DESC. Single Conductor, 6 AWG, 5KV, Power Cable
MAKE Kerite Company MODEL HTK(N-48) insulation, FR(HC-711) jacket
VENDOR TEST REPORT NO. None, issue date May 14, 1981
APPLICABLE STANDARDS
IEEE 383-1974
IEEE
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 127-01
TEST METHOD Sequential Test, Analysis
DOCUMENTATION ACCEPTABILITY Acceptable
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Section A, page 1, para 4, & Section B, page 13, para 5.6)

1. Thermal Aging
2. Radiation Aging
3. Simulated LOCA (6 day)
4. Inspection, Hi-pot test
5. Simulated LOCA (94 day)
6. Insulation resistance checks
7. High Voltage AC test
8.
9.
10.

TEST ENVIRONMENT (R: Section B, page 14, figure 3)
* Op. time demo extended by Wyle Analysis 17464-3502 Sec 6.0

TIME	4 HRS	7 HRS	86 HRS	2304 HRS
TEMP. °F	340	320	250	200
PRES. PSIG	95.5	60	Atmos	Atmos

R.H. 100 (Spray) %
OP. TIME DEMO ≥180 Days* ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD ALL
T/P ALL

RADIATION AGING (R: Sec. B App. A)
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2×10^8 RADS

CYCLE AGING (R:)
CYCLES REQUIRED Not Required
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Sec. A, page 1, para 4)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF * 194 °F
AGING TEMP./ DURATION 302°F / 100 HRS
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.
* Aging based on 194°F (90°C) conductor temp with 181.4°F (83°C) surface temp.

REVIEWER: Ron M Snyder DATE: 1/4/82

R: Test Report Page No. Reference

B

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 128-01 Rev A
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 600 Volt Power Cable

SPEC. NO. 123 P.O. 310557 VENDOR Okonite Company

TEST ITEM DESC. 600 Volt #12 7X TC .030" Okonite (EPR) insulation

MAKE Okonite Company MODEL N/A

VENDOR TEST REPORT NO. NQRN-1

APPLICABLE STANDARDS

IEEE 383-1974

IEEE 323-1974

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 128-01

TEST METHOD Sequential Test/Analysis/Historical Data

DOCUMENTATION ACCEPTABILITY Acceptable for category II per Appendix of NUREG 0588

QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Section 1.4.1.5)

1. Electrical Test
2. Thermal Aging
3. Irradiation
4. Electrical Test
5. 30 Day LOCA test
6. Voltage Withstand Test (50 V/mil/1c)
7. 100 Day LOCA Test
8. Voltage Withstand Test (50 V/mil/1c)
9. Electrical Test
10. Dielectric Strength Test

TEST ENVIRONMENT (R: Section 1.4.1.3, App 5, Wyle Analysis 17464-1302 section 6.0)

TIME	3 HRS	2 HRS	3 HRS	3 HRS	4 HRS	31 HRS	26 DYS	100 DYS
TEMP. °F	345	100	345	335	315	265	212	212
PRES. PSIG	114	NOT STATED	114	101	74	25	0	0

R.H. 100 (SPRAY) %

OP. TIME DEMO 180 DAYS ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD ALL

T/P ALL

RADIATION AGING (R: Appendix 1)

DOSE RATE .67 to .75 RAD/HR

DOSE PRIOR TO ENV. TEST 2.01×10^3 RADS

DOSE DURING ENV. TEST None RADS

TOTAL DOSE 2.01×10^3 RADS

CYCLE AGING (R:)

CYCLES REQUIRED Not Required

CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Section 1.4.1.3, App 2)

AGED TO SIMULATED LIFE OF 40 YRS.

BASED ON AMBIENT TEMP OF 167 °F

AGING TEMP./ DURATION 302°F / 504 HRS

REL. HUMIDITY Not Addressed %

NOT AGED-JUSTIFIED BY ANALYSIS TO YRS.

* Analysis and historical data is used to establish 40 year qualified life

REVIEWER: /Carl H. Knapke/ DATE: 11/20/81

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 129-01 Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1 page 1

SPEC. TITLE 300V and 600V Fire Resistant Control and Instrumentation Cable
SPEC. NO. 129 P.O. 310553 VENDOR Rockbestos Company
TEST ITEM DESC. See Attachment 1
MAKE See Attachment 1 MODEL See Attachment 1
VENDOR TEST REPORT NO. Firewall III Chemically Cross Linked 7-7-77, Rev. 12-8-80
APPLICABLE STANDARDS
IEEE 383-1974
IEEE
IEEE
NUREG 0588 CAT. II
TEST REPORT NO. 129-01
TEST METHOD Sequential Test
DOCUMENTATION ACCEPTABILITY Acceptable NUREG 0588 Category II Positions
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Pages 5 thru 7)

1. Thermal Aging
2. Radiation Aging
3. Voltage Withstand Test
4. Radiation Aging
5. 30 Day LOCA Test
6. Voltage Withstand Test
7. 365 Day Post LOCA Test
8. Voltage Withstand Test
9.
10.

TEST ENVIRONMENT (R: Page 11 and Page 7)

TIME	3 HRS	2 HRS	3 HRS	3 HRS	4 HRS	81 HRS	26045	14R
TEMP. °F	346	140	346	335	315	265	212	200
PRES. PSIG	113	NOT GIVEN	113	93	69	28	0	NOT GIVEN

R.H. 100 (Spray) %
OP. TIME DEMO 395 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD All
T/P All

RADIATION AGING (R: Sec. III pg 5, Sec V, pg 6)
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2×10^8 RADS

THERMAL AGING (R: Sec. II pg. 5)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 176 °F
AGING TEMP./ DURATION 302°F / 1300 HRS
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R:)
CYCLES REQUIRED Not Required
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

REVIEWER: Ron M Lange DATE: 11/27/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 129-01 Rev. 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1 page 2

SPEC. TITLE 300V and 600V Fire Resistant Control and Instrumentation Cable
SPEC. NO. 129 P.O. 310553 VENDOR Rockbestos Company
TEST ITEM DESC. See Attachment 2
MAKE See Attachment 2 MODEL See Attachment 2
VENDOR TEST REPORT NO. Firewall III Irradiation Cross-Linked Insulation, Rev. 12-8-80
APPLICABLE STANDARDS
IEEE 383-1974
IEEE
IEEE
NUREG 0588 CAT. II
TEST REPORT NO. 129-01
TEST METHOD Sequential Test
DOCUMENTATION ACCEPTABILITY Acceptable, NUREG 0588 Category II positions
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: pages 16 thru 18)

1. Thermal Aging
2. Radiation Aging
3. Voltage Withstand Test
4. Radiation Aging
5. 30 Day LOCA Test
6. Voltage Withstand Test
7. 365 Day post LOCA Test
8. Voltage Withstand Test
9.
10.

TEST ENVIRONMENT (R: Page 22 and page 18)

TIME	3 HRS	2 HRS	3 HRS	3 HRS	4 HRS	81 HRS	20 DAYS	14 DAYS
TEMP. °F	346	140	346	335	315	265	212	200
PRES. PSIG	113	NOT GIVEN	113	93	69	28	0	NOT GIVEN

R.H. 100 (Spray) %
OP. TIME DEMO 395 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD All
T/P All

RADIATION AGING (R: See III p.16, See V p.17)
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2×10^8 RADS

CYCLE AGING (R:)
CYCLES REQUIRED Not Required
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: See II p.16)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 176 °F
AGING TEMP./ DURATION 302° / 1300 HRS
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

REVIEWER: Ron W Smyth DATE: 11/27/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 129-02 Rev 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 300V and 600V Fire Resistant Control and Instrumentation Cable
SPEC. NO. 129 P.O. 310553 VENDOR Rockbestos Company
TEST ITEM DESC. Adversa Service Coaxial Cable
MAKE Rockbestos Company MODEL RSS 6-102 and RSS 6-113
VENDOR TEST REPORT NO Qualification of Firewall III Coaxial Constructions

APPLICABLE STANDARDS
IEEE 383-1974
IEEE
IEEE
NUREG 0588 CAT. II

TEST REPORT NO. 129-02
TEST METHOD Sequential Test
DOCUMENTATION ACCEPTABILITY Acceptable NUREG 0588 Category II Position 2
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Pages 1, 2, 3)

1. Thermal Aging
2. Radiation Aging
3. 30 Day LOCA Test
4. Insulation Resistance Check
5. Dielectric Test
6. Insulation Resistance Check
7. 365 Day Post LOCA Simulation
8. Insulation Resistance Check
9. Dielectric Test
10.

TEST ENVIRONMENT (R: Page 7)

	3 HRS	3 HRS	3 HRS	4 HRS	105 HRS	391 DYS
TIME						
TEMP. °F	340	340	320	310	250	200
PRES. PSIG	104	104	75	52	15	0

R.H. 100 (Spray) %
OP. TIME DEMO 395 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD All
T/P All

RADIATION AGING (R: Page 2 + 8)
DOSE RATE 5×10^5 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2×10^5 RADS

THERMAL AGING (R: Page 2 Sec II)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 167 °F
AGING TEMP./ DURATION 302°F / 1169 HRS
REL. HUMIDITY Not Addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R:)
CYCLES REQUIRED Not Required
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

REVIEWER: Ron M Krzych DATE: 12/4/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 130-01 Rev A
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Instrument Cable
SPEC. NO. 130 P.O. 310587 VENDOR Raychem
TEST ITEM DESC. See Attachments
MAKE Raychem MODEL Flametrol
VENDOR TEST REPORT NO. 5058, F-C4033-1, EM 1237, & EM 1403
APPLICABLE STANDARDS TEST REPORT NO. 130-01
IEEE 383-1974 TEST METHOD Sequential Test/Analysis
IEEE 323-1974 DOCUMENTATION ACCEPTABILITY Acceptable
IEEE
NUREG 0588 CAT. II (cat I in RBS) QUALIFIED LIFE 40 years

TEST SEQUENCE (R: App XI pg 6, Report EM 1403 pg 1 & 2)

1. Combined Radiation & Thermal Aging
2. Insulation Resistance Checks
3. 30 Day LOCA exposure
4. Bend & High Potential Test
5. LOCA continuation
6. Voltage Withstand Test
7.
8.
9.
10.

TEST ENVIRONMENT (R: App XI pg 6, App XIII, Report EM 1403)

TIME	10 HRS	82 HRS	26 DYS	121 DYS	185 DYS
TEMP. °F	357	275	212	200	155
PRES. PSIG	70	31	10	10	—

R.H. 100 %
OP. TIME DEMO 336 DYS ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD ALL Reactor Bldg
T/P ALL Reactor Bldg

RADIATION AGING (R: App XII sec 3.5.3.6, & App J)
DOSE RATE Not Stated RAD/HR
DOSE PRIOR TO ENV. TEST 5×10^7 RADS
DOSE DURING ENV. TEST 1.5×10^8 RADS
TOTAL DOSE 2.0×10^8 RADS

CYCLE AGING (R:)
CYCLES REQUIRED Not Required
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: App XI & App XIII, sec 3.5, w/le Raul 1746-4) 1102
AGED TO SIMULATED LIFE OF (>40 yrs in RBS) 31 YRS.
BASED ON AMBIENT TEMP OF 194 °F
AGING TEMP./ DURATION 302° / 32 days
REL. HUMIDITY Not addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

REVIEWER: Ram N. Lowry DATE: 10-26-81

R: Test Report Page No. Reference

B

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 134-01 Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Reactor Containment Electrical Penetrations
SPEC. NO. 134 P.O. 210578 VENDOR General Electric
TEST ITEM DESC. Electrical Containment Penetration
MAKE General Electric MODEL Series 202, Low Voltage
VENDOR TEST REPORT NO. 994-7e-018
APPLICABLE STANDARDS
IEEE 317-1972 TEST REPORT NO. 134-01
IEEE TEST METHOD Sequential Test
IEEE DOCUMENTATION ACCEPTABILITY N.A. Acceptable
NUREG 0588 CAT. II QUALIFIED LIFE N.A. Years

TEST SEQUENCE (R: page 3)

1. Thermal Cycle
2. Gamma Exposure
3. Overcurrent
4. LOCA Test
5. Seismic Test
6. Long Term Post LOCA
7.
8.
9.
10.

TEST ENVIRONMENT (R: page 32)

TIME	4.5 HRS	3.5 HRS	175 HRS	12 DAYS 6.5 HRS
TEMP. °F	340°	322°	275°	210°
PRES. PSIG	103	30	25	20

R.H. 100 %
OP. TIME DEMO 13 DAYS ACC/PERF DEMO N.A.

APPLICABLE ENV. ZONES
RAD D
T/P 22

RADIATION AGING (R: page 9)
DOSE RATE N.A. Stated RAD/HR
DOSE PRIOR TO ENV. TEST 1 x 10^5 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 1 x 10^5 RADS

THERMAL AGING (R: N.A. Addressed)
AGED TO SIMULATED LIFE OF ____ YRS.
BASED ON AMBIENT TEMP OF ____ °F
AGING TEMP./ DURATION ____ / ____
REL. HUMIDITY ____ %
NOT AGED-JUSTIFIED BY ANALYSIS TO ____ YRS.

CYCLE AGING (R: Not Required)
CYCLES REQUIRED ____
CYCLES PERFORMED ____
(Electro-Mechanical Equip. only)

REVIEWER: [illegible] DATE: [illegible]

R: Test Report Page No. Reference

7/1/81

B

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 134-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Reactor Containment Electrical Penetrations
SPEC. NO. 134 P.O. 310578 VENDOR General Electric
TEST ITEM DESC. Electrical Containment Penetration
MAKE General Electric MODEL 100 Series, 5 KV, Medium Voltage
VENDOR TEST REPORT NO. 74-502-2
APPLICABLE STANDARDS
IEEE 317-1972
IEEE
IEEE
NUREG 0588 CAT. II
TEST REPORT NO. 134-02
TEST METHOD Sequential Test
DOCUMENTATION ACCEPTABILITY Not Acceptable, Further test or analysis required
QUALIFIED LIFE Not determined

TEST SEQUENCE (R: Page 2-3)

1. Gamma exposure
2. Electrical testing
3. LOCA
4. Post LOCA test
5.
6. (Thermal Cycle) (performed independently)
7.
8.
9.
10.

TEST ENVIRONMENT (R: Page 2-3)

TIME	4 HRS	6 HRS	240 HRS	
TEMP. °F	340	320	260	
PRES. PSIG	103	81	20	

R.H. (SPRAY) 100 %
OP. TIME DEMO 10 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD D
T/P 22

RADIATION AGING (R: App B)
DOSE RATE 3.7×10^5 RAD/HR
DOSE PRIOR TO ENV. TEST 1×10^3 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 1×10^8 RADS

CYCLE AGING (R: App A Thermal Cycle)
CYCLES REQUIRED 100
CYCLES PERFORMED 120
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Not Addressed)
AGED TO SIMULATED LIFE OF YRS.
BASED ON AMBIENT TEMP OF °F
AGING TEMP./ DURATION /
REL. HUMIDITY %
NOT AGED-JUSTIFIED BY ANALYSIS TO YRS.

REVIEWER: Tom Morgan DATE: 11-6-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 159-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE ELECTRICAL INSTALLATION

SPEC. NO. SHI-159 P.O. VARIOUS VENDOR VARIOUS

TEST ITEM DESC. OKOGUARD INSULATED CABLES W/T-95 & T-35 TAPES

MAKE OKONITE MODEL T-35, T-95 SPLICE TAPES

VENDOR TEST REPORT NO. NQRN-3

APPLICABLE STANDARDS

IEEE 383-1974

IEEE 323-1974

IEEE

NUREG 0588 CAT. -

TEST REPORT NO. TR-128-01

TEST METHOD SEQUENTIAL

DOCUMENTATION ACCEPTABILITY - NOT APPLICABLE TO GOOD CABLES USED @ SHOREHAM

QUALIFIED LIFE —

TEST SEQUENCE (R: Pg 3)

1. Sample selection + pretest
2. Prepare Splices + check
3. Thermal Aging
4. Irradiation
5. Pre-Loca check
6. Loca Profile
7. Post Loca Withstand
8. Add 100 DAY Environment
9. Final Check
10.

TEST ENVIRONMENT (R: App 4)

TIME	3HRS	3HRS	3HRS	4HRS	81HRS	26DYS	100DYS
TEMP. °F	345	345	335	315	265	212	
PRES. PSIG	114	114	101	74	26	0-2	0

R.H. 100 %

OP. TIME DEMO 130 DYS ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD ALL ZONES

T/P

RADIATION AGING (R: App 3)

DOSE RATE 0.7×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2.01×10^8 RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 2.01×10^8 RADS

THERMAL AGING (R: Pg 3)

AGED TO SIMULATED LIFE OF 40 YRS.

BASED ON AMBIENT TEMP OF 192 °F

AGING TEMP./ DURATION 302°F, 3 WEEKS

REL. HUMIDITY N/A %

NOT AGED-JUSTIFIED BY ANALYSIS TO YRS.

CYCLE AGING (R: N/A)

CYCLES REQUIRED

CYCLES PERFORMED (Electro-Mechanical Equip. only)

REVIEWER: William R Gates DATE: 5/19/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 159-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE ELECTRICAL INSTALLATION
SPEC. NO. SHI-159 P.O. VARIOUS VENDOR VARIOUS
TEST ITEM DESC. LUGS & SPLICES
MAKE AMP MODEL 534--, 539--, 529--
VENDOR TEST REPORT NO. 110-11516
APPLICABLE STANDARDS
IEEE 323 - 1974
IEEE 383 - 1974
IEEE P572 / D6A
NUREG 0588 CAT. 1
TEST REPORT NO. 159-02
TEST METHOD SEQUENTIAL TEST/ANALYSIS
DOCUMENTATION ACCEPTABILITY ACCEPTABLE
QUALIFIED LIFE 40 YRS

TEST SEQUENCE (R: Pg 4 of 14)

1. EXAMINE PRODUCT
2. TEMP RISE
3. HEAT AGE
4. DIELECTRIC WITHSTAND
5. RAD EXPOSURE
6. SPRAY
7. TENSILE STRENGTH
8.
9.
10.

TEST ENVIRONMENT (R: Pg 5 of 14)

	0 TO 7 MIN	7 TO 9 MIN	9 TO 11 MIN	11 TO 17.5 MIN	19.5 MIN TO 8.3 HRS	9.8 HRS TO 52.2 HRS	54.3 HRS TO 384 HRS
TIME							
TEMP. °F	↑370	370	↓350	350	302	268	240
PRES. PSIG	↑60	60	60	60	55	26	13 - 14

R.H. 100% %
OP. TIME DEMO 16 DAYS ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD ALL
T/P ALL

RADIATION AGING (R: Pg 5 of 14)
DOSE RATE 0.75 MEGA RAD/HR
DOSE PRIOR TO ENV. TEST 2.06×10^8 RADS
DOSE DURING ENV. TEST NONE RADS
TOTAL DOSE 2.06×10^8 RADS

CYCLE AGING (R: Not REQD)
CYCLES REQUIRED N/A
CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Pg 5 of 14)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 89°C (INCLUDES TEMP RISE) °F
AGING TEMP./ DURATION 150°C / 7 DAYS *
REL. HUMIDITY UNCONTROLLED %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.
* ADDITIONAL COMPONENTS AGED FURTHER

REVIEWER: William R Shoals DATE: 8-4-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 159-03
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE ELECTRICAL INSTALLATION

SPEC. NO. SHI-159 P.O. VARIOUS VENDOR VARIOUS

TEST ITEM DESC. GENERAL ELECTRIC VULKENE SUPREME SI 57279

MAKE GENERAL ELECTRIC MODEL SI 57279 SWITCHBOARD WIRE

VENDOR TEST REPORT NO. FRANKLIN INSTITUTE #F-C4497-2 & GE. #PD-80

APPLICABLE STANDARDS

IEEE STD 383-1974

IEEE STD 323-1974

IEEE

NUREG 0588 CAT. I

TEST REPORT NO. TR-159-03

TEST METHOD SEQUENTIAL TEST

DOCUMENTATION ACCEPTABILITY NOT ACCEPTABLE, FURTHER ANALYSIS REQ'D.

QUALIFIED LIFE NOT INDICATED

TEST SEQUENCE (R: Pg. 3-1, 2, 3 ; 4-1 of report # F-C4497-2)

1. THERMAL AGING
2. GAMMA RADIATION EXPOSURE
3. STEAM/CHEMICAL SPRAY EXPOSURE
4. MANDREL BEND TEST
5. HIGH POTENTIAL TEST

NOTE: INSULATION RESISTANCE MEASUREMENTS MADE @ EACH TEST STAGE.

TEST ENVIRONMENT (R: Pg C-5 of report #F-C4497-2)

TIME	0 to .35 HR	.35 HR to 34 DAYS	0 to 3 HR	4 HR TO 6.5 HR	6.5 HR TO 9.5 HR	9.5 HR TO 12.5 HR	12.5 HR TO 16.5 HR	16.5 HR TO 4 DAYS *
TEMP. °F	348	TEST STOPPED	346	140	345	335	315	265
PRES. PSIG	124		124	0	122	95	69	28

R.H. 100%

OP. TIME DEMO 110 DAYS ACC/PERF DEMO N/A

* FROM 4 DAYS + 1.5 HR TO 110 DAYS, 212°F @ 5 PSIG

APPLICABLE ENV. ZONES

RAD All

T/P All

RADIATION AGING (R: Page 3-1)

DOSE RATE 0.54 MEGA RAD/HR

DOSE PRIOR TO ENV. TEST 220 MEGA RADS

DOSE DURING ENV. TEST — RADS

TOTAL DOSE 220 MEGA RADS

THERMAL AGING (R: Pg 4 of PD-80)

AGED TO SIMULATED LIFE OF 350,000 HRS (40 YRS.)

BASED ON AMBIENT TEMP OF 90°C (194 °F)

AGING TEMP./ DURATION 165°C, 125 HRS

REL. HUMIDITY NOT ADDRESSED

CYCLE AGING (R: N/A)

CYCLES REQUIRED

CYCLES PERFORMED (Electro-Mechanical Equip. only)

NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

REVIEWER: William R Rhodes DATE: 12-02-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 159-04
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE ELECTRICAL INSTALLATION
SPEC. NO. SHI-159 P.O. VARIOUS VENDOR VENDOR
TEST ITEM DESC. SWITCHBOARD WIRE TYPE A830--6
MAKE ROCKBESTOS MODEL FIREWALL III
VENDOR TEST REPORT NO. —
APPLICABLE STANDARDS
IEEE 383-1974
IEEE
IEEE
TEST REPORT NO. TR-129-01
TEST METHOD SEQUENTIAL TEST
DOCUMENTATION ACCEPTABILITY ACCEPTABLE
NUREG 0588 CAT. I
QUALIFIED LIFE 40 YEARS

TEST SEQUENCE (R: SECTIONS I → V)

1. THERMAL AGING
2. RADIATION AGING (5×10^7)
3. VOLT. WITHSTAND
4. RADIATION AGING (1.5×10^8)
5. 30 DAY LOCA
6. VOLTAGE WITHSTAND
7. 365 DAY POST LOCA (SAMPLE B)
8.
9.
10.

TEST ENVIRONMENT (R: PROFILE ON Pg 8, * ON Pg 4)

TIME	3HR	2HR	3HR	3HR	4HR	81HR	26DYS	*365
TEMP. °F	346	140	346	335	315	265	212	200
PRES. PSIG	113	-	113	93	69	28	0	-

R.H. 100 %
OP. TIME DEMO 365 ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD ALL
T/P ZONES

RADIATION AGING (R: SECT III, V)
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^8 RADS
DOSE DURING ENV. TEST NONE RADS
TOTAL DOSE 2×10^8 RADS

THERMAL AGING (R: Pg 2, SECT II)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 176 °F
AGING TEMP./ DURATION 302°F / 1300HRS
REL. HUMIDITY NOT ADDRESSED
NOT AGED-JUSTIFIED BY ANALYSIS TO — YRS.

CYCLE AGING (R:)
CYCLES REQUIRED N/A
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

REVIEWER: William R Shulz DATE: 8-25-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 159-05
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Electrical Installation

SPEC. NO. ~~SH-159~~ P.O. ~~Various~~ VENDOR Various

TEST ITEM DESC. ~~Heat Shrinkable~~ Insulating Sleeves [Splices]

MAKE Raychem MODEL WCSF N

VENDOR TEST REPORT NO.

APPLICABLE STANDARDS

IEEE -323-1974

IEEE -383-1974

IEEE

NUREG 0588 CAT. I

TEST REPORT NO. ECR 5019

TEST METHOD Sequential Tests

DOCUMENTATION ACCEPTABILITY NO - See comments on EQREF-159-05

QUALIFIED LIFE 40 yrs.

TEST SEQUENCE (R:)

1. Functional Test
2. Aging Simulation
3. Nuclear Radiation
4. LOCA Simulation
5. Post LOCA Test (Functional)
6. Additional Radiation Exp.
7.
8.
9.
10.

TEST ENVIRONMENT (R: page 5)

TIME	3 hr	5 hr	5 hr 5 min	8 hrs	11 hr	15 hrs	4 dys	30 dys
TEMP. °F	340	340→140	140→340	340	320	300	250	200
PRES. PSIG	103	-	-	103	75	52	15	0

R.H. 100%

OP. TIME DEMO 30 dys ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD ALL

T/P ZONES

RADIATION AGING (R: pgs 2, 10)

DOSE RATE: .381 Mega RAD/HR

DOSE PRIOR TO ENV. TEST 163.3 Mega RADS

DOSE ~~DURING~~ After ENV. TEST 50 Mega RADS

TOTAL DOSE 213.3 Mega RADS

THERMAL AGING (R: pg. 2)

AGED TO SIMULATED LIFE OF 40 yrs YRS.

BASED ON AMBIENT TEMP OF 194 °F

AGING TEMP./ DURATION 302°F/ 168 hrs

REL. HUMIDITY 100% %

NOT AGED-JUSTIFIED BY ANALYSIS TO YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED
(Electro-Mechanical Equip. only)

REVIEWER: Kurt W. Smith DATE: 11/7/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 197-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE MOTOR OPERATED BUTTERFLY VALVE / MANUALLY OPERATED DIAPHRAGM VALVES / BRONZE VALVES 3in + SMALLER

SPEC. NO. 197/203/281 P.O. 310546 310538 310744 VENDOR Henry Pratt/ITT GRINELL/Contramatics

TEST ITEM DESC. Limitorque MOV

MAKE Limitorque MODEL MOTOR+ACTUATOR: SMB-0-25 MOTORS [ALONE]: 25+40 ft-lb start torq, Reliance, AC, Class B [ALL MOTORS]

VENDOR TEST REPORT NO. B0058+Add'D-B0003

APPLICABLE STANDARDS

IEEE - 382-1972

IEEE - 323-1971

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD Sequential Testing

DOCUMENTATION ACCEPTABILITY Acceptable See comments + special conditions - EQREF-88V-3

QUALIFIED LIFE 40 yrs

TEST SEQUENCE (R: pg 7-10 (B0003))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Siesmic Aging
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg 10 (B0003))

	0-.5hr	.5-2hr	2-24hr	24-25hr	25hr-16days
TIME					
TEMP. °F	250	250+120	250	250-200	200
PRES. PSIG	25	-	25	-	10

R.H. 100 %

OP. TIME DEMO 16 days ACC/PERF DEMO

APPLICABLE ENV. ZONES

RAD B, S

T/P 1, 18

RADIATION AGING (R: pg 8 (B0003))

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^7 RADS

DOSE DURING ENV. TEST RADS

TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: pg 7-8 (B0003))

CYCLES REQUIRED 500

CYCLES PERFORMED 1993

(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 7 (B0003) [B0058-p12])

AGED TO SIMULATED LIFE OF 232 days

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 165°F / 200 [199.8] HRS

REL. HUMIDITY 100 %

~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS. [pg 12-15 B0058]

Eq. Age at 104°F obtained by proportioning to thermal life figures

REVIEWER: Scott W. Smith DATE: 12/14/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 214-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Manually Operated Stainless Steel Valves
SPEC. NO. SHI-214 P.O. 310512 VENDOR Velan
TEST ITEM DESC. Limitorque MOV
MAKE Limitorque MODEL AC SMB-0-25 Reliance Class BH
VENDOR TEST REPORT NO. B0058 + App B - 600376A
APPLICABLE STANDARDS
IEEE -323-71
IEEE -382-72
IEEE
NUREG 0588 CAT. II
TEST REPORT NO.
TEST METHOD Sequential Testing
DOCUMENTATION ACCEPTABILITY Acceptable See comments + special conditions EQREF-88V-1
QUALIFIED LIFE > 40 yrs

TEST SEQUENCE (R: pp 3-5 (600376A))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Qualification
5. Accident Simulation
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: Franklin Institute Report; FC3441 pg 3-5)

TIME	0-3hr	3-6hr	6-9hr	9-12hr	12-13hr	13hr-30days
TEMP. °F	340	Cool Down	340	320	320→252	251
PRES. PSIG	105		105	77	19	15

R.H. 100 %
OP. TIME DEMO 30 days ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD D
T/P 22

RADIATION AGING (R: pg 4 (600376A))
DOSE RATE 1 x 10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 204 x 10^6 RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE 204 x 10^6 RADS

CYCLE AGING (R: pg 3,4 (600376A))
CYCLES REQUIRED 500
CYCLES PERFORMED 500
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 3; [B0058-pg 10,11])
Only the motor stator aged
AGED TO SIMULATED LIFE OF 48 YRS.
BASED ON AMBIENT TEMP OF 158 °F
AGING TEMP./ DURATION 180°C / 100 HRS
REL. HUMIDITY Not Given %
Actuator ~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO >40 YRS.
Equiv. age at 158°F is determined by proportioning to thermal life figures given in B0058

REVIEWER Jon W. Smith DATE: 11/30/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 214-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Manually Operated Stainless Steel valves
SPEC. NO. SHI-214 P.O. 310512 VENDOR Velan
TEST ITEM DESC. Limitorque MOV
MAKE Limitorque MODEL MOTOR+ACTUATOR-SMB-0-25 MOTORS [ALONE]- 25+40 ft-lb start torq, Reliance, AC, Class B [ALL MOTORS]
VENDOR TEST REPORT NO. B0058+AppD-B0003

APPLICABLE STANDARDS
IEEE - 382-1972
IEEE - 323-1971
IEEE
NUREG 0588 CAT. II

TEST REPORT NO.
TEST METHOD Sequential Testing
DOCUMENTATION ACCEPTABILITY Acceptable see comments - special conditions - EQREF-88V-3
QUALIFIED LIFE 40 yrs

TEST SEQUENCE (R: pg 7-10 (B0003))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Siesmic Aging
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg 10 (B0003))

TIME	0-.5hr	.5-2hr	2-24hr	24-25hr	25hr-16days
TEMP. °F	250	250→120	250	250→200	200
PRES. PSIG	25	-	25	-	10

R.H. 100 %
OP. TIME DEMO 16 days ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD G, L
T/P 1, 2, 12

RADIATION AGING (R: pg 8 (B0003))
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^7 RADS
DOSE DURING ENV. TEST RADS
TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: pg 7-8 (B0003))
CYCLES REQUIRED 500
CYCLES PERFORMED 1993
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 7 (B0003) [B0058-p12])
AGED TO SIMULATED LIFE OF 232 days
BASED ON AMBIENT TEMP OF 104 °F
AGING TEMP./ DURATION 165°F / 200 [199.8] HRS
REL. HUMIDITY 100 %
~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS.
[pg 12-15 B0058]
Equiv. Age at 104°F obtained by proportioning to thermal life figures

REVIEWER: Scott W. Smith DATE: 12/4/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 232-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Special Check Valves
SPEC. NO. 232 P.O. 310595 VENDOR Velan
TEST ITEM DESC. Solenoid Valve
MAKE ASCO MODEL NP8320A184E
VENDOR TEST REPORT NO. AQS-21678/TR Rev A, Wyle report 17464-1202
APPLICABLE STANDARDS TEST REPORT NO. 232-01
IEEE 323-1974 TEST METHOD Sequential Test/Analysis
IEEE DOCUMENTATION ACCEPTABILITY Acceptable
IEEE
NUREG 0588 CAT. I QUALIFIED LIFE 40 years - coil & elastomer change every 4 years

TEST SEQUENCE (R: Pages 3-1, 3-2)

1. * Baseline/Functional
2. Thermal Aging
3. Radiation
4. Wear Aging
5. Seismic Simulation/Vibration End.
6. Accident Radiation
7. LOCA Simulation
8.
9.
10.

* Before and After each Type Test phase

TEST ENVIRONMENT (R: Pages 4-4, 4-5 and Fig 2 page 4-21)

TIME	3 HRS	3 HRS	3 HRS	85 HRS	26 DYS
TEMP. °F	346	346	320	250	200
PRES. PSIG	110	110	75	15	10

R.H. 100 %
OP. TIME DEMO 180 DYS * ACC/PERF DEMO N/A
* Analysis for 180 DAY OP TIME IN WYLE REPORT 17464-1202

APPLICABLE ENV. ZONES
RAD B, D, G, H
T/P 1, 13, 22

RADIATION AGING (R: Pages 4-2, 4-4 and Appendix B)
DOSE RATE .51×10^6 and .8×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2.013×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2.013×10^8 RADS

CYCLE AGING (R: Page 4-3)
CYCLES REQUIRED 40,000
CYCLES PERFORMED 40,000
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Pages 4-1, 9-3 9-4)
AGED TO SIMULATED LIFE OF * Zone 22 only 497 55 YRS.
BASED ON AMBIENT TEMP OF * Zone 22 only 150 104 °F
AGING TEMP./ DURATION 268°F / 12 Days
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.
* See Wyle Lab. Thermal Aging Analysis Wyle Report 17464-1202 page 2

REVIEWER: Ron M Snyder DATE: 8/11/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 248-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE MISCELLANEOUS TRANSFORMERS

SPEC. NO. SHI-248 P.O. 310739 VENDOR MAGNETICS

TEST ITEM DESC. 480 - 120/240V TRANSFORMER

MAKE MAGNETICS MODEL L-12514

VENDOR TEST REPORT NO. - NONE -

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. - NONE -

TEST METHOD

DOCUMENTATION ACCEPTABILITY NA

QUALIFIED LIFE SEE WYLE ANALYSIS 17464-1302

TEST SEQUENCE (R:)

1.
2.
3.
4.
5.
6.
7.

NO TEST DATA AVAILABLE

TEST

TIME

TEMP. °F

PRES. PSIG

R.H.

OP. TIME DEMO / PERF DEMO

APPLICABLE ENV. ZONES

AD

N

T/P 21

RADIATION AGING (R:)

DOSE RATE RAD/HR

DOSE PRIOR TO ENV. TEST RADS

DOSE DURING ENV. TEST RADS

TOTAL DOSE RADS

THERMAL AGING (R: WYLE ANALYSIS 17464-1302)

AGED TO SIMULATE YRS.

RADIATION AMBIENT TEMP. 104 °F

AGING TEMP./ DURATION /

REL. HUMIDITY %

CYCLE AGING (R:)

CYCLES REQUIRED

CYCLES PERFORMED (Electro-Mechanical Equip. only)

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

REVIEWER: WR Shostak

DATE: 12-1-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 253-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Motor Operated Carbon Steel Valves (Cat. I)
SPEC. NO. SHI-253 P.O. 310512 VENDOR Velan
TEST ITEM DESC. Limitorque MOV
MAKE Limitorque MODEL AC SMB-0-25 Reliance Class B.H
VENDOR TEST REPORT NO. B0058 + App B - 600376A
APPLICABLE STANDARDS
IEEE 323-71
IEEE 382-72
IEEE
NUREG 0588 CAT. II
TEST REPORT NO.
TEST METHOD Sequential Testing
DOCUMENTATION ACCEPTABILITY Acceptable see comments + special conditions EQREF-88V-1
QUALIFIED LIFE > 40yrs

TEST SEQUENCE (R: pp 3-5 (600376A))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Qualification
5. Accident Simulation
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: Franklin Institute Report; FC3441 pg 3-5)

TIME	0-3hr	3-6hr	6-9hr	9-12hr	12-13hr	13hr-30days
TEMP. °F	340	Cool Down	340	320	320→252	251
PRES. PSIG	105		105	77	19	15

R.H. 100 %
OP. TIME DEMO 30 days ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD B, D, G, T
T/P 6, 8, 22

RADIATION AGING (R: pg 4 (600376A))
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 204×10^6 RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE 204×10^6 RADS

THERMAL AGING (R: pg 3 [B0058-pg 10, 11])
only the motor stator aged
AGED TO SIMULATED LIFE OF 48 YRS.
BASED ON AMBIENT TEMP OF 158 °F
AGING TEMP./ DURATION 180°C / 100 HRS
REL. HUMIDITY Not Given %
Actuator
~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO >40 YRS.
Equiv. age at 158°F is determined by proportioning to thermal life figures given in B0058

CYCLE AGING (R: pg 3,4 (600376A))
CYCLES REQUIRED 500
CYCLES PERFORMED 500
(Electro-Mechanical Equip. only)

REVIEWER Jon W. Smith DATE: 11/30/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 253-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE MOTOR OPERATED CARBON STEEL VALVES

SPEC. NO. SHI-253 P.O. 310512 VENDOR VELAN

TEST ITEM DESC. Limitorque MOV

MAKE Limitorque MODEL SMB-0-25 Reliance, DC, class H

VENDOR TEST REPORT NO. B0058 + App E. B0009

APPLICABLE STANDARDS

IEEE - 382 - 72

IEEE - 323 - 71

IEEE -

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD Sequential Testing

DOCUMENTATION ACCEPTABILITY Acceptable See comments and special conditions EQREF-88V-2

QUALIFIED LIFE >40 yrs

TEST SEQUENCE (R: p.6-9 (B0009))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Testing
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg. 10 (B0009))

TIME	0-1hr	1-2hr	2-4hr	4-7hr	7-25hrs
TEMP. °F	120→340	340	330	310	212
PRES. PSIG	0→68	68→104	104→86	86→63	0

R.H. 100 %

OP. TIME DEMO 25hrs ACC/PERF DEMO

APPLICABLE ENV. ZONES

RAD L, T

T/P 5, 8

RADIATION AGING (R: pg 7 (B0009))

DOSE RATE — RAD/HR

DOSE PRIOR TO ENV. TEST 1×10^7 RADS

DOSE DURING ENV. TEST — RADS

TOTAL DOSE 1×10^7 RADS

THERMAL AGING (R: pg. 6 + App III (B0009))

Motor Stator Only

AGED TO SIMULATED LIFE OF 13.5 YRS.

BASED ON AMBIENT TEMP OF 140 (60°C) °F

AGING TEMP./ DURATION 180°C / 100 HRS

REL. HUMIDITY Not Given %

CYCLE AGING (R: pg 7 (B0009))

CYCLES REQUIRED 500

CYCLES PERFORMED 2004

(Electro-Mechanical Equip. only)

Actuator

~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS. [B0058 pg 13-15]

Equiv. Age derived by proportioning to thermal life figures [pg 10-11 B0058]

REVIEWER: Jerri W. Smith DATE: 12/1/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 289-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE HYDROGEN RE

SPEC. NO. _____ P.O. _____ VENDOR _____

TEST ITEM DESC. Limitorque MOV

MAKE Limitorque MODEL MOTOR+ACTUATOR-SMB-0-25
MOTORS [ALONE]- 25+40 ft-lb start torq, Reliance, AC, Class B [ALL MOTORS]

VENDOR TEST REPORT NO. B0058+AppD-B0003

APPLICABLE STANDARDS

IEEE - 382-1972

IEEE - 323-1971

IEEE _____

NUREG 0588 CAT. II

TEST REPORT NO. _____

TEST METHOD Sequential Testing

DOCUMENTATION ACCEPTABILITY Acceptable see comments + special conditions - EQREF-88V-3

QUALIFIED LIFE 40 yrs

TEST SEQUENCE (R: pg 7-10 (B0003))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Siesmic Aging
5. Environmental Test
6. _____
7. _____
8. _____
9. _____
10. _____

TEST ENVIRONMENT (R: pg 10 (B0003))

TIME	0-.5hr	.5-2hr	2-24hr	24-25hr	25hr-16days
TEMP. °F	250	250+120	250	250-200	200
PRES. PSIG	25	-	25	-	10

R.H. 100 %

OP. TIME DEMO 16 days ACC/PERF DEMO _____

APPLICABLE ENV. ZONES

RAD J

T/P 15

RADIATION AGING (R: pg 8 (B0003))

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^7 RADS

DOSE DURING ENV. TEST _____ RADS

TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: pg 7-8 (B0003))

CYCLES REQUIRED 500

CYCLES PERFORMED 1993
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 7 (B0003) [B0058-p12])

AGED TO SIMULATED LIFE OF 232 days

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 165°F, 200 [199.8] HRS

REL. HUMIDITY 100 %

~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS.
[pg 12-15 B0058]
Equiv. Age at 104°F obtained by proportioning to thermal life figures

REVIEWER: Scott W. Smith DATE: 12/11/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 253-03
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Motor Operated Carbon Steel Valves
SPEC. NO. SH1-253 P.O. 310512 VENDOR Velan
TEST ITEM DESC. Limitorque MOV
MAKE Limitorque MODEL MOTOR+ACTUATOR-SMB-0-25 MOTORS [ALONE]- 25+40 ft-lb start torq, Reliance, AC, Class B [ALL MOTORS]
VENDOR TEST REPORT NO. B0058+AppD-B0003
APPLICABLE STANDARDS
IEEE - 382-1972
IEEE - 323-1971
IEEE
NUREG 0588 CAT. II
TEST REPORT NO.
TEST METHOD Sequential Testing
DOCUMENTATION ACCEPTABILITY Acceptable see comments - special conditions - EQREF-88V-3
QUALIFIED LIFE 40 yrs

TEST SEQUENCE (R: pg 7-10 (B0003))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Siesmic Aging
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg 10 (B0003))

	0-.5hr	.5-2hr	2-24hr	24-25hr	25hr-16days
TIME					
TEMP. °F	250	250→120	250	250→200	200
PRES. PSIG	25	-	25	-	10

R.H. 100 %
OP. TIME DEMO 16 days ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD G, L, T
T/P 2, 6, 8

RADIATION AGING (R: pg 8 (B0003))
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^7 RADS
DOSE DURING ENV. TEST RADS
TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: pg 7-8 (B0003))
CYCLES REQUIRED 500
CYCLES PERFORMED 1993
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 7 (B0003) [B0058-p12])
AGED TO SIMULATED LIFE OF 232 days
BASED ON AMBIENT TEMP OF 104 °F
AGING TEMP./ DURATION 165°F / 200 [199.8] HRS
REL. HUMIDITY 100 %
~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS. [pg 12-15 B0058]
Equiv. Age at 104°F obtained by proportioning to thermal life figures

REVIEWER: Scott W. Smith DATE: 12/8/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 276-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE UNIT COOLERS

SPEC. NO. SHI-276 P.O. 310556 VENDOR BUFFALO FORGE Co.

TEST ITEM DESC. MOTORETTE + MOTOR TESTING

MAKE WESTINGHOUSE MODEL FRAME 365T

VENDOR TEST REPORT NO. DO-146F

APPLICABLE STANDARDS

IEEE 323-1974

IEEE 344-1975

IEEE 334-1974

NUREG 0588 CAT. I

IEEE 117-1974

TEST REPORT NO. TR-276-01

TEST METHOD SEQUENTIAL

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YEARS W/ BEARING + LUBE MAINTENANCE

TEST SEQUENCE (R: Pg 5)

1. SEISMIC (CALC)
2. FACTORY TESTS
3. THERMAL AGING
4. IRRADIATION
5. MECHANICAL AGING
6. DBE TEST
7. ELEC. INSULATION TEST
8. FINAL INSPECTION
9.
10.

TEST ENVIRONMENT (R: App 8, Pg 4)

TIME	30 DAYS
TEMP. °F	227°F
PRES. PSIG	3.3
R.H.	100 %

OP. TIME DEMO 30 days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD L

T/P 02

RADIATION AGING (R: Pg 3)

DOSE RATE _____ RAD/HR

DOSE PRIOR TO ENV. TEST _____ RADS

DOSE DURING ENV. TEST _____ RADS

TOTAL DOSE 1×10^8 RADS

THERMAL AGING (R: Pg. 5)

AGED TO SIMULATED LIFE OF 40 YRS.

BASED ON AMBIENT TEMP OF 266 °F

AGING TEMP./ DURATION 410°F, 1370 HRS

REL. HUMIDITY NOT ADDRESSED %

NOT AGED-JUSTIFIED BY ANALYSIS TO — YRS.

CYCLE AGING (R: _____)

CYCLES REQUIRED N.R.

CYCLES PERFORMED _____
(Electro-Mechanical Equip. only)

REVIEWER: William R. Lahr DATE: 1/13/82

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 289-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Hydrogen Recombiner Units
SPEC. NO. SH1-289 P.O. 310624 VENDOR Rockwell
TEST ITEM DESC. Limitorque MOV
MAKE Limitorque MODEL [AC] SMB-0-25 Reliance Class BH
VENDOR TEST REPORT NO. B0058 + App B - 600376A
APPLICABLE STANDARDS
IEEE -323-71
IEEE -382-72
IEEE
NUREG 0588 CAT. II
TEST REPORT NO.
TEST METHOD Sequential Testing
DOCUMENTATION ACCEPTABILITY Acceptable See comments + special conditions EQREF-88V-1
QUALIFIED LIFE > 40 yrs

TEST SEQUENCE (R: pp 3-5 (600376A))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Qualification
5. Accident Simulation
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: Franklin Institute Report: FC3441 pg 3-5)

TIME	0-3hr	3-6hr	6-9hr	9-12hr	12-13hr	13hr-30days
TEMP. °F	340	Cool Down	340	320	320→252	251
PRES. PSIG	105		105	77	19	15

R.H. 100 %
OP. TIME DEMO 30 days ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD 1
T/P 15

RADIATION AGING (R: pg 4 (600376A))
DOSE RATE 1 x 10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 204 x 10^6 RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE 204 x 10^6 RADS

THERMAL AGING (R: pg 3 & B0058-pg 10, 11)
only the motor stator aged
AGED TO SIMULATED LIFE OF 48 YRS.
BASED ON AMBIENT TEMP OF 158 °F
AGING TEMP./ DURATION 180°C / 100 HRS
REL. HUMIDITY Not Given %
Actuator
~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO >40 YRS.
Equiv. age at 158°F is determined by proportioning to thermal life figures given in B0058

CYCLE AGING (R: pg 3,4 (600376A))
CYCLES REQUIRED 500
CYCLES PERFORMED 500
(Electro-Mechanical Equip. only)

REVIEWER: Jon W. Smith DATE: 12/11/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 289-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE HYDROGEN RECOMBINER UNITS

SPEC. NO. SH1-289 P.O. 310624 VENDOR ATOMICS INTERNATIONAL (ROCKWELL)

TEST ITEM DESC. Limitorque MOV

MAKE Limitorque MODEL MOTOR+ACTUATOR-SMB-0-25
MOTORS [ALONE]- 25+40 ft-lb start torq, Reliance, AC, Class B [ALL MOTORS]

VENDOR TEST REPORT NO. B0058+AppD-B0003

APPLICABLE STANDARDS

IEEE - 382-1972

IEEE - 323-1971

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD Sequential Testing

DOCUMENTATION ACCEPTABILITY Acceptable
See comments + special conditions - EQREF-88V-3

QUALIFIED LIFE 40 yrs

TEST SEQUENCE (R: pg 7-10 (B0003))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Siesmic Aging
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg 10 (B0003))

TIME	0-.5hr	.5-2hr	2-24hr	24-25hr	25hr-16days
TEMP. °F	250	250→120	250	250→200	200
PRES. PSIG	25	-	25	-	10

R.H. 100 %

OP. TIME DEMO 16 days ACC/PERF DEMO

APPLICABLE ENV. ZONES

RAD J

T/P 15

RADIATION AGING (R: pg 8 (B0003))

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^7 RADS

DOSE DURING ENV. TEST RADS

TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: pg 7-8 (B0003))

CYCLES REQUIRED 500

CYCLES PERFORMED 1993
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 7 (B0003) [B0058-p12])

AGED TO SIMULATED LIFE OF 232 days

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 165°F / 200 [199.8] HRS

REL. HUMIDITY 100 %

~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS. [pg 12-15 B0058]
Equiv. Age at 104°F obtained by proportioning to thermal life figures

REVIEWER: Scott W. Smith DATE: 12/11/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 289-03
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Hydrogen Recombiner
SPEC. NO. 289 P.O. 310624 VENDOR Reliance Electric Company
TEST ITEM DESC. Recombiner Blower Motors
MAKE Reliance Electric Company MODEL 324T
VENDOR TEST REPORT NO. Reliance Electric company Report No. NUC-9

APPLICABLE STANDARDS
IEEE 323-1974
IEEE 334-1974
IEEE 344-1975
NUREG 0588 CAT.

TEST REPORT NO. Limitorque project #600456
TEST METHOD Standard Qualification Test
DOCUMENTATION ACCEPTABILITY Must be used in conjunction with Reliance report No. NUC-9
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: I, page 3-11)

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Testing
5. Radiation Exposure
6. LOCA Test
7. Visual Inspection
8. Post LOCA Load Cycling Test
9. Final Inspection
10.

TEST ENVIRONMENT (R: I, page 10, 14)

TIME	33 Min.	24 Min.	92 Hours	26 Days		
TEMP. °F	295	310	250	200		
PRES. PSIG	70	70	30	10		

R.H. 100 % steam/chemical spray
OP. TIME DEMO 30 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD J
T/P 13

RADIATION AGING (R: I, page 6)
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2.04×10^8 RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 2.04×10^8 RADS

THERMAL AGING (R: I, page 3; II, p.3)
AGED TO SIMULATED LIFE OF Greater than 40 YRS.
BASED ON AMBIENT TEMP OF 104 °F
AGING TEMP./ DURATION 355°F / 100 Hours
REL. HUMIDITY Not controlled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R: I, page 11)
CYCLES REQUIRED —
CYCLES PERFORMED 1208
(Electro-Mechanical Equip. only)

REVIEWER: M. Grinshteyn DATE: 1-6-82

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 310-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Electric Motor Operated Control Valves
SPEC. NO. 310 P.O. 310736 VENDOR Fisher Controls
TEST ITEM DESC. Electric Motor Operated Valve Actuator
MAKE Harold Beck and Sons MODEL 14-101-023645
VENDOR TEST REPORT NO. Not Assigned
APPLICABLE STANDARDS
IEEE 382-1972
IEEE 323-1974
IEEE
NUREG 0588 CAT. N/A
TEST REPORT NO. 310-01
TEST METHOD Sequential Test
DOCUMENTATION ACCEPTABILITY Not Acceptable
QUALIFIED LIFE Not Established

TEST SEQUENCE (R: Page R-7)

1. Mechanical Aging
2. Radiation Aging
3. Functional Test
4. Seismic Test
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: Not Performed)

TIME
TEMP. °F
PRES. PSIG
R.H. Not Addressed %
OP. TIME DEMO None ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD G, H, K, N
T/P 1, 2, 15, 16, 19, 20

RADIATION AGING (R: Attach 1 to Wyle Report 17464-1402)
DOSE RATE 1x10^6 RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
* 1x10^7 for ESR Board
TOTAL DOSE 2.2x10^8 for remainder RADS

THERMAL AGING (R: Wyle Report 17464-1402 Section 3.0)
AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF 185 °F
AGING TEMP./ DURATION 0/0
REL. HUMIDITY Not Addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO >40 YRS.
* Thermal Aging data not available on all materials

CYCLE AGING (R: Page R-7)
CYCLES REQUIRED 500
CYCLES PERFORMED 16,588
(Electro-Mechanical Equip. only)

REVIEWER: Ron M. Snyder DATE: 1/4/82

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 318-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Air Operated Control Valves
SPEC. NO. 318 P.O. 310735 VENDOR Copes Vulcan
TEST ITEM DESC. Solenoid Valve
MAKE ASCO MODEL NP8320A184E
VENDOR TEST REPORT NO. AQS-21678/TR Rev A, Wyle report 17464-1202
APPLICABLE STANDARDS TEST REPORT NO. 232-01
IEEE 323-1974 TEST METHOD Sequential Test/Analysis
IEEE DOCUMENTATION ACCEPTABILITY Acceptable
IEEE
NUREG 0588 CAT. I QUALIFIED LIFE 40 years - coil & elastomer change every 4 years

TEST SEQUENCE (R: Pages 3-1, 3-2)

1. * Baseline/Functional
2. Thermal Aging
3. Radiation
4. Wear Aging
5. Seismic Simulation/Vibration End.
6. Accident Radiation
7. LOCA Simulation
8.
9.
10.

* Before and After each Type Test phase

TEST ENVIRONMENT (R: Pages 4-4, 4-5 and Fig 2 page 4-21)

TIME	3 HRS	3 HRS	3 HRS	85 HRS	26 DYS
TEMP. °F	346	346	320	250	200
PRES. PSIG	110	110	75	15	10

R.H. 100 %
OP. TIME DEMO 180 DYS * ACC/PERF DEMO N/A
* Analysis for 180 DAY OP. TIME IN WYLE REPORT 17464-1202

APPLICABLE ENV. ZONES
RAD G, H, K
T/P 1, 3, 7, 15, 18

RADIATION AGING (R: Pages 4-2, 4-4 and Appendix b)
DOSE RATE .51×10^6 and .8×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2.013×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2.013×10^8 RADS

CYCLE AGING (R: Page 4-3)
CYCLES REQUIRED 40,000
CYCLES PERFORMED 40,000
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Pages 4-1, 9-3 9-4)
AGED TO SIMULATED LIFE OF * 55 YRS.
BASED ON AMBIENT TEMP OF * 104 °F
AGING TEMP./ DURATION 268°F / 12 Days
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.
* See Wyle Lab. Thermal Aging Analysis, Wyle Report 17464-1202 page 2

REVIEWER: Ron M Snyder DATE: 8/18/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 318-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Air Operated Control Valves
SPEC. NO. 318 P.O. 310735 VENDOR Copes Vulcan
TEST ITEM DESC. Solenoid Valve
MAKE ASCO MODEL HVA 206-380-3RF
VENDOR TEST REPORT NO. AQS-21673/TR Rev A, Wyle Reports 17464-06 & 17464-0602
APPLICABLE STANDARDS
IEEE 323-1974
IEEE
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 232-01
TEST METHOD Sequential Test/Analysis
DOCUMENTATION ACCEPTABILITY Acceptable
QUALIFIED LIFE 40 years - coil elastomer change every 4 years

TEST SEQUENCE (R: Pages 3-1, 3-2)

1. * Baseline/Functional
2. Thermal Aging
3. Radiation
4. Wear Aging
5. Seismic Simulation/Vibration End.
6. Accident Radiation
7. LOCA Simulation
8.
9.
10.

* Before and after each Type Test phase

TEST ENVIRONMENT (R: Pages 4-4, 4-5 and Fig 2 page 4-21)

TIME	3 HRS	3 HRS	3 HRS	85 HRS	26 DYS
TEMP. °F	346	346	320	250	200
PRES. PSIG	110	110	75	15	10

R.H. 100 %
OP. TIME DEMO 180 DYS * ACC/PERF DEMO N/A
* Analysis for 180 Day Op Time in Wyle Report 17464-0602

APPLICABLE ENV. ZONES
RAD G
T/P 2, 6, 12

RADIATION AGING (R: Pages 4-2, 4-4 and Appendix D)
DOSE RATE .51 × 10^6 and .8 × 10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2.013 × 10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2.013 × 10^8 RADS

THERMAL AGING (R: Pages 4-1, 4-3, 4-4)
AGED TO SIMULATED LIFE OF * 55 YRS.
BASED ON AMBIENT TEMP OF * 104 °F
AGING TEMP./ DURATION 268°F / 12 Days
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.
* See Wyle Lab Thermal Aging Analysis, Wyle report 17464-0602 page 2

CYCLE AGING (R: Page 4-3)
CYCLES REQUIRED 40,000
CYCLES PERFORMED 40,000
(Electro-Mechanical Equip. only)

REVIEWER: Ram M Singla DATE: 8/13/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 319-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE AUTOMATIC TEMPERATURE CONTROL SYSTEMS FOR HVAC
SPEC. NO. SHI-319 P.O. 310738 VENDOR MCC POWERS
TEST ITEM DESC. SEE ATTACHMENT #1
MAKE SEE ATTACHMENT #1 MODEL SEE ATTACHMENT #1
VENDOR TEST REPORT NO. WYLE # 44540-1
APPLICABLE STANDARDS
IEEE 323-1971, 1974
IEEE
IEEE
NUREG 0588 CAT. SEE ATTACHMENT #1
TEST REPORT NO. TR-319-01
TEST METHOD TYPE TEST
DOCUMENTATION ACCEPTABILITY SEE ATTACHMENT #1
QUALIFIED LIFE SEE ATTACHMENT #1

TEST SEQUENCE (R: Pg. No. I, II, IV, V, VI)

1. INITIAL FUNCTION TEST
2. SERVICE CONDITION SIMULATION + AGING
3. POST AGING OPERATIONAL CHECK
4. RADIATION EXPOSURE
5. POST RADIATION OPERATIONAL CHECK
6. SEISMIC TEST
7. POST SEISMIC OPERATIONAL CHECK
8. SIMULATED POST ACCIDENT CONDITIONS
9. FINAL FUNCTIONAL TEST
10.

TEST ENVIRONMENT (R: SECTION VIII-1)

TIME	1 HR	1 DAY	9 DAYS	1 HR	20 DAYS	
TEMP. °F	170	122	122	200	122	
PRES. PSIG	1	0	0	1	0	
R.H. %	100	90	60	100	60	

OP. TIME DEMO 722 HRS ACC/PERF DEMO SEE ATTACHMENT #1

APPLICABLE ENV. ZONES
RAD
T/P

RADIATION AGING (R: SECT IV-1)
DOSE RATE 1000 RAD/HR
DOSE PRIOR TO ENV. TEST 1×10^7 RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE 1×10^7 RADS

THERMAL AGING (R: SECTION II-1)
AGED TO SIMULATED LIFE OF 5YRS THERMAL, 5YRS OPER-TWICE 10 YEARS TOTAL
BASED ON AMBIENT TEMP OF 75°F (SECTION XI-6) °F
AGING TEMP./ DURATION 180°F, 1344 HRS
REL. HUMIDITY 50 TO 90 %
~~NOT AGED~~ JUSTIFIED BY ANALYSIS TO SEE ATTACHMENT #1

CYCLE AGING (R: SECTION II-16,17)
CYCLES REQUIRED NOT ADDRESSED
CYCLES PERFORMED SEE ATTACHMENT #1
(Electro-Mechanical Equip. only)

REVIEWER: William R Shedo DATE: 9/21/81

R: Test Report Page No. Reference

ATTACHMENT #1 TO EQSS - 319-01 9/21/81

A TEST ITEM: DWYER INSTRUMENTS INC / #1627-1

NOT QUALIFIED / SWITCH DIFFERENTIAL PRESSURE EXCEEDED ALLOWABLE LIMIT AFTER COMPLETION OF TESTING / QUAL. LIFE & ACCURACY PERFORMANCE NOT DEMONSTRATED / CYCLED 7400 TIMES / QUALIFIED LIFE AT 104°F NOT DETERMINED

B. TEST ITEM: AIR MONITOR CORP (VALIDYNE) / VELTRON 800

NOT QUALIFIED / DURING DBA TEST WIRE INSULATION FAILED / QUAL. LIFE & ACCURACY PERFORMANCE NOT DEMONSTRATED / CYCLED 7400 TIMES / QUAL LIFE AT 104°F NOT DETERMINED

C. TEST ITEM: RAYMOND CONTROL SYSTEMS / MASR - 9,49

NOT QUALIFIED / FAILED AFTER THERMAL AGING AND DURING CYCLE AGING / QUAL. LIFE & ACCURACY PERFORMANCE NOT DEMONSTRATED / CYCLING INCOMPLETE, QUAL. LIFE AT 104°F NOT DETERMINED

D. TEST ITEM: CENTERLINE / 32046-6

QUALIFIED / TO NUREG CAT I / QUALIFIED LIFE 8 YEARS PER ATTACHED WYLE REPORT 17464-1002 / ACC PERF NOT APPLICABLE / CYCLED 7400 TIMES / THERMAL AGING ANALYSIS PER WYLE REPORT 17464-1002.

ATTACHMENT #1 TO EQSS-319-01

E. TEST ITEM: MCC POWERS / 331-2792

QUALIFIED / NUTREG CAT I / QUALIFIED 15 YEARS PER WYLE REPORT 17464-0402 / ACC PERF NOT REQ'D / CYCLED 7400 TIMES / THERMAL AGING ANALYSIS PER WYLE REPORT 17464-0402.

F. TEST ITEM: ASCO / WJHKX832089E

SEE EQSS #319-03 (QUALIFIED)

G. TEST ITEM: NAMCO / EA750

NOT QUALIFIED, SEE EQSS #319-04

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 319-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1 4/1/81

SPEC. TITLE Auto Temp Control System for HVAC
SPEC. NO. SH1-319 P.O. 310738 VENDOR MCC Powers
TEST ITEM DESC. Damper Actuator
MAKE ITT General Controls MODEL NH91

APPLICABLE STANDARDS
IEEE 323-74
IEEE 344-75
IEEE
NUREG 0588 CAT. I

TEST REPORT NO. 377-EQ.010-A
TEST METHOD
DOCUMENTATION ACCEPTABILITY
QUALIFIED LIFE 10 yrs

TEST SEQUENCE (R: pg no. 2-5)

1. Initial Insp and Functional Test
2. Service Cond. Simulation + Aging
3. Irradiation Test
4. Seismic Vibration Test
5. Simulated LOCA Cond. Test
6. Final Insp. + Functional Test
7.
8. (Functional Test was performed
9. after each test)
10.

TEST ENVIRONMENT (R: Pg no 5)

TIME	30 days	100 days
TEMP. °F	122 °F	150 °F
PRES. PSIG	Not	addressed
% R.H	90 %	95 %

OP. TIME DEMO ACC/PERF DEMO

APPLICABLE ENV. ZONES

H2O	Rad	Zone	Zone
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

RADIATION AGING (R: Pg No 3)

DOSE RATE 1.6 x 10^4 RAD/HR
DOSE PRIOR TO ENV. TEST 4 x 10^5 RADS
DOSE DURING ENV. TEST 0 RADS
TOTAL DOSE 4 x 10^5 RADS

CYCLE AGING (R: pg no 3)

CYCLES REQUIRED
CYCLES PERFORMED 87,360
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg no 3)

AGED TO SIMULATED LIFE OF 10 YRS.
BASED ON AMBIENT TEMP OF 175 °F
AGING TEMP./ DURATION 185°F / 100 days
REL. HUMIDITY 50 % *
NOT AGED-JUSTIFIED BY ANALYSIS TO YRS.

REVIEWER: Kevin J. Müller DATE: 4-27-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 319-03
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE AUTO TEMPERATURE CONTROL SYSTEMS FOR HVAC
SPEC. NO. SHI-319 P.O. 310738 VENDOR MCC POWERS
TEST ITEM DESC. SOLENOID VALVE
MAKE ASCO MODEL WJKHX8320A89E
VENDOR TEST REPORT NO. AQS-21678/TR REV A., WYLE REPORT 17464-1202
APPLICABLE STANDARDS TEST REPORT NO. 232-01
IEEE 323-1974 TEST METHOD SEQUENTIAL TEST/ANALYSIS
IEEE DOCUMENTATION ACCEPTABILITY ACCEPTABLE
IEEE
NUREG 0588 CAT. I QUALIFIED LIFE 40 YEARS - CHANGE COIL + ELASTOMER @ 4 YEAR INTERVAL

TEST SEQUENCE (R: Pages 3-1, 3-2)

1. *BASELINE / FUNCTIONAL
2. THERMAL AGING
3. RADIATION
4. WEAR AGING
5. SEISMIC SIMULATION/VIBRATION
6. ACCIDENT RADIATION
7. LOCA SIMULATION
8.
9.
10.

* BEFORE + AFTER EACH TYPE TEST PHASE

TEST ENVIRONMENT (R: Pg. 4-4, 4-5, FIG. 2 Pg. 4-21)

TIME	3HRS	3HRS	3HRS	85HRS	26DAYS
TEMP. °F	346	346	320	250	200
PRES. PSIG	110	110	75	15	10

R.H. 100 %
OP. TIME DEMO 70 MIN ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD H, K
T/P 15, 18

RADIATION AGING (R: Pg 4-2, 4-4, APP D)
DOSE RATE .51 x 10^6 & .8 x 10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2.013 x 10^8 RADS
DOSE DURING ENV. TEST NONE RADS
TOTAL DOSE 2.013 x 10^8 RADS

CYCLE AGING (R: Pg 4-3)
CYCLES REQUIRED 40,000
CYCLES PERFORMED 40,000
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Pg 4-1, 9-3, 9-4)
AGED TO SIMULATED LIFE OF * 55 YRS.
BASED ON AMBIENT TEMP OF * 150 °F
AGING TEMP./DURATION 268, 12 DAYS
REL. HUMIDITY UNCONTROLLED %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.
* SEE WYLE LAB THERMAL AGING ANALYSIS #17464-1202

REVIEWER: [signature] DATE: 9-1-81

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 344-01 Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Primary Containment Gas Analyzer
SPEC. NO. 344 P.O. 310737 VENDOR Comsip Inc.
TEST ITEM DESC. Hydrogen Analyzer Sytem
MAKE Comsip Delphi MODEL K-IV
VENDOR TEST REPORT NO. Project 1035-1 Rev. 1, Sept 1981
APPLICABLE STANDARDS
IEEE 323-1974
IEEE
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 344-01
TEST METHOD Sequential Test/Analysis
DOCUMENTATION ACCEPTABILITY Acceptable, provided deficiencies list on page 1 of EQREF 344-01 are justified
QUALIFIED LIFE See Attachment 1

TEST SEQUENCE (R: Page 2 section 4.1.1)

1. Inspection and Operational Test
2. Thermal Aging
3. Mechanical Cycling
4. Irradiation
5. Seismic Vibration
6. Simulated Post Accident Condition
7. Final Inspection and Operational Test
8.
9. *(Functional Test were performed
10. after each test)

TEST ENVIRONMENT (R: Table F-I Page 69, Attach 2 sec 4*)

	LOCA ENV.		Sample Gas Env.		
TIME	100 DYS		9.75 HRS	106 HRS	96 DYS
TEMP. °F	150°		300°	210°	167°
PRES. PSIG	0		70	40	5

R.H. 90 I 5 %
OP. TIME DEMO 180 DYS * ACC/PERF DEMO 1% Full Scale
* Analysis for 180 Day Op. time provided in Comsip letter July 20, 1981

APPLICABLE ENV. ZONES
RAD J
T/P 15, 16

RADIATION AGING (R: Table D-III pg 37)
DOSE RATE <1x10^6 (pg 6) RAD/HR
DOSE PRIOR TO ENV. TEST 1x10^6 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 1x10^6 RADS

CYCLE AGING (R: Table D-II pg 33)
CYCLES REQUIRED Undetermined
CYCLES PERFORMED See Attach 2
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Table D-I pg 29)
AGED TO SIMULATED LIFE OF See Attach 1 YRS.
BASED ON AMBIENT TEMP OF See Attach 1 °F
AGING TEMP./ DURATION See Attach 1
REL. HUMIDITY Not addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

REVIEWER: Ron M Snyder DATE: 12/3/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 344-01A
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Primary Containment Gas Analyzer
SPEC. NO. 344-01 P.O. 310737 VENDOR Comsip Inc.
TEST ITEM DESC. Motorette
MAKE Reliance MODEL RN and RH insulation
VENDOR TEST REPORT NO. NUC-9
APPLICABLE STANDARDS
IEEE 323-1974 TEST REPORT NO. 344-01A
IEEE 334-1974 TEST METHOD Type Test/Analysis
IEEE DOCUMENTATION ACCEPTABILITY Acceptable
NUREG 0588 CAT. I QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Section II, pages 5+6)

1. Temperature Exposure
2. Mechanical Vibration
3. Moisture Exposure
4. Voltage Checks
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: LOCA Test not required)

TIME
TEMP. °F
PRES. PSIG
R.H. N/A %
OP. TIME DEMO 180 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD J
T/P 15, 16

RADIATION AGING (R: Section III pg 14)

DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 2.04×10^8 RADS

THERMAL AGING (R: Section 2)

AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF 338 °F
AGING TEMP./ DURATION N/A / N/A
REL. HUMIDITY 100 %
NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

CYCLE AGING (R: Not performed)

CYCLES REQUIRED
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

REVIEWER: Ron M Lenyon DATE: 12/3/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 406-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE ELECTRONIC TRANSMITTERS AND RTD's

SPEC. NO. SHI-406 P.O. 310773 VENDOR ROSEMOUNT

TEST ITEM DESC. PRESSURE TRANSMITTER

MAKE ROSEMOUNT MODEL 1153 SERIES B

VENDOR TEST REPORT NO. 108025, 108026 (2 VOLUMES, 4 APPENDICES)

APPLICABLE STANDARDS

IEEE 323-1974

IEEE 344-1975

IEEE

NUREG 0588 CAT. I

TEST REPORT NO. 406-01

TEST METHOD SEQUENTIAL TEST

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 3.5 YEARS @ 104°F

TEST SEQUENCE (R: Appendix II of 108026 (Rosemount Procedure # 1802)

1. Acceptance Test Verification
2. Design Verification Test
3. Accelerated Aging Thermal
4. Accelerated Aging Functional
5. Baseline Check
6. Radiation Aging & Abnormal
7. Seismic Aging
8. Seismic Abnormal
9. Steam / Temperature Test
10. Post Accident Operation & Base Check

TEST ENVIRONMENT (R: Volume I of 108026)

TIME	25.5 min	8 Hrs 17.5 min	57 Hrs
TEMP. °F	318	318	265
PRES. PSIG	72	73	24

R.H. 100% %

OP. TIME DEMO ACC/PERF DEMO

APPLICABLE ENV. ZONES

RAD G, J

T/P 1, 2, 7, 10, 15

RADIATION AGING (R: Pg 56, Volume I)

DOSE RATE 2×10^6 to 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2.62×10^7 TO 2.88×10^7 RADS

DOSE DURING ENV. TEST 0 RADS

TOTAL DOSE 2.62×10^7 to 2.88×10^7 RADS

CYCLE AGING (R: Pg 32, Appendix II)

INPUT PRESSURE

CYCLES REQUIRED -

CYCLES PERFORMED 8030

(Electro-Mechanical Equip. only)

THERMAL AGING (R: Pg 37, Report 108026)

AGED TO SIMULATED LIFE OF 2 YRS.

BASED ON AMBIENT TEMP OF 120 °F

AGING TEMP./ DURATION 203°F/ 1,110 HRS

REL. HUMIDITY NOT ADDRESSED %

NOT AGED-JUSTIFIED BY ANALYSIS TO — YRS.

REVIEWER: William R. Hinds DATE: 9-7-81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 406-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE ELECTRONIC TRANSMITTERS AND RESISTANCE TEMPERATURE DETECTORS
SPEC. NO. SHI-406 P.O. 310773 VENDOR ROSEMOUNT
TEST ITEM DESC. PRESSURE TRANSMITTER
MAKE ROSEMOUNT MODEL 1152, OUTPUT CODE "E"
VENDOR TEST REPORT NO.

APPLICABLE STANDARDS
IEEE 323 -1971
IEEE 344 - 1975
IEEE
NUREG 0588 CAT. II

TEST REPORT NO. 38019, 57820, 117415 REV B
TEST METHOD SEPARATE TESTS / ANALYSIS
DOCUMENTATION ACCEPTABILITY YES - WITH SEQUENTIAL TEST SUPPORTING DATA
QUALIFIED LIFE 1 YEAR, 4.78 MOS.

TEST SEQUENCE (R: SEPARATE TESTS, temp Pg 10 of 117415, radiation on RMT 8805A, 98022C)

1. THERMAL TEST (ACCIDENT)
2. LOW LEVEL RADIATION TEST
3. SUPPLEMENTARY RADIATION TEST II
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: Pg 9, #117415)

TIME, duration	5 min	10 min	1 hour	7 HOURS	42 HOURS
TEMP. °F	↑ 350°F	350°F	316°F	303°F	230°F
PRES. PSIG	↑ 60	60	70	55.4	6

R.H. 100%
OP. TIME DEMO ACC/PERF DEMO 0.75% ACC AFTER TESTING

APPLICABLE ENV. ZONES
RAD
T/P

RADIATION AGING (R: Pg 7, 98022C)
DOSE RATE 0.2 to 1.0 x 10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 6.9 x 10^6 RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE 6.9 x 10^6 RADS

CYCLE AGING (R: N/A)
CYCLES REQUIRED
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: INCLUDED IN HEAT/ ACCIDENT TEST)
AGED TO SIMULATED LIFE OF YRS.
BASED ON AMBIENT TEMP OF 104° F
AGING TEMP./ DURATION /
REL. HUMIDITY %
NOT AGED-JUSTIFIED BY ANALYSIS TO 1 YEAR, 4.78 Mos *

* SEE WYLE ASSESSMENT 17464-0902

REVIEWER: William R Shosho DATE: 12/22/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 406-03
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE RTD Assemblies
SPEC. NO. 406 P.O. 310773 VENDOR Rosemount Inc.
TEST ITEM DESC. Resistance Temperature Detector
MAKE Rosemount Inc. MODEL 88-51-50
VENDOR TEST REPORT NO. Rosemount test report No. 2767, Rev. B
APPLICABLE STANDARDS
IEEE 323-1971
IEEE 323-1974
IEEE 344-1971
NUREG 0588 CAT. II
TEST REPORT NO. 2767, Rev. B.
TEST METHOD Sequential test, Analysis
DOCUMENTATION ACCEPTABILITY Must be used in conjunction with Wyle reports No 17464-1501, 1502.
QUALIFIED LIFE 4.78y. (Refer. 3)

TEST SEQUENCE (R: 1, page 5-13)

1. Initial inspection and calibration
2. Gamma radiation
3. Seismic vibration
4. Steam chemical exposure
5. Final inspection and calibration
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: 1, page 8-11)

TIME	7 min.	17 min	8 Hours	50 Hours	51 Hours	
TEMP. °F	340	340	303	228	Ambient	
PRES. PSIG	125	125	70	20	Ambient	

R.H. 80 % Steam/chemical spray
OP. TIME DEMO 50 Hours ACC/PERF DEMO ±.04°C

APPLICABLE ENV. ZONES
RAD G; H; K, E; F
T/P 1; 2; 15; 16; 19; 20; 23

RADIATION AGING (R: 1, page 8, Append. B)
DOSE RATE 1×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^8 RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 2×10^8 RADS

CYCLE AGING (R:)
CYCLES REQUIRED N/A
CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

THERMAL AGING (R: 3, p.6)
AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF N/A °F
AGING TEMP./DURATION N/A, N/A
REL. HUMIDITY Not controlled %
NOT AGED-JUSTIFIED BY ANALYSIS TO (Seondary side) 4.78 YRS.
(Primary side) less 1 year.

REVIEWER: M. Grinshteyn DATE: 1-5-82

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 407-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Level Switch
SPEC. NO. 407 P.O. 10042 VENDOR Magnetrol International
TEST ITEM DESC. Level Switch
MAKE Magnetrol Internat MODEL 291-MPG-X-M140C
VENDOR TEST REPORT NO. Type Test Program on Liquid Level controls (Wyle Labs).
APPLICABLE STANDARDS
IEEE 323-1974
IEEE 344-1975
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 43235-1
TEST METHOD Sequential Test, Analysis
DOCUMENTATION ACCEPTABILITY Must be used in conjunction with Wyle reports No. 17464-0101, 0102
QUALIFIED LIFE 7.6 years (Ref. 3)

TEST SEQUENCE (R: I, p. 2)

1. Nuclear Radiation Damage Threshold Test.
2. Regression Analyses.
3. Baseline Functional and Hydrostatic Pressure
4. Nuclear Radiation Aging.
5. Elevated Temperature/Humidity/ Cycle Aging.
6. 75 Hz Plant Induced Vibration Test.
7. Seismic Qualification.
8. Functional Test Following Seismic.
9.
10.

TEST ENVIRONMENT (R:)

TIME — No accident test was performed.
TEMP. °F
PRES. PSIG
R.H. %
OP. TIME DEMO ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD G; H
T/P 03; 10; 18

RADIATION AGING (R: I, p. 140)
DOSE RATE 5.8×10^2 RAD/HR
DOSE PRIOR TO ENV. TEST 4.4×10^4 RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 4.4×10^4 RADS

CYCLE AGING (R: I; p. 147)
CYCLES REQUIRED N/A
CYCLES PERFORMED 10,040
(Electro-Mechanical Equip. only)

THERMAL AGING (R: I, p. 146; 3, p. 3)
AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF N/A °F
AGING TEMP./ DURATION 300°F / 149 Hours (11 hours for accident)
*REL. HUMIDITY 95 to 100 %
NOT AGED-JUSTIFIED BY ANALYSIS TO 7.6 YRS.
*The humidity was performed for a total of 480 hours at 95-100% RH and 100°F after thermal aging test.

REVIEWER: M. Grinshteyn. DATE: 1-9-82

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 423-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Air Operated Butterfly Valves
SPEC. NO. 423 P.O. 310772 VENDOR Fisher Controls
TEST ITEM DESC. Solenoid Valve
MAKE ASCO MODEL NP8320A184E
VENDOR TEST REPORT NO. AQS-21678/TR Rev A, Wyle report 17464-1202
APPLICABLE STANDARDS TEST REPORT NO. 232-01
IEEE 323-1974 TEST METHOD Sequential Test/Analysis
IEEE DOCUMENTATION ACCEPTABILITY Acceptable
IEEE
NUREG 0588 CAT. I QUALIFIED LIFE 40 years - coil & elastomer change every 4 years

TEST SEQUENCE (R: Pages 3-1, 3-2)

1. * Baseline/Functional
2. Thermal Aging
3. Radiation
4. Wear Aging
5. Seismic Simulation/Vibration Ende
6. Accident Radiation
7. LOCA Simulation
8.
9.
10.

* Before and After each Type Test phase

TEST ENVIRONMENT (R: Pages 4-4, 4-5 and Fig 2 page 4-21)

TIME	3 HRS	3 HRS	3 HRS	85 HRS	26 DYS
TEMP. °F	346	346	320	250	200
PRES. PSIG	110	110	75	15	10

R.H. 100 %
OP. TIME DEMO 180 DYS * ACC/PERF DEMO N/A
* Analysis for 180 DAY 0° TIME IN WYLE REPORT 17464-1202

APPLICABLE ENV. ZONES
RAD G
T/P 1

RADIATION AGING (R: Pages 4-2, 4-4 and Appendix b)
DOSE RATE .51×10^6 and .8×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 2.013×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2.013×10^8 RADS

THERMAL AGING (R: Pages 4-1, 9-3 9-4)
AGED TO SIMULATED LIFE OF * 55 YRS.
BASED ON AMBIENT TEMP OF * 104 °F
AGING TEMP DURATIO * F / 12 Days
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.
* See Wyle Lab. Thermal Aging Analysis, Wyle Report 17464-1202 page 2

CYCLE AGING (R: Page 4-3)
CYCLES REQUIRED 40,000
CYCLES PERFORMED 40,000
(Electro-Mechanical Equip. only)

REVIEWER: Ron M Snyder DATE: 8/18/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 439-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 480 V Motor Generator Set

SPEC. NO. 439 P.O. 310950 VENDOR Louis Allis

TEST ITEM DESC. See Attached EQS nos. 439-01A,B,C,D and E

MAKE _____ MODEL _____

VENDOR TEST REPORT NO. Louis Allis 9-129576

APPLICABLE STANDARDS

IEEE _____

IEEE _____

IEEE _____

NUREG 0588 CAT. _____

TEST REPORT NO. 439-01

TEST METHOD _____

DOCUMENTATION ACCEPTABILITY Acceptable when supplemented by Wyle Lab report 17464-3902

QUALIFIED LIFE _____

TEST SEQUENCE (R: _____)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

TEST ENVIRONMENT (R: _____)

TIME _____

TEMP. °F _____

PRES. PSIG _____

R.H. _____ %

OP. TIME DEMO _____ ACC/PERF DEMO _____

APPLICABLE ENV. ZONES

RAD N

T/P 21

RADIATION AGING (R: _____)

DOSE RATE _____ RAD/HR

DOSE PRIOR TO ENV. TEST _____ RADS

DOSE DURING ENV. TEST _____ RADS

TOTAL DOSE _____ RADS

THERMAL AGING (R: _____)

AGED TO SIMULATED LIFE OF _____ YRS.

BASED ON AMBIENT TEMP OF _____ °F

AGING TEMP./ DURATION _____ / _____

REL. HUMIDITY _____ %

NOT AGED-JUSTIFIED BY ANALYSIS TO _____ YRS.

CYCLE AGING (R: _____)

CYCLES REQUIRED _____

CYCLES PERFORMED _____
(Electro-Mechanical Equip. only)

REVIEWER: Ron M Snyder DATE: 1/6/82

R: Test Report Page No. Reference

7/1/81

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - EQS / /

REPORT DATE 12/18/81 PAGE 66
RESET NO. 003
RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	PO RESP	QAC / SPEC	APPLIC DWG / ZONE / BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO / SAFETY FUNCTIONS	EQ SHEET / QUAL STAT / SUBMG	OP TIME / OSTG ITEM	ACC / PERF / OSTG ITEM	NU-CWT / ENG CND / OP CD
.1R24*MG111	480V MOTOR GENERATOR (RED) LOUIS ALLIS 310950	1E	N-21 439 RBS	150		LOUIS ALLIS COGSF	*QS-439-01 *EQ	180 DYS	NA	ALL A
.1R24*MG112	480V MOTOR GENERATOR (BLUE) LOUIS ALLIS 310950	1E	N-21 439 RBS	150		LOUIS ALLIS COGSF	*QS-439-01 *EQ	180 DYS	NA	ALL A
.1R24*MG113A	480V MOTOR GENERATOR (ORANGE) LOUIS ALLIS 310950	1E	N-21 439 RBS	150		LOUIS ALLIS COGSF	*QS-439-01 *EQ	180 DYS	NA	ALL A
.1R24*MG113B	480V MOTOR GENERATOR (ORANGE) LOUIS ALLIS 310950	1E	N-21 439 RBS	150		LOUIS ALLIS COGSF	*QS-439-01 *EQ	180 DYS	NA	ALL A

REPORT GROUP EQS = QS-439-01

ATTACHMENT TO
EQSS 439-01

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 439-01A
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 480V Motor Generator Sets
SPEC. NO. 439 P.O. 310950 VENDOR Louis Allis
TEST ITEM DESC. Winding Insulation Systems
MAKE See Attachment 1 MODEL See Attachment 1
VENDOR TEST REPORT NO. Louis Allis 9-129576
APPLICABLE STANDARDS
IEEE 323-1974
IEEE 117-1974
IEEE 334-1974
NUREG 0588 CAT. I
TEST REPORT NO. 439-01
TEST METHOD Test/Analysis
DOCUMENTATION ACCEPTABILITY Acceptable
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: N/A All test were performed independently)

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

TEST ENVIRONMENT (R: N/A, DBA test not required)

TIME
TEMP. °F
PRES. PSIG
R.H. N/A %
OP. TIME DEMO 180 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD N
T/P 21

RADIATION AGING (R: Section H)

DOSE RATE 4.9×10^5 RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 1.1×10^9 RADS

CYCLE AGING (R: Not Required)

CYCLES REQUIRED
CYCLES PERFORMED (Electro-Mechanical Equip. only)

THERMAL AGING (R: Section 14)

AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF * 109 °F
AGING TEMP./ DURATION N/A / N/A
REL. HUMIDITY 100 %
NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

* See note 1 on pages 1 thru 6 of attachment 1

REVIEWER: Ram M Snyder DATE: 6-25-81

R: Test Report Page No. Reference

ENGINEERING REPORT Attachment 1 for EQS-439-01A
page 1 of 7

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310960

P4-9061 INSULATION SYSTEM
ALTERNATOR ARMATURE

Magnet Wire	-	Single Glass Heavy Polyimide Film
Slot Cell	-	Silicone, Glass-Mica-Glass
Top Wedge	-	Aramid U-Wedge
	-	Silicone Resin Glass Laminate Flat Wedge
Center Wedge	-	Silicone Resin Glass Laminate
End Coil Insulation	-	Silicone, Glass-Mica-Glass
Sleeving	-	Polyimide Coated Glass
Connection Insulation	-	Glass
	-	Polyimide Coated Glass Sleeving
Lacing	-	Woven Glass
Tape	-	Woven Glass
Varnish	-	Silicone
Lead Cable	-	Aramid
	-	Polyimide Coated Glass

Notes:
1. Refer to item 25, par A, pg 14 of test report for data showing basis of 109°F (43°C) ambient temp

Written By

Sheet 1 of 7

Litton LOUIS ALLIS

APPROVED BY

DATE 5-15-81

CODE IDENT. NO. 01425

DOCUMENT NUMBER

SECTION G-1

M 3186 10/79

ENGINEERING REPORT

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

P4-9135 INSULATION SYSTEM
ALTERNATOR ROTATING FIELD

Magnet Wire	-	Heavy Polyimide Film (H220F)
Pole	-	Silicone, Glass-Mica-Glass
Pole End Radius Block	-	Silicone Resin Glass Laminate
Pole Washers	-	Silicone Resin Glass Laminate
Washer Tape	-	Woven Glass
Bonding Resin	-	Epoxy Resin
Sleeving	-	Polyimide Coated Glass
Tie Tape	-	Woven Glass
Crossover Insulation	-	Silicone, Glass-Mica-Glass
Connection Tape	-	Silicone, Glass-Mica-Glass
	-	Woven Glass
Banding Tape	-	Epoxy Resin Glass Filament Reinforced
Varnish	-	Silicone
Lead Cable	-	Aramid
	-	Polyimide Coated Glass

Notes:
1. Refer to item 25, para B, pg 15 of test report for data showing basis of 104°F (43°C) ambient temp

ENGINEERING REPORT

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

P4-9144 INSULATION SYSTEM
ALTERNATOR EXCITER ROTATING ARMATURE

ARMATURE

Magnet Wire	-	Heavy Polyimide Film (H220F)
Slot Cell	-	Silicone, Glass-Mica-Glass
Top Wedge	-	Silicone Resin Filled Glass Laminate
Center Wedge	-	Silicone Resin Filled Glass Laminate
End Coil Insulation	-	Silicone, Glass-Mica-Glass
Sleeving	-	Polyimide Coated Glass
Connection Tape	-	Silicone, Glass-Mica-Glass
	-	Woven Glass
Lacing	-	Woven Glass
Banding Tape	-	Epoxy Resin Glass Filament Reinforced
Resin	-	Epoxy
Varnish	-	Silicone
Lead Cable	-	Aramid
	-	Polyimide Caoted Glass

Notes:
1. Refer to item 25. para C. pg 18, of test report for data showing basis of 109°F (43°C) ambient temp.

Written By	Sheet 3 of 7	LOUIS ALLIS
APPROVED BY [signature] DATE 5-15-81	CODE IDENT. NO. 01425	DOCUMENT NUMBER SECTION G-1

H 3186 10/7

ENGINEERING REPORT

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

P4-9144 INSULATION SYSTEM
ALTERNATOR EXCITER STATIONARY FIELD

FIELDS

Magnet Wire	-	Heavy Polyimide Film (H220F)
Ground Insulation	-	Silicone, Glass-Mica-Glass
Conductor Splice	-	Polyimide Coated Glass
Coil Leads	-	Aramid
	-	Polyimide Coated Glass
Connection Insulation	-	Woven Glass
	-	Polyimide Coated Glass
Start & Finish Leads	-	Polyimide Coated Glass
Buffer Insulation	-	Polyimide Coated Glass
Coil Insulation Tape	-	Silicone, Glass-Mica-Glass
	-	Woven Glass
Varnish	-	Silicone

Notes:
1. Refer to item 25, para D, pg 21 of test report for data showing basis of 104°F (43°C) ambient temp.

ENGINEERING REPORT

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

P4-9128 INSULATION SYSTEM
A.C. MOTOR STATOR AND
PERMANENT MAGNET PILOT EXCITER STATOR

Magnet Wire	- Heavy Polyimide Film
Slot Cell	- Silicone, Glass-Mica-Glass
Top Wedge	- Aramid U-Wedge
	- Silicone Glass Laminate Flat Wedge
Center Wedge	- Silicone Glass Laminate
End Coils	- Silicone, Glass-Mica-Glass
Sleeving	- Polyimide Coated Glass
Connection Insulation	- Woven Glass
	- Polyimide Coated Glass
Lacing	- Woven Glass
Lead Cable	- Aramid
	- Polyimide Coated Glass
Varnish	- Silicone

Notes:
1. Refer to item 25, para. E, pg 22 of test report for data showing basis of 109°F (43°C) ambient temp.

ENGINEERING REPORT

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER'S ORDER NO. 310950

PURCHASER Long Island Lighting Co.

09P00057-0000
INSULATION SYSTEM
FEEDBACK CURRENT TRANSFORMER

Magnet Wire	- Heavy Polyimide Film
Terminals	- Tin Plated Brass
Terminal and Bracket Insulation	- Flexible Plate Mica
Tape	- Woven Glass
Varnish	- Silicone

VARNISH TREATMENT

Preheat followed by multiple dips and bakes in silicone varnish.

Notes:
1. Refer to item 25, para F, pg 23, of test report for data showing basis of 104°F (43°C) ambient temp.

Written By

Sheet 6 of 7

Litton LOUIS ALLIS

APPROVED BY

DATE 5-15-81

CODE IDENT. NO. 01425

DOCUMENT NUMBER

SECTION G-1

M 3106 10/79

ENGINEERING REPORT

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

VARNISH TREATMENTS
P4-400-115
A.C. STATORS

Preheat followed by multiple dips and bakes in silicone varnish.

P4-400-125
ALTERNATOR ROTATING FIELD COILS

Varnish treatment for coils, wet wound with epoxy resin and baked. Varnish treatment for coil assembly, preheat followed by multiple dips and bakes in a silicone varnish.

P4-400-126
BRUSHLESS EXCITER ARMATURE

Preliminary varnish treatment is a preheat followed by one VPI and bake in epoxy resin before installing leads.

Final varnish treatment after leads are installed is multiple dips and bakes in silicone varnish.

P4-400-127
EXCITER FIELDS

Preliminary varnish treatment is a preheat followed by one dip and bake in silicone varnish before forming and taping operating.

Final varnish treatment is a preheat followed by multiple dips and bakes in silicone varnish after forming and taping operation.

Written by M A Shaw

Sheet 7 of 7

Litton LOUIS ALLIS

APPROVED BY E Ring Bullock

DATE 5-15-81

CODE IDENT. NO. 01425

DOCUMENT NUMBER

SECTION G-1

3196 10/79

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 439-01B Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 480 V Motor Generator Sets
SPEC. NO. 439 P.O. 310950 VENDOR Louis Allis
TEST ITEM DESC. Bearing Related Elements
MAKE See Attachment MODEL See Attachment 1
VENDOR TEST REPORT NO. Louis Allis 9-129576
APPLICABLE STANDARDS
IEEE 323-1974
IEEE
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 439-01
TEST METHOD Test / Analysis
DOCUMENTATION ACCEPTABILITY Acceptable
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: N/A All test were performed independently)

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

TEST ENVIRONMENT (R: DBA test not required)

TIME
TEMP. °F
PRES. PSIG
R.H. N/A %
OP. TIME DEMO 180 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD N
T/P 21

RADIATION AGING (R: Section J)
* See note 1 on attachment
DOSE RATE Not Given RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 1×10^7 RADS

THERMAL AGING (R: Section J)
AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF * 109 °F
AGING TEMP./ DURATION N/A / N/A
REL. HUMIDITY Not Addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.
* See note 3 on attachment

CYCLE AGING (R: Section J-1)
CYCLES REQUIRED 100,000 HRS
CYCLES PERFORMED > 40 years *
(Electro-Mechanical Equip. only)
* See note 2 on attachment

REVIEWER: Ron M. Snyder DATE: 1/6/82

R: Test Report Page No. Reference

ENGINEERING REPORT *Attachment 1 for EQS 439-01B*

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-120576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

BEARING RELATED ELEMENTS

A. BEARING SIZE AND TYPE:

1. Motor
   Drive End - 218 SF Deep Groove Conrad Ball (1 Shield)
   Non Drive End - 216 SF Deep Groove Conrad Ball (1 Shield)

2. Alternator
   Drive End - 318SF Deep Groove Conrad Ball (1 Shield)
   Non Drive End - 318 SF Deep Groove Conrad Ball (1 Shield)

B. BEARING INSULATION:

1. Motor
   Insulating Washers - Canvas Base Phenolic
   Insulating Tape - Epoxy Resin Glass Filament Reinforced

2. Alternator
   Insulating Washers - Polyester Glass Laminate
   Insulating Tape - Epoxy Resin Glass Filament Reinforced

C. BEARING LUBRICATION: Dow Corning ®
   FS-3451 Grease
   NGLI #2

Notes:

1. *Limiting Component is bearing lubricant*
2. *The bearing life of >40 years established by analysis*
3. *Refer to page 25 of test report for data showing basis of 109°F (43°C) ambient temp*

Written [illegible]

Sheet 1 of 1

Litton LOUIS ALLIS

APPROVED BY [signature]

DATE 5-15-81

CODE IDENT. NO. 01425

DOCUMENT NUMBER

SECTION G-2

M 3185 10-

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 439-01C Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 480 V Motor Generator Set
SPEC. NO. 439 P.O. 310950 VENDOR Louis Allis
TEST ITEM DESC. Rotating Rectifier Assembly
MAKE See Attachment MODEL See Attachment
VENDOR TEST REPORT NO. Louis Allis 9-129576

APPLICABLE STANDARDS
IEEE 323-1974
IEEE 650-1979
IEEE
NUREG 0588 CAT. I

TEST REPORT NO. 439-01
TEST METHOD Test/Analysis
DOCUMENTATION ACCEPTABILITY Acceptable, when supplemented by Wyle Lab. report 17464-3901
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: N/A All test were performed independently)

1. 6.
2. 7.
3. 8.
4. 9.
5. 10.

TEST ENVIRONMENT (R: DBA test not required)

TIME	
TEMP. °F	
PRES. PSIG	

R.H. N/A %
OP. TIME DEMO 180 days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD N
T/P 21

RADIATION AGING (R: Section K & Wyle Report 17464-3402)
DOSE RATE Not Given RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 1×10^7 See note 1 on attach RADS

CYCLE AGING (R: Not Required)
CYCLES REQUIRED
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Section K)
AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF * 109 °F
AGING TEMP./ DURATION N/A / N/A
REL. HUMIDITY Not Addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.
* See note 2 on attachment

REVIEWER: Ron M Snyder DATE: 1/6/82

R: Test Report Page No. Reference

7/1/81

ENGINEERING REPORT Attachment 1 for EQS-439-01C

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

ROTATING RECTIFIER ASSEMBLY

A. Diodes: "General Electric" Part No. 1N1190 (Forward) and 1N1190R (Reverse)

B Diode Support: Canvas Base Phenolic

C. Shaft Insulation: Glass-Micapaper-Glass Laminate Silicon Bonded

D. Cable: Aramid

Notes:

1. 1×10^7 RADS based on limiting component (Diodes) ~~Support~~
2. Refer to item 25, para. n, pg 26 of test report for data giving basis for 109°F (43°C) ambient temp.
3. The effects of radiation on diodes was ~~not~~ addressed by ~~this report~~ Wyle Lab report 17464-3902

Written By	Sheet 1 of 1	LOUIS ALLIS Litton
APPROVED BY	CODE IDENT. NO.	DOCUMENT NUMBER
DATE 5-15-81	01425	SECTION G-3

M 3186 10/79

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 439-01D Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 480 V Motor Generator Set
SPEC. NO. 439 P.O. 310950 VENDOR Louis Allis
TEST ITEM DESC. Static Rectifier Control Board Circuit
MAKE See Attachment MODEL See Attachment
VENDOR TEST REPORT NO. Louis Allis 9-129576
APPLICABLE STANDARDS TEST REPORT NO. 439-01
IEEE 323-1974 TEST METHOD Test/Analysis
IEEE 650-1979 DOCUMENTATION ACCEPTABILITY Acceptable when supplemented by Wyle Lab. report 17464-3901
IEEE
NUREG 0588 CAT. I QUALIFIED LIFE 40 years

TEST SEQUENCE (R: N/A All test were performed independently)

1. 6.
2. 7.
3. 8.
4. 9.
5. 10.

TEST ENVIRONMENT (R: DBA test is not required)

TIME	
TEMP. °F	
PRES. PSIG	

R.H. N/A %
OP. TIME DEMO 180 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD N
T/P 21

RADIATION AGING (R: Section L & Wyle report 17464-3902)
DOSE RATE Not Given RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 4.17×10^6 See note 1 on attach. RADS

CYCLE AGING (R: Not Required)
CYCLES REQUIRED
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Section L)
AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF * 109 °F
AGING TEMP./ DURATION N/A / N/A
REL. HUMIDITY Not Addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.
* See note 2 on attachment

REVIEWER: Ron M Snyder DATE: 1/6/82

R: Test Report Page No. Reference

7/1/81

ENGINEERING REPORT Attachment 1 for EQS-439-01D

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

STATIC RECTIFIER CONTROL BOARD CIRCUIT

A. Diodes: "General Electric" Part No. 1N1190 (Forward) and 1N1190R (Reverse)

B. Insulated Diode Support: Canvas Base Phenolic

C. Cable: Aramid

D. Resistors:

1. 10 OHM - "OHMITE" Type 210
2. 21 OHM ($^{25\ Watt}_{Tapped}$) - "Milwaukee Resistor Corp."

E. Terminal Board: General Purpose Black Phenolic

F. Poly Crystaline Varistor: "General Electric" Part No. V320LA40B

Notes:

1. 4.17×10^6 RADS based on limiting component (Poly Crystaline Varistor)
2. Refer to item 25, para J, pg 29 of test report for data giving basis for 109°F (43°C) ambient temp
3. The effects of radiation on the diodes, resistors and Poly Crystaline Varistor is addressed by ~~this report~~ in Wyle Laboratories report 17464-3901

Written By	Sheet 1 of 1	LOUIS ALLIS (Litton)
APPROVED BY	CODE IDENT NO. 01425	DOCUMENT NUMBER
DATE 5-15-81		SECTION G-4

M 3196 10/7

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 439-01E
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 480V Motor Generator Set
SPEC. NO. 439 P.O. 310950 VENDOR Louis Allis
TEST ITEM DESC. Rotating Field Clamping
MAKE See Attachment 1 MODEL See Attachment 1
VENDOR TEST REPORT NO. Louis Allis 9-129576
APPLICABLE STANDARDS
IEEE 323-1974
IEEE
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 439-01
TEST METHOD Test/Analysis
DOCUMENTATION ACCEPTABILITY Acceptable
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: N/A All test were performed independently)

1. 6.
2. 7.
3. 8.
4. 9.
5. 10.

TEST ENVIRONMENT (R: N/A DBA test not required)

TIME
TEMP. °F
PRES. PSIG
R.H. N/A %
OP. TIME DEMO N/A ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD N
T/P 21

RADIATION AGING (R: Section M)
* See note 1 on attachment 1
DOSE RATE Not Given RAD/HR
DOSE PRIOR TO ENV. TEST N/A RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: Not Required)
CYCLES REQUIRED
CYCLES PERFORMED
(Electro-Mechanical Equip. only)

THERMAL AGING (R: Section M)
AGED TO SIMULATED LIFE OF N/A YRS.
BASED ON AMBIENT TEMP OF * 104 °F
AGING TEMP./ DURATION N/A / N/A
REL. HUMIDITY N/A %
NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.
* See note note 2 on attachment 1

REVIEWER: Pam M Snyder DATE: 6-25-81

R: Test Report Page No. Reference

7/1/81

ENGINEERING REPORT Attachment. 1 for EQS-439-01E

DATE OF TEST ---

MANUFACTURER'S ORDER NO. 9-129576

PURCHASER Long Island Lighting Co.

PURCHASER'S ORDER NO. 310950

ROTATING FIELD CLAMPING

A. Coil Clamps: Canvas Base Phenolic

B. Bolt Insulation: Polyimide Resin Coated Glass

Notes:

1. 2×10^7 RADS based on limiting component (Coil Clamps)
2. Refer to item 25, para. K, pg 34, of test report for data giving basis for 109°F (43°C) ambient temp.

Written By	Sheet 1 of 1	LOUIS ALLIS (Litton)
APPROVED BY	CODE IDENT. NO. 01425	DOCUMENT NUMBER
DATE 5-15-81		SECTION G-5

M 3185 10/79

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 439-02 Rev 1
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE 480 Volt Motor Generator Sets

SPEC. NO. 439 P.O. 310950 VENDOR Louis Allis Inc.

TEST ITEM DESC. Motor Control Panel for 480V MG Set

MAKE Gould MODEL 5600 Series

VENDOR TEST REPORT NO. CC-323.74-83 Rev 0

APPLICABLE STANDARDS

IEEE 323-1974

IEEE

IEEE

NUREG 0588 CAT. I

TEST REPORT NO. 439-02

TEST METHOD Summary Report

DOCUMENTATION ACCEPTABILITY Acceptable, provided the information requested on EQREF 439-02 is provided

QUALIFIED LIFE See Attachment

TEST SEQUENCE (R: N/A)

1. 6.
2. 7.
3. 8.
4. 9.
5. 10.

TEST ENVIRONMENT (R: N/A, DBA test not required)

TIME

TEMP. °F

PRES. PSIG

R.H. N/A %

OP. TIME DEMO N/A ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD N

T/P 21

RADIATION AGING (R: Page 7)

DOSE RATE See Attachment RAD/HR

DOSE PRIOR TO ENV. TEST N/A RADS

DOSE DURING ENV. TEST N/A RADS

TOTAL DOSE See Attachment RADS

THERMAL AGING (R: Page 7)

AGED TO SIMULATED LIFE OF See Attachment YRS.

BASED ON AMBIENT TEMP OF See Attachment °F

AGING TEMP./ DURATION See Attachment

REL. HUMIDITY See Attachment %

NOT AGED-JUSTIFIED BY ANALYSIS TO See Attachment YRS.

CYCLE AGING (R: Page 7)

CYCLES REQUIRED

CYCLES PERFORMED See Attachment
(Electro-Mechanical Equip. only)

REVIEWER: Ross M Snyder DATE: 1/5/82

R: Test Report Page No. Reference

7/1/81

Attachment to EC S 439-02

SEP / 1981

No.	Item	Cycle Aging	Radiation Total Dose	Aging Simulated Yrs at °F	Aging Temp/Duration
1.	Cabinet Structure (MGS)	N/A	1×10^8 RADS	40 yrs at 122°	230°F / 670.1 HRS
2.	Relay (86) HEA	Not performed	1×10^5 RADS	Not determined	———
3.	Relay (74) 7024	27,500	2×10^5 RADS	10 yrs at 75-104°	212°F / 42 DYS
4.	Circuit Breaker kM	4000	1×10^7 RADS	10 yrs at 104°	212°F / 107.4 HRS
5.	Contactor S/S A103G	1×10^6	1×10^7 RADS	10 yrs at 104°	212°F / 107.4 HRS
6	Terminal Blk. EB-25	N/A	1×10^8 RADS	40 yrs at 104°	Analysis.
7	Relay (59) NGV	Not performed	1×10^5 RADS	40 yrs at 104°	Analysis
8	Current Transformer JCS-0	N/A	1×10^7 RADS	40 yrs at 140°	212°F / 26 weeks
9	Potential Transformer JVA-0	N/A	1×10^7 RADS	40 yrs at 140°	212°F / 26 weeks
10.	Relay (87) HFC	Not performed	1×10^5 RADS	40 yrs at 104°	Analysis
11	Switch (43) C77	50,000	1×10^6 RADS	40 yrs at 104°	Analysis
12	Switch (CCS) 1133	1.2×10^4	1×10^6 RADS	40 yrs at 104°	230°F / 808.7 HRS
13	Control Transformer 750 VA	N/A	1×10^8 RADS	40 yrs at 104°	Analysis
14	Fuse (Form 600) AGY	N/A	1×10^7 RADS	10 yrs at 104°	212°F / 107.4 HRS
15	Control Wire Vulkene Supreme	N/A	2.2×10^8	40 yrs at 194°	329°F / 125 HRS
16	Power Wire Okalon	N/A	2×10^8 RADS	40 yrs at 194°	302° / 21 DYS

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 455-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Low Capacitance Fire Resistant Instrument Cable

SPEC. NO. 455 P.O. 310965 VENDOR Brand Rex Co.

TEST ITEM DESC. Coaxial Instrument Cable, XPLE Insulation

MAKE Brand Rex Co. MODEL RG-11A/U ; RG-59 B/U

VENDOR TEST REPORT NO. F-C5120-2 (Brand-Rex Co./Franklin Research Ctr.)

APPLICABLE STANDARDS

IEEE 323-1974

IEEE 383-1974

IEEE

NUREG 0588 CAT. I

TEST REPORT NO. 455-01

TEST METHOD Sequential Test/Analysis

DOCUMENTATION ACCEPTABILITY Acceptable

QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Section 4, pages 4-1 thru 4-4)

1. Functional Test
2. Thermal Aging
3. Insulation Resistance Check
4. Gamma Irradiation
5. Steam/Chemical Spray Exposure
6. Final Inspection
7. High Potential Withstand Test
8.
9.
10.

TEST ENVIRONMENT (R: Page 4-3 *EQREF 455-01 page 4 comment 3)

TIME HRS	.2	2.8	.2	2.8	44	172	474
TEMP. °F	385	346	335	346	317	280	230
PRES. PSIG	66	113	66	113	70	35	10

R.H. (SPRAY) 100 %

OP. TIME DEMO 180 Days* ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD AA

T/P AA

RADIATION AGING (R: Page 4-1, & App B)

DOSE RATE 6.3×10^{-5} RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^{8} RADS

DOSE DURING ENV. TEST None RADS

TOTAL DOSE 2×10^{8} RADS

THERMAL AGING (R: Pages 4-1, 5-1, & Attach 1)

AGED TO SIMULATED LIFE OF 40 YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 277° / 168 HRS

REL. HUMIDITY Uncontrolled %

NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R: Not Required)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: Ron M Snyder DATE: 4/5/81

R: Test Report Page No. Reference

7/1/81

B

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 456-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Reactor Containment Electrical Penetrations
SPEC. NO. 456 P.O. 310967 VENDOR Conax Corporation
TEST ITEM DESC. Instrument Penetration Assembly
MAKE Conax MODEL Instrument Penetration Assembly
VENDOR TEST REPORT NO. IPS-583
APPLICABLE STANDARDS
IEEE 317-1976
IEEE 323-1974
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 456-01
TEST METHOD Sequential Test, Analysis
DOCUMENTATION ACCEPTABILITY Acceptable
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Table 4.2, page 5: Figure 4.1 page 5A)

1. Design Validation Test
2. Storage Simulation
3. Thermal Cylce
4. Thermal Aging
5. Radiation Exposure
6. Validation Tests
7. Seismic Tests
8. Validation Tests
9. Design Basis Event Test
10. Validation Tests

TEST ENVIRONMENT (R: Section 5.8, pg 14, Fig 5.8.1 pg 13A)

TIME	1 Min. Transient	10 MIN	1.9 HRS	6 HRS	4 HRS	343 HRS
TEMP. °F	375° Peak temp	320°	350°	340°	320°	300°
PRES. PSIG	30	—	78	70	35	35

R.H. 100 %
OP. TIME DEMO 1 year ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD D, G, H
T/P 10, 11, 22

RADIATION AGING (R: Sec. 5.6.1 para 5 pg 4)
DOSE RATE 7.7×10^5 RAD/HR
DOSE PRIOR TO ENV. TEST 1.8×10^8 RADS
DOSE DURING ENV. TEST N/A RADS
TOTAL DOSE 1.8×10^8 RADS

THERMAL AGING (R: Section 5.6.2.3 page 10)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 248 °F
AGING TEMP./ DURATION 302°F / 100 HRS
REL. HUMIDITY Not Controlled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R: Sec 5.6.1 para 3, pg 1)
CYCLES REQUIRED 120
CYCLES PERFORMED 120
(Electro-Mechanical Equip. only)
* Thermal Cycle test required by IEEE 317

REVIEWER: [illegible] DATE: 4/23/81

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 456-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Reactor Containment Electrical Penetrations
SPEC. NO. 456 P.O. 310967 VENDOR Conax Corporation
TEST ITEM DESC. Penetration Adapter Module
MAKE Conax MODEL Viton "J" 2-Ring Seals
VENDOR TEST REPORT NO. IPS-631

APPLICABLE STANDARDS
IEEE 317-1976
IEEE 323-1974
IEEE

TEST REPORT NO. 456-02
TEST METHOD Sequential Test
DOCUMENTATION ACCEPTABILITY Acceptable

NUREG 0588 CAT. I
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Figure 3.3 page 3)

1. Gas Leak Rate Test
2. Thermal Cycling
3. Storage Simulation
4. Age Conditioning *
5. Shipping
6. Irradiation *
7. Seismic *
8. DBE Environmental Test *
9. (* Evaluation Test per mil
10. after that phase of testing)

TEST ENVIRONMENT (R: Fig 6.10.2, page 11A)

TIME	2 min	1 min	7 min	6 HRS	425 HRS
TEMP. °F	300°	350°	360°	350°	266°
PRES. PSIG	55	55	55	55	25

R.H. 100 %
OP. TIME DEMO 180 Days ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD D, G, H
T/P 10, 11, 32

RADIATION AGING (R: Section 6.6 pg 7)
DOSE RATE 1.5×10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 1.5×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 1.5×10^8 RADS

THERMAL AGING (R: Section 6.4 pg 6 and Attachment I)
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 131 °F
AGING TEMP./ DURATION 302° / 168 HRS
REL. HUMIDITY Uncontrolled %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R: Section 6.3 pg 6)
CYCLES REQUIRED 120
CYCLES PERFORMED 120
(Electro-Mechanical Equip. only)
Thermal Cycle test required by IEEE 317

REVIEWER: Jan M. Angelo DATE: 7/24/81

R: Test Report Page No. Reference

B

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 15.54-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Safety Related Solenoid Valves
SPEC. NO. 15.54 P.O. 310979 VENDOR Valcor Engineering Corp.
TEST ITEM DESC. Solenoid Valve
MAKE Valcor MODEL V52600-515
VENDOR TEST REPORT NO. QR 52600-5940-2
APPLICABLE STANDARDS
IEEE 323-1974
IEEE
IEEE
NUREG 0588 CAT. I
TEST REPORT NO. 15.54-01
TEST METHOD Sequential Test/Analysis
DOCUMENTATION ACCEPTABILITY Acceptable
QUALIFIED LIFE 40 years

TEST SEQUENCE (R: Appendix XII page 4-5)

1. Initial Acceptance Test
2. Thermal Aging/Acceptance Test
3. Cyclic Aging/Acceptance Test
4. Radiation
5. Dielectric and Insulation Resist.
6. Seismic Simulation/Acceptance Test
7. LOCA Test/Acceptance Test
8. Disassembly and Inspection
9.
10.

TEST ENVIRONMENT (R: App IV of App XII page 4-16)
* Ref: App XII, Sec 4.2.6, page 30, Wyle Report 17464-4802

TIME	2 HRS	2 HRS	2 HRS	3 HRS	4 HRS	8 HRS	25 DYS
TEMP. °F	346	140	346	335	315	265	245
PRES. PSIG	113		113	95	69	28	13

R.H. 100 %
OP. TIME DEMO 1 year * ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES
RAD G
T/P 1, 2, 7, 10, 12

RADIATION AGING (R: App XII Sec 4.2.4 ~~App III~~ : App XII)
DOSE RATE 7.5×10^5 RAD/HR
DOSE PRIOR TO ENV. TEST 2×10^8 RADS
DOSE DURING ENV. TEST None RADS
TOTAL DOSE 2×10^8 RADS

CYCLE AGING (R: App XII Sec 4.2.3)
CYCLES REQUIRED
CYCLES PERFORMED 7500
(Electro-Mechanical Equip. only)

THERMAL AGING (R: App XII Sec 4.2.2)
Wyle Report 17464-4802
AGED TO SIMULATED LIFE OF 40 YRS.
BASED ON AMBIENT TEMP OF 120 °F
AGING TEMP./ DURATION 313°F / 172 HRS
REL. HUMIDITY Not Addressed %
NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

REVIEWER: Ron Mayden DATE: 9/17/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 88AD-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Carbon Steel Valve MOV
SPEC. NO. SHI-88AD P.O. 310512 VENDOR Velan
TEST ITEM DESC. Limitorque MOV
MAKE Limitorque MODEL [AC] SMB-0-25 Reliance Class BH
VENDOR TEST REPORT NO. B0058 + App B ; 600376A
APPLICABLE STANDARDS
IEEE -323-71
IEEE -382-72
IEEE
NUREG 0588 CAT. II
TEST REPORT NO.
TEST METHOD Sequential Testing
DOCUMENTATION ACCEPTABILITY Acceptable
See comments + special conditions
EQREF-88V-1
QUALIFIED LIFE > 40 yrs

TEST SEQUENCE (R: pp 3-5 (600376A))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Qualification
5. Accident Simulation
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: Franklin Institute Report; FC3441 pg 3-5)

TIME	0-3hr	3-6hr	6-9hr	9-12hr	12-13hr	13hr-30days
TEMP. °F	340	Cool Down	340	320	320→252	251
PRES. PSIG	105		105	77	19	15

R.H. 100 %
OP. TIME DEMO 30 days ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD D, G
T/P 3, 22

RADIATION AGING (R: pg 4 (600376A))
DOSE RATE 1 x 10^6 RAD/HR
DOSE PRIOR TO ENV. TEST 204 x 10^6 RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE 204 x 10^6 RADS

CYCLE AGING (R: pg 3,4 (600376A))
CYCLES REQUIRED 500
CYCLES PERFORMED 500
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 3 [B0058-pg 10, 11])
only the motor stator aged
AGED TO SIMULATED LIFE OF 48 YRS.
BASED ON AMBIENT TEMP OF 158 °F
AGING TEMP./ DURATION 180°C / 100 HRS
REL. HUMIDITY Not-Given %
Actuator
~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO >40 YRS.
Equiv. age at 158°F is determined by proportioning to thermal life figures given in B0058

REVIEWER: Ken W. Smith DATE: 11/30/81

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 88AD-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Carbon Steel Valve MOV

SPEC. NO. SH1-88AD P.O. 310501 VENDOR Anchor Darling

TEST ITEM DESC. Limitorque MOV

MAKE Limitorque MODEL MOTOR+ACTUATOR-SMB-0-25
MOTORS [ALONE] - 25+40 ft-lb start torq, Reliance, AC, Class B [ALL MOTORS]

VENDOR TEST REPORT NO. B0058+AppD-B0003

APPLICABLE STANDARDS

IEEE - 382-1972

IEEE - 323-1971

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD Sequential Testing

DOCUMENTATION ACCEPTABILITY Acceptable See comments + special conditions - EQREF-88V-3

QUALIFIED LIFE 40 yrs

TEST SEQUENCE (R: pg 7-10 (B0003))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Siesmic Aging
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg 10 (B0003))

TIME	0-.5hr	.5-2hr	2-24hr	24-25hr	25hr-16days
TEMP. °F	250	250→120	250	250→200	200
PRES. PSIG	25	-	25	-	10

R.H. 100 %

OP. TIME DEMO 16 days ACC/PERF DEMO

APPLICABLE ENV. ZONES

RAD I, G

T/P 1, 2, 3, 7, 10, 11, 12

RADIATION AGING (R: pg 8 (B0003))

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^7 RADS

DOSE DURING ENV. TEST RADS

TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: pg 7-8 (B0003))

CYCLES REQUIRED 500

CYCLES PERFORMED 1993
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 7 (B0003) [B0058-p12])

AGED TO SIMULATED LIFE OF 232 days

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 165°F / 200 [199.8] HRS

REL. HUMIDITY 100 %

~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS. [pg 12-15 B0058]
Equiv. Age at 104°F obtained by proportioning to thermal life figures

REVIEWER: Bert W. Smith DATE: 12/11/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 88V-01
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Carbon Steel Valve - MOV

SPEC. NO. SHI-88V P.O. 310502 VENDOR Velan

TEST ITEM DESC. Limitorque MOV

MAKE Limitorque MODEL AC SMB-0-25 Reliance Class BH

VENDOR TEST REPORT NO. 80058 + App B - 600376A

APPLICABLE STANDARDS

IEEE - 323-71

IEEE - 382-72

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD Sequential Testing

DOCUMENTATION ACCEPTABILITY Acceptable See comments + special conditions EQREF-88V-1

QUALIFIED LIFE > 40 yrs

TEST SEQUENCE (R: pp 3-5 (600376A))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Qualification
5. Accident Simulation
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: Franklin Institute Report; FC3441 pg 3-5)

TIME	0-3hr	3-6hr	6-9hr	9-12hr	12-13hr	13hr-30days
TEMP. °F	340	Cool Down	340	320	320→252	251
PRES. PSIG	105		105	77	19	15

R.H. 100 %

OP. TIME DEMO 30 days ACC/PERF DEMO

APPLICABLE ENV. ZONES

RAD B, C, D, G, K, L

T/P 1, 2, 3, 5, 7, 15, 22

RADIATION AGING (R: pg 4 (600376A))

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 204×10^6 RADS

DOSE DURING ENV. TEST — RADS

TOTAL DOSE 204×10^6 RADS

CYCLE AGING (R: pg 3,4 (600376A))

CYCLES REQUIRED 500

CYCLES PERFORMED 500
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 3 & [80058-pg 10, 11])
Only the motor stator aged

AGED TO SIMULATED LIFE OF 48 YRS.

BASED ON AMBIENT TEMP OF 158 °F

AGING TEMP./ DURATION 180°C / 100 HRS

REL. HUMIDITY Not Given %

Actuator
~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO >40 YRS.

Equiv. age at 158°F is determined by proportioning to thermal life figures given in 80058

REVIEWER Kenneth W. Smith DATE: 11/30/81

R: Test Report Page No. Reference

7/1/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 88V-02
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE CARBON STEEL MOTOR OPERATED VALVES
SPEC. NO. SHI-88V P.O. 310502 VENDOR VELAN
TEST ITEM DESC. Limitorque MOV
MAKE Limitorque MODEL SMB-0-25 Reliance, DC, class H
VENDOR TEST REPORT NO. B0058 + App E - B0009
APPLICABLE STANDARDS
IEEE - 382 - 72
IEEE - 323 - 71
IEEE -
NUREG 0588 CAT. II
TEST REPORT NO.
TEST METHOD Sequential Testing
DOCUMENTATION ACCEPTABILITY Acceptable See comments and special conditions EQREE-88V-2
QUALIFIED LIFE >40 yrs

TEST SEQUENCE (R: pg. 6-9 (B0009))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Seismic Testing
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg. 10 (B0009))

TIME	0-1hr	1-2hr	2-4hr	4-7hr	7-25hrs
TEMP. °F	120→340	340	330	310	212
PRES. PSIG	0→68	68→104	104→86	86→63	0

R.H. 100 %
OP. TIME DEMO 25 hrs ACC/PERF DEMO

APPLICABLE ENV. ZONES
RAD
T/P

RADIATION AGING (R: pg 7 (B0009))
DOSE RATE — RAD/HR
DOSE PRIOR TO ENV. TEST 1×10^7 RADS
DOSE DURING ENV. TEST — RADS
TOTAL DOSE 1×10^7 RADS

CYCLE AGING (R: pg 7 (B0009))
CYCLES REQUIRED 500
CYCLES PERFORMED 2004
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg. 6 + App III (B0009))
Motor Stator Only
AGED TO SIMULATED LIFE OF 135 YRS.
BASED ON AMBIENT TEMP OF 140 (60°C) °F
AGING TEMP./ DURATION 180°C / 100
REL. HUMIDITY Not Given %
Actuator
~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS. [B0058 pg 13-15]
Equiv. Age derived by proportioning to thermal life figures [pg 10-11 B0058]

REVIEWER: Jack W. Smith DATE: 12/1/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 88V-03
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE Carbon Steel Valve - MOV

SPEC. NO. SHI-88V P.O. 310502 VENDOR Velan

TEST ITEM DESC. Limitorque MOV

MAKE Limitorque MODEL MOTOR+ACTUATOR-SMB-0-25
MOTORS [ALONE]- 25+40 ft-lb start torq, Reliance, AC, Class B [ALL MOTORS]

VENDOR TEST REPORT NO. B0058+AppD-B0003

APPLICABLE STANDARDS

IEEE - 382-1972

IEEE - 323-1971

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD Sequential Testing

DOCUMENTATION ACCEPTABILITY Acceptable - See comments + special conditions - EQREF-88V-3

QUALIFIED LIFE 40 yrs

TEST SEQUENCE (R: pg 7-10 (B0003))

1. Thermal Aging
2. Mechanical Aging
3. Radiation Aging
4. Siesmic Aging
5. Environmental Test
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: pg 10 (B0003))

	0-.5hr	.5-2hr	2-24hr	24-25hr	25hr-16days
TEMP. °F	250	250→120	250	250→200	200
PRES. PSIG	25	-	25	-	10

R.H. 100 %

OP. TIME DEMO 16 days ACC/PERF DEMO

APPLICABLE ENV. ZONES

RAD G, H, L, N, P

T/P 1, 2, 3, 7, 9, 10, 12, 14, 18

RADIATION AGING (R: pg 8 (B0003))

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^7 RADS

DOSE DURING ENV. TEST RADS

TOTAL DOSE 2×10^7 RADS

CYCLE AGING (R: pg 7-8 (B0003))

CYCLES REQUIRED 500

CYCLES PERFORMED 1993
(Electro-Mechanical Equip. only)

THERMAL AGING (R: pg 7 (B0003) [B0058 p-12])

AGED TO SIMULATED LIFE OF 232 days

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 165° / 200 [199.8] Hrs

REL. HUMIDITY 100 %

~~NOT AGED~~-JUSTIFIED BY ANALYSIS TO 40 YRS.
[pg 12-15 B0058]
Equiv. Age at 104°F obtained by proportioning to thermal life figures

REVIEWER: Kent W. Smith DATE: 12/3/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3013 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 210010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PRESSURE SWITCH

MAKE BARKSDALE MODEL B1T

VENDOR TEST REPORT NO BARKSDALE PROCEDURE 9993

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3013-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 6 YRS BY ANALYSIS

TEST SEQUENCE (R: BARKSDALE - 9993)

1. FUNCTIONAL
2. STEAM/FUNCTIONAL
3. FUNCTIONAL
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: BARKSDALE - 9993)

TIME	6 HRS
TEMP. °F	212
PRES. PSIG	.25
R.H.	100%

OP. TIME DEMO 6 HRS ACC/PERF DEMO 2.3% FSPE

APPLICABLE ENV. ZONES

RAD G

T/P 1

RADIATION AGING (R: EQS Calc No 0630-001-013)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 3 x 10^6 BY ANALYSIS RADS

THERMAL AGING (R: EQS Calc No 0630-001-013)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 6 YRS.

CYCLE AGING (R: BARKSDALE 9993)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 12
(Electro-Mechanical Equip. only)

REVIEWER: Steve Price DATE: 12/2/3

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3021 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PRESSURE SWITCH

MAKE BARKSDALE MODEL D2H

VENDOR TEST REPORT NO. BARKSDALE PROCEDURE 9993

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3021-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 6 YRS BY ANALYSIS

TEST SEQUENCE (R: BARKSDALE 9993)

1. FUNCTIONAL
2. STEAM/FUNCTIONAL TEST
3. FUNCTIONAL TEST
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: BARKSDALE 9993)

TIME	6 HRS
TEMP. °F	212
PRES. PSIG	.25
R.H.	100%

OP. TIME DEMO 6 HRS ACC/PERF DEMO 1.6% FSPS

APPLICABLE ENV. ZONES

RAD G,H

T/P 4,10,12

RADIATION AGING (R: EDS CALC NO 0630-001-013)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 3×10^6 BY ANALYSIS RADS

THERMAL AGING (R: EQS CALC NO 0630-001-014)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 6 YRS.

CYCLE AGING (R: BARKSDALE 9993)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 12
(Electro-Mechanical Equip. only)

REVIEWER: [signature]

DATE: 12/27/91

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3025 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH-203 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PRESSURE SWITCH

MAKE BARKSDALE MODEL P1H

VENDOR TEST REPORT NO. BARKSDALE PROCEDURE 9993

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3025-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 6 YEARS BY ANALYSIS

TEST SEQUENCE (R: BARKSDALE 9993)

1. FUNCTIONAL
2. STEAM / FUNCTIONAL TEST
3. FUNCTIONAL
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: BARKSDALE - 9993)

TIME 6 HRS
TEMP. °F 212°F
PRES. PSIG 25
R.H. 100%
OP. TIME DEMO 6 HRS ACC/PERF DEMO 1.9% FSPE

APPLICABLE ENV. ZONES

RAD G
T/P 1

RADIATION AGING (R: EDS CALC NO. 0630-001-022)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 5×10^6 BY ANALYSIS RADS

THERMAL AGING (R: EDS CALC NO. 0630-001-022)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104°F °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 6 YRS.

CYCLE AGING (R: DELAVAL 9993)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 12
(Electro-Mechanical Equip. only)

REVIEWER: [signature] DATE: 12/31/92

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3027 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SA1-003 P.O. 30010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. DIFFERENTIAL PRESSURE INDICATING SWITCH

MAKE ITT BARTON MODEL 288A/289A

VENDOR TEST REPORT NO. ITT BARTON 9999.1217.2 AND R3-288A-1

APPLICABLE STANDARDS

IEEE 323-1971

IEEE 344-1975

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3027-A & 3027B

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YEARS BY ANALYSIS

TEST SEQUENCE (R: See Below)

	ITT BARTON 9999.1217.2		ITT BARTON R3-288A-1
1.	FUNCTIONAL TEST (CALIBRATION)	1	INSPECTION & FUNCTIONAL TEST
2.	STEAM TEST	2	FUNCTIONAL TEST
3.	FUNCTIONAL TEST (CALIBRATION)	3	RADIATION
4.		4	FUNCTIONAL TEST
5.		5	SEISMIC

TEST ENVIRONMENT (R: ITT BARTON 9999.1217.2)

TIME	6 HRS
TEMP. °F	212 °F
PRES. PSIG	7 IN WC
R.H.	100 %
OP. TIME DEMO	6 HRS
ACC/PERF DEMO	± 1%

APPLICABLE ENV. ZONES

RAD G, H

T/P 1, 2, 10, 12

RADIATION AGING (R: BARTON R3-288A-1 / EDS CALC NO 0630-001-010)

DOSE RATE 1X10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 3X10^6 RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 3X10^6 BY TEST / 1X10^7 BY ANALYSIS RADS

THERMAL AGING (R: EDS CALC NO 0630-001-010)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

CYCLE AGING (R: BARTON R3-288A-1)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 36
(Electro-Mechanical Equip. only)

REVIEWER: [signature]

DATE: 1/11/82

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3032 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PRESSURE SWITCH

MAKE STATIC-O-RING MODEL 5N(GN) SERIES

VENDOR TEST REPORT NO VIKING LABORATORIES TEST LETTER REPORT NO 30203-1

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3032-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE (LATER)

TEST SEQUENCE (R: VIKING : 30203-1)

1. FUNCTIONAL
2. PRESSURE / TEMPERATURE / HUMIDITY
3. INSPECTION
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: VIKING : 30203-1)

	(MID RANGE)	(HIGH RANGE)	(LOW RANGE)
TIME	6 HRS	6 HRS	6 HRS
TEMP. °F	212°F	212°F	212°F
PRES. PSIG	.25 ± .05 PSIG	.25 ± .05 PSIG	.25 ± .05 PSIG

R.H. 100 %

OP. TIME DEMO 18 HRS ACC/PERF DEMO NONE REPORTED

APPLICABLE ENV. ZONES

RAD G, L

T/P 1, 2

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE (LATER) RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO (LATER) YRS.

CYCLE AGING (R: VIKING : 3023-1)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 27
(Electro-Mechanical Equip. only)

REVIEWER: Wayne P Fiorini DATE: 2/11/81

Sheet of

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3037 Revision D
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. CHI-033 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. REMOTE LEVEL INDICATOR

MAKE YARWAY MODEL 44180

VENDOR TEST REPORT NO. YARWAY TEST REPORT NO. 5628-3509

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3037-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 12 YRS BY ANALYSIS (SEE BELOW)

TEST SEQUENCE (R: YARWAY: 5628-3509)

1. SEISMIC
2. TEMPERATURE - HUMIDITY
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: YARWAY: 5628-3509)

TIME	30 MIN	30 MIN	30 MIN	30 MIN	30 MIN	30 MIN	30 MIN
TEMP. °F	156	212	235	250	235	212	156
PRES. PSIG	—	—	—	—	—	—	—

R.H. * 100 %

OP. TIME DEMO 3.5 HRS ACC/PERF DEMO 4%

APPLICABLE ENV. ZONES

RAD G

T/P 10,12

RADIATION AGING (R: EQ5 CALC NO. 0800-0XX-010)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 1×10^6 BY ANALYSIS RADS

THERMAL AGING (R: EQ5 CALC NO. 0800-001-016)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 6 YRS.

CYCLE AGING (R: YARWAY: 5628-3509)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 100
(Electro-Mechanical Equip. only)

REVIEWER: [illegible] DATE: 2/20/85

R: Test Report Page No. Reference

Sheet ___ of ___

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3040 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. TEMPERATURE SWITCH

MAKE FENWAL MODEL 17002-40

VENDOR TEST REPORT NO. FENWAL ENG. REPORT No 6350 / VIKING LABORATORY REPORT No 30411

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3040-A, 3040-B

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YEARS BY ANALYSIS

TEST SEQUENCE (R: SEE BELOW)

FENWAL: 6350

1. INSULATION RESISTANCE
2. DIELECTRIC STRENGTH
3. CALIBRATION
4. UNDERSHOOT
5. OVERSHOOT
6. CONTACT RATING
7. RESPONSE TIME
8. IMMERSION

VIKING: 30411

1. CYCLING
2.

TEST ENVIRONMENT (R: FENWAL: 6350 (Pgs 5, 6, 9))

TIME	30 MIN	30 MIN	30 MIN	
TEMP. °F	305°F	305°F	305°F	
PRES. PSIG	10 PSIG	10 PSIG	10 PSIG	

R.H. 100 %

OP. TIME DEMO 1.5 Hrs ACC/PERF DEMO ± 2°F

APPLICABLE ENV. ZONES

RAD ST

T/P ST

RADIATION AGING (R: EDS CALC No 0630-XX-024)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 1×10^3 BY ANALYSIS RADS

THERMAL AGING (R: EQS CALC No. 0630-001-024)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

CYCLE AGING (R: VIKING: 30411)

CYCLES REQUIRED NOT DETERMINED

CYCLES PERFORMED 1220

(Electro-Mechanical Equip. only)

REVIEWER: Anthony P. Buonanni DATE: 12/30/91

R: Test Report Page No. Reference

Sheet ___ of ___

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 2048 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PRESSURE TRANSMITTER

MAKE ROSEMOUNT MODEL 1151

VENDOR TEST REPORT NO. ROSEMOUNT REPORT NOS 117415 REV A AND 127227 REV 2

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. I

TEST REPORT NO. 3048-9, 3048-8

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 1.4 YRS

TEST SEQUENCE (R: ROSEMOUNT: 117415, PG 3)

1. THERMAL AGING
2. RADIATION EXPOSURE
3. SEISMIC VIBRATION
4. STEAM PRESSURE ENVIRONMENT
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: ROSEMOUNT: 117415, PG 9)

TIME	10 MIN	1 HR	7 HR	42 HR
TEMP. °F	350	316	303	230
PRES. PSIG	60	70	55.4	6

R.H. 100%

OP. TIME DEMO 50 HR; 10 MIN ACC/PERF DEMO 0.5% FS

APPLICABLE ENV. ZONES

RAD H, G

T/P 1, 5, 10, 12, 15

RADIATION AGING (R: ROSEMOUNT: 127227)

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^6 RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 2×10^6 RADS

THERMAL AGING (R: NUTE: 13464-0902)

AGED TO SIMULATED LIFE OF 1.4 YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./DURATION 350°F/.17 HR, 316°F/1 HR, 303°F/7 HR, 230°F/39 HR

REL. HUMIDITY 100 %

NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A

(Electro-Mechanical Equip. only)

REVIEWER: [signature] DATE: 12/31/82

R: Test Report Page No. Reference

Sheet 1 of 1

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3094 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH1-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PRESSURE TRANSMITTER

MAKE BAILEY MODEL K6556

VENDOR TEST REPORT NO. NYLE/NUTECH: BWR EQUIPMENT QUALIFICATION SUMMARY, QSR-094-A-01

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3094-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY NOT ACCEPTABLE

QUALIFIED LIFE NONE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: NYLE/NUTECH: QSR-094-A-01, Pg 5)

TIME UNKNOWN

TEMP. °F 120°F

PRES. PSIG NONE

R.H. NONE %

CP. TIME DEMO UNKNOWN ACC/PERF DEMO 1 1%

APPLICABLE ENV. ZONES

RAD G

T/P 1

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: [signature]

DATE: 12/29/81

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3096 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. SOLENOID VALVE

MAKE ASCO MODEL HT-X-8320-A20

VENDOR TEST REPORT NO. ROCKWELL REPORT No 2792-03-02, Rev 1

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3096-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YRS BY ANALYSIS

TEST SEQUENCE (R: ROCKWELL 2792-03-02)

1. LEAKAGE TESTING
2. STEAM
3. CYCLING
4. LEAKAGE TEST
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: ROCKWELL 2792-03-02)

TIME	2 HRS
TEMP. °F	340
PRES. PSIG	110
R.H.	100 %

OP. TIME DEMO 2 HRS ACC/PERF DEMO LEAKAGE LO.5SCFH

APPLICABLE ENV. ZONES

RAD B, H

T/P B, 22

RADIATION AGING (R: EQS CALC No 0630-001-025)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 6×10^6 BY ANALYSIS RADS

THERMAL AGING (R: EQS CALC No 0630-001-025)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 150 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

CYCLE AGING (R: ROCKWELL 2792-03-02 Pg 4)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 20,000
(Electro-Mechanical Equip. only)

REVIEWER: [signature]

DATE: 12/29/91

R) Test Report Page No. Reference

Sheet of

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3110 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH1-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. TEMPERATURE ELEMENT

MAKE PYCO/CALIFORNIA ALLOY/NEGI MODEL GE PPD 145C3224

VENDOR TEST REPORT NO. PYCO REPORT No. 122375, REV 0

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3110-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 28.8 YRS BY ANALYSIS (SEE BELOW)

TEST SEQUENCE (R: PYCO:122375)

1. THERMAL AGING
2. INSPECTION
3. RADIATION
4. INSPECTION
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: PYCO:122375)

TIME	168 HRS
TEMP. °F	250°F
PRES. PSIG	ATMOSPHERIC (ASSUMED)
R.H.	MOIST %
OP. TIME DEMO	168 HRS
ACC/PERF DEMO	NONE REPORTED

APPLICABLE ENV. ZONES

RAD G, H, K, A, ST

T/P 1, 5, A, 13, 14, 15, 16, 18, 19, ST

RADIATION AGING (R: PYCO:122375)

DOSE RATE 7.5×10^5 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^8 RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 2×10^8 RADS

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A

(Electro-Mechanical Equip. only)

THERMAL AGING (R: EQS CALC NO. 0620-001-017)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 28.9 YRS.

REVIEWER: Warren P. Dunham DATE: 12/21/87

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 211 Revision 2
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. ECCS PUMP MOTOR

MAKE GENERAL ELECTRIC MODEL 5K6339XC94A

VENDOR TEST REPORT NO. GE REPORT NOS NEDM-10672 AND 491HA988

APPLICABLE STANDARDS

IEEE 323-1971

IEEE 334-1971

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 211-A, 211-B

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YRS WITH ANNUAL MAINTENANCE

TEST SEQUENCE (R: GE; NEDM-10672 GE. 491HA988)

1. PRE-AGED
2. STEAM TEST
3. HI-POT TEST
4.
5.

(1) FUNCTIONAL (6) FUNCTIONAL & INSPECTION
(2) AGING
(3) RADIATION
(4) SEISMIC
(5) STEAM

TEST ENVIRONMENT (R: GE; NEDM-10672)

TIME	6 HRS	1 HR	6 HRS	96 HRS
TEMP. °F	212	AMBIENT	212	AMBIENT
PRES. PSIG	7" H_2O GAGE	AMBIENT	7" H_2O GAGE	AMBIENT

R.H. 100%

OP. TIME DEMO 99 HRS ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD G

T/P 21

RADIATION AGING (R: GE 491HA988)

DOSE RATE NONE REPORTED RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST 5.5×10^6 RADS

TOTAL DOSE 5.5×10^6 RADS

THERMAL AGING (R: EDS CALC NO 0630-004-012)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104°F °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS.

PROVIDED LUBE OIL AND LEAD WIRE SEALS ARE CHECKED/CHANGED ANNUALLY

CYCLE AGING (R: GE NEDM-10672, A-2)

CYCLES REQUIRED 170

CYCLES PERFORMED 300

(Electro-Mechanical Equip. only)

REVIEWER: [signature] DATE: 12/27/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3122 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. E/P CONVERTER

MAKE FISHER GOVERNOR MODEL 546

VENDOR TEST REPORT NO. NO TEST DATA FOUND

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD

DOCUMENTATION ACCEPTABILITY

QUALIFIED LIFE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R:)

TIME	NONE
TEMP. °F	NONE
PRES. PSIG	NONE

R.H. NONE %

OP. TIME DEMO NONE ACC/PERF DEMO NONE

APPLICABLE ENV. ZONES

RAD 6

T/P 1

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED NONE
(Electro-Mechanical Equip. only)

REVIEWER: Steven Pace DATE: 1/11/82

R: Test Report Page No. Reference

Sheet ___ of ___

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3128 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-002 P.O. 210010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. FLOW TRANSMITTER AND ELEMENT

MAKE AMETEK MODEL 078-5004

VENDOR TEST REPORT NO. NO TEST DATA FOUND

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD

DOCUMENTATION ACCEPTABILITY

QUALIFIED LIFE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R:)

TIME	NONE
TEMP. °F	NONE
PRES. PSIG	NONE
R.H.	NONE %

OP. TIME DEMO NONE ACC/PERF DEMO NONE

APPLICABLE ENV. ZONES

RAD G

T/P 5,6

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: Steve Parry DATE: 1/11/82

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3129 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH1-025 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. LEVEL TRANSMITTER

MAKE ITT BARTON MODEL 760

VENDOR TEST REPORT NO. AETL 5350-2114

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3129-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE NONE

TEST SEQUENCE (R: Wyle-Nutech QSR-125-A-01, Pg 6)

1. FUNCTIONAL
2. 40°F TEST
3. FUNCTIONAL
4. 100°F TEST
5. FUNCTIONAL
6. 212°F TEST
7. FUNCTIONAL
8. AMBIENT TEST
9. FUNCTIONAL
10.

TEST ENVIRONMENT (AETL R: 5350-2114 Pg 2, RL-760-2)

TIME	1hr	1hr	1hr	1hr
TEMP. °F	40	70	100	212
PRES. PSIG	0-1" H_2O	0	0	0 +7" H_2O

R.H. 100 max %

OP. TIME DEMO 4hrs. ACC/PERF DEMO 1.7%

APPLICABLE ENV. ZONES

RAD G

T/P 9,10,11

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: Wayne P. Ewman DATE: 12/16/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3143 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. LEVEL SWITCH

MAKE MAGNETROL MODEL 3.5-751-1X-MPG-M14HY

VENDOR TEST REPORT NO. WYLE LAB, REPORT NO 43235-1, REVISION A

APPLICABLE STANDARDS

IEEE 323-1974

IEEE 344-1975

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3143-A

TEST METHOD SEQUENTIAL

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YRS BY ANALYSIS

TEST SEQUENCE (R: WYLE: 43235-1)

1. NUCLEAR RAD. DAMAGE THRESHOLD TEST
2. REGRESSION ANALYSES
3. BASELINE FUNCTIONAL & HYDROST. PRESS. TEST
4. NUCLEAR RADIATION AGING
5. ELEVATED TEMP/HUMIDITY CYCLE AGING
6. 75 Hz PLANT INDUCED VIBRATION TEST
7. SEISMIC QUALIFICATION
8. TYPE TEST PLAN
9.
10.

TEST ENVIRONMENT (R: WYLE: 43235-1, Pg 196)

TIME	160 HRS
TEMP. °F	300
PRES. PSIG	NONE GIVEN - ASSUME ATMOSPHERIC
R.H.	100 %
OP. TIME DEMO	160 HRS
ACC/PERF DEMO	NOT GIVEN

APPLICABLE ENV. ZONES

RAD G

T/P 1

RADIATION AGING (R: WYLE: 43235-1, Pg 7 AND TABLE 1)

DOSE RATE 1.2×10^5 TO 3.3×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST $\geq 1 \times 10^6$ RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE $\geq 1 \times 10^6$ RADS

THERMAL AGING (R: WYLE: 43235-1, Pg 196)
BOS CALC No 0630-001-027

AGED TO SIMULATED LIFE OF NOT GIVEN YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 300°F / 40 hrs

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS YRS.

CYCLE AGING (R: WYLE 43235-1, Pg 146)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 10,000
(Electro-Mechanical Equip. only)

REVIEWER: Wayne P Guzman DATE: 12/11/81

R: Test Report Page No. Reference

Sheet ___ of ___

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3144 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. LEVEL TRANSMITTER

MAKE ITT BARTON MODEL 368

VENDOR TEST REPORT NO. NO ENVIRONMENTAL TEST FOUND

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD

DOCUMENTATION ACCEPTABILITY

QUALIFIED LIFE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R:)

TIME	NONE
TEMP. °F	NONE
PRES. PSIG	NONE
R.H.	NONE %

OP. TIME DEMO NONE ACC/PERF DEMO NONE

APPLICABLE ENV. ZONES

RAD G

T/P 1

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A

(Electro-Mechanical Equip. only)

REVIEWER: Wayne P. Guvnari DATE: 12/29/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3146 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. 21A9370 P.O. 705-G9C3 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. Conax Explosive Valve.

MAKE Conax MODEL P/N 1832-159-01

VENDOR TEST REPORT NO. CONAX REPORT NO TR-39

APPLICABLE STANDARDS

IEEE 323-1971

IEEE 344-1975

IEEE

NUREG 0588 CAT.

TEST REPORT NO. 3186-A

TEST METHOD Seperate

DOCUMENTATION ACCEPTABILITY

ACCEPTABLE

QUALIFIED LIFE

TEST SEQUENCE (R: Conax TR 39, Page 5-7)

1. Bridge wire Resistance
2. Circuit Resistance testing
3. Temp./Humidity
4. Visual Inspection
5. Aging (Seismic Aging)
6. Irradiation
7. Seismic Test.
8.
9.
10.

TEST ENVIRONMENT (R: Conax TR 39, Pages 5-7)

TIME	100 days
TEMP. °F	185 to 190 °F
PRES. PSIG	Atm.
R.H.	100 %

OP. TIME DEMO 100 D/S ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD J

T/P 15

RADIATION AGING (R: Conax TR-39, Pg 6)

DOSE RATE 2.2×10^4 to 2.4×10^4 RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST 2.2×10^4 RADS

TOTAL DOSE 2.2×10^4 RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: Steve Paul DATE: 11/1/82

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3900 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-002 P.O. 31010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PUMP MOTOR

MAKE GENERAL ELECTRIC MODEL 5K324AK2034

VENDOR TEST REPORT NO. NO TEST DATA FOUND

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD

DOCUMENTATION ACCEPTABILITY

QUALIFIED LIFE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R:)

TIME	NONE
TEMP. °F	NONE
PRES. PSIG	NONE

R.H. NONE %

OP. TIME DEMO NONE ACC/PERF DEMO NONE

APPLICABLE ENV. ZONES

RAD J

T/P 15

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED NONE
(Electro-Mechanical Equip. only)

REVIEWER: Steve Pauly DATE: 1/1/92

R: Test Report Page No. Refarance

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3902 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH-003 P.O. 31040 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. ELECTRIC HEATER

MAKE GENERAL ELECTRIC MODEL 47D518673

VENDOR TEST REPORT NO. GE REPORT R272-S42-4, REV A

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3902-A

TEST METHOD SEPARATE

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YRS BY ANALYSIS

TEST SEQUENCE (R: GE: R272-S42-4)

1. ENERGIZE HEATER (2 HOURS)
2. DEENERGIZE HEATER
3. ENERGIZE HEATER (100 DYS)
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: GE: R272-S42-4)

TIME	1002 DYS
TEMP. °F	NORMAL AMBIENT
PRES. PSIG	NORMAL AMBIENT
R.H.	NORMAL AMBIENT %

OP. TIME DEMO 100 DYS ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD G

T/P 7

RADIATION AGING (R: EQS CALC 0630-001-029)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 1×10^{12} BY ANALYSIS RADS

THERMAL AGING (R: EDS CAL 0630-001-029)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: [signature] DATE: 12/31/91

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3903 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. 541-003 P.O. 310010 VENDOR General Electric

TEST ITEM DESC. Blower

MAKE General Electric MODEL 2CH6-041-1U

VENDOR TEST REPORT NO. GE Report No. B272-NL9-4 Rev A

APPLICABLE STANDARDS

IEEE 323-71

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3903-A

TEST METHOD Separate

DOCUMENTATION ACCEPTABILITY Acceptable

QUALIFIED LIFE 6 yrs by Analysis

TEST SEQUENCE (R: GE: B272-NL9-4)

1. Continuous Functional
2. Test in Steam Environment
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: GE: B272-NL9-4)

TIME	100 Hrs
TEMP. °F	150
PRES. PSIG	Atmospheric
R.H.	97 %
OP. TIME DEMO	100 Hrs
ACC/PERF DEMO	N/A

APPLICABLE ENV. ZONES

RAD Ga

T/P 4, 6

RADIATION AGING (R: EDS Calc 0630-001-026)

DOSE RATE None RAD/HR

DOSE PRIOR TO ENV. TEST None RADS

DOSE DURING ENV. TEST None RADS

TOTAL DOSE 1×10^7 By Analysis RADS

THERMAL AGING (R: EDS Calc 0630-001-026)

AGED TO SIMULATED LIFE OF None YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION None

REL. HUMIDITY None %

NOT AGED-JUSTIFIED BY ANALYSIS TO 6 YRS.

CYCLE AGING (R: GE B272-NL9-4)

CYCLES REQUIRED Undetermined

CYCLES PERFORMED 7

(Electro-Mechanical Equip. only)

REVIEWER: Steve Bandi DATE: 12/31/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3904 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. CHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. SOLENOID VALVE

MAKE TARGET ROCK MODEL Y2 SMS-A-01

VENDOR TEST REPORT NO. TARGET ROCK REPORT NO. 2199A

APPLICABLE STANDARDS

IEEE 323-1974

IEEE 382-1972

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3904-A

TEST METHOD SEQUENTIAL

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 40 YRS BY ANALYSIS

TEST SEQUENCE (R: TARGET ROCK REPORT No 2199A)

1. FUNCTIONAL
2. RADIATION
3. FUNCTIONAL
4. TEMPERATURE/HUMIDITY CYCLING
5. FUNCTIONAL
6. PRESSURE/TEMPERATURE
7. CYCLING/LEAKAGE
8. FUNCTIONAL
9. RADIATION
10. FUNCTIONAL
11. INSPECTION

TEST ENVIRONMENT (R: TARGET ROCK REPORT No 2199A)

TIME (MIN.)	0-1	2-20	20-181	181-299	300-301	301-480	482-650	650-5521
TEMP. °F	337	334-346	342	94-85	343	344-347	322	301-290
PRES. PSIG	65	50-48	48	0	65	51-46	46	25-26

R.H. 100 %

OP. TIME DEMO 92 Hrs ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD B

T/P 22

RADIATION AGING (R: TARGET ROCK 2190A)

(PRIOR TO ENV. TEST)

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 1.9×10^7 RADS

DOSE DURING ENV. TEST 1.3×10^7 RADS

TOTAL DOSE 3.2×10^7 RADS

THERMAL AGING (R: EQS Calc No 0630-00X-020)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF 150 °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO 40 YRS YRS.

CYCLE AGING (R: TARGET ROCK 2199A)

CYCLES REQUIRED NOT DETERMINED

CYCLES PERFORMED 2000

(Electro-Mechanical Equip only)

REVIEWER: Abram P Sirmans DATE: 12/31/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3306 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. CHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. TEMPERATURE ELEMENT

MAKE PYCO MODEL 102-3171

VENDOR TEST REPORT NO. PYCO QUALIFICATION TEST REPORT; DOCUMENT No. 770831

APPLICABLE STANDARDS

TEST REPORT NO. 310-A

IEEE 323-1974

TEST METHOD SEQUENTIAL

IEEE 344-1975

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

IEEE 382-1972 / 383-1974

NUREG 0588 CAT. II

QUALIFIED LIFE 28.9 Yrs BY ANALYSIS

TEST SEQUENCE (R: PYCO DOCUMENT No. 770831)

1. THERMAL & RADIATION AGING
2. DEVELOPMENTAL
3. SEISMIC / VIBRATION
4. LOCA SIMULATION
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: PYCO DOCUMENT No 770831)

TIME	3 Hrs	2 Hrs	31 Hrs	3 Hrs	41 Hrs	81 Hrs	5 Yrs
TEMP. °F	346	140	346	335	315	265	215
PRES. PSIG	113	—	113	95	69	28	—

R.H. 100 %

OP. TIME DEMO 720 Hrs ACC/PERF DEMO NONE REPORTED

APPLICABLE ENV. ZONES

RAD G, H, K, P ST

T/P 01, 05, 13, 14, 15, 16, 18, 19, ST

RADIATION AGING (R: PYCO # 770831)

DOSE RATE 5×10^5 RAD/HR

DOSE PRIOR TO ENV. TEST 2×10^8 RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE 2×10^8 RADS

THERMAL AGING (R: PYCO # 770831)

EDS CALC. No 0630-001-017

AGED TO SIMULATED LIFE OF NOT GIVEN YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./ DURATION 121°C / 7 DAYS

REL. HUMIDITY 85-95 %

NOT AGED-JUSTIFIED BY ANALYSIS TO 28.9 YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A

(Electro-Mechanical Equip. only)

REVIEWER: [illegible] DATE: 12/21/21

R: Test Report Page No. Reference

Sheet ___ of ___

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3909 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. SOLENOID VALVE

MAKE ASCO MODEL NP8316C37

VENDOR TEST REPORT NO. AUTOMATIC SWITCH CO. TEST REPORT NO. AQS21678/TR REV. A

APPLICABLE STANDARDS

IEEE 323-1974 / 382/ANSI N278.2.1

IEEE 382-1972

IEEE 344-1975

NUREG 0588 CAT. II

TEST REPORT NO. 3909-A

TEST METHOD SEQUENTIAL TESTS

DOCUMENTATION ACCEPTABILITY
ACCEPTABLE

QUALIFIED LIFE 22.93 Yrs BY ANALYSIS

TEST SEQUENCE (R: ASCO REPORT No AQS21678/TR)

1. THERMAL AGING
2. RADIATION
3. WEAR AGING
4. SEISMIC
5. VIBRATION
6. ACCIDENT RADIATION
7. 30-DAY LOCA SIMULATION
8.
9.
10.

TEST ENVIRONMENT (R: ASCO Report No. AQS21678/TR FIGURE 2)

TIME	4 Hrs	1 Hr	3 Hr	3 Hr	85 Hr	26 Dys
TEMP. °F	346	140	346	320	250	200
PRES. PSIG	110	Ambient	110	75	15	10

R.H. 100 %

OP. TIME DEMO 30 DAYS ACC/PERF DEMO N/A

APPLICABLE ENV. ZONES

RAD G

T/P 25

RADIATION AGING (R: ASCO AQS21678/TR)

DOSE RATE < 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST 5×10^7 RADS

DOSE DURING ENV. TEST 1.5×10^8 RADS

TOTAL DOSE 2×10^8 RADS

THERMAL AGING (R: ASCO AQS21673/TR)

EDS Calc No 0630-001-021

AGED TO SIMULATED LIFE OF 4 YRS.

BASED ON AMBIENT TEMP OF 150 °F

AGING TEMP./ DURATION 268°F / 12 DYS

REL. HUMIDITY NOT GIVEN %

NOT AGED-JUSTIFIED BY ANALYSIS TO 22.93 YRS.

CYCLE AGING (R: AQS21678/TR)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED 40,000
(Electro-Mechanical Equip. only)

REVIEWER: Wayne P. Gurnon DATE: 12/29/81

R: Test Report Page No. Reference

Sheet ___ of ___

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3911 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. POSITION SWITCH

MAKE NAMCO MODEL EA740-8000-1 (PRE-1978)

VENDOR TEST REPORT NO. NO TESTING HAS BEEN PERFORMED ON THIS DEVICE

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD

DOCUMENTATION ACCEPTABILITY

QUALIFIED LIFE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R:)

TIME	NONE
TEMP. °F	NONE
PRES. PSIG	NONE
R.H.	NONE %

OP. TIME DEMO NONE ACC/PERF DEMO NONE

APPLICABLE ENV. ZONES

RAD D, T

T/P 8, 22

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED NONE
(Electro-Mechanical Equip. only)

REVIEWER: Steve Barry DATE: 1/12/82

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3912 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. INSTRUMENT PANELS

MAKE GENERAL ELECTRIC MODEL INSTRUMENT PANELS

VENDOR TEST REPORT NO. CONTENTS OF PANELS HAVE NOT AS YET BEEN IDENTIFIED

APPLICABLE STANDARDS	TEST REPORT NO.
IEEE 323-1974	TEST METHOD
IEEE	DOCUMENTATION ACCEPTABILITY
IEEE	
NUREG 0588 CAT. II	QUALIFIED LIFE

TEST SEQUENCE (R:)

1. (LATER)	6.
2.	7.
3.	8.
4.	9.
5.	10.

TEST ENVIRONMENT (R:)

TIME	(LATER)
TEMP. °F	(LATER)
PRES. PSIG	(LATER)
R.H.	(LATER) %
OP. TIME DEMO	(LATER)
ACC/PERF DEMO	(LATER)

APPLICABLE ENV. ZONES

RAD G, H, L

T/P 1, 2, 5, 8, 11, 12, 16

RADIATION AGING (R:)

DOSE RATE (LATER) RAD/HR

DOSE PRIOR TO ENV. TEST (LATER) RADS

DOSE DURING ENV. TEST (LATER) RADS

TOTAL DOSE (LATER) RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF (LATER) YRS.

BASED ON AMBIENT TEMP OF (LATER) °F

AGING TEMP./ DURATION (LATER)

REL. HUMIDITY (LATER) %

NOT AGED-JUSTIFIED BY ANALYSIS TO (LATER) YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: Steve Pavey DATE: 1/12/82

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 393 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. TURBINE

MAKE TERRY MODEL GS-1

VENDOR TEST REPORT NO. NO TESTING HAS BEEN PERFORMED ON THIS DEVICE

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD

DOCUMENTATION ACCEPTABILITY

QUALIFIED LIFE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R:)

TIME	NONE
TEMP. °F	NONE
PRES. PSIG	NONE
R.H.	NONE %

OP. TIME DEMO NONE ACC/PERF DEMO NONE

APPLICABLE ENV. ZONES

RAD G

T/P 1

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED UNDETERMINED

CYCLES PERFORMED NONE
(Electro-Mechanical Equip. only)

REVIEWER: Wm P Fenner DATE: 12/18/81

R: Test Report Page No. Reference

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3914 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SHI-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. RADIATION MONITOR

MAKE GENERAL ELECTRIC MODEL 237X731G001

VENDOR TEST REPORT NO. NO TEST DATA HAS BEEN FOUND

APPLICABLE STANDARDS

IEEE 323-1971

IEEE

IEEE

NUREG 0588 CAT. II

TEST REPORT NO.

TEST METHOD

DOCUMENTATION ACCEPTABILITY

QUALIFIED LIFE

TEST SEQUENCE (R:)

1. NONE
2.
3.
4.
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R:)

TIME	NONE
TEMP. °F	NONE
PRES. PSIG	NONE
R.H.	NONE %

OP. TIME DEMO NONE ACC/PERF DEMO NONE

APPLICABLE ENV. ZONES

RAD ST

T/P ST

RADIATION AGING (R:)

DOSE RATE NONE RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST NONE RADS

TOTAL DOSE NONE RADS

THERMAL AGING (R:)

AGED TO SIMULATED LIFE OF NONE YRS.

BASED ON AMBIENT TEMP OF NONE °F

AGING TEMP./ DURATION NONE/

REL. HUMIDITY NONE %

NOT AGED-JUSTIFIED BY ANALYSIS TO NONE YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: [signature]

DATE: 1/12/32

R: Test Report Page No. Reference

Sheet ___ of ___

ENVIRONMENTAL QUALIFICATION SUMMARY NO. 3915 Revision 0
SHOREHAM NUCLEAR POWER STATION-UNIT 1

SPEC. TITLE

SPEC. NO. SH1-003 P.O. 310010 VENDOR GENERAL ELECTRIC

TEST ITEM DESC. PRESSURE TRANSMITTER

MAKE ROSEMOUNT MODEL 1152

VENDOR TEST REPORT NO. ROSEMOUNT REPORT NO. 117415, REV. B

APPLICABLE STANDARDS

IEEE 323-1971

IEEE 344-1975

IEEE

NUREG 0588 CAT. II

TEST REPORT NO. 3915-A

TEST METHOD SEQUENTIAL

DOCUMENTATION ACCEPTABILITY ACCEPTABLE

QUALIFIED LIFE 1.4 YRS

TEST SEQUENCE (R: ROSEMOUNT 117415, P33)

1. THERMAL AGING
2. RADIATION EXPOSURE
3. SEISMIC
4. STEAM-PRESSURE
5.
6.
7.
8.
9.
10.

TEST ENVIRONMENT (R: ROSEMOUNT 117415, P9)

TIME	10 MIN	1 HR	7 HRS	42 HRS
TEMP. °F	350	316	303	230
PRES. PSIG	60	70	55.4	6

R.H. 100 %

OP. TIME DEMO 50 HRS ACC/PERF DEMO 2.0% FS

APPLICABLE ENV. ZONES

RAD G, H

T/P 12, 13

RADIATION AGING (R: ROSEMOUNT 117415 P.5)

DOSE RATE 1×10^6 RAD/HR

DOSE PRIOR TO ENV. TEST NONE RADS

DOSE DURING ENV. TEST 5×10^6 RADS

TOTAL DOSE 5×10^6 RADS

THERMAL AGING (R: WYLE: 17464-3903)

AGED TO SIMULATED LIFE OF 1.4 YRS.

BASED ON AMBIENT TEMP OF 104 °F

AGING TEMP./DURATION 350°C/17HR, 316°F/1HR, 302°F/1HR, 230°F/39HR

REL. HUMIDITY 100 %

NOT AGED-JUSTIFIED BY ANALYSIS TO N/A YRS.

CYCLE AGING (R:)

CYCLES REQUIRED N/A

CYCLES PERFORMED N/A
(Electro-Mechanical Equip. only)

REVIEWER: [signature] DATE: 1/6/82

R: Test Report Page No. Reference

Sheet ___ of ___

APPENDIX C

ENVIRONMENTAL ZONE MAPS

APPENDIX C

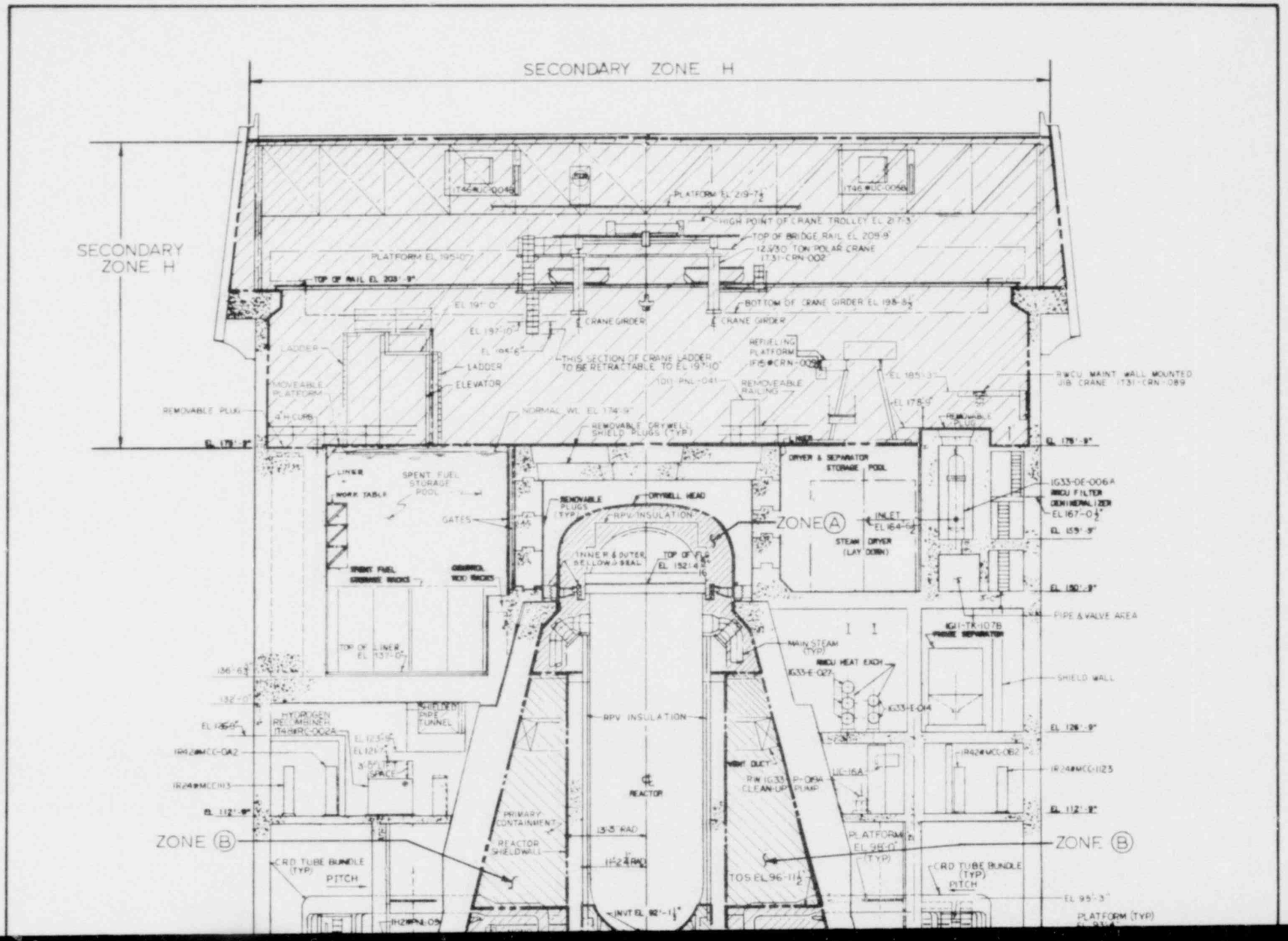
ENVIRONMENTAL ZONE MAPS

The drawings which follow define the areas of the plant determined to be in a potentially harsh environment. The drawings divide the plant into spatial zones. Radiation zones are identified with letters while pressure/temperature zones are identified with numbers. The radiation zones shown on Figures C-1 through C-15 are the same as Figures II.B.2-1 through 15 in the NUREG-0737 NRC submittal, and are included herein for convenience. Temperature and pressure zones are shown on Figures C-16 through C-22.

INDEX OF ZONE MAPS

Title	Figure No.	Zone No.'s
Radiation Zones, Section View, Reactor Containment	C-1	A,B,C,D,E, F,H
Radiation Zones, Plan El 8' to 20' North, Reactor Containment	C-2	G
Radiation Zones, Plan El 8' to 20' South, Reactor Containment	C-3	G
Radiation Zones, Plan El 20' to 40' North, Reactor Containment	C-4	G
Radiation Zones, Plan El 20' to 40' South, Reactor Containment	C-5	G
Radiation Zones, Plan El 40' to 63' North, Reactor Containment	C-6	G,L
Radiation Zones, Plan El 40' to 63' South, Reactor Containment	C-7	G,L
Radiation Zones, Plan El 63' to 78' North, Reactor Containment	C-8	G
Radiation Zones, Plan El 63' to 78' South, Reactor Containment	C-9	G,L
Radiation Zones, Plan El 78' to 112' North, Reactor Containment	C-10	G,H,M
Radiation Zones, Plan 78' to 112' South, Reactor Containment	C-11	G,H
Radiation Zones, Plan El 76' to 96', Reactor Containment	C-12	T
Radiation Zones, Plan El 112' to 150' North, Reactor Containment	C-13	H,J,K,N,P
Radiation Zones, Plan El 112' to 150' South, Reactor Containment	C-14	H,J,N,P
Radiation Zones, 150' and Partial Plans, Reactor Containment	C-15	H,N,P,Q,R,S
Temperature and Pressure Zones, Plan El 8' to 40', Reactor Containment	C-16	1

Title	Figure No.	Zone No.'s
Temperature and Pressure Zones, Plan El 40' to 63', Reactor Containment	C-17	2,21
Temperature and Pressure Zones, Plan El 63' to 78', Reactor Containment	C-18	2,3,4,5, 6,7
Temperature and Pressure Zones, Plan El 78' to 112', Reactor Containment	C-19	8,9,10, 11,12
Temperature and Pressure Zones, Plan El 112' to 150', Reactor Containment	C-20	13,14,15, 16,17,21
Temperature and Pressure Zones, Plan El 150' to 175', Reactor Containment	C-21	18,19,21
Temperature and Pressure Zones, Section View, Reactor Containment	C-22	20,22,23


SECONDARY ZONE H
SECONDARY ZONE H
PLATFORM EL 219'-7½"
HIGH POINT OF CRANE TROLLEY EL 217'-3"
TOP OF BRIDGE RAIL EL 209'-9"
125/30 TON POLAR CRANE (T31-CRN-002)
PLATFORM EL 195'-10"
TOP OF RAIL EL 203'-9"
EL 191'-0"
EL 197'-10"
BOTTOM OF CRANE GIRDER EL 198'-8½"
CRANE GIRDER
CRANE GIRDER
LADDER
LADDER
ELEVATOR
THIS SECTION OF CRANE LADDER TO BE RETRACTABLE TO EL 191'-10"
REFUELING PLATFORM (F15-CRN-003)
MOVEABLE PLATFORM
4" H CURB
REMOVABLE PLUG
NORMAL WL EL 174'-9"
REMOVABLE DRYWELL SHIELD PLUGS (TYP)
REMOVEABLE RAILING
EL 185'-3"
EL 178'-9"
RWCU MAINT WALL MOUNTED JIB CRANE (T31-CRN-089)
EL 179'-9"
LINER
WORK TABLE
SPENT FUEL STORAGE POOL
GATES
SPENT FUEL STORAGE RACKS
CONTROL ROD RACKS
TOP OF LINER EL 151'-0"
REMOVABLE PLUGS (TYP)
DRYWELL HEAD
RPV INSULATION
INNER & OUTER BELLOWS SEAL
TOP OF V EL 152'-4"
ZONE (A)
INLET EL 164'-6½"
STEAM DRYER (LAY DOWN)
DRYER & SEPARATOR STORAGE POOL
1G33-0E-006A RWCU FILTER DEMINERALIZER
EL 167'-0½"
EL 159'-9"
EL 150'-9"
PIPE & VALVE AREA
136'-6"
132'-0"
EL 145'-0"
NITROGEN RECOMBINER (T48-RRC-002A)
EL 123'-6"
EL 121'-0"
3'-6" FILL
SURFACE
EQUIPMENT PIPE TUNNEL
1R42-MCC-002
1R24-MCC-013
EL 112'-9"
ZONE (B)
CRD TUBE BUNDLE (TYP)
PITCH
1R24-MCC-012
1R24-MCC-1123
EL 112'-9"
MAIN STEAM (TYP)
RWCU HEAT EXCH
1G33-E-027
1G33-E-014
1G11-TK-107B PRIMARY SEPARATOR
SHIELD WALL
EL 126'-9"
RPV INSULATION
REACTOR
PRIMARY CONTAINMENT
REACTOR SHIELDWALL
13'-3" RAD
11'-2" RAD
INVT EL 82'-1½"
RW 1G33-P-001A CLEAN-UP PUMP
VENT DUCT
VC-16A
PLATFORM EL 98'-0" (TYP)
TOS EL 96'-11½"
ZONE (B)
CRD TUBE BUNDLE (TYP)
PITCH
EL 95'-3"
PLATFORM (TYP)

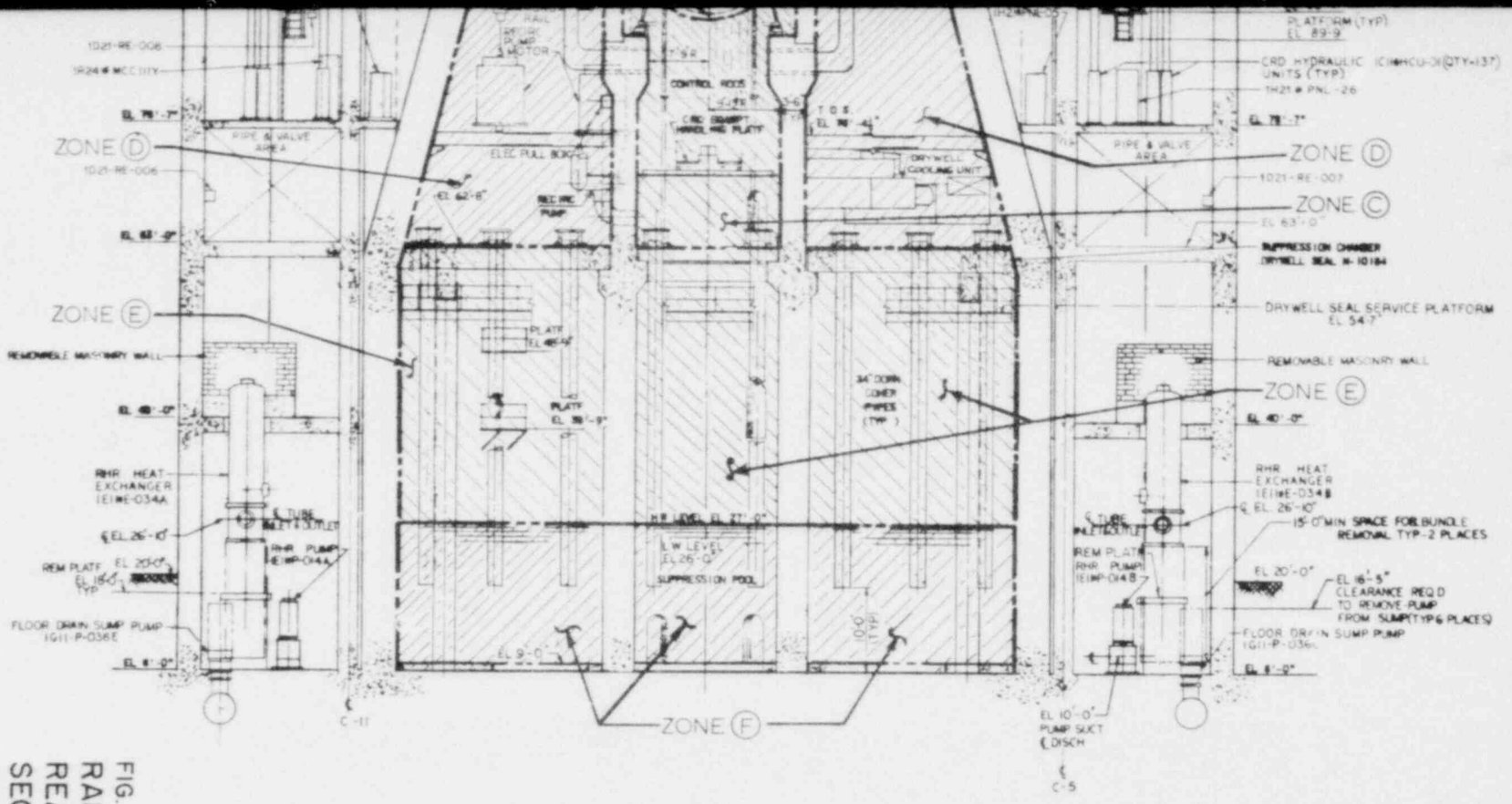
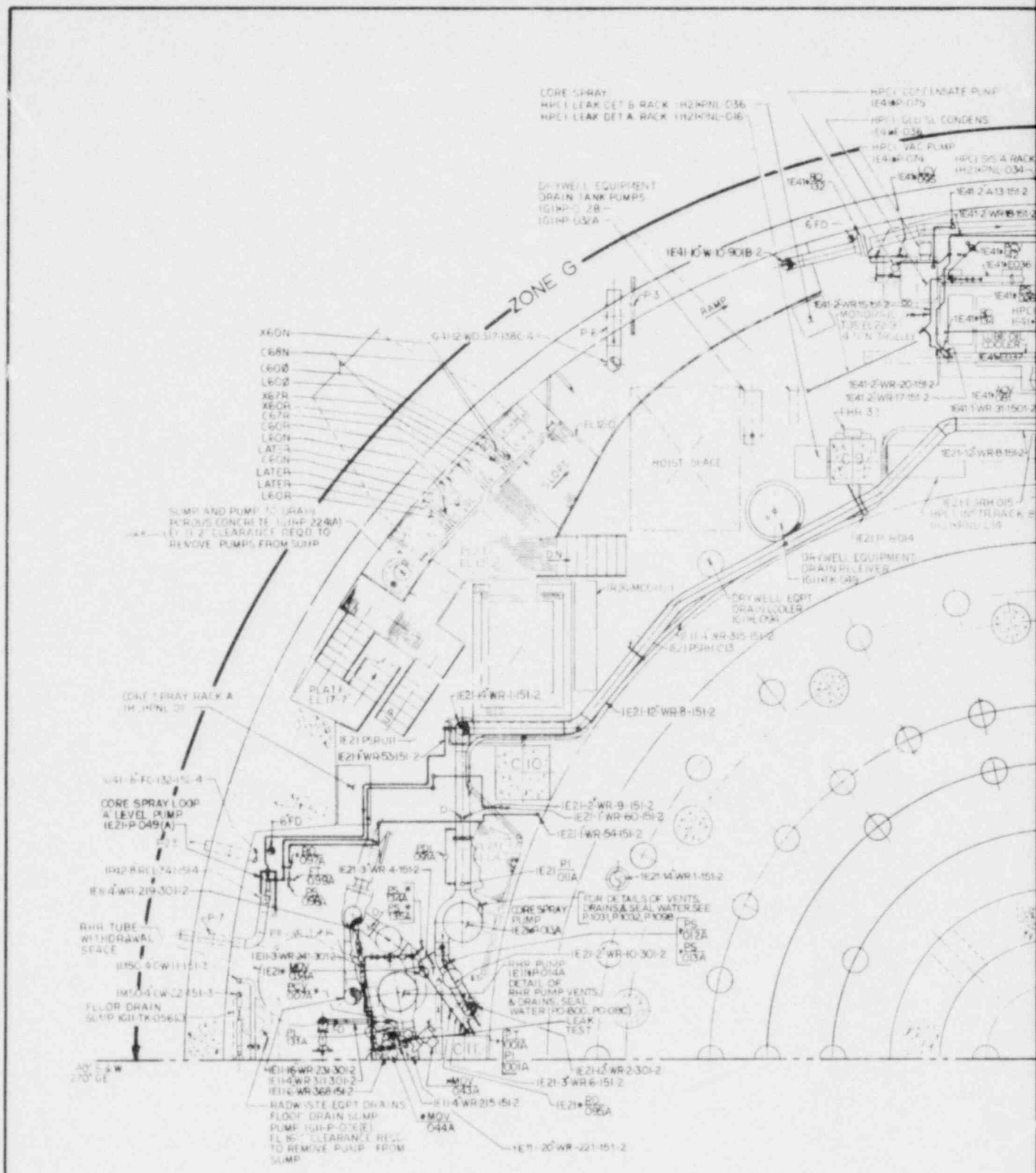


FIG. C-1

RADIATION ZONES A,B,C,D,E,F,H
REACTOR CONTAINMENT
SECTION VIEW

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT


ZONE G
CORE SPRAY
HPCI LEAK DET B RACK 1H2KPNL 036
HPCI LEAK DET A RACK 1H2KPNL 046
HPCI CONDENSATE PUMP
HPCI GLAND SL CONDENS
HPCI VAC PUMP
HPCI SYS A RACK
DRYWELL EQUIPMENT DRAIN TANK PUMPS
RAMP
HOIST SPACE
SUMP AND PUMP TO DRAIN POROUS CONCRETE
DRYWELL EQPT DRAIN COOLER
DRYWELL EQUIPMENT DRAIN RECEIVER
CORE SPRAY RACK A
CORE SPRAY LOOP A LEVEL PUMP
RHR TUBE WITHDRAWAL SPACE
CORE SPRAY PUMP
RHR PUMP
FOR DETAILS OF VENTS, DRAINS & SEAL WATER SEE P.1031, P.1032, P.1038
FLOOR DRAIN SUMP
RADWASTE EQPT DRAINS FLOOR DRAIN SUMP PUMP
LEAK TEST
PLATE EL 17'-7"
PLATE EL 12'-0"
EL 12'-0"

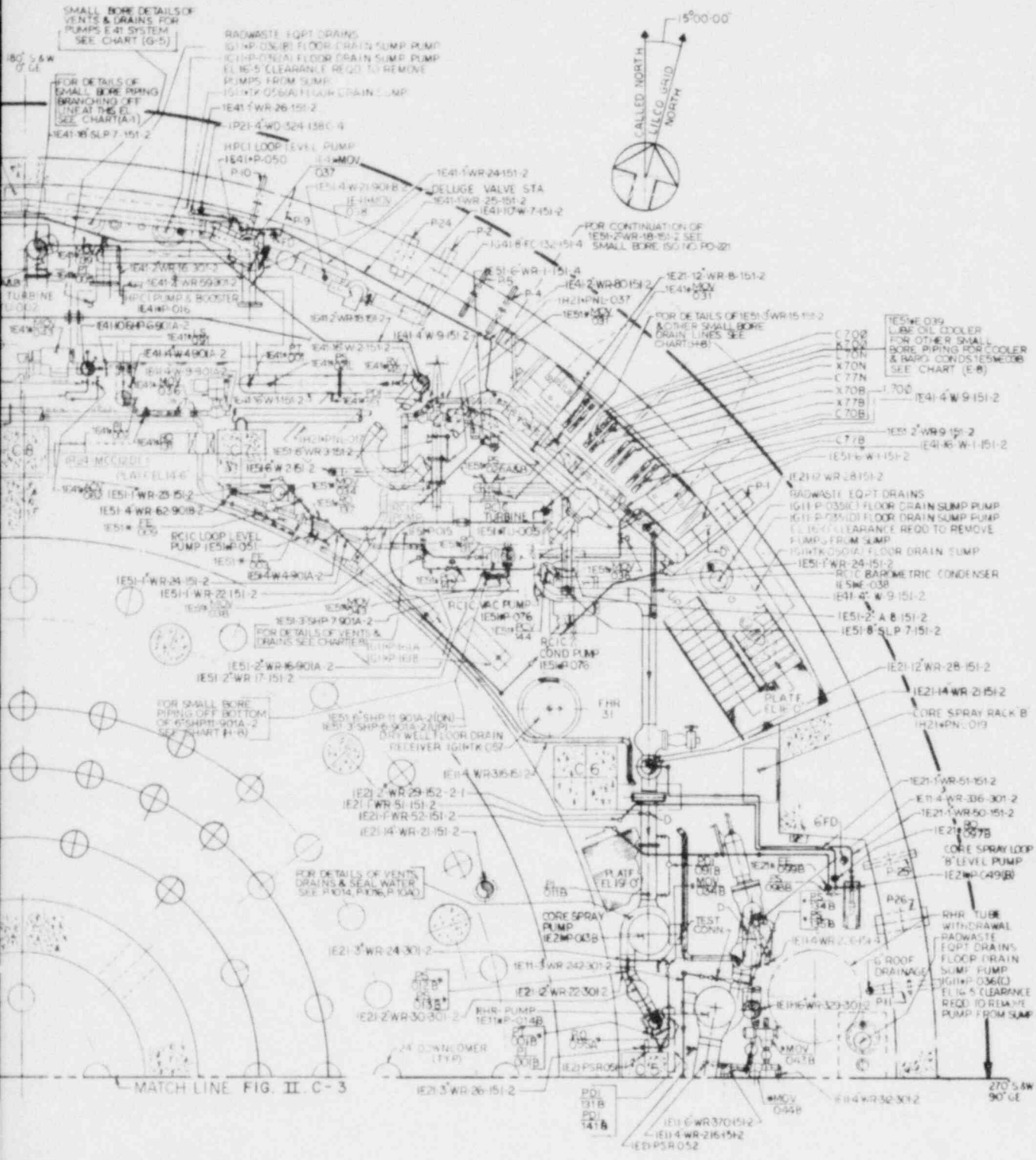
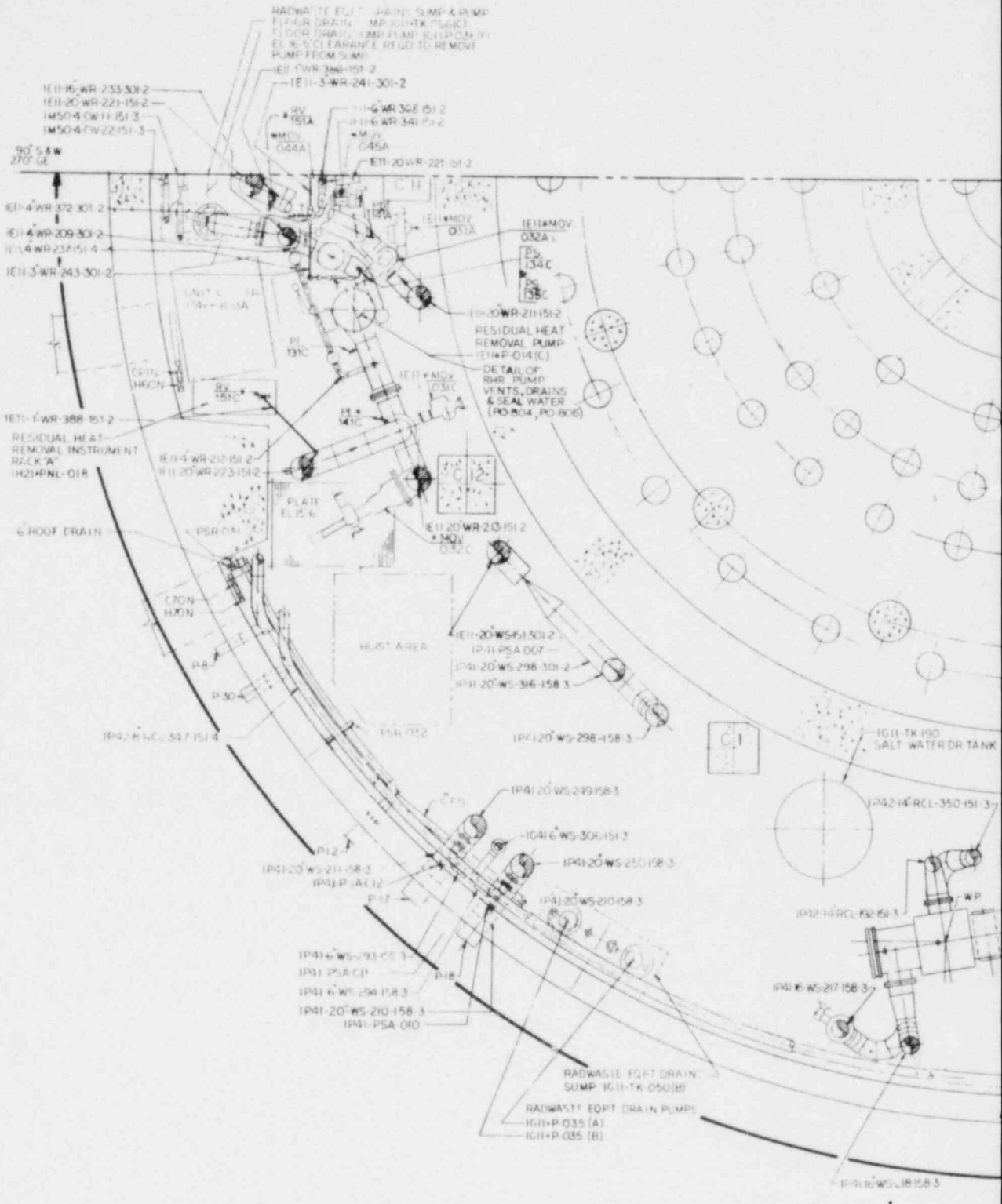


FIG. C-2

RADIATION ZONE G
REACTOR CONTAINMENT
PLAN EL. 8'-0" TO 20'-0" NORTH

SHOREHAM NUCLEAR POWER STATION UNIT-1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT


RADWASTE EQPT DRAIN SUMP & PUMP
FLOOR DRAIN SUMP PUMP (G11-P-038(F))
EL 16'-5" CLEARANCE REQD TO REMOVE PUMP FROM SUMP
1E11-16"WR-233-301-2
1E11-20"WR-221-151-2
1M50-4"DW-151-3
1M50-4"DW-221-151-3
90° S & W
270° GE
1E11-4"WR-372-301-2
1E11-4"WR-209-301-2
1E11-4"WR-237-151-4
1E11-3"WR-243-301-2
1E11-6"WR-388-151-2
RESIDUAL HEAT REMOVAL INSTRUMENT RACK 'A'
1H21-P-NL-018
1E11-4"WR-217-151-2
1E11-20"WR-223-151-2
6" ROOF DRAIN
PSR-031
C/DN
H/DN
P-8
P-30
1P42-6"WC-547-151-4
PLATE EL 15'-6"
HEAT AREA
PSR-032
1E11-6"WR-368-151-2
1E11-6"WR-341-151-2
1E11-20"WR-221-151-2
1E11-*MOV 044A
1E11-*MOV 045A
1E11-*MOV 031A
1E11-*MOV 032A
1E11-*MOV 033C
1E11-*MOV 042C
1E11-20"WR-213-151-2
1E11-20"WR-211-151-2
RESIDUAL HEAT REMOVAL PUMP 1E11-*P-014(C)
DETAIL OF RHR PUMP VENTS, DRAINS & SEAL WATER (PO-804, PO-806)
1E11-20"WS-61-301-2
1P41-PSA-007
1P41-20"WS-298-301-2
1P41-20"WS-316-158-3
1P41-20"WS-298-158-3
1P41-20"WS-219-158-3
1041-6"WS-306-151-2
1P41-20"WS-250-158-3
1P41-20"WS-210-158-3
1P41-6"WS-293-158-3
1P41-PSA-011
1P41-6"WS-294-158-3
1P41-20"WS-210-158-3
1P41-PSA-010
1G11-TK-190 SALT WATER DR TANK
1P42-14"RCL-350-151-3
1P42-14"RCL-352-151-3
WP
1P41-6"WS-217-158-3
RADWASTE EQPT DRAIN SUMP 1G11-TK-050(B)
RADWASTE EQPT DRAIN PUMPS
1G11-P-035 (A)
1G11-P-035 (B)
1P41-16"WS-18-158-3

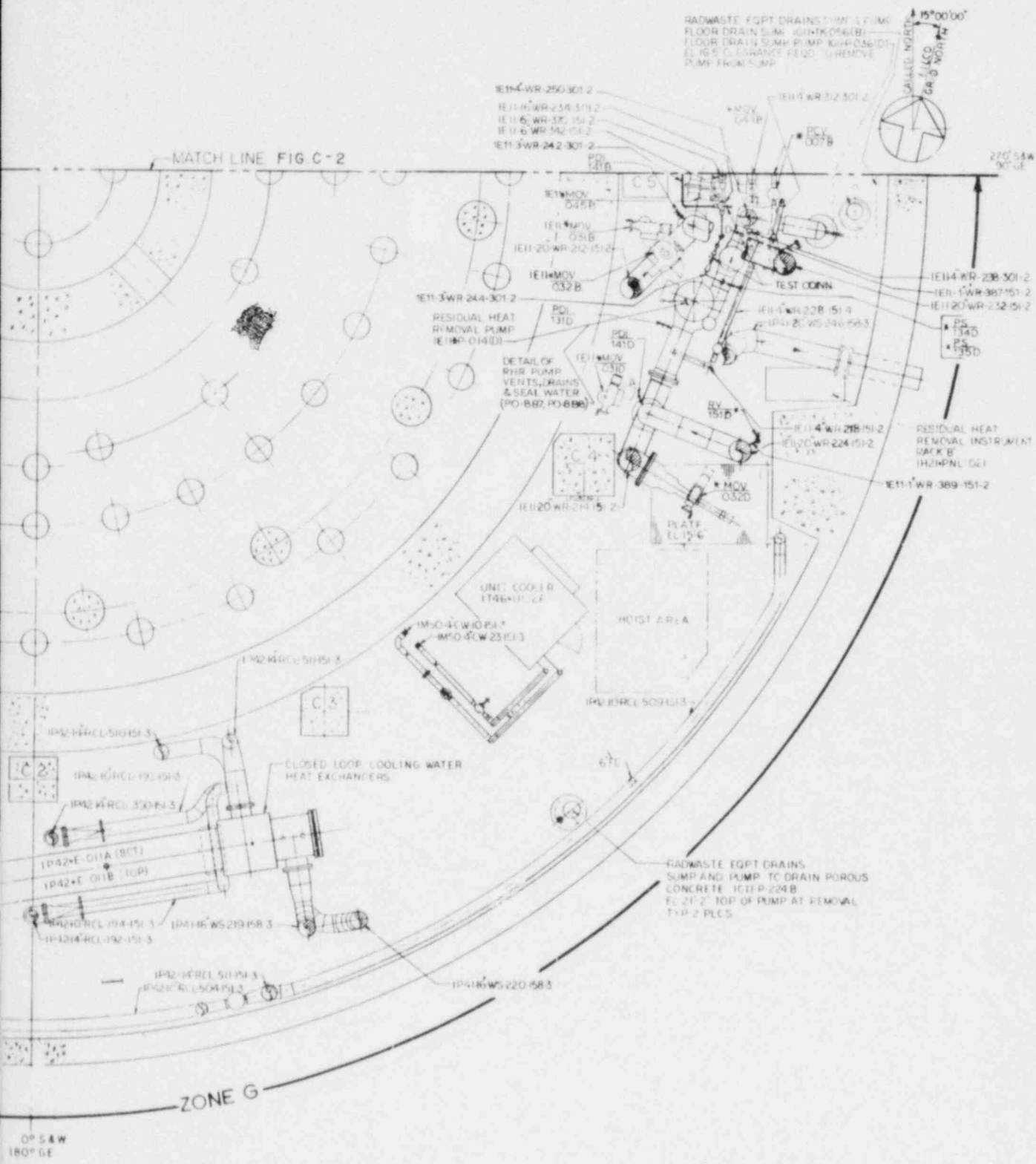


FIG. C-3

RADIATION ZONE G

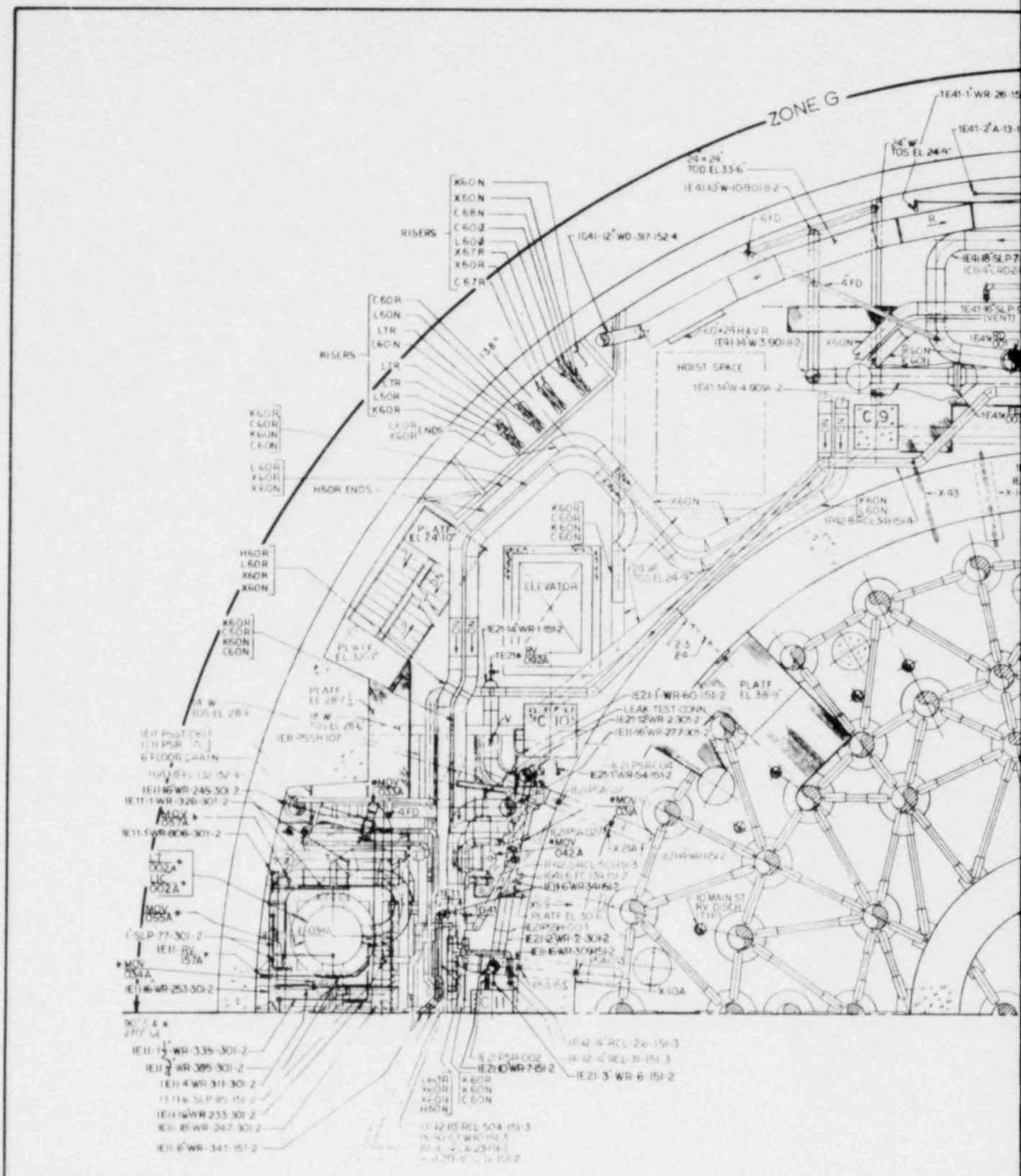
REACTOR CONTAINMENT

PLAN EL. 8'0" TO 20'0" SOUTH

SHOREHAM NUCLEAR POWER STATION-UNIT I

ENVIRONMENTAL QUALIFICATION REPORT

FOR CLASS IE ELECTRICAL EQUIPMENT


ZONE G
RISERS
HOIST SPACE
ELEVATOR
PLATF EL 24'10"
PLATF EL 32'-1"
PLATF EL 28'7"
PLATF EL 38'-9"
H60R ENDS
MAIN ST RV DISCH (TYP)
LEAK TEST CONN
C 9
C 10
C 11

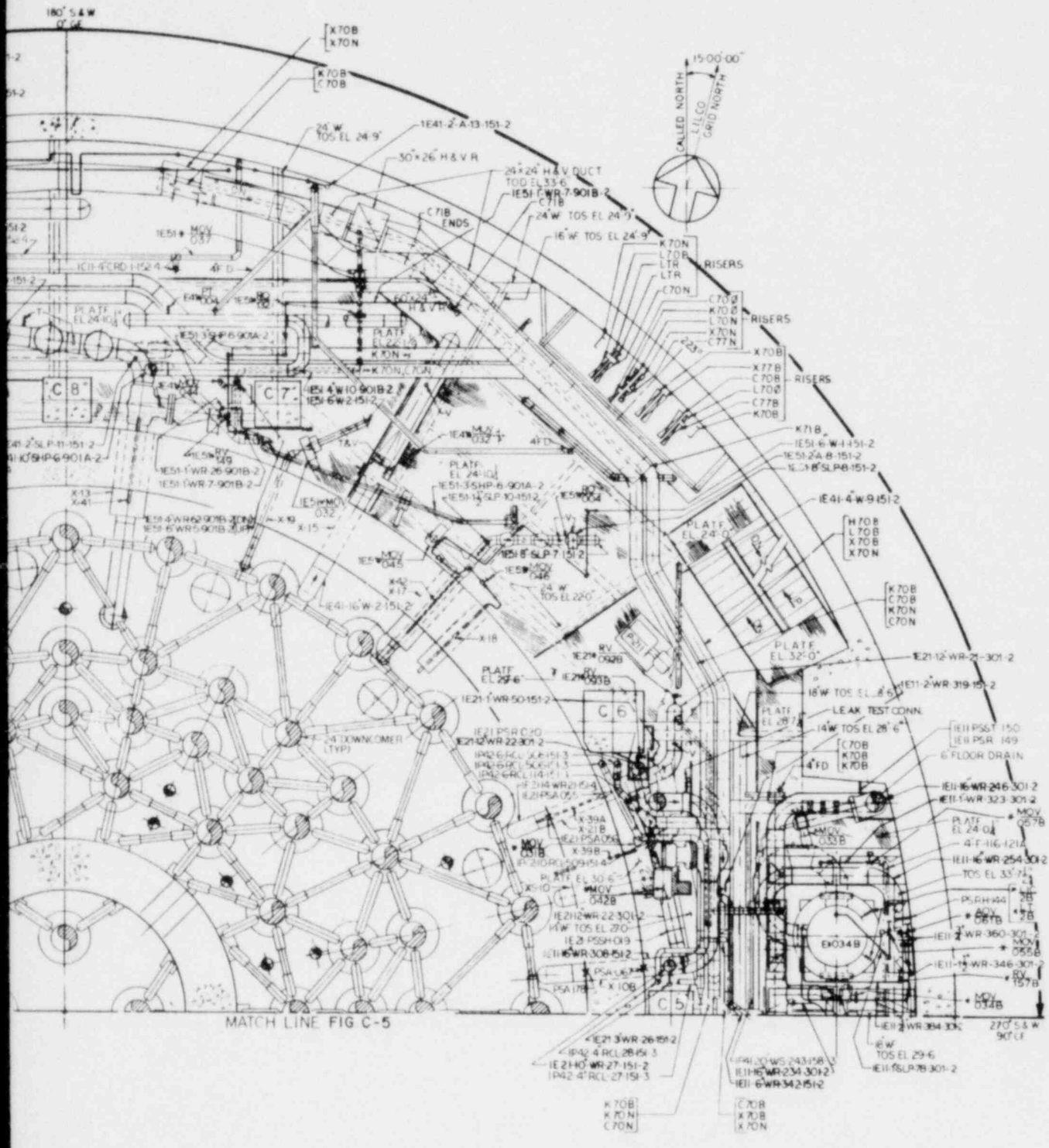


FIG. C-4

RADIATION ZONE G

REACTOR CONTAINMENT

PLAN EL. 20'0" TO 40'0" NORTH

SHOREHAM NUCLEAR POWER STATION UNIT I

ENVIRONMENTAL QUALIFICATION REPORT

FOR CLASS IE ELECTRICAL EQUIPMENT


ZONE G
HOIST AREA
UNIT COOLER
ELECT DUCT
4" DOWNCOMER (TYP)
PLATF EL 24'-0"
PLATF EL 35'-6"
PLATF EL 24'-6"
24 W 105 EL 30-10" REMOVABLE BEAM
24 W 105 EL 31'-6" REMOVABLE BEAM
24 W 105 EL 22'-0" REMOVABLE BEAM
C 11
C 12
X-9A-75
XS-5
MOV 031A
MOV 031B
MOV 031C
MOV 034A
MOV 035A
MOV 035B
MOV 035C
MOV 035D
MAIN STEAM RV DISCH
H-70-N
C-70-N
E-70-N
K60R
K60N
E60R
E60N
X60N
H-1 APPL GR
ROOF DRAIN

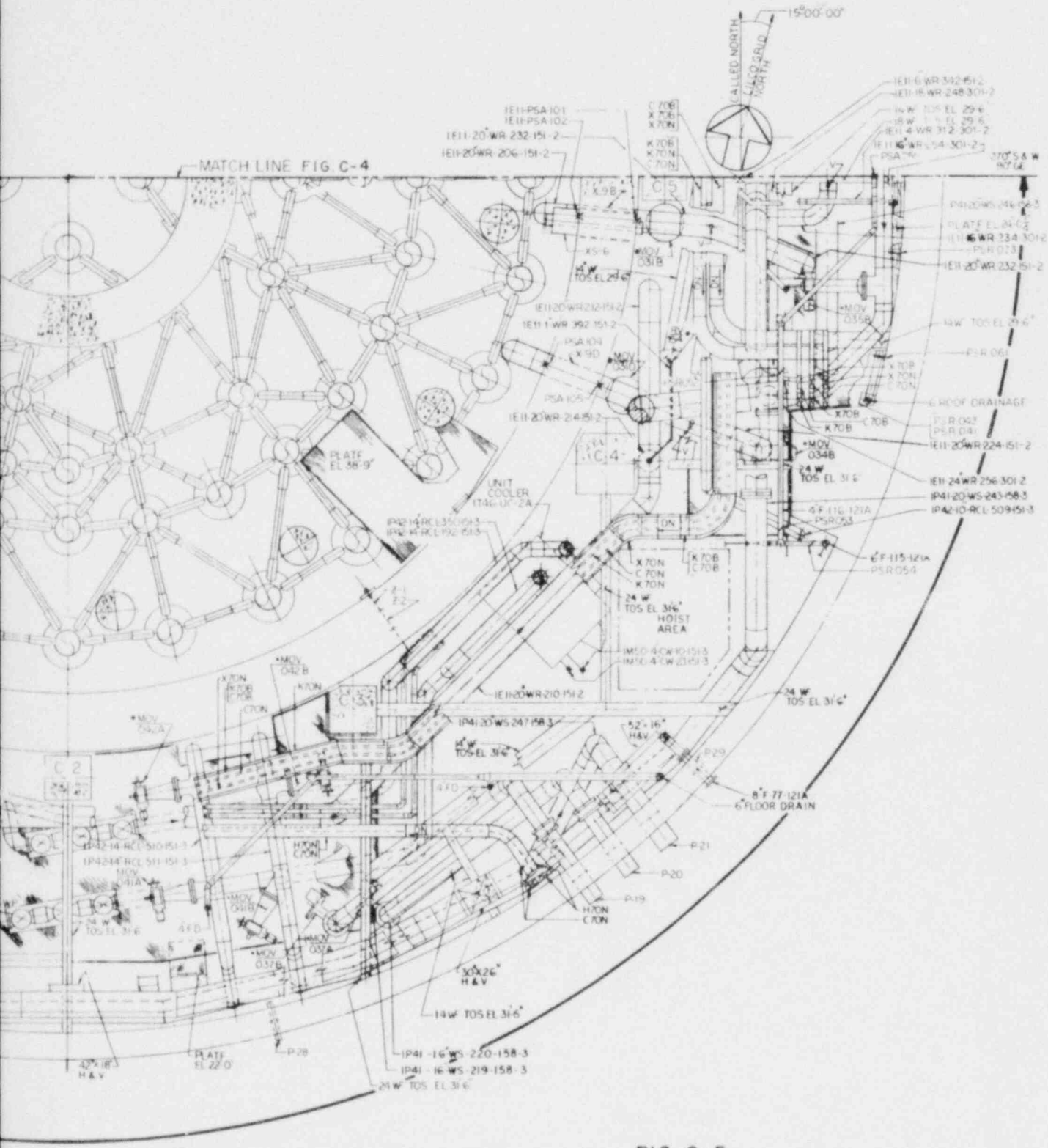
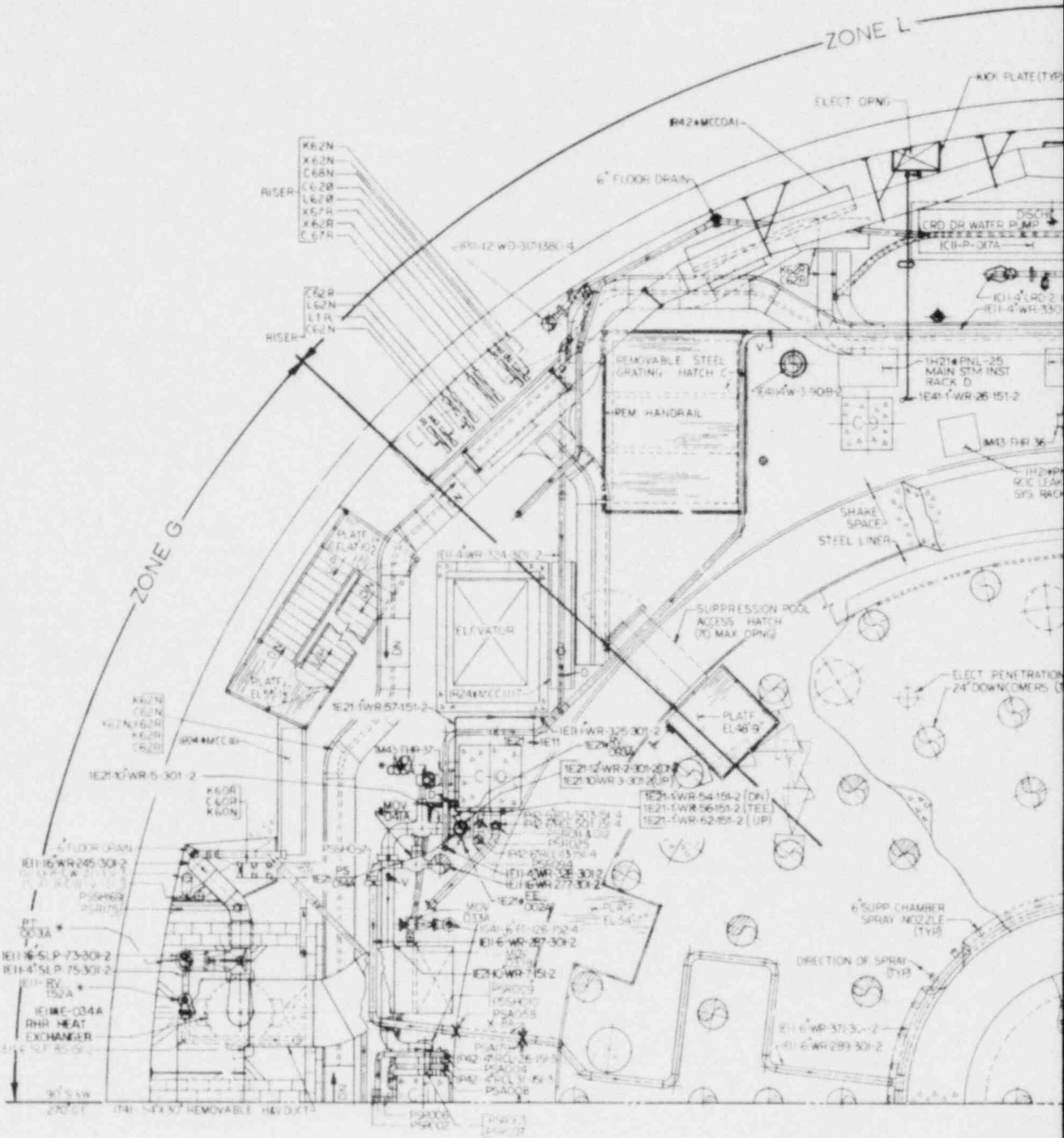


FIG. C-5
RADIATION ZONE G
REACTOR CONTAINMENT
PLAN EL. 20'0" TO 40'0" SOUTH
SHOREHAM NUCLEAR POWER STATION UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT


ZONE L
ZONE G
KICK PLATE (TYP)
ELECT OPNG
6" FLOOR DRAIN
RISER
REMOVABLE STEEL GRATING HATCH C
PEM HANDRAIL
SHAKE SPACE
STEEL LINER
SUPPRESSION POOL ACCESS HATCH (70 MAX OPNG)
ELEVATOR
PLATF EL 46'-9"
PLATF EL 54'-0"
ELECT PENETRATION 24" DOWNCOMERS
6" SUPP CHAMBER SPRAY NOZZLE (TYP)
DIRECTION OF SPRAY (TYP)
1E12-F004A RHR HEAT EXCHANGER
1E11-RV-152A *
1E11-PT-003A *
1E11-F004A
1E11-F004B
1E11-F004C
1E11-F004D
1E21-F005
1E21-F006
1E21-F007
1E21-F008
1E21-F009
1E21-F010
1E21-F011
1E21-F012
1E21-F013
1E21-F014
1E21-F015
1E21-F016
1E21-F017
1E21-F018
1E21-F019
1E21-F020
1E21-F021
1E21-F022
1E21-F023
1E21-F024
1E21-F025
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1E21-F866
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1E21-F868
1E21-F869
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1E21-F871
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1E21-F992
1E21-F993
1E21-F994
1E21-F995
1E21-F996
1E21-F997
1E21-F998
1E21-F999
1E21-F1000

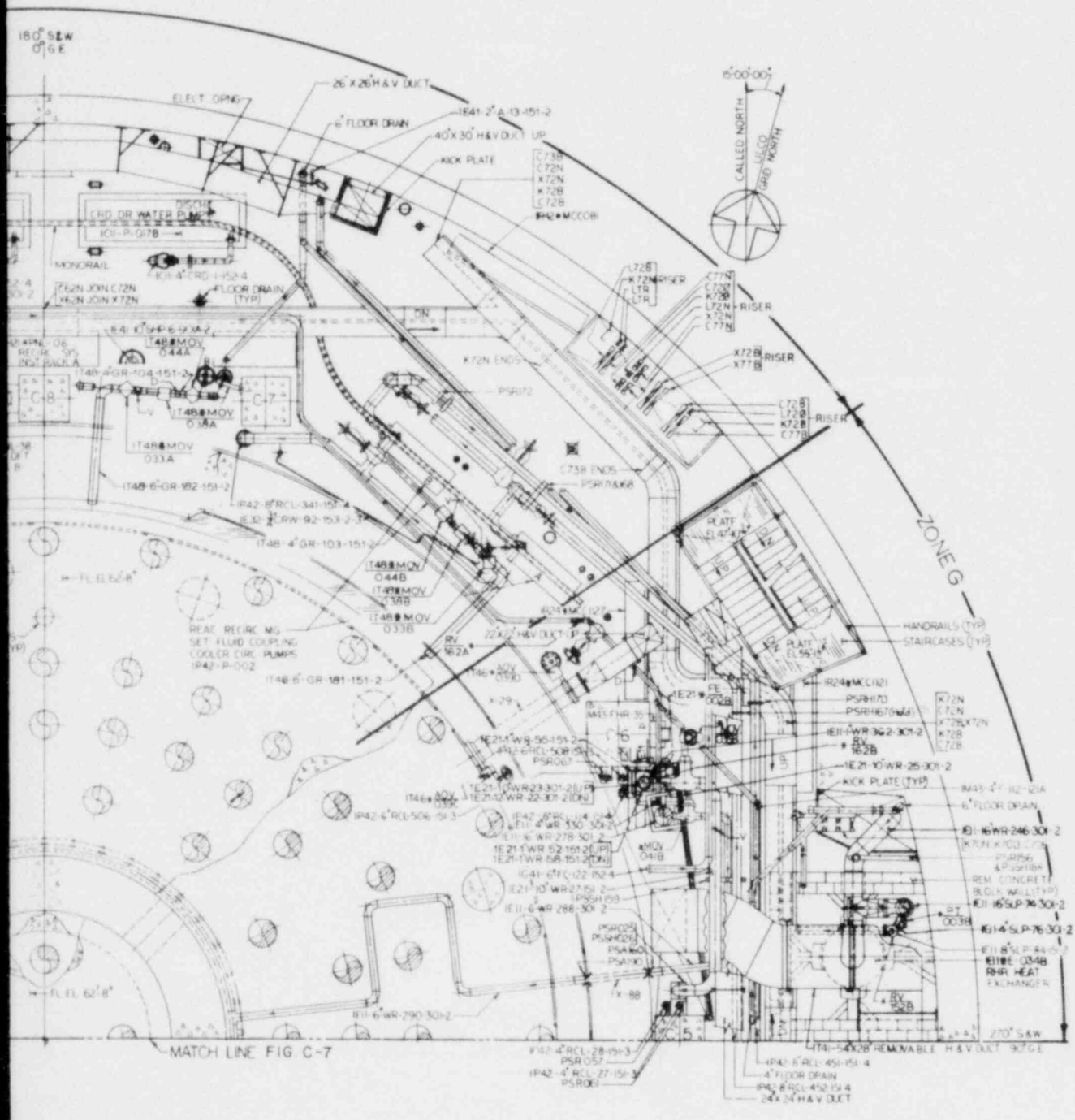


FIG. C-6

RADIATION ZONE G, L

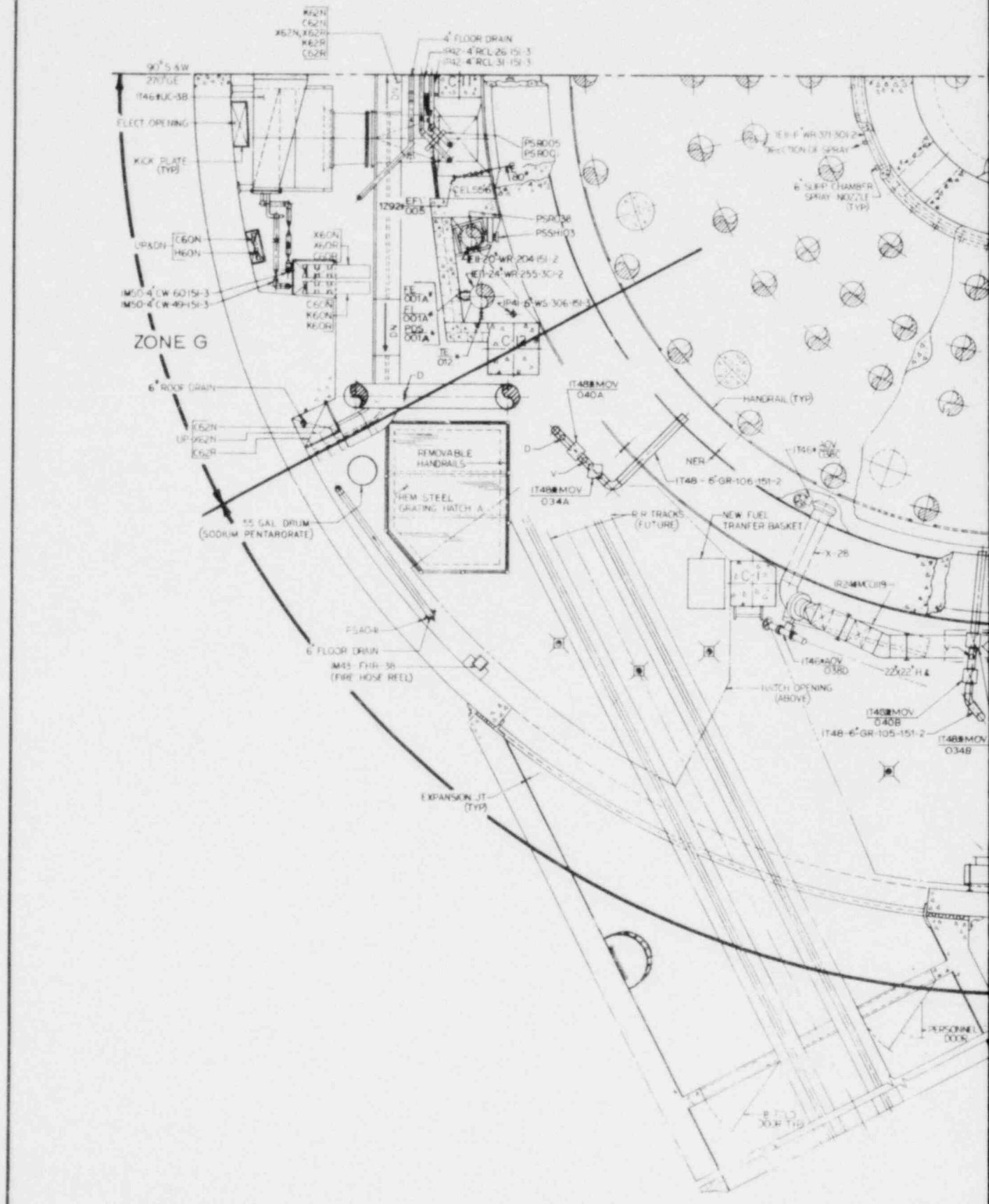
REACTOR CONTAINMENT

PLAN EL. 40'0" TO 63'0" NORTH

SHOREHAM NUCLEAR POWER STATION UNIT I

ENVIRONMENTAL QUALIFICATION REPORT

FOR CLASS IE ELECTRICAL EQUIPMENT


ZONE G
REMOVABLE HANDRAILS
HEM STEEL GRATING HATCH A
HANDRAIL (TYP)
NEW FUEL TRANFER BASKET
R.R TRACKS (FUTURE)
55 GAL DRUM (SODIUM PENTAROATE)
6" FLOOR DRAIN
6" ROOF DRAIN
4" FLOOR DRAIN
EXPANSION JT (TYP)
HATCH OPENING (ABOVE)
6" SUMP CHAMBER SPRAY NOZZLE (TYP)
KICK PLATE (TYP)
ELECT OPENING
90° S & W 2 7/16"

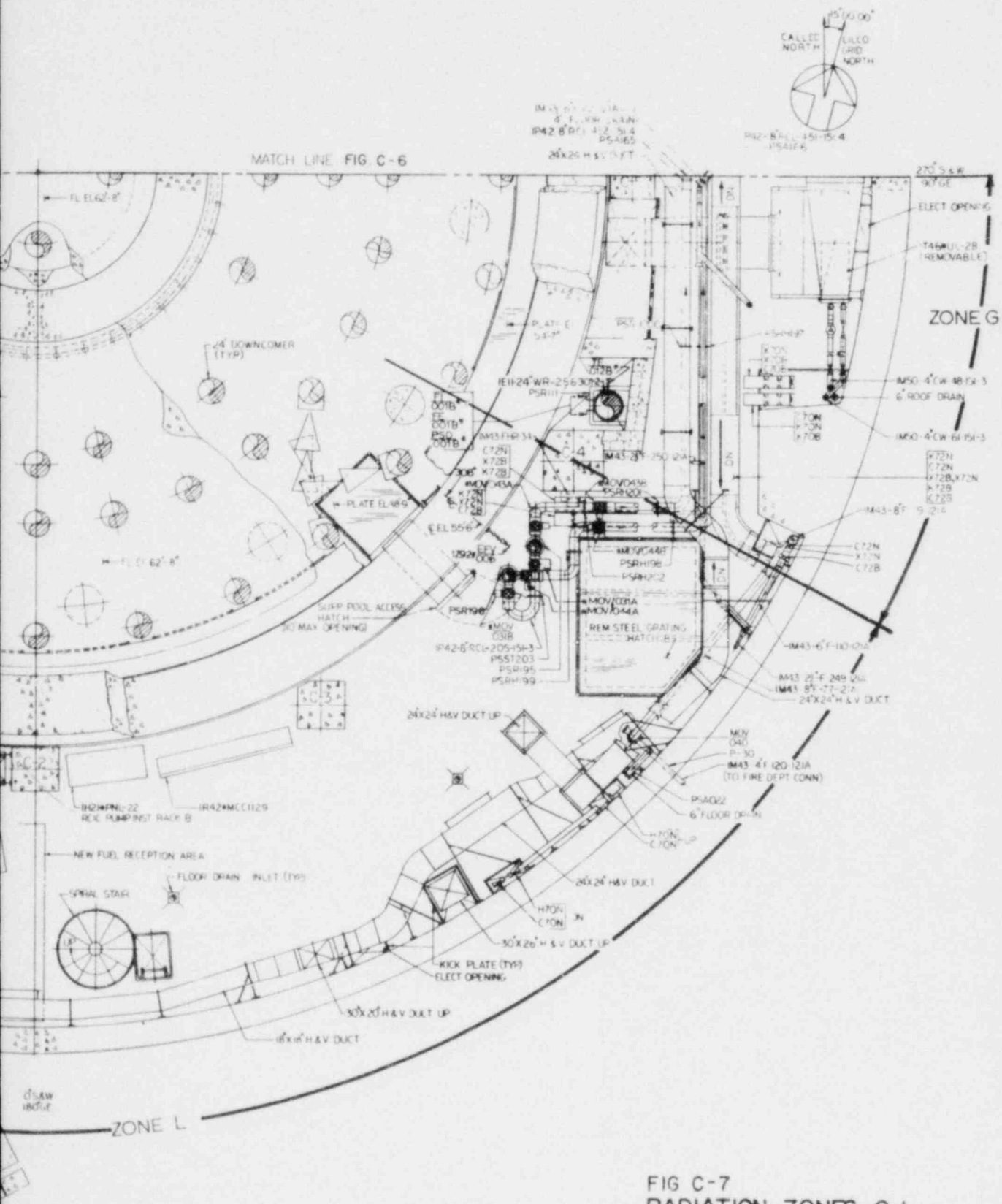
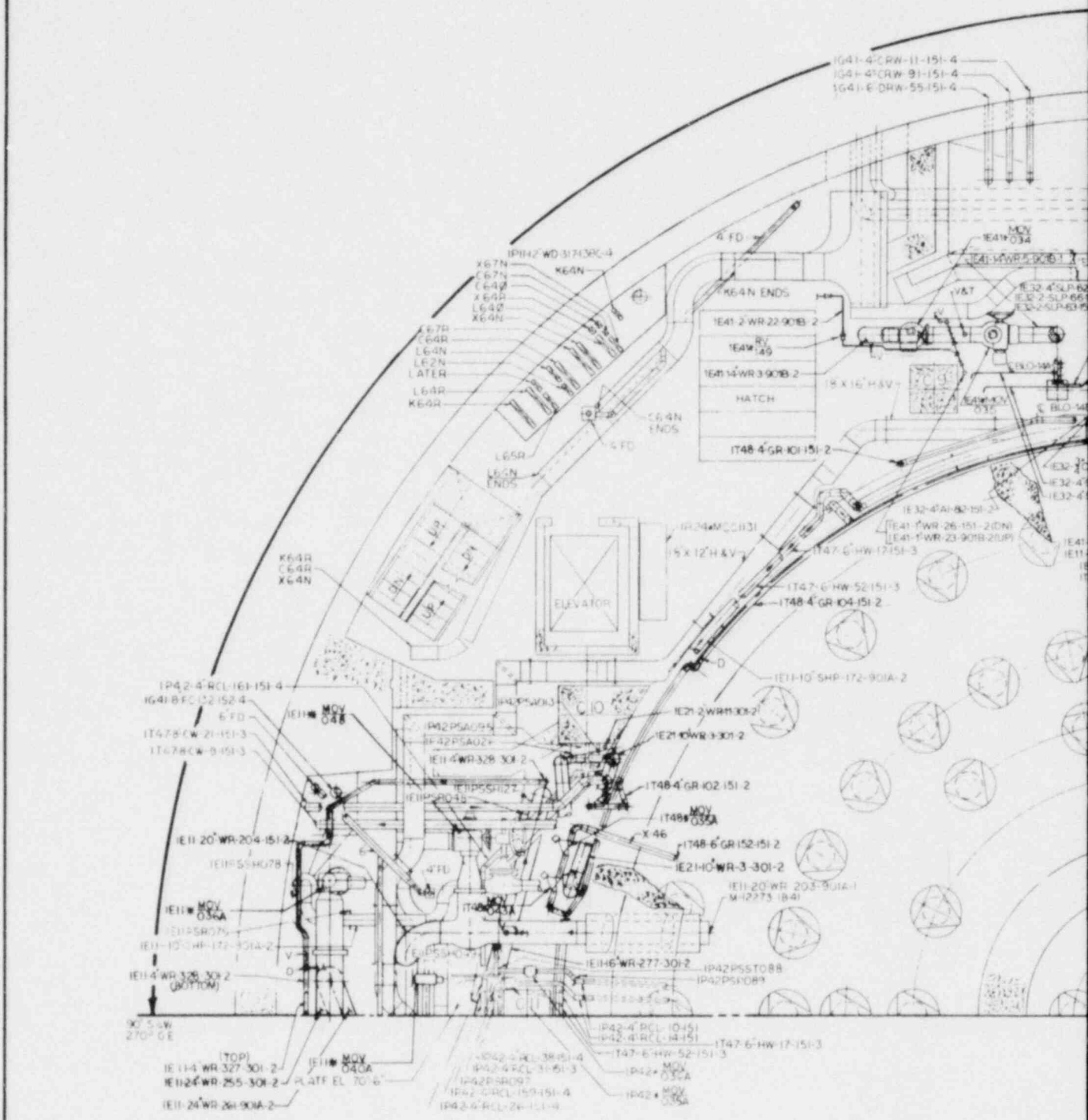


FIG C-7
RADIATION ZONES G, L
REACTOR CONTAINMENT
PLAN EL. 40' 0" TO 63' 0" SOUTH
SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT


1G41-4"CRW-11-151-4
1G41-4"CRW-91-151-4
1G41-6"DRW-55-151-4
1P11-2"WD-3173RC-4
X67N
C67N
C64P
X64P
L64P
X64N
X67P
C64R
L64N
L62N
LATER
L64R
K64R
K64N
K64N ENDS
1E41-2"WR-22-901B-2
1E41-1"WR-23-901B-2(UP)
1E41-1"WR-26-151-2(DN)
1E32-4"SLP-63-151-2
1E32-2"SLP-66-151-2
1E32-2"SLP-63-151-2
1E41-4"WR-5-901B-1
1E41-4"WR-9-901B-1
1E41 MOV 034
1E41-14"WR-3-901B-2
HATCH
1T48-4"GR-101-151-2
1T48-4"GR-104-151-2
1T48-4"GR-102-151-2
1T48-6"GR-152-151-2
1T47-6"HW-17-151-3
1T47-6"HW-52-151-3
1T47-6"HW-52-151-3
1T47-6"HW-17-151-3
1T47-8"CW-21-151-3
1T47-8"CW-9-151-3
1P42-4"RCL-161-151-4
1G41-8"FC-02-152-4
1P42-4"RCL-104-151-4
1P42-4"RCL-14-151-4
1P42-4"RCL-38(6)-4
1P42-4"RCL-31-151-3
1P42-6"RCL-159-151-4
1P42-4"RCL-26-151-4
1P42PSA033
1P42PSA094
1P42PSA022
1P42PSR097
1P42PSR088
1P42PSR089
1P42PSR078
1P42PSR076
1P42PSR045
1P42PSR127
1P42PSR128
1P42PSR129
1P42PSR130
1P42PSR131
1P42PSR132
1P42PSR133
1P42PSR134
1P42PSR135
1P42PSR136
1P42PSR137
1P42PSR138
1P42PSR139
1P42PSR140
1P42PSR141
1P42PSR142
1P42PSR143
1P42PSR144
1P42PSR145
1P42PSR146
1P42PSR147
1P42PSR148
1P42PSR149
1P42PSR150
1P42PSR151
1P42PSR152
1P42PSR153
1P42PSR154
1P42PSR155
1P42PSR156
1P42PSR157
1P42PSR158
1P42PSR159
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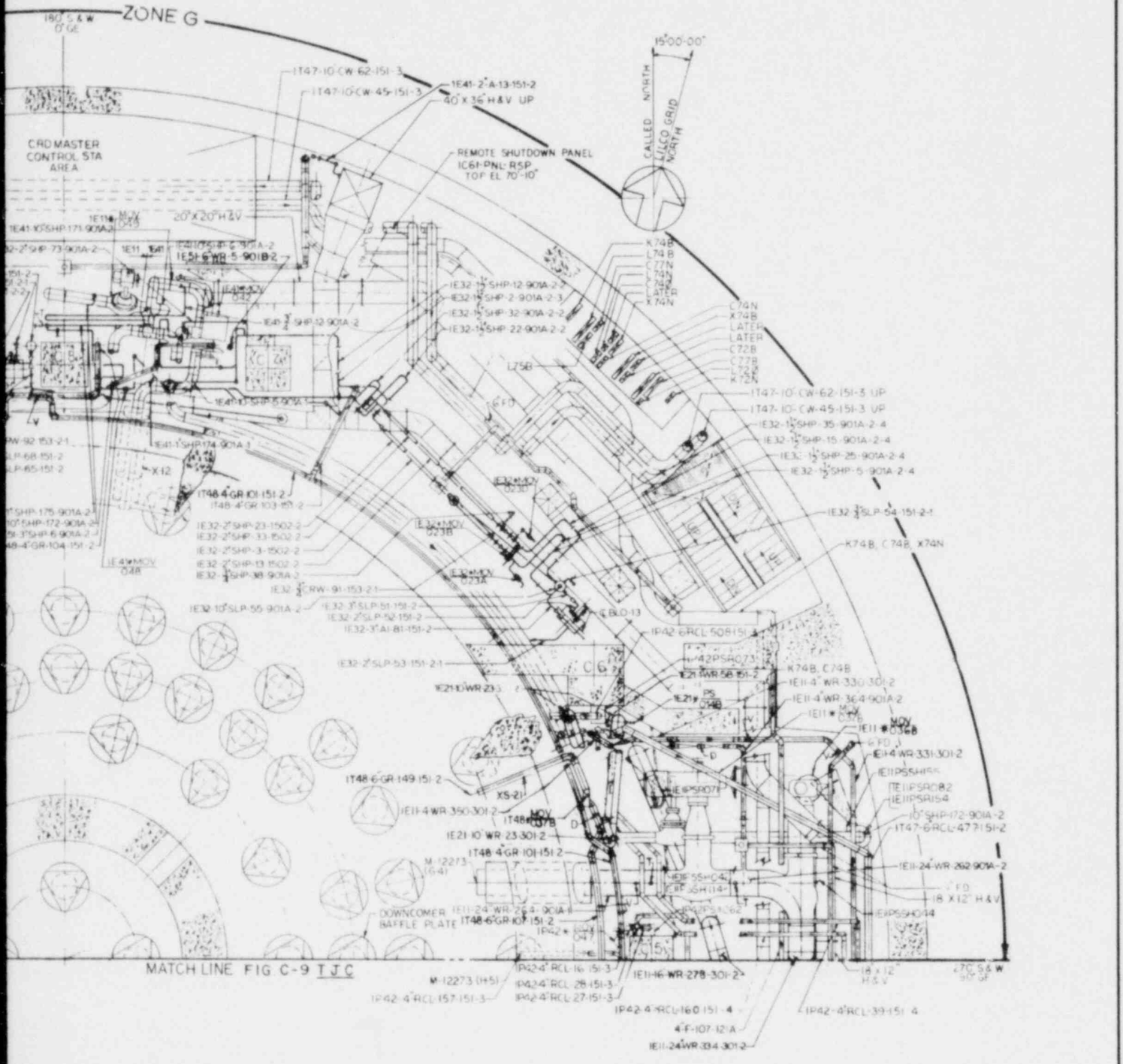
1P42PSR162
1P42PSR163
1P42PSR164
1P42PSR165
1P42PSR166


ZONE G
180° S & W
0° GE
15°00'00"
CALLED NORTH
LILCO GRID NORTH
CRD MASTER CONTROL STA AREA
REMOTE SHUTDOWN PANEL
1C61-PNL-RSP
TOP EL 70'-10"
20"X20" H&V
40"X36" H&V UP
1T47-10"-CW-62-151-3
1T47-10"-CW-45-151-3
1E41-2"-A-13-151-2
1E51-6"WR-5-901B-2
1E41-10"SHP-171-901A-2
1E41-1"SHP-174-901A-1
1E32-1½"SHP-12-901A-2-3
1E32-1½"SHP-2-901A-2-3
1E32-1½"SHP-32-901A-2-2
1E32-1½"SHP-22-901A-2-2
1E32-1½"SHP-35-901A-2-4
1E32-1½"SHP-15-901A-2-4
1E32-1½"SHP-25-901A-2-4
1E32-1½"SHP-5-901A-2-4
1E32-3½"SLP-54-151-2-1
K74B, C74B, X74N
L74B
C77N
C74N
LATER
C72B
C77B
L72A
K72N
L75B
1T47-10"-CW-62-151-3 UP
1T47-10"-CW-45-151-3 UP
1E41-1"SHP-5-901A
1E41-1"SHP-12-901A-2
1E41-1"SHP-73-901A-2
1E41-1"SHP-74-901A-1
1E11-4"WR-330-301-2
1E11-4"WR-364-901A-2
1E11-4"WR-331-301-2
1E11PSH-R
1E11PSR-082
1E11PSR-154
1E11-24"WR-262-901A-2
1E11-16"WR-278-301-2
1E11-24"WR-334-301-2
1E21-10"WR-23-301-2
1E21-4"WR-58-151-2
1E21-10"WR-233
1T48-4"GR-101-151-2
1T48-4"GR-103-151-2
1T48-4"GR-104-151-2
1T48-6"GR-149-151-2
1T48-6"GR-107-151-2
1T48-4"GR-175-901A-2
1T48-4"GR-172-903A-24
1E32-2"SHP-23-150Z-2
1E32-2"SHP-33-150Z-2
1E32-2"SHP-3-150Z-2
1E32-2"SHP-13-150Z-2
1E32-¾"SHP-38-901A-2
1E32-¾"CRW-91-153-2-1
1E32-10"SLP-55-901A-2
1E32-3"SLP-51-151-2
1E32-2"SLP-52-151-2
1E32-3"A1-81-151-2
1E32-2"SLP-53-151-2-1
1E32-1"SLP-68-151-2
1E32-1"SLP-65-151-2
1E32-1"SLP-73-901A-2
1E32-3"SHP-6-901A-2
1E4"MOV-048
1E4"MOV-023B
1E4"MOV-023A
1E11-10"MOV-015
1E11-6"MOV-016
1E11-4"MOV-036B
1E11PS-040
1E11PS-041
1E11PS-042
1E11PS-043
1E11PS-044
1E11PS-045
1E11PS-046
1E11PS-047
1E11PS-048
1E11PS-049
1E11PS-050
1E11PS-051
1E11PS-052
1E11PS-053
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1E11PS-064
1E11PS-065
1E11PS-066
1E11PS-067
1E11PS-068
1E11PS-069
1E11PS-070
1E11PS-071
1E11PS-072
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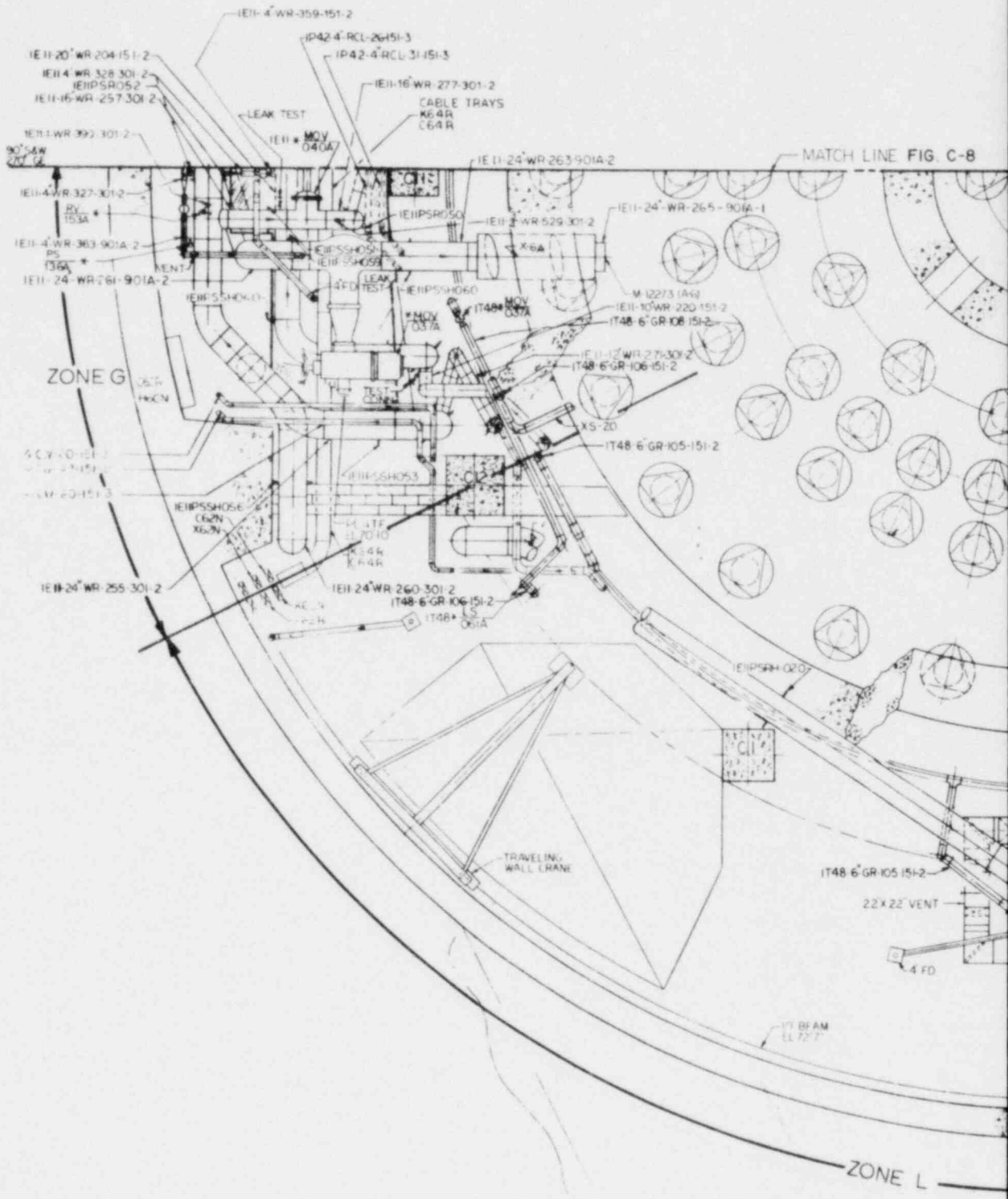
1E11PS-076
1E11PS-077
1E11PS-078
1E11PS-079


MATCH LINE FIG. C-8
ZONE G
ZONE L
TRAVELING WALL CRANE
22'X22' VENT
4 FD
LEAK TEST
CABLE TRAYS
K64R
C64R
X-6A
X-5-20
TEST CONN
LEAK TEST
TRAVELING WALL CRANE

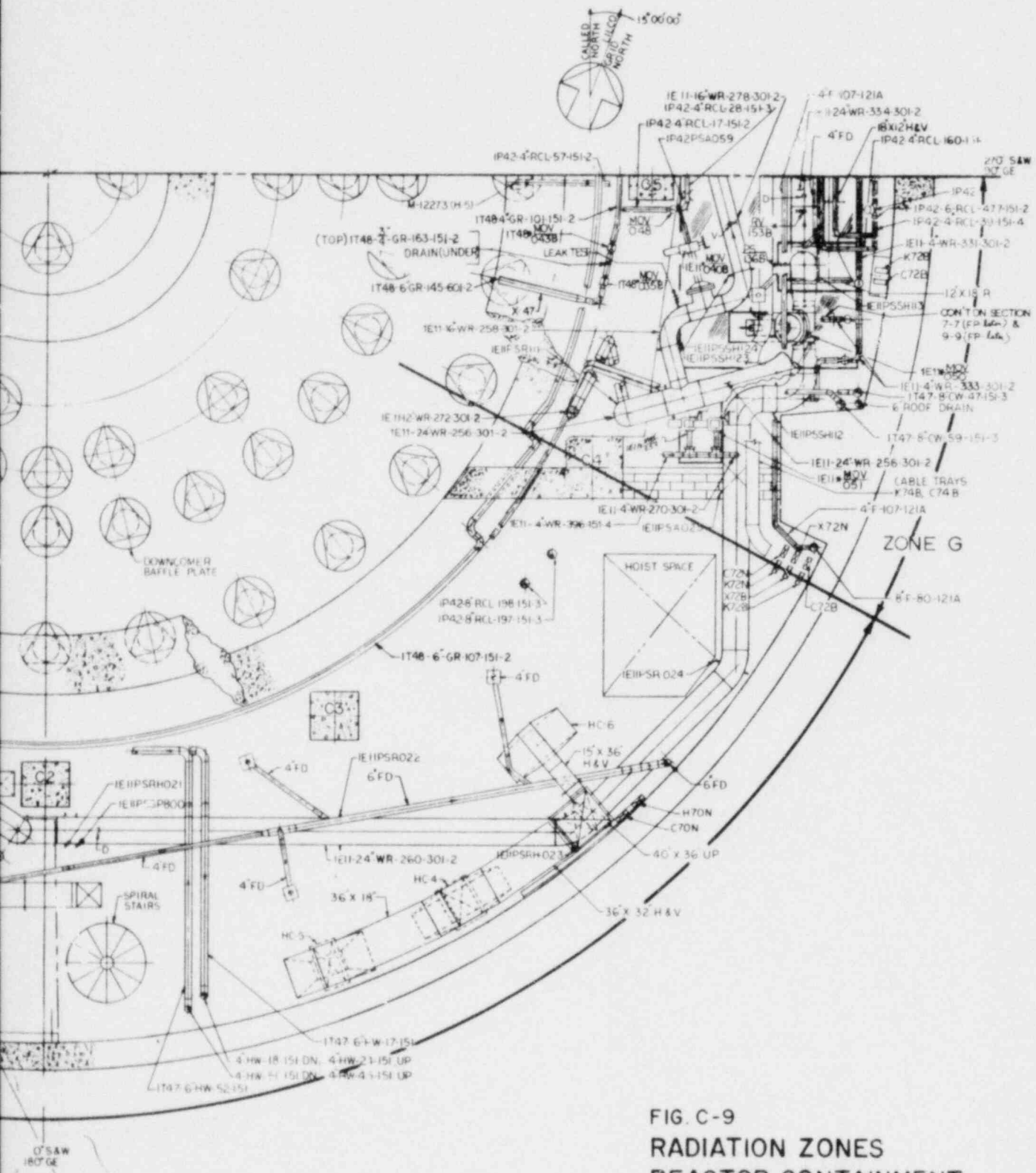
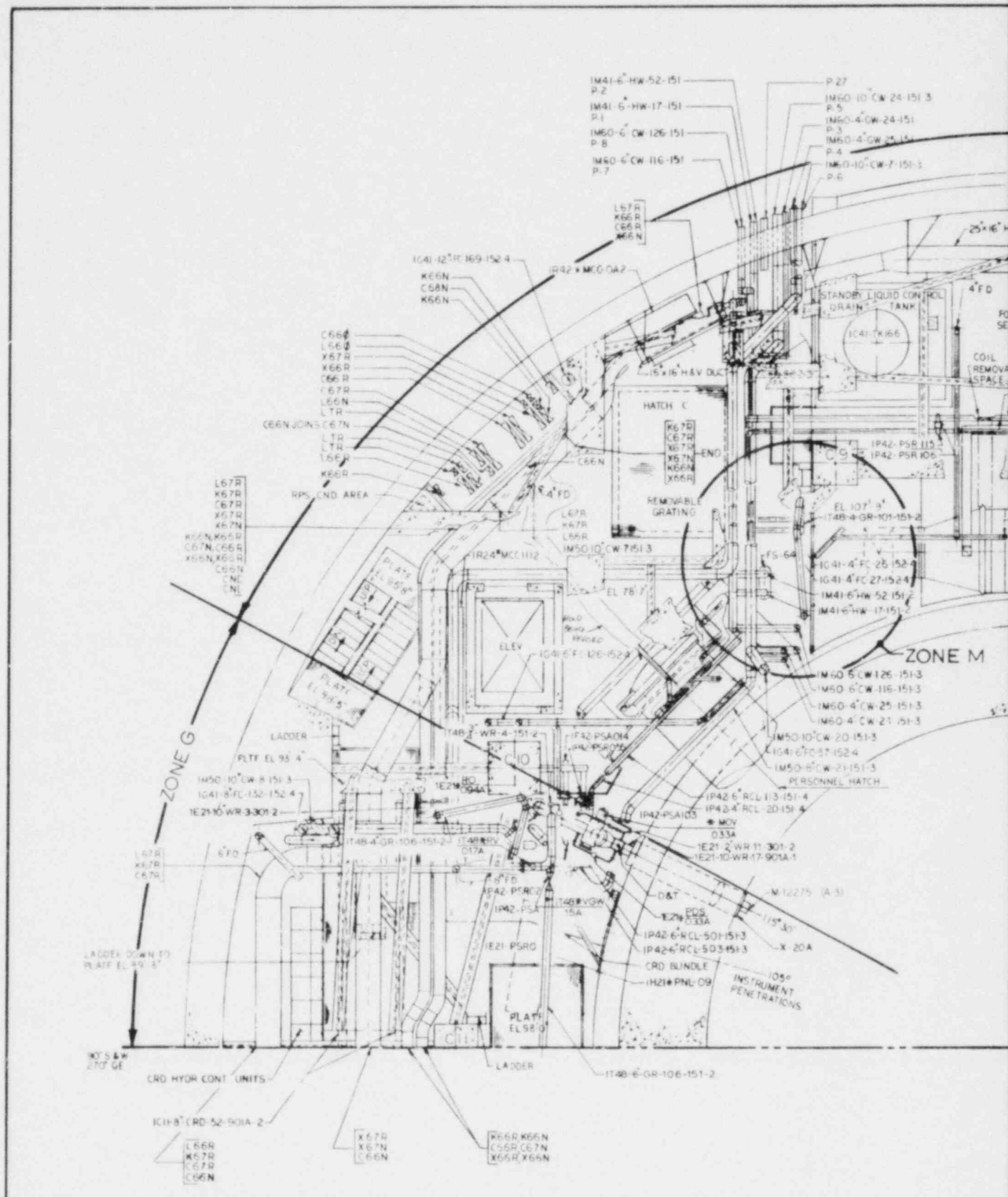


FIG. C-9

RADIATION ZONES
REACTOR CONTAINMENT
PLAN EL. 63' 0" TO 78' 7" SOUTH

SHOREHAM NUCLEAR POWER STATION UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT


ZONE G
ZONE M
HATCH C
REMOVABLE GRATING
PERSONNEL HATCH
ELEV
RPS CND AREA
STANDBY LIQUID CONT TANK
DRAIN
15'x16' H&V DUCT
EL 107'-3"
EL 78'-1"
PLATF EL 98'-5"
PLTF EL 93'-4"
PLATF EL 98'-5"
PLATF EL 58'-0"
LADDER
LADDER DOWN TO PLATF EL 49'-4"
CRD HYDR CONT UNITS
105° INSTRUMENT PENETRATIONS
115°-30°
C9
C10
C11
IM41-6"-HW-52-151 P-2
IM41-6"-HW-17-151 P-1
IM60-6"-CW-126-151 P-8
IM60-6"-CW-116-151 P-7
P-27
IM60-10"-CW-24-151-3 P-5
IM60-4"-CW-24-151 P-3
IM60-4"-GW-25-151 P-4
IM60-10"-CW-7-151-3 P-6
IG41-12"-FC-169-152-4
IR42*MCC-0A2
K66N
C68N
K66N
C66R
L66R
X67R
K66R
C66R
C67R
L66N
LTR
C66N JOINS C67N
LTR
LTR
L66R
K66R
L67R
K67R
C67R
X67R
X67N
K66N,K66R
C67N,C66R
X66N,X66R
C66N
NC
NL
IR24*MCC1112
IM50-10"-CW-7-151-3
IG41-6"-FC-126-152-4
IG41-4"-FC-25-152-4
IG41-4"-FC-27-152-4
IM41-6"-HW-52-151-2
IM41-6"-HW-17-151-2
IM60-6"-CW-126-151-3
IM60-6"-CW-116-151-3
IM60-4"-CW-25-151-3
IM60-4"-CW-21-151-3
IM50-10"-CW-20-151-3
IG41-6"-FC-87-152-4
IM50-6"-CW-21-151-3
IM50-10"-CW-8-151-3
IG41-8"-FC-132-152-4
1E21-10"-WR-3-301-2
IT48-4"-GR-106-151-2
IT48-6"-GR-106-151-2
IP42-PSA014
IP42-PSA015
IP42-PSA103
IP42-6"-RCL-113-151-4
IP42-4"-RCL-20-151-4
1E21-2"-WR-11-301-2
1E21-10-WR-17-901A-1
IP42-PSR2
IP42-PSR
1E21-PSR0
IP42-6"-RCL-501-151-3
IP42-6"-RCL-503-151-3
CRD BUNDLE
IH21*PNL-09
IC11-8"-CRD-52-901A-2
L66R
K67R
C67R
C66N
X67R
X67N
L66N
K66R,K66N
C68R,C67N
X66R,X66N
IP42-PSR115
IP42-PSR106
IC41-1"-K66
M-12275 (A-3)
X-20A
FS-64
90° S & W
270° GE

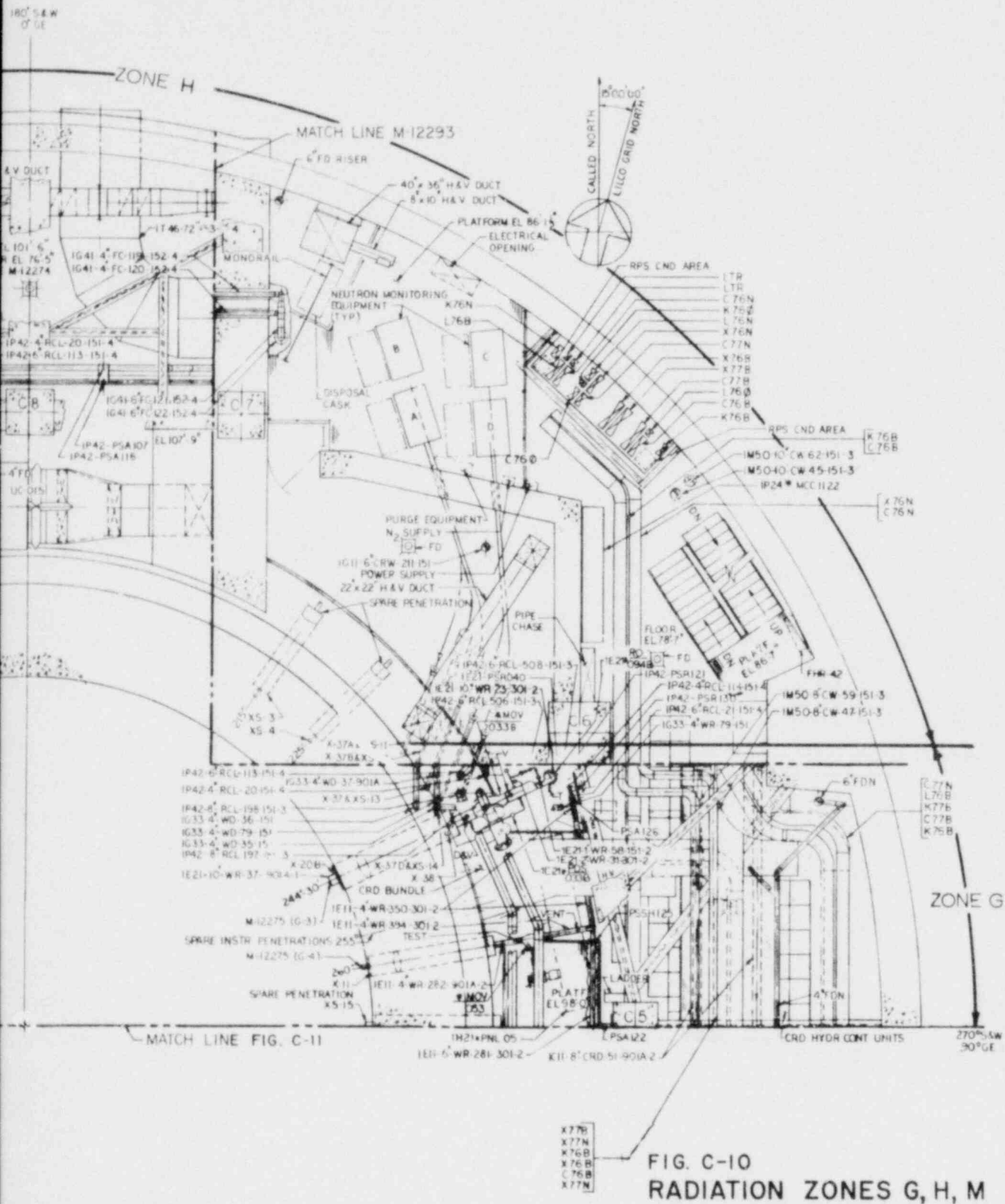


FIG. C-10

RADIATION ZONES G, H, M

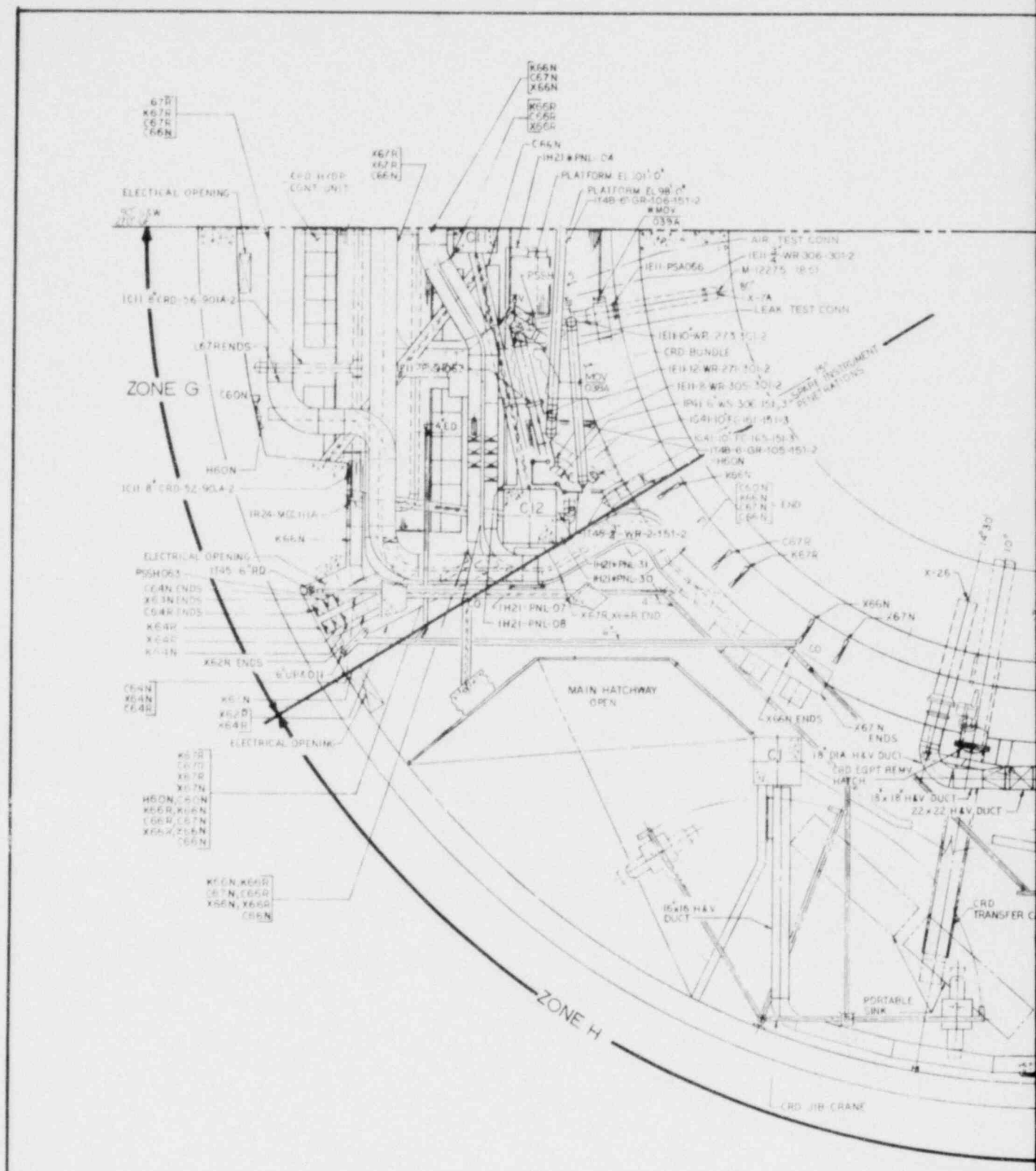
REACTOR CONTAINMENT

PLAN EL. 78'7" TO 112'9" NORTH

SHOREHAM NUCLEAR POWER STATION UNIT I

ENVIRONMENTAL QUALIFICATION REPORT

FOR CLASS 1E ELECTRICAL EQUIPMENT


ZONE G
ZONE H
MAIN HATCHWAY OPEN
ELECTRICAL OPENING
CRD HYDR CONT UNIT
PLATFORM EL 98'-0"
PLATFORM EL 101'-0"
AIR TEST CONN
LEAK TEST CONN
CRD BUNDLE
MOV 0394
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
C37
C38
C39
C40
C41
C42
C43
C44
C45
C46
C47
C48
C49
C50
C51

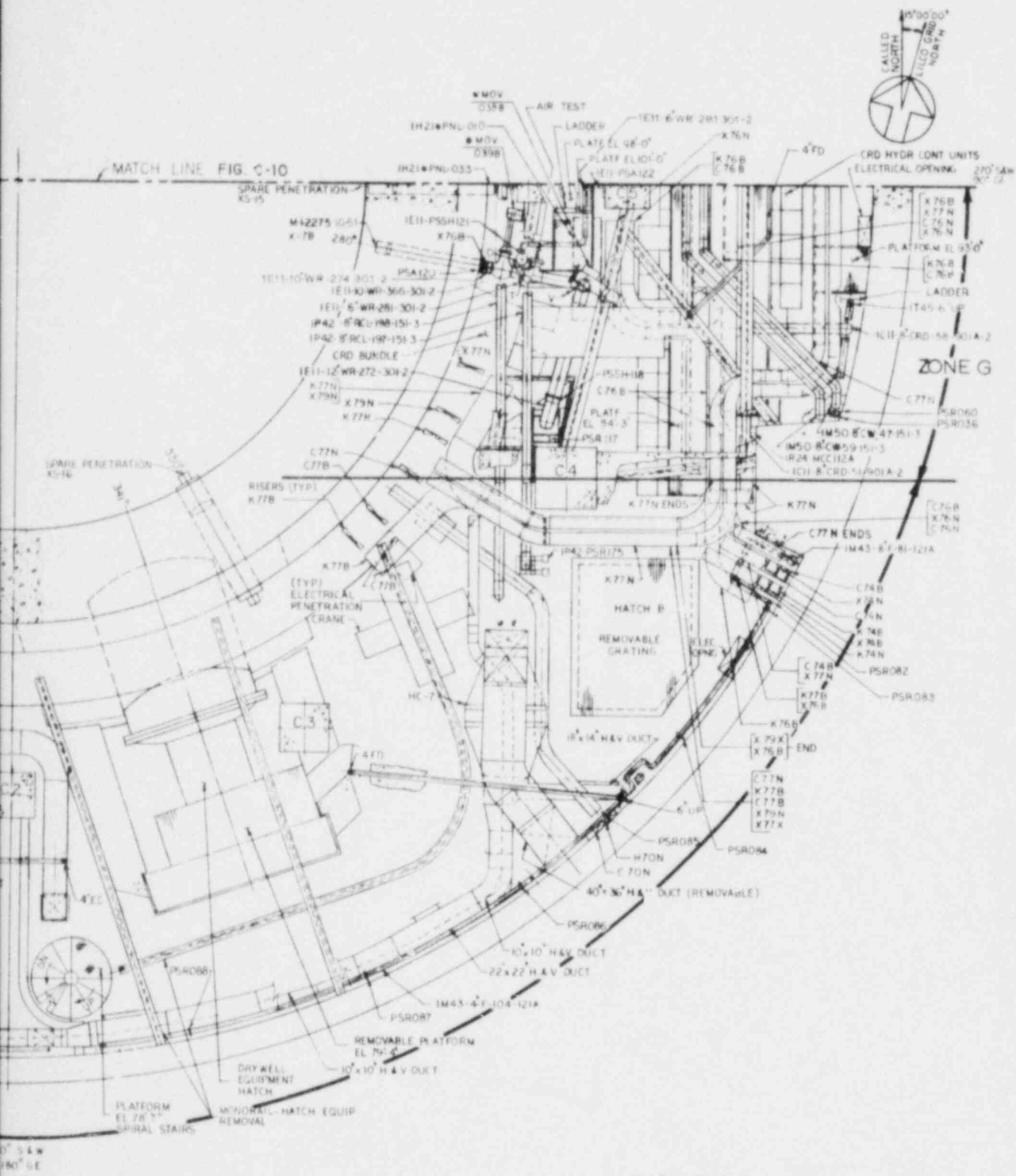


FIG. C-11

RADIATION ZONES G, H

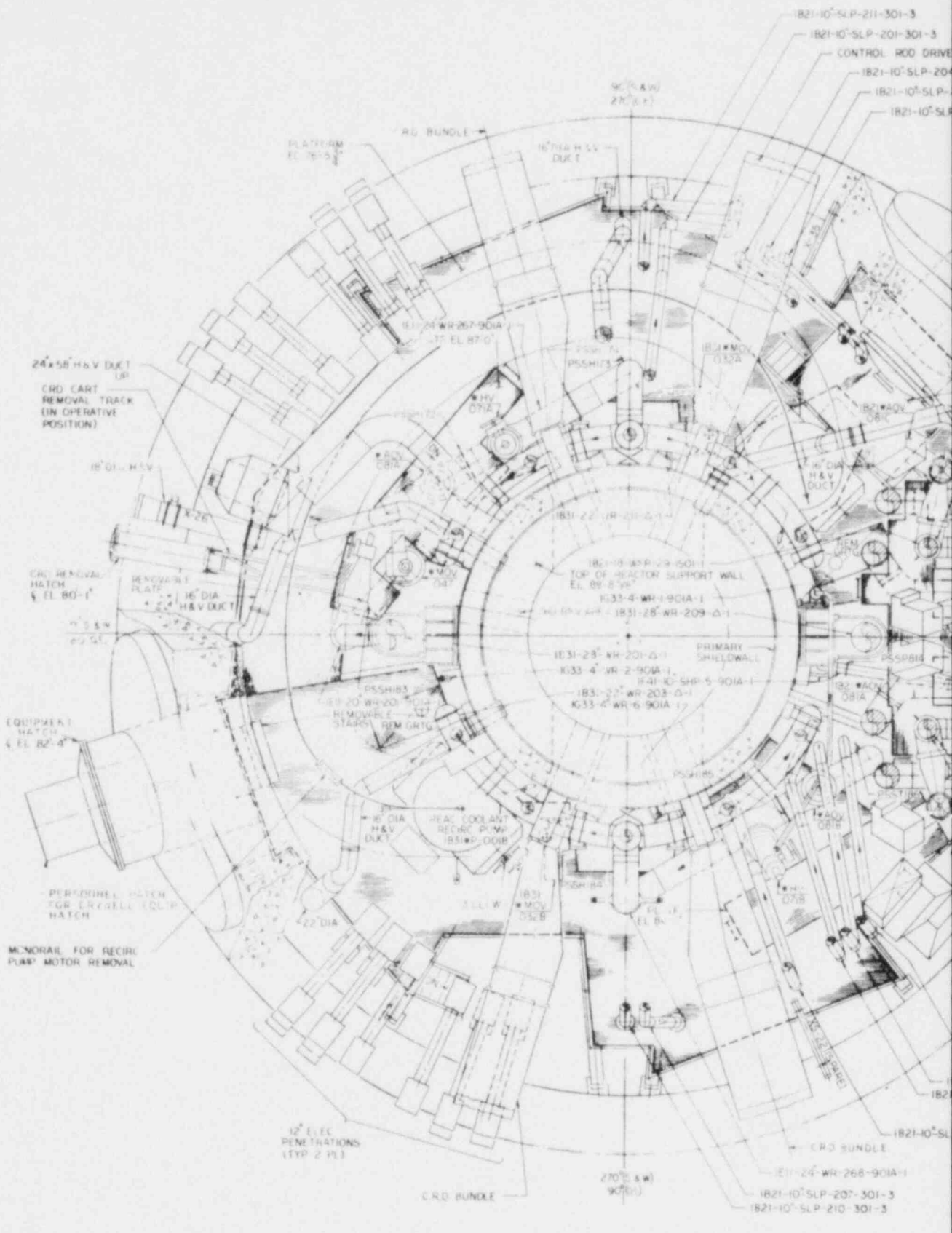
REACTOR CONTAINMENT

PLAN EL. 78'7" TO 112'9" SOUTH

SHOREHAM NUCLEAR POWER STATION UNIT I

ENVIRONMENTAL QUALIFICATION REPORT

FOR CLASS IE ELECTRICAL EQUIPMENT


24"x58" H&V DUCT UP
CRD CART REMOVAL TRACK (IN OPERATIVE POSITION)
CRD REMOVAL HATCH ℄ EL 80'-1"
EQUIPMENT HATCH ℄ EL 82'-4"
PERSONNEL HATCH FOR DRYWELL EQUIP. HATCH
MONORAIL FOR RECIRC PUMP MOTOR REMOVAL
12" E.L. EC PENETRATIONS (TYP 2 PLS)
C.R.D. BUNDLE
270°(E. & W.) 90°(N.)
REMOVABLE STAGING REM GRTG
REACTOR COOLANT RECIRC. PUMP 1B33*P-D001B
PRIMARY SHIELDWALL
TOP OF REACTOR SUPPORT WALL EL 89'-8 1/2"
1B21-10"-SLP-211-301-3
1B21-10"-SLP-201-301-3
CONTROL ROD DRIVE
1B21-10"-SLP-207-301-3
1B21-10"-SLP-210-301-3

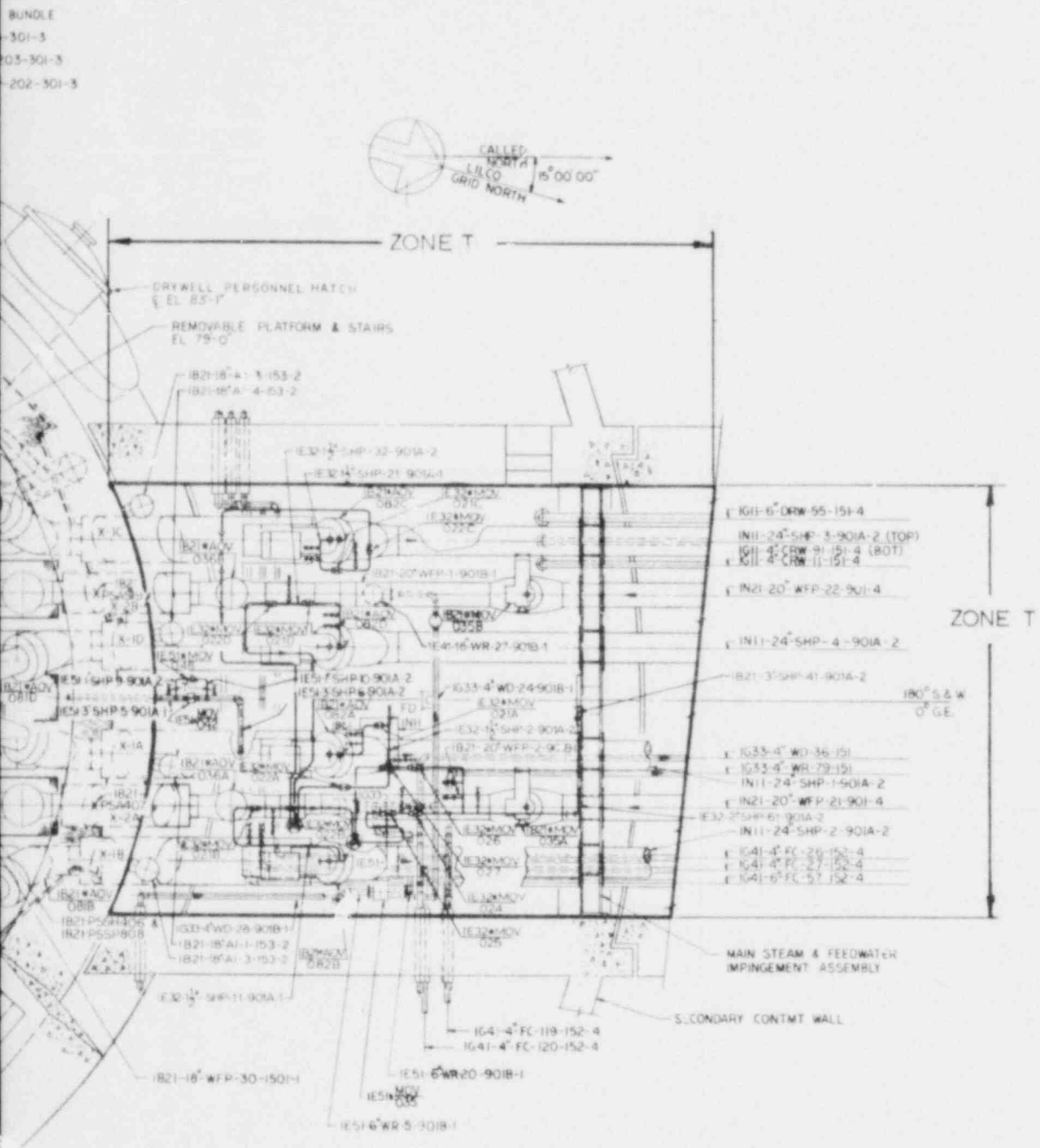
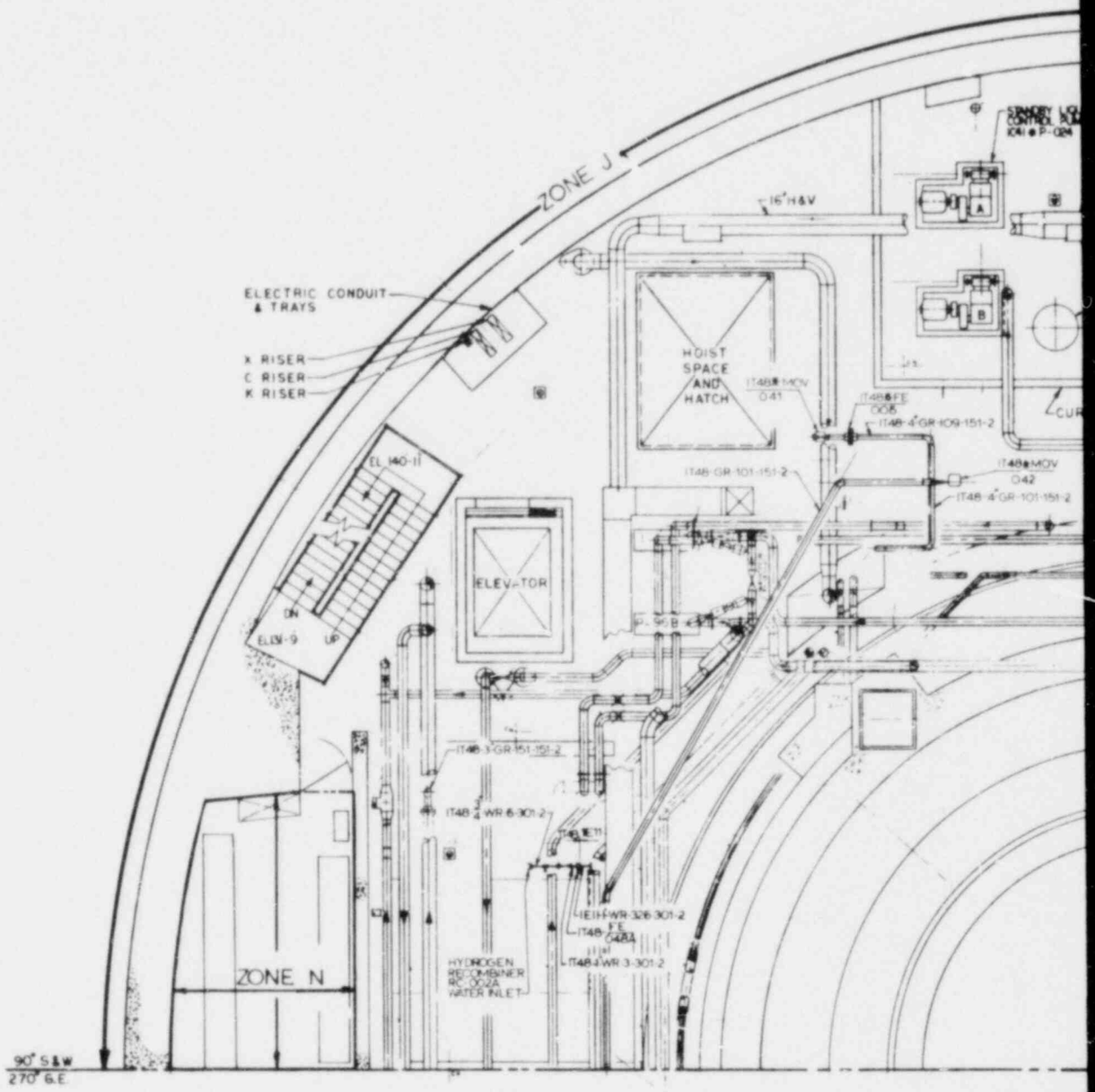


FIG. C-12

RADIATION ZONE T
REACTOR CONTAINMENT
PLAN EL. 76'-4 1/2" TO 96'-11 1/2"

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT


ZONE J
16"H&V
ELECTRIC CONDUIT & TRAYS
X RISER
C RISER
K RISER
HOIST SPACE AND HATCH
IT48 MOV 041
IT48 FE 005
IT48-4"GR-109-151-2
IT48-GR-101-151-2
IT48 MOV 042
IT48-4"GR-101-151-2
EL 140-11
ELEVATOR
EL 129-9
DN
UP
IT48-3"GR-151-151-2
IT48 4"WR-6-301-2
IE11-FWR-328-301-2
IT48 FE 048A
IT48-4"WR-3-301-2
HYDROGEN RECOMBINER RC-2A WATER INLET
ZONE N
90° S&W
270° E.E

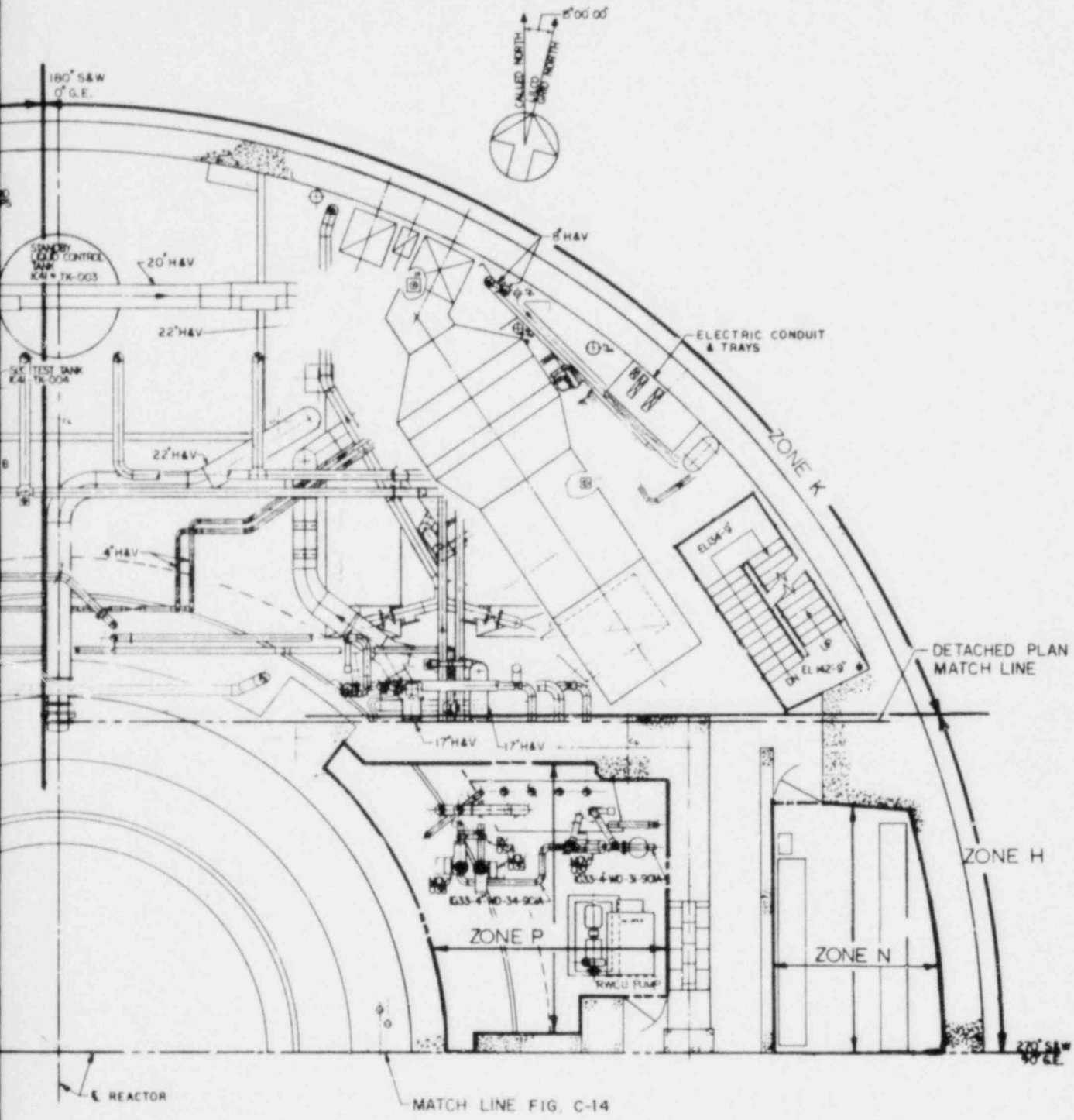
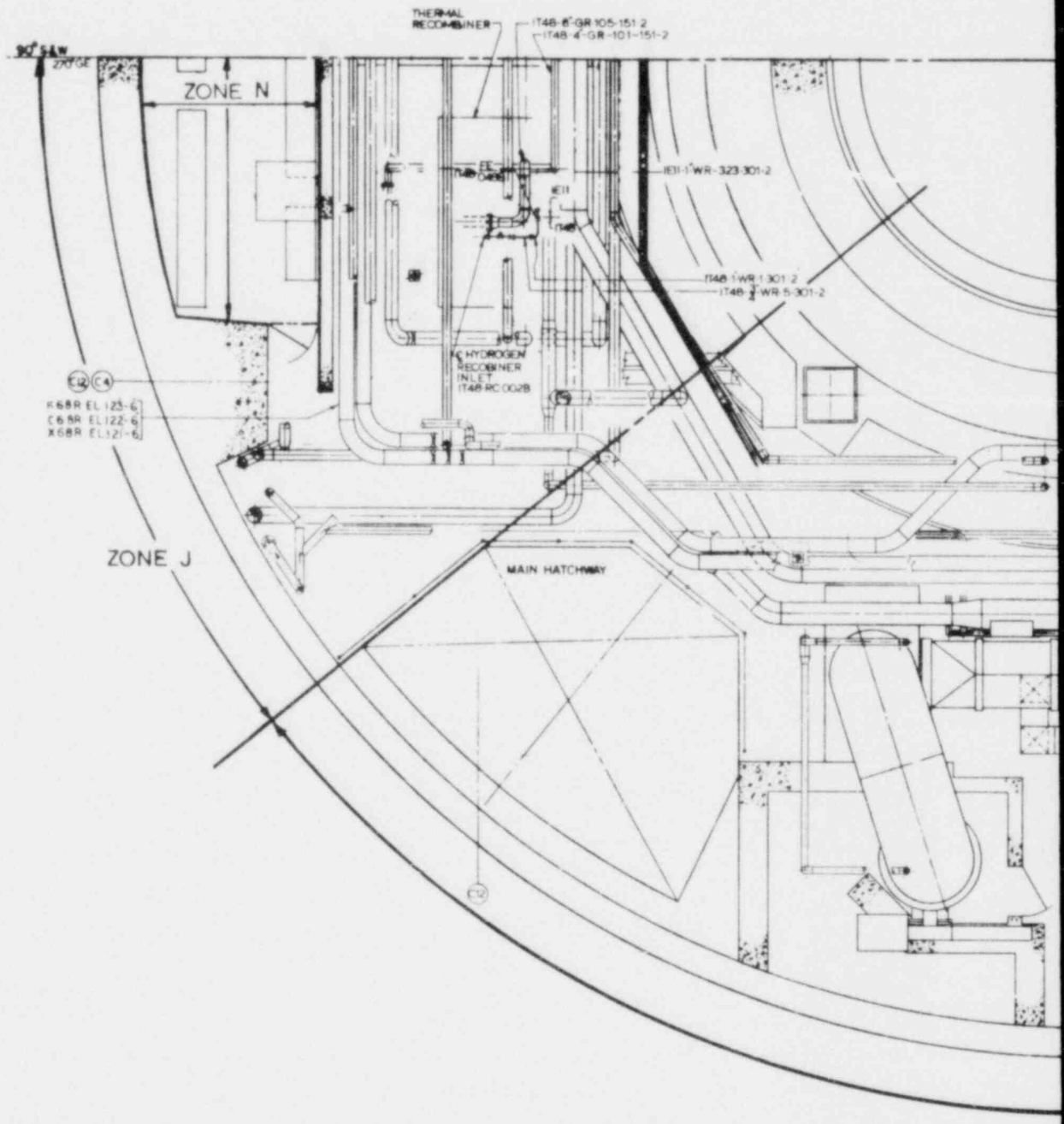


FIG. C-13

RADIATION ZONES H,J,K,N,P
REACTOR CONTAINMENT
PLAN EL. 112'-9" TO 150'-9" NORTH

SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT


THERMAL RECOMBINER
IT48-6"-GR-105-151-2
IT48-4"-GR-101-151-2
ZONE N
IE11-1"WR-323-301-2
IT48-1"WR-1-301-2
IT48-3/4"WR-5-301-2
HYDROGEN RECOMBINER INLET IT48-RC-002B
C12
C4
R68R EL123-6
C68R EL122-6
X68R EL121-6
ZONE J
MAIN HATCHWAY
C12

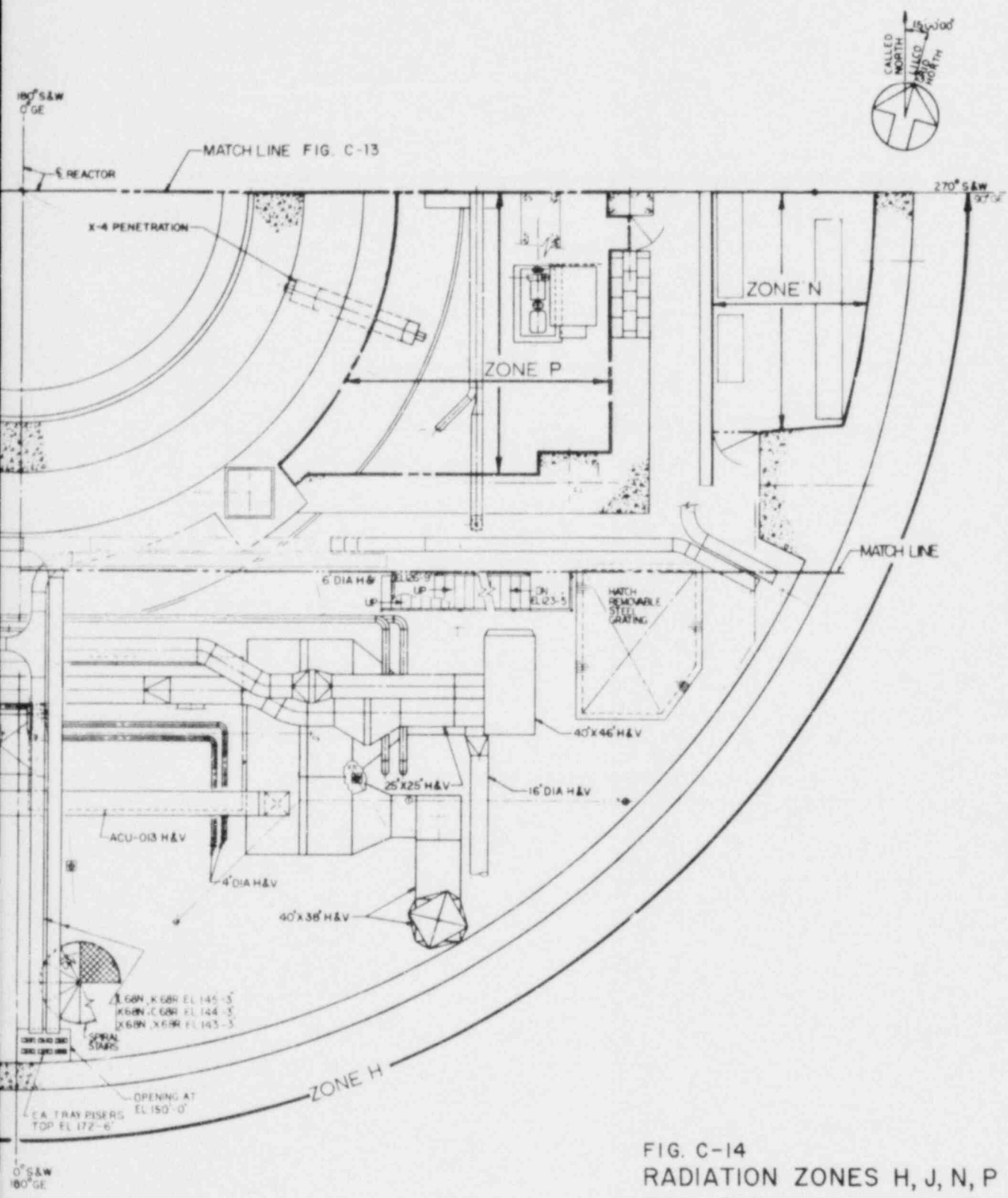


FIG. C-14

RADIATION ZONES H, J, N, P

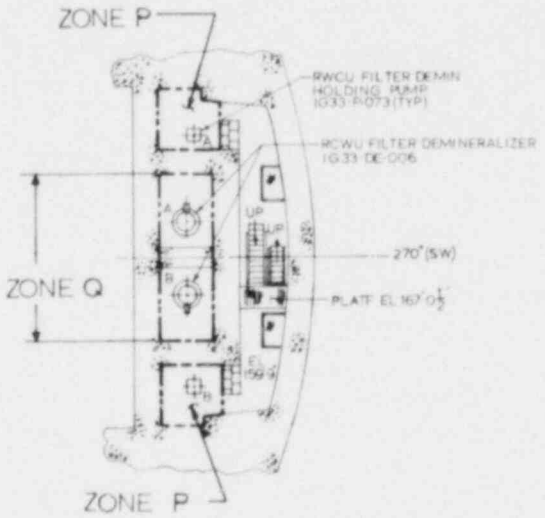
REACTOR CONTAINMENT

PLAN EL. 112'9" TO 150'9" SOUTH

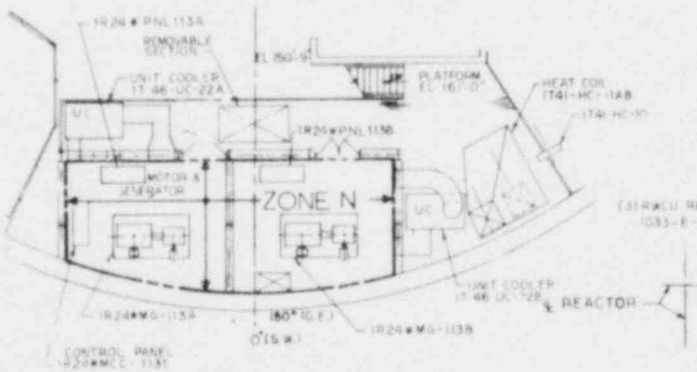
SHOREHAM NUCLEAR POWER STATION UNIT I

ENVIRONMENTAL QUALIFICATION REPORT

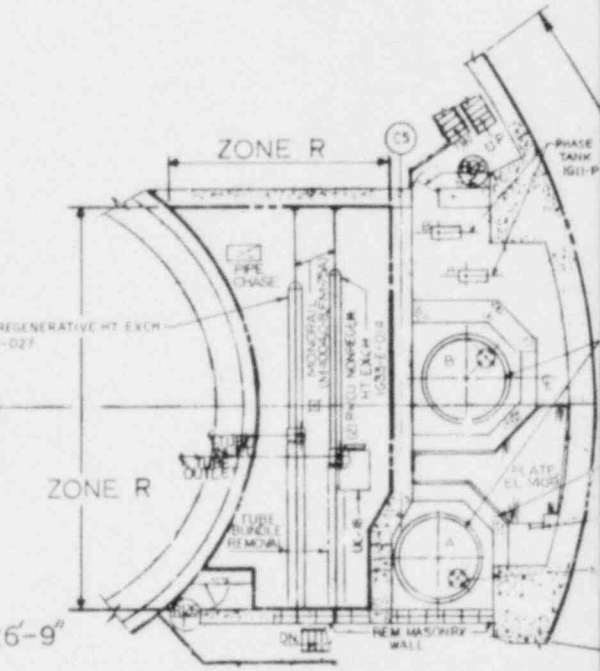
FOR CLASS IE ELECTRICAL EQUIPMENT



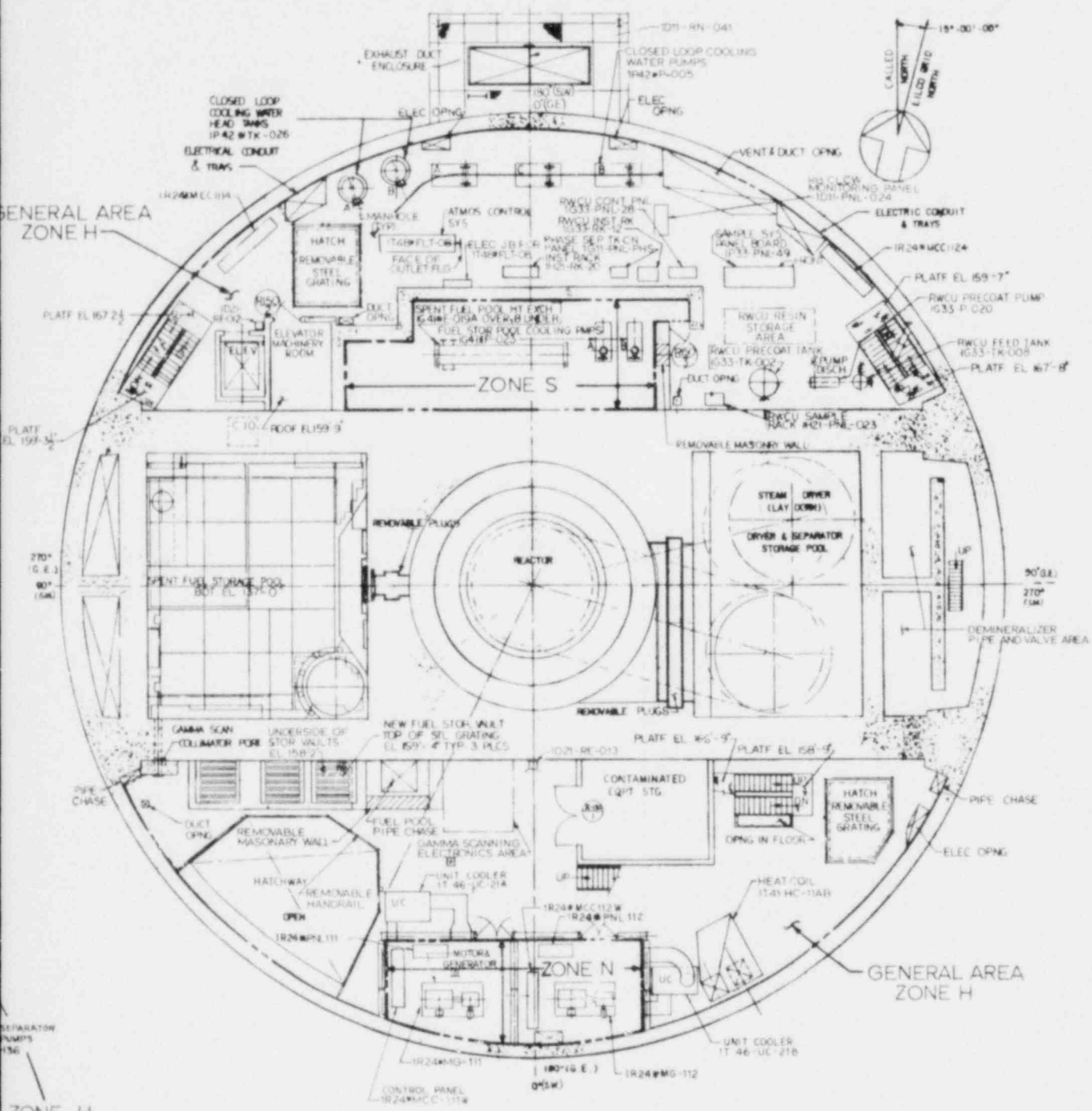
PART PLAN EL159'-9"



PART PLAN EL 161'-0"



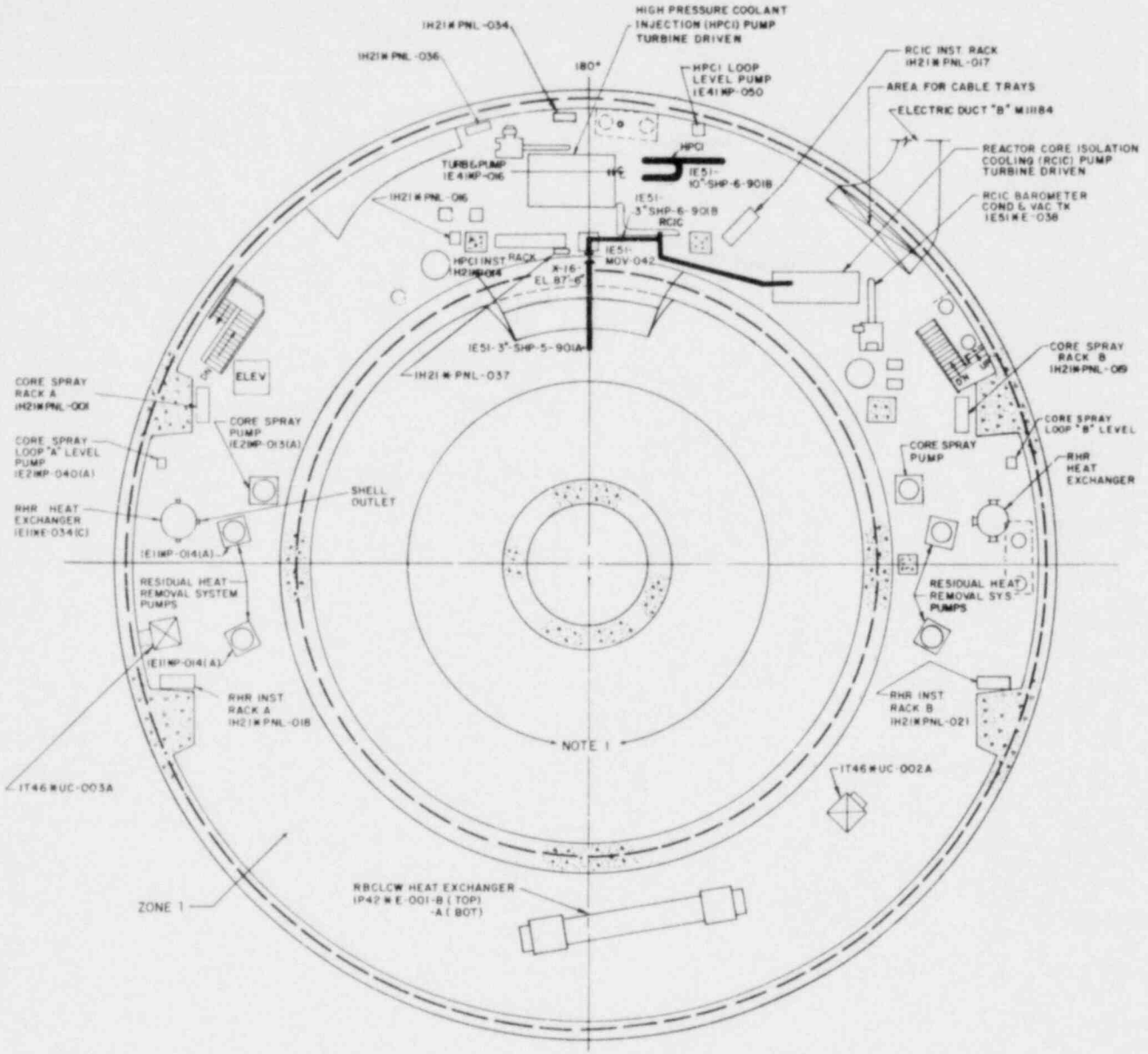
PART PLAN EL 126'-9"



PLAN EL 150'-9"

FIG. C-15

RADIATION ZONES
REACTOR CONTAINMENT
PLAN EL. 150'9" & PARTIAL PLANS
SHOREHAM NUCLEAR POWER STATION UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



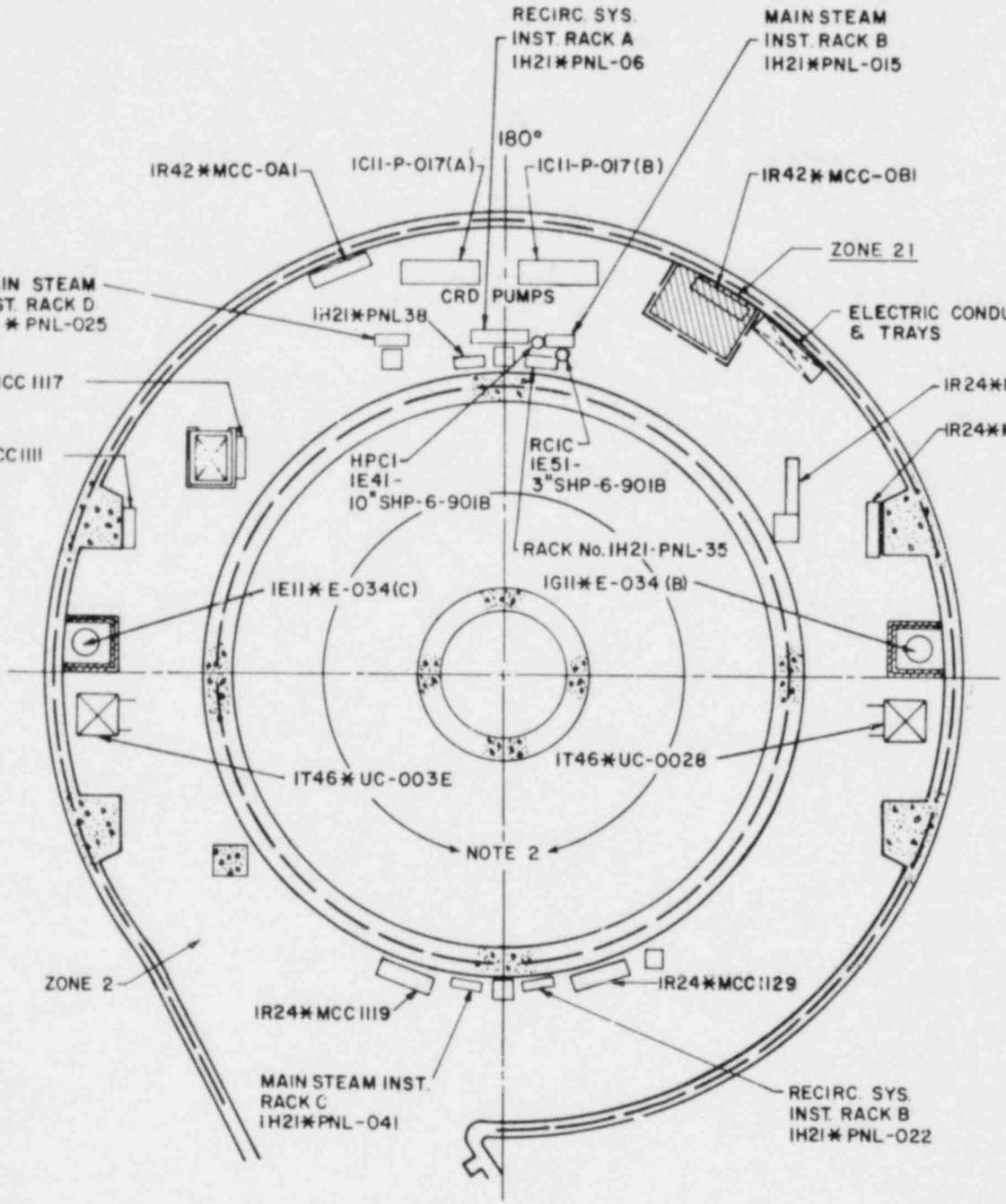
PLAN EL. 8'-0"

NOTE 1 - SEE FIGURE C-22 FOR PRIMARY CONTAINMENT TEMPERATURE AND PRESSURE ZONES.

FIG. C-16

TEMPERATURE AND PRESSURE ZONE 1
PLAN EL. 8'-0" TO 40'-0"
REACTOR CONTAINMENT

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



PLAN EL. 40'-0"

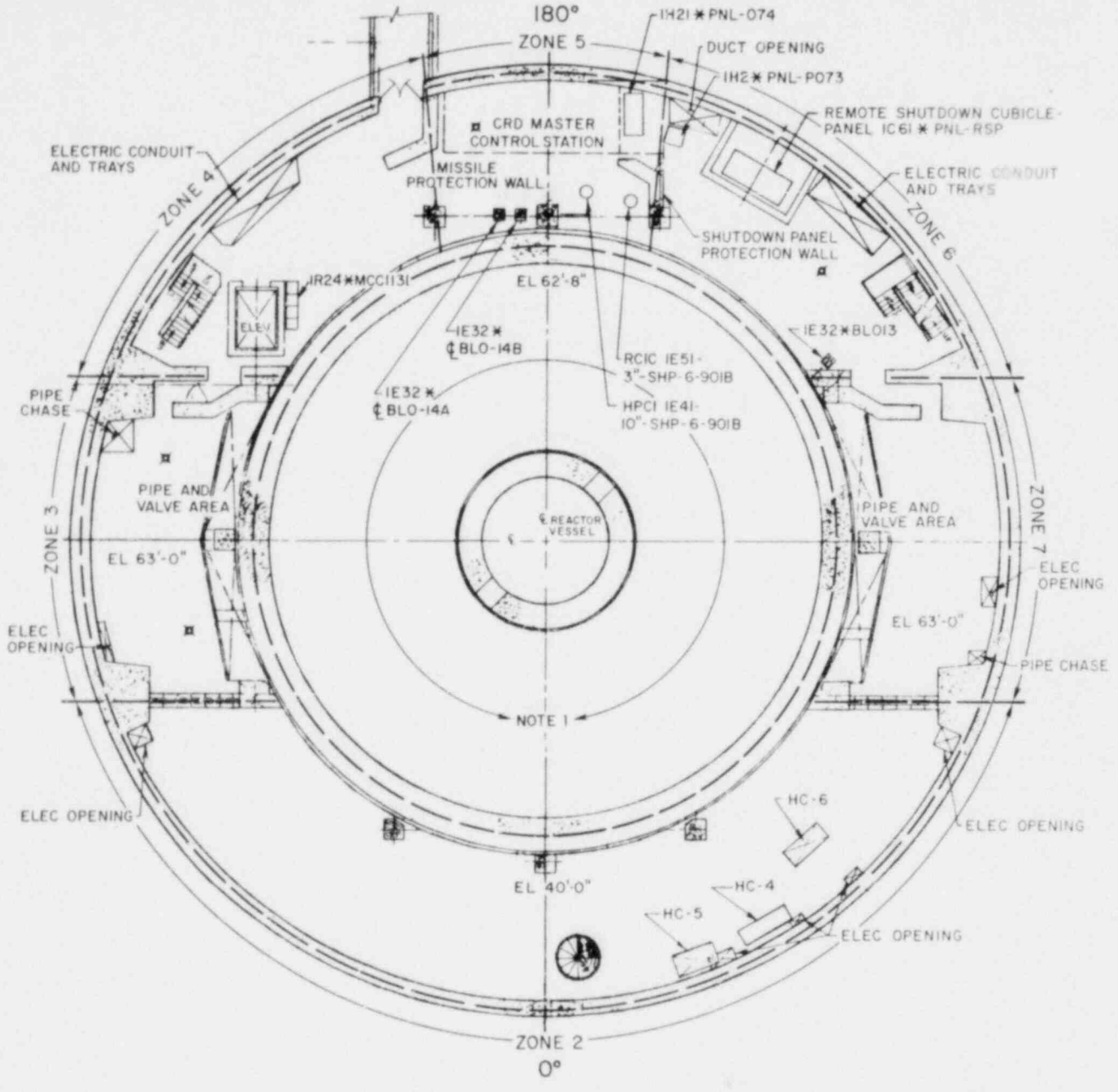
NOTES:

1. ENTIRE SECONDARY CONTAINMENT AIR SPACE IS ZONE 2 EXCEPT AS NOTED FOR ZONE 21 ON THIS ELEVATION
2. SEE FIGURE C-22 FOR PRIMARY CONTAINMENT TEMPERATURE AND PRESSURE ZONES

FIG. C-17

TEMPERATURE AND PRESSURE ZONES 2, 21
PLAN EL. 40'-0" TO 63'-0"
REACTOR CONTAINMENT

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

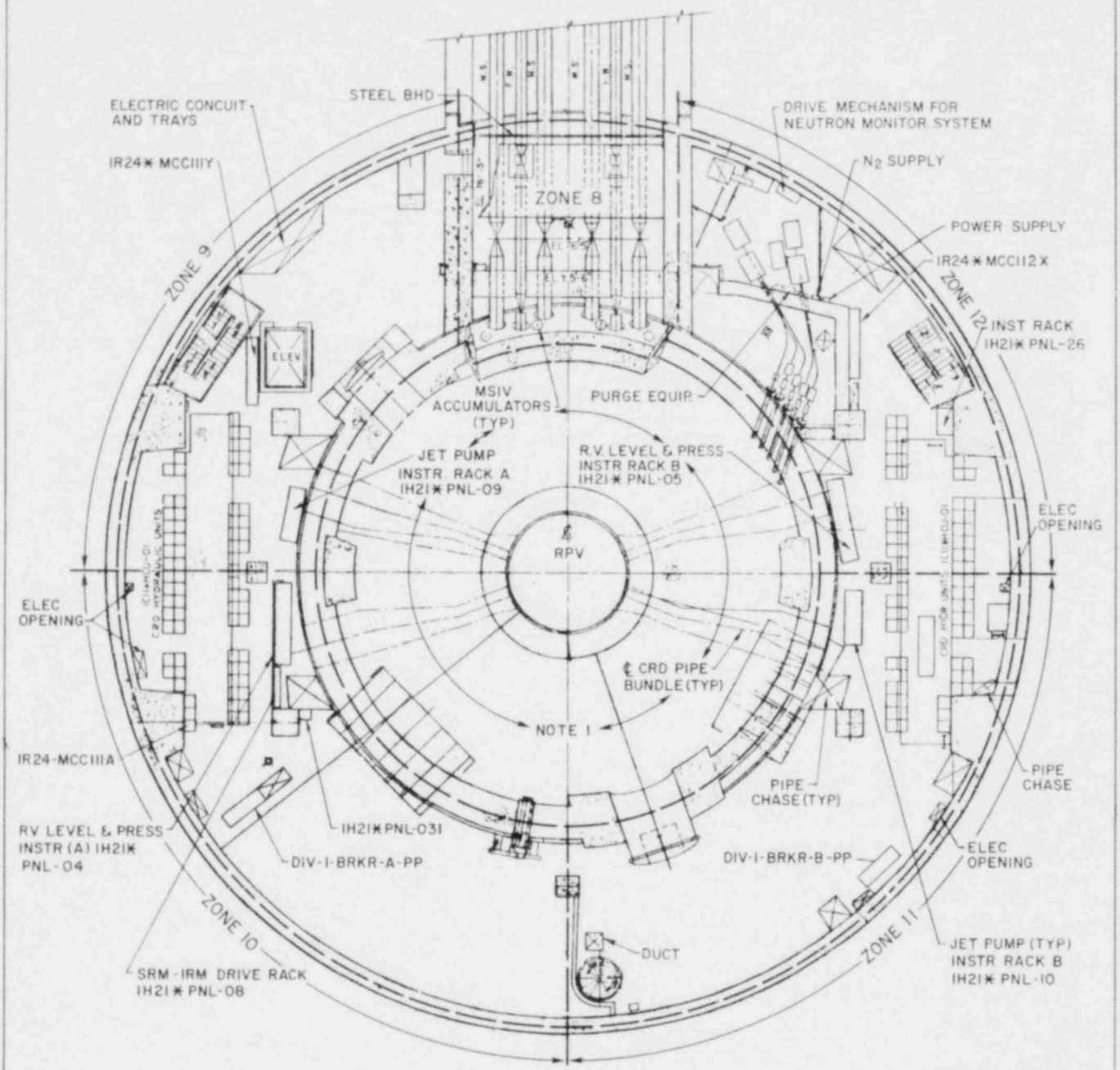


PLAN EL 63'-0"

NOTE 1 - SEE FIGURE C-22 FOR PRIMARY CONTAINMENT TEMPERATURE AND PRESSURE ZONES

FIG. C-18

TEMPERATURE AND PRESSURE ZONES 2,3,4,5,6,7
PLAN EL. 63'-0" TO 78'-7"
REACTOR CONTAINMENT
SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

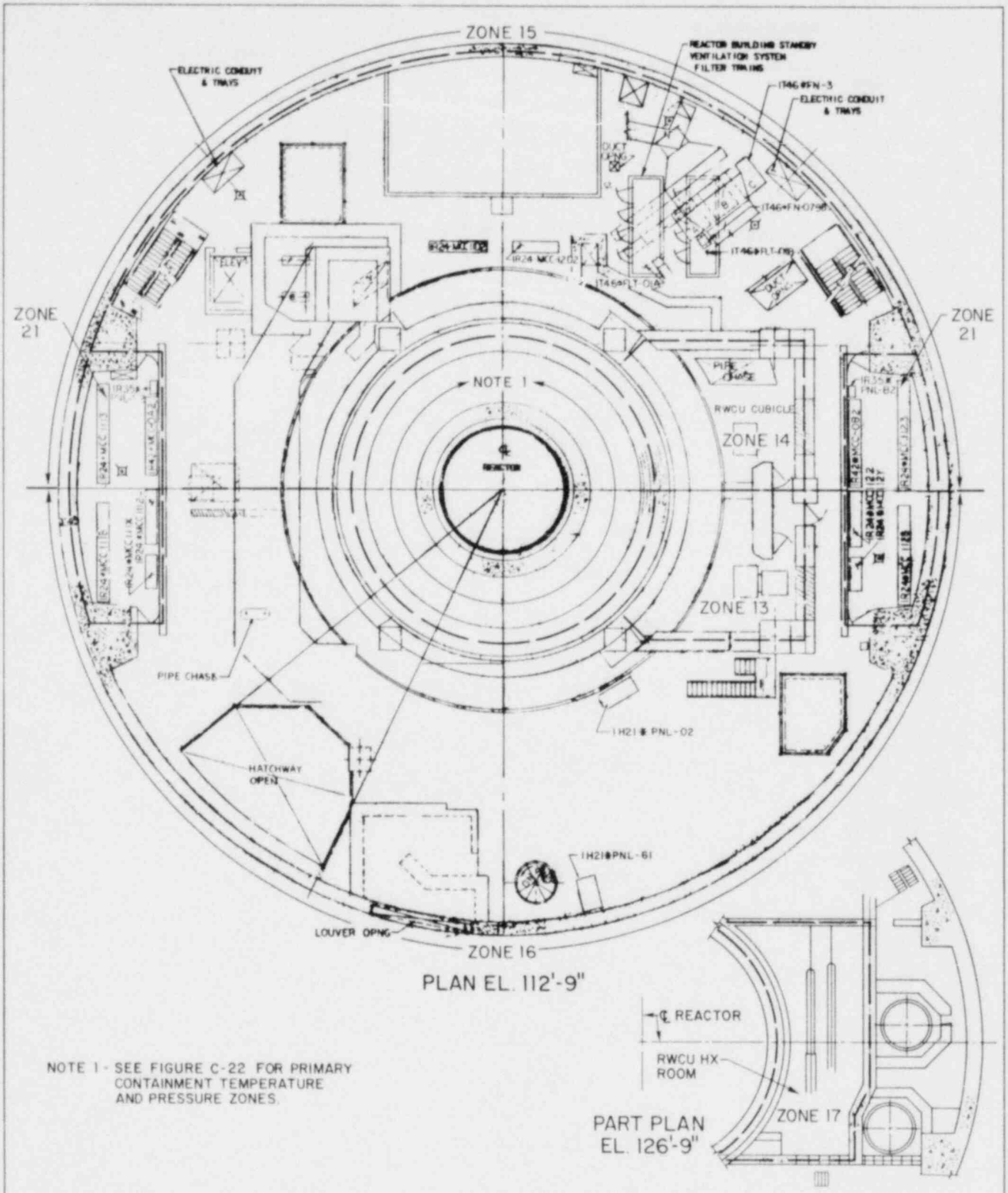


PLAN EL 78'-7"

NOTE 1- SEE FIGURE C-22 FOR PRIMARY CONTAINMENT TEMPERATURE AND PRESSURE ZONES

FIG. C-19

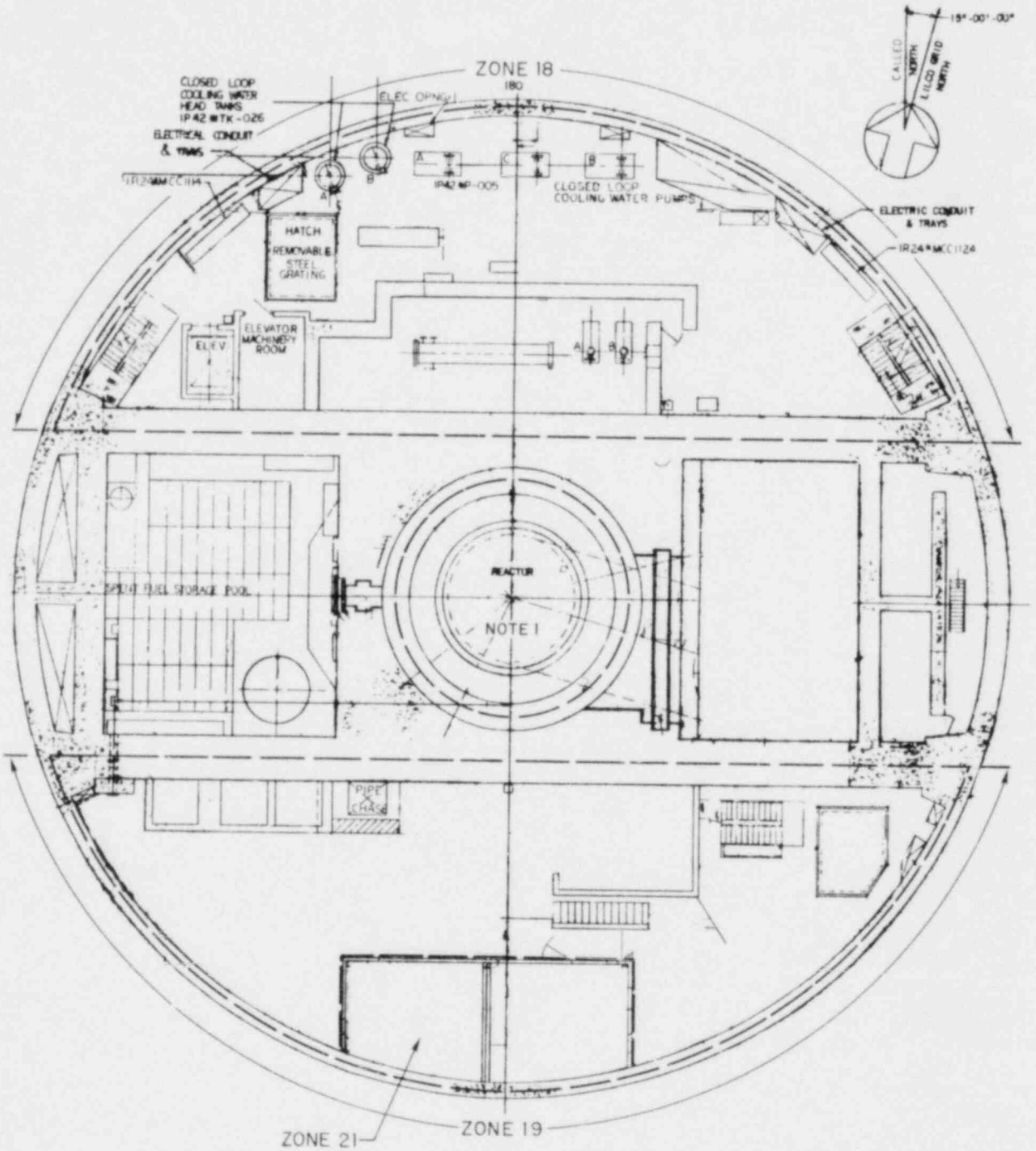
TEMPERATURE AND PRESSURE ZONES 8, 9, 10, 11, 12
PLAN EL. 78'-7" TO 112'-9"
REACTOR CONTAINMENT
SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTE 1 - SEE FIGURE C-22 FOR PRIMARY CONTAINMENT TEMPERATURE AND PRESSURE ZONES.

FIG. C-20
TEMPERATURE AND PRESSURE ZONES 13, 14, 15, 16, 17, 21 PLAN EL. 112'-9" TO 150'-9" REACTOR CONTAINMENT

SHOREHAM NUCLEAR POWER STATIO-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



PLAN EL 150'-9"

NOTE 1 - SEE FIGURE C-22 FOR PRIMARY CONTAINMENT TEMPERATURE AND PRESSURE ZONES

FIG. C-21

TEMPERATURE AND PRESSURE ZONES 18, 19, 21
PLAN EL. 150'-9" TO 175'-9"
REACTOR CONTAINMENT

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

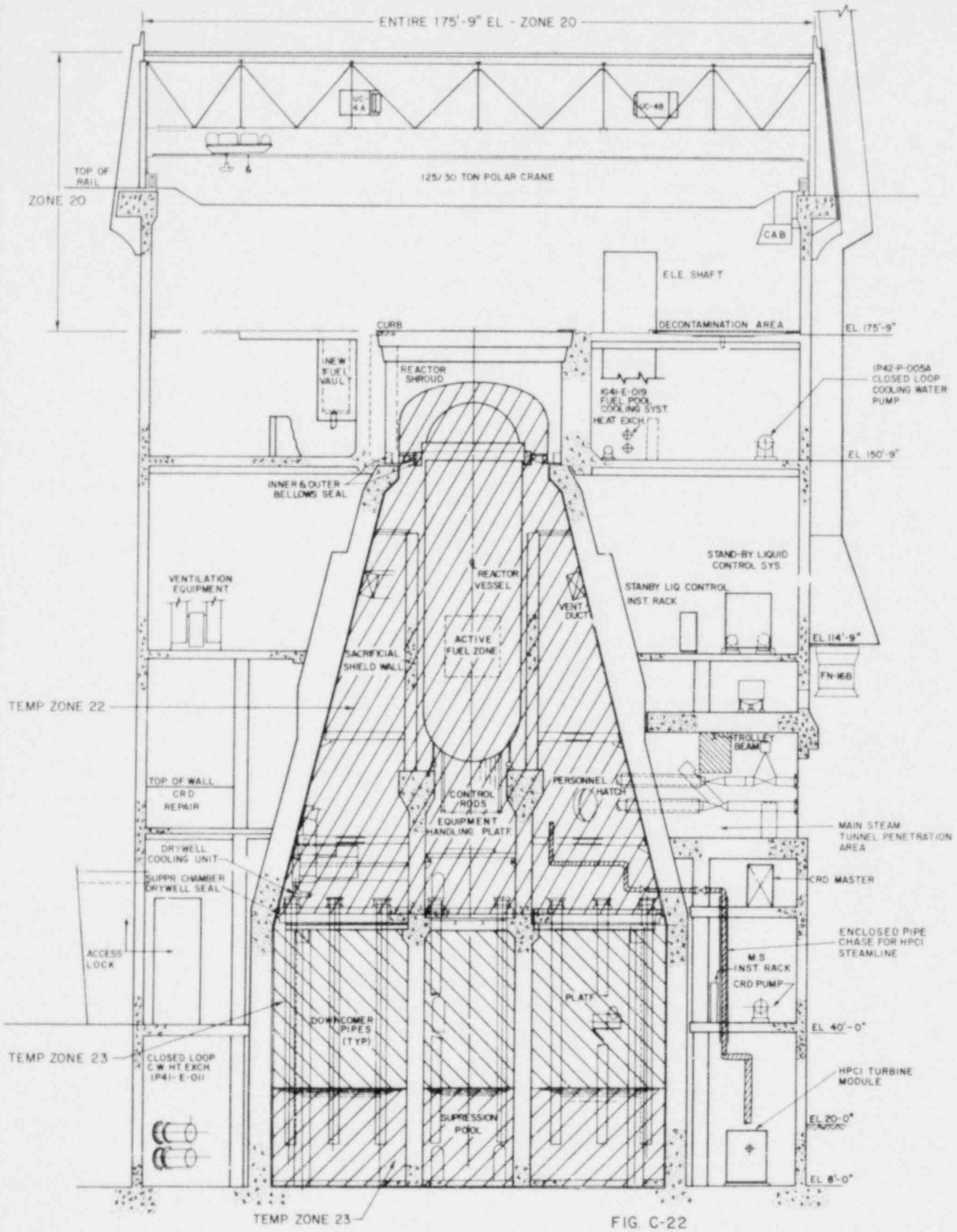


FIG. C-22

TEMPERATURE AND PRESSURE ZONES
SECTION VIEW
REACTOR CONTAINMENT

SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

APPENDIX D

RADIATION, TEMPERATURE, AND PRESSURE DATA

APPENDIX D

RADIATION, TEMPERATURE, AND PRESSURE DATA

The normal and accident service conditions are tabulated and graphed with respect to time as shown on the following sheets. The normal service conditions for primary and secondary containment temperatures, pressures, and levels of humidity are listed in Table D-1 as taken from FSAR Table 3.11.2-1. The reactor building primary containment environmental service conditions and the secondary containment radiation conditions are tabulated on Figures D-1 and D-2, respectively, which are taken from Figure, II.B.2-16 and -17 in the NUREG-0737 submittal to the NRC and are included herein for convenience. Radiation curves are shown on Figures D-3 through D-20. Temperature curves are shown on Figures D-21 through D-40. Pressure curves are shown on Figures D-41 and D-42. Curve D-43 indicates the pressure transient in the secondary containment due to a LOCA and is reproduced from an FSAR figure.

INDEX OF ENVIRONMENTAL TABLES AND FIGURES

TABLE D-1

NORMAL PRESSURE, TEMPERATURE,
AND HUMIDITY CONDITIONS
SHOREHAM NUCLEAR POWER STATION - UNIT 1

	Area	Pressure	Temperature °F	Relative Humidity %
I.	Primary Containment			
1.	Area above shield wall to top of drywell (Zone A-22)	-3 to 2 psig	150 max 127 avg	40-55
2.	Region adjacent to core (Zone B-22)	-3 to 2 psig	150 max	40-55
3.	Under reactor pressure vessel, inside of shield wall (Zone C-22)	-3 to 2 psig	150 max	40-55
4.	Vicinity recirculation pump motors (Zone D-22)	-3 to 2 psig	150 max	40-55
5.	Suppression chamber air space (Zone E-23)	-3 to 2 psig	150 max	40-55
6.	Suppression pool (Zone F-23)	-3 to 2 psig	150 max	40-55
II.	Secondary Containment			
1.	All areas except steam tunnel and MCC cubicles	-0.5 to 0 inches water gage, static pressure	60 to 104	50
2.	Main steam tunnel (Zone ST)	Same as above	120 to 135	50
3.	MCC rooms El. 112' (Zone N-21)	Atmospheric	80 to 104	90

ZONE	PRIMARY	NORMAL			
		RADIATION	TEMPERATURE	HUMIDITY	PRESSUR
A-22	AREA ABOVE SHIELD WALL TO TOP OF DRYWELL	8.8×10^6 RAD γ 6.3×10^{13} NEUT/CM^2	150°F MAX 127°F AVG.	40-55% 100% FOR EXTENDED PERIODS	-3 TO 2 PS
B-22	REGION ADJACENT TO CORE OUTSIDE OF SHIELD WALL	7.0×10^7 RAD γ 8.3×10^{14} NEUT/CM^2	150°F MAX		
C-22	UNDER RPV INSIDE OF SHIELD WALL AND REACTOR PEDESTAL	2.5×10^6 RAD γ 1.3×10^9 NEUT/CM^2			
D-22	VICINITY OF RECIRC. PUMP MOTORS	1.8×10^7 RAD γ 2.5×10^{12} NEUT/CM^2			
E-23	SUPPRESSION CHAMBER AIR SPACE	3.5×10^4 RAD γ 2.5×10^{11} NEUT/CM^2			
F-23	SUPPRESSION POOL	3.5×10^4 RAD γ 2.5×10^{11} NEUT/CM^2			

ZONE	NEUTRON FLUENCE	EQUIVALENT RADS γ	NEW TOTAL RADS γ
A	6.3×10^{13} NEUT/CM^2	4.0×10^5 RADS γ	1.1×10^8 RAD γ
B	8.3×10^{14} NEUT/CM^2	5.5×10^6 RADS γ	1.76×10^8 RAD γ
C	1.3×10^9 NEUT/CM^2	8.68×10^0 RADS γ	1.0×10^8 RAD γ
D	2.5×10^{12} NEUT/CM^2	1.67×10^4 RAD γ	1.2×10^8 RAD γ
E	2.5×10^{11} NEUT/CM^2	1.67×10^3 RAD γ	1.0×10^8 RAD γ
F	2.5×10^{11} NEUT/CM^2	1.67×10^3 RAD γ	1.0×10^8 RAD γ

NOTES:

1. "NORMAL RADIATION" IS CUMULATIVE 40-YR
2. "ACCIDENT RADIATION" IS CUMULATIVE 6-
3. CONSIDER "NEW TOTAL RAD" COLUMN FOR γ
4. THE EFFECTS OF THE NEUTRON FLUENCE IS

	ACCIDENT (LOCA)				TOTAL
E	RADIATION	TEMPERATURE	HUMIDITY	PRESSURE	RADIATION
IG	1×10^8 RAD γ 1×10^9 RAD β	340°F – 0-3 HRS 320°F – 3-6 HRS 250°F – 6 HRS-1 DAY 200°F – 1-4 DAYS 150°F – 5-180 DAYS	100% (SUPERHEATED) (STEAM FOR FIRST DAY)	0 to 48 PSIG-0 to 6 HRS 48 to 15 PSIG-6 HRS to 4 DAYS 15 to 10 PSIG-4 DAYS to 180 DAYS	1.1×10^8 RAD γ 1×10^9 RAD β 6.3×10^{13} NEUT/CM^2
	1×10^8 RAD γ 1×10^9 RAD β	↓	↓	↓	1.7×10^8 RAD γ 1×10^9 RAD β 8.3×10^{14} NEUT/CM^2
	↓	↓	↓	↓	1×10^8 RAD γ 1×10^9 RAD β 1.3×10^9 NEUT/CM^2
	↓	↓	↓	↓	1.2×10^8 RAD γ 1×10^9 RAD β 2.5×10^{12} NEUT/CM^2
	↓	225°F – 0-12 HRS 212°F – 12 HRS-1 DAY 150°F – 1-7 DAYS 90°F – 8-180 DAYS	↓	↓	1×10^8 RAD γ 1×10^9 RAD β 2.5×10^{11} NEUT/CM^2
	↓	↓	↓	↓	1×10^8 RAD γ 1×10^9 RAD β 2.5×10^{11} NEUT/CM^2

TOTAL
MONTH TOTAL
RADIATION
NEGLIGIBLE

FIG. D-1
REACTOR BUILDING PRIMARY CONTAINMENT ENVIRONMENTAL ZONES
SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

ZONES	G		H		J		K		L		N
NORMAL RADIATION (RADS) (40YR)	1.8×10^3		1.8×10^3		1.8×10^3		1.8×10^3		1.8×10^3		1.8 x
ACCIDENT RADIATION (6 MO)	SUPPRESSION POOL WATER		REACTOR BLDG (AIRBORNE) LOCA / PBOC		HYDROGEN RECOMBINER		RBSVS FILTER		24 INCH RHR PIPE		8FT 4 PC PI
TIME (HR)	RAD/HR	RAD	RAD/HR	RAD	RAD/HR	RAD	RAD/HR	RAD	RAD/HR	RAD	RAD/HR
0.0	1.96+5	0.00	0.00	0.00	1.40+4	0.00	0.00	0.00	1.43+5	0.00	1.87+4
0.1	1.60+5	1.77+4	2.32+1 7.40+3	1.24+0 8.21+2	1.05+4	1.22+3	3.14+1	1.24+0	1.18+5	1.30+4	1.33+4
0.5	1.42+5	7.81+4	8.80+1 5.63+3	2.41+1 3.35+3	8.04+3	4.90+3	2.60+2	5.19+1	1.05+5	5.76+4	9.54+3
1.0	1.16+5	1.42+5	1.45+2 4.57+3	8.32+1 5.88+3	6.52+3	8.53+3	7.23+2	2.78+2	8.65+4	1.05+5	7.61+3
5.0	4.51+4	4.20+5	2.89+2 1.78+3	1.05+3 1.70+4	2.74+3	2.76+4	6.14+3	1.34+4	3.34+4	3.11+5	2.46+3
8.0	3.27+4	5.36+5	3.01+2 1.14+3	1.94+3 2.13+4	2.06+3	3.47+4	1.08+4	3.86+4	2.40+4	3.97+5	2.20+3
24.0	1.36+4	8.74+5	2.76+2 2.65+2	6.55+3 3.03+4	1.06+3	5.81+4	3.36+4	3.90+5	9.60+3	6.41+5	1.07+3
720.0	1.00+3	2.82+6	8.42+0 9.48-4	4.87+4 3.45+4	4.36+1	2.10+5	9.52+4	9.46+7	6.95+2	1.96+6	2.77+1
2160.0	3.34+2	3.62+6	4.48-2 5.42-6	5.08+4 3.45+4	7.14+0	2.34+5	1.40+3	1.27+8	2.43+2	2.52+6	1.30-1
4380.0	1.60+2	4.14+6	9.19-3 1.89-9	5.08+4 3.45+4	3.37+0	2.45+5	7.91-1	1.27+8	1.17+2	2.91+6	9.24-2
8760.0 (1 YEAR)	5.97+1	6.20+6	2.25-3 ≈ 0	5.08+4 3.45+4	1.58+0	2.45+5	2.25-3	1.27+8	4.35+1	3.38+6	7.25-2

BETA DOSE RATE AND INTEGRATED DOSE-ALL SECONDAR

TIME (HRS)	0.0	0.1	0.5	1.0	4.0	8.0	24.0	72.0	2160
DOSE RATE (RADS/HR)	0.0	1.01+2	3.18+02	5.31+2	1.22+3	1.68+3	2.26+3	8.10+1	1.07+1
INTEGEGRATED DOSE (RADS)	0.0	5.79+0	9.14+1	3.06+2	3.09+3	8.46+3	4.18+4	4.81+5	5.13+5

NOTE
FOR PBOC CASE, USE ZONE H VALUES FOR ENTIRE REACTOR SECONDARY CONTAINMENT

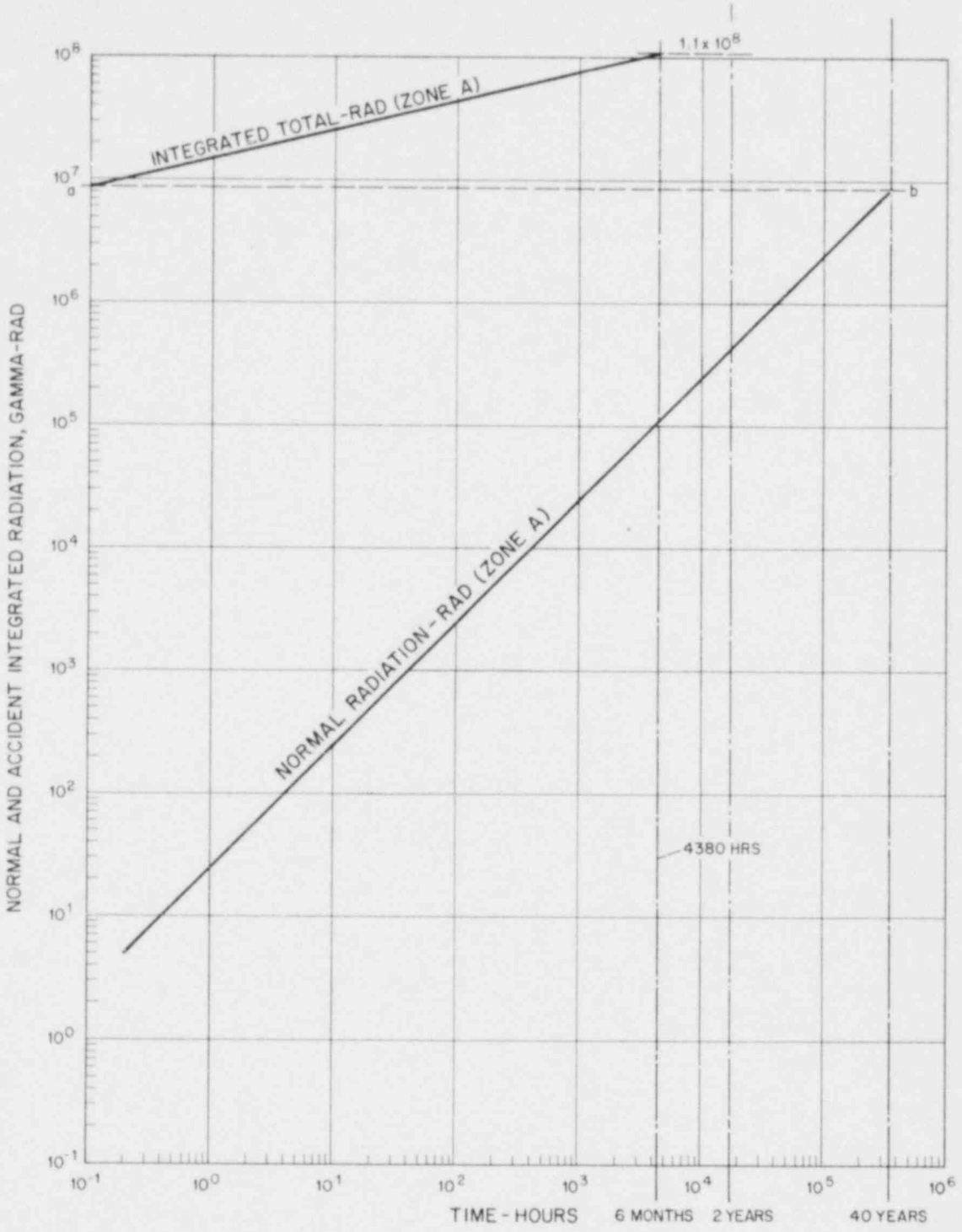
	N	P	Q	R	S	T
10^3	1.8×10^3	1.1×10^5	1.3×10^8	2.1×10^5	1.8×10^6	4.9×10^5

INCH AC PE	MCC CUBICLE		RWCU PUMP ROOM		RWCU FILTERS & TANKS		RWCU HEAT EXCHANGERS		FPC & CU ROOM		STEAM TUNNEL	
RAD	RAD/HR	RAD	RAD/HR	RAD	RAD/HR	RAD	RAD/HR	RAD	RAD/HR	RAD	RAD/HR	RAD
0.00	0.00	0.00	SAME AS ZONE H								SAME AS ZONE L	
.58+3	2.32+1	1.24+0										
5.11+3	8.84+1	2.41+1										
.04+4	1.46+2	8.36+1										
2.85+4	3.02+2	1.10+3										
3.55+4	3.24+2	2.02+3										
5.96+4	3.46+2	7.37+3										
.99+5	2.00+2	2.39+5										
2.05+5	2.85+0	3.05+5										
2.06+5	1.08-2	3.06+5										
06+5	2.25-3	3.06+5										

CONTAINMENT ZONES

4380	6570	8760	10950	13140	15330	17520
78+0	3.20+0	1.77+0	9.78-1	5.42-1	3.00-1	1.60-1
31+5	5.41+5	5.46+5	5.49+5	5.50+5	551+5	5.52+5

FIG. D-2
REACTOR BUILDING SECONDARY CONTAINMENT NORMAL AND ACCIDENT RADIATION ZONES
SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



NOTES:

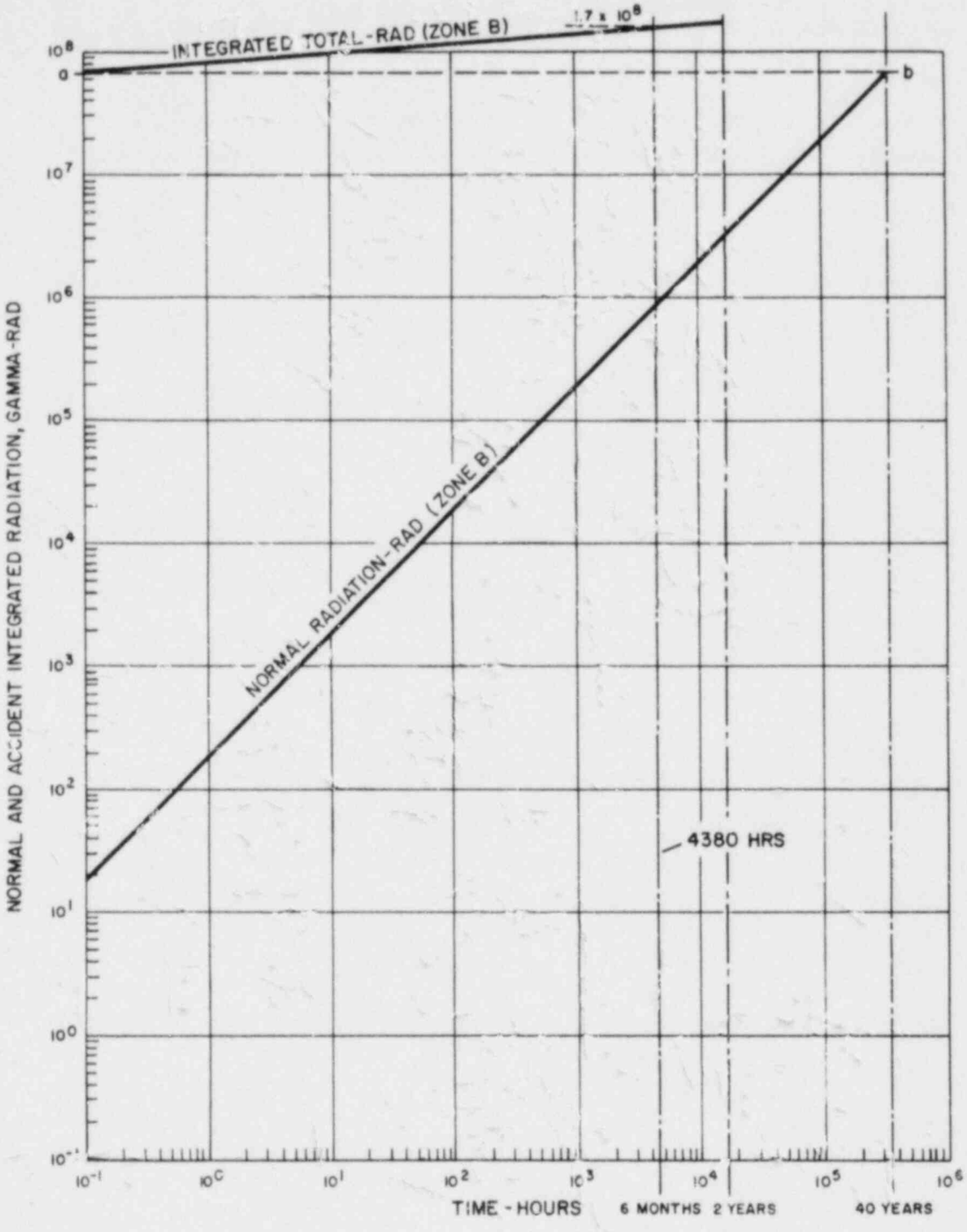
THE PROFILE FOR THE INTEGRATED TOTAL RADIATION SHOWS THE 2 YEAR LOCA PROFILE BEGINNING AFTER THE 40 YEAR TOTAL (LINE a-b)

IT IS ASSUMED HERE THAT THE LOCA OCCURS AFTER 40 YEARS AT NORMAL OPERATION AND THE DOSE IS CUMULATIVE

FIG. D-3

REACTOR BUILDING, PRIMARY CONTAINMENT RADIATION LEVEL FOR ZONE A

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTES:

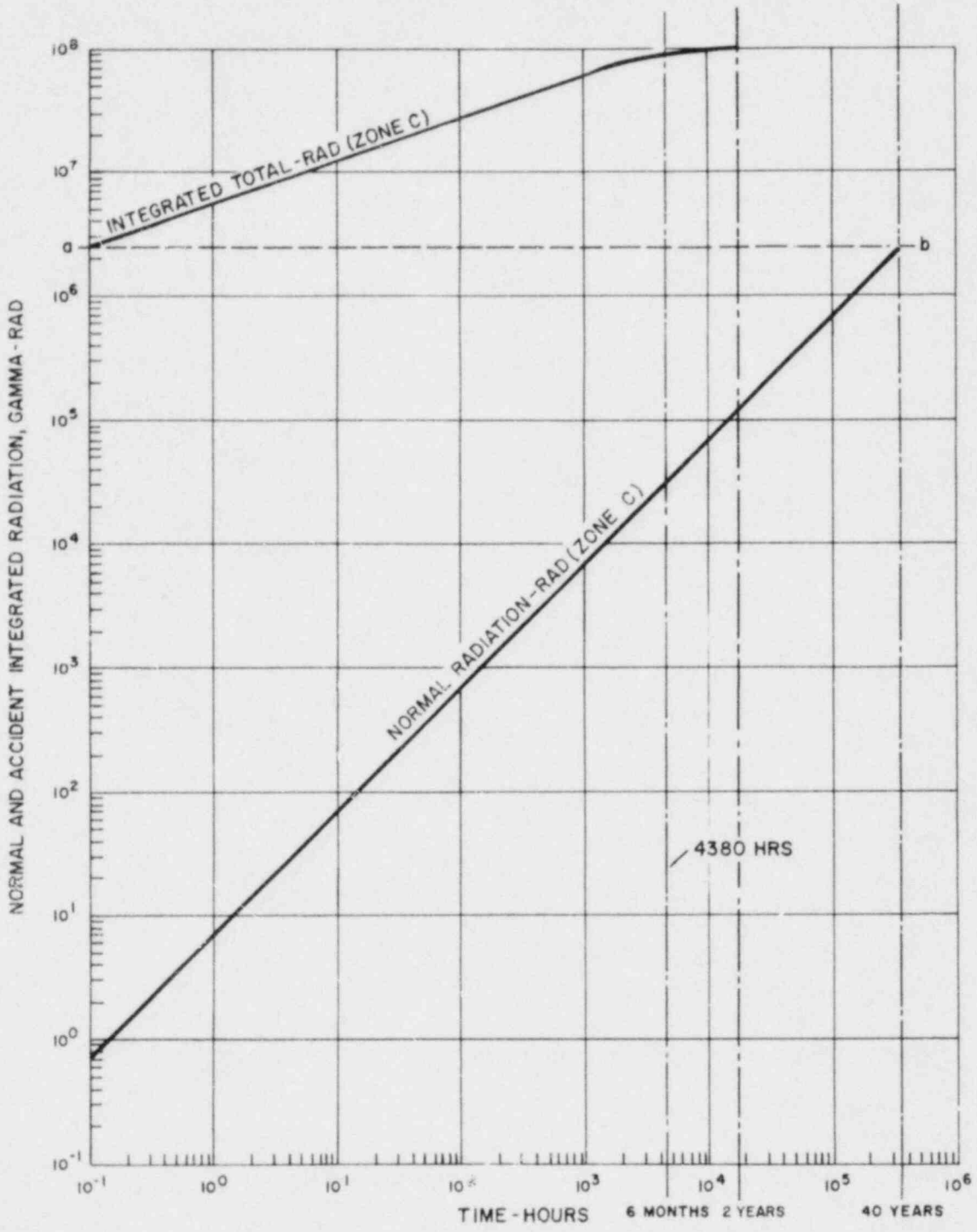
THE PROFILE FOR THE INTEGRATED TOTAL RADIATION SHOWS THE 2 YEAR LOCA PROFILE BEGINNING AFTER THE 40 YEAR TOTAL (LINE a-b)

IT IS ASSUMED HERE THAT THE LOCA OCCURS AFTER 40 YEARS AT NORMAL OPERATION AND THE DOSE IS CUMULATIVE

FIG. D-4

REACTOR BUILDING, PRIMARY CONTAINMENT RADIATION LEVEL FOR ZONE B

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTES:

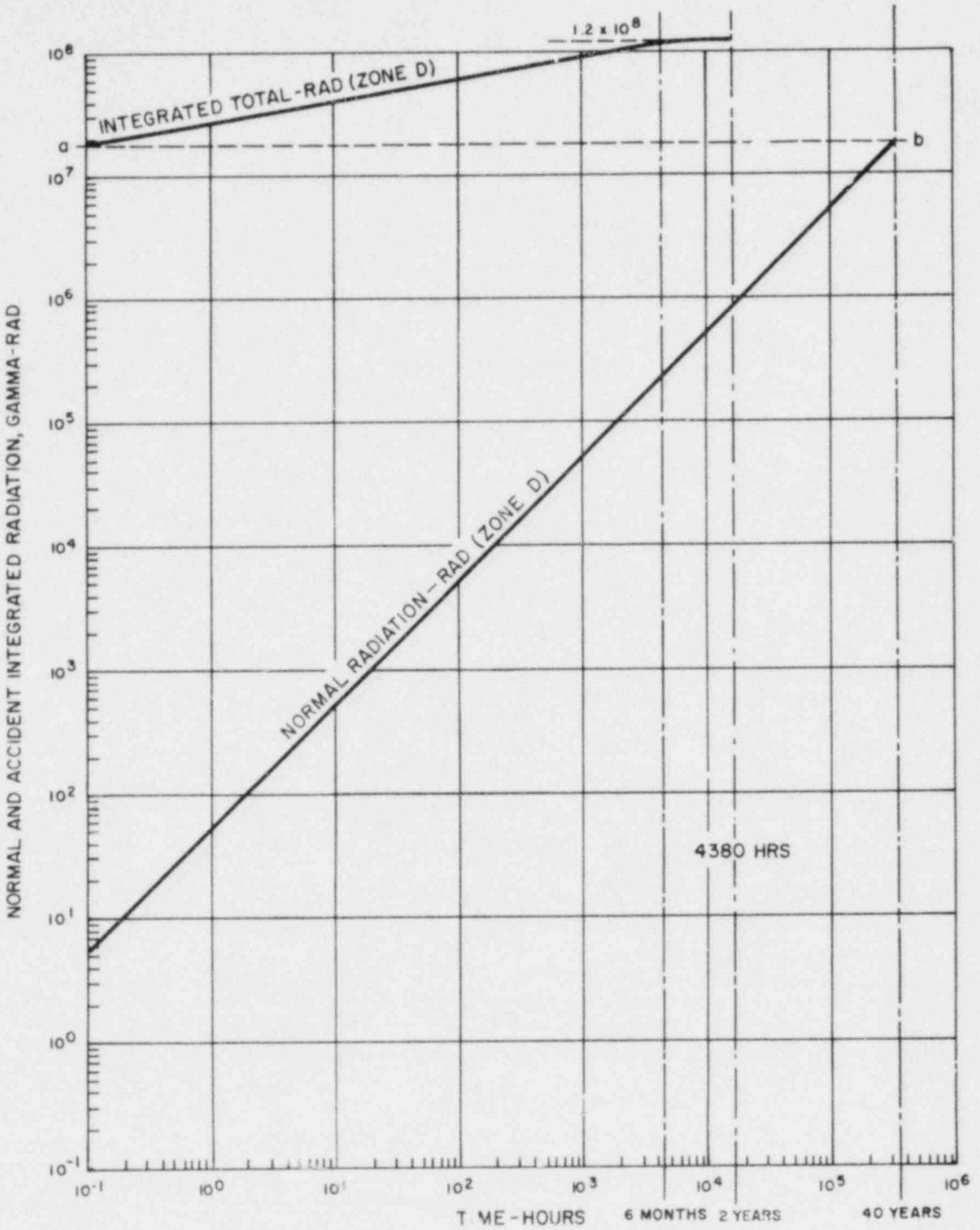
THE PROFILE FOR THE INTEGRATED TOTAL RADIATION SHOWS THE 2 YEAR LOCA PROFILE BEGINNING AFTER THE 40 YEAR TOTAL (LINE a-b)

IT IS ASSUMED HERE THAT THE LOCA OCCURS AFTER 40 YEARS AT NORMAL OPERATION AND THE DOSE IS CUMULATIVE

FIG. D-5

REACTOR BUILDING, PRIMARY CONTAINMENT RADIATION LEVEL FOR ZONE C

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTES:

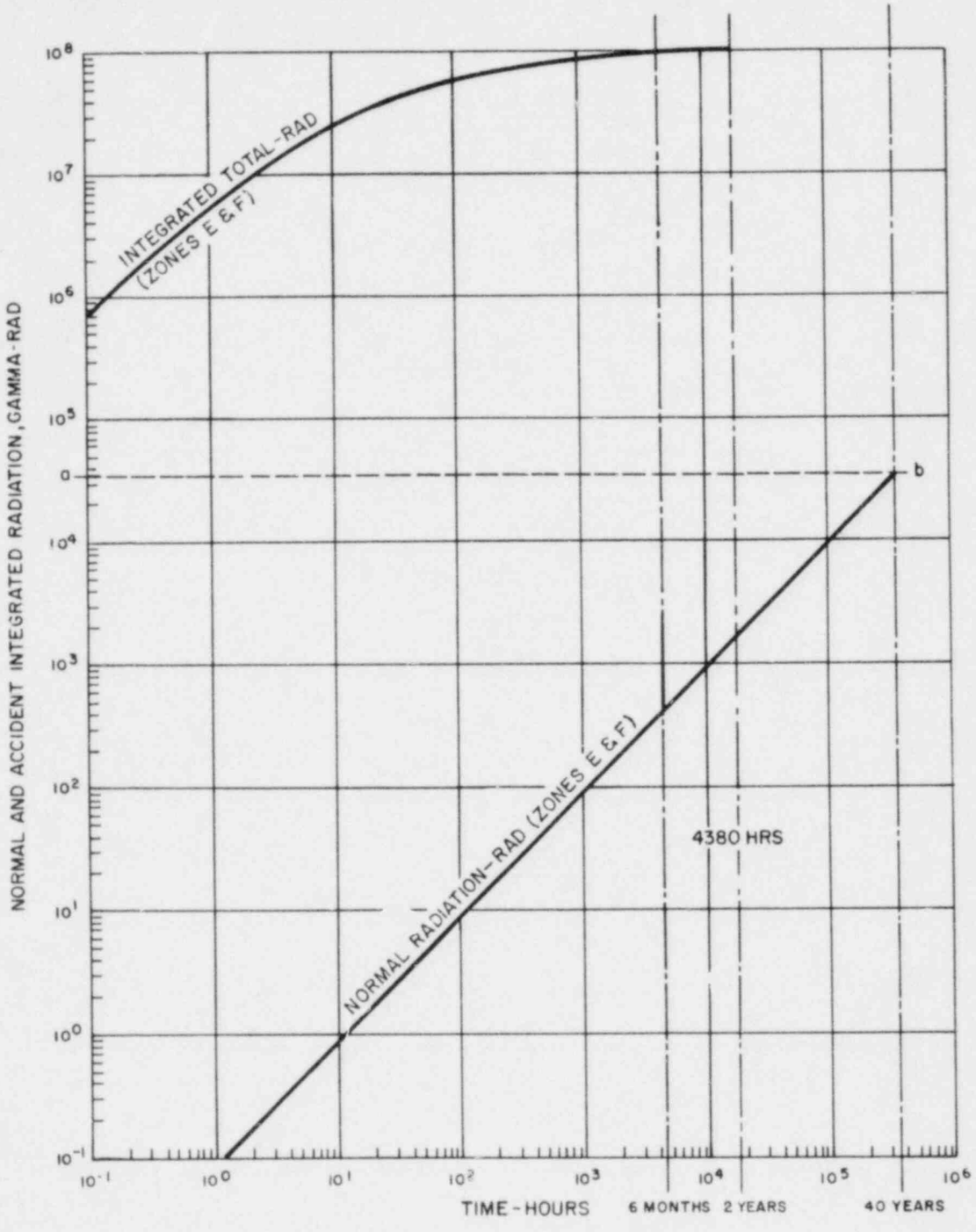
THE PROFILE FOR THE INTEGRATED TOTAL RADIATION SHOWS THE 2 YEAR LOCA PROFILE BEGINNING AFTER THE 40 YEAR TOTAL (LINE a-b)

IT IS ASSUMED HERE THAT THE LOCA OCCURS AFTER 40 YEARS AT NORMAL OPERATION AND THE DOSE IS CUMULATIVE

FIG. D-6

REACTOR BUILDING, PRIMARY CONTAINMENT RADIATION LEVEL FOR ZONE D

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTES:

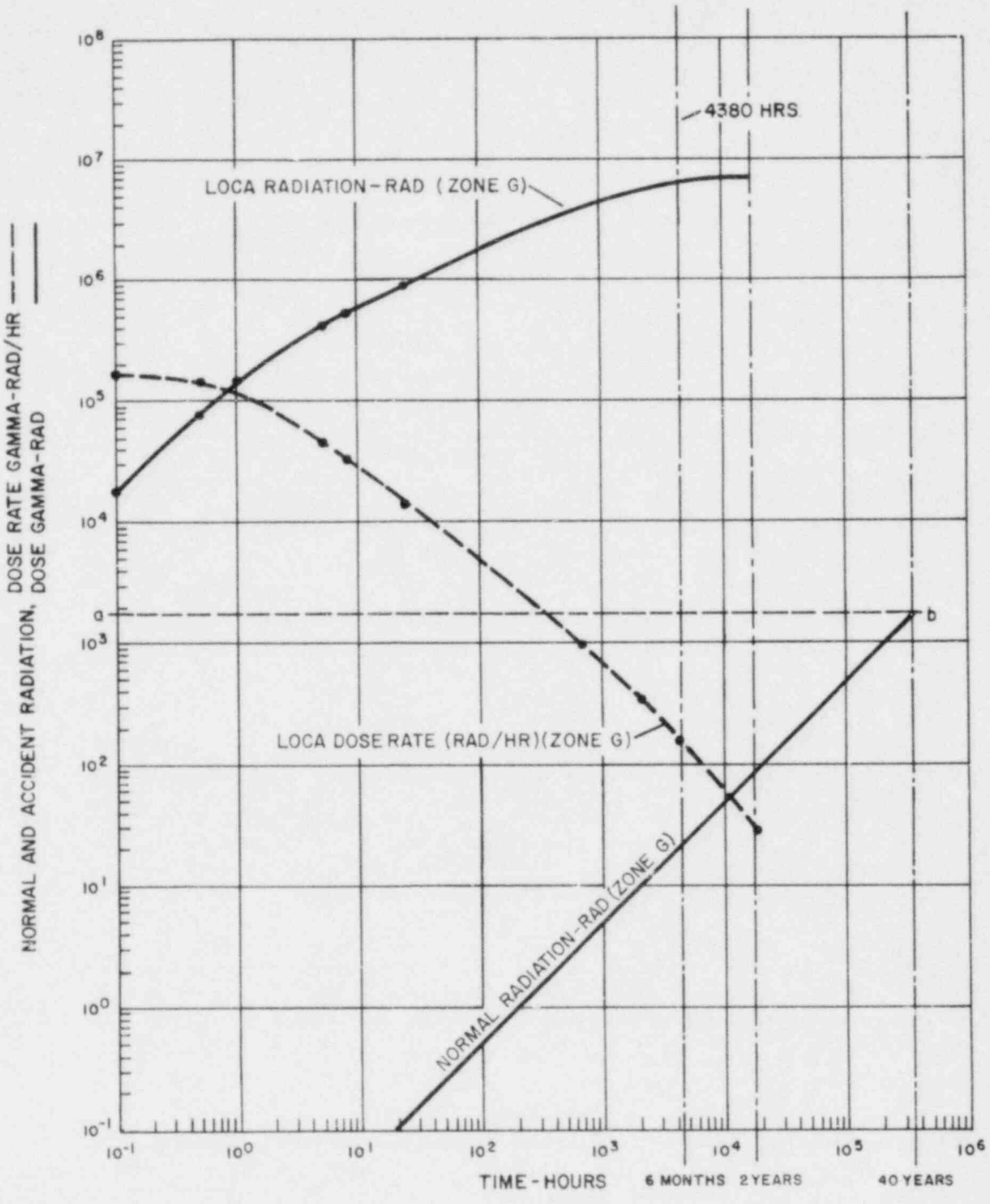
THE PROFILE FOR THE INTEGRATED TOTAL RADIATION SHOWS THE 2 YEAR LOCA PROFILE BEGINNING AFTER THE 40 YEAR TOTAL (LINE a-b)

IT IS ASSUMED HERE THAT THE LOCA OCCURS AFTER 40 YEARS AT NORMAL OPERATION AND THE DOSE IS CUMULATIVE

FIG. D-7

REACTOR BUILDING, PRIMARY CONTAINMENT RADIATION LEVELS FOR ZONES E & F

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



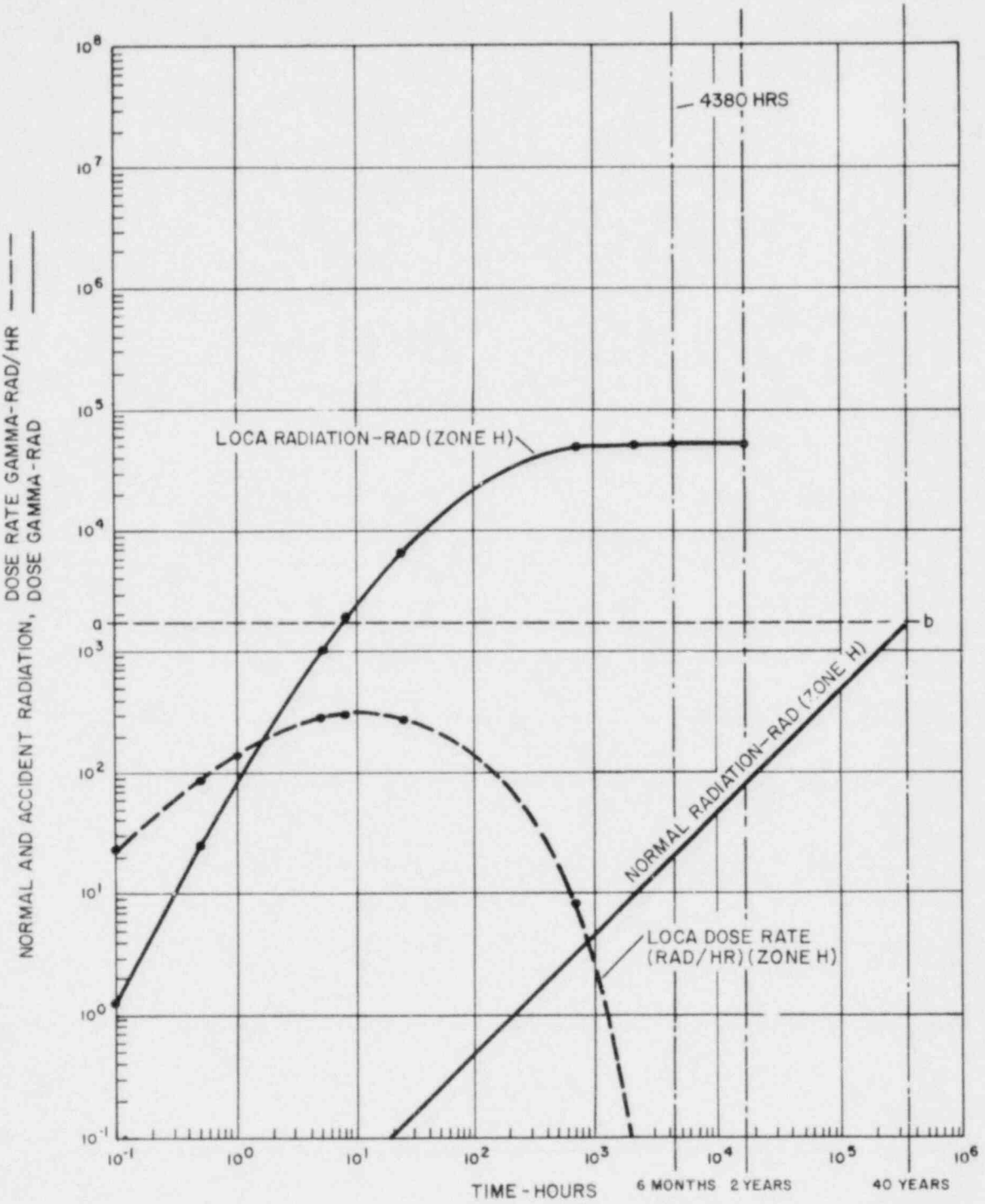
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b).

FIG D-8

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE G

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



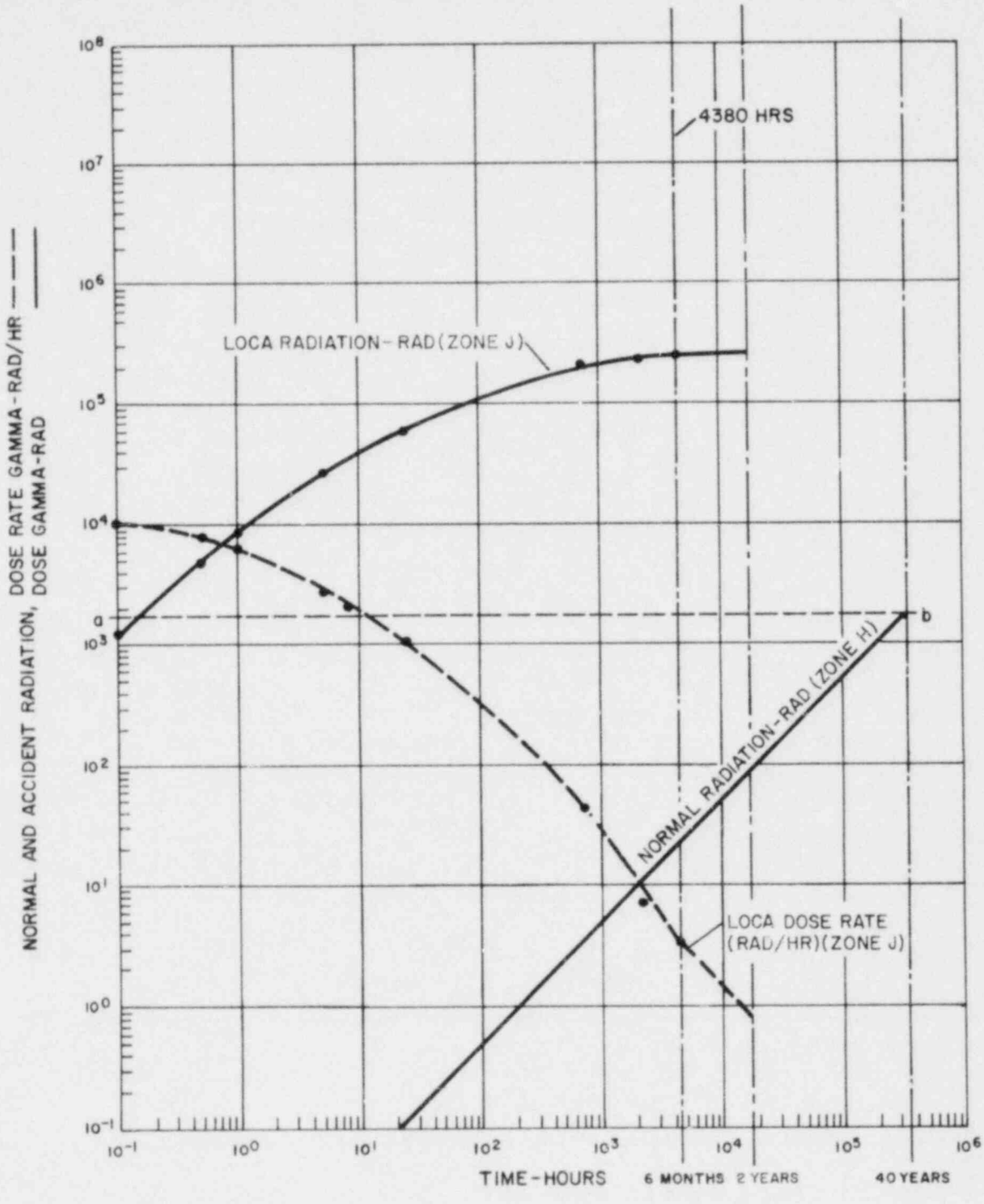
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE=ACCIDENT DOSE+ 40 YEAR NORMAL DOSE (LINE a-b).

FIG. D-9

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE H

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



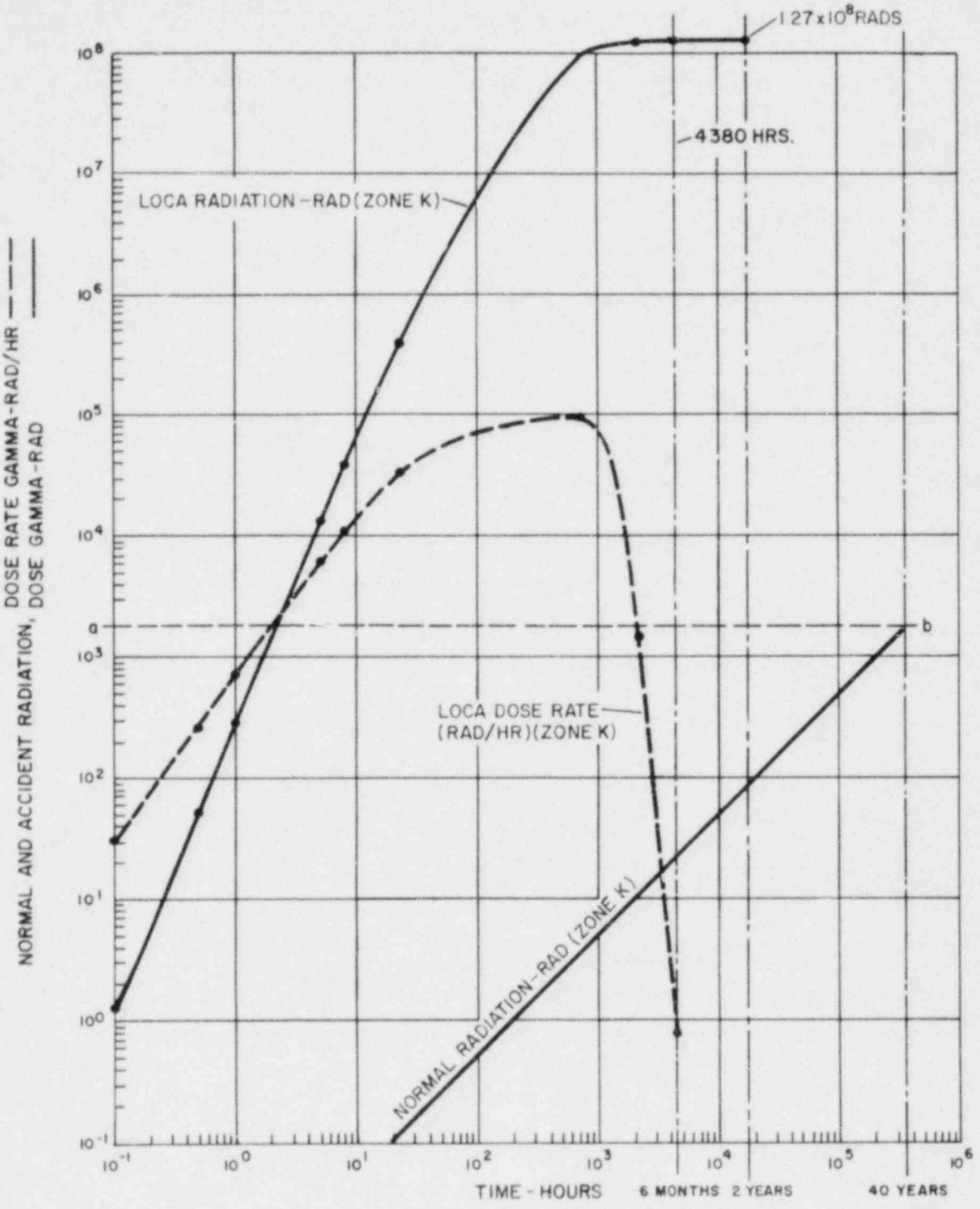
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b).

FIG. D-10

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE J

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



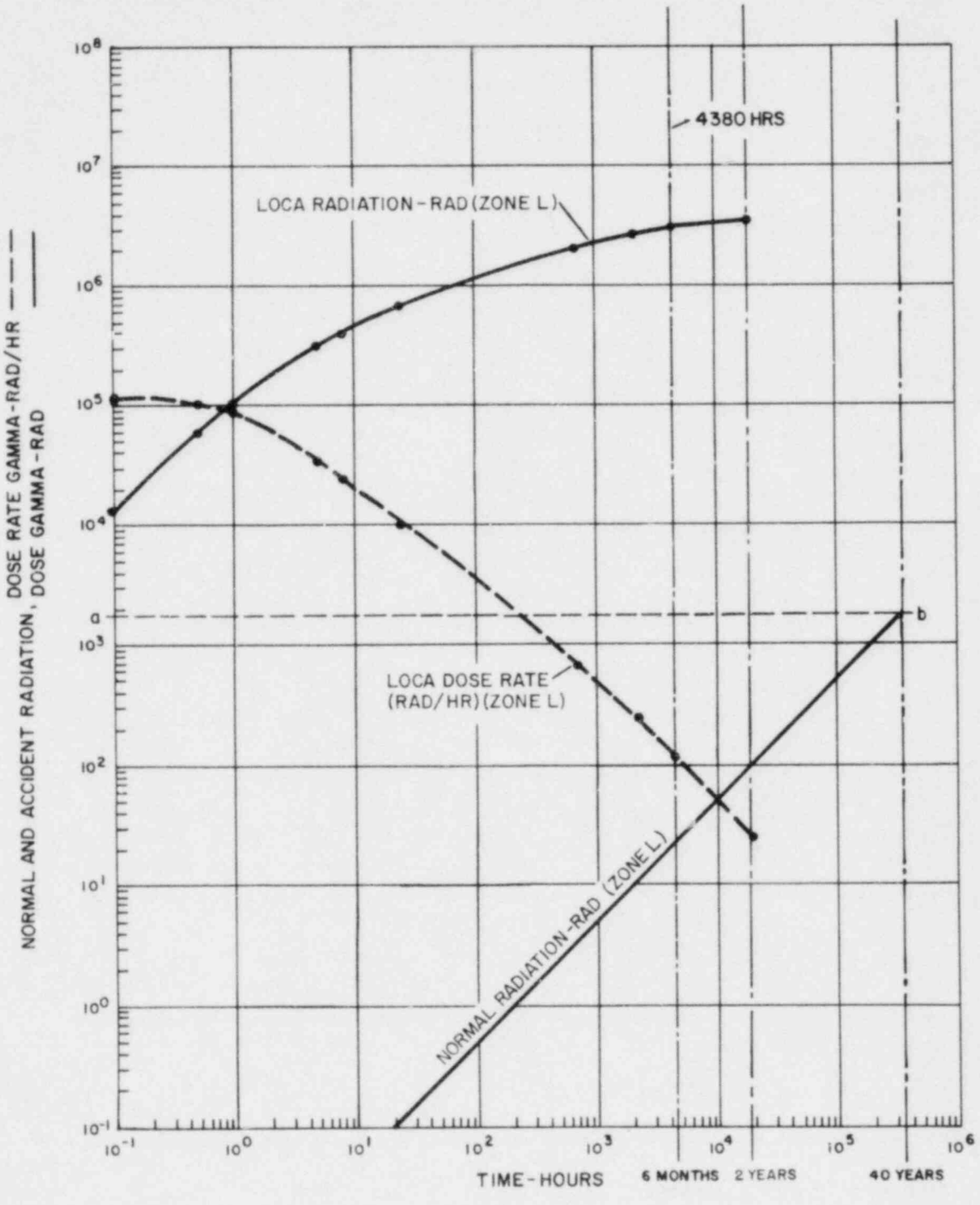
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b).

FIG. D-11

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE K

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



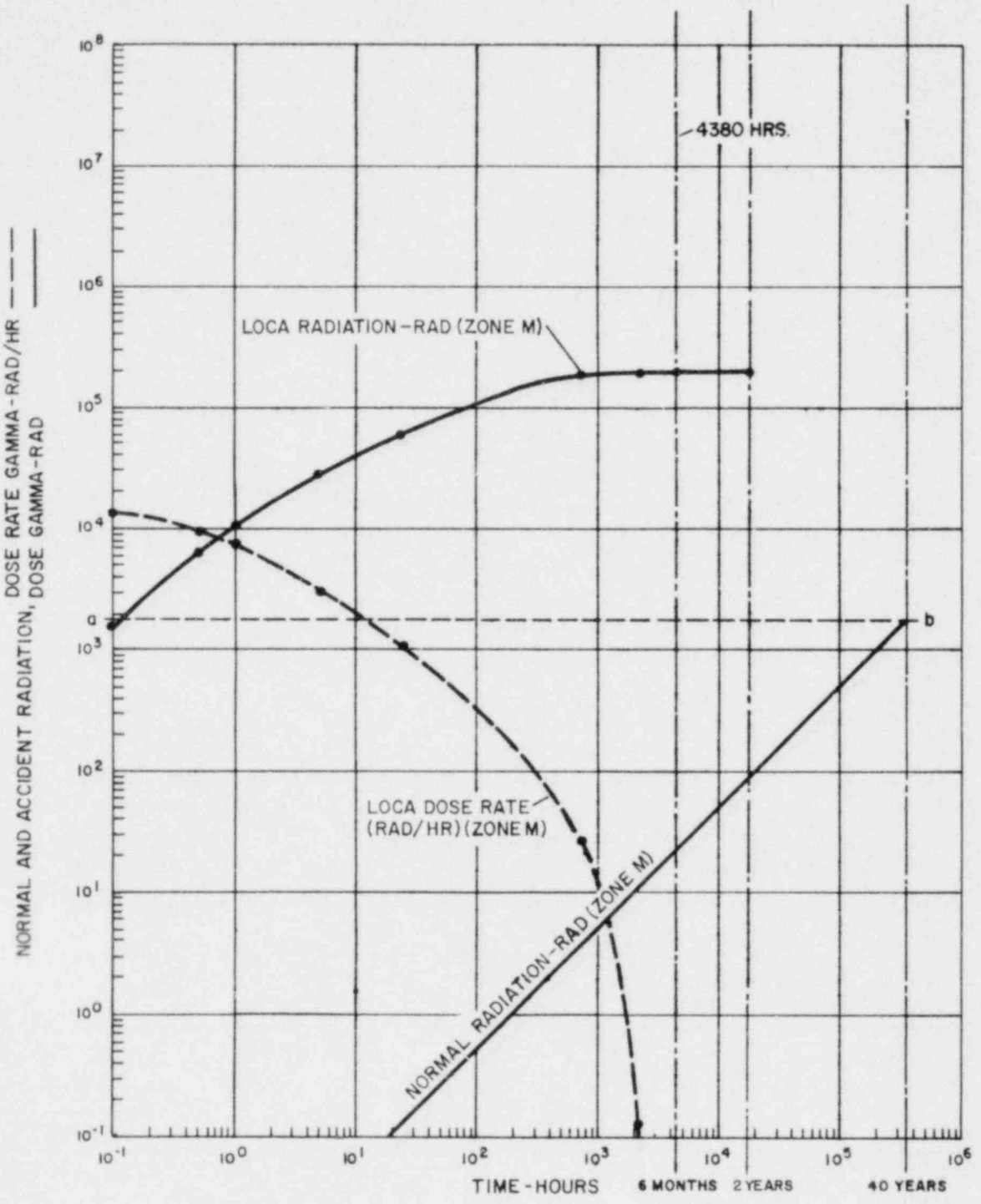
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b).

FIG. D-12

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE L

SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



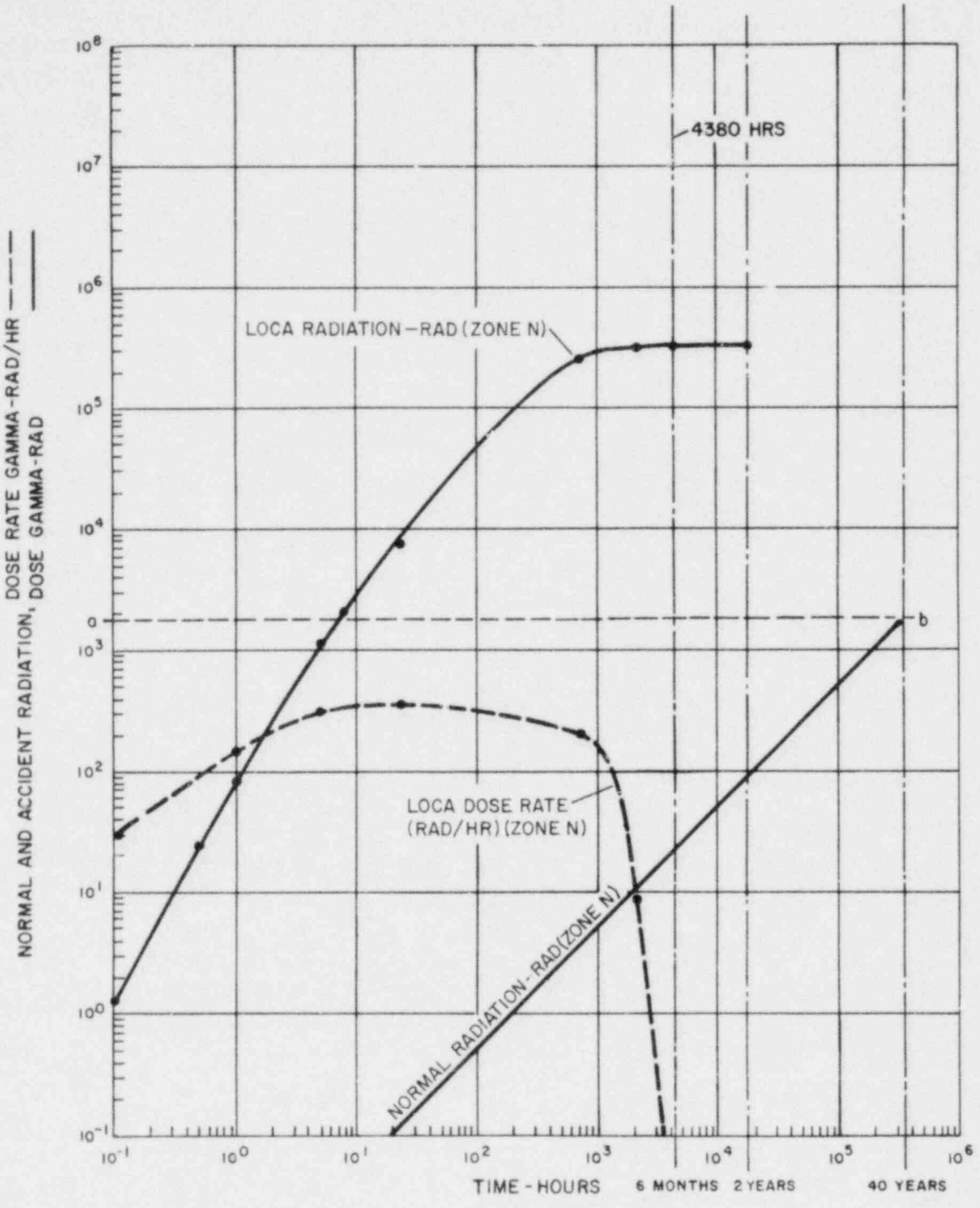
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b)

FIG. D-13

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE M

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



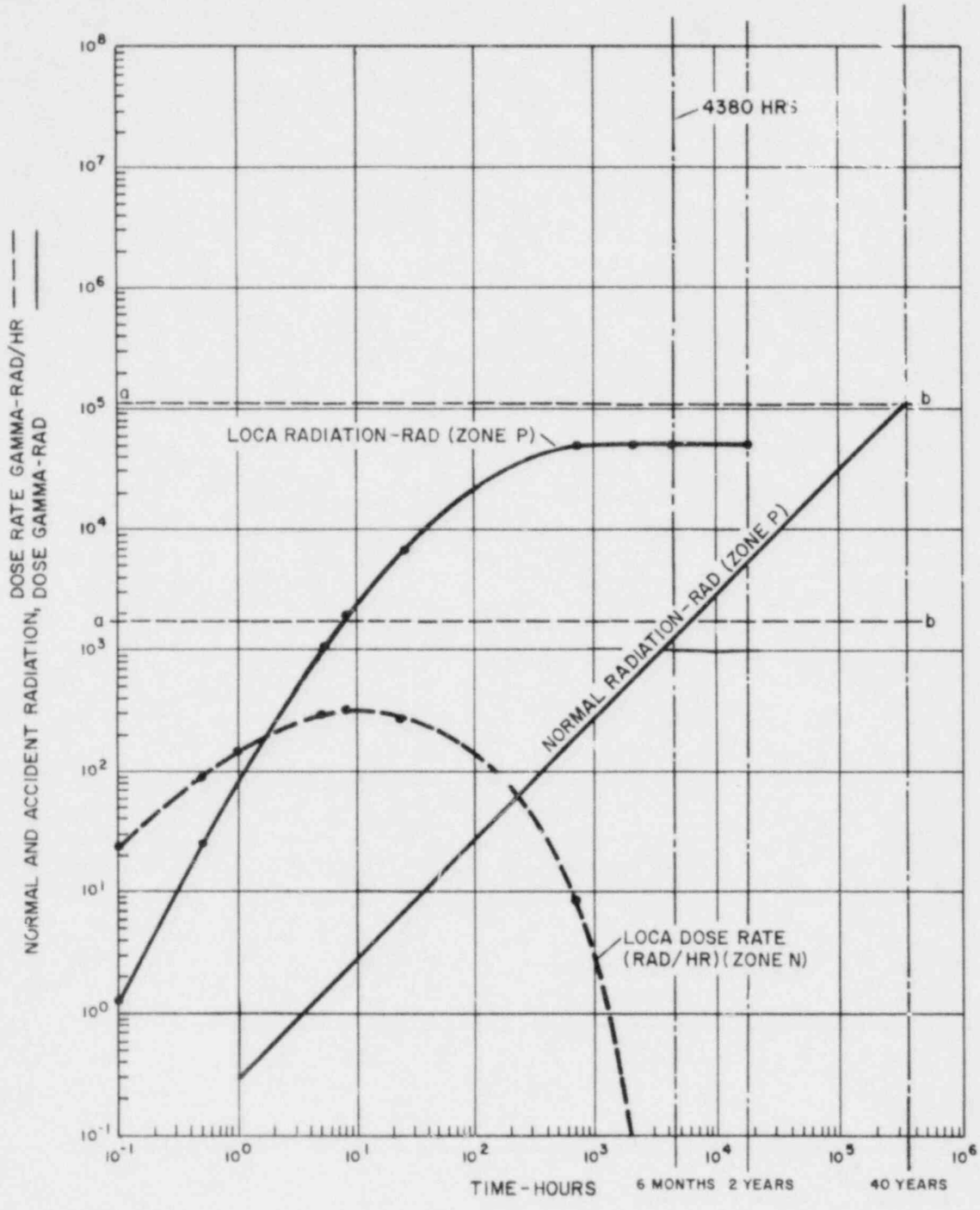
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a - b).

FIG. D-14

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE N

SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



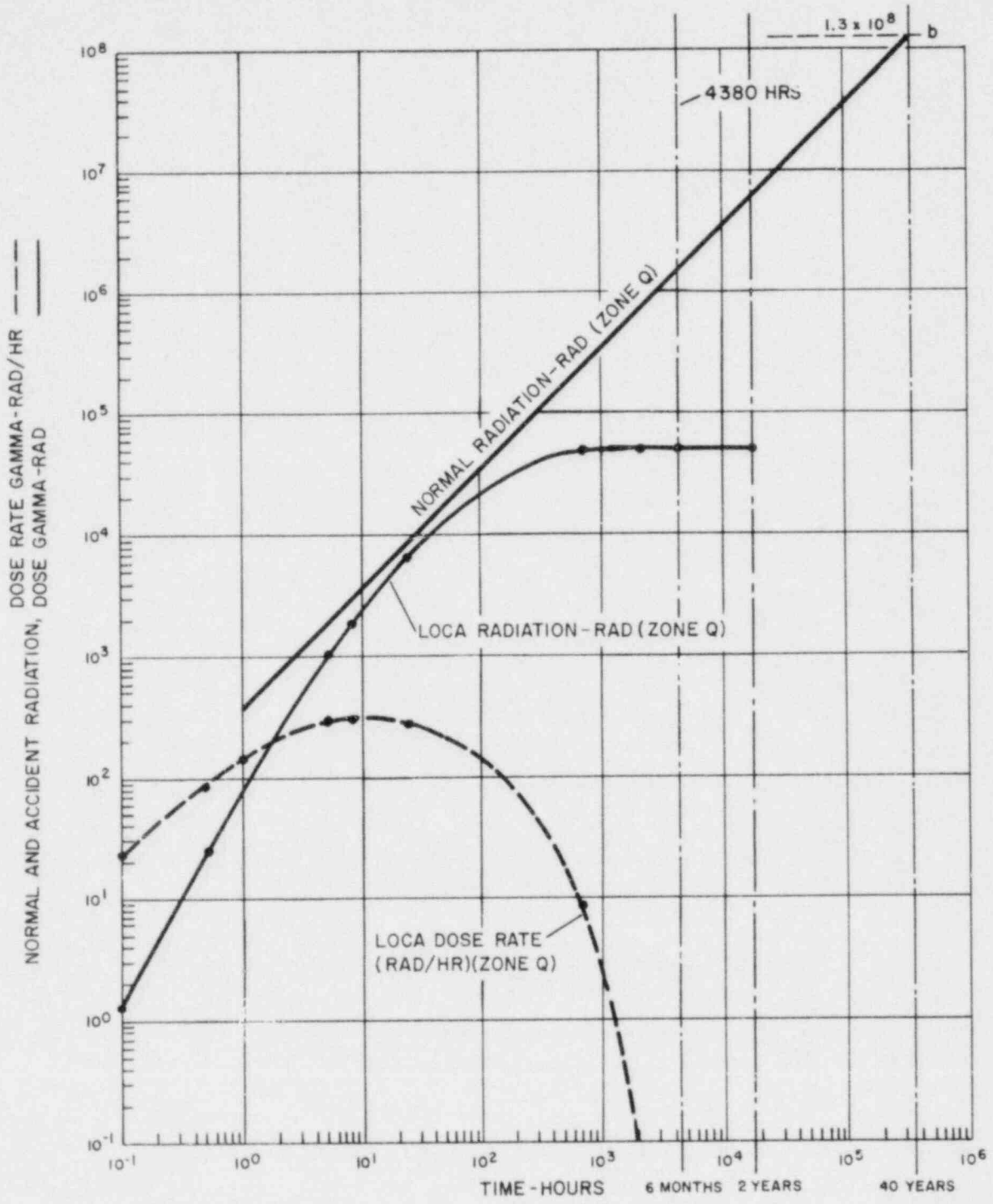
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b).

FIG. D-15

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE P

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



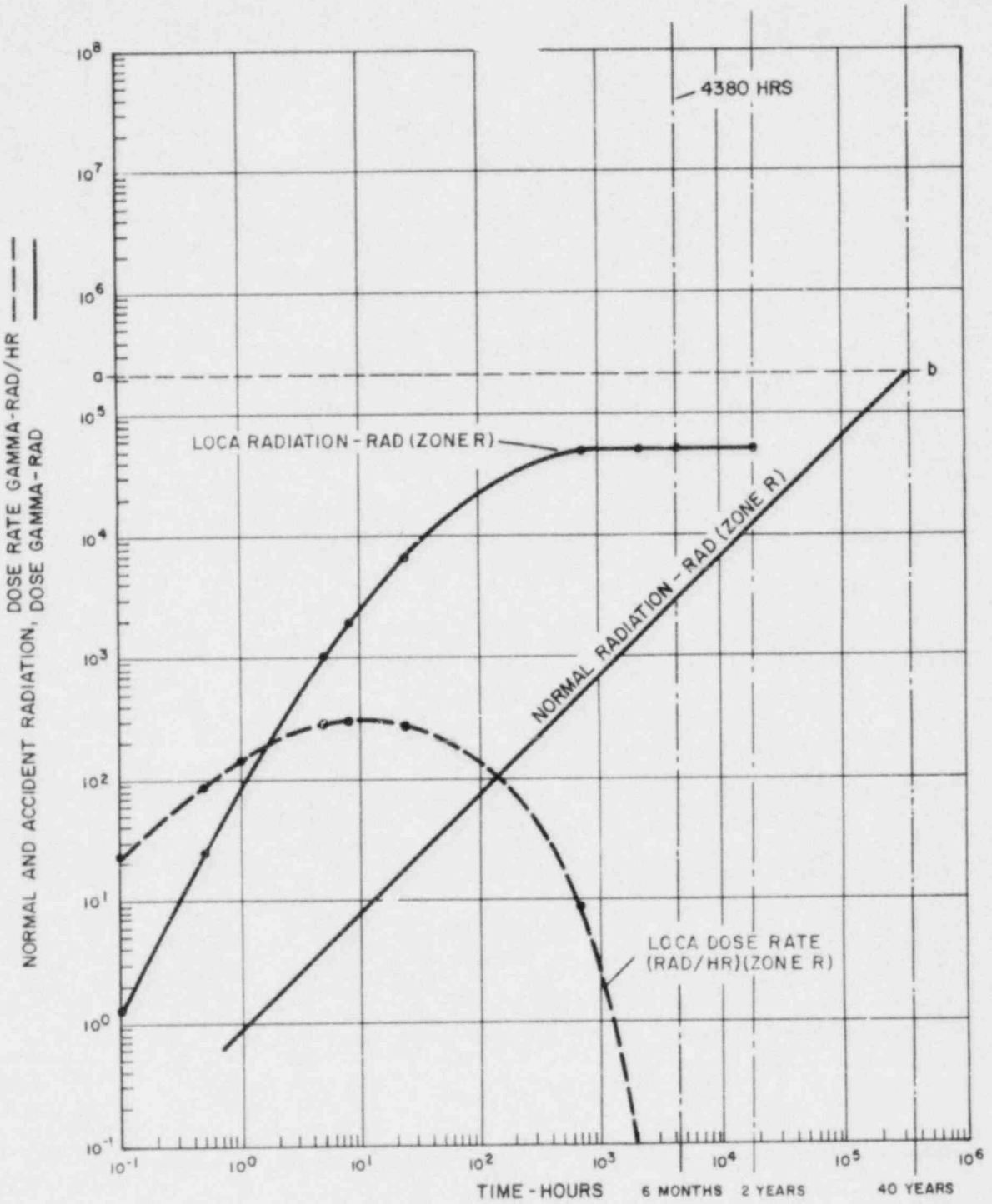
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b).

FIG. D-16

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE Q

SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



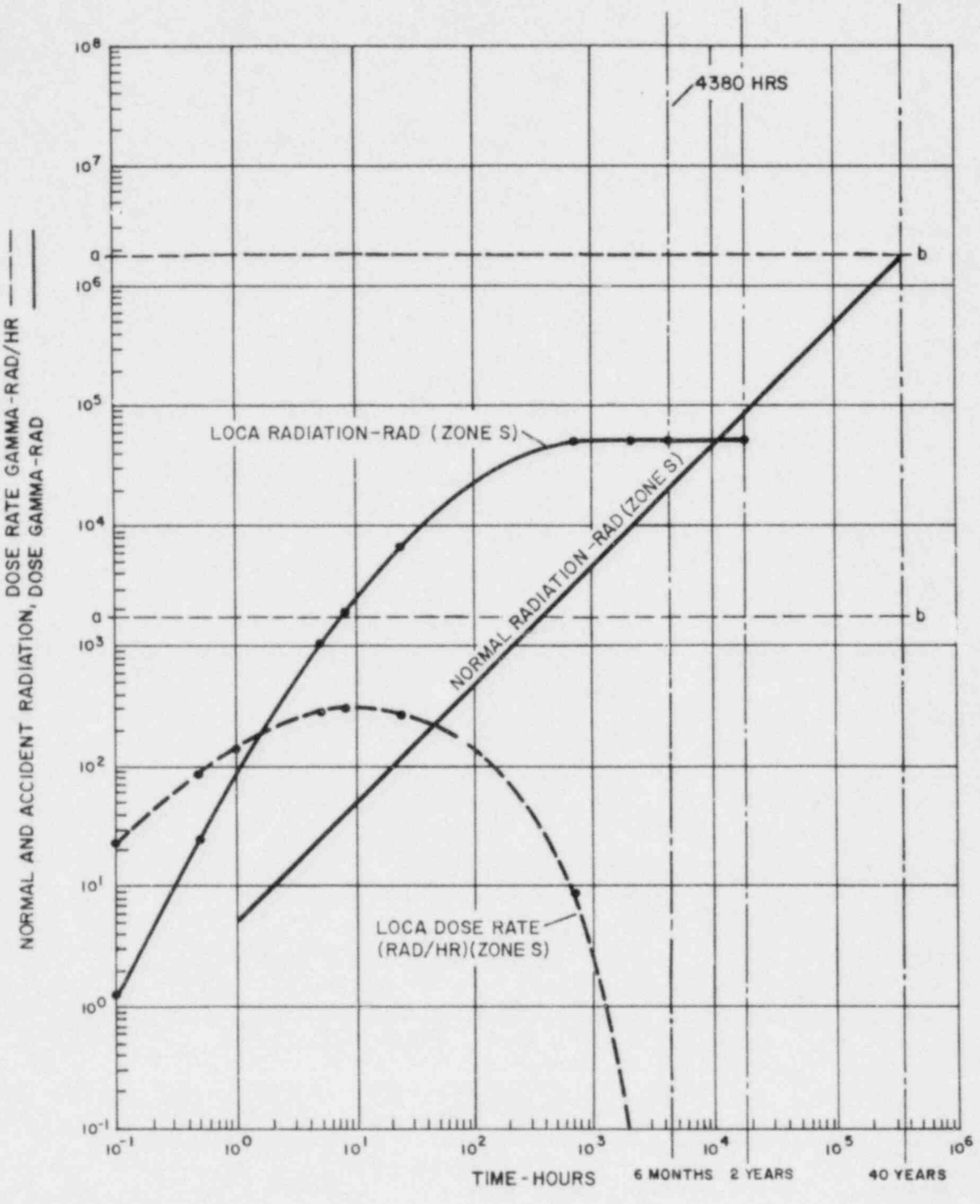
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE=ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b).

FIG. D-17

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE R

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



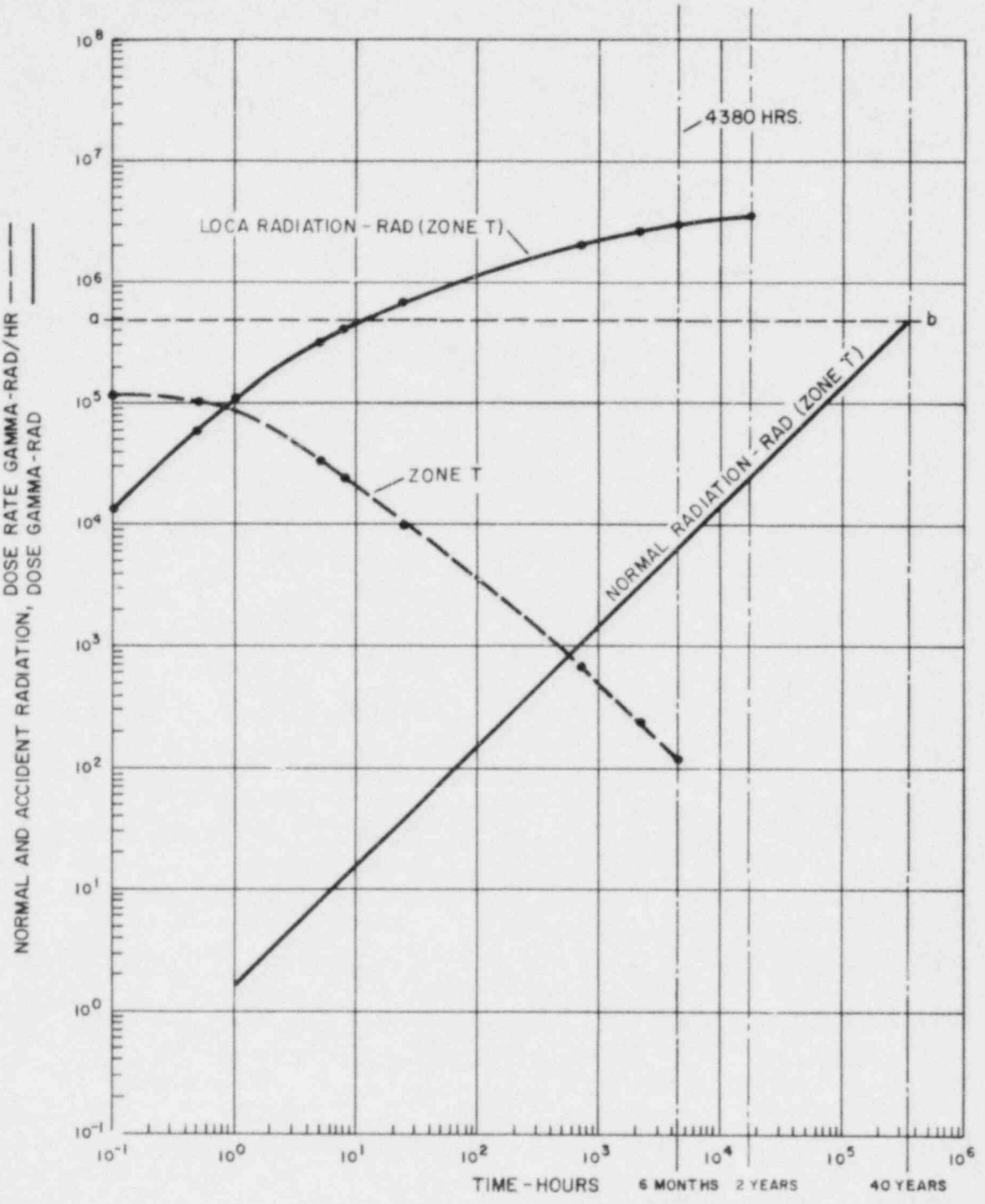
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a b).

FIG. D-18

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE S

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



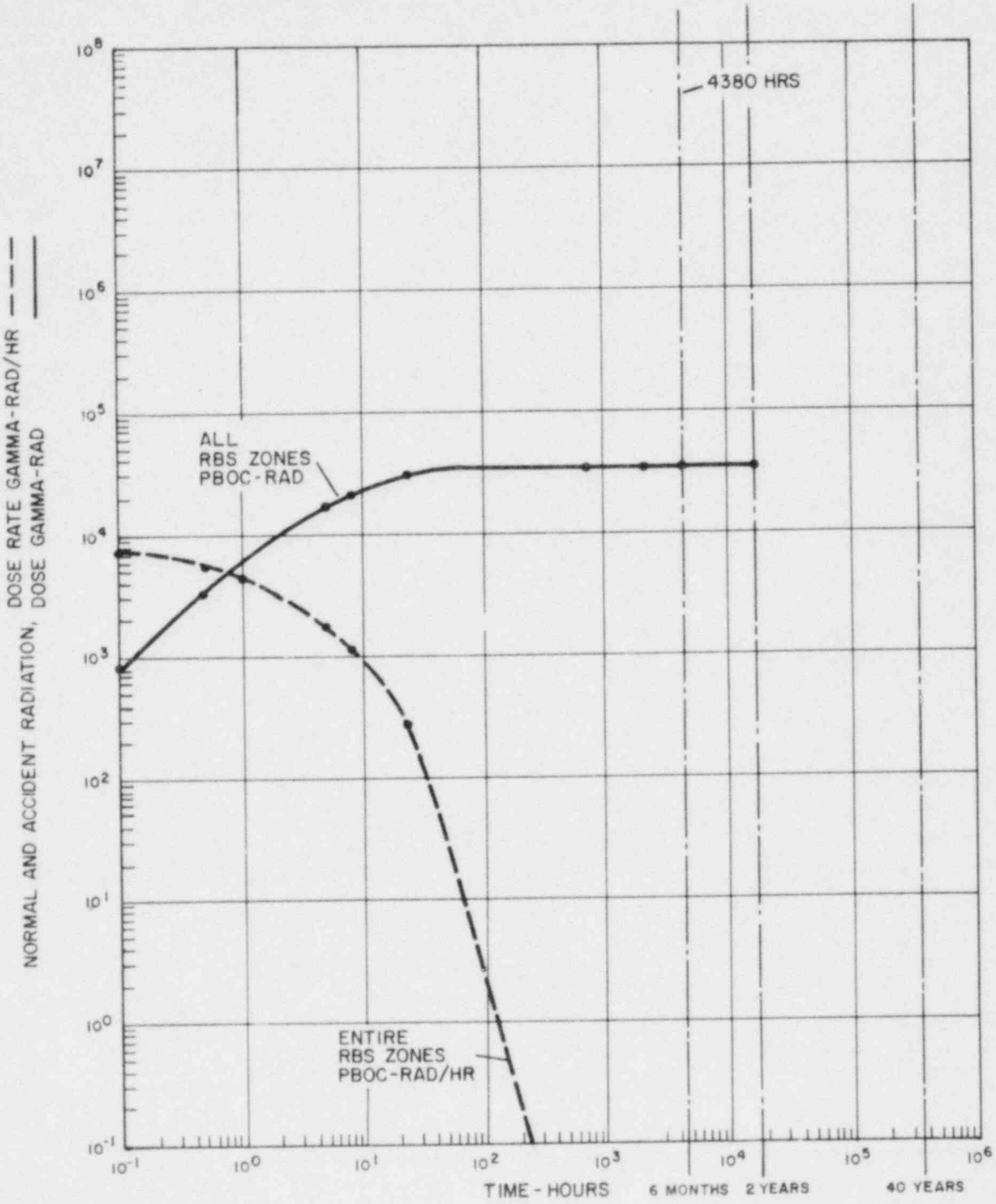
NOTES

1. ACCIDENT DOSE FROM LOCA ONLY.
2. SEE FIGURE D-20 FOR PBOC RAD.
3. INTEGRATED DOSE = ACCIDENT DOSE + 40 YEAR NORMAL DOSE (LINE a-b)

FIG. D-19

REACTOR BUILDING, SECONDARY CONTAINMENT RADIATION LEVEL FOR ZONE T

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

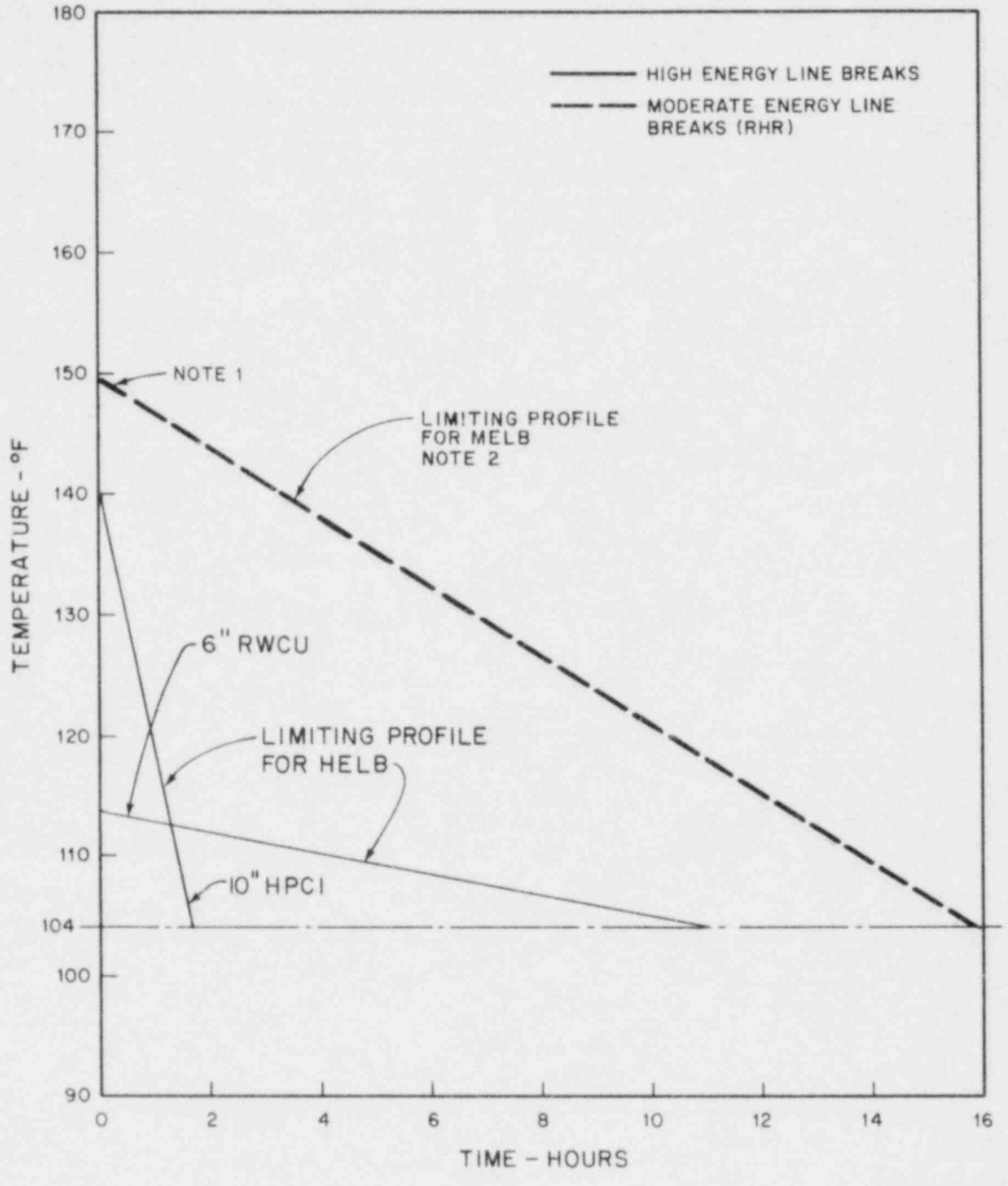


NOTE
'PBOC RAD' APPLIES TO ALL
SECONDARY CONTAINMENT (RBS) ZONES

FIG. D-20

REACTOR BUILDING, SECONDARY CONTAINMENT PBOC RADIATION LEVEL

SHOREHAM NUCLEAR POWER STATION-UNIT I
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



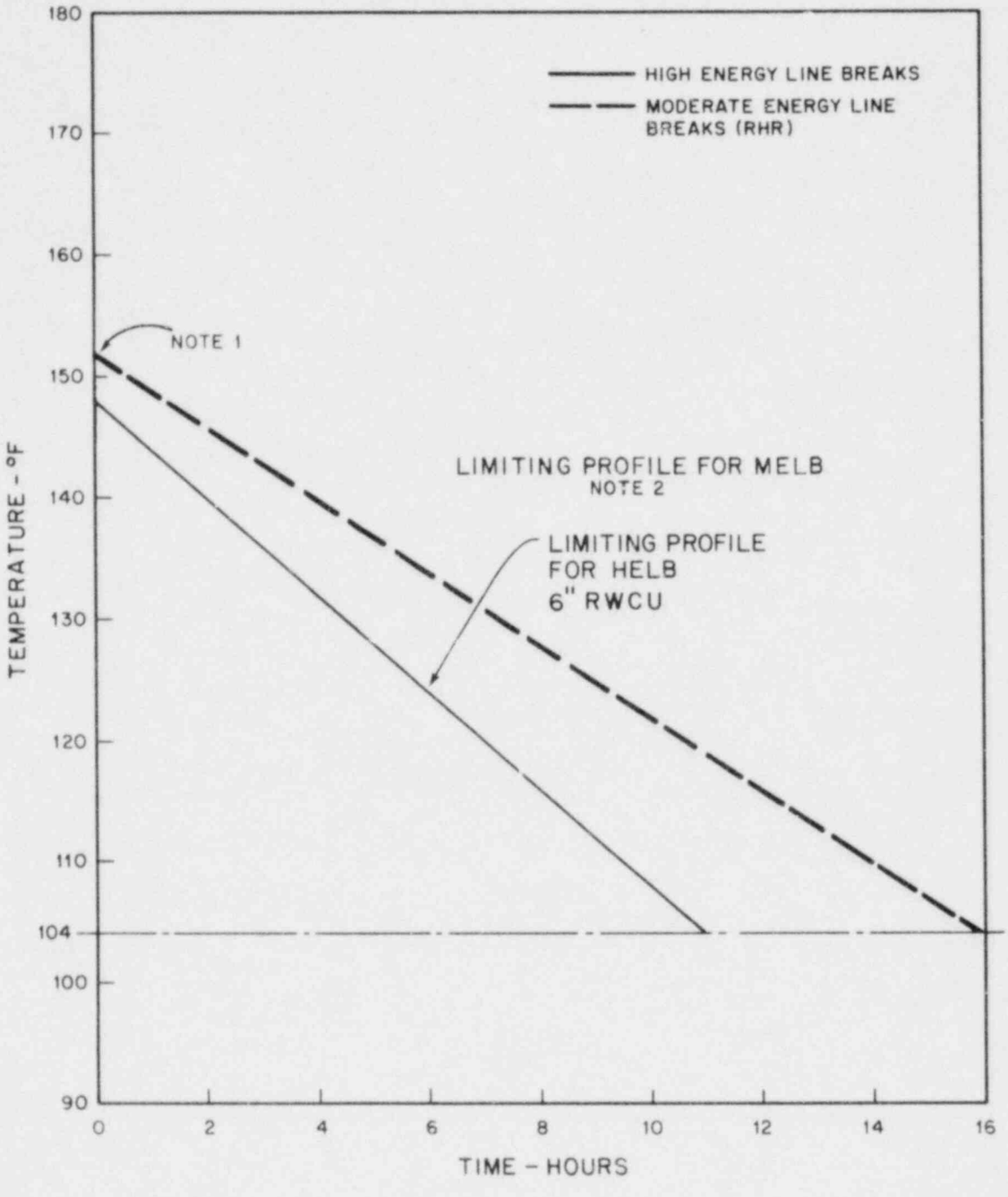
NOTES

1. PEAK TEMPERATURE RISE WITHIN 700 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-21

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 1

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



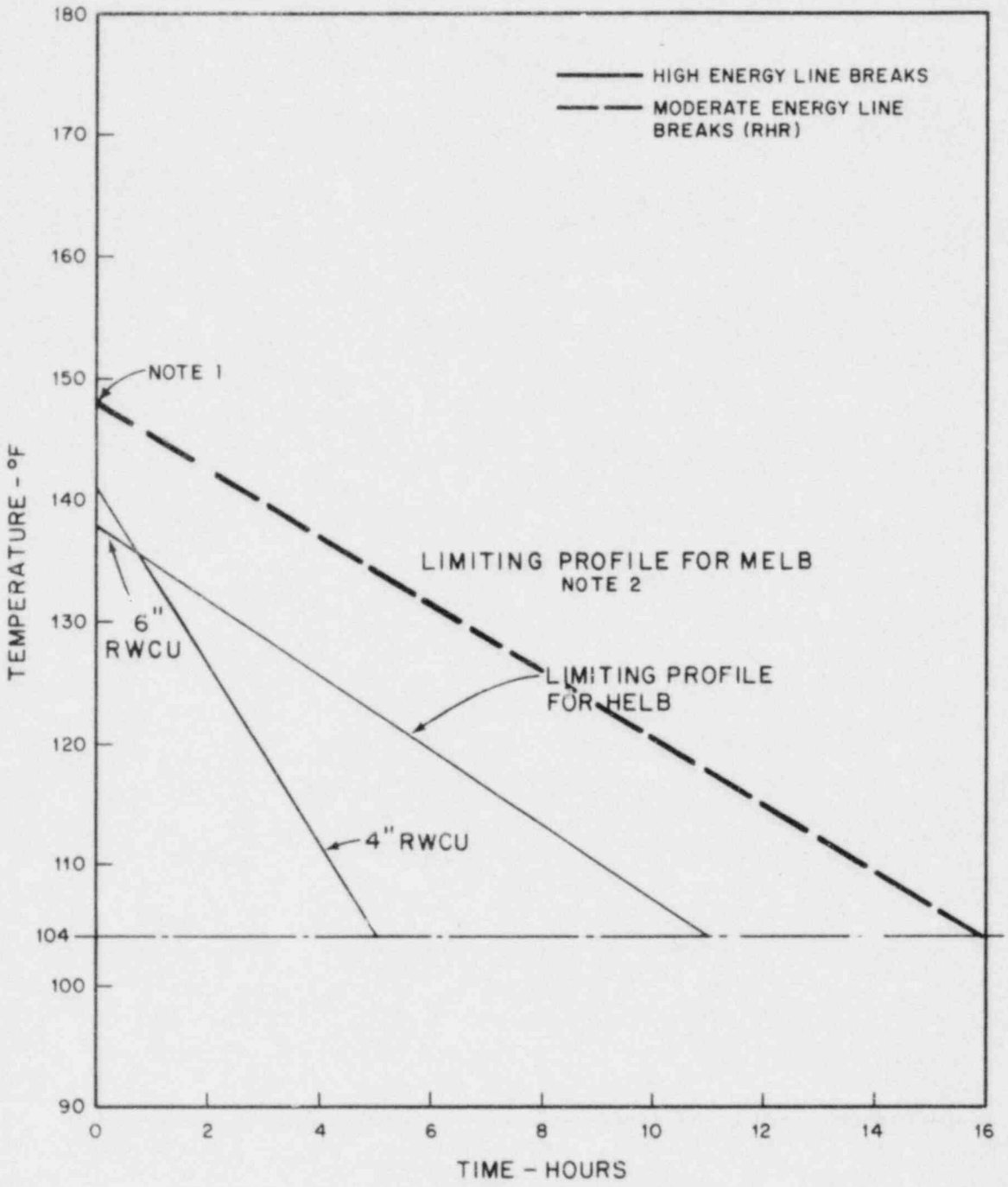
NOTES

1. PEAK TEMPERATURE RISE WITHIN 700 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-22

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 2

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



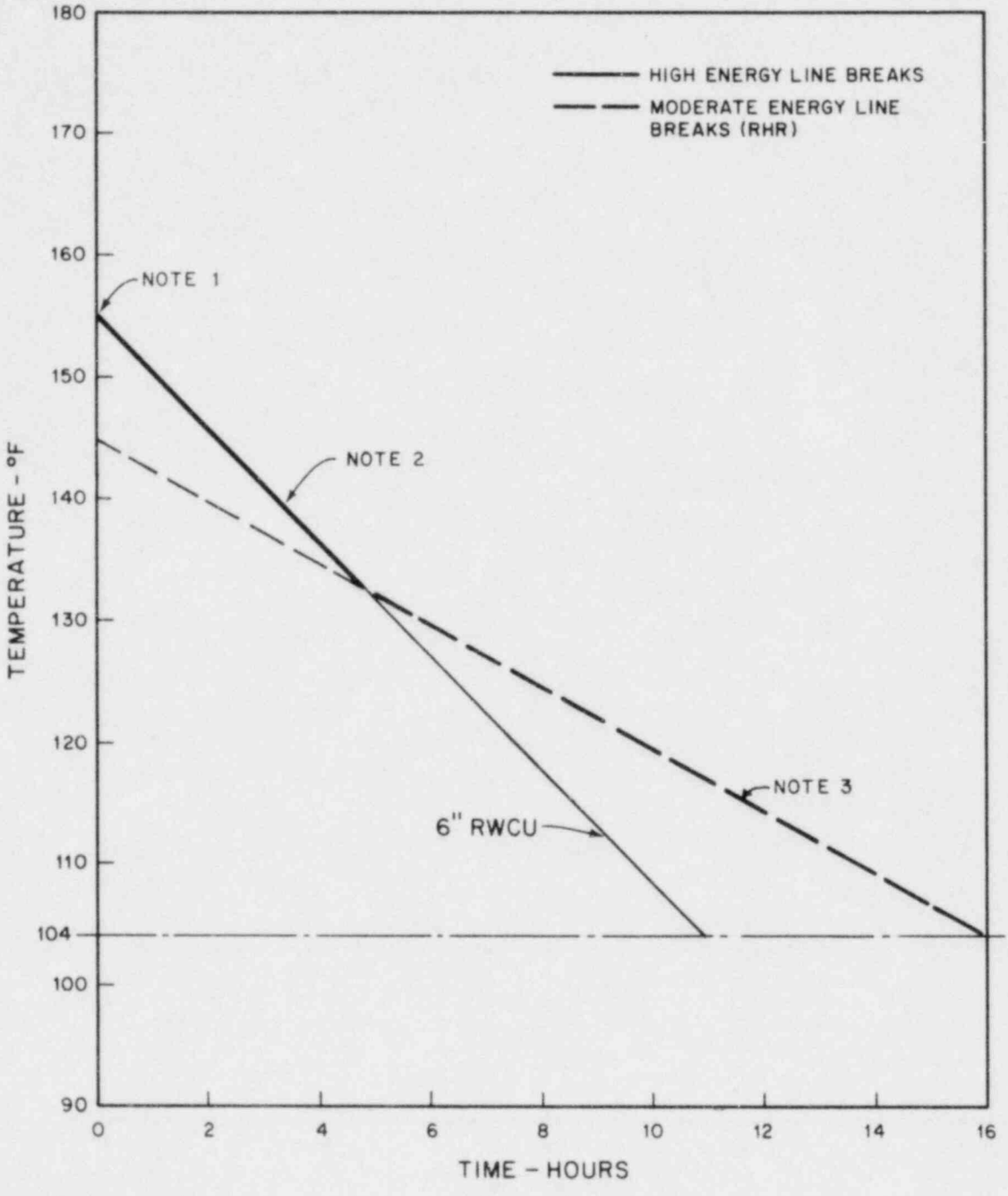
NOTES

1. PEAK TEMPERATURE RISE WITHIN 700 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-23

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 3

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



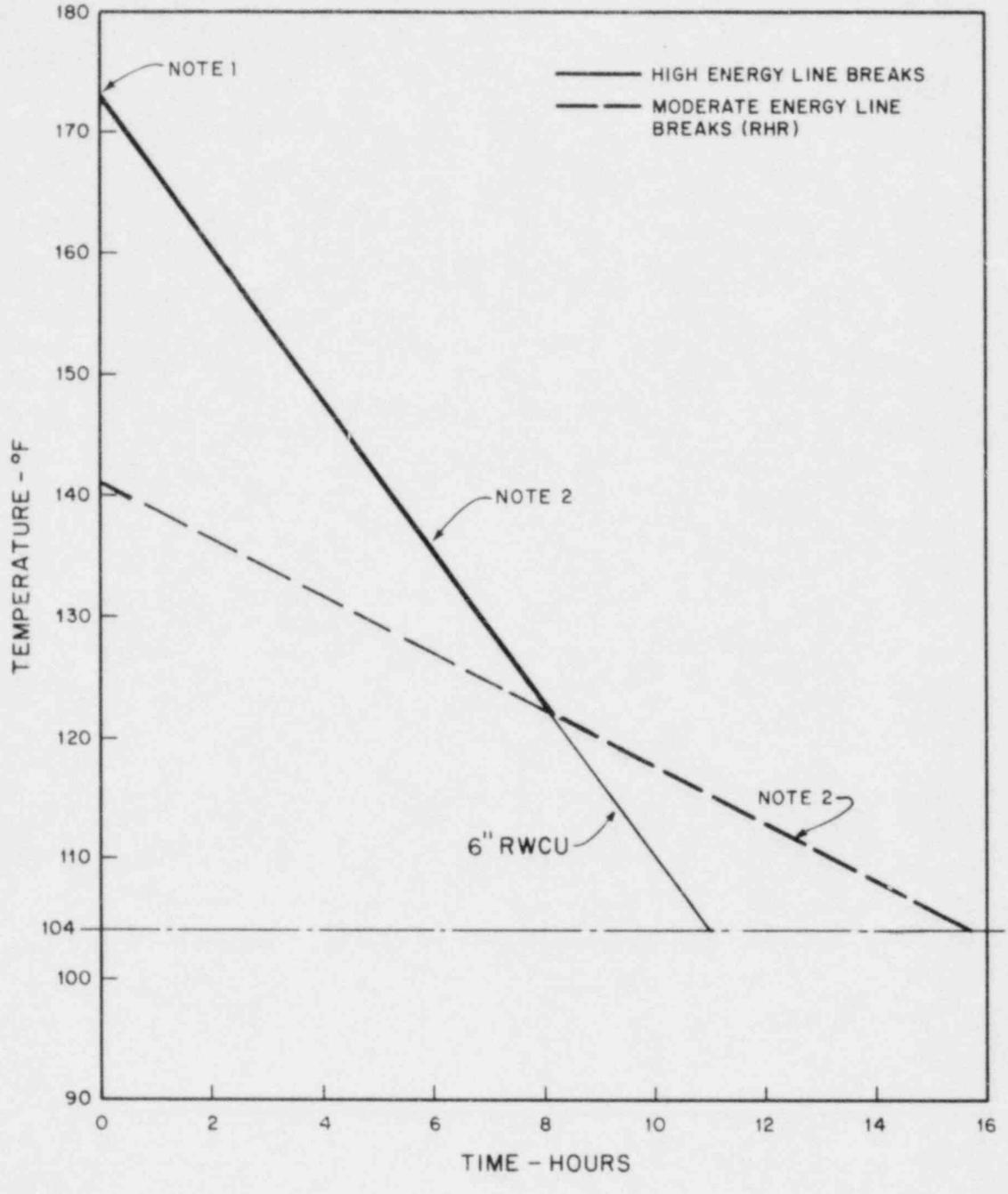
NOTES

1. PEAK TEMPERATURE RISE WITHIN 70 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPS HELB.

FIG. D-24

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 4

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



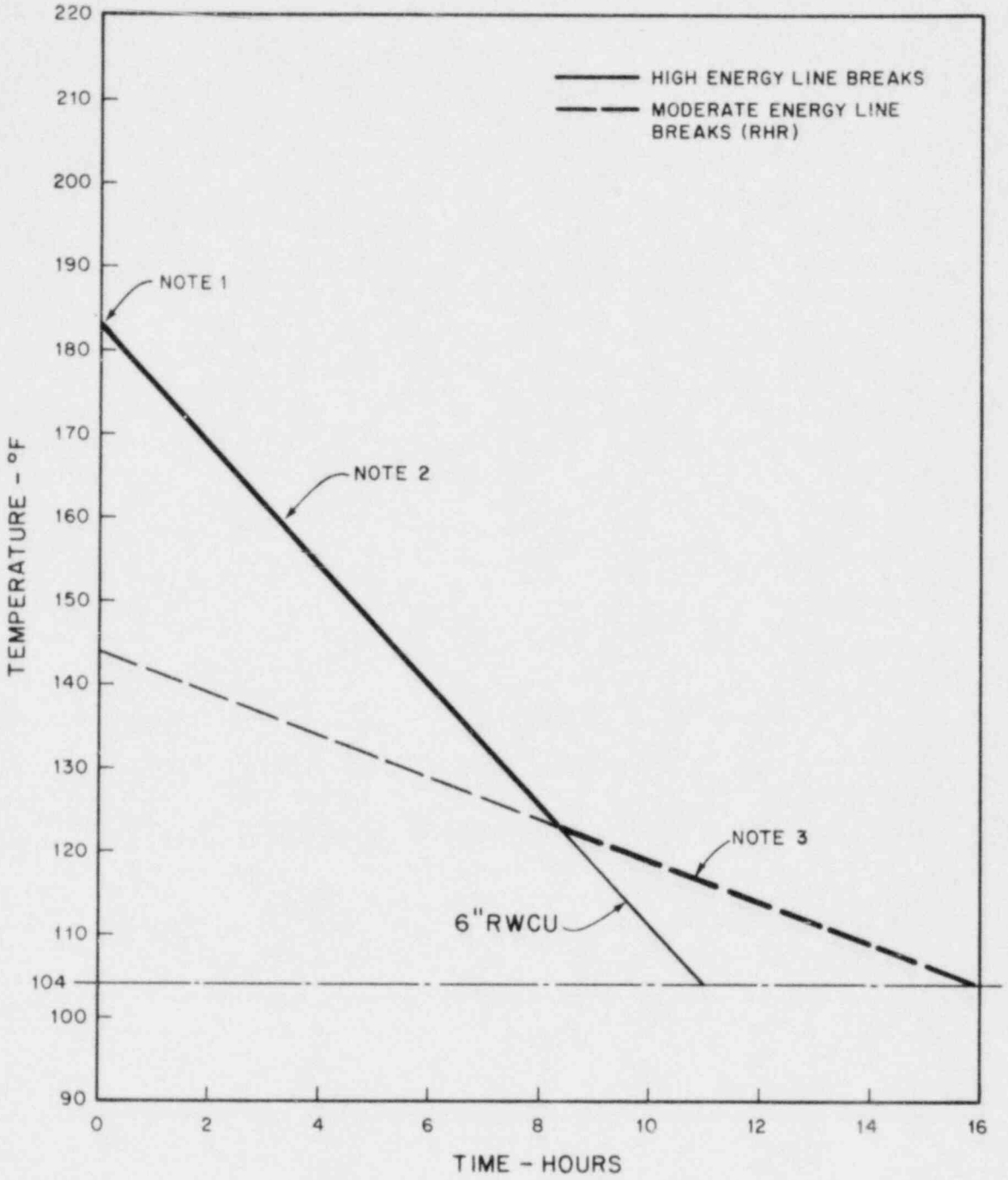
NOTES

1. PEAK TEMPERATURE RISE WITHIN 47 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-25

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 5

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTES

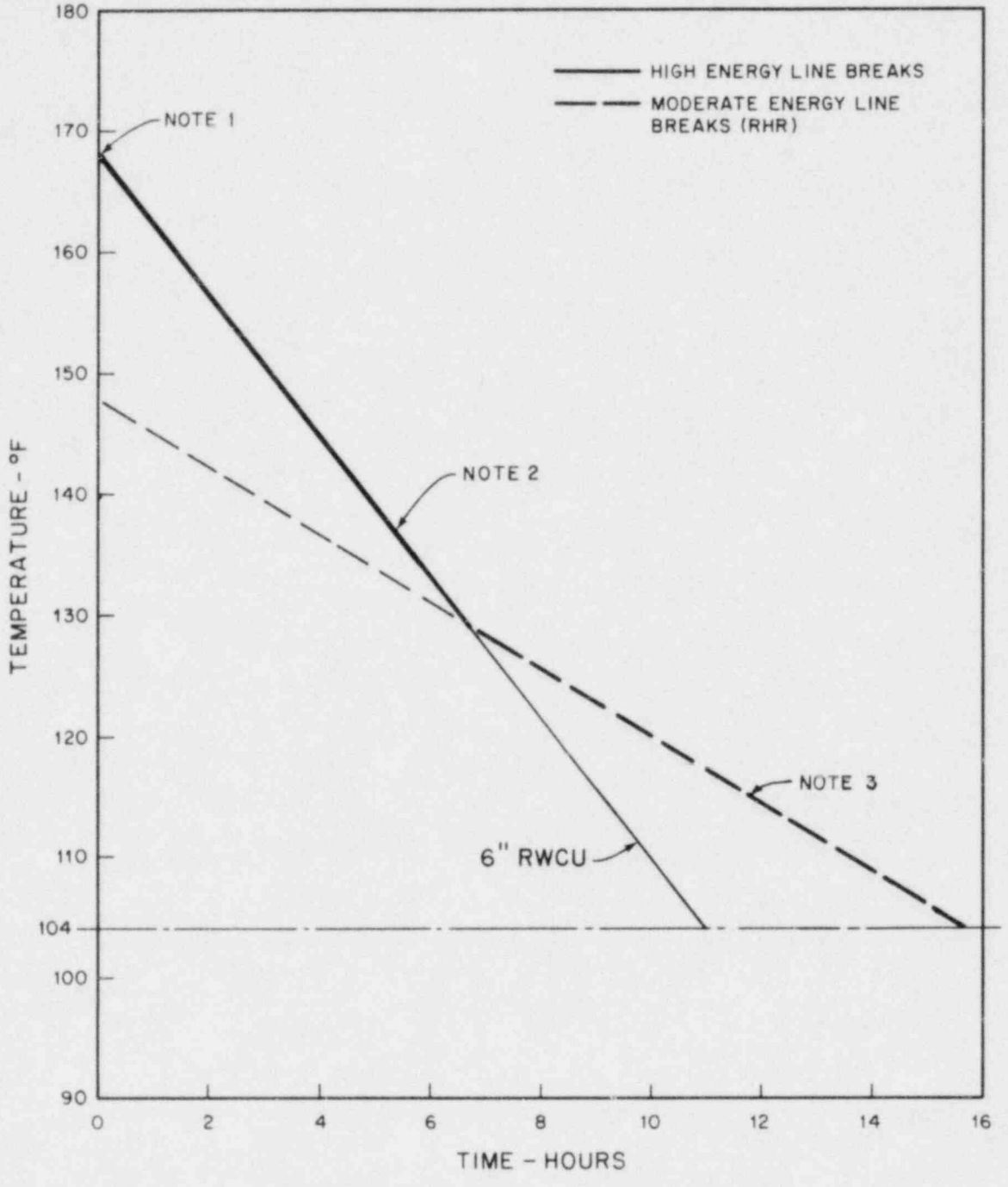
1. PEAK TEMPERATURE RISE WITHIN 32 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-26

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 6

SHOREHAM NUCLEAR POWER STATION - UNIT 1

ENVIRONMENTAL QUALIFICATION REPORT FOR CLASS 1E ELECTRICAL EQUIPMENT



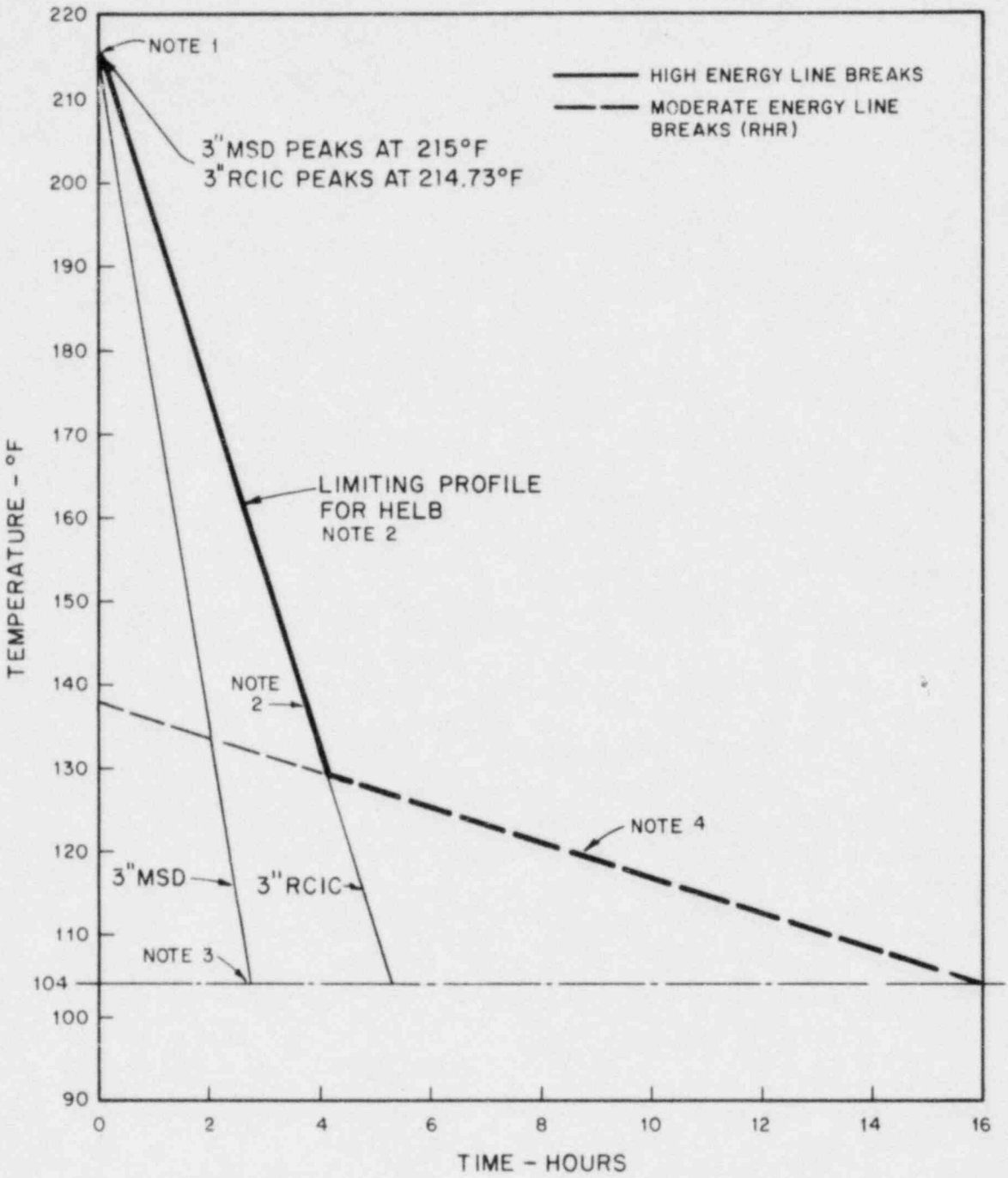
NOTES

1. PEAK TEMPERATURE RISE WITHIN 66 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-27

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 7

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



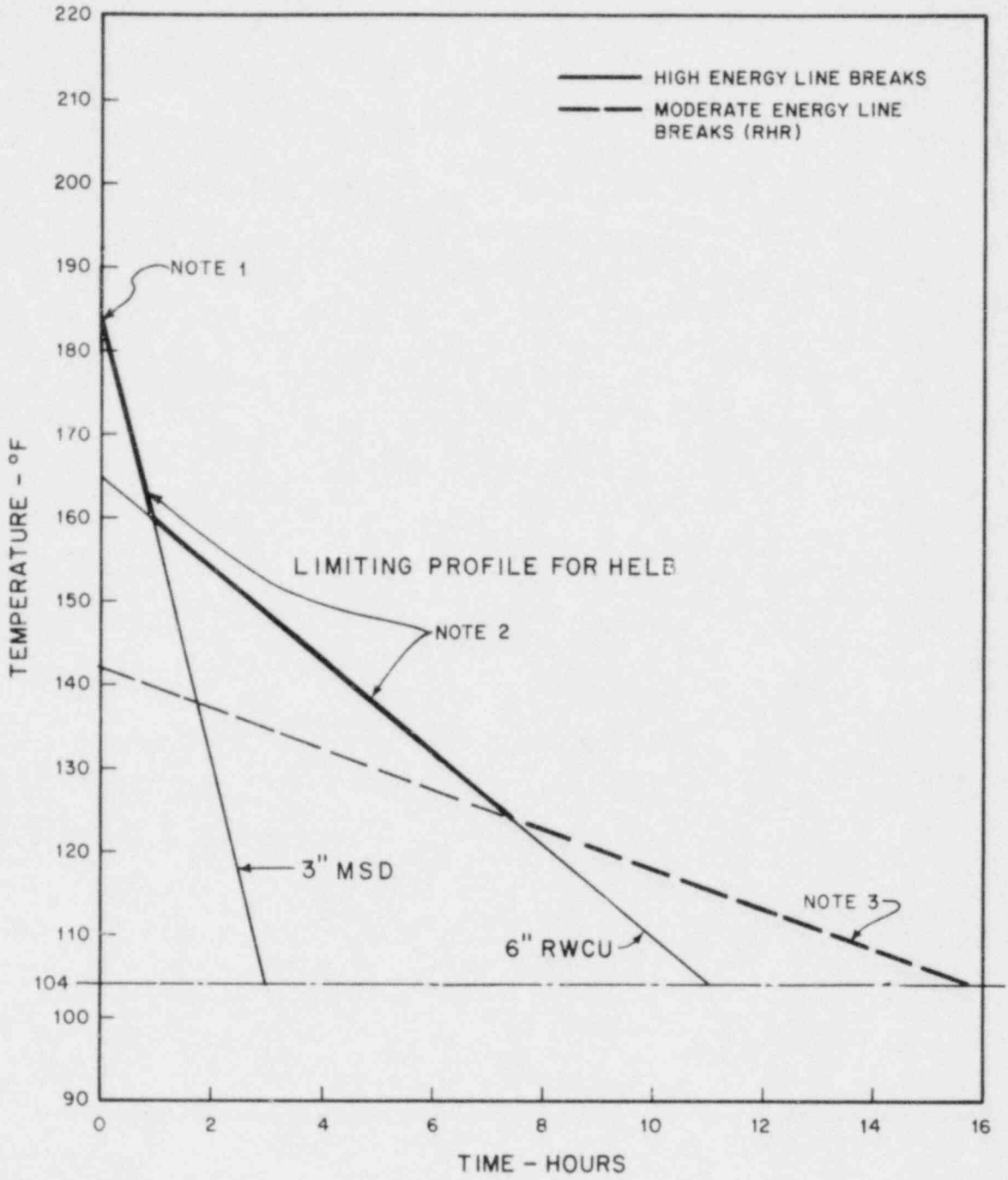
NOTES

1. PEAK TEMPERATURE RISE WITHIN 26 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. 3" MSD RETURNS TO 104°F AT 2.8 HRS.
4. LIMITING PROFILE FOR MELB, ALSO ENVELOPS HELB

FIG. D-28

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 8

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



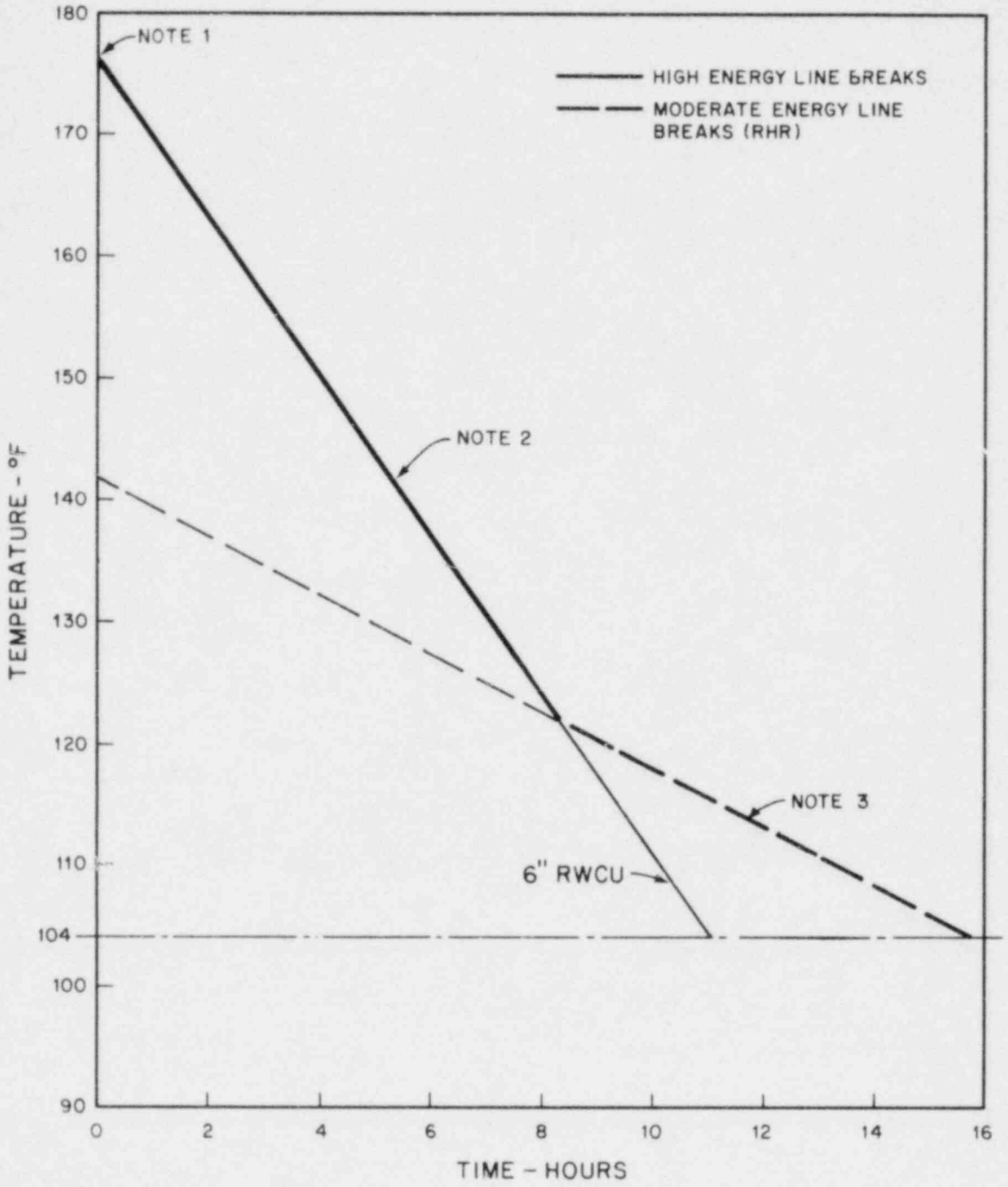
NOTES

1. PEAK TEMPERATURE RISE WITHIN 25 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-29

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 9

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



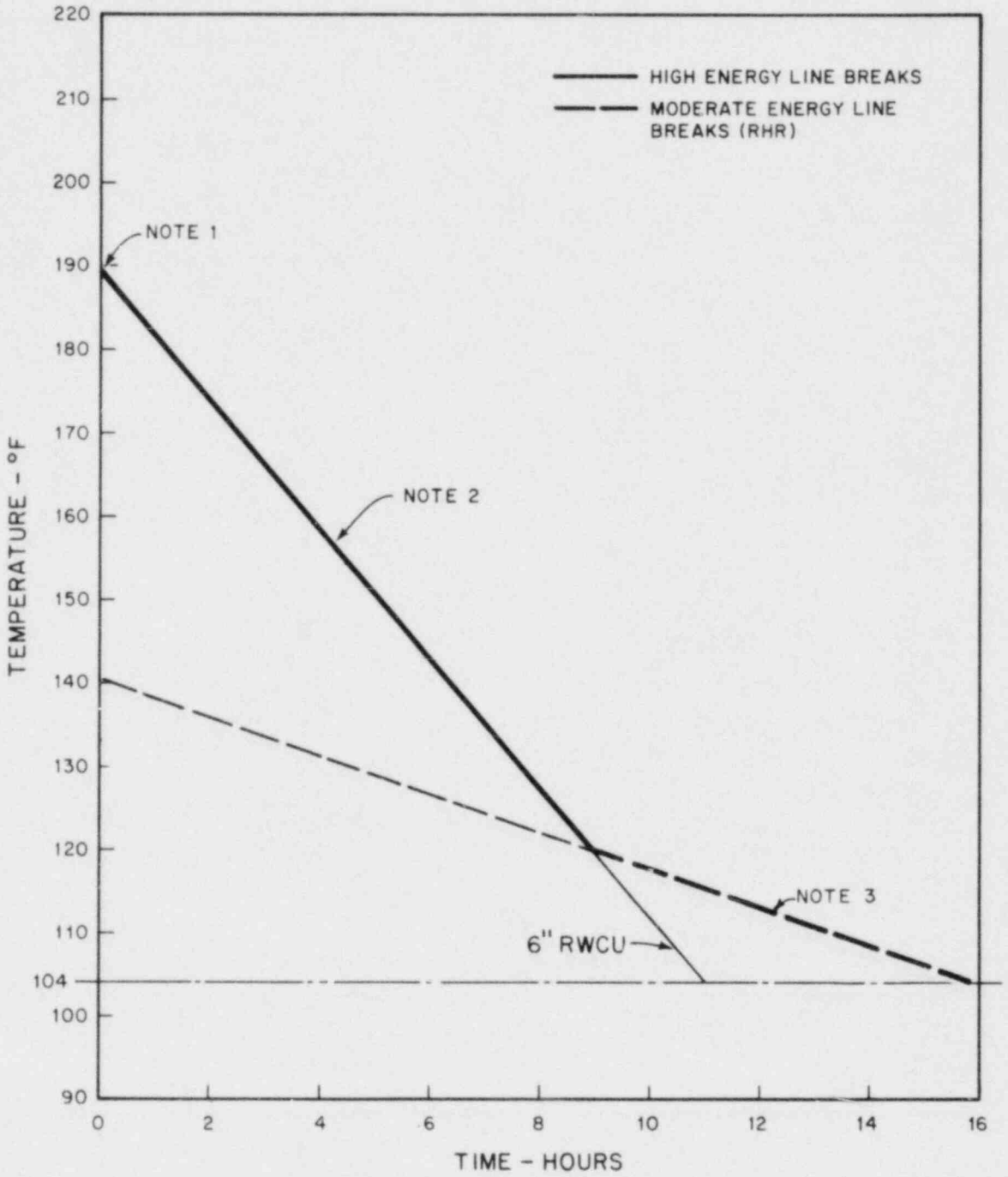
NOTES

1. PEAK TEMPERATURE RISE WITHIN 33 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-30

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 10

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



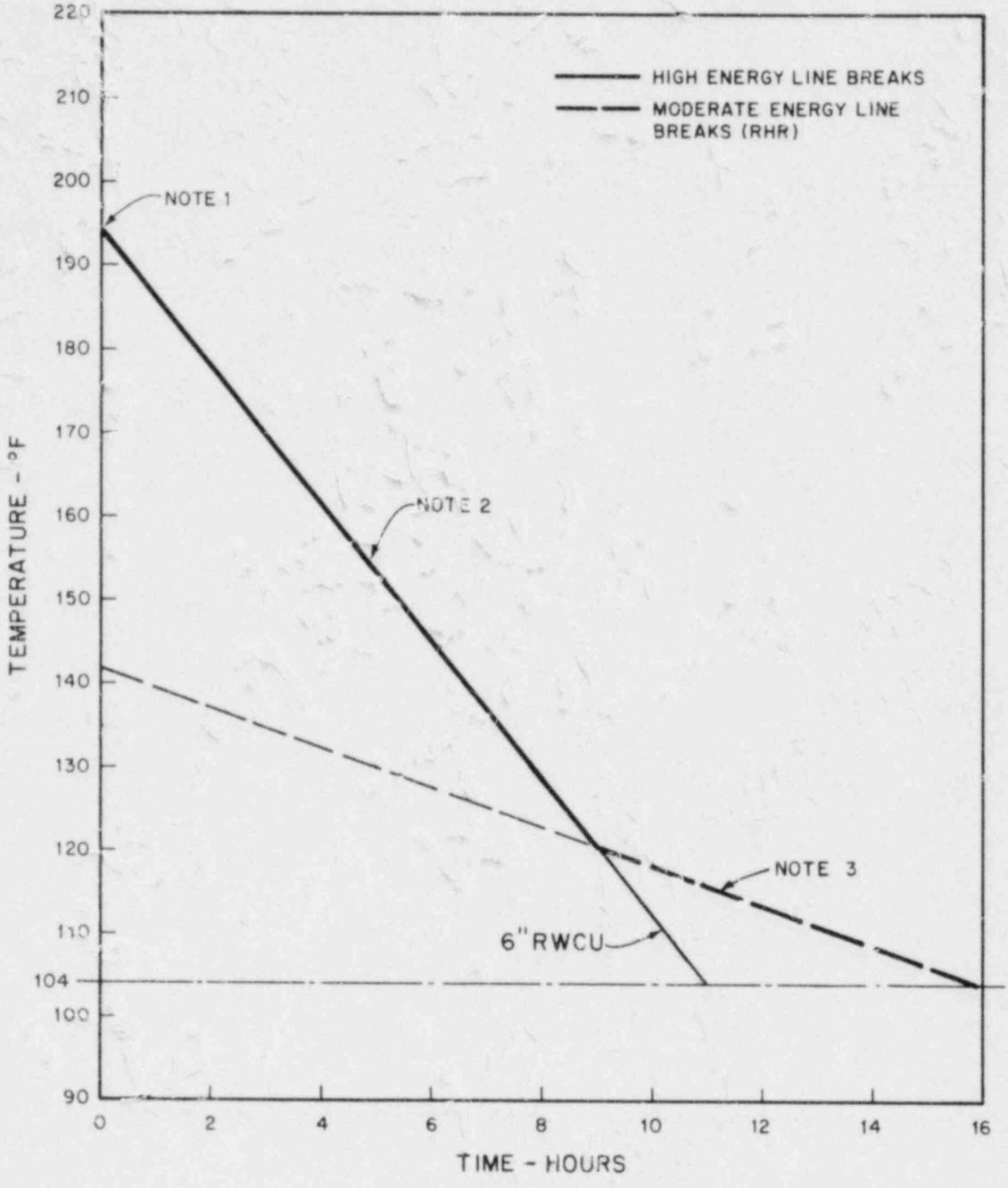
NOTES

1. PEAK TEMPERATURE RISE WITHIN 29 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-31

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 11

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



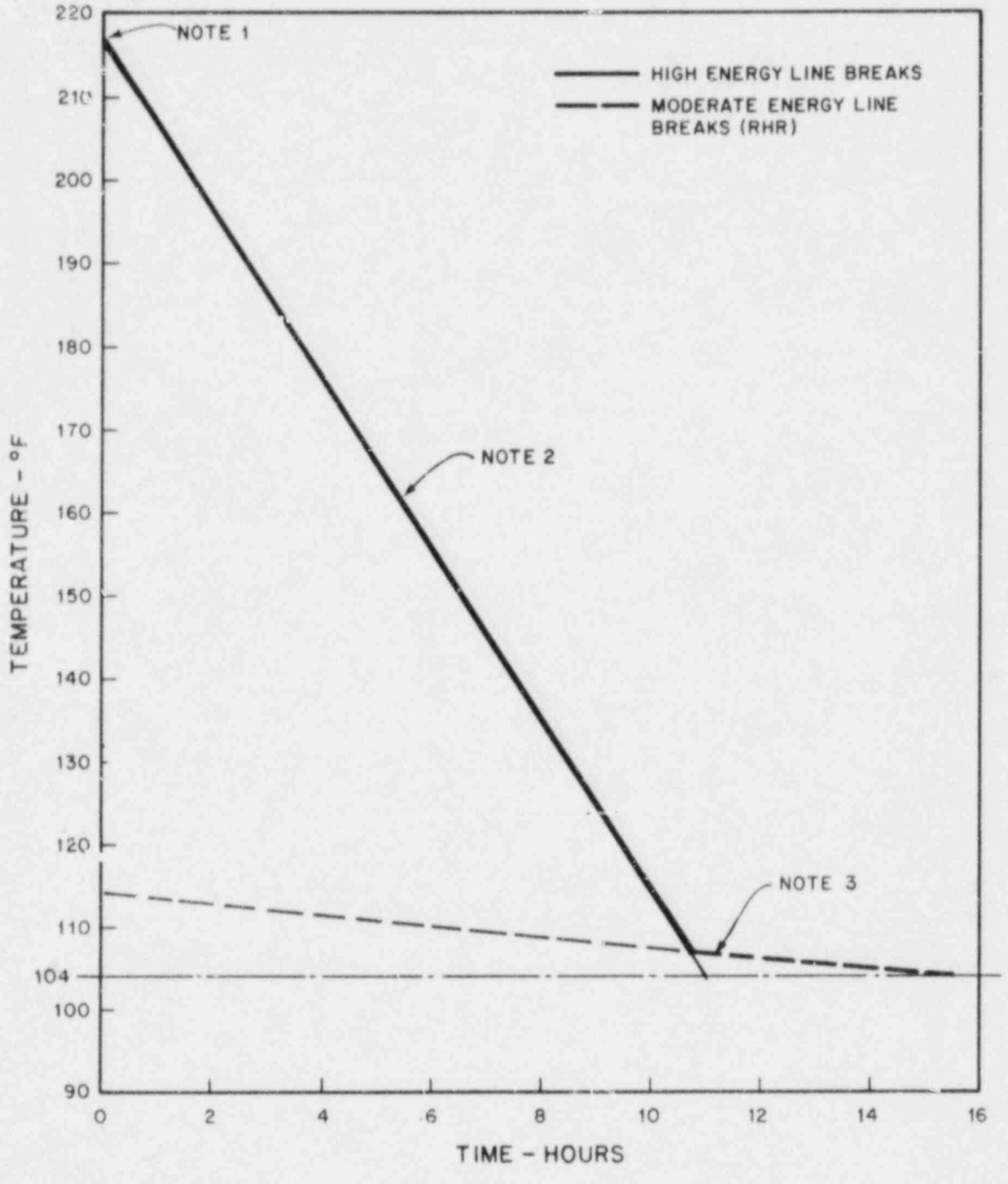
NOTES

1. PEAK TEMPERATURE RISE WITHIN 15 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-32

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 12

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTES

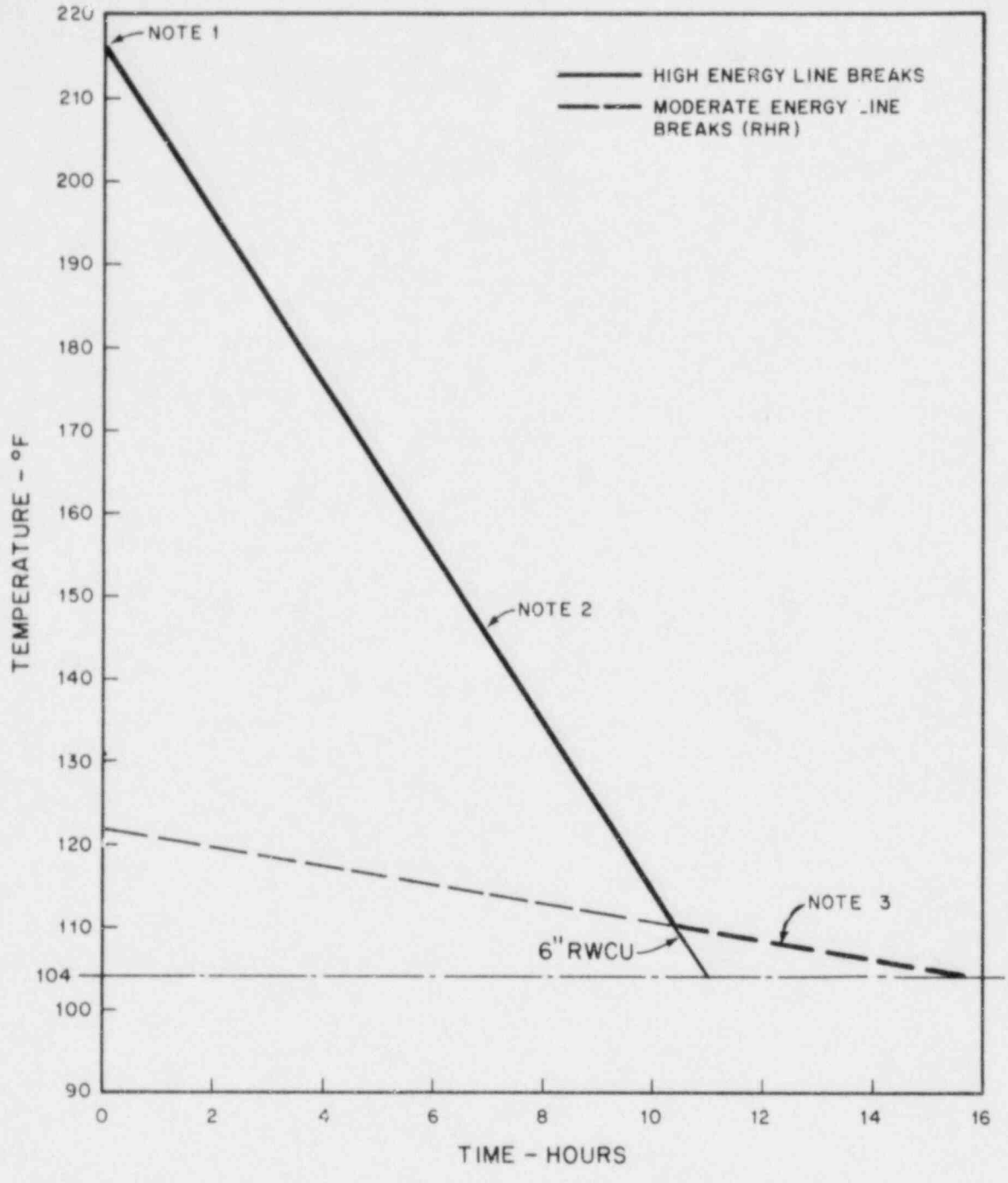
1. PEAK TEMPERATURE RISE WITHIN 9 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-33

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 13

SHOREHAM NUCLEAR POWER STATION - UNIT 1

ENVIRONMENTAL QUALIFICATION REPORT FOR CLASS 1E ELECTRICAL EQUIPMENT



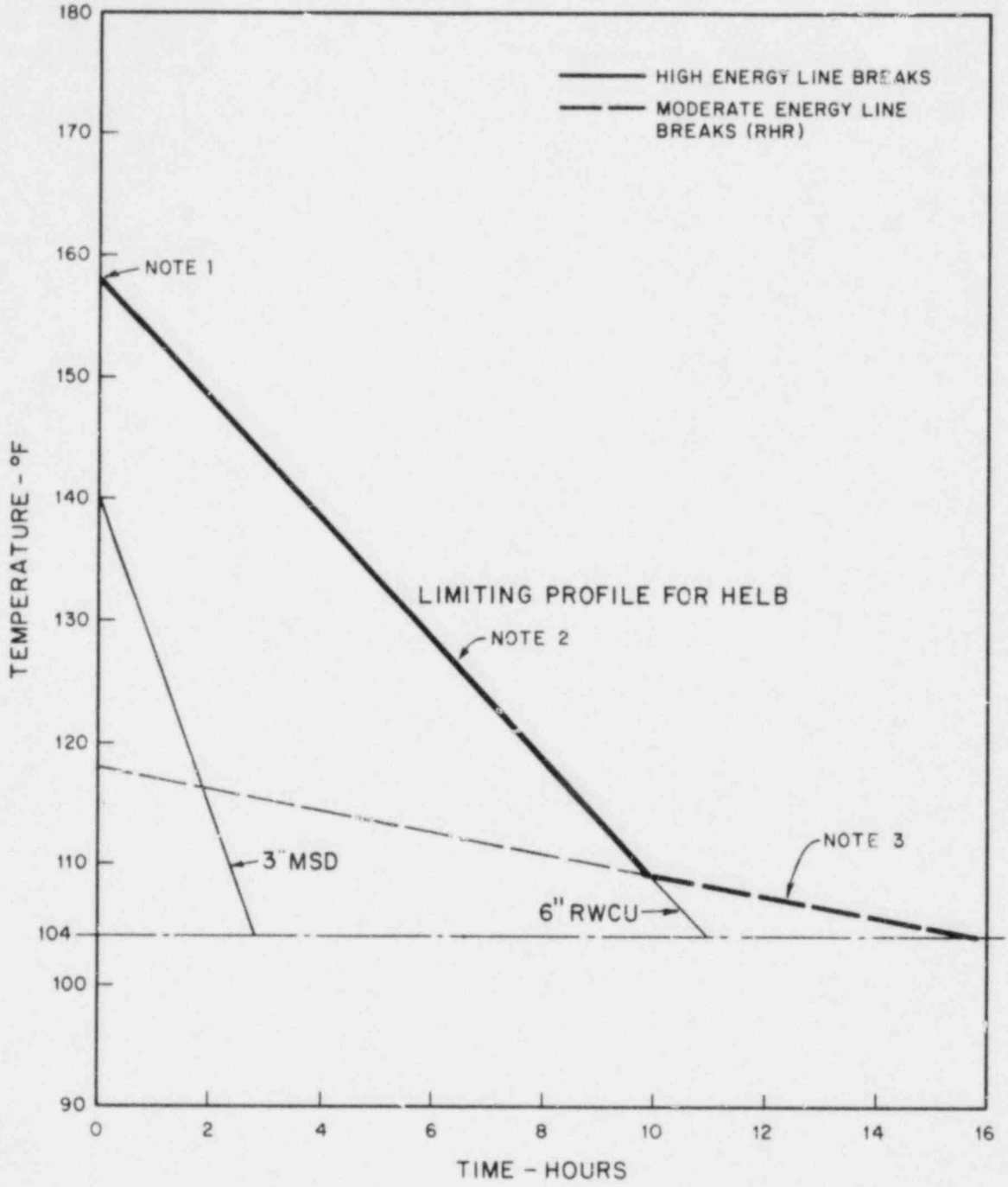
NOTES

1. PEAK TEMPERATURE RISE WITHIN 9 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-34

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 14

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



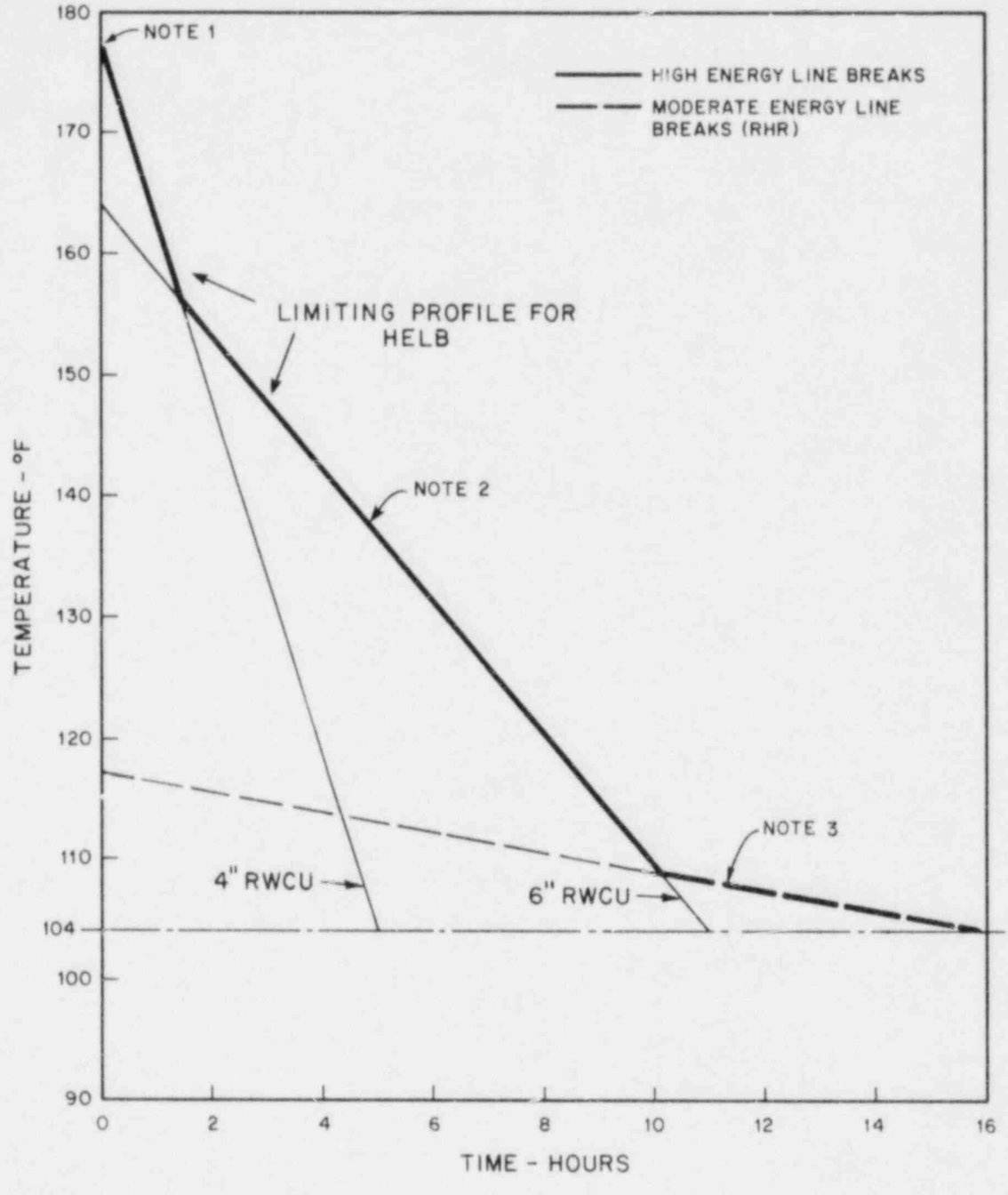
NOTES

1. PEAK TEMPERATURE RISE WITHIN 36 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-35

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 15

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT



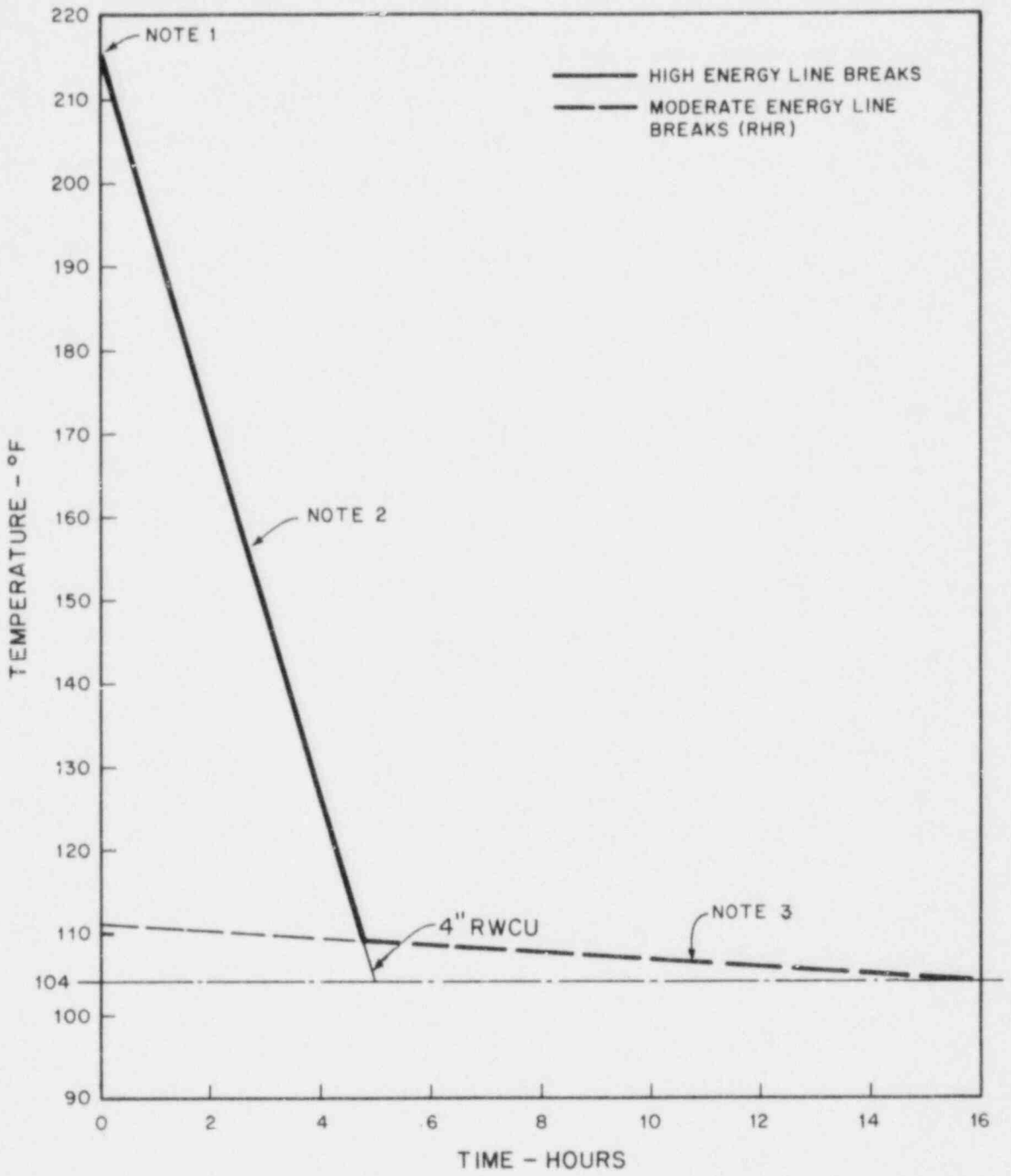
NOTES

1. PEAK TEMPERATURE RISE WITHIN 36 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-36

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 16

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



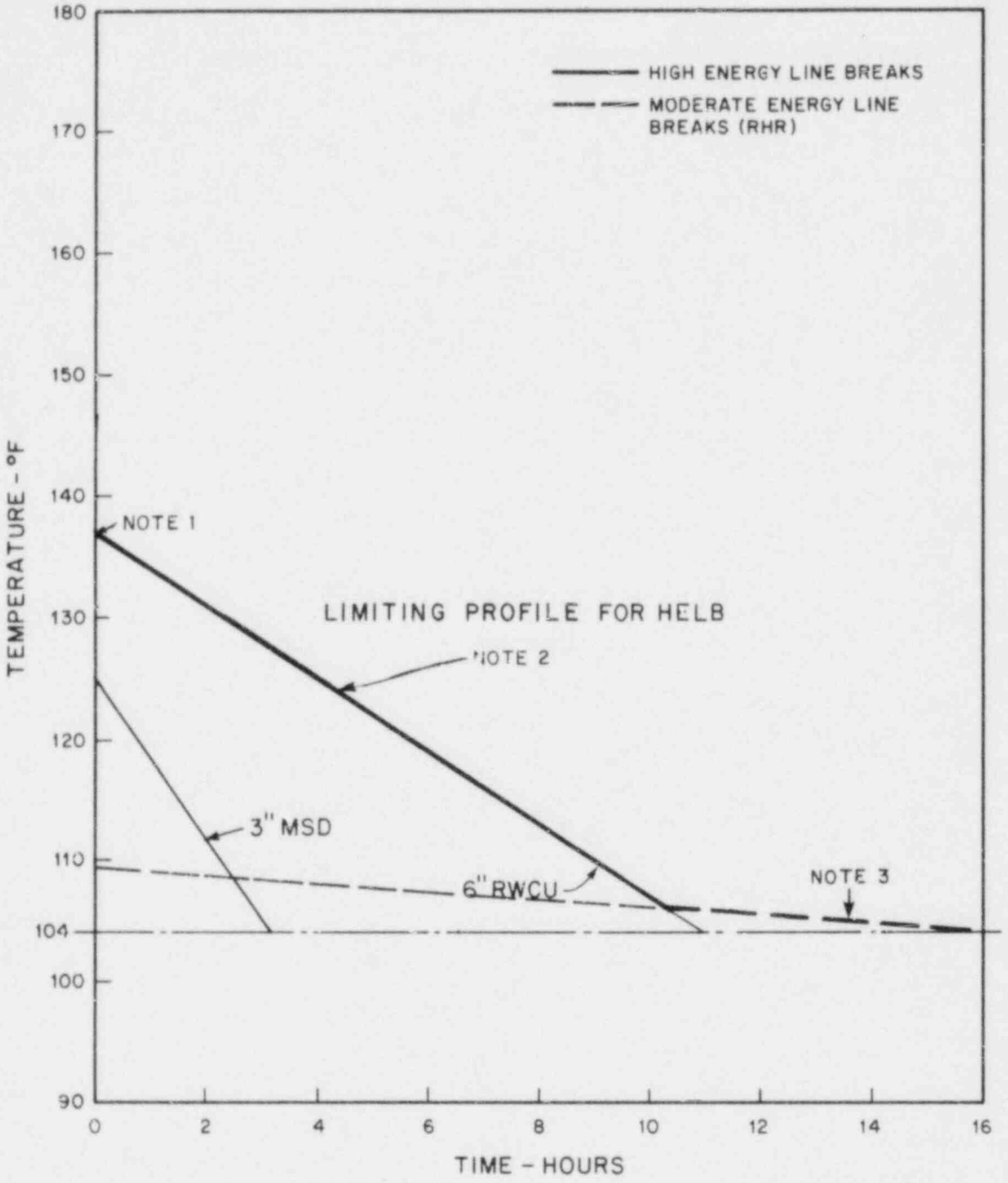
NOTES

1. PEAK TEMPERATURE RISE WITHIN 35 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-37

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 17

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



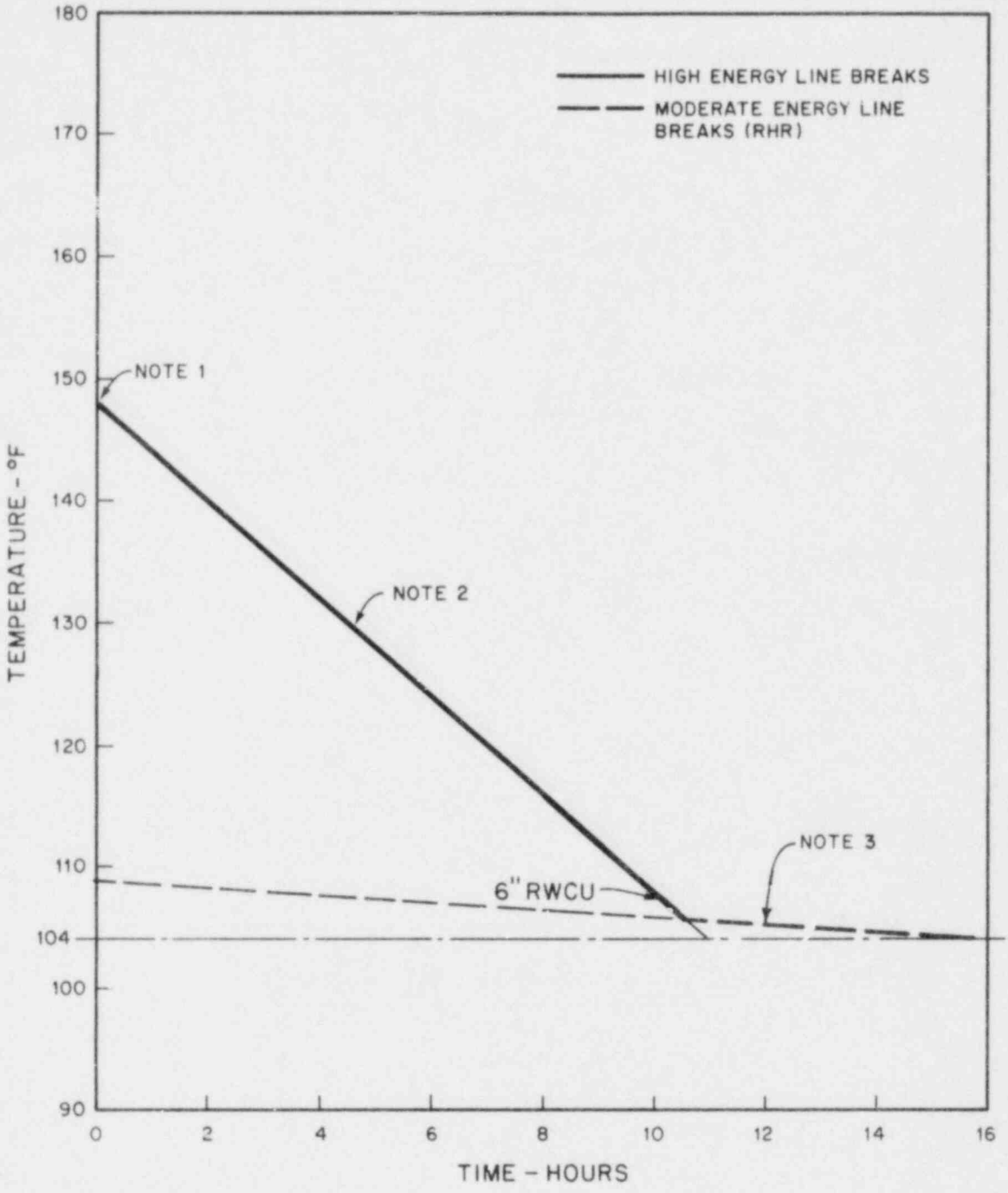
NOTES

1. PEAK TEMPERATURE RISE WITHIN 103 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-38

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 18

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



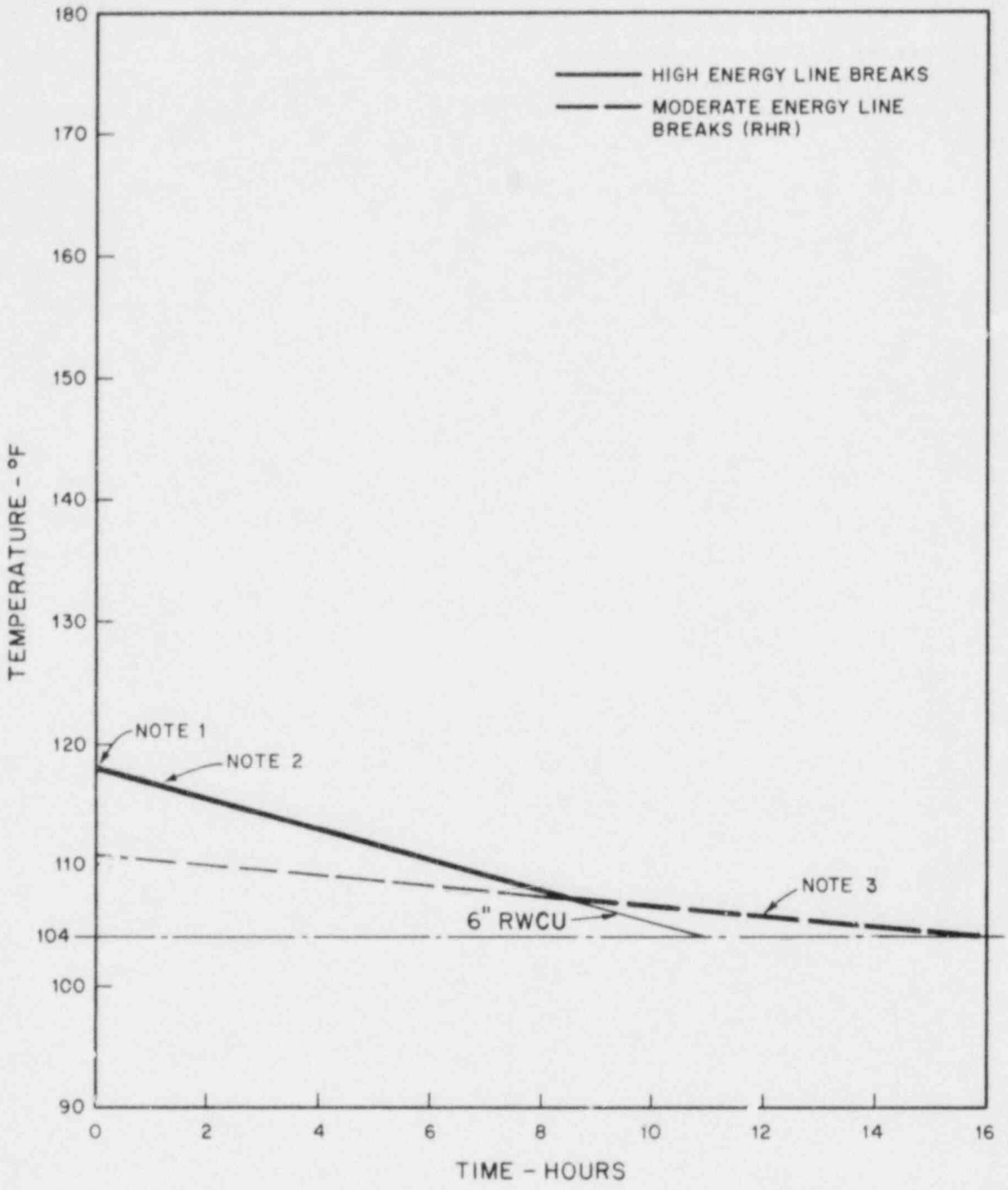
NOTES

1. PEAK TEMPERATURE RISE WITHIN 54 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-39

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 19

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT



NOTES

1. PEAK TEMPERATURE RISE WITHIN 517 SECONDS FROM TIME ZERO.
2. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
3. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

FIG. D-40

REACTOR BUILDING, SECONDARY CONTAINMENT TEMPERATURE LEVELS FOR ZONE 20

SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

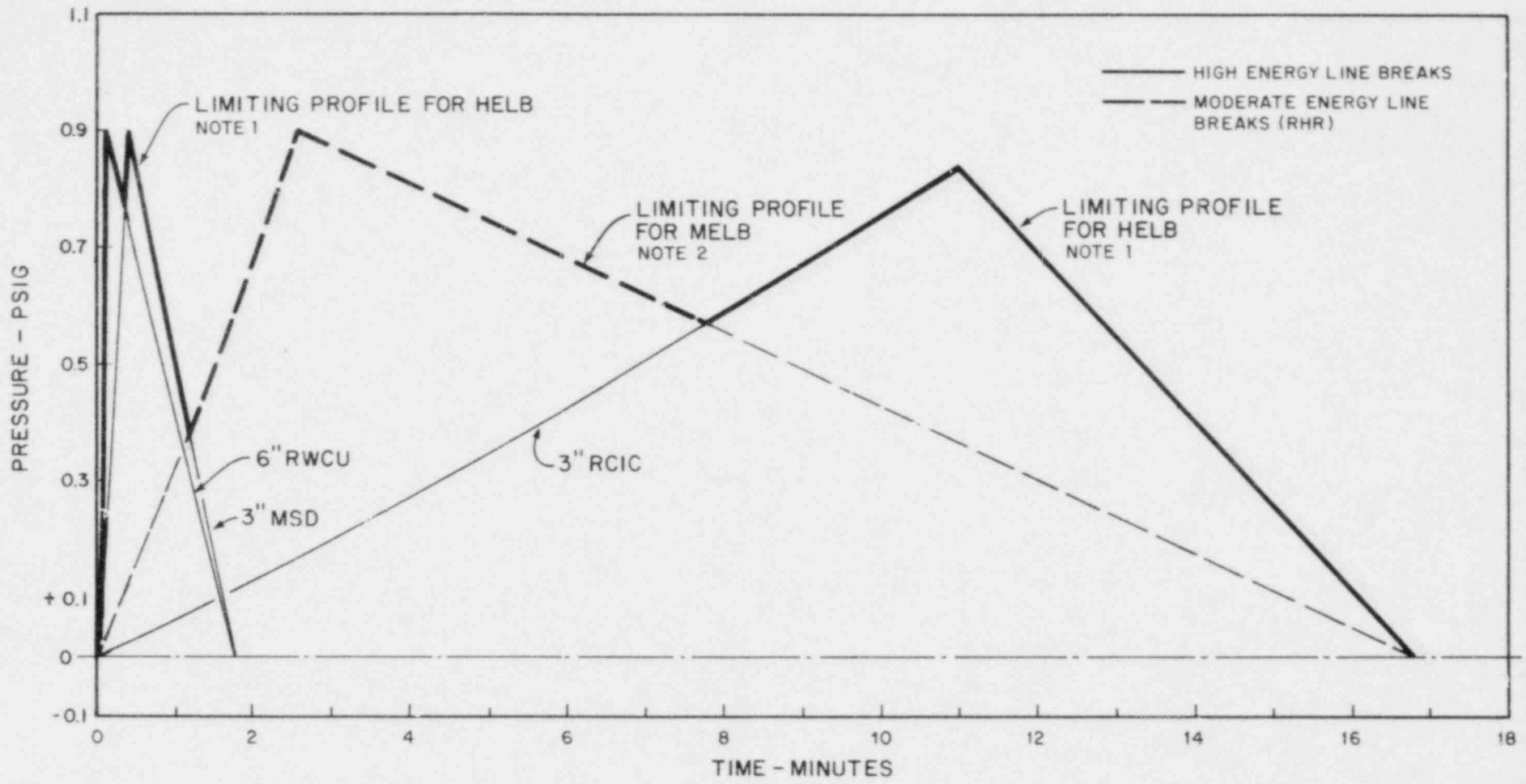


FIG. D-41

REACTOR BUILDING, SECONDARY CONTAINMENT PRESSURE LEVELS FOR ZONES 1-12 & 15-20

SHOREHAM NUCLEAR POWER STATION-UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS IE ELECTRICAL EQUIPMENT

NOTE
1. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
2. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB

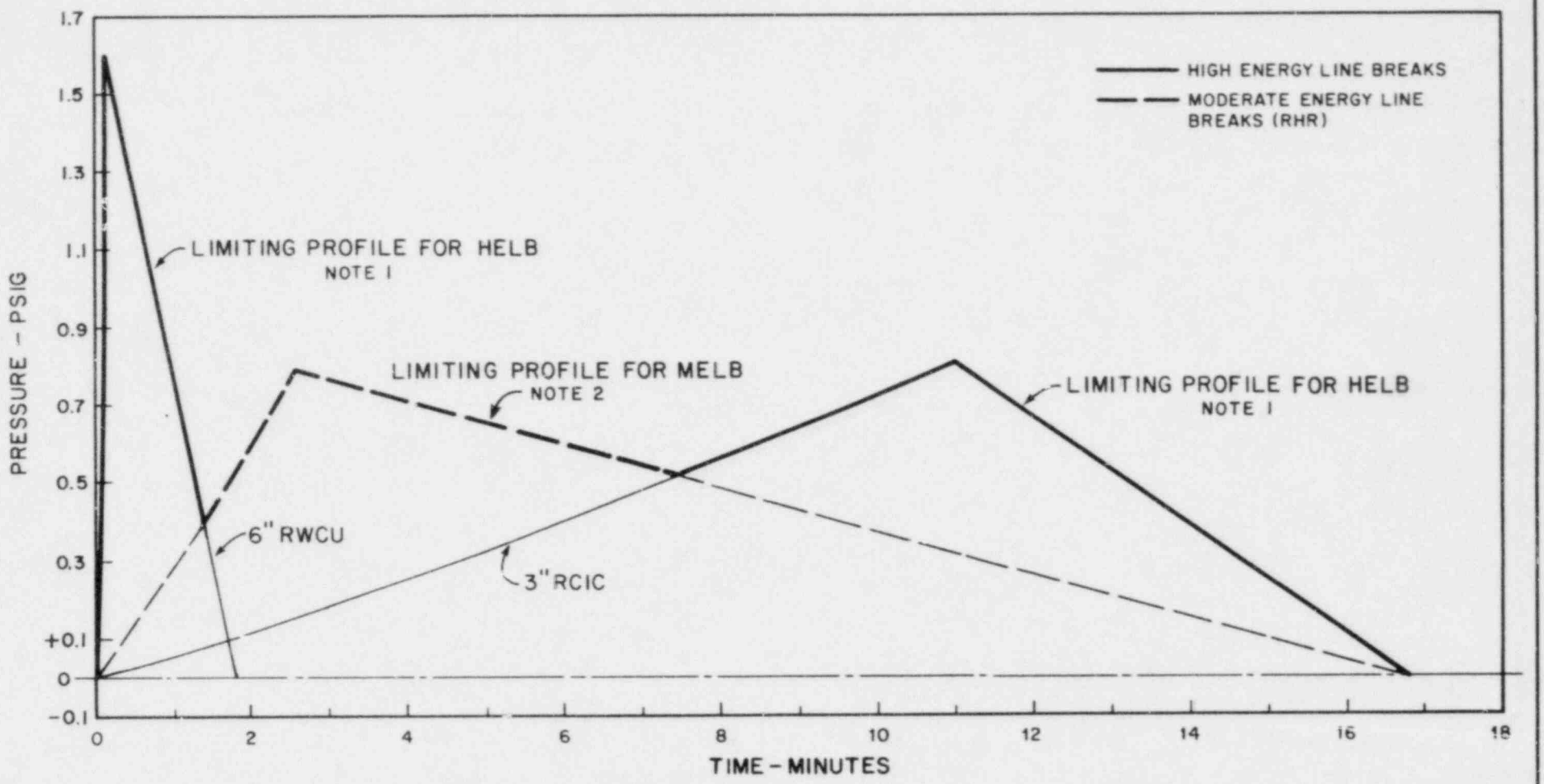


FIG. D-42
REACTOR BUILDING, SECONDARY CONTAINMENT PRESSURE LEVELS FOR ZONES 13 & 14
SHOREHAM NUCLEAR POWER STATION - UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

NOTE
1. LIMITING PROFILE FOR HELB, ALSO ENVELOPES MELB.
2. LIMITING PROFILE FOR MELB, ALSO ENVELOPES HELB.

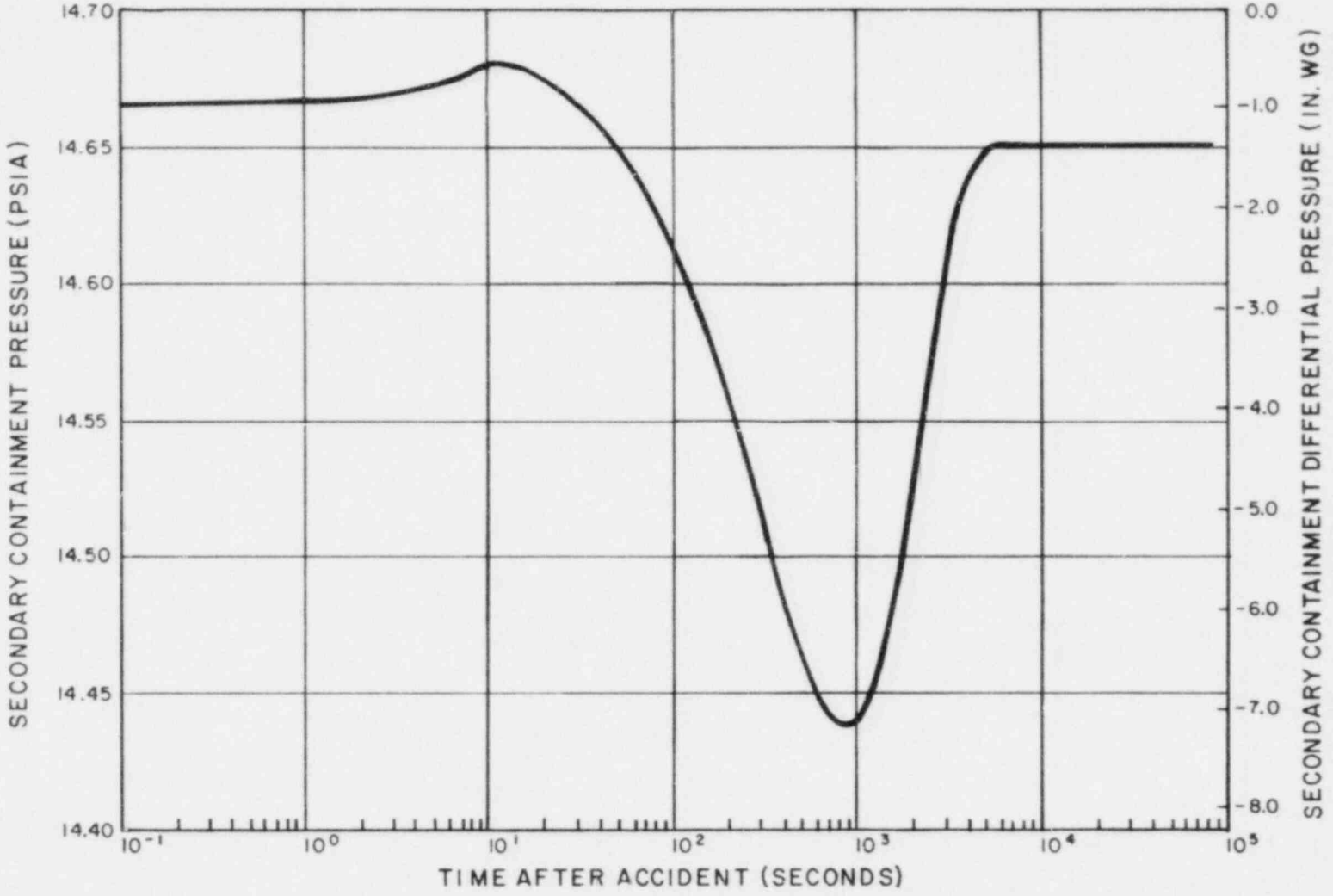


FIG. D-43

PRESSURE IN SECONDARY CONTAINMENT FOLLOWING A LOCA

SHOREHAM NUCLEAR POWER STATION – UNIT 1
ENVIRONMENTAL QUALIFICATION REPORT
FOR CLASS 1E ELECTRICAL EQUIPMENT

APPENDIX E

ENVIRONMENTAL PROFILE CALCULATIONS

APPENDIX E

ENVIRONMENTAL PROFILE CALCULATIONS

E.1 INTRODUCTION

This appendix describes the environmental profile calculations methodology, as indicated in Section 3 of the text.

E.2 SHORT TERM RESPONSE TO HIGH ENERGY LINE BREAKS (HELB)

In the HELB analysis, the following specific breaks are considered:

1. Six inch RWCU break in RWCU pump room, "B" pump, elevation 112 ft.

2. Four inch RWCU break in RWCU heat exchanger room, elevation 126 ft.

3. Ten inch HPCI steam line break, elevation 8 ft.

4. Three inch RCIC steam line and three inch Main Steam Drain (MSD) breaks in steam tunnel, elevation 76 ft.

Blowdown due to breaks is calculated by using the Moody critical flow model, from "Maximum Flow Rate of a Single Component, Two-Phase Mixture," by F.J. Moody, Transactions of the ASME, February 1965. This model states that the mass release rate is equal to the mass flux times the cross-sectional area of the break.

$$\dot{m} = GA_1, \quad \text{(eq-1)}$$

where $\dot{m}$ = mass release rate,

G = mass flux based on a pressure of 1055 psia, and

A_1 = cross-sectional area of the pipe.

A_1 is the area of the smallest restriction in the pipe upstream of the break. To include the volume of pipe between the smallest restriction and the break with the volume of piping downstream from the break in the blowdown determination requires the following equations (from GE Mark III Pressure Suppression Containment System Analytical Model, June 1974, Appendix B):

for liquid breaks:

$$\dot{m} = 0.5\ GA_2 \quad \text{(eq-2A)}$$

for steam breaks:

$$\dot{m} = 0.75\ GA_2 \quad \text{(eq-2B)}$$

where A_2 = cross sectional area of the break pipe

These volumes are assumed to blowdown in this manner at a constant pressure until the mass initially contained in the pipe is depleted. The blowdown continues in accordance with eq-1 until blowdown isolation occurs.

The following assumptions are made concerning blowdown duration:

1. For the 6 inch RWCU, 4 inch RWCU, 10 inch HPCI, and 3 inch MSD breaks, the blowdown is isolated automatically on area high temperature.

2. For the 10 inch HPCI and 3 inch MSD breaks, the blowdown is assumed to end abruptly upon isolation valve closure due to the relatively small size of the isolation valves.

3. For the 6 inch RWCU and 4 inch RWCU breaks, the isolation valve is a large gate valve which causes the blowdown rate to ramp down as the valve closes.

4. Blowdown duration is determined as follows:

   a. The pipe break node reaches setpoint temperature of the automatic closure system followed by a 10 second "soak" time for the detector to respond, followed by the isolation valve closure time.

   b. Simultaneously with the pipe break, a loss of offsite power is assumed which requires an additional 10 second delay until power is restored via the diesel generator.

   c. For some breaks the area high temperature setpoint is achieved almost instantaneously. In these cases, the time to reach the setpoint temperature and the detector "soak" time are assumed to occur during the 10 second duration of power loss. Therefore, isolation valve closure starts 10 seconds after the break occurs.

d. The 3 inch RCIC break does not have automatic isolation. Thus, blowdown duration includes all other time delays in addition to a ten minute operator response time to manually initiate blowdown isolation due to area high temperature alarm.

For pipe breaks which cause a plant trip and an assumed loss of power or for cases where normal ventilation is unavailable, the reactor building RBSVS would be initiated automatically and operate throughout the duration of the analysis. However, credit is taken for only one train of RBSVS (the other train is assumed to be a single failure).

Heat sinks are modeled in the short-term analyses but only concrete heat sinks were considered and no energy transfer out of the secondary containment is assumed through the heat sinks. Metal heat sinks are neglected for conservatism.

A 20 zone model of the Reactor Building secondary containment is used (see environmental zone maps in Appendix D).

This 20 zone model with blowdown data, ventilation data, and heat sink data are input into a computer code (called THREED) which calculates peak temperatures and pressures. This computer code was developed by S&W and used in previous Section 6.2 FSAR analyses.

E.3 SHORT TERM RESPONSE TO MODERATE ENERGY LINE CRACKS (MELB)

The blowdown rate is based on Bernoulli's theorem. The crack postulated consists of a sub-cooled liquid and is modeled as an orifice with an area of:

$$A = D/2 \times th/2$$

where A = area of crack,

D = Diameter of cracked pipe, and
th = wall thickness of the cracked pipe.

The blowdown is assumed to be frictionless and an orifice discharge coefficient of 1.0 is used. The following equation represents the mass blowdown rate in lbm/sec:

$$\dot{m} = 0.525 d^2 C \sqrt{\Delta P \delta} \quad \text{(eq-3)}$$

where m = mass release rate,

d = effective diameter of the crack,

C = orifice discharge coefficient,

ΔP = difference in pressure between RHR system pressure and atmospheric pressure, and

δ = density of the system water.

d is determined from the following:

$$d = 2\sqrt{A/\pi}$$

The energy release rate Q is determined by multiplying the mass release rate m by the enthalphy h of the fluid.

$$\dot{Q} = \dot{m}\, h$$

The RHR crack is assumed to be isolated in 11 minutes after the crack occurs. The 11 minutes includes time for water to accumulate at the 8 ft elevation for a high water alarm followed by the time required for an operator to initiate isolation and time for the isolation valves to close.

The model of the Reactor Building secondary containment used for an RHR crack is a 24 zone model, similar to the 20 zone model mentioned earlier except that El. 8 ft is subdivided into two zones and El. 40 ft is subdivided into four zones.

Heat sinks are modeled in 20 of the 24 zones. Heat sinks for the smallest zones are neglected.

No part of the ventilation system is considered in the RHR crack short-term analysis.

The 24 zone model data, blowdown data, and heat sink data are input into a computer code (called THREED VER12 LEV01) which calculates peak temperatures and pressures.

E.4 RADIATION CALCULATIONS

A. Source Term

Radioactive Source Release and Distribution assumptions are as follows:

1. Radioactive Source Release

The percents of core inventory radioactive fission products assumed to be released from the fuel rods for LOCA events are:

noble gases (Kr, Xe)	100%
iodine	50%
others	1%

This entire release is assumed to occur instantaneously at the start of the accident.

2. Radioactive Source Distribution

In order to envelope the full spectrum of break sizes and depressurization rates, two bounding events and source distributions are considered.

The first event considered is a LOCA (both pressurized and depressurized events).

In this event, the following fission products are considered to be uniformly mixed in the following volumes:

a. Suppression Pool

noble gases	0%
iodine	50%
others	1%

b. Combined Drywell/Wetwell Air Space

noble gases	100%
iodine	25%
others	0%

c. Reactor Coolant System Steam Space

The following distribution is used for determining reactor building pipe shine doses due to HPCI, RCIC and MSIV-LCS operation

noble gases	100%
iodine	25%
others	0%

Using the above distribution, time history radiation zones are established within the primary containment and within the secondary containment as follows:

1. Primary Containment - Previously described accident radiation levels (FSAR Table 3.11.2-1) adequately bound all LOCA

events for equipment within the primary containment and no new analyses are required.

2. Secondary Containment - Time history radiation zones are established for the secondary containment using the above sources distributed in the steam and liquid piping in the following fluid systems which are conservatively assumed to operate concurrently:

   a. High Pressure Coolant Injection (HPCI)

   b. Reactor Core Isolation Cooling (RCIC)

   c. Residual Heat Removal (RHR - all essential modes)

   d. Core Spray

   e. Reactor Building Standby Ventilation System (RBSVS)

   f. Main Steam Isolation Valve - Leakage Control (MSIV-LCS)

   g. Primary Containment Atmospheric Control (PCAC)

   In addition to the radiation shine from the above system piping and components, the primary containment is assumed to leak at technical specification limits resulting in an airborne source term which is included in the radiation zoning. As provided by NUREG 0737, no additional leakage is assumed.

3. Excluded Systems

   a. All piping which could potentially carry undiluted reactor coolant into the secondary containment is isolated and is nonessential (e.g., RWCU, shutdown cooling mode of RHR). Accordingly, the undiluted reactor coolant liquid source discussed above is excluded. Adequate means are provided (Post Accident Sampling System) to insure safe radiation levels exist prior to use of any of these nonessential systems.

   b. The post accident sampling lines are excluded from specific evaluation due to

their size (typically 3/8 in. tubing) and because they are flushed after each use. Sufficient conservatism in integrated dose calculations exists to bound any effects of these small sources.

c. The gaseous radwaste system lines are also excluded because they do not act as sources for any safety-related equipment. They are also located outside the reactor building and are isolated.

4. Outside Reactor Building - the calculated dose rates and integrated dose values for components located in buildings other than the Reactor Building are derived from the following sources:

   a. Direct shine from radioactivity within the Reactor Building which is both airborne and contained in specific components.

   b. Airborne activity in the respective building due to ventilation intake.

   c. Semi-infinite radioactive cloud which surrounds the respective building.

   d. Skyshine from radiation originating in the Reactor Building and air-scattered to a receptor.

The pipe break inside primary containment and nonpipe break events are bounded by the LOCA event above.

The other event considered is a pipe break in secondary containment. This event provides the bounding values in some zones within the secondary containment in the short term (i.e., less than 30 days). However, the LOCA doses provide the boundary values for doses for times longer than 30 days.

APPENDIX F

ENVIRONMENTAL QUALIFICATION STATUS REPORT

APPENDIX F

ENVIRONMENTAL QUALIFICATION STATUS REPORT

The following is a sample of an entry into the Environmental Qualification Status Report (EQSR):

REPORT NO. PES-600
JOB NUMBER 1140040
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - LIS-1291
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - MKR / MOD / SPEC

REPORT DATE 01/11/02 PAGE 28
REVISION NO. 003
REVISION DATE 07/01/01

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	NAME / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBNO	OP TIME	ACC / PERF	IRI-CAT / ENV CND / OP CD
**********	**********	**********	**********		**********	**********	**********	**********	****
1E21-PT003P B21-N055D	REACTOR PRESSURE GENERAL ELEC 310010	1E 003	G-10 RES	00978	BARTON 760	3129 *RR MST	180 DYS	7.5 IN.	*RG ALL A

Definitions of the entry headings are given below. An alphabetized list of equipment type abbreviations is provided in Appendix H.

Data definitions for entry headings are as follows:

EQUIPMENT ID
VENDOR ID

The first line identifies the Stone & Webster unique identification or mark number for each equipment. The first four characters represent the system number followed by an asterisk, "*", to indicate the equipment is safety-related or a dash "-", to indicate the equipment was not originally safety-related but is now identified by NRC Regulatory Guide 1.97 or other requirements. The key to the system code is described in Section 2.

The succeeding characters indicate the equipment type using the equipment identification symbol as documented in the Shoreham Project Procedures. The key to the equipment type symbol is provided in Appendix H. Additional characters provide a unique alpha-numeric identification for identical or redundant equipment. The second line indicates the General Electric identification code (the Master Parts List number) if the item is in the NSSS design.

EQUIPMENT DESCRIPTION
VENDOR NAME
PO NUMBER

The top line provides an abbreviated functional or application description of the equipment identified. IT DOES NOT GENERALLY INDICATE THE EQUIPMENT TYPE. The middle line is the equipment supplier. The lower line is the purchase order number for the equipment.

QAC
SPEC

The upper line is the Quality Assurance Category of the equipment, which is Class "1E" or "2E". The second line is the specification number under which the equipment is procured; the specifications are identified by the specification numbers listed in Section 2.

ZONE
BLDG ELEV

The first line provides an alpha-numeric code for the environmental zone in which the equipment is located in a format of "letter - two digit number." The radiation zone is designated by the first (letter) character. The two digits after "-" designate the temperature/pressure zone. Radiation zones and temperature/pressure zones do not necessarily coincide. The second line provides building and elevation (feet above sea level) to describe equipment location. The key to the building abbreviations is as follows:

Building Code	Building Name
RBD	Reactor Building Drywell
RBS	Reactor Building Secondary
RBP	Reactor Building Primary
YD	Yard
ST	Steam Tunnel

MAKE/MANUFACTURER
MODEL/CATALOG NO.

The first line identifies the equipment manufacturer. The second line provides the manufacturer's model or catalog number, or any other identifying number for the equipment.

EQ SHEET
QUAL STAT
SUBMG

The first line identifies the Environmental Qualification Summary Sheet (EQSS). Each EQSS for BOP equipment is identified by the specification number, summary sheet number, and revision level if

not the original issue. For NSSS equipment, each EQSS is identified with a four digit number. The first digit is "3" representing Specification SH1-003 with the equipment group designated by the succeeding digits. The second line lists the qualification status of equipment in an abbreviated form as follows:

EQ - Equipment is qualified

QG - Equipment is qualified except for aging

FT - Documentation has been reviewed, further test/analysis recommended

MR - Modification of equipment is recommended for qualification

RR - Replacement is recommended, test report for qualified replacement will be evaluated

DR - Documentation is in review

TA - Testing/analysis program has been initiated

IJ - Qualification documentation not expected to be completed prior to fuel load, refer to Appendix G of this report for status

The third line indicates whether the equipment is exposed to containment spray or mist conditions. The following abbreviations are used:

SPR - Containment spray
MST - Mist conditions

OP TIME

This field describes the time required, including the margins applied, for the equipment to operate during and subsequent to a design basis event. The first portion of the field is a number followed by one of the following abbreviations to record the units of time:

CON - Continuous
YRS - Years
MON - Months
DYS - Days
HRS - Hours

MIN - Minutes

ACC/PERF

This field indicates the accuracy specification of instruments for trip functions and post-accident monitoring. Where not applicable to the specific equipment, "N/A" is entered.

NU CAT
EMG CND
OP CD

The first line will indicate "RG" if the equipment must be qualified to the requirement of Nuclear Regulatory Guide 1.97.

The second line indicates for which design basis event(s) the equipment must be qualified, with abbreviations as follows:

L	-	Loss of Coolant Accident (LOCA)
H	-	High Energy Line Break (HELB)
M	-	Moderate Energy Line Crack (MELB)
ALL	-	LOCA, HELB, MELB

The third line indicates operability code with letters A or B referring to the equipment categories defined in NUREG-0588, Appendix E. Equipment designated as operability code A with operability time less than 180 days revert to operability code B for the remainder of the 180 days unless otherwise noted.

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - MAK / MOD / SPEC

REPORT DATE 01/18/82 PAGE 2
RESET NO. 003
RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBHG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = AIR MONITOR CORP.									
.1T46*FT004A	RBSVS EXH AIR FLOW				*AIR MONITOR CORP.	*319-01	180 DYS		*RG
	POWERS REGUL	1E	H-18		*VELTRON 800	*IJ			ALL
	310738	319	RBS	00150					A
.1T46*FT004B	RBSVS EXH AIR FLOW				*AIR MONITOR CORP.	*319-01	180 DYS		*RG
	POWERS REGUL	1E	H-18		*VELTRON 800	*IJ			ALL
	310738	319	RBS	00150					A

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - MAK / MOD / SPEC

REPORT DATE 01/18/82 PAGE 3
RESET NO. 003
RESET DATE 07/01/01

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
REPORT GROUP MAK = AMETEK									
.1E32*FT037A	MSIV A LEAK TO LPH				AMETEK	*3128	100 DYS		
E32-N053B	GENERAL ELEC	1E	G-05		078-5004	*DR			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*FT037B	MSIV B LEAK TO LPH				AMETEK	*3128	100 DYS		
E32-N053F	GENERAL ELEC	1E	G-05		078-5004	*DR			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*FT037C	MSIV C LEAK TO LPH				AMETEK	*3128	100 DYS		
E32-N053K	GENERAL ELEC	1E	G-05		078-5004	*DR			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*FT037D	MSIV D LEAK TO LPH				AMETEK	*3128	100 DYS		
E32-N053P	GENERAL ELEC	1E	G-05		078-5004	*DR			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / ENG CND / OP CD
REPORT GROUP MAK = ASCO									
.1B21*SOV81AX	1B21*AOV081A CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022A	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81AY	1B21*AOV081A CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022A	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81AZ	1B21*AOV081A CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022A	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81BX	1B21*AOV081B CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022B	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81BY	1B21*AOV081B CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022B	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81BZ	1B21*AOV081B CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022B	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81CX	1B21*AOV081C CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022C	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81CY	1B21*AOV081C CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022C	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81CZ	1B21*AOV081C CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022C	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81DX	1B21*AOV081D CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022D	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV81DY	1B21*AOV081D CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022D	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A

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STONE AND WEBSTER ENGINEERING CORPORATION
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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1B21*SOV81DZ	1B21*AOV081D CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F022D	GENERAL ELECT	1E	*D-22		HT-X-8320A20	*IJ			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*SOV82AX	1B21*AOV082A CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028A	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82AY	1B21*AOV082A CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028A	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82AZ	1B21*AOV082A CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028A	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82BX	1B21*AOV082B CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028B	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82BY	1B21*AOV082B CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028B	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82BZ	1B21*AOV082B CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028B	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82CX	1B21*AOV082C CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028C	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82CY	1B21*AOV082C CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028C	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82CZ	1B21*AOV082C CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028C	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82DX	1B21*AOV082D CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028D	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1B21*SOV82DY	1B21*AOV082D CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028D	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A

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JOB CLIENT LILCO

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.1B21*SOV82DZ	1B21*AOV082D CONTROL				ASCO	3096	070 MIN	N/A	
*B21-F028D	GENERAL ELECT	1E	*T-08		HT-X-8320A20	*IJ			ALL
	310010	003	*ST	00082					A
.1T46*SOV035A	OPERATES 1T46*AOV035A				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	G-01		HV200-926-1F-EP	*RR			ALL
	310655	111	RBS	00112					A
.1T46*SOV035B	OPERATES 1T46*AOV035B				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	G-01		HV200-926-1F-EP	*RR			ALL
	310655	111	RBS	00112					A
.1T46*SOV037A	OPERATES 1T46*AOV037A				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	G-01		HV200-926-1F-EP	*RR			ALL
	310655	111	RBS	00095					A
.1T46*SOV037B	OPERATES 1T46*AOV037B				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	G-01		HV200-926-1F-EP	*RR			ALL
	310655	111	RBS	00095					A
.1T46*SOV038A	PR1 CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	D-22		HV200-926-1F-EP	*RR			ALL
	*373023	*172	RBP	00078		*MST			A
.1T46*SOV038B	PR1 CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	H-10		HV200-926-1F-EP	*RR			ALL
	*373023	*172	RBS	00078					A
.1T46*SOV038C	PR1 CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	L-02		HV200-926-1F-EP	*RR			ALL
	310574	172	RBS	00040					A
.1T46*SOV038D	PR1 CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	L-02		HV200-926-1F-EP	*RR			ALL
	310574	172	RBS	00040					A
.1T46*SOV039A	PR1 CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	B-22		HV200-926-1F-EP	*RR			ALL
	310574	*172	RBP	00112		*SPR			A
.1T46*SOV039B	PR1 CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	K-15		HV200-926-1F-EP	*RR			ALL
	310574	172	RBS	00112					A
.1T46*SOV039C	PR1 CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	G-02		HV200-926-1F-EP	*RR			ALL
	*373023	*172	RBS	00040					A

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.1T46*SOV039D	PRI CONTAINMENT PURGE VALVE				ASCO		070 MIN	N/A	
	FISHER CONT.	1E	G-02		HV200-926-1F-EP	*RR			ALL
	*373023	*172	RBS	00040					A
.1C11*SOV042A	BACK UP SCRAM SYSTEM				*ASCO	*3909	070 MIN	*N/A	*RG
		1E	G-05		*NP8316C37	*QG			ALL
	310010	003	RBS	00063					A
.1C11*SOV042B	BACK UP SCRAM SYSTEM				*ASCO	*3909	070 MIN	*N/A	*RG
		1E	G-05		*NP8316C37	*QG			ALL
	310010	003	RBS	00063					A
.1P42*PS021A	PUMP 1P42*P005A DISCH				ASCO		070 MIN	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS021B	PUMP 1P42*P005B DISCH				ASCO		070 MIN	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS021C	PUMP 1P42*P005C DISCH				ASCO		070 MIN	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS022A	PUMP 1P42*P005A DISCH				ASCO		070 MIN	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS022B	PUMP 1P42*P005B DISCH				ASCO		070 MIN	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS022C	PUMP 1P42*P005C DISCH				ASCO		070 MIN	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS046A	PUMP 1P42*P005A DISCH				ASCO		180 DYS	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS046B	PUMP 1P42*P005B DISCH				ASCO		180 DYS	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A
.1P42*PS046C	PUMP 1P42*P005C DISCH				ASCO		180 DYS	1% SP	
	AUTO SWITCH	1E	H-18		SB11AKR/TF10A32B	TA			ALL
	10072	348	RBS	150					A

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.1P50*PS105A	SERV AIR HDR A PRESS				ASCO		070 MIN	1% SP	
04450008	AUTO SWITCH	1E	H-18		SB11AKR/TG10A32B	TA			H,H
	10072	348	RBS	151					A
	OP CODE B FOR LOCA								
.1P50*PS105B	SERV AIR HDR B PRESS				ASCO		070 MIN	1% SP	
04470008	AUTO SWITCH	1E	H-18		SB11AKR/TG10A32B	TA			H,H
	10072	348	RBS	151					A
	OP CODE B FOR LOCA								
.1P50*PS113A	SERV AIR HDR A NORM SUP				ASCO		070 MIN	1% SP	
04490008	AUTO SWITCH	1E	H-18		SB11AKR/TG10A32B	TA			H,H
	10072	348	RBS	151					A
	OP CODE B FOR LOCA								
.1P50*PS113B	SERV AIR HDR B NORM SUP				ASCO		070 MIN	1% SP	
04510008	AUTO SWITCH	1E	H-18		SB11AKR/TG10A32B	TA			H,H
	10072	348	RBS	151					A
	OP CODE B FOR LOCA								
.1B21*SOV036A	OPERATES 1B21*AOV036A				ASCO	*232-01	070 MIN		
	VELAN	1E	H-18		*WJHKX-8320-A89E	*EQ			L
	310595	232	RBS	00087					A
	OP CODE B FOR HELB & MELB								
.1B21*SOV036B	REACTOR FW INLET AOV036A				ASCO	*232-01	070 MIN		
	VELAN	1E	H-18		*WJHKX-8320-A89E	*EQ			L
	310595	232	RBS	00087					A
	OP CODE B FOR HELB & MELB								
*1E11*SOV081A	*ON 1E11*AOV081A				*ASCO	*232-01	*180 *DYS		
		*1E	*D-22		*WJHKX-8320-A89E	*EQ			*ALL
ADDED	*310595	*232	*RBP	*00079		*MST			*B
.1E11*SOV081B	*FOR 1E11*AOV081B				*ASCO	*232-01	*180 *DYS		
	VELAN	*1E	*D-22		*WJHKX-8320-A89E	*EQ			ALL
	*310595	*232	*RBP	*00079		*MST			*B
.1E21*SOV081A	*FOR 1E21*AOV081A				*ASCO	*232-01	*180 *DYS		
	VELAN	*1E	*B-22		*WJHKX-8320-A89E	*EQ			L
	*310595	*232	*RBP	*00126		*MST			*B
.1E21*SOV081B	*FOR 1E21*AOV081B				*ASCO	*232-01	*180 *DYS		
	VELAN	*1E	*B-22		*WJHKX-8320-A89E	*EQ			L
	*310595	*232	*RBP	*00126		*MST			*B
.1P42*SOV282	RBCLCW RETURN CHECK VLV				ASCO	*232-01	070 MIN		

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	VELAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310595	232	RBS	00016					A
.1P42*SOV293	RBCLCW RETURN CHECK VLV				ASCO	*232-01	070 MIN		
	VELAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310595	232	RBS	00039					A
.1P42*SOV294	RBCLCW RETURN CHECK VLV				ASCO	*232-01	070 MIN		
	VELAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310595	232	RBS	00039					A
.1B31*SOV081	OPERATES 1B31*AOV081				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	K-15		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00133					A
.1B31*SOV082	OPERATES 1B31*AOV082				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	K-18		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00155					A
.1E11*SOV003A	STM TO RHR HX SHELL				ASCO	*318-01	180 DYS	NA	
	COPES VVLCAN	1E	G-03		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	65					B
.1E11*SOV003B	STM TO RHR HX SHELL				ASCO	*318-01	180 DYS	NA	
	COPES VVLCAN	1E	G-07		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	65					B
.1E11*SOV007A	STM TO RHR HX SHELL				ASCO	*318-01	180 DYS	NA	
	COPES VVLCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	12					B
.1E11*SOV007B	STM TO RHR HX SHELL				ASCO	*318-01	180 DYS	NA	
	COPES VVLCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	10					B
.1E11*SOV061A	RHR SAMPLE LINE VALVE				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	8					A
.1E11*SOV061B	RHR SAMPLE LINE VALVE				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	8					A
.1E11*SOV062A	RHR SAMPLE LINE VALVE				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	8					A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1E11*SOV062B	RHR SAMPLE LINE VALVE				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	8					A
.1E41*SOV081	OPERATES 1E41*AOV081				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E41*SOV082	OPERATES 1E41*AOV082				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E41*SOV083	OPERATES 1E41*AOV083				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
.1E41*SOV091	OPERATES 1E41*LCV091				*ASCO	*318-01	*180 *DYS	*N/A	
	*COPES VULCAN	*1E	*G-01		*WJHKX-8320-A89E	*EQ			*ALL
	310735	*318	*RBS	*00008					*B
.1E41*SOV095	OPERATES 1E41*LCV095				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
.1E51*SOV081	OPERATES 1E51*AOV081				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
.1E51*SOV082	OPERATES 1E51*AOV082				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
.1E51*SOV083	OPERATES 1E51*AOV083				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
.1E51*SOV091	OPERATES 1E51*LCV091				ASCO	*318-01	180 DYS	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					B
.1E51*SOV095	OPERATES 1E51*LCV095				ASCO	*318-01	070 MIN	NA	
	COPES VULCAN	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310735	318	RBS	00008					A
.1T46*SOV040A	*OPERATES AOD040A				*ASCO	*319-03	*070 *MIN	*	

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER MODEL / CATALOG NO	EQ SHEET QUAL STAT SUBMG	OP TIME	ACC / PERF	NU-CAT E' CND O' CD
	POWERS REGUL	*1E	*H-18		*WJHKX-8320-A89E	*EQ			*ALL
	310738	*319	*RBS	*00150					*A
.1T46*SOV040B	*OPERATES AOD040B				*ASCO	*319-03	*070 *MIN	*	
	POWERS REGUL	*1E	*H-18		*WJHKX-8320-A89E	*EQ			*ALL
	310738	*319	*RBS	*00150					*A
.1T46*SOV041A	*OPERATES AOD041A				*ASCO	*319-03	*070 *MIN	*	
	POWERS REGUL	*1E	*K-15		*WJHKX-8320-A89E	*EQ			*ALL
	310738	*319	*RBS	*00112					*A
.1T46*SOV041B	*OPERATES AOD041B				*ASCO	*319-03	*070 *MIN	*	
	POWERS REGUL	*1E	*K-15		*WJHKX-8320-A89E	*EQ			*ALL
	310738	*319	*RBS	*00112					*A
.1P42*SOV001W	RBCLCW HX E-11A BYPASS				ASCO	*423-01	180 DYS	NA	
	FISHER CONTRO	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310772	423	RBS	00008					A
	LOCA IS OP CODE B AFTER 70 MIN								
.1P42*SOV001X	RBCLCW HX E-11A BYPASS				ASCO	*423-01	180 DYS	NA	
	FISHER CONTRO	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310772	423	RBS	00008					A
	LOCA IS OP CODE B AFTER 70 MIN								
.1P42*SOV001Y	RBCLCW HX E-11B BYPASS				ASCO	*423-01	180 DYS	NA	
	FISHER CONTRO	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310772	423	RBS	00008					A
	LOCA IS OP CODE B AFTER 70 MIN								
.1P42*SOV001Z	RBCLCW HX E-11B BYPASS				ASCO	*423-01	180 DYS	NA	
	FISHER CONTRO	1E	G-01		WJHKX-8320-A89E	*EQ			ALL
	310772	423	RBS	00008					A
	LOCA IS OP CODE B AFTER 70 MIN								
.1T24*SOV001A	DRYWELL ISOL VLV 1T24*AV0001A				ASCO	*318-02	180 DYS	NA	
	COPES VULCAN	1E	G-02		WJK206-380-6F	*EQ			L
	310735	318	RBS	00040					A
.1T24*SOV001B	DRYWELL ISOL VLV 1T24*AV0001B				ASCO	*318-02	180 DYS	NA	
	COPES VULCAN	1E	G-02		WJK206-380-6F	*EQ			L
	310735	318	RBS	00040					A
.1T46*SOV078A	NR MOV 078A				ASCO	*318-02	070 MIN	NA	
	COPES VULCAN	1E	G-12		WJK206-380-6F	*EQ			ALL
	310735	318	RBS	00090					A

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.1T46*SOV078B	DRYWELL VENT TO PRIM CNT COPES VULCAN 310735	1E 316	G-12 RBS	00090	ASCO WJK206-380-6F	*318-02 *EQ	070 MIN	NA	AL A
.1T46*SOV079A	OPERATES 1T46*AOV079A COPES VULCAN 310735	1E 318	G-06 RBS	00063	ASCO WJK206-380-6F	*318-02 *EQ	070 MIN	NA	ALL A
.1T46*SOV079B	OPERATES 1T46*AOV079B COPES VULCAN 310735	1E 318	G-06 RBS	00063	ASCO WJK206-380-6F	*318-02 *EQ	070 MIN	NA	ALL A
1R24*TRS111X	480V AUTO TRANSFER SWITCH ASCO 310922	1E 438	N-21 RBS	112	ASCO 307A66C	TA	180 DYS		ALL A
1R24*TRS112Y	480V AUTO TRANSFER SWITCH ASCO	1E 438	N-21 RBS	112	ASCO 307A66C	TA	180 DYS		ALL A

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REPORT GROUP MAK = ATOMICS INT									
.1T48*PNL48A	*HYD RECOM PWR PNL A				*ATOMICS INT	*	180 DYS	NA	
	ATOMICS INT	1E	J-16		*N/A	*TA			L
	310624	289	RBS	00112					A
.1T48*PNL48B	HYD RECOM PWR PNL B				*ATOMICS INT		180 DYS	NA	
	ATOMICS INT	1E	J-16		*N/A	*TA			L
	310624	289	RBS	00112					A
.1T48*RC002A	HYDROGEN RECOMB				ATOMICS INT	*	180 DYS		
	ATOMICS INT	1E	J-15		N/A	*TA			L
	310624	289	RBS	00112					A
.1T48*RC002B	HYDROGEN RECOMB				ATOMICS INT	*	180 DYS		
	ATOMICS INT	1E	J-15		N/A	*TA			L
	310624	289	RBS	00112					A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC / SPEC	ZONE / BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1E11*PT003A	STM TO RHR HX SHELL				BAILEY	3094	180 DYS	2%	
E11-N026A	GENERAL ELEC	1E	G-01		KG55610DAAA1WEM	*RR			ALL
	310010	003	RBS	00008					B
.1E11*PT003B	STM TO RHR HX SHELL				BAILEY	3094	180 DYS	2%	
E11-N026B	GENERAL ELEC	1E	G-01		KG55610DAAA1WEM	*RR			ALL
	310010	003	RBS	00008					B
.1E11*PT005	RHR HX SHELL TO RCIC				BAILEY	3094	180 DYS	*2%	
E11-N028	GENERAL ELEC	1E	G-01		KG556110CAAA1WEL	*RR			ALL
	310010	003	RBS	00008					B
.1E21*PT001A	CORE SPRAY PUMP DISCH				BAILEY	3094	180 DYS	*	
E21-N001A	GENERAL ELEC	1E	G-01		KG556110DAAA1WEM	*RR			L
	310010	003	RBS	00008					B
.1E21*PT001B	CORE SPRAY PUMP DISCH				BAILEY	3094	180 DYS	*	
E21-N001B	GENERAL ELEC	1E	G-01		KG556110DAAA1WEM	*RR			L
	310010	003	RBS	00008					B
.1C61*PT006	NUCLEAR PRESSURE				*BAILEY	*3904	180 DYS		
C61-N006	GENERAL ELEC	1E	G-09		*556100EAAA1WEN	*RR			ALL
	310010	003	RBS	00078					B
.1E51*PT001	RCIC PUMP SUCTION				*BAILEY	*3904	180 DYS	*1%	
E51-N005	GENERAL ELEC	1E	G-01		*556110EAAA1WEN	*RR			ALL
	310010	003	RBS	00008					B
.1E51*PT002	RCIC PUMP DISCHARGE				*BAILEY	*3904	180 DYS	*1%	
E51-N004	GENERAL ELEC	1E	G-01		*556110EAAA1WEN	*RR			ALL
	310010	003	RBS	00008					B
.1E51*PT004	RCIC STM TO TURBINE				*BAILEY	*3904	180 DYS	*1%	
E51-N007	GENERAL ELEC	1E	G-01		*556110EAAA1WEN	*RR			ALL
	310010	003	RBS	00008					B
.1E51*PT005	TURBINE DISCHARGE				*BAILEY	*3904	180 DYS	*1%	
E51-N008	GENERAL ELEC	*1E	G-01		*556110EAAA1WEN	*RR			ALL
	310010	003	RBS	00008					B

REPORT GROUP MAK = BAILEY

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = BARKSDALE									
.1B21*PS022A	MAIN STEAM LINE ISO				*BARKSDALE	*3018	070 MIN	*1.5%	
B21-N020A	GENERAL ELEC	1E	G-10		*BIT-M12SS	*IJ			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1B21*PS022B	MAIN STEAM LINE ISO				*BARKSDALE	*3018	070 MIN	*1.5%	
B21-N020B	GENERAL ELEC	1E	G-10		*BIT-M12SS	*IJ			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1B21*PS022C	MAIN STEAM LINE ISO				*BARKSDALE	*3018	070 MIN	*1.5%	
B21-N020C	GENERAL ELEC	1E	G-12		*BIT-M12SS	*IJ			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1B21*PS022D	MAIN STEAM LINE ISO				*BARKSDALE	*3018	070 MIN	*1.5%	
B21-N020D	GENERAL ELEC	1E	G-12		*BIT-M12SS	*IJ			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1E41*PS002	HPCI PUMP DISCHARGE				*BARKSDALE	3018	001 DYS		
E41-N027	GENERAL ELEC	1E	G-01		*BIT-M12SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*PS002	RCIC PUMP DISCHARGE				BARKSDALE	3018	001 DYS	*2.6%	
E51-N020	GENERAL ELEC	1E	G-01		BIT-M12SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E11*P3134A	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N016A	GENERAL ELEC	1E	G-01		BIT-M12SS	*IJ			*ALL
	310010	003	RBS	8					A
.1E11*PS134B	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N016B	GENERAL ELEC	1E	G-01		BIT-M12SS	*IJ			*ALL
	310010	003	RBS	8					A
.1E11*PS134C	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N016C	GENERAL ELEC	1E	G-01		BIT-M12SS	*IJ			*ALL
	348838	003	RBS	8					A
.1E11*PS134D	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N016D	GENERAL ELEC	1E	G-01		BIT-M12SS	*IJ			*ALL
	310010	003	RBS	8					A

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.1E11*PS135A	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N020A	GENERAL ELEC	1E	G-01		B1T-M12SS	*IJ			*ALL
	310010	003	RBS	8					A
.1E11*PS135B	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N020B	GENERAL ELEC	1E	G-01		B1T-M12SS	*IJ			*ALL
	310010	003	RBS	8					A
.1E11*PS135C	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N020C	GENERAL ELEC	1E	G-01		B1T-M12SS	*IJ			*ALL
	348838	003	RBS	8					A
.1E11*PS135D	RHR PUMP DISCHARGE				BARKSDALE	3018	1 DYS	*.8%	
E11-N020D	GENERAL ELEC	1E	G-01		B1T-M12SS	*IJ			*ALL
	310010	003	RBS	8					A
.1E41*PS025A	DRAIN POT VENT				BARKSDALE	3021	001 DYS		
E41-N012A	G.E.	1E	G-01		D2H-M150SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS025B	DRAIN POT VENT				BARKSDALE	3021	001 DYS		
E41-N012B	G.E.	1E	G-01		D2H-M150SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS025C	DRAIN POT VENT				BARKSDALE	3021	001 DYS		
E41-N012C	G.E.	1E	G-01		D2H-M150SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS025D	DRAIN POT VENT				BARKSDALE	3021	001 DYS		
E41-N012D	G.E.	1E	G-01		D2H-M150SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS026A	HIGH EXHAUST LINE PRESS				BARKSDALE	3021	001 DYS	*10%	
E41-N017A	G.E.	1E	G-01		D2H-M150SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS026B	HIGH EXHAUST LINE PRESS				BARKSDALE	3021	001 DYS	*10%	
E41-N017B	G.E.	1E	G-01		D2H-M150SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E11*PS138A	PRIMARY CONTAINMENT HP				BARKSDALE	3021	070 MIN	*.1 PSIG	
E11-N010A	GENERAL ELEC	1E	G-10		D2H-M18SS	*IJ			L
	310010	003	RBS	00008					A
	OP CODE 5 FOR HELB & MELB								
.1E11*PS138B	PRIMARY CONTAINMENT HP				BARKSDALE	3021	070 MIN	*.1 PSIG	
E11-N010B	GENERAL ELEC	1E	H-12		D2H-M18SS	*IJ			L

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	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1E11*PS138C	PRIMARY CONTAINMENT HP				BARKSDALE	3021	070 MIN	*.1 PSIG	
E11-N010C	GENERAL ELEC	1E	G-10		D2H-M18SS	*IJ			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1E11*PS138D	PRIMARY CONTAINMENT HP				BARKSDALE	3021	070 MIN	*.1 PSIG	
E11-N010D	GENERAL ELEC	1E	H-12		D2H-M18SS	*IJ			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1E51*PS025A	DRAIN POT VENT				BARKSDALE	3021	001 DYS	*2.7%	
E51-N012A	GENERAL ELEC	1E	G-01		D2H-M80SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*PS025B	DRAIN POT VENT				BARKSDALE	3021	001 DYS	*2.7%	
E51-N012B	GENERAL ELEC	1E	G-01		D2H-M80SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*PS025C	DRAIN POT VENT				BARKSDALE	3021	001 DYS	*2.7%	
E51-N012C	GENERAL ELEC	1E	G-01		D2H-M80SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*PS025D	DRAIN POT VENT				BARKSDALE	3021	001 DYS	*2.7%	
E51-N012D	GENERAL ELEC	1E	G-01		D2H-M80SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*PS026A	HIGH EHAUST LINE PRESS				BARKSDALE	3021	001 DYS	*2.5%	
E51-N009A	GENERAL ELEC	1E	G-01		D2H-M80SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*PS026B	HIGH EHAUST LINE PRESS				BARKSDALE	3021	001 DYS	*2.5%	
E51-N009B	GENERAL ELEC	1E	G-01		D2H-M80SS	*IJ			ALL
	310010	003	RBS	00008					A
.1E21*PS012A	CORE SPRAY PUMP DISCH				BARKSDALE	3025	007 DYS	*1.5%	
E21-N008A	GENERAL ELEC	1E	G-01		P1H-M34SS	*IJ			L
	310010	003	RBS	8					A
.1E21*PS012B	CORE SPRAY PUMP DISCH				BARKSDALE	3025	007 DYS	*1.5%	
E21-N008B	GENERAL ELEC	1E	G-01		P1H-M34SS	*IJ			L
	310010	003	RBS	8					A
.1E21*PS013A	CORE SPRAY PUMP DISCH				BARKSDALE	3025	007 DYS	*1.5%	
E21-N009A	GENERAL ELEC	1E	G-01		P1H-M34SS	*IJ			L

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	310010	003	RBS	8					A
.1E21*PS013B	CORE SPRAY PUMP DISCH				BARKSDALE	3025	007 DYS	*1.5%	
E21-N009B	GENERAL ELEC	1E	G-01		P1H-M34SS	*IJ			L
	310010	003	RBS	8					A

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**********	**********	**********	**********		**********	**********	**********	**********	****
REPORT GROUP MAK = BARTON									
.1B21*PDS02A1	MAIN STM LINE A FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N006A	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02A2	MAIN STM LINE A FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N006B	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02A3	MAIN STM LINE A FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N006C	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02A4	MAIN STM LINE A FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N006D	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02B1	MAIN STM LINE B FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N007A	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02B2	MAIN STM LINE B FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N007B	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02B3	MAIN STM LINE B FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N007C	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02B4	MAIN STM LINE B FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N007D	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02C1	MAIN STM LINE C FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N008A	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02C2	MAIN STM LINE C FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N008B	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02C3	MAIN STM LINE C FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N008C	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A

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JOB CLIENT LILCO

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.1B21*PDS02C4	MAIN STM LINE C FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N008D	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02D1	MAIN STM LINE D FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N009A	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02D2	MAIN STM LINE D FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N009B	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02D3	MAIN STM LINE D FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N009C	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1B21*PDS02D4	MAIN STM LINE D FLOW DET				BARTON	3027	001 DYS	*2%	
B21-N009D	GENERAL ELEC	1E	G-02		288A	*IJ			H
	310010	003	RBS	00040					A
.1C71*PS004	PRIMARY CONTAINMENT HP				BARTON	3027	180 DYS	*1% PSIG	
C71-N004	GENERAL ELEC	1E	G-10		288A	*IJ			ALL
	310010	003	RBS	00078					B
.1E21*PDS033A	CORE SPRAY PUMP DISCH				BARTON	3027	180 DYS	*	
E21-N005A	GENERAL ELEC	1E	G-01		288A	*IJ			L
	310010	003	RBS	00008					A
.1E21*PDS033B	CORE SPRAY PUMP DISCH				BARTON	3027	180 DYS	*	
E21-N005B	GENERAL ELEC	1E	G-01		288A	*IJ			L
	310010	003	RBS	00008					A
.1E41*PDS022A	HPCI AUTO ISOLATION				BARTON	3027	001 DYS	*.8%	
E41-N004	GENERAL ELEC	1E	G-01		288A	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PDS022B	HPCI AUTO ISOLATION				BARTON	3027	001 DYS	*.8%	
E41-N005	GENERAL ELEC	1E	G-01		288A	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS023A	HPCI AUTO ISOLATION				BARTON	3027	001 DYS	*.5%	
E41-N001A	GENERAL ELEC	1E	G-01		288A	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS023B	HPCI AUTO ISOLATION				BARTON	3027	001 DYS	*.5%	
E41-N001B	GENERAL ELEC	1E	G-01		288A	*IJ			ALL
	310010	003	RBS	00008					A

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.1E41*PS023C	HPCI AUTO ISOLATION				BARTON	3027	001 DYS	*.5%	
E41-N001C	GENERAL ELEC	1E	G-01		288A	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*PS023D	HPCI AUTO ISOLATION				BARTON	3027	001 DYS	*.5%	
E41-N001D	GENERAL ELEC	1E	G-01		288A	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*FS003	RCIC PUMP DISCHARGE				BARTON	3027	001 DYS	*5%A	
E51-N002	GENERAL ELEC	1E	G-01		288A	*IJ			ALL
	310010	003	RBS	00008					A
.1E51*PDS022A	RCIC AUTO ISOLATION				BARTON	3027	001 DYS	*2%	
E51-N017	GENERAL ELEC	1E	L-02		288A	*IJ			ALL
	310010	003	RBS	00040					A
.1E51*PDS022B	RCIC AUTO ISOLATION				BARTON	3027	001 DYS	*2%	
E51-N018	GENERAL ELEC	1E	L-02		288A	*IJ			ALL
	310010	003	RBS	00040					A
.1E11*PDS001A	VALVE INTERLOCK				BARTON	*3027	180 DYS	1.5%	
E11-N021A	GENERAL ELEC	1E	G-01		289A	*IJ			ALL
	310010	003	RBS	00008					A
.1E11*PDS001B	VALVE INTERLOCK				BARTON	*3027	180 DYS	1.5%	
E11-N021B	GENERAL ELEC	1E	G-01		289A	*IJ			ALL
	310010	003	RBS	00008					A
.2 .TS002A	CORE SPRAY PUMP DISCH				BARTON	*3027	180 DYS	*	
E.1-N 06A	GENERAL ELEC	1E	G-01		289A	*IJ			L
	310010	003	RBS	00008					A
.1E21*FIS002B	CORE SPRAY PUMP DISCH				BARTON	*3027	180 DYS	*	
E21-N006B	GENERAL ELEC	1E	G-01		289A	*IJ			L
	310010	003	RBS	00008					A
1E41*FS003	HPCI PUMP DISCHARGE				BARTON	*3027	001 DYS		
E41-N006	GENERAL ELEC	1E	G-01		289A	*IJ			ALL
	310010	003	RBS	00008					A
.1E11*LT002A	RHR HX SHELL				BARTON	*3144	180 DYS	*.5% SPAN	
E11-N008A	GENERAL ELEC	1E	G-01		368	*RR			ALL
	310010	003	RBS	8					B
.1E11*LT002B	RHR HX SHELL				BARTON	*3144	180 DYS	*.5% SPAN	
E11-N008B	GENERAL ELEC	1E	G-01		368	*RR			ALL
	310010	003	RBS	8					B

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.1B21*LIT007A	FUEL ZONE				BARTON	3129	180 DYS	*	*RG
B21-N037A	GENERAL ELEC	1E	G-09		760	*RR			ALL
	310010	003	RBS	00078					A
.1B21*LIT007B	FUEL ZONE				BARTON	3129	180 DYS	*	*RG
B21-N037B	GENERAL ELEC	1E	G-11		760	*RR			ALL
	310010	003	RBS	00078					A
.1B21*PT004A	REACTOR PRESSURE				BARTON	3129	180 DYS	*	*RG
B21-N055A	GENERAL ELEC	1E	G-10		760	*RR			ALL
	310010	003	RBS	00078					A
.1B21*PT004B	REACTOR PRESSURE				BARTON	3129	180 DYS	*	*RG
B21-N055B	GENERAL ELEC	1E	G-10		760	*RR			ALL
	310010	003	RBS	00078					A

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REPORT GROUP MAK = BECK

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.1E41*PCV142	TO LUBE OIL COOLER				BECK	*310-01	001 DYS	N/A	
E41-F035	FISHER CONTRL	1E	G-01		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	16					A
.1E51*PCV142	TO LUBE OIL COOLER				BECK	*310-01	001 DYS	N/A	
E51-F015	FISHER CONTRL	1E	G-01		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	00008					A
.1T46*TCV022A	RB STANDBY VENT UC 2A				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	G-01		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	00008					A
.1T46*TCV022B	RB STANDBY VENT UC 2B				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	G-01		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	00040					A
.1T46*TCV023A	RB STANDBY VENT UC 3A				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	G-01		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	00008					A
.1T46*TCV023B	RB STANDBY VENT UC 3B				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	G-02		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	00040					A
.1T46*TCV024A	RB STANDBY VENT UC-4A				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	H-20		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	175					A
.1T46*TCV024B	RB STANDBY VENT UC-4B				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	H-20		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	175					A
.1T46*TCV025A	RB STANDBY VENT UC-5A				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	H-20		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	175					A
.1T46*TCV025B	RB STANDBY VENT UC-5B				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	H-20		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	175					A
.1T46*TCV026A	RB STANDBY VENT UC-6A				BECK	*310-01	180 DYS	N/A	
	FISHER CONTRL	1E	K-15		14-101-023645(ES)	*IJ			ALL
	310736	310	RBS	00112					A

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.1T46*TCV026B	RB STANDBY VENT UC-6B FISHER CONTRL 310736	1E 310	K-15 RBS	00112	BECK 14-101-023645(ES)	*310-01 *IJ	180 DYS	N/A	ALL A
.1T46*TCV028A	MCC RM UNIT COOLER FISHER CONTRL 310736	1E 310	N-16 RBS	00112	BECK 14-101-023645(ES)	*310-01 *IJ	180 DYS	N/A	ALL A
.1T46*TCV028B	MCC RM UNIT COOLER FISHER CONTRL 310736	1E 310	K-15 RBS	00112	BECK 14-101-023645(ES)	*310-01 *IJ	180 DYS	N/A	ALL A
.1T46*TCV059A	UC-21A UNIT CLEAR FISHER CONTRL 310736	1E 310	H-19 RBS	00150	BECK 14-101-023645(ES)	*310-01 *IJ	180 DYS	N/A	ALL A
.1T46*TCV059B	UC-21B UNIT CLEAR FISHER CONT. 310736	1E 310	H-19 RBS	00150	BECK 14-101-023645(ES)	*310-01 *IJ	180 DYS	N/A	ALL A
.1T46*TCV060A	UC-22A UNIT CLEAR FISHER CONT. 310736	1E 310	H-19 RBS	00150	BECK 14-101-023645(ES)	*310-01 *IJ	180 DYS	N/A	ALL A
.1T46*TCV060B	UC-22B UNIT CLEAR FISHER CONT. 310736	1E 310	H-19 RBS	00150	BECK 14-101-023645(ES)	*310-01 *IJ	180 DYS	N/A	ALL A

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**********	**********	**********	**********		**********	**********	********	**********	****

REPORT GROUP MAK = BRAND REX

.1R32*NFP-63	*INST CABLE				BRAND REX	*455-01	180 DYS	N/A	
	BRAND REX	1E	ALL		LOW CAP INST CABLE	EQ			ALL
	310965	455	RB			*SPR			A
	REPRESENTS ALL CABLE PURCHASED UNDER SH1-455								

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REPORT GROUP MAK = CALIF. ALLOY

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.1G33*TE071A	RX WTR CLN UP AMB				CALIF. ALLOY	3110	*001 *DYS	*ANST C96.1	
G33-N016A	GENERAL ELEC	1E	P-14		145C3224P2	*IJ			*H
	310010	003	RBS	112					A
.1G33*TE071B	RX WTR CLN UP AMB				CALIF. ALLOY	3110	*001 *DYS	*ANSI C96.1	
G33-N016B	GENERAL ELEC	1E	P-13		145C3224P2	*IJ			*H
	310010	003	RBS	112					A
.1G33*TE071C	RX WTR CLN UP AMB				CALIF. ALLOY	3110	070 MIN	*ANSI C96.1	
G33-N016C	GENERAL ELEC	1E	K-15		145C3224P2	*IJ			H,H
	310010	003	RBS	140					A
.1G33*TE071D	RX WTR CLN UP AMB				CALIF. ALLOY	3110	070 MIN	*ANSI C96.1	
G33-N016D	GENERAL ELEC	1E	H-16		145C3224P2	*IJ			H,M
	310010	003	RBS	140					A
.1G33*TE071E	RX WTR CLN UP AMB				CALIF. ALLOY	3110	070 MIN	*ANSI C96.1	
G33-N016E	GENERAL ELEC	1E	H-18		145C3224P2	*IJ			H,M
	310010	003	RBS	173					A
.1G33*TE071F	RX WTR CLN UP AMB				CALIF. ALLOY	3110	070 MIN	*ANSI C96.1	
G33-N016F	GENERAL ELEC	1E	H-19		145C3224P2	*IJ			H,M
	310010	003	RBS	173					A

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REPORT GROUP MAK = CALIFORNIA ALLOY									
.1B21*TE43AX	MAIN STM TUNNEL INLET				*CALIFORNIA ALLOY	*3110	*70 *MIN	*ANSI C96.1	
B21-N016A	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE43BX	MAIN STM TUNNEL INLET				*CALIFORNIA ALLOY	*3110	*70 *MIN	*ANSI C96.1	
B21-N016B	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE43CX	MAIN STM TUNNEL INLET				*CALIFORNIA ALLOY	*3110	*70 *MIN	*ANSI C96.1	
B21-N016C	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE43DX	MAIN STM TUNNEL INLET				*CALIFORNIA ALLOY	*3110	*70 *MIN	*ANSI C96.1	
B21-N016D	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								

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REPORT GROUP MAK = CENTERLINE									
.1T46*AOD040A	RB REFUEL LEVEL EXHAUST				CENTERLINE	*319-01	070 MIN		
	POWERS REGUL	1E	H-18		32046-6	*EQ			ALL
	310738	319	RBS	00150					A
.1T46*AOD040B	RB REFUEL LEVEL EXHAUST				CENTERLINE	*319-01	070 MIN		
	POWERS REGUL	1E	H-18		32046-6	*EQ			ALL
	310738	319	RBS	00150					A

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JOB CLIENT LILCO

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REPORT GROUP MAK = COMSIP INC									
.1T48*H2Z115A	DRYWELL HYDROGEN ANALYZER				COMSIP INC	*344-01	180 DYS	*2%FS	
AE/1	DELPHI INDUST	1E	J-15		B	*EQ			L
	310737	344	RBS	00112					A
.1T48*H2Z115B	DRYWELL HYDROGEN ANALYZER				COMSIP INC	*344-01	180 DYS	*2%FS	
AE/1	DELPHI INDUST	1E	J-16		B	*EQ			L
	310737	344	RBS	00112					A
.1T48*H2Z116A	SUPP CHBR/RECOM DISCH ANALYZER				COMSIP INC	*344-01	180 DYS	*2%FS	
AE/1	DELPHI INDUST	1E	J-15		B	*EQ			L
	310737	344	RBS	00112					A
.1T48*H2Z116B	SUPP CHBR/RECOM DISCH ANALYZER				COMSIP INC	*344-01	180 DYS	*2%FS	
AE	DELPHI INDUST	1E	J-16		B	*EQ			L
	310737	344	RBS	00112					A
.1T48*O2Z123A	PRIMARY CONT OXYGEN				COMSIP INC	*344-01	180 DYS	*2%FS	
	DELPHI INDUST.	1E	J-15		J	*EQ			L
	310737	344	RBS	00112					A
.1T48*O2Z123B	PRIMARY CONT OXYGEN				COMSIP INC	*344-01	180 DYS	*2%FS	
	DELPHI INDUST.	1E	J-15		J	*EQ			L
	310737	344	RBS	00112					A
.1T48*PNL68A	GAS ANALYZER DRYWELL				*COMSIP INC	*344-01	180 DYS	N/A	*RG
	DELPHI INDUST.	1E	J-15		K-IV	*EQ			L
	310737	344	RBS	112					A
SAMPLE PUMP BEARINGS REQUIRE REPLACEMENT.SAMPLE PUMP IS BEING RETESTED.ALL OTHER COMPONENTS ARE EQ.									
.1T48*PNL68B	GAS ANALYZER DRYWELL				*COMSIP INC	*344-01	180 DYS	N/A	*RG
	DELPHI INDUST.	1E	J-16		K-IV	*EQ			L
	310737	344	RBS	112					A
SAMPLE PUMP BEARINGS REQUIRE REPLACEMENT.SAMPLE PUMP IS BEING RETESTED.ALL OTHER COMPONENTS ARE EQ.									
.1T48*PNL69A	GAS ANALYZER SUPPR CHAMBER				*COMSIP INC	*344-01	180 DYS	N/A	*RG
	DELPHI INDUST.	1E	J-15		K-IV	*EQ			L
	310737	344	RBS	112					A
SAMPLE PUMP BEARINGS REQUIRE REPLACEMENT.SAMPLE PUMP IS BEING RETESTED.ALL OTHER COMPONENTS ARE EQ.									
.1T48*PNL69B	GAS ANALYZER SUPPR CHAMBER				*COMSIP INC	*344-01	180 DYS	N/A	*RG
	DELPHI INDUST.	1E	J-16		K-IV	*EQ			L
	310737	344	RBS	112					A
SAMPLE PUMP BEARINGS REQUIRE REPLACEMENT.SAMPLE PUMP IS BEING RETESTED.ALL OTHER COMPONENTS ARE EQ.									

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**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = CONAX									
.1T23*Z-EB1	REACTOR CONT ELEC PENET				CONAX	*456-02	180 DYS	N/A	*1
	GEN ELEC CO	1E	D-22		LOW VOLT POWER CONT	*EQ			L
	310578	456	RBP	00078		*MST			A
	GENERAL ELECTRIC HEADER PLATES WITH CONAX MODULES								
.1T23-Z-MC1	REACTOR CONT ELEC PENET				CONAX	*456-01	180 DYS	N/A	*1
	*CONAX	1E	D-22		LOW VOLT POWER CONT	*EQ			L
	310967	456	RBP	00078		*MST			A
.1T23*Z-MB3	REACTOR CONT ELEC PENET				CONAX	*456-02	180 DYS	N/A	*1
	GEN ELEC CO	1E	D-22		LOW VOLT POWER CONT.	*EQ			L
	310578	456	RBP	00078		*MST			A
	GENERAL ELECTRIC HEADER PLATES WITH CONAX MODULES								
.1C41*EV010A	EXPLOSIVE VALVE				CONAX	3146	180 DYS	N/A	
C41-F004A	GENERAL ELEC	1E	J-15		1832-159-01	FT			ALL
	344953	003	RBS	00120					*B
.1C41*EV010B	EXPLOSIVE VALVE				CONAX	3146	180 DYS	N/A	
C41-F004B	GENERAL ELEC	1E	J-15		1832-159-01	FT			ALL
	344953	003	RBS	00120					*B

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REPORT GROUP MAK = DWYER

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.1T46*PDS045A	FN-3B DIFF PRESSURE POWERS REGUL 310738	1E 319	K-15 RBS	00112	DWYER 1627	*319-01 *IJ	180 DYS		ALL A
.1T46*PDS045B	FN-3A DIFF PRESSURE POWERS REGUL 310738	1E 319	K-15 RBS	00112	DWYER 1627	*319-01 *IJ	180 DYS		ALL A
.1T46*PDS045C	FN-3A DIFF PRESSURE POWERS REGUL 310738	1E 319	K-15 RBS	00112	DWYER 1627	*319-01 *IJ	180 DYS		ALL A
.1T46*PDS046A	FN-3C DIFF PRESSURE POWERS REGUL 310738	1E 319	K-15 RBS	00112	DWYER 1627	*319-01 *IJ	180 DYS		ALL A
.1T46*PDS046B	FN-3C DIFF PRESSURE POWERS REGUL 310738	1E 319	K-15 RBS	00112	DWYER 1627	*319-01 *IJ	180 DYS		ALL A
.1T46*PDS046C	FN-3B DIFF PRESSURE POWERS REGUL 310738	1E 319	K-15 RBS	00112	DWYER 1627	*319-01 *IJ	180 DYS		ALL A

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**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = FARR									
.1T46*FLT01A	FILTER TRAIN REHEAT COIL	RBSVS			FARR		180 DYS		
	FARR CO	1E	K-15		N-240	*IJ			ALL
	310599	105	RBS	112					A
.1T46*FLT01B	FILTER TRAIN REHEAT COIL	RBSVS			FARR		180 DYS		
	FARR CO	1E	K-15		N-240	*IJ			ALL
	310599	105	RBS	112					A

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REPORT GROUP MAK = FENWAL

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.1B21*TE43AY	MAIN STM TUNNEL OUTLET				*FENWAL	*3110	*70 *MIN	*.6%	
B21-N010A	GENERAL ELEC	1E	ST		*145C3004P002	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE43BY	MAIN STM TUNNEL OUTLET				*FENWAL	*3110	*70 *MIN	*.6%	
B21-N010B	GENERAL ELEC	1E	ST		*145C3004P002	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE43CY	MAIN STM TUNNEL OUTLET				*FENWAL	*3110	*70 *MIN	*.6%	
B21-N010C	GENERAL ELEC	1E	ST		*145C3004P002	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE43DY	MAIN STM TUNNEL OUTLET				*FENWAL	*3110	*70 *MIN	*.6%	
B21-N010D	GENERAL ELEC	1E	ST		*145C3004P002	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								

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**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = FISHER GOVERNOR									
.1E11*E/P007A	STM TO RHR HX SHELL				*FISHER GOVERNOR	*3122	180 DYS	*2%	
E11-K001A	GENERAL ELEC	1E	G-01		*546	*DR			ALL
	310010	003	RBS	8					B
.1E11*E/P007B	RHR HX SHELL TO RCIC				*FISHER GOVERNOR	*3122	180 DYS	*2%	
E11-K001B	GENERAL ELEC	1E	G-01		*546	*DR			ALL
	310010	003	RBS	8					B

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REPORT GROUP MAK = GEMS

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBHG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1G11*LE642C	*REACT BLDG FLOOR DRN SUMP 056C				GEMS		180 DYS	2%	
	DELEVAL	1E	G-01		XM-54854	*IJ			*L
	10091	473	RBS	00008					A
	OP CODE B FOR HELB & MELB								
.1G11*LE645A	REACT BLD FLOOD LEVEL				GEMS		180 DYS	2%	*RG
	DELEVAL	1E	G-01		XM-54854	*IJ			ALL
	10091	473	RBS	00008					A
.1G11*LE645B	REACT BLD FLOOD LEVEL				GEMS		180 DYS	2%	*RG
	DELEVAL	1E	G-01		XM-54854	*IJ			ALL
	10091	473	RBS	00008					A

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REPORT GROUP MAK = GENERAL ELECTRIC

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1H21*PNL02	RWCU SYSTEM INST RACK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P002		1E	H-16			*DR			ALL
	310010	003	RBS	112					A
.1H21*PNL04	RX VES L&P RACK A				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P004		1E	G-10			*DR			ALL
	310010	003	RBS	78					A
.1H21*PNL05	RX VES L&D RACK B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P005		1E	G-12			*DR			ALL
	310010	003	RBS	78					A
.1H21*PNL06	RECIRC PUMP A RACK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P006		1E	G-02			*DR			ALL
	310010	003	RBS	40					A
.1H21*PNL09	JET PUMP INST RACK A				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P009		1E	G-09			*DR			ALL
	310010	003	RBS	79					A
.1H21*PNL10	JET PUMP INST RACK B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P010		1E	G-11			*DR			ALL
	310010	003	RBS	79					A
.1H21*PNL14	HPCI INST RACK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P014		1E	G-01			*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL15	MAIN STEAM FLOW RACK A				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P015		1E	G-01			*DR			ALL
	310010	003	RBS	40					A
.1H21*PNL16	CS/HPCI LEAK DET I RK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P016		1E	G-01			*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL17	RCIC INST RACK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P017		1E	G-01			*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL18	RHR INST RK CH A				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P018		1E	G-01			*DR			ALL
	310010	003	RBS	8					A

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.1H21*PNL19	CORE SPRAY RK CH B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P019		1E	G-01			*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL21	RHR INST RK CH B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P021		1E	G-01			*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL22	RECIRC PUMP B RACK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P022		1E	L-02			*DR			ALL
	310010	003	RBS	40					A
.1H21*PNL25	MAIN STEAM FLOW RK B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P025		1E	G-02			*DR			ALL
	310010	003	RBS	40					A
.1H21*PNL26	RV LEVEL & PRESS INST				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P026		1E	H-12			*DR			ALL
	310010	003	RBS	78					A
.1H21*PNL35	CS/RCIC LEAK DET RK B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P035		1E	L-02			*DR			ALL
	310010	003	RBS	40					A
.1H21*PNL36	HPCI LEAK DET RK B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P036		1E	G-01			*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL37	RCIC LEAK DET RK A				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P037		1E	G-01			*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL38	RCIC LEAK DET RK B				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P038		1E	L-02			*DR			ALL
	310010	003	RBS	40					A
.1H21*PNL41	MAIN STM FLOW SYS C				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P041		1E	G-02			*DR			ALL
	310010	003	RBS	40					A
.1E41*P127	HPCI TURB HYD & BER OIL AUX PP				*GENERAL ELECTRIC	*	001 DYS	*N/A	
*E-036	GE-TERRY TURB	1E	G-01		*CD 259A7	*TA			ALL
	310010	003	RBS	8					A
.1R42*MCC0A1	125VDC MOTOR CONT CENTER				GENERAL ELECTRIC		180 DYS		
	GEN ELEC	1E	*L-02		DC MTR CONT CENTER	*IJ			*L
	310562	168	RBS	40					A

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	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R42*MCC0A2	125VDC MOTOR CONT CENTER				GENERAL ELECTRIC		180 DYS		
	GEN ELEC	1E	N-21		DC MTR CONT CENTER	*IJ			ALL
	310562	168	RBS	112					A
.1R42*MCC0B1	125VDC MOTOR CONT CENTER				GENERAL ELECTRIC		180 DYS		
	GEN ELEC	1E	*N-21		DC MTR CONT CENTER	*IJ			ALL
	310562	168	RBS	40					A
.1R42*MCC0B2	125VDC MOTOR CONT CENTER				GENERAL ELECTRIC		180 DYS		
	GEN ELEC	1E	N-21		DC MTR CONT CENTER	*IJ			ALL
	310562	168	RBS	112					A
.1H21*PNL01	CORE SPRAY RACK CH 4				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P001	GENERAL ELEC	1E	G-01		M26	*DR			ALL
	310010	003	RBS	8					A
.1H21*PNL73	MSIV LEAKAGE INST RACK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P073	GENERAL ELEC	1E	G-05		M26	*DR			ALL
		003	RBS	63					A
.1H21*PNL74	MSIV LEAKAGE INST RACK				*GENERAL ELECTRIC	*3912	180 DYS	*N/A	
*H21-P074	GENERAL ELEC	1E	G-05		M26	*DR			ALL
	310010	003	RBS	63					A
.1B31*BKR01A	REAC RECIRC PP TRIP BKR (RED)				*GENERAL ELECTRIC		180 DYS		
	GENERAL ELEC	1E	L-02		M26	*DR			*L
	310057	039	RBS	00040					*B
	H,M OP CODE B 1 DAY, C REM								
.1B31*BKR01B	REAC RECIRC PP TRIP BKR (RED)				*GENERAL ELECTRIC		180 DYS		
	GENERAL ELEC	1E	L-02		M26	*DR			*L
	310057	039	RBS	00040					*B
	H,M OP CODE B 1 DAY, C REM								
.1B31*BKR02A	REAC RECIRC PP TRIP BKR (BLUE)				*GENERAL ELECTRIC		180 DYS		
	GENERAL ELEC	1E	L-02		M26	*DR			*L
	310057	039	RBS	00040					*B
	H,M OP CODE B 1 DAY, C REM								
.1B31*BKR02B	REAC RECIRC PP TRIP BKR (BLUE)				*GENERAL ELECTRIC		180 DYS		
	GENERAL ELEC	1E	L-02		M26	*DR			*L
	310057	039	RBS	00040					*B
	H,M OP CODE B 1 DAY, C REM								
.1T23-Z-EA2	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-02	180 DYS	N/A	

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	GEN ELEC CO	1E	D-22		SERIES 100 MED VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-HA2	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-02	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 100 MED VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-HA3	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-02	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 100 MED VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-EA3	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-EB3	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-EB5	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-EB6	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-EC5	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-EC6	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-HB1	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A

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	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-WB2	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-WB5	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-WB6	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-WC5	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23-Z-WC6	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200 LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23*Z-EA1	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200, LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23*Z-EB2	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200, LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23*Z-ED5	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200, LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23*Z-ED6	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200, LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								

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.1T23*Z-HB4	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200, LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23*Z-HD1	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200, LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1T23*Z-HD2	REACTOR CONT ELEC PENET				GENERAL ELECTRIC	*134-01	180 DYS	N/A	
	GEN ELEC CO	1E	D-22		SERIES 200, LOW VOLT	*IJ			L
	310578	134	RBP	00078		*MST			A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1E41*P074	HPCI VACUUM PUMP NEAR COL C-9				*GENERAL ELECTRIC	*	001 DYS	*N/A	
*E-036	GE-TERRY TURB	1E	G-01		1.5HP,1750RPM,120VDC	*TA			ALL
	310010	003	RBS	8					A
.1E32*BL0013	OUTBD MSIV BLOWER				*GENERAL ELECTRIC	*3903	100 DYS	*N/A	
	GE	1E	G-06		2CH6 041-1U	*IJ			L
	310010	003	RBS	76					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1E32*BL0014A	OUTBD MSIV BLOWER				*GENERAL ELECTRIC	*3903	100 DYS	*N/A	
	GENERAL ELEC	1E	G-04		2CH6 041-1U	*IJ			L
	310010	003	RBS	00063					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1E32*BL0014B	OUTBD MSIV BLOWER				*GENERAL ELECTRIC	*3903	100 DYS	*N/A	
	GENERAL ELEC	1E	G-04		2CH6 041-1U	*IJ			L
	310010	003	RBS	00063					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1T23*Z-HC4	REACTOR CONT ELEC PENET				*GENERAL ELECTRIC	*134-01	*180 *DYS	*N/A	
	*GEN. ELECT. CO.	*1E	*D-22		*200 SERIES LOW VOLT	*IJ			L
	310578	*134	*RBP	*00078		*MST			*A
	REQUIRED RADIATION DOSE REDUCED TO 1.0E8 BY CALCULATION SNPS-1-UR-22-F								
.1D11*RE011A	RADIATION MONITORING DETECTOR				*GENERAL ELECTRIC	*3914	070 MIN		
D11-N006A	GENERAL ELEC	1E	ST		*237X731G001	*DR			L
	310010	003	ST	63					A
.1D11*RE011B	RADIATION MONITORING DETECTOR				*GENERAL ELECTRIC	*3914	070 MIN		
D11-N006B	GENERAL ELEC	1E	ST		*237X731G001	*DR			L
	310010	003	ST	63					A

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.1D11*RE011C	RADIATION MONITORING DETECTOR				*GENERAL ELECTRIC	*3914	070 MIN		
D11-N006C	GENERAL ELEC	1E	ST		*237X731G001	*DR			L
	310010	003	ST	63					A
.1D11*RE011D	RADIATION MONITORING DETECTOR				*GENERAL ELECTRIC	*3914	070 MIN		
D11-N006D	GENERAL ELEC	1E	ST		*237X731G001	*DR			L
	310010	003	ST	63					A
*1P41*HSS102A	*SAMPLE TO RAD MONITOR				*GENERAL ELECTRIC		*180 *DYS		
	*POWERS REGUL	*1E	*G-01		*2940US203E	*IJ			*ALL
ADDED	*310736	*319	*RBS	*00008					*B
*1P41*HSS102B	*SAMPLE TO RAD MONITOR				*GENERAL ELECTRIC		*180 *DYS		
	*POWERS REGUL	*1E	*G-01		*2940US203E	*IJ			*ALL
ADDED		*319	*RBS	*00008					*B
.1E51*P076	RCIRC CONDENSER VAC PP				*GENERAL ELECTRIC		001 DYS	*N/A	
	GE-TERRY TURB	1E	G-01		3HP,1900RPM,120VDC	*****			ALL
	310010	003	RBS	8					A
.1E51*P077	RCIC COND PMP				*GENERAL ELECTRIC		001 DYS	*N/A	
	GE-TERRY TURB	1E	G-01		3HP,1900RPM,120VDC	*****			ALL
	310010	003	RBS	8					A
.1E41*P075	HPCI COND PP NEAR COLUMN C-9				*GENERAL ELECTRIC	*	001 DYS	*N/A	
*E-036	GE-TERRY TURB	1E	G-01		3HP,3500RPM,120VDC	*TA			ALL
	310010	003	RBS	8					A
.1E32*HC053A	LCS INBOARD HEATER				*GENERAL ELECTRIC	*3902	100 DYS	*N/A	
*B-001B	GE	1E	G-07		47D518673	*IJ			*L
	310010	003	RBS	00063					A
L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)									
.1E32*HC053B	LCS INBOARD HEATER				*GENERAL ELECTRIC	*3902	100 DYS	*N/A	
*B-001P	GE	1E	G-07		47D518673	*IJ			*L
	310010	003	RBS	00063					A
OP CODE B FOR HELB & MELB									
.1E32*HC053C	LCS INBOARD HEATER				*GENERAL ELECTRIC	*3902	100 DYS	*N/A	
*B-001K	GE	1E	G-07		47D518673	*IJ			*L
	310010	003	RBS	00063					A
OP CODE B FOR HELB & MELB									
.1E32*HC053D	LCS INBOARD HEATER				*GENERAL ELECTRIC	*3902	100 DYS	*N/A	
	GE	1E	G-07		47D518673	*IJ			*L
	310010	003	RBS	00063					A
L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)									

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.1C41*P024A	STANDBY LIQ CONTROL PP				*GENERAL ELECTRIC	*3900	180 DYS	N/A	
	GE-UNION PUMP	1E	J-15		5K324AK2084	*FT			ALL
	310010	003	RBS	112					*B
.1C41*P024B	STANDBY LIQ CONTROL PP				*GENERAL ELECTRIC	*3900	180 DYS	N/A	
	GE-UNION PUMP	1E	J-15		5K324AK2084	*FT			ALL
	310010	003	RBS	112					*B
.1E11*P014A	RHR PUMP NEAR COLUMN C-11				*GENERAL ELECTRIC	3111	180 DYS	N/A	
	GE-BYRON JACKSON	1E	G-01		5K6339XC91A	*EQ			ALL
	310010	003	RBS	8					A
.1E11*P014B	RHR PUMP NEAR COLUMN				*GENERAL ELECTRIC	3111	180 DYS	N/A	
	GE-BYRON JACKSON	1E	G-01		5K6339XC91A	*EQ			ALL
	310010	003	RBS	8					A
.1E11*P014C	RHR PUMP NEAR COLUMN C-11				*GENERAL ELECTRIC	3111	180 DYS	N/A	
	GE-BYRON JACKSON	1E	G-01		5K6339XC91A	*EQ			ALL
	310010	003	RBS	8					A
.1E11*P014D	RHR PUMP NEAR COLUMN C-5				*GENERAL ELECTRIC	3111	180 DYS	N/A	
	GE-BYRON JACKSON	1E	G-01		5K6339XC91A	*EQ			ALL
	310010	003	RBS	8					A
.1E21*P013A	CORE SPRAY PP NEAR COLUMN C-11				*GENERAL ELECTRIC	3111	180 DYS	*N/A	
	GE-BYRON JACK	1E	G-01		5K6339XC94A	*EQ			L
	310010	003	RBS	8					A
.1E21*P013B	CORE SPRAY PP NEAR COLUMN C-5				*GENERAL ELECTRIC	3111	180 DYS	*N/A	
	GE-BYRON JACK	1E	G-01		5K6339XC94A	*EQ			L
	310010	003	RBS	8					A

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REPORT GROUP MAK = GOULD

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.1R24*PNL111	M-G SET CONTROL CABINET 111				*GOULD	*439-02	180 DYS	N/A	
	LOUIS ALLIS	1E	N-21		*5600 SERIES	*FT			ALL
	310950	439	RBS	00150					A
.1R24*PNL112	M-G SET CONTROL CABINET 112				*GOULD	*439-02	180 DYS	N/A	
	LOUIS ALLIS	1E	N-21		*5600 SERIES	*FT			ALL
	310950	439	RBS	00150					A
.1R24*PNL113A	M-G SET CONTROL CABINET 113A				*GOULD	*439-02	180 DYS	N/A	
	LOUIS ALLIS	1E	N-21		*5600 SERIES	*FT			ALL
	310950	439	RBS	00150					A
.1R24*PNL113B	M-G SET CONTROL CABINET 113B				*GOULD	*439-02	180 DYS	N/A	
	LOUIS ALLIS	1E	N-21		*5600 SERIES	*FT			ALL
	310950	439	RBS	00150					A

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.1T46*MOD034A	RBSVS FILTER TRAIN DISCH				ITT	*319-02	180 DYS		
	POWERS REGUL	1E	H-20		NH91	*IJ			ALL
	310738	319	RBS	182					A
.1T46*MOD034B	RBSVS FILTER TRAIN DISCH				ITT	*319-02	180 DYS		
	POWERS REGUL	1E	H-20		NH91	*IJ			ALL
	310738	319	RBS	182					A

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REPORT GROUP MAK = KAMEN									
*1D21*RE085A	*CONTAIN. HIGH RANGE RAD.DET.	*1E	*D-22		*KAMEN	*TA	*180 *DYS		*ALL
ADDED	*310985	*475	*RBD			*MST			*A
*1D21*RE085B	*CONTAIN. HIGH RANGE RAD.DET.	*1E	*C-22		*KAMEN	*TA	*180 *DYS		*ALL
ADDED	*310985	*475	*RBD			*MST			*A
*1D21-PNL085A	*CONTAIN.HIGH RANGE AREA MON.	*2E	*H-09		*KAMEN	*TA	*180 *DYS		*ALL
ADDED	*310985	*475	*RBS	*00078					*A
*1D21-PNL085B	*CONTAIN.HIGH RANGE AREA MON.	*2E	*H-09		*KAMEN	*TA	*180 *DYS		*ALL
ADDED	*310985	*475	*RBS	*00078					*A

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JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
**********	**********	**********			**********	**********	********	**********	****
REPORT GROUP MAK = KERITE CO									
.1R31*NFN03	*PHR CABLES				KERITE CO	*127-01	180 DYS	NA	
	KERITE CO	1E	ALL		5 KV POWER CABLE	*EQ			ALL
	310561	127	RB			*SPR			A
	REPRESENTS ALL CABLE PURCHASED UNDER SH1-127								

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JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
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REPORT GROUP MAK = LIMITORQUE

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1P41*MOV129B	DRYWELL BSTR HX DISCH VV				LIMITORQUE	*197-01	070 MIN	N/A	
	CONTROMATICS	1E	G-01		HIBC-SMB-000-02	*EQ			ALL
	310744	*281	RBS	00008					A
.1P41*MOV042A	EMER SW TO FUEL POOL				LIMITORQUE	*197-01	180 DYS	N/A	
03160004	HENRY PRATT	1E	G-01		H0BC-SMB-00-02	*EQ			*L
	310546	197	RBS	31					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P41*MOV042B	EMER SW TO FUEL POOL				LIMITORQUE	*197-01	180 DYS	N/A	
03180004	HENRY PRATT	1E	G-01		H0BC-SMB-00-02	*EQ			*L
	310546	197	RBS	31					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P41*MOV034A	RHR HX E-34A DISCH				LIMITORQUE	*197-01	180 DYS	N/A	
E11-F002A	HENRY PRATT	1E	G-01		H2BC-SMB-00-05	*EQ			ALL
	310546	197	RBS	32					A
.1P41*MOV034B	RHR HX E-34B DISCH				LIMITORQUE	*197-01	180 DYS	N/A	
E11-F002B	HENRY PRATT	1E	G-01		H2BC-SMB-00-05	*EQ			ALL
	310546	197	RBS	27					A
.1P41*MOV037A	RBCLCW HX DISCH				LIMITORQUE	*197-01	180 DYS	N/A	
	HENRY PRATT	1E	G-01		H2BC-SMB-00-05	*EQ			ALL
	310546	197	RBS	23					A
.1P41*MOV037B	RBCLCW HX DISCH				LIMITORQUE	*197-01	180 DYS	N/A	
	HENRY PRATT	1E	G-01		H2BC-SMB-00-05	*EQ			ALL
	310546	197	RBS	23					A
.1P41*MOV033A	TO RHR SYSTEM				LIMITORQUE	*197-01	180 DYS	N/A	
02940003	HENRY PRATT	1E	G-01		H2BC-SMB-000-02	*EQ			*L
	310546	197	RBS	28					A
.1P41*MOV033B	TO RHR SYSTEM				LIMITORQUE	*197-01	180 DYS	N/A	
02960003	HENRY PRATT	1E	G-01		H2BC-SMB-000-02	*EQ			*L
	310546	197	RBS	28					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P41*MOV033C	TO RHR SYSTEM				LIMITORQUE	*197-01	180 DYS	N/A	
02980004	HENRY PRATT	1E	G-01		H2BC-SMB-000-05	*EQ			*L
	310546	197	RBS	32					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				

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.1P41*MOV033D	TO RHR SYSTEM				LIMITORQUE	*197-01	180 DYS	N/A	
03000004	HENRY PRATT	1E	G-01		H2BC-SMB-000-05	*EQ			*L
	310546	197	RBS	32					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV037A	*RHR OUTBOARD VV NR COLUMN C-5				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F015A	ANCHOR DARLIN	1E	G-03		SB-4-200	*EQ			ALL
	310501	86AD	RBS	72					A
.1E11*MOV037B	*RHR OUTBOARD VV NR COLUMN C-5				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F015B	ANCHOR DARLIN	1E	G-07		SB-4-200	*EQ			ALL
	310501	88AD	RBS	72					A
.1E51*MOV044	TURBINE STOP VALVE				LIMITORQUE		001 DYS	N/A	
	GENERAL ELEC	1E	G-01		SMB-0	DR			ALL
	310010	003	RBS	12					A
.1E41*MOV043	HPCI STM TO TURB NEAR COL C-8				LIMITORQUE	*88V-02	*001 *DYS		
E41-F001	VELAN	1E	G-01		SMB-0-15	*EQ			*L
	310502	88V	RBP	00019					A
	OP CODE B FOR HELB & MELB								
.1E41*MOV044	TURB EXH TO SUPP POOL C-8				LIMITORQUE		*001 *DYS	N/A	
E41-F021	VELAN	1E	G-02		SMB-0-15	*DR			ALL
	310502	88V	RBS	39					B
.1E11*MOV039A	RHR CONT SPRAY HDR NR COL C-11				LIMITORQUE	*88V-03	001 DYS	NA	
E11-F021A	VELAN	1E	G-10		SMB-0-25	*EQ			ALL
	310502	86V	RBS	103					A
.1E11*MOV039B	RHR CONT SPRAY VV NR COL C-5				LIMITORQUE	*88V-03	001 DYS	NA	
E11-F021B	VELAN	1E	G-10		SMB-0-25	*EQ			ALL
	310502	88V	RBS	103					A
.1E41*MOV031	HPCI PP SUCT COND STG NR C-6				LIMITORQUE		001 DYS	N/A	
E41-F004	VELAN	1E	G-01		SMB-0-25	*DR			ALL
	310502	88V	RBS	20					A
.1E41*MOV032	HPCI PP SUCT SUPP POOL NR C-7				LIMITORQUE		001 DYS	N/A	
E41-F042	VELAN	1E	G-01		SMB-0-25	*DR			ALL
	310502	88V	RBS	24					A
.1P42*MOV041A	RBCLCW HX CROSSOVER INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-01		SMB-0-25	*EQ			*L
	*310512	*88V	RBS	28					A
.1P42*MOV041B	RBCLCW HX CROSSOVER INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	

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	VELAN	1E	G-01		SMB-0-25	*EQ			*L
	310502	88V	RBS	28					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV042A	RBCLCW HT EXC INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-01		SMB-0-25	*EQ			ALL
	310502	88V	RBS	30					A
.1P42*MOV042B	RBCLCW HT EXCH INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-01		SMB-0-25	*EQ			ALL
	310502	88V	RBS	30					A
.1E11*MOV031A	RHR PP SUCTION NR COLUMN C-11				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F004A	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	24					A
.1E11*MOV031B	RHR PP SUCTION NR COLUMN C-5				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F004B	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	24					A
.1E11*MOV031C	RHR PP SUCTION NR COLUMN C-12				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F004C	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	24					A
.1E11*MOV031D	RHR PP SUCTION NR COLUMN C-4				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F004D	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	24					A
.1E11*MOV032A	RHR PUMP SUCTION C-11				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F006A	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	15					A
	OP CODE A FOR LOCA FOR 70 MINS								
.1E11*MOV032B	RHR PUMP SUCTION C-5				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F006B	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	10					A
	OP CODE A FOR LOCA FOR 70 MINS								
.1E11*MOV032C	RHR PUMP SUCTION C-12				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F006C	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	20					A
	OP CODE A FOR LOCA FOR 70 MINS								
.1E11*MOV032D	RHR PUMP SUCTION C-4				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F006D	ANCHOR DARLIN	1E	G-01		SMB-0-40	*EQ			ALL
	310501	88AD	RBS	19					A
	OP CODE A FOR LOCA FOR 70 MINS								

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1G33*MOV031	REAC RECIRC SUCT EAST DRYWELL				LIMITORQUE	*88V-04	180 DYS	N/A	
G33-F102	VELAN	1E	B-22		SMB-0-40	*EQ			ALL
	310502	88V	RBD	99		*SPR			B
.1G41*MOV034A	P-211 SUCTION				LIMITORQUE	*88V-01	070 MIN	N/A	
	VELAN	1E	G-01		SMB-0-7.5	*EQ			*L
	310502	88V	RBS	30					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G41*MOV034B	P-211 SUCTION				LIMITORQUE	*	070 MIN	N/A	
	VELAN	1E	G-01		SMB-0-7.5	*DR			*L
	310502	88V	RBS	30					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV081A	1E11*AOV081A BYPASS SW DRYWELL				LIMITORQUE	*	070 MIN	N/A	
E11-F122A	VELAN	1E	D-22		SMB-00-05	*DR			ALL
	310512	253	RBD	81		*MST			A
.1E11*MOV081B	1E11*AOV081B BYPASS NE DRYWELL				LIMITORQUE	*	070 MIN	N/A	
E11-F122B	VELAN	1E	D-22		SMB-00-05	*DR			ALL
	310512	253	RBD	81		*MST			A
.1E21*MOV081A	1E21*AOV081A BYPASS WEST RB				LIMITORQUE	*	070 MIN	N/A	
	VELAN	1E	B-22		SMB-00-05	*DR			L
	310512	253	RBD	128		*MST			A
.1E21*MOV081B	1E21*AOV081B BYPASS EAST RB				LIMITORQUE	*	070 MIN	N/A	
	VELAN	1E	B-22		SMB-00-05	*DR			L
	310512	253	RBD	128		*MST			A
.1E41*MOV039	TO LUBE OIL COOLER C-8				LIMITORQUE	*253-01	001 DYS	N/A	
E41-F059	VELAN	1E	G-01		SMB-00-05	*EQ			ALL
	310512	253	RBS	16					A
.1G41*MOV032A	SERVICE WATER INLET VALVE				LIMITORQUE	*197-01	180 DYS	NA	
	ITT GRINNELL	1E	S-18		SMB-00-10	*EQ			*L
	310539	203	RBS	00162					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G41*MOV032B	SERVICE WATER INLET VALVE				LIMITORQUE	*197-01	180 DYS	NA	
	ITT GRINNELL	1E	S-18		SMB-00-10	*EQ			*L
	310539	203	RBS	00162					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1B21*MOV062	MAIN STM LINE DRAIN VALVE				LIMITORQUE	*253-03	070 MIN	N/A	
B21-F067B	VELAN	1E	*T-08		SMB-00-10	*EQ			ALL
	310512	253	RBS	00078		*MST			A

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.1B21*MOV031	DRAIN TO CONDNSR NORTH DRYWELL				LIMITORQUE	*88V-01	070 MIN	NA	
B21-F016	VELAN	1E	D-22		SMB-00-10	*EQ			ALL
	310502	88V	RBD	79		*MST			A
.1E11*MOV052	TO RADWASTE SURGE TK NEAR C-4				LIMITORQUE	*88V-03	070 MIN	N/A	
E11-F040	VELAN	1E	G-07		SMB-00-10	*EQ			*L
	310502	88V	RBS	73					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV053	RHR HEAD SPRAY NR COLUMN C-5				LIMITORQUE		070 MIN	N/A	
E11-F023	VELAN	1E	G-07		SMB-00-10	*DR			ALL
	310502	88V	RBS	103					A
.1E41*MOV036	HPCI P MIN FLOW BYPASS NR C-7				LIMITORQUE		001 DYS	N/A	
E41-F012	VELAN	1E	G-01		SMB-00-10	*DR			ALL
	310502	88V	RBS	20					A
.1E51*MOV034	RCIC PUMP DISCH				LIMITORQUE		001 DYS	N/A	
E51-F012	VELAN	1E	G-01		SMB-00-10	*DR			*L
	310502	88V	RBS	19					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E51*MOV035	RCIC PUMP DISCH				LIMITORQUE		001 DYS	N/A	
E51-F013	VELAN	1E	T-12		SMB-00-10	*DR			ALL
	310502	88V	RBS	80					A
.1E51*MOV037	RCIC DISCH TO COND STG				LIMITORQUE		070 MIN	N/A	
E51-F022	VELAN	1E	G-01		SMB-00-10	*DR			*L
	310502	88V	RBS	20					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E51*MOV041	RCIC STEAM TO TURB NRT DRYWELL				LIMITORQUE	*88V-01	001 DYS	N/A	
E51-F007	VELAN	1E	D-22		SMB-00-10	*EQ			ALL
	310502	88V	RBD	88		*MST			A
.1G33*MOV032	REAC VESSEL DRAIN EAST DRYWELL				LIMITORQUE	*88V-01	180 DYS	N/A	
G33-F101	VELAN	1E	D-22		SMB-00-10	*EQ			ALL
	310502	88V	RBD	99		*MST			B
.1E11*MOV041A	RHR SUPP POOL SPRAY HD NR C-10				LIMITORQUE	*88V-03	*001 *DYS	NA	
E11-F027A	VELAN	1E	G-02		SMB-00-15	*EQ			*L
	310502	88V	RBS	51					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV041B	RHR SUPP POOL SPRAY HD NR C-6				LIMITORQUE	*88V-03	*001 *DYS	NA	
E11-F027B	VELAN	1E	L-02		SMB-00-15	*EQ			*L
	*399772	*88V	RBS	40					A

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	L-OP CODE B REM: H,H-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV043A	RHR HX TO RCIC P SUCT NR C-11				LIMITORQUE	*88V-03	070 MIN	NA	
E11-F026A	VELAN	1E	G-01		SMB-00-15	*EQ			*L
	310502	88V	RBS	17					A
	L-OP CODE B REM: H,H-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV043B	RHR HX TO RCIC P SUCT NR C-5				LIMITORQUE	*88V-03	070 MIN	N/A	
E11-F026B	VELAN	1E	G-01		SMB-00-15	*EQ			*L
	310502	88V	RBS	17					A
	L-OP CODE B REM: H,H-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV044A	RHR HX DR TO SUPP POOL C-11				LIMITORQUE	*88V-02	070 MIN	N/A	
E11-F011A	VELAN	1E	G-01		SMB-00-15	*EQ			*L
	310502	88V	RBS	17					A
	L-OP CODE B REM: H,H-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV044B	RHR HX DR TO SUPP POOL C-5				LIMITORQUE	*88V-03	070 MIN	N/A	
E11-F011B	VELAN	1E	G-01		SMB-00-15	*EQ			*L
	310502	88V	RBS	17					A
	L-OP CODE B REM: H,H-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV054	RHR HEAD SPRAY NR COLUMN C-5				LIMITORQUE		070 MIN	N/A	
E11-F022	VELAN	1E	B-22		SMB-00-15	*DR			ALL
	310502	88V	RBD	104		*SPR			A
.1G33*MOV030A	REAC RECIRC SUCT EAST DRYWELL				LIMITORQUE	*88V-04	180 DYS	N/A	
G33-F106	VELAN	1E	B-22		SMB-00-15	*EQ			ALL
	310502	88V	RBD	98		*SPR			B
.1G33*MOV030B	REAC RECIRC SUCT EAST DRYWELL				LIMITORQUE	*88V-04	180 DYS	N/A	
G33-F100	VELAN	1E	B-22		SMB-00-15	*EQ			ALL
	310502	88V	RBD	99		*SPR			B
.1G33*MOV034	REACTOR VESSEL DISCH				LIMITORQUE		070 MIN	N/A	
G33-F004	VELAN	1E	P-13		SMB-00-15	*DR			ALL
	310502	88V	RBS	121					A
.1N11*MOV036	MISC STM FROM DHR ISOL				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	ST		SMB-00-15	*EQ			L
	310502	88V	ST	53					A
.1N11*MOV041	AUX STEAM SUPPLY				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	ST		SMB-00-15	*EQ			L
	310502	88V	ST	50					A
.1G33*MOV033	REAC VESSEL DISCH EAST DRYWELL				LIMITORQUE	*88V-01	070 MIN	N/A	

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STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - MAK / MOD / SPEC

REPORT DATE 01/18/82 PAGE 54
RESET NO. 003
RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
G33-F001	VELAN 310502	1E 88V	B-22 RBD	121	SMB-00-25	*EQ *MST			ALL A
.1E51*MOV031 E51-F010	RCIC PUMP SUCT COND STG VELAN 310502	1E 88V	G-01 RBS	24	LIMITORQUE SMB-00-5	*DR	001 DYS	N/A	ALL A
.1E51*MOV032 E51-F031	RCIC PUMP SUCT SUPP POOL VELAN 310502	1E 88V	G-01 RBS	24	LIMITORQUE SMB-00-5	*DR	001 DYS	N/A	ALL A
.1T48*MOV031A	ATMOS INBD CONT ISO NW DRYWELL VELAN 310502	1E 88V	D-22 RBD	67	LIMITORQUE SMB-00-5	*88V-01 *EQ *MST	180 DYS	N/A	ALL A
.1T48*MOV031B	ATMOS INBD CONT ISO SE DRYWELL VELAN 310502	1E 88V	D-22 RBD	73	LIMITORQUE SMB-00-5	*88V-01 *EQ *MST	180 DYS	N/A	ALL A
.1T48*MOV033A	ATMOS INBD CONT ISO N SUP CHM VELAN 310502	1E 88V	L-02 RBS	51	LIMITORQUE SMB-00-5	*88V-01 *EQ	180 DYS	N/A	ALL A
.1T48*MOV033B	ATMOS INBD CONT ISO NE SUP CHM VELAN 310502	1E 88V	L-02 RBS	51	LIMITORQUE SMB-00-5	*88V-01 *EQ	180 DYS	N/A	ALL A
.1B21*MOV034 B21-F020	DRAIN TO CONDENSER VELAN 310502	1E 88V	H-08 RBS	78	LIMITORQUE SMB-00-7.5	* *DR	180 DYS	NA	ALL B
.1E51*MOV042 E51-F008	RCIC STEAM TO TURBINE VELAN 310502	1E 88V	T-12 RBS	88	LIMITORQUE SMB-00-7.5	*88V-02 *EQ	001 DYS	N/A	ALL A
.1E51*MOV043 E51-F045	RCIC STM TO TURBINE VELAN 310502	1E 88V	G-01 RBS	12	LIMITORQUE SMB-00-7.5	*88V-02 *EQ	001 DYS	N/A	ALL A
.1T48*MOV032A	ATMOS INBD CONT ISO SW DRYWELL VELAN 310502	1E 88V	D-22 RBD	71	LIMITORQUE SMB-00-7.5	*88V-01 *EQ *MST	180 DYS	N/A	ALL A
.1T48*MOV032B	ATMOS INBD CONT ISO NE DRYWELL VELAN 310502	1E 88V	D-22 RBD	71	LIMITORQUE SMB-00-7.5	*88V-01 *EQ *MST	180 DYS	N/A	ALL A

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JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET QUAL STAT SUBMG	OP TIME	ACC / PERF	NU-CAT ENG CND OP CD
.1T48*MOV034A	ATMOS INBD CONT ISO SW SUP CHM				LIMITORQUE	*88V-01	180 DYS	N/A	
	VELAN	1E	L-02		SMB-00-7.5	*EQ			ALL
	310502	88V	RBS	51					A
.1T48*MOV034B	ATMOS INBD CONT ISO S SUP CHM				LIMITORQUE	*88V-01	180 DYS	N/A	
	VELAN	1E	L-02		SMB-00-7.5	*EQ			ALL
	310502	88V	RBS	51					A
.1T48*MOV037A	ATMOS OTBD CONT ISO				LIMITORQUE	*88V-01	180 DYS	N/A	
	VELAN	1E	G-03		SMB-00-7.5	*EQ			ALL
	310502	88V	RBS	73					A
.1T48*MOV037B	ATMOS OTBD CONT ISO				LIMITORQUE	*88V-01	180 DYS	N/A	
	VELAN	1E	G-03		SMB-00-7.5	*EQ			ALL
	310502	88V	RBS	72					A
.1T48*MOV040A	ATMOS OTBD CONT ISO				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	L-02		SMB-00-7.5	*DR			*L
	310502	88V	RBS	51					A
	OP CODE B FOR HELB & MELB								
.1T48*MOV040B	ATMOS OTBD CONT ISO				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	L-02		SMB-00-7.5	*DR			*L
	310502	88V	RBS	51					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1T48*FCV06A	GAS INLET VALVE				*LIMITORQUE	*	*180 *DYS	*N/A	
FV-1	ATOMICS INT	*1E	*J-15		*SMB-000	*DR			*L
	310624	289	RBS	00112					*A
.1T48*FCV06B	GAS INLET VALVE				*LIMITORQUE	*	*180 *DYS	*N/A	
FV-1	ATOMICS INT	*1E	*J-15		*SMB-000	*DR			*L
	310624	289	RBS	00112					*A
.1T48*FCV07A	RECIRC GAS VALVE				*LIMITORQUE	*	*180 *DYS	*N/A	
FV-2	ATOMICS INT	*1E	*J-15		*SMB-000	*DR			*L
	310624	289	RBS	00112					*A
.1T48*FCV07B	RECIRC GAS				*LIMITORQUE	*	*180 *DYS	*N/A	
FV-2	ATOMICS INT	*1E	*J-15		*SMB-000	*DR			*L
	310624	289	RBS	00112					*A
*1T48*MOV016A	*WATER VALVE				*LIMITORQUE	*289-02	*180 *DYS	*N/A	
*MV-10	*ATOMICS INST	*1E	*J-15		*SMB-000	*EQ			*L
ADDED	*310624	*289	*RBS	*00112					*A
*1T48*MOV016B	*WATER VALVE				*LIMITORQUE	*289-02	*180 *DYS	*N/A	

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JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EHG CND / OP CD
*MV-10	*ATOMICS INST	*1E	*J-15		*SMB-000	*EQ			*L
ADDED	*310624	*289	*RBS	*00112					*A
.1P41*MOV039A	DRAN TO RHP SYSTEM				LIMITORQUE	*197-01	180 DYS	N/A	
03120004	ITT GRINNELL	1E	G-01		SMB-000-02	*EQ			*L
	310539	203	RBS	28					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P41*MOV039B	DRAIN TO RHR SYSTEM				LIMITORQUE	*197-01	180 DYS	N/A	
03140004	ITT GRINNELL	1E	G-01		SMB-000-02	*EQ			*L
	310539	203	RBS	28					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P41*MOV043	SPENT FUEL POOL LINE DRAIN VV				LIMITORQUE	*197-01	180 DYS	N/A	
03200004	ITT GRINNELL	1E	G-01		SMB-000-02	*EQ			*L
	310539	203	RBS	18					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P41*MOV102A	SAMPLE TO RAD MONITOR				LIMITORQUE	*197-01	180 DYS	N/A	
	ITT GRINNELL	*1E	G-01		SMB-000-02	*EQ			*L
	310539	203	RBS	8					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P41*MOV102B	SAMPLE TO RAD MONITOR				LIMITORQUE	*197-01	180 DYS	N/A	
	ITT GRINNELL	*1E	G-01		SMB-000-02	*EQ			*L
	310539	203	RBS	8					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P50*MOV104	*INST AIR TO SUPP CHAMBER VV				LIMITORQUE	*214-02	070 MIN	NA	
	VELAN	*1E	G-01		SMB-000-02	*EQ			*L
	310512	*214	RBS	00020					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P50*MOV106	INSTR AIR TO SUPP CHAMBER BB				LIMITORQUE	*214-02	070 MIN	NA	
	VELAN	1E	G-01		SMB-000-02	*EQ			*L
	310512	214	RBS	00020					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1T23*MOV031A	INLET PRESS TO ACC-A				LIMITORQUE	*214-02	001 DYS	NA	
	VELAN	1E	L-02		SMB-000-02	*EQ			L
	310512	214	RBS	40					A
.1T23*MOV031B	INLET PRESS TO ACC-B				LIMITORQUE	*214-02	001 DYS	NA	
	VELAN	1E	L-02		SMB-000-02	*EQ			L
	310512	214	RBS	40					A
.1D11*MOV032A	RADIATION MONITORING XS-12				LIMITORQUE	*253-01	070 MIN	N/A	

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JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
	VELAN	1E	D-22		SMB-000-02	*EQ			*L
	310512	253	RBD	75		*MST			A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1D11*MOV032B	RADIATION MONITORING XS-12				LIMITORQUE	*253-03	070 MIN	N/A	
	VELAN	1E	G-06		SMB-000-02	*EQ			*L
	310512	253	RBS	00063					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1D11*MOV033A	RADIATION MONITORING XS-13				LIMITORQUE	*253-01	070 MIN	N/A	
	VELAN	1E	D-22		SMB-000-02	*EQ			*L
	310512	253	RBD	75		*MST			A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1D11*MOV033B	RADIATION MONITORING XS-13				LIMITORQUE	*253-03	070 MIN	N/A	
	VELAN	1E	G-06		SMB-000-02	*EQ			*L
	310512	253	RBS	00063					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV055A	RHR HX SHELL VENT NR C-11				LIMITORQUE	*253-03	070 MIN	N/A	
E11-F104A	VELAN	1E	G-02		SMB-000-02	*EQ			*L
	310512	253	RBS	45					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV055B	RHR HX SHELL VENT NR C-5				LIMITORQUE	*253-03	070 MIN	N/A	
E11-F104B	VELAN	1E	G-02		SMB-000-02	*EQ			*L
	310512	253	RBS	45					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV056A	RHR HX SHELL VENT NR C-11				LIMITORQUE	*253-03	070 MIN	N/A	
E11-F103A	VELAN	1E	G-02		SMB-000-02	*EQ			*L
	310512	253	RBS	45					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV056B	RHR HX SHELL VENT NR C-5				LIMITORQUE	*253-03	070 MIN	N/A	
E11-F103B	VELAN	1E	G-02		SMB-000-02	*EQ			*L
	310512	253	RBS	45					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV057A	TO HYDROGEN RECOMBINER WEST				LIMITORQUE	*253-03	180 DYS	N/A	
	VELAN	1E	G-01		SMB-000-02	*EQ			*L
	310512	253	RBS	8					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV057B	TO HYDROGEN RECOMBINER EAST				LIMITORQUE	*253-03	180 DYS	N/A	
	VELAN	1E	G-01		SMB-000-02	*EQ			*L
	310512	253	RBS	8					A

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

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ENVIRONMENTAL QUALIFICATION STATUS REPORT
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RESET NO. 003
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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBHG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E41*MOV047	MOV041 BYPASS NRTH DRYWELL				LIMITORQUE	*253-01	001 DYS	N/A	
E41-F097	VELAN	1E	D-22		SMB-000-02	*EQ			ALL
	310512	253	RBD	66		*MST			A
.1E41*MOV048	MOV042 BYPASS NR C-7				LIMITORQUE	*253-02	001 DYS	N/A	
E41-F080	VELAN	1E	*L-05		SMB-000-02	*EQ			ALL
	310512	253	RBS	64		*MST			A
.1E41*MOV049	HPCI TURB EXH VAC BKR C-8				LIMITORQUE		001 DYS	N/A	
E41-F079	VELAN	1E	G-01		SMB-000-02	*DR			ALL
	310512	253	RBS	34					A
.1E51*MOV047	1E51*MOV041 BYPASS NRT DRYWELL				LIMITORQUE	*253-01	001 DYS	N/A	
E51-F085	VELAN	1E	D-22		SMB-000-02	*EQ			ALL
	310512	253	RBD	88		*MST			A
.1E51*MOV048	1E51*MOV042 BYPASS				LIMITORQUE	*253-02	001 DYS	N/A	
E51-F075	VELAN	1E	T-08		SMB-000-02	*EQ			ALL
	310512	253	RBS	88					A
.1E51*MOV049	RCIC TURB EXH VAC BKR				LIMITORQUE		*001 *DYS	N/A	
E51-F084	VELAN	1E	G-01		SMB-000-02	*DR			*L
	310512	253	RBS	34					*A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1T48*MOV004	SUPPRESSION POOL INLET				LIMITORQUE	*253-03	180 DYS	N/A	
	VELAN	1E	L-02		SMB-000-02	*EQ			L
	310512	253	RBS	40					A
.1P50*MOV103A	*COMPA SUCE OUTBD ISOLV				LIMITORQUE	*214-02	180 DYS	NA	
04330008	VELAN	*1E	*D-22		SMB-000-05	*EQ			ALL
	310512	214	RBS	00078					A
.1P50*MOV103B	COMPA SVCE OUTBD ISOL VV				LIMITORQUE	*214-02	180 DYS	NA	
04350008	VELAN	*1E	*D-22		SMB-000-05	*EQ			ALL
	310512	214	RBS	00078					A
.1P50*MOV105A	COMPA SVCE INBOARD ISOL VV				LIMITORQUE	*214-01	070 MIN	NA	
	VELAN	*1E	*D-22		SMB-000-05	*EQ			ALL
	310512	214	*RBD	00078					A
.1P50*MOV105B	*SERVICE AIR HDR A PRESS				LIMITORQUE	*214-01	070 MIN	NA	
	VELAN	*1E	*D-22		SMB-000-05	*EQ			ALL
	310512	*214	*RBD	00078					A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1P50*MOV113A	*COMPA SVCE NORM SUPPLY VV				LIMITORQUE	*214-02	070 MIN	NA	
04370008	VELAN	*1E	*D-22		SMB-000-05	*EQ			ALL
	310512	214	RBS	00078					A
.1P50*MOV113B	COMPA SVCE NORM. SPLY VV				LIMITORQUE	*214-02	070 MIN	NA	
04390008	VELAN	1E	G-12		SMB-000-05	*EQ			ALL
	310512	214	RBS	00078					A
.1P50*MOV114A	*COMPA SUCE EMERG SPLY VV				LIMITORQUE	*214-02	070 MIN	NA	
04410008	VELAN	*1E	*D-22		SMB-000-05	*EQ			ALL
	310512	*214	RBS	00078					A
.1P50*MOV114B	*COMPA SVCE EMER SPLY VV				LIMITORQUE	*214-02	070 MIN	NA	
04430008	VELAN	*1E	*D-22		SMB-000-05	*EQ			ALL
	310512	*214	RBS	00078					A
.1B21*MOV068A	*MN STM LINE OUTBD DRN VVS				LIMITORQUE	*	070 MIN	N/A	
	VELAN	*1E	T-08		SMB-000-05	*DR			*L
	310512	*253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1B21*MOV068B	*MN STM LINE OUTBD DRN VVS				LIMITORQUE	*	070 MIN	N/A	
	VELAN	*1E	T-08		SMB-000-05	*DR			*L
	310512	*253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1B21*MOV068C	*MN STM LINE OUTBD DRN VVS				LIMITORQUE	*	070 MIN	N/A	
	VELAN	*1E	T-08		SMB-000-05	*DR			*L
	310512	*253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1B21*MOV068D	*MN STM LINE OUTBD DRN VVS				LIMITORQUE	*	070 MIN	N/A	
	VELAN	*1E	T-08		SMB-000-05	*DR			*L
	310512	*253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1B21*MOV083	REAC VESSEL HEAD VENT				LIMITORQUE	*253-01	180 DYS	N/A	
B21-F001	VELAN	1E	*A-22		SMB-000-05	*EQ			ALL
	310512	253	RBP	00141		*MST			A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1B21*MOV084	REAC VESSEL HEAD VENT				LIMITORQUE	*253-01	180 DYS	N/A	
B21-F002	VELAN	1E	*A-22		SMB-000-05	*EQ			ALL
	310512	253	RBP	00141		*MST			A
.1B21*MOV085	REAC VESSEL HEAD VENT				LIMITORQUE	*253-01	180 DYS	N/A	
B21-F005	VELAN	1E	*A-22		SMB-000-05	*EQ			ALL

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
	310512	253	RBP	00141		*MST			B
.1E32*MOV024	LCS OUTBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F006	VELAN	1E	T-08		SMB-000-05	*EQ			*L
	310512	253	R3S	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV025	LCS OUTBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F007	VELAN	1E	T-08		SMB-000-05	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV026	LCS OUTBOARD BYPASS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F008	VELAN	1E	T-08		SMB-000-05	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV027	LCS OUTBOARD BYPASS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F009	VELAN	1E	T-08		SMB-000-05	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E51*MOV036	RCIC PUMP MIN FLOW BYPASS				LIMITORQUE		001 DYS	N/A	
E51-F019	VELAN	1E	G-01		SMB-000-05	*DR			ALL
	310512	253	RBS	18					A
.1E51*MOV038	TO LUBE OIL COOLER				LIMITORQUE		001 DYS	N/A	
E51-F046	VELAN	1E	G-01		SMB-000-05	*DR			ALL
	310512	253	RBS	15					A
.1G11*MOV639A	*CHANGED TO 1Z91*MOV001				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-01		SMB-000-05	*EQ			L
	310502	88V	RBS	00020					A
	OP CODE B FOR HELB & MELB								
.1G11*MOV639B	*CHANGED TO 1Z91*MOV002				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-01		SMB-000-05	*EQ			L
	310502	88V	RBS	00020					A
	OP CODE B FOR HELB & MELB								
.1G11*MOV639C	SUPP POOL PMP BACK ISOL VV				LIMITORQUE	*88V-03	180 DYS	N/A	
	VELAN	1E	G-01		SMB-000-05	*EQ			L
	*310502	*88V	RBS	00020					A
	OP CODE B FOR HELB & MELB								
.1P42*MOV233	*IN.VV TO DRYWELL COOLER 17A				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-07		SMB-000-05	*EQ			*L

REPORT NO. PES-800 STONE AND WEBSTER ENGINEERING CORPORATION
JOB NUMBER 1160002 PROJECT EQUIPMENT SYSTEM - (IS-129) REPORT DATE 01/18/82 PAGE 61
JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBHG	OP TIME	ACC / PERF	NC-CAT / EHG CND / OP CD
	310502	88V	RBS	68					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV234	*IN.VV TO DRYWELL COOLER 17A				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-07		SMB-000-05	*EQ			*L
	310502	88V	RBS	69					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV235	*IN.VV TO DRYWELL COOLER 17A				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-07		SMB-000-05	*EQ			*L
	310502	88V	RBS	70					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV236	*OUT.VV TO DRYWELL COOLER 17B				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-03		SMB-000-05	*EQ			ALL
	310502	88V	RBS	66					A
.1P42*MOV237	*IN.VV TO DRYWELL COOLER 17B				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-03		SMB-000-05	*EQ			ALL
	310502	88V	RBS	67					A
.1P42*MOV238	*IN.VV TO DRYWELL COOLER 17B				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-03		SMB-000-05	*EQ			ALL
	310502	88V	RBS	68					A
.1P42*MOV239	*IN.VV TO DRYWELL COOLER 17B				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-03		SMB-000-05	*EQ			ALL
	310502	88V	RBS	69					A
.1P42*MOV240	*IN.VV TO DRYWELL COOLER 17B				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-03		SMB-000-05	*EQ			ALL
	310502	88V	RBS	70					A
.1T48*MOV035A	ATMOS OTBD CONT ISO				LIMITORQUE	*88V-01	180 DYS	N/A	
	VELAN	1E	G-03		SMB-000-05	*EQ			ALL
	310502	88V	RBS	68					A
.1T48*MOV035B	ATMOS OTBD CONT ISO				LIMITORQUE	*88V-01	180 DYS	N/A	
	VELAN	1E	G-07		SMB-000-05	*EQ			ALL
	310502	88V	RBS	73					A
.1E21*MOV031A	CORE SPRAY PP SUCT NR COL C-10				LIMITORQUE	*88AD-02	180 DYS	NA	
E21-F001A	ANCHOR DARLIN	1E	G-01		SMB-000-5	*EQ			L
	310501	88AD	RBS	14					A
.1E21*MOV031B	CORE SPRAY PP SUCT NR COL C-6				LIMITORQUE	*88AD-02	180 DYS	NA	
E21-F001B	ANCHOR DARLIN	1E	G-01		SMB-000-5	*EQ			L

REPORT NO. PES-800 STONE AND WEBSTER ENGINEERING CORPORATION
JOB NUMBER 1160002 PROJECT EQUIPMENT SYSTEM - (IS-129) REPORT DATE 01/18/82 PAGE 62
JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
	310501	88AD	RBS	24					A
.1B21*MOV032	DRAIN TO CONDENSER				LIMITORQUE	*88V-02	070 MIN	NA	
B21-F019	VELAN	1E	H-08		SMB-000-5	*EQ			ALL
	310502	88V	RBS	79					A
.1E11*MOV045A	RHR PP MIN FLOW BYPASS NR C-11				LIMITORQUE	*88V-03	180 DYS	N/A	
E11-F007A	VELAN	1E	G-01		SMB-000-5	*EQ			ALL
	310502	88V	RBS	17					A
.1E11*MOV045B	RHR PP MIN FLOW BYPASS NR C-5				LIMITORQUE	*88V-03	180 DYS	N/A	
E11-F007B	VELAN	1E	G-01		SMB-000-5	*EQ			ALL
	*371843	*88V	RBS	17					A
.1E21*MOV034A	CORE SPRAY P MI FL NR COL C-11				LIMITORQUE	*88V-03	180 DYS	N/A	
E21-F031A	VELAN	1E	G-01		SMB-000-5	*EQ			L
	310502	88V	RBS	15					A
.1E21*MOV034B	CORE SPRAY P MI FL NR COL C-5				LIMITORQUE	*88V-03	180 DYS	N/A	
E21-F031B	VELAN	1E	G-01		SMB-000-5	*EQ			L
	310502	88V	RBS	15					A
.1E51*MOV045	TURB EXH TO SUPP POOL				LIMITORQUE		*001 *DYS	N/A	
E51-F001	VELAN	1E	G-01		SMB-000-5	*DR			*L
	310502	88V	RBS	31					*A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G11*MOV246	DRYWELL EQUIP DR VV				LIMITORQUE	*88V-01	070 MIN	N/A	
	VELAN	1E	G-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	40					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G11*MOV247	DRYWELL EQUIP DR VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	40					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G11*MOV248	DRYWELL FLOOR DRAINS				LIMITORQUE	*88V-01	070 MIN	N/A	
	VELAN	1E	G-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	40					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G11*MOV249	DRYWELL FLOOR DRAINS				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	40					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				

REPORT NO. PES-800 STONE AND WEBSTER ENGINEERING CORPORATION
JOB NUMB 1160002 PROJECT EQUIPMENT SYSTEM - (IS-129) REPORT DATE 01/18/82 PAGE 63
JOB NAME "OREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIEN LILCO SORTED BY - MAK / MOD / SPEC RESET DAT 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1G41*MOV033A	SUPPRESSION POOL INLET				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	46					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G41*MOV033B	SUPPRESSION POOL INLET				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	44					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV031A	RBCLCW HX DISCH XOVER				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-01		SMB-000-5	*EQ			*L
	310502	88V	RBS	56					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV031B	RBCLCW HX DISCH XOVER				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-01		SMB-000-5	*EQ			*L
	310502	88V	RBS	59					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV032A	RBCLCW PP DISCH XOVER VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	H-18		SMB-000-5	*EQ			*L
	310502	88V	RBS	150					A
.1P42*MOV032B	RBCLCW PP DISCH XOVER VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	H-18		SMB-000-5	*EQ			*L
	310502	88V	RBS	150					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV033A	RBCLCW ISOL VALVE				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	H-18		SMB-000-5	*EQ			*L
	310502	88V	RBS	150					A
.1P42*MOV033B	RBCLCW ISOL VALVE				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	H-18		SMB-000-5	*EQ			*L
	310502	88V	RBS	150					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV034A	RBCLCW ISOL VALVE				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	P-14		SMB-000-5	*EQ			ALL
	310502	88V	RBS	126					A
.1P42*MOV034B	RBCLCW ISOL VALVE				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	P-14		SMB-000-5	*EQ			ALL
	310502	88V	RBS	126					A
.1P42*MOV035	RBCLCW INLET TO P-1A COOLERS				LIMITORQUE	*88V-03	070 MIN	N/A	

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JOB NUMBER 1160002 PROJECT EQUIPMENT SYSTEM - (IS-129) REPORT DATE 01/18/82 PAGE 64
JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
	VELAN	1E	G-03		SMB-000-5	*EQ			ALL
	310502	88V	RBS	67					A
.1P42*MOV036	RBCLCW OUTLET FROM P-1A				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-03		SMB-000-5	*EQ			ALL
	310502	88V	RBS	67					A
.1P42*MOV043A	MG SET FL CPLG INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	L-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	56					A
.1P42*MOV043B	MG SET FL CPLG INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	L-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	54					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV044A	MG SET FL CPLG INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	L-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	56					A
.1P42*MOV044B	MG SET FL CPLG INLET VV				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	L-02		SMB-000-5	*EQ			*L
	310502	88V	RBS	54					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV047	RBCLCW INLET TO P-1B COOLERS				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	N-07		SMB-000-5	*EQ			ALL
	310502	88V	RBS	68					A
.1P42*MOV048	RBCLCW OUTLET FROM P-1B				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	N-07		SMB-000-5	*EQ			ALL
	310502	88V	RBS	68					A
.1P42*MOV147	DRYWELL COOLER OUTLET VV				LIMITORQUE	*88V-01	070 MIN	N/A	
	VELAN	1E	D-22		SMB-000-5	*EQ			*L
	310502	88V	RBD	00074		*MST			A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV148	DRYWELL COOLER OUTLET VV				LIMITORQUE	*88V-01	070 MIN	N/A	
	VELAN	1E	D-22		SMB-000-5	*EQ			*L
	310502	88V	RBD	00074		*MST			A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1P42*MOV231	*OUT.VV TO DRYWELL COOLER 17B				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-07		SMB-000-5	*EQ			ALL
	310502	88V	RBS	66					A

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JOB NUMBER 1160002 PROJECT EQUIPMENT SYSTEM - (IS-129) REPORT DATE 01/18/82 PAGE 65
JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	SEC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1P42*MOV232	*IN.VV TO DRYWELL COOLER 17A				LIMITORQUE	*88V-03	070 MIN	N/A	
	VELAN	1E	G-07		SMB-000-5	*EQ			*L
	310502	88V	RBS	67					A
	L-OP CODE B REM: H,H-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1T48*MOV036A	ATMOS OTBD CONT ISO				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	L-02		SMB-000-5	*RR			ALL
	310502	88V	RBS	51					A
.1T48*MOV036B	ATMOS OTBD CONT ISO				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	L-02		SMB-000-5	*RR			ALL
	310502	88V	RBS	51					A
.1T48*MOV041	RELEASE TO ATMOS				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	J-15		SMB-000-5	*RR			L
	310502	88V	RBS	112					A
.1T48*MOV042	RELEASE TO ATMOS				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	J-15		SMB-000-5	*OR			L
	310502	88V	RBS	112					A
.1T48*MOV043A	ATMOS OTBD CONT ISO				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	G-03		SMB-000-5	*OR			L
	310502	88V	RBS	68					A
.1T48*MOV043B	ATMOS OTBD CONT ISO				LIMITORQUE	*	180 DYS	N/A	
	VELAN	1E	G-07		SMB-000-5	*OR			L
	310502	88V	RBS	73					A
.1T48*MOV044A	ATMOS OTBD CONT ISO				LIMITORQUE	*88V-03	180 DYS	N/A	
	VELAN	1E	L-02		SMB-000-5	*EQ			L
	310502	88V	RBS	51					A
.1T48*MOV044B	ATMOS OTBD CONT ISO				LIMITORQUE	*88V-03	180 DYS	N/A	
	VELAN	1E	L-02		SMB-000-5	*EQ			L
	310502	88V	RBS	51					A
.1E51*MOV046	VAC PUMP DISCH TO POOL				LIMITORQUE		*001 *DYS	N/A	
E51-F002	VELAN	1E	G-01		SMB-002-02	*OR			*L
	310512	253	RBS	29					*A
	L-OP CODE B REM: H,H-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E41*MOV037	HPCI P DIS TO COND STOR C-7				LIMITORQUE		070 MIN	N/A	
E41-F008	VELAN	1E	G-01		SMB-1-25	*OR			ALL
	310502	88V	RBS	18					A
	BECOMES OP CODE C AFTER 1 DAY								

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - MAK / MOD / SPEC

REPORT DATE 01/18/82 PAGE 66
RESET NO. 003
RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1B21*MOV035A	REAC FEEDWTR INLET PIPE TUNNEL				LIMITORQUE	*88AD-02	070 MIN	NA	
B21-F032A	ANCHOR DARLIN	1E	T-12		SMB-1-40	*EQ			L
	310501	88AD	RBS	78					A
	OP CODE B FOR HELB & MELB								
.1B21*MOV035B	REAC FEEDWTR INLET PIPE TUNNEL				LIMITORQUE	*88AD-02	070 MIN	NA	
B21-F032B	ANCHOR DARLIN	1E	T-12		SMB-1-40	*EQ			L
	310501	88AD	RBS	78					A
	OP CODE B FOR HELB & MELB								
.1E21*MOV035A	CORE SPRAY P RECIRC NEAR C-10				LIMITORQUE	*88AD-02	070 MIN	NA	
E21-F015A	ANCHOR DARLIN	1E	G-01		SMB-1-40	*EQ			L
	310501	88AD	RBS	53					A
.1E21*MOV035B	CORE SPRAY P RECIRC NEAR C-4				LIMITORQUE	*88AD-02	070 MIN	NA	
E21-F015B	ANCHOR DARLIN	1E	G-02		SMB-1-40	*EQ			L
	310501	88AD	RBS	53					A
.1E41*MOV038	HPCI P DIS TO COND STOR C-7				LIMITORQUE		070 MIN	N/A	
E41-F011	VELAN	1E	G-01		SMB-1-40	*DR			ALL
	310502	88V	RBS	18					A
	BECOMES OP CODE C AFTER 1 DAY								
.1E11*MOV033A	RHR HX SHELL INLET NR COL C-10				LIMITORQUE	*88V-03	180 DYS	NA	
E11-F047A	VELAN	1E	G-01		SME-1-60	*EQ			*L
	310502	88V	RBS	22					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV033B	RHR HX SHELL INLET NR COL C-6				LIMITORQUE	*88V-03	180 DYS	NA	
E11-F047B	VELAN	1E	G-01		SMB-1-60	*EQ			*L
	310502	88V	RBS	22					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV035A	RHR HX SHELL OUTLET NEAR C-11				LIMITORQUE	*88V-03	180 DYS	NA	
E11-F003A	VELAN	1E	G-01		SMB-1-60	*EQ			*L
	310502	88V	RBS	30					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV035B	RHR HX SHELL OUTLET NEAR C-5				LIMITORQUE	*88V-03	180 DYS	NA	
E11-F003B	VELAN	1E	G-01		SMB-1-60	*EQ			*L
	310502	88V	RBS	30					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E11*MOV040A	RHR FLOW TO SUPP POOL NR C-11				LIMITORQUE	*88V-03	180 DYS	NA	
E11-F028A	VELAN	1E	G-03		SMB-1-60	*EQ			ALL
	310502	88V	RBS	72					A

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - MAK / MOD / SPEC

REPORT DATE 01/18/82 PAGE 67
RESET NO. 003
RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER MODEL / CATALOG NO	EQ SHEET QUAL STAT SUBNG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
.1E11*MOV040B	RHR FLOW TO SUPP POOL NR C-5				LIMITORQUE	*88V-03	180 DYS	NA	
E11-F028B	VELAN	1E	G-07		SMB-1-60	*EQ			ALL
	310502	88V	RBS	72					A
.1E41*MOV042	HPCI STM TO TURB NEAR COL C-8				LIMITORQUE	*88V-02	001 DYS	N/A	
E41-F003	VELAN	1E	L-05		SMB-1-60	*EQ			ALL
	310502	88V	RBS	63					A
.1N11*MOV031A	2ND STAGE REHEAT STM				LIMITORQUE	*88V-03	070 MIN	N/A	
MOV-RSSV-1	VELAN	1E	ST		SMB-1-60	*EQ			L
	310502	88V	ST	50					A
.1N11*MOV031B	2ND STAGE REHEAT STM				LIMITORQUE	*88V-03	070 MIN	N/A	
MOV-RSSV-2	VELAN	1E	ST		SMB-1-60	*EQ			L
	310502	88V	ST	50					A
.1B31*MOV031A	RECRIC PUMP SUCTION NW DRYWELL				*LIMITORQUE	*003-01	070 MIN		
B31-F023A	GENERAL ELEC	1E	D-22		*SMB-2	*IJ			*L
	310010	003	RBD	66		*MST			A
	OP CODE B FOR HELB & MELB								
.1B31*MOV031B	RECIRC PUMP SUCTION SE DRYWELL				*LIMITORQUE	*003-01	070 MIN		
B31-F023B	GENERAL ELEC	1E	D-22		*SMB-2	*IJ			*L
	310010	003	RBD	66		*MST			A
	OP CODE B FOR HELB & MELB								
.1E11*MOV038A	RHR CONT SPRAY HDR NR COL C-11				LIMITORQUE	*88AD-02	001 DYS	NA	
E11-F016A	ANCHOR DARLIN	1E	G-10		SMB-2-60	*EQ			ALL
	310501	88AD	RBS	103					A
.1E11*MOV038B	RHR CONT SPRAY HDR NR COL C-5				LIMITORQUE	*88AD-02	001 DYS	NA	
E11-F016B	ANCHOR DARLIN	1E	G-11		SMB-2-60	*EQ			ALL
	310501	88AD	RBS	103					A
.1E11*MOV047	RHR SUCT FM RECIRC SE DRYWELL				LIMITORQUE	*88AD-01	180 DYS	NA	
E11-F009	ANCHOR DARLIN	1E	D-22		SMB-2-60	*EQ			ALL
	310501	88AD	RBD	84		*MST			A
	OP CODE A FOR LOCA FOR 70 MINS								
.1E11*MOV048	RHR SUCT FROM RECIRC PIPE C-11				LIMITORQUE		180 DYS	NA	
E11-F008	ANCHOR DARLIN	1E	G-03		SMB-2-60	*DR			ALL
	310501	88AD	RBS	63					A
	OP CODE A FOR LOCA FOR 70 MINS								
.1E11*MOV050	RHR MAIN FLOW CROSSOVER C-5				LIMITORQUE	*88V-03	180 DYS	N/A	
E11-F010	VELAN	1E	G-07		SMB-2-60	*EQ			ALL
	310502	88V	RBS	72					B

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
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.1E41*MOV034	HPCI PP DISCH NR C-9				LIMITORQUE		001 DYS	N/A	
E41-F007	VELAN	1E	G-02		SMB-2-60	*DR			ALL
	310502	88V	RBS	63					A
.1E11*MOV049	FM HPCI TURB INLET LINE C-8				LIMITORQUE	*88V-01	070 MIN	N/A	
E11-F052	VELAN	1E	G-05		SMB-2-80	*EQ			*L
	310502	88V	RBS	66					A
	OP CODE B FOR HELB & MELB								
.1E21*MOV033A	CORE SPRAY P DISCH NR COL C-10				LIMITORQUE	*88V-03	180 DYS	N/A	
E21-F005A	VELAN	1E	G-09		SMB-2-80	*EQ			L
	310502	88V	RBS	104					A
.1E21*MOV033B	CORE SPRAY P DISCH NR COL C-6				LIMITORQUE	*88V-03	180 DYS	N/A	
E21-F005B	VELAN	1E	G-12		SMB-2-80	*EQ			L
	310502	88V	RBS	104					A
.1B31*MOV032A	RECIRC PUMP DISCHRG NW DRYWELL				*LIMITORQUE	*003-01	070 MIN		
B31-F031A	GENERAL ELEC	1E	D-22		*SMB-3	*IJ			*L
	310010	003	RBD	70		*MST			A
	OP CODE B FOR HELB & MELB								
.1B31*MOV032B	RECIRC PUMP DISCHRG SE DRYWELL				*LIMITORQUE	*003-01	070 MIN		
B31-F031B	GENERAL ELEC	1E	D-22		*SMB-3	*IJ			*L
	310010	003	RBD	70		*MST			A
	OP CODE B FOR HELB & MELB								
.1E41*MOV035	HPCI PP DISCH NR C-9				LIMITORQUE		001 DYS	NA	
E41-F006	ANCHOR DARLIN	1E	G-02		SMB-3-100	*DR			ALL
	310501	88AD	RBS	63					A
.1E11*MOV034A	RHR HX SHELL BYPASS NEAR C-12				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F048A	ANCHOR DARLIN	1E	G-01		SMB-3-150	*EQ			ALL
	310501	88AD	RBS	27					A
.1E11*MOV034B	RHR HX SHELL BYPASS NEAR C-4				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F048B	ANCHOR DARLIN	1E	G-01		SMB-3-150	*EQ			ALL
	310501	88AD	RBS	22					A
.1E11*MOV042A	RHR FL TO SUP POOL NR COL C-11				LIMITORQUE	*88AD-02	*070 *MIN	NA	
E11-F024A	ANCHOR DARLIN	1E	G-01		SMB-3-80	*EQ			*L
	310501	88AD	RBS	29					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1E11*MOV042B	RHR FL TO SUP POOL NR COL C-5				LIMITORQUE	*88AD-02	*070 *MIN	NA	
E11-F024B	ANCHOR DARLIN	1E	G-01		SMB-3-80	*EQ			*L
	310501	88AD	RBS	29					A

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JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E41*MOV041	HPCI STM TO TURB NRTH DRYWELL				LIMITORQUE	*88V-01	001 DYS	N/A	
E41-F002	VELAN	1E	C-22		SMB-3-80	*EQ			ALL
	310502	88V	RBD	66		*MST			A
.1E11*MOV036A	RHR OUTBOARD VV NR COLUMN C-11				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F017A	ANCHOR DARLIN	1E	G-03		SMB-4-200	*EQ			ALL
	310501	88AD	RBS	72					A
.1E11*MOV036B	RHR OUTBOARD VV NR COLUMN C-5				LIMITORQUE	*88AD-02	180 DYS	NA	
E11-F017B	ANCHOR DARLIN	1E	G-07		SMB-4-200	*EQ			ALL
	310501	88AD	RBS	72					A
.1E32*MOV022A	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F002B	VELAN	1E	T-08		SMC-04-3	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV022B	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F002F	VELAN	1E	T-08		SMC-04-3	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV022C	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F002K	VELAN	1E	T-08		SMC-04-3	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV022D	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F002P	VELAN	1E	T-08		SMC-04-3	*EQ			*L
	310512	253	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1E32*MOV023A	LCS INBOARD BYPASS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F003B	VELAN	1E	G-06		SMC-04-3	*EQ			*L
	310512	253	RBS	00064					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV023B	LCS INBOARD BYPASS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F003F	VELAN	1E	G-06		SMC-04-3	*EQ			*L
	310512	253	RBS	00064					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E32*MOV023C	LCS INBOARD BYPASS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F003K	VELAN	1E	G-06		SMC-04-3	*EQ			*L
	310512	253	RBS	00064					A

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JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBHG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1E32*MOV023D	LCS INBOARD BYPASS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F003P	VELAN	1E	G-06		SMC-04-3	*EQ			*L
	310512	253	RBS	00064					A
	OP CODE B FOR HELB & MELB								
.1E32*MOV021A	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F001B	VELAN	1E	T-08		SMC-04-5	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1E32*MOV021B	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F001F	VELAN	1E	T-08		SMC-04-5	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1E32*MOV021C	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F001M	VELAN	1E	T-08		SMC-04-5	*EQ			*L
	310512	253	RBS	00078					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1E32*MOV021D	LCS INBOARD PROCESS VLV				LIMITORQUE	*253-03	100 DYS	N/A	
E32-F001P	VELAN	1E	T-08		SMC-04-5	*EQ			*L
	310512	253	RBS	00078					A
	OP CODE B FOR HELB & MELB								

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC / SPEC	ZONE / BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = LOUIS ALLIS									
.1R24*MG111	480V MOTOR GENERATOR (RED)				LOUIS ALLIS	*439-01	180 DYS	NA	
	LOUIS ALLIS	1E	N-21		COGSF	*EQ			ALL
	310950	439	RBS	150					A
.1R24*MG112	480V MOTOR GENERATOR (BLUE)				LOUIS ALLIS	*439-01	180 DYS	NA	
	LOUIS ALLIS	1E	N-21		COGSF	*EQ			ALL
	310950	439	RBS	150					A
.1R24*MG113A	480V MOTOR GENERATOR (ORANGE)				LOUIS ALLIS	*439-01	180 DYS	NA	
	LOUIS ALLIS	1E	N-21		COGSF	*EQ			ALL
	310950	439	RBS	150					A
.1R24*MG113B	480V MOTOR GENERATOR (ORANGE)				LOUIS ALLIS	*439-01	180 DYS	NA	
	LOUIS ALLIS	1E	N-21		COGSF	*EQ			ALL
	310950	439	RBS	150					A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC / SPEC	ZONE / BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = MAGNETICS									
.1R35*T-B2	480-120/240V TRANS				MAGNETICS	*248-01	180 DYS		
	MAGNETICS	1E	N-21		L-12514	*EQ			ALL
	310739	248	RBS	112					A
.1R35*T-R2	480-120/240V TRANS				MAGNETICS	*248-01	180 DYS		
	MAGNETICS	1E	N-21		L-12514	*EQ			ALL
	310739	248	RBS	112					A

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REPORT GROUP MAK = MAGNETROL

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1P42*LS012A	LS ON TK 026A				MAGNETROL	*407-01	180 DYS		
	MAGNETROL	1E	H-18		291-MPG-X-M14DC	*IJ			*ALL
	10042	407	RBS	00160					A
.1P42*LS012B	RBCLCH TK-026B				MAGNETROL	*407-01	180 DYS		
	MAGNETROL	1E	H-18		291-MPG-X-M14DC	*IJ			*ALL
	10042	407	RBS	00160					A
.1P42*LS013A	1P42-TK-026A HEAD TK LEVEL				MAGNETROL	*407-01	180 DYS		
	MAGNETROL	1E	H-18		291-MPG-X-M14DC	*IJ			*ALL
	10042	407	RBS	00160					A
.1P42*LS013B	TK-026A HEAD TK LVL				MAGNETROL	*407-01	180 DYS		
	MAGNETROL	1E	H-18		291-MPG-X-M14DC	*IJ			*ALL
	10042	407	RBS	00160					A
.1T48*LS061A	COND LEVEL				MAGNETROL	*407-01	180 DYS		
	MAGNETROL	1E	G-03		291-MPG-X-M14DC	*IJ			ALL
	10042	407	RBS	63					B
.1T48*LS061B	COND LEVEL				MAGNETROL	*407-01	180 DYS		
	MAGNETROL	1E	G-10		291-MPG-X-M14DC	*IJ			ALL
	10042	407	RBS	78					B
.1E41*LS092A	SUPPRESSION POOL				MAGNETROL	*3143	001 DYS	*	
E41-N015A	G.E.	1E	G-01		*3.5-751-1X-MPG-M14HY	*IJ			ALL
	310010	003	RBS	00008					A
.1E41*LS092B	SUPPRESSION POOL				MAGNETROL	*3143	001 DYS	*	
E41-N015B	G.E.	1E	G-01		*3.5-751-1X-MPG-M14HY	*IJ			ALL
	310010	003	RBS	00008					A

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JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = NAMCO									
.1E41*PNS840	1E41*HOV-052 POSITION				*NAMCO	*	*180 *DYS	*N/A	
LS-1,2	GENERAL ELEC	*1E	*G-01		*D1200	*TA			*ALL
	310010	003	*RBS	*00008					*A
.1E41*PNS841	1E41*HOV-051 POSITION				*NAMCO	*	*180 *DYS	*N/A	
LS 3,4	GENERAL ELEC	*1E	*G-01		*D1200	*TA			*ALL
	310010	003	*RBS	*00008					*A
.1E21*PNS071A	1E21*HCV071A POSITION SW				NAMCO		180 DYS	N/A	
	*NAMCO	*1E	J-16		*EA180-11302	*DR			L
	*347565	*FIELD	RBS	00131					B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E21*PNS071B	1E21*HCV071B POSITION SW				NAMCO		180 DYS	N/A	
	*NAMCO	*1E	P-16		*EA180-11302	*DR			L
	*347565	*FIELD	RBS	00131					B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E11*PNS031C	POS SW ON 1E11*HOV031C				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-01		*EA180-11302	*DR			*ALL
	347565	088	RBS	24					*A
.1E11*PNS032B	POS SW ON 1E11*HOV032B				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-01		*EA180-11302	*DR			*ALL
	347565	088	RBS	10					*A
.1E11*PNS032C	POS SW ON 1E11*HOV032C				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-01		*EA180-11302	*DR			*ALL
	347565	088	RBS	20					*A
.1E11*PNS071A	1E11-HV071A POSITION				NAMCO		180 DYS		
	*NAMCO	*1E	D-22		*EA180-31302	*DR			ALL
	*347565	*FIELD	RBP			*MST			B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E11*PNS071B	1E11-HV071B POSITION				NAMCO		180 DYS		
	*NAMCO	*1E	D-22		*EA180-31302	*DR			ALL
	*347565	*FIELD	RBP			*MST			B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E11*PNS031A	POS SW ON 1E11*HOV031A				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-01		*EA180-31302	*DR			*ALL
	347565	088	RBS	24					*A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET QUAL STAT SUBMG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
.1E11*PNS031B	POS SW ON 1E11*MOV031B				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-01		*EA180-31302	*DR			*ALL
	347565	088	RBS	24					*A
.1E11*PNS031D	POS SW ON 1E11*MOV031D				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-01		*EA180-31302	*DR			*ALL
	347565	088	RBS	24					*A
.1E11*PNS032A	POS SW ON 1E11*MOV032A				*NAMCO		*180 *DYS	*N/A	
		*1E	*G-01		*EA180-31302	*DR			*ALL
	347565	088	RBS	15					*A
.1E11*PNS032D	POS SW ON 1E11*MOV032D				*NAMCO		*180 *DYS	*N/A	
		*1E	*G-01		*EA180-31302	*DR			*ALL
	347565	088	RBS	19					*A
.1E11*PNS050	POS SW ON 1E11*MOV050				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-07		*EA180-31302	*DR			*ALL
	347565	088	RBS	72					*A
.1E11*PNS037A	POS SW ON 1E11*MOV037A				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-03		*EA180-32302	*DR			*ALL
	347565	088	RBS	72					*A
.1E11*PNS037B	POS SW ON 1E11*MOV037B				*NAMCO		*180 *DYS	*N/A	
	NAMCO CONTROLS	*1E	*G-03		*EA180-32302	*DR			*ALL
	347565	088	RBS	72					*A
.1E11*PNS040A	POS SW ON 1E11*MOV040A				*NAMCO		*180 *DYS	*N/A	
	VELAN	*1E	*G-03		*EA180-32302	*DR			*ALL
	347565	088	RBS	72					*A
.1E11*PNS040B	POS SW ON 1E11*MOV040B				*NAMCO		*180 *DYS	*N/A	
	VELAN	*1E	*G-07		*EA180-32302	*DR			*ALL
	347565	088	RBS	72					*A
.1T46*PNS035A	RBSVS INITIATION SIGNAL				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	G-01		*EA740-20001	*RR			ALL
	310655	111	RBS	00112					A
	MARK NO. REPRESENTS 6 SWITCHES								
.1T46*PNS035B	RBSVS INITIATION SIGNAL				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	G-01		*EA740-20001	*RR			ALL
	310655	111	RBS	00112					A
	MARK NO. REPRESENTS 6 SWITCHES								
.1T46*PNS037A	RBSVS INITIATION SIGNAL				NAMCO		070 MIN	N/A	

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JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT ENG CND OP CD
	FISHER CONTROLS	1E	H-12		*EA740-20001	*RR			ALL
	310655	111	RBS	00095					A
	MARK NO. REPRESENTS 6 SWITCHES								
.1T46*PNS037B	RBSVS INITIATION SIGNAL				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	H-12		*EA740-20001	*RR			ALL
	310655	111	RBS	00095					A
	MARK NO. REPRESENTS 6 SWITCHES								
.1T46*PNS038A	PRI CONT PURGE VA 1T46*AOV038A				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	D-22		EA740-20001	*RR			ALL
	310574	172	RBP	00078		*MST			A
	MARK NO. REPRESENTS 4 SWITCHES								
.1T46*PNS038B	PRI CONT PURGE VA 1T46*AOV038B				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	H-10		EA740-20001	*RR			ALL
	310574	172	RBS	00078					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1T46*PNS038C	PRI CONT PURGE VA 1T46*AOV038C				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	L-02		EA740-20001	*RR			ALL
	310574	172	RBS	00040					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1T46*PNS038D	PRI CONT PURGE VA 1T46*AOV038D				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	L-02		EA740-20001	*RR			ALL
	310574	172	RBS	00040					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1T46*PNS039A	PRI CONTAINMENT PURGE VALVE				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	B-22		EA740-20001	*RR			ALL
	310574	172	RBP	00112		*SPR			A
	MARK NO. REPRESENTS 6 SWITCHES								
.1T46*PNS039B	PRI CONTAINMENT PURGE VALVE				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	K-15		EA740-20001	*RR			ALL
	310574	172	RBS	00112					A
	MARK NO. REPRESENTS 6 SWITCHES								
.1T46*PNS039C	PRI CONTAINMENT PURGE VALVE				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	G-02		EA740-20001	*RR			ALL
	310574	172	RBS	00040					A
	MARK NO. REPRESENTS 6 SWITCHES								
.1T46*PNS039D	PRI CONTAINMENT PURGE VALVE				NAMCO		070 MIN	N/A	
	FISHER CONTROLS	1E	G-02		EA740-20001	*RR			ALL
	310574	172	RBS	00040					A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
	MARK NO. REPRESENTS 6 SWITCHES								
.1B21*PNS036A	REACTOR FW INLET AOV036A				NAMCO		070 MIN		
	VELAN	1E	H-18		*EA740-20100	*RR			L
	310595	232	RBS	00087					A
	MARK NO. REPRESENTS 2 SWITCHES CODE B FOR HELB & MELB								
.1B21*PNS036B	1B21*AOV036A POSITION				NAMCO		070 MIN		
	VELAN	1E	H-18		*EA740-20100	*RR			L
	310595	232	RBS	00087					A
	MARK NO. REPRESENTS 2 SWITCHES CODE B FOR HELB & MELB								
.1E11*PNS081A	RHR CHECK VALVE 1E11*AOV081A				*NAMCO		*180 *DYS		
	VELAN	*1E	*D-22		*EA740-20100	*RR			*ALL
	310595	*232	*RBP	*00079		*MST			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E11*PNS081B	RHR CHECK VALVE 1E11*AOV081B				*NAMCO		*180 *DYS		
	VELAN	*1E	*D-22		*EA740-20100	*RR			*ALL
	310595	*232	*RBP	*00079		*MST			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E21*PNS081A	CORE SPRAY HDR VA 1E21*AOV081A				NAMCO		180 DYS	NA	
	VELAN	1E	B-22		*EA740-20100	*RR			L
	310512	*232	RBP	00126		*MST			B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E21*PNS081B	CORE SPRAY HDR VA 1E21*AOV081B				NAMCO		180 DYS	NA	
	VELAN	1E	B-22		*EA740-20100	*RR			L
	310512	*232	RBP	00126		*MST			B
	MARK NO. REPRESENTS 2 SWITCHES								
.1P42*PNS282	RBCLCW RETURN CHECK VLV				NAMCO		070 MIN		
	VELAN	1E	G-01		*EA740-20100	*RR			ALL
	310595	232	RBS	00016					A
	MARK NO. REPRESENTS 2 SWITCHES								
.1P42*PNS293	RBCLCW RETURN CHECK VLV				NAMCO		070 MIN		
	VELAN	1E	G-01		*EA740-20100	*RR			ALL
	310595	232	RBS	00039					A
	MARK NO. REPRESENTS 2 SWITCHES								
.1P42*PNS294	RBCLCW RETURN CHECK VLV				NAMCO		070 MIN		
	VELAN	1E	G-01		*EA740-20100	*RR			ALL
	310595	232	RBS	00039					A
	MARK NO. REPRESENTS 2 SWITCHES								

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.1B31*PNS081	1B31*AOV081 POS SW COPES VULCAN 310735	1E 318	K-15 RBS	00155	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1B31*PNS082	1B31*AOV082 POS SW NAMCO 310735	1E 318	H-18 RBS	00155	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E11*PNS061A	ON 1E11*AOV061A COPES VULCAN *370964	1E *318	G-01 RBS	00008	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E11*PNS061B	ON 1E11*AOV061B COPES VULCAN 310735	1E 318	G-01 RBS	00008	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E11*PNS062A	ON 1E11*AOV062A COPES VULCAN 310735	1E 318	G-01 RBS	00008	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E11*PNS062B	ON 1E11*AOV062B COPES VULCAN 310735	1E 318	G-01 RBS	00008	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E41*PNS081	ON 1E41*AOV081 COPES VULCAN 310735	1E 318	G-01 RBS	00009	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E41*PNS082	ON 1E41*AOV082 COPES VULCAN 310735	1E 318	G-01 RBS	00008	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E41*PNS083	ON 1E41*AOV083 COPES VULCAN 310735	1E 318	G-01 RBS	00008	NAMCO EA740-20100	*RR	070 MIN	NA	ALL A
	MARK NO. REPRESENTS 4 SWITCHES								
*1E41*PNS091	*ON 1E41*LCV091 *COPES VULCAN	*1E	*G-01		*NAMCO *EA740-20100	* *RR	*180 *DYS	*N/A	*ALL

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JOB CLIENT LILCO

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ADDED	*310735	*318	*RBS	*00008					*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1E41*PNS095	ON 1E41*LCV095				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-01		EA740-20100	*RR			ALL
	310735	318	RBS	00008					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E51*PNS081	ON 1E51*AOV081				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-01		EA740-20100	*RR			ALL
	310735	318	RBS	00008					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E51*PNS082	ON 1E51*AOV082				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-01		EA740-20100	*RR			ALL
	310735	318	RBS	00008					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E51*PNS083	ON 1E51*AOV083				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-01		EA740-20100	*RR			ALL
	310735	318	RBS	00008					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1E51*PNS091	*ON 1E41*LCV091				*NAMCO		*070 *MIN	*N/A	
	*COPES VULCAN	*1E	*G-01		*EA740-20100	*RR			*ALL
	310735	*318	*RBS	*00008					*A
	MARK NO REPRESENTS 2 SWITCHES								
.1E51*PNS095	ON 1E51*LCV095				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-01		EA740-20100	*RR			ALL
	310735	318	RBS	00008					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1T24*PNS001A	ON 1T24*AOV001A				NAMCO		180 DYS	NA	
	COPES VULCAN	1E	G-02		EA740-20100	*RR			L
	310735	318	RBS	00040					A
	MARK NO. REPRESENTS 2 SWITCHES								
.1T24*PNS001B	ON 1T24*AOV001B				NAMCO		180 DYS	NA	
	COPES VULCAN	1E	G-02		EA740-20100	*RR			L
	310735	318	RBS	00040					A
	MARK NO. REPRESENTS 2 SWITCHES								
.1T46*PNS078A	DRYWL VENT 1T46L*AOV078 POS SW				NAMCO	*	070 MIN	NA	
	COPES VULCAN	1E	G-06		EA740-20100	*RR			ALL
	310735	318	RBS	00090					A
	MARK NO. REPRESENTS 4 SWITCHES								

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
.1T46*PNS078B	ON 1T46*AOV078B				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-12		EA740-20100	*RR			ALL
	310735	318	RBS	00096					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1T46*PNS079A	ON 1T46*AOV079A				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-06		EA740-20100	*RR			ALL
	310735	318	RBS	00063					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1T46*PNS079B	ON 1T46*AOV079B				NAMCO		070 MIN	NA	
	COPES VULCAN	1E	G-06		EA740-20100	*RR			ALL
	310735	318	RBS	00063					A
	MARK NO. REPRESENTS 4 SWITCHES								
.1B21*PNS081A	POSITION SWS ON AOV081A				*NAMCO	*3911	070 MIN	*1%	
	GE-NED	1E	*D-22		*EA740-8000	*RR			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*PNS081B	POSITION SWS ON AOV081B				*NAMCO	*3911	070 MIN	*1%	
	GE-NED	1E	*D-22		*EA740-8000	*RR			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*PNS081C	POSITION SWS ON AOV081C				*NAMCO	*3911	070 MIN	*1%	
	GENERAL ELEC	1E	*D-22		*EA740-8000	*RR			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*PNS081D	POSITION SWS ON AOV081D				*NAMCO	*3911	070 MIN	*1%	
	GENERAL ELEC	1E	*D-22		*EA740-8000	*RR			ALL
	310010	003	*RBP	00082		*MST			A
.1B21*PNS082A	POSITION SWS ON AOV082A				*NAMCO	*3911	070 MIN	*1%	
	GENERAL ELEC	1E	*T-08		*EA740-8000	*RR			ALL
	310010	003	*ST	00082					A
.1B21*PNS082B	POSITION SWS ON AOV082B				*NAMCO	*3911	070 MIN	*1%	
	GENERAL ELEC	1E	*T-08		*EA740-8000	*RR			ALL
	310010	003	*ST	00082					A
.1B21*PNS082C	POSITION SWS ON AOV082C				*NAMCO	*3911	070 MIN	*1%	
	GENERAL ELEC	1E	*T-08		*EA740-8000	*RR			ALL
	310010	003	*ST	00082					A
.1B21*PNS082D	POSITION SWS ON AOV082D				*NAMCO	*3911	070 MIN	*1%	
	GENERAL ELEC	1E	*T-08		*EA740-8000	*RR			ALL
	310010	003	*ST	00082					A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1B21*PNS093A	ON 1B21*RV093A				*NAMCO		*180 *DYS		
		*1E	*E-23		*EA740-80001	*RR			*ALL
		*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093B	ON 1B21*RV093B				*NAMCO		*180 *DYS		
		*1E	*E-23		*EA740-80001	*RR			*ALL
		*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093C	ON 1B21*RV093C				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093D	ON 1B21*RV093D				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093E	ON 1B21*RV093E				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093F	ON 1B21*RV093F				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093G	ON 1B21*RV093G				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093H	ON 1B21*RV093H				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093J	ON 1B21*RV093J				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093K	ON 1B21*RV093K				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNWD	*1E	*E-23		*EA740-80001	*RR			*ALL

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET QUAL STAT SUBNG	OP TIME	ACC / PERF	NUCAT EMG CND OP CD
	*310649	*175	*RBP	*00050		*SPR			*E
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093L	ON 1B21*RV093L				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNHD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1B21*PNS093M	ON 1B21*RV093M				*NAMCO		*180 *DYS	*N/A	
	*ANDERSN GRNHD	*1E	*E-23		*EA740-80001	*RR			*ALL
	*310649	*175	*RBP	*00050		*SPR			*B
	MARK NO. REPRESENTS 2 SWITCHES								
.1T46*PNS031A	*POSITION ON MOD031A				*NAMCO		*180 *DYS	*N/A	
	*POWERS REGUL	*1E	*K-15		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00135					*A
.1T46*PNS031B	*POSITION ON MOD031B				*NAMCO		*180 *DYS	*N/A	
	*POWERS REGUL	*1E	*K-15		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00135					*A
.1T46*PNS034A	*POSITION ON MOD034A				*NAMCO		*180 *DYS	*N/A	
	*POWERS REGUL	*1E	*H-20		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00182					*A
.1T46*PNS034B	*POSITION ON MOD034B				*NAMCO		*180 *DYS	*N/A	
	*POWERS REGUL	*1E	*H-20		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00182					*A
.1T46*PNS040A	*POSITION ON AOD040A				*NAMCO		*070 *MIN	*NA	
	*POWERS REGUL	*1E	*H-18		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00150					*A
.1T46*PNS040B	*POSITION ON AOD040B				*NAMCO		*070 *MIN	*NA	
	*POWERS REGUL	*1E	*H-18		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00150					*A
.1T46*PNS041A	*POSITION ON AOD041A				*NAMCO		*070 *MIN	*NA	
	*POWERS REGUL	*1E	*K-15		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00112					*A
.1T46*PNS041B	*POSITION ON AOD041B				*NAMCO		*070 *MIN	*NA	
	*POWERS REGUL	*1E	*K-15		*EA750-50100	*RR			*ALL
	310738	*319	*RBS	*00112					*A

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REPORT GROUP MAK = NECI									
.1B21*TE059A	MAIN STM TUNNEL AMB				*NECI	*3110	*70 *MIN	*ANSI C96.1	
B21-N014A	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE059B	MAIN STM TUNNEL AMB				*NECI	*3110	*70 *MIN	*ANSI C96.1	
B21-N014B	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE059C	MAIN STM TUNNEL AMB				*NECI	*3110	*70 *MIN	*ANSI C96.1	
B21-N014C	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								
.1B21*TE059D	MAIN STM TUNNEL AMB				*NECI	*3110	*70 *MIN	*ANSI C96.1	
B21-N014D	GENERAL ELEC	1E	ST		*145C3224P001	*DR			H
	310010	003	ST	00078					A
	OP CODE C FOR REMAINDER OF HELB								

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**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = NMC									
.1D11-PNL041	SHOREHAM STATION VENT MON				*NMC		*180 *DYS		*RG
	*N.M.C.	*2E	*H-20		*N/A	*****			*L
	*310782	*332	*RBS	*00175					*A

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REPORT GROUP MAK = NOT DETERMINED									
.1E41*LS091	HPCI STM DRN POT				*NOT DETERMINED		180 DYS		
E41-N014	G.E.	1E	G-01			*DR			ALL
	310010	003	RBS	00016					B
.1E51*PNS823	1E51*HOV-044 POSITION				*NOT DETERMINED		*180 *DYS	*	
LS-3,4	GENERAL ELEC	*1E	*G-01			*DR			*ALL
	310010	003	*RBS	*00008					*B
.1E51*PNS825	1E51*HOV-051 POSITION				*NOT DETERMINED		*180 *DYS	*	
LS-1,2	GENERAL ELEC	*1E	*G-01			*DR			*ALL
	310010	003	*RBS	*00008					*B
.1E51*PNS828	1E51*TU-005 MECH TRIP				*NOT DETERMINED		*180 *DYS	*	
	GENERAL ELEC	*1E	*G-01			*DR			*ALL
	310010	003	*RBS	*00008					*A

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**********	**********	**********	**********	**********	**********	********	**********	****
REPORT GROUP MAK = OKONITE								
.1R31*NFM02	POWER CABLE			OKONITE	*128-01	180 DYS	NA	
	OKONITE	1E	ALL	600 V POWER CABLEST	*EQ			ALL
	310557	128	RB		*SPR			A
	REPRESENTS ALL CABLE PURCHASED UNDER SH1-128							

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**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = POWERS									
.1T46*A0D041A	RB POT CONTAM AREA EXH				POWERS	*319-01	070 MIN		
	POWERS REGUL	1E	K-15		331-2792	*EQ			ALL
	310738	319	RBS	00112					A
.1T46*A0D041B	RB POT CONTAM AREA EXH				POWERS	*319-01	070 MIN		
	POWERS REGUL	1E	K-15		331-2792	*EQ			ALL
	310738	319	RBS	00112					A

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REPORT GROUP MAK = PYCO

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*1E11-TE012A	RHR MAIN FLOW				PYCO	*3906	180 DYS	*USASC96.1	*RG
E11-N027A	GENERAL ELEC	1E	G-02		102-3171	*EQ			ALL
ADDED	310010	003	RBS	00040					A
.1E11-TE012B	RHR MAIN FLOW				*PYCO	*3906	*180 *DYS	*USASC96.1	*RG
E11-N027B	*GENERAL ELEC	*1E	*G-02		*102-3171	*EQ			ALL
	310010	*003	*RBS	*00040					*A

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**********	**********	**********	**********	**********	**********	********	**********	****

REPORT GROUP MAK = RAYCHEM

.1R32*NFP 044	*INST CABLE			RAYCHEM	*130-01	180 DYS	N/A	
	RAYCHEM	1E	ALL	INSTRUMENT CABLE	EQ			ALL
	310567	130	RB		*SPR			A

REPRESENTS ALL CABLE PURCHASED UNDER SH1-130

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REPORT GROUP MAK = RAYMOND									
.1T46*MOD031A	*RBSVS INLE TO MIXED PLEN				RAYMOND	*319-01	*180 *DYS	*	
	*POWERS REGUL	*1E	*K-15		MASR-49	*IJ			ALL
	310738	*319	*RBS	*00135					*A
.1T46*MOD031B	*RBSVS INLE TO MIXED PLEN				RAYMOND	*319-01	*180 *DYS	**N/A	
	*POWERS REGUL	*1E	*K-15		MASR-49	*IJ			ALL
	310738	*319	*RBS	*00135					*A
.1T46*MOD036A	MOT DAMPER FOR FN 1T46*FN-003A				RAYMOND	*319-01	180 DYS		
	POWERS REGUL	1E	K-15		MASR-49	*IJ			ALL
	310738	319	RBS	00112					A
.1T46*MOD036B	MOT DAMPER FOR FN 1T46*FN-003B				RAYMOND	*319-01	180 DYS		
	POWERS REGUL	1E	K-15		MASR-49	*IJ			ALL
	310738	319	RBS	00112					A
.1T46*MOD036C	MOT DAMPER FOR FN 1T46*FN-003C				RAYMOND	*319-01	180 DYS		
	POWERS REGUL	1E	K-15		MASR-49	*IJ			ALL
	310738	319	RBS	126					A
.1T46*MOD047A	FN-79A DISCHARGE AIR				RAYMOND	*319-01	180 DYS		
	POWERS REGUL	1E	K-15		MASR-9	*IJ			ALL
	310738	319	RBS	00112					A
.1T46*MOD047B	FN-79B DISCHARGE AIR				RAYMOND	*319-01	180 DYS		
	POWERS REGUL	1E	K-15		MASR-9	*IJ			ALL
	310738	319	RBS	00112					A
.1T46*MOD048A	FLT 1A				RAYMOND	*319-01	180 DYS		
	POWERS REGUL	1E	K-15		MASR-9	*IJ			ALL
	310738	319	RBS	00112					A
.1T46*MOD048B	FLT 1B				RAYMOND	*319-01	180 DYS		
	POWERS REGUL	1E	K-15		MASR-9	*IJ			ALL
	310738	319	RBS	00112					A

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REPORT GROUP MAK = RELIANCE									
.1P42*P005A	RBCLCW CIRC PP				RELIANCE		180 DYS		
	GOULD PUMP	1E	H-18		100-HP-405TS	*DR			ALL
	310582	62G	RBS	150					A
.1P42*P005B	RBCLCW CIRC PP				RELIANCE		180 DYS		
	GOULD PUMP	1E	H-18		100-HP-405TS	*DR			ALL
	310582	62G	RBS	150					A
.1P42*P005C	RBCLCW CIRC PP				RELIANCE		180 DYS		
	GOULD PUMP	1E	H-18		100-HP-405TS	*DR			ALL
	310582	62G	RBS	150					A
.1G41*P023A	SPENT FUEL POOL COOLING PP				RELIANCE		180 DYS		
	GOULD PUMP	1E	S-18		20-HP-286T	*DR			*L
	310582	62G	RBS	150					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1G41*P023B	SPENT FUEL POOL COOLING PP				RELIANCE		180 DYS		
	GOULD PUMP	1E	S-18		20-HP-286T	*DR			*L
	310582	62G	RBS	150					A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1T48*BL001A	HYD RECOMBINER BLOWER 1A				RELIANCE	*289-03	180 DYS	NA	
	ATOMICS INT	1E	J-15		324T	*EQ			L
	3100624	289	RBS	112					A
.1T48*BL001B	HYD RECOMBINER BLOWER 1B				RELIANCE	*289-03	180 DYS	NA	
	*ATOMICS INT	1E	J-15		324T	*EQ			L
	3100624	289	RBS	112					A

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REPORT GROUP MAK = ROCKBESTOS

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.1R32*NFP097	*INST CABLE				ROCKBESTOS	*129-02	180 DYS	NA	
	ROCKBESTOS	1E	ALL		*COAXIAL & TRIAXIAL	*EQ			ALL
	310553	129	RB			*SPR			A
	REPRESENTS ALL COAXIAL & TRIAXIAL CABLE PURCHASED UNDER SH1-129								
.1R32*NFP010	*INST CABLE				ROCKBESTOS	*129-01	180 DYS	NA	
	ROCKBESTOS	1E	ALL		THERMOCOUPLE WIRE	*EQ			ALL
	310664	131	RB			*SPR			A
	REPRESENTS ALL CABLE PURCHASED UNDER SH1-131								
*1R32*NFP020	*INST CABLE				*ROCKBESTOS	*129-01	*180 *DYS	*N/A	
	*ROCKBESTOS	*1E	*ALL		*300/600 CONT & INST	*EQ			*ALL
ADDED	*310553	*129	*RB			*SPR			*A
	REPRESENTS ALL 300/600 CONT & INST CABLE PURCHASED UNDER SH1-129								

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REPORT GROUP MAK = ROSEMOUNT									
*1B21*LT154A	*REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*001 *DYS	*3 IN.	
*B21-N080A	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT154B	*REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*001 *DYS	*3 IN.	
*B21-N080B	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT154C	*REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*001 *DYS	*3 IN.	
*B21-N080C	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT154D	*REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*001 *DYS	*3 IN.	
*B21-N080D	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT155A	*WIDE RANGE				*ROSEMOUNT	*3048	*180 *DYS	*7.5 IN.	
*B21-N081A	*GENERAL ELEC	*1E	*G-10		*1151	*FT			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT155B	*WIDE RANGE				*ROSEMOUNT	*3048	*070 *MIN	*7.5 IN.	
*B21-N081B	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT155C	*WIDE RANGE				*ROSEMOUNT	*3048	*180 *DYS	*7.5 IN.	
*B21-N081C	*GENERAL ELEC	*1E	*G-12		*1151	*FT			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT155D	*WIDE RANGE				*ROSEMOUNT	*3048	*070 *MIN	*7.5 IN.	
*B21-N081D	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT157A	*REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*180 *DYS	*2.5% FSDP	
*B21-N091A	*GENERAL ELEC	*1E	*G-10		*1151	*FT			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*LT157B	*REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*180 *DYS	*2.5% FSDP	
*B21-N091B	*GENERAL ELEC	*1E	*G-12		*1151	*FT			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
.1B21*LT157C	REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*180 *DYS	*2.5% FSDP	
B21-N091C	*GENERAL ELEC	*1E	*G-10		*1151	*FT			*ALL
	310010	*003	*RBS	*00078					*A

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*1B21*LT157D	*REACTOR LEVEL TRIPS				*ROSEMOUNT	*3048	*180 *DYS	*2.5% FSDP	
*B21-N091D	*GENERAL ELEC	*1E	*G-12		*1151	*FT			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT156A	*REACTOR HI PRESS SCRAM				*ROSEMOUNT	*3048	*070 *MIN	*10 PSIG	
*B21-N078A	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT156B	*REACTOR HI PRESS SCRAM				*ROSEMOUNT	*3048	*070 *MIN	*10 PSIG	
*B21-N078B	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT156C	*REACTOR HI PRESS SCRAM				*ROSEMOUNT	*3048	*070 *MIN	*10 PSIG	
*B21-N078C	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT156D	*REACTOR HI PRESS SCRAM				*ROSEMOUNT	*3048	*070 *MIN	*10 PSIG	
*B21-N078D	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT158A	*CS 7 RHR VALVE OPENING				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*B21-N097A	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT158B	*CS & RHR VALVE OPENING				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*B21-N097B	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT158C	*CS & RHR VALVE OPENING				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*B21-N097C	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1B21*PT158D	*CS & RHR VALVE OPENING				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*B21-N097D	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1C71*PT007A	*PRIMARY CONTAINMENT HP				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*C71-N050A	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1C71*PT007B	*PRIMARY CONTAINMENT HP				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*C71-N050B	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1C71*PT007C	*PRIMARY CONTAINMENT HP				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*C71-N050C	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A

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*1C71*PT007D	*PRIMARY CONTAINMENT HP				*ROSEMOUNT	*3048	*070 *MIN	*1% FS	
*C71-N050D	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1E11*PT165A	*PRIMARY CONT HP				*ROSEMOUNT	*3048	*070 *MIN	*.1 PSIG	
	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1E11*PT165B	*PRIMARY CONT HP				*ROSEMOUNT	*3048	*070 *MIN	*.1 PSIG	
	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1E11*PT165C	*PRIMARY CONT HP				*ROSEMOUNT	*3048	*070 *MIN	*.1 PSIG	
	*GENERAL ELEC	*1E	*G-10		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
*1E11*PT165D	*PRIMARY CONT HP				*ROSEMOUNT	*3048	*070 *MIN	*.1 PSIG	
	*GENERAL ELEC	*1E	*G-12		*1151	*EQ			*L
ADDED	*310010	*003	*RBS	*00078					*A
.1E32*PT031A	MSIV A LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N051B	GENERAL ELEC	1E	G-05		1151AP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT031B	MSIV B LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N051F	GENERAL ELEC	1E	G-05		1151AP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT031C	MSIV C LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N051K	GENERAL ELEC	1E	G-05		1151AP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT031D	MSIV D LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N051P	GENERAL ELEC	1E	G-05		1151AP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT034	MN STM LINE LEAKAGE				ROSEMOUNT	3048	100 DYS		*RG
E32-N056	GENERAL ELEC	1E	G-05		1151AP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1C61*FT001	RHR MAIN FLOW				*ROSEMOUNT		180 DYS		
C61-N001	GENERAL ELEC	1E	G-01		*1151DP	*FT			ALL

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	310010	003	RBS	00008					B
.1E11*FT001A	RHR MAIN FLOW				ROSEMOUNT	3048	180 DYS	*2.25%	*RG
E11-N015A	GENERAL ELEC	1E	G-01		1151DP	FT			ALL
	310010	003	RBS	00008					A
.1E11*FT001B	RHR MAIN FLOW				ROSEMOUNT	3048	180 DYS	*2.25%	*RG
E11-N015B	GENERAL ELEC	1E	G-01		1151DP	FT			ALL
	310010	003	RBS	00008					A
.1E11*FT006A	*CHANGED TO 1Z91*FT020				ROSEMOUNT	3048	180 DYS	*2%	*RG
E11-N007A	GENERAL ELEC	1E	G-01		1151DP	FT			ALL
	310010	003	RBS	00008					*B
.1E11*FT006B	RHR HX SERV WATER INLET				ROSEMOUNT	3048	180 DYS	*2%	*RG
E11-N007B	GENERAL ELEC	1E	G-01		1151DP	FT			ALL
	310010	003	RBS	00008					*B
.1E21*FT002A	CORE SPRAY PUMP DISCH				ROSEMOUNT	3048	180 DYS	*	*RG
E21-N003A	GENERAL ELEC	1E	G-01		1151DP	FT			L
	310010	003	RBS	00008					A
.1E21*FT002B	CORE SPRAY PUMP DISCH				ROSEMOUNT	3048	180 DYS	*	*RG
E21-N003B	GENERAL ELEC	1E	G-01		1151DP	FT			L
	310010	003	RBS	00008					A
.1E32*PDT035	DILUTION AIRFLOW,OB				ROSEMOUNT	3048	180 DYS		*RG
E32-N059	GENERAL ELEC	1E	G-05		1151DP	FT			*L
	310010	003	RBS	00063					A
.1E32*PDT038	DILUTION AIRFLOW IB				ROSEMOUNT	3048	100 DYS		*RG
E32-N054	GENERAL ELEC	1E	G-05		1151DP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E41*FT003	*CHANGED TO 1Z91*FT002				ROSEMOUNT	3048	001 DYS		*RG
E41-N008	GENERAL ELEC	1E	G-01		1151DP	*EQ			ALL
	310010	003	RBS	00008					A
.1E51*FT003	RCIC PUMP DISCHARGE				ROSEMOUNT	3048	001 DYS	*.67%	*RG
E51-N003	GENERAL ELEC	1E	G-01		1151DP	*EQ			ALL
	310010	003	RBS	00008					A
.1G33*FT011	RWCU SYSTEM INLET				ROSEMOUNT	3048	070 MIN	*2% SPAN	
G33-N036	GENERAL ELEC	1E	H-16		1151DP	*EQ			H,H
	310010	003	RBS	00112					A

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.1G33*FT012	RHCU SYS REACTOR RETURN				ROSEMOUNT	3048	070 MIN	*2% SPAN	
G33-N041	GENERAL ELEC	1E	H-16		1151DP	*EQ			H,M
	310010	003	RBS	63					A
.1G33*FT013	RHCU SYS BLOWDOWN				ROSEMOUNT	3048	070 MIN	*2% SPAN	
G33-N012	GENERAL ELEC	1E	H-16		1151DP	*EQ			H,M
	310010	003	RBS	00112					A
.1E32*PT032A	MSIV A LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N061B	GENERAL ELEC	1E	G-05		1151GP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT032B	MSIV B LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N061F	GENERAL ELEC	1E	G-05		1151GP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT032C	MSIV C LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N061K	GENERAL ELEC	1E	G-05		1151GP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT032D	MSIV D LEAKAGE LINE				ROSEMOUNT	3048	100 DYS		*RG
E32-N061P	GENERAL ELEC	1E	G-05		1151GP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT033	MN STM LINE LEAKAGE				ROSEMOUNT	3048	100 DYS		*RG
E32-N055	GENERAL ELEC	1E	G-05		1151GP	FT			*L
	310010	003	RBS	00063					A
	OP CODE B FOR HELB & MELB								
.1E32*PT041	OUTBD MSIV LEAKAGE CONT				ROSEMOUNT	3048	180 DYS		
E32-N058	GENERAL ELEC	1E	G-10		1151GP	*FT			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1E32*PT042	INBD MSIV LEAKAGE CONT				ROSEMOUNT	3048	180 DYS		
E32-N060	GENERAL ELEC	1E	G-12		1151GP	*FT			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								
.1E32*PT043	INBD MSIV LEAKAGE CONT				ROSEMOUNT	3048	180 DYS		
E32-N050	GENERAL ELEC	1E	G-12		1151GP	*FT			L
	310010	003	RBS	00078					A
	OP CODE B FOR HELB & MELB								

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*1B21*LT159A	*AUTO DEPRESSURIZATION				*ROSEMOUNT	*3915	*001 *DYS	*2.5% FSDP	
*B21-N095A	*GENERAL ELEC	*1E	*G-10		*1152	*EQ			*ALL
ADDED	*310010	*003	*RBS	*00078					*A
.1B21*LT159B	AUTO DEPRESSURIZATION				*ROSEMOUNT	*3915	*001 *DYS	*2.5% FSDP	
B21-N095B	*GENERAL ELEC	*1E	*H-12		*1152	*EQ			*ALL
	310010	*003	*RBS	*00078					*A
.1C61*PT012	PRESS TRANS DRYWELL PRESS				*ROSEMOUNT	*406-02	180 DYS		
	ROSEMOUNT	1E	G-10		1152AP5E22T0280PB	*EQ			ALL
	310773	406	RBS	00098					B
.1T46*PDT003A	FLT-1A DIFF PRESSURE				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	K-15		1152DP3A22PB	*MR			ALL
	310773	406	RBS	00112					A
	RELOCATION BY FIELD REQUIRED								
.1T46*PDT003B	FLT-1B DIFF PRESSURE				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	K-15		1152DP3A22PB	*MR			ALL
	310773	406	RBS	00112					A
	RELOCATION BY FIELD REQUIRED								
.1T46*PDT043A	REACTOR BLDG DIFF				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	H-20		1152DP3A22PB	*MR			ALL
	310773	406	RBS	00220					A
.1T46*PDT043B	REACTOR BLDG DIFF				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	H-20		1152DP3A22PB	*MR			ALL
	310773	406	RBS	00220					A
.1C61*LT026	SUPP POOL				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	G-01		1152DP4A22PB	*MR			ALL
	310773	406	RBS	00008					B
.1G11*FT647A	*CHANGED TO 1Z91*FT003A				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	G-01		1152DP4A22PB	*MR			ALL
	310773	406	RBS	00008					B
.1G11*FT647B	*CHANGED TO 1Z91*FT003B				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	G-01		1152DP4A22PB	*MR			ALL
	310773	406	RBS	00008					B
.1G11*FT647C	LEAKAGE RETURN PP P-270C DISCH				*ROSEMOUNT		180 DYS		
	ROSEMOUNT	1E	G-01		1152DP4A22PB	*MR			ALL
	310773	406	RBS	00008					B
.1Z93*LT001A	SUPPRESSION POOL LEV XMTR				*ROSEMOUNT	*	180 DYS		*RG

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	ROSEMOUNT	1E	G-01		1152DP4A22PB	*MR			ALL
	310773	406	RBS	00008					A
.1Z93*LT001B	SUPPRESSION POOL LEV XMTR				ROSEMOUNT	*	180 DYS		*RG
	ROSEMOUNT	1E	G-01		1152DP4A22PB	*MR			ALL
	310773	406	RBS	00008					A
.1C61*PT106	SRV AIR HEADER PRESS				*ROSEMOUNT		180 DYS		
		1E	G-10		1152GP7A22PB	*MR			ALL
	310773	406	RBS	00101					B
.1P50*PT116A	SERVICE AIR HEADER A				*ROSEMOUNT		180 DYS		*RG
04530008	ROSEMOUNT	1E	H-18		1152GP7A22PB	*MR			ALL
	310773	406	RBS	151					A
.1P50*PT116B	SERVICE AIR HEADER B				*ROSEMOUNT		180 DYS		*RG
04560008	ROSEMOUNT	1E	H-18		1152GP7A22PB	*MR			ALL
	310773	406	RBS	151					A
.1B21*PT153A	RV092A MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	G-01		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00008					A
.1B21*PT153B	RV092BMONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	G-01		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00008					A
.1B21*PT153C	RV092C MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	G-01		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00008					A
.1B21*PT153D	RV092D MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	G-01		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00008					A
.1B21*PT153E	SRV MONITOR E				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	G-01		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	40					A
.1B21*PT153F	RV092F MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	L-02		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00040					A
.1B21*PT153G	RV092G MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	L-02		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00040					A

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.1B21*PT153H	RV092H MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	L-02		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00040					A
.1B21*PT153J	RV092J MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	L-02		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00040					A
.1B21*PT153K	RV092K MONITOR				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	L-02		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00040					A
.1B21*PT153L	SRV MONITOR L				*ROSEMOUNT	*406-02	001 DYS		*RG
	ROSEMOUNT	1E	L-02		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00040					A
.1E41*PT142	TO LUBE OIL COOLER				*ROSEMOUNT	*406-02	001 DYS		
	ROSEMOUNT	1E	G-01		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00008					A
.1E51*PT142	LUBE OIL COOLER CONT VALVE				*ROSEMOUNT	*406-02	001 DYS		
	ROSEMOUNT	1E	G-01		1152GP7E22PB	*EQ			ALL
	310773	406	RBS	00008					A
.1T48*FT005	HEPA FILTER INLET				*ROSEMOUNT	*406-01	180 DYS		
	ROSEMOUNT	1E	J-15		1153DB3A22PB	EQ			L
	310773	406	RBS	00113					A
*1P41*FT146A	1P42*E011A OUTLET FLOW				*ROSEMOUNT	*406-02	180 DYS		
1P41-FT146A	ROSEMOUNT	*2E	G-01		*1153DB4A22PB	EQ			ALL
EQUIP ID CHGD	310773	406	RB	00008					B
*1P41*FT146B	1P42*E011B OUTLET FLOW				*ROSEMOUNT	*406-02	180 DYS		
1P41-FT146B	ROSEMOUNT	*2E	G-01		*1153DB4A22PB	EQ			ALL
EQUIP ID CHGD	310773	406	RB	00008					B
.1P41*FT151A	RHR SERV WTR RAD MON SAMPLE				*ROSEMOUNT	*406-02	180 DYS		
	ROSEMOUNT	1E	G-01		1153DB4A22PB	EQ			ALL
	310773	406	RBS	00008					A
.1P41*FT151B	RHR SERV WTR RAD MON SAMPLE				*ROSEMOUNT	*406-02	180 DYS		
	ROSEMOUNT	1E	G-01		1153DB4A22PB	EQ			ALL
	310773	406	RBS	00008					A
.1Z93*PT003A	DRYWELL PRESSURE				*ROSEMOUNT	*406-01	180 DYS		*RG
	ROSEMOUNT	1E	G-10		1153GB7A22PB	EQ			*L
	310773	406	RBS	00078					A

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	OP CODE B FOR HELB & MELB								
.1Z93*PT003B	DRYWELL & SUPPRESSION POOL PRE ROSEMOUNT 310773	1E 406	G-10 RBS	00078	*ROSEMOUNT 1153GB7A22PB	*406-01 EQ	180 DYS		*RG *L A
	OP CODE B FOR HELB & MELB								
.1Z93*PT004A	SUPPRESSION POOL ACCESS HATCH ROSEMOUNT 310773	1E 406	G-02 RBS	00040	ROSEMOUNT 1153GB7A22PB	*406-01 EQ	180 DYS		*RG ALL A
.1Z93*PT004B	SUPPRESSION POOL ACCESS HATCH ROSEMOUNT 310773	1E 406	G-07 RBS	00063	ROSEMOUNT 1153GB7A22PB	*406-01 EQ	180 DYS		*RG ALL A
.1Z93*TE110W	RV092ACL DISCHARGE 1FT ROSEMOUNT 310773	1E 406	F-23 RBD	00028	*ROSEMOUNT 88-149-1	*406-03 *EQ *MST	180 DYS		ALL A
.1Z93*TE110X	RV092ACL DISCHARGE 1FT ROSEMOUNT 310773	1E 406	F-23 RBD	00028	*ROSEMOUNT 88-149-1	*406-03 *EQ *MST	180 DYS		ALL A
.1Z93*TE110Y	RV092ACL DISCHARGE 1FT ROSEMOUNT 310773	1E 406	F-23 RBD	00025	*ROSEMOUNT 88-149-1	*406-03 *EQ *MST	180 DYS		ALL A
.1Z93*TE110Z	RV092ACL DISCHARGE 1FT ROSEMOUNT 310773	1E 406	F-23 RBD	00025	*ROSEMOUNT 88-149-1	*406-03 *EQ *MST	180 DYS		ALL A
.1Z93*TE132A	RV092ACL DISCHARGE 2FT ROSEMOUNT 310773	1E 406	E-23 RBD	25	*ROSEMOUNT 88-149-2	*406-03 *EQ *MST	180 DYS		*RG ALL A
.1Z93*TE132B	RV092ACL DISCHARGE 2FT ROSEMOUNT 310773	1E 406	E-23 RBD	25	*ROSEMOUNT 88-149-2	*406-03 *EQ *MST	180 DYS		*RG ALL A
.1Z93*TE133A	RV092BDE DISCHARGE 2FT ROSEMOUNT 310773	1E 406	E-23 RBD	25	*ROSEMOUNT 88-149-2	*406-03 *EQ *MST	180 DYS		*RG ALL A
.1Z93*TE133B	RV092BDE DISCHARGE 2FT ROSEMOUNT 310773	1E 406	E-23 RBD	25	*ROSEMOUNT 88-149-2	*406-03 *EQ *MST	180 DYS		*RG ALL A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBNG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1Z93*TE134A	RV092MG DISCHARGE 2FT				*ROSEMOUNT	*406-03	180 DYS		*RG
	ROSEMOUNT	1E	E-23		88-149-2	*EQ			ALL
	310773	406	RBD	25		*MST			A
.1Z93*TE134B	RV092MG DISCHARGE 2FT				*ROSEMOUNT	*406-03	180 DYS		*RG
	ROSEMOUNT	1E	E-23		88-149-2	*EQ			ALL
	310773	406	RBD	25		*MST			A
.1Z93*TE135A	RV092FHJ DISCHARGE 2FT				*ROSEMOUNT	*406-03	180 DYS		*RG
	ROSEMOUNT	1E	E-23		88-149-2	*EQ			ALL
	310773	406	RBD	25		*MST			A
.1Z93*TE135B	RV092FHJ DISCHARGE 2FT				*ROSEMOUNT	*406-03	180 DYS		*RG
	ROSEMOUNT	1E	E-23		88-149-2	*EQ			ALL
	310773	406	RBD	25		*MST			A
.1T46*TE001B	RBSVS RECIRC AIR TEMP				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	K-15		89-138-2/88-14-3	*EQ			ALL
	310773	406	RBS	112					A
.1T46*TE001A	RBSVS RECIRC AIR TEMP				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	K-15		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	112					A
.1T46*TE022A	AIR RETURN TO UC-2A				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	G-01		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00010					A
.1T46*TE022B	AIR RETURN TO UC-2B				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	G-01		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00042					A
.1T46*TE023A	AIR RETURN TO UC-3A				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	G-01		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00012					A
.1T46*TE023B	AIR RETURN TO UC-3B				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	G-02		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00042					A
.1T46*TE024A	AIR RETURN TO UC-4A				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-20		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00220					A
.1T46*TE024B	AIR RETURN TO UC-4B				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-20		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00220					A

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.1T46*TE025A	AIR RETURN TO UC-5A				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-20		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00220					A
.1T46*TE025B	AIR RETURN TO UC-5B				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-20		89-86-4/88-14-1	*EQ			ALL
	310773	406	RBS	00220					A
.1T46*TE028A	MCC RM UNIT COOLER				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-16		89-86-4/88-14-3	*EQ			ALL
	310773	406	RBS	00116					A
.1T46*TE028B	MCC RM UNIT COOLER				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	J-15		89-86-4/88-14-3	*EQ			ALL
	310773	406	RBS	00116					A
.1T46*TE059A	UC-21A UNIT CLEAR				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-19		89-86-4/88-14-3	*EQ			ALL
	310773	406	RBS	00155					A
.1T46*TE059B	UC-21B UNIT CLEAR				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-19		89-86-4/88-14-3	*EQ			ALL
	310773	406	RBS	00155					A
.1T46*TE060A	UC-22A UNIT CLEAR				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-19		89-86-4/88-14-3	*EQ			ALL
	310773	406	RBS	00160					A
.1T46*TE060B	UC-22B UNIT CLEAR				*ROSEMOUNT	*406-03	180 DYS		
	ROSEMOUNT	1E	H-19		89-86-4/88-14-3	*EQ			ALL
	310773	406	RBS	00160					A

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REPORT GROUP MAK = SCHUTTE & KOERTING									
.1E32*FE037A	MSIV A LEAK TO LPM				SCHUTTE & KOERTING	*3128	100 DYS		
E32-N006B	GENERAL ELEC	1E	G-06			*DR			*L
	310010	003	RBS	00065					A
	OP CODE B FOR HELB & MELB								
.1E32*FE037B	MSIV B LEAK TO LPM				SCHUTTE & KOERTING	*3128	100 DYS		
E32-N006F	GENERAL ELEC	1E	G-06			*DR			*L
	310010	003	RBS	00065					A
	OP CODE B FOR HELB & MELB								
.1E32*FE037C	MSIV C LEAK TO LPM				SCHUTTE & KOERTING	*3128	100 DYS		
E32-N006K	GENERAL ELEC	1E	G-06			*DR			*L
	310010	003	RBS	00065					A
	OP CODE B FOR HELB & MELB								
.1E32*FE037D	MSIV D LEAK TO LPM				SCHUTTE & KOERTING	*3128	100 DYS		
E32-N006P	GENERAL ELEC	1E	G-06			*DR			*L
	310010	003	RBS	00065					A
	OP CODE B FOR HELB & MELB								

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**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = SQUARE D									
.1E41*PS016	AUX OIL PMP TURB CONT OIL PRES				*SQUARE D	*	001 DYS	*2 PSIG	
PSI	GENEPAL ELEC	1E	G-01		*CLASS 9012, ACH-22	*TA			ALL
	310010	003	RBS	00008					A

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REPORT GROUP MAK = SQUARE D CO.									
.1R24*PNL-R1	BREAKER DIST PNL (RED)				SQUARE D CO.		180 DYS		
	SQUARE D	1E	N-21		*BREAKER DIST PNL	*IJ			ALL
	310535	115	RBS	112					A
.1R24*PNL-R2	BREAKER DIST PNL (RED)				SQUARE D CO.		180 DYS		
	SQUARE D	1E	N-21		*BREAKER DIST PNL	*IJ			ALL
	310535	115	RBS	112					A
.1R24*PNL01	BREAKER DIST PNL (BLACK)				*SQUARE D CO.		180 DYS		
	SQUARE D	1E	G-10		BREAKER DIST PNL	*IJ			*L
	310535	115	RBS	00078					B
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*PNL02	BREAKER DIST PNL (BLACK)				*SQUARE D CO.		180 DYS		
	SQUARE D	1E	G-10		BREAKER DIST PNL	*IJ			*L
	310535	115	RBS	00078					B
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*PNL03	BREAKER DIST PNL (BLACK)				*SQUARE D CO.		180 DYS		
	SQUARE D	1E	H-11		BREAKER DIST PNL	*IJ			*L
	310535	115	RBS	00078					B
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*PNL04	120VAC POWER PNL TO RSP				*SQUARE D CO.		180 DYS		
	SQUARE D	1E	N-21		BREAKER DIST PNL	*IJ			ALL
	310535	115	RBS	00112					A
.1R24*MCC111W	MOTOR CONTROL CENTER				SQUARE D CO.		180 DYS		
	SQUARE D CO.	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	150					A
.1R24*MCC111X	MOTOR CONTROL CENTER-LCP1				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A
.1R24*MCC111Y	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO.	1E	H-09		MODEL 4	*IJ			*L
	310535	115	RBS	78					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC111Z	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO.	1E	H-09		MODEL 4	*IJ			*L
	310535	115	RBS	78					A

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	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1111	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	G-02		MODEL 4	*IJ			*L
	310535	115	RBS	40					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1112	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A
.1R24*MCC1113	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A
.1R24*MCC1114	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	H-18		MODEL 4	*IJ			*L
	310535	115	RBS	150					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1117	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	G-02		MODEL 4	*IJ			*L
	310535	115	RBS	40					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1118	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A
.1R24*MCC1119	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	L-02		MODEL 4	*IJ			*L
	310535	115	RBS	40					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC112W	MOTOR CONTROL CENTER				SQUARE D CO.		180 DYS		
	SQUARE D CO.	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	150					A
.1R24*MCC112X	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	H-12		MODEL 4	*IJ			*L
	310535	115	RBS	78					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC112Y	MOTOR CONTROL CENTER-LCP1				SQUARE D CO.		180 DYS		
	SQUARE D CO.	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A

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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET QUAL STAT SUBMG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
.1R24*MCC1121	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	G-02		MODEL 4	*IJ			*L
	310535	115	RBS	40					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1122	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A
.1R24*MCC1123	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A
.1R24*MCC1124	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	H-18		MODEL 4	*IJ			*L
	310535	115	RBS	150					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1127	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	G-02		MODEL 4	*IJ			*L
	310535	115	RBS	40					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1128	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	112					A
.1R24*MCC1129	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	L-02		MODEL 4	*IJ			*L
	310535	115	RBS	40					A
	H,M-OP CODE B 1 DAY, C REM. (MCC REV.)								
.1R24*MCC1131	MOTOR CONTROL CENTER-EMER				SQUARE D CO.		180 DYS		
	SQUARE D CO	1E	N-21		MODEL 4	*IJ			ALL
	310535	115	RBS	150					A
.1R24*PNL-B1	BREAKER DIST PNL (BLUE)				*SQUARE D CO.		180 DYS		
	SQUARE D	1E	N-21		*480V PNL	*IJ			ALL
	310535	115	RBS	00112					A
.1R24*PNL-G1	BREAKER DIST PNL (GREEN)				*SQUARE D CO.		180 DYS		
	SQUARE D	1E	N-21		*480V PNL	*IJ			ALL
	310535	115	RBS	00112					A
.1R24*PNL-Y1	BREAKER DIST PNL (YELLOW)				SQUARE D CO.		180 DYS		
	SQUARE D	1E	N-21		*480V PNL	*IJ			ALL
	310535	115	RBS	112					A

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.1E41*LS095	COND&VAC TK F-36				*SQUARE D CO.		001 DYS	*3 IN.	
	GENERAL ELEC	1E	G-01		9038-AG154	*TA			ALL
	310010	003	RBS	00008					A
.1E51*LS095H	COND & VAC TK E-38				*SQUARE D CO.		001 DYS		
	GENERAL ELEC	1E	G-01		9038-AG154	*DR			ALL
	310010	003	RBS	8					A
.1E51*LS091	RCIC STM DRN POT				*SQUARE D CO.	*3916	180 DYS	*.5 IN	
E51-N010	GENERAL ELEC	1E	G-01		9038-A6154	*DR			ALL
	310010	003	RBS	00008					B

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REPORT GROUP MAK = STATIC-O-RING

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.1B31*PS023A	*RECIRC SUC FR RHR VLV INTLK				STATIC-O-RING	3032	007 DYS	.5%	
B31-N018A	GENERAL ELEC	1E	G-02		5N-AA3-X10STT	*DR			*L
	310010	003	RBS	00040					*A
	OP CODE B FOR HELB & MELB								
.1B31*PS023B	*RECIRC SUC PR RHR VLV INTLK				*STATIC-O-RING	*3032	*007 *DYS	*.5%	
B31-N018B	*GENERAL ELEC	*1E	*G-02		*5N-AA3-X10STT	*DR			*L
	310010	*003	*RBS	*00040					*A
	OP CODE B FOR HELB & MELB								
.1E51*PS023A	RCIC AUTO ISOLATION				STATIC-O-RING	3032	001 DYS	*13%	
E51-N019A	GENERAL ELEC	1E	L-02		5N-AA3-X10STT	*DR			ALL
	310010	003	RBS	00040					A
.1E51*PS023B	RCIC AUTO ISOLATION				STATIC-O-RING	3032	001 DYS	*13%	
E51-N019B	GENERAL ELEC	1E	L-02		5N-AA3-X10STT	*DR			ALL
	310010	003	RBS	00040					A
.1E51*PS023C	RCIC AUTO ISOLATION				STATIC-O-RING	3032	001 DYS	*13%	
E51-N019C	GENERAL ELEC	1E	L-02		5N-AA3-X10STT	*DR			ALL
	310010	003	RBS	00040					A
.1E51*PS023D	RCIC AUTO ISOLATION				STATIC-O-RING	3032	001 DYS	*13%	
E51-N019D	GENERAL ELEC	1E	L-02		5N-AA3-X10STT	*DR			ALL
	310010	003	RBS	00040					A
.1E51*PS021L	RCIC PUMP SUCTION				STATIC-O-RING	3032	001 DYS	*2 PSIG	
E51-N006	GENERAL ELEC	1E	G-01		6N-AA21-X10VSTT	*DR			ALL
	310010	003	RBS	00008					A
.1E41*PS021L	HPCI PUMP SUCT				STATIC-O-RING	3032	001 DYS		
E41-N010	GENERAL ELEC	1E	G-01		6N-AA21-X10V557	*DR			ALL
	310010	003	RBS	00008					A

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JOB NUMBER 1160002 PROJECT EQUIPMENT SYSTEM - (IS-129) REPORT DATE 01/18/82 PAGE 111
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JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

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REPORT GROUP MAK = SYSTEMS CONTROL									
.1R35*PNL-B2	120VAC DIST PNL REAC BLDG				SYSTEMS CONTROL	*124-01	180 DYS	N/A	
	SYSTEM CONT	1E	N-21		120-VAC-DIST-PNL	*EQ			ALL
	310713	124	RBS	112					A
	REQUIRED 6 MONTH ACCIDENT DOSE REDUCED TO 1.0E5 PER CALCULATION SNPS-1-UR-21-N								
.1R35*PNL-R2	120VAC DIST PNL REAC BLDG				SYSTEMS CONTROL	*124-01	180 DYS	N A	
	SYSTEM CONT	1E	N-21		120-VAC-DIST-PNL	*EQ			ALL
	310713	124	RBS	112					A
	REQUIRED 6 MONTH ACCIDENT DOSE REDUCED TO 1.0E5 PER CALCULATION SNPS-1-UR-21-N								

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
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REPORT GROUP MAK = TARGET

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.1B21*SOV92AX	ADS VLV 1B21*RV-92A SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013A	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92AY	ADS VLV 1B21*RV-92A SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013A	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92BX	ADS VLV 1B21*RV-92B SOV A				TARGET	3904	*180 *DYS	*N/A	
*B21-F013B	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92BY	ADS VLV 1B21*RV-92B SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013B	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92CX	ADS VLV 1B21*RV-92C SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013C	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92CY	ADS VLV 1B21*RV-92C SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013C	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92DX	ADS VLV 1B21*RV-92D SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013D	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92DY	ADS VLV 1B21*RV-92D SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013D	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92EX	ADS VLV 1B21*RV-92E SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013E	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92EY	ADS VLV 1B21*RV-92E SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013E	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92FX	ADS VLV 1B21*RV-92F SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013F	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
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.1B21*SOV92FY	ADS VLV 1B21*RV-92F SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013F	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92GX	ADS VLV 1B21*RV-92G SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013G	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92GY	ADS VLV 1B21*RV-92G SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013G	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92HX	ADS VLV 1B21*RV-92H SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013H	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92HY	ADS VLV 1B21*RV-92H SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013H	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92JX	ADS VLV 1B21*RV-92J SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013J	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92JY	ADS VLV 1B21*RV-92J SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013J	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92KX	ADS VLV 1B21*RV-92K SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013K	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92KY	ADS VLV 1B21*RV-92K SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013K	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92LX	ADS VLV 1B21*RV-92L SOV A				TARGET	3904	180 DYS	*N/A	
*B21-F013L	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A
.1B21*SOV92LY	ADS VLV 1B21*RV-92L SOV B				TARGET	3904	180 DYS	*N/A	
*B21-F013L	GENERAL ELECT	1E	B-22		1/2 SMS-A-01	*RR			ALL
	310010	003	RBD	00102		*SPR			A

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JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
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**********	**********	**********	**********		**********	**********	********	**********	****

REPORT GROUP MAK = TERRY

.1E41*TU002	HPCI TURBINE				*TERRY	*3913	*012 *HRS	*N/A	
	*GE-TERRY TURB	*1E	*G-01		*GS-1	*TA			*ALL
	310010	003	RBS	8					*A

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REPORT GROUP MAK = VALCOR

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1T48*SOV131	ATMOSPHERE SAMPLE VALCOR 310979-1	1E 15.54	G-02 RBS	00063	VALCOR *V526-5295-59	*15.54-01 *EQ	180 DYS	N/A	 ALL A
.1T48*SOV126B	ATMOSPHERE SAMPLE VALCOR 310979-1	1E 15.54	G-02 RBS	00063	VALCOR *V526-5295-61	*15.54-01 *EQ	180 DYS	N/A	 ALL A
.1T48*SOV127B	ATMOSPHERE SAMPLE VALCOR 310979	1E 15.54	G-02 RBS	00040	VALCOR V526-5295-61	*15.54-01 *EQ	180 DYS	NA	 ALL A
.1T48*SOV128B	ATMOSPHERE SAMPLE VALCOR 310979-1	1E 15.54	G-10 RBS	00078	VALCOR *V526-5295-61	*15.54-01 *EQ	180 DYS	N/A	 ALL A
.1T48*SOV129B	ATMOSPHERE SAMPLE VALCOR 310979	1E 15.54	G-02 RBS	00040	VALCOR V526-5295-61	*15.54-01 *EQ	180 DYS	NA	 ALL A
.1T48*SOV126A	ATMOSPHERE SAMPLE VALCOR 310979	1E 15.54	G-02 RBS	00063	VALCOR *V526-5295-62	*15.54-01 *EQ	180 DYS	N/A	 ALL A
.1T48*SOV127A	ATMOSPHERE SAMPLE VALCOR 310979	1E 15.54	G-02 RBS	00040	VALCOR V526-5295-62	*15.54-01 *EQ	180 DYS	NA	 ALL A
.1T48*SOV128A	ATMOSPHERE SAMPLE VALCOR 310979-1	1E 15.54	G-10 RBS	00078	VALCOR *V526-5295-62	*15.54-01 *EQ	180 DYS	N/A	 ALL A
.1T48*SOV129A	ATMOSPHERE SAMPLE VALCOR 310979	1E 15.54	G-02 RBS	00040	VALCOR *V526-5295-62	*15.54-01 *EQ	180 DYS	NA	 ALL A
.1B21*SOV313A	SAMPLE PP SUPPRESS POOL RETURN VALCOR 310979	1E 15.54	G-09 RBS	00078	VALCOR *V526-5683-26	*15.54-01 *EQ	180 DYS	NA	 ALL A
.1B21*SOV314A	SAMPLE PP SUPPRESS POOL RETURN VALCOR 310979	1E 15.54	G-12 RBS	00078	VALCOR *V526-5683-26	*15.54-01 *EQ	180 DYS	NA	 ALL A

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JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
.1E11*SOV166A	LQD SAMPLE RHR				VALCOR	*15.54-01	180 DYS	N/A	
	VALCOR	1E	G-01		*V526-5683-27	*EQ			ALL
	310979	15.54	RBS	00008					A
.1E11*SOV167A	LQD SAMPLE RHR				VALCOR	*15.54-01	180 DYS	N/A	
	VALCOR	1E	G-02		*V526-5683-27	*EQ			ALL
	310979	15.54	RBS	00040					A
.1B21*SOV313B	SAMPLE PP SUPPRESS POOL RETURN				VALCOR	*15.54-01	180 DYS	NA	
	VALCOR	1E	G-09		*V526-5683-28	*EQ			ALL
	310979	15.54	RBS	00078					A
.1B21*SOV314B	SAMPLE PP SUPPRESS POOL RETURN				VALCOR	*15.54-01	180 DYS	NA	
	VALCOR	1E	G-12		*V526-5683-28	*EQ			ALL
	310979	15.54	RBS	00078					A
.1E11*SOV168	SAMPLE PP SUPRESS POOL RETURN				VALCOR	*15.54-01	180 DYS	N/A	
	VALCOR	1E	G-01		*V526-5683-29	*EQ			ALL
	310979	15.54	RBS	00008					A
.1E11*SOV169	SAMPLE PP SUPRESS POOL RETURN				VALCOR	*15.54-01	180 DYS	N/A	
	VALCOR	1E	G-01		V526-5683-29	*EQ			ALL
	310979	15.54	RBS	00008					A
.1E11*SOV166B	LQD SAMPLE RHR				VALCOR	*15.54-01	180 DYS	N/A	
	VALCOR	1E	G-02		*V526-5683-30	*EQ			ALL
	310979	15.54	RBS	00040					A
.1E11*SOV167B	LQD SAMPLE RHR				VALCOR	*15.54-01	180 DYS	N/A	
	VALCOR	1E	G-02		*V526-5683-30	*EQ			ALL
	310979	15.54	RBS	00040					A

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JOB NAME SHOREHAM - UNIT 1
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STONE AND WEBSTER ENGINEERING CORPORATION
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**********	**********	**********	**********		**********	**********	********	**********	****
REPORT GROUP MAK = WESTINGHOUSE									
.1T46*FN837A	1T46*UC-020A FAN BUFFALO FORGE 310556	1E 276	J-16 RBS	00112	WESTINGHOUSE 143T	*DR	180 DYS	*N/A	ALL A
.1T46*FN837B	1T46*UC-020B FAN BUFFALO FORGE 310556	1E 276	K-15 RBS	00112	WESTINGHOUSE 143T	*DR	180 DYS	*N/A	ALL A
	REQUIRED RAD LEVEL REDUCED TO 6.0E07, PER CALCS SNPS-1-UR-17-B REV 2, AND SNPS-1-UR-18-A REV 1.								
.1T46*FN023	1T46*UC-023 FAN BUFFALO FORGE 310556	1E 276	L-02 RBS	00040	WESTINGHOUSE 143TCZ	*276-01 *EQ	180 DYS	*N/A	*L A
.1E21*P049A	CORE SPRAY LEV PP C-10 GOULD PUMP 310545	1E 235	G-01 RBS	8	WESTINGHOUSE 213T	*DR	180 DYS		*L A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E21*P049B	CORE SPRAY LEV PP-C-6 GOULD PUMP 310545	1E 235	G-01 RBS	8	WESTINGHOUSE 213T	*DR	180 DYS		*L A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E41*P050	HPCI LOOP LVL PUMP GOULD PUMP 310545	1E 235	G-01 RBS	00008	WESTINGHOUSE 213T	*DR	001 DYS		*L A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1E51*P051	RCIC LOOP LEVEL PUMP GOULD PUMP 310545	1E 235	G-01 RBS	8	WESTINGHOUSE 213T	*DR *	001 DYS		*L A
	L-OP CODE B REM: H,M-OP CODE B 1 DAY, C REM.				(MCC REV.)				
.1T46*FN838A	1T46*UC-021A FAN BUFFALO FORGE 310556	1E 276	H-19 RBS	00150	WESTINGHOUSE 213T	*DR	180 DYS		ALL A
.1T46*FN838B	1T46*UC-021B FAN BUFFALO FORGE 310556	1E 276	H-19 RBS	00150	WESTINGHOUSE 213T	*DR	180 DYS		ALL A
.1T46*FN839A	1T46*UC-022A FAN BUFFALO FORGE	1E	H-19		WESTINGHOUSE 213T	*DR	180 DYS		ALL

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
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EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET QUAL STAT SUBMG	OP TIME	ACC / PERF	NU-CAT EMG CND OP CD
	310556	276	RBS	00161					A
.1T46*FN839B	1T46*UC-022B FAN				WESTINGHOUSE		180 DYS		
	BUFFALO FORGE	1E	H-19		213T	*DR			ALL
	310556	276	RBS	00161					A
.1G11*P270C	*SUPP PL PP BK LEAKAGE RET POOL				WESTINGHOUSE		180 DYS		
	BUFFALO FORGE CO.	1E	G-01		286T 25HP	*DR			L
	348187	457	RBS	00008					A
	OP CODE B FOR HELB & HELB								
.1T46*FN835A	1T46*UC-004A FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	H-20		326T	*DR			ALL
	310556	276	RBS	00219					A
.1T46*FN835B	1T46*UC-004B FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	H-20		326T	*DR			ALL
	310556	276	RBS	00219					A
.1T46*FN836A	1T46*UC-005A FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	H-20		326T	*DR			ALL
	310556	276	RBS	00219					A
.1T46*FN836B	1T46*UC-005B FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	H-20		326T	*DR			ALL
	310556	276	RBS	00219					A
.1T46*FN833A	1T46*UC-002A FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	G-01		364T	*DR			ALL
	310556	276	RBS	00008					A
.1T46*FN833B	1T46*UC-002B FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	G-01		364T	*DR			ALL
	310556	276	RBS	00008					A
.1T46*FN834A	1T46*UC-003A FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	G-01		364T	*DR			ALL
	310556	276	RBS	00008					A
.1T46*FN834B	1T46*UC-003B FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	G-01		364T	*DR			ALL
	310556	276	RBS	00008					A
.1T46*FN003B	RBSVS EXH FAN				WESTINGHOUSE		180 DYS	*N/A	
	BUFFALO FORGE	1E	K-15		405TCZ	*DR			ALL
	310550	270	RBS	112					A

REPORT NO. PES-800
JOB NUMBER 1160002
JOB NAME SHOREHAM - UNIT 1
JOB CLIENT LILCO

STONE AND WEBSTER ENGINEERING CORPORATION
PROJECT EQUIPMENT SYSTEM - (IS-129)
ENVIRONMENTAL QUALIFICATION STATUS REPORT
SORTED BY - MAK / MOD / SPEC

REPORT DATE 01/18/82 PAGE 119
RESET NO. 003
RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC SPEC	ZONE BLDG	ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / ENG CND / OP CD
.1T46*FN003C	RBSVS EXH FAN BUFFALO FORGE 310550	1E 270	K-15 RBS	112	WESTINGHOUSE 405TCZ	*DR	180 DYS	*N/A	ALL A
.1T46*FN003A	RBSVS EXH FAN BUFFALO FORGE 310550	1E 270	K-15 RBS	112	WESTINGHOUSE 405TOZ	*DR	180 DYS	*N/A	ALL A
.1T46*FN079A	*RB EXHAUST BOOSTER FAN BUFFALO FORGE 310516	*1E 102	K-15 RBS	112	WESTINGHOUSE 7.5 HP 245T	*DR	180 DYS		ALL A
.1T46*FN079B	*RB EXHAUST BOOSTER FAN BUFFALO FORGE 310516	*1E 102	K-15 RBS	112	WESTINGHOUSE 7.5 HP 245T	*DR	180 DYS		ALL A

REPORT NO. PES-800 STONE AND WEBSTER ENGINEERING CORPORATION
JOB NUMBER 1160002 PROJECT EQUIPMENT SYSTEM - (IS-129) REPORT DATE 01/18/82 PAGE 120
JOB NAME SHOREHAM - UNIT 1 ENVIRONMENTAL QUALIFICATION STATUS REPORT RESET NO. 003
JOB CLIENT LILCO SORTED BY - MAK / MOD / SPEC RESET DATE 07/01/81

EQUIPMENT ID / VENDOR ID	EQUIPMENT DESCRIPTION / VENDOR NAME / PO NUMBER	QAC / SPEC	ZONE / BLDG / ELEV	MAKE / MANUFACTURER / MODEL / CATALOG NO	EQ SHEET / QUAL STAT / SUBMG	OP TIME	ACC / PERF	NU-CAT / EMG CND / OP CD
**********	**********	**********	**********	**********	**********	********	**********	****

***** TOTAL EQUIPMENT ON THIS REPORT - 958

MISCELLANEOUS COMPONENTS AND ACCESSORIES

ENVIRONMENTAL QUALIFICATION STATUS REPORT

Equipment ID Vendor ID	Equipment Description Vendor Name PO Number	QAC Spec	Zone Bldg Elev	Make/Manufacturer Model/Catalog No.	Eq Sheet Qual Stat	Op Time	Acc/Peri	EMG Cnd Op CD
Report Group Spec = 159								
NA	Switchboard Wire Various Various	1E 159	All RBP	GE SI57279	QS-159-03 EQ	180 Days	N/A	All B
NA	Switchboard Wire Various Various	1E 159	All RBP	Rockbestos A830__6	QS-159-04 EQ	180 Days	N/A	All B
NA	Tape Various Various	1E 159	All RBS	Kerite S-5MT-NUC	DK	180 Days	N/A	All B
NA	Tape Various Various	1E 159	All RBP	Okonite T35,T95	QS-159-01 IJ	180 Days	N/A	All B
NA	Insulating Material Various Various	1E 159	All RBP	Raychem WCSF-N	QS-159-05 EQ	180 Days	N/A	All B
NA	Lugs & Splices Various Various	1E 159	All RBP	Amp 52900-53900	QS-159-02 EQ, IJ	180 Days	N/A	All B
NA	Flex Conduit Electro-Flex Various	1E 159	All RBS	Electro-Flex CEA Sealtite	IJ	180 Days	N/A	All B
NA	Terminal Blocks Various Various	1E 159	All RBS	GE EB25A04W,-12W	IJ	180 Days	N/A	All B
NA	Terminal Blocks Various Various	1E 159	All RBS	GE EBI	IJ	180 Days	N/A	All B
NA	Terminal Blocks Various Various	1E 159	All RBS	GE CR151A8,-B2,-B4	IJ	180 Days	N/A	All B

Equipment ID Vendor ID	Equipment Description Vendor Name PC Number	QAC Spec	Zone Bldg Elev	Make/Manufacturer Model/Catalog No.	Eq Sheet Qual Stat	Op Time	Acc/Peri	EMG Cnd Op CD
Report Group Spec = 159								
NA	Chico Compounds			Crouse-Hinds		180 Days	N/A	
	Various	1E	All	Chico (X), (A)	IJ			All
	Various	159	RBS	Compounds				B
NA	Selector Switch			GE		180 Days	N/A	
	Various	1E	All	CR2940	IJ			All
	Various	159	RBS					B
NA	Conduit Coupling	1E	All	Service-Air, Amer. Boa	DR	180 Days	N/A	All
	Service-Air	159	RBP	SS Fittings				B
	Various							

APPENDIX G

EQUIPMENT WITH INCOMPLETE QUALIFICATION DOCUMENTATION

APPENDIX G

EQUIPMENT WITH INCOMPLETE QUALIFICATION DOCUMENTATION

This Appendix contains summary sheets for equipment exhibiting incomplete qualification documentation at the date of this submittal. These sheets are arranged in alphabetical order by equipment manufacturer, equipment model number, and specification number as shown on the index.

Each summary sheet includes a description of the qualification documentation, the resolution program, and the justification for interim operation. Alternatives provided include the following:

Resolution Program Alternatives

1. Continue current evaluation
   a. Work with the vendor
   b. Request further analysis and/or data search from engineering laboratories or consultants
2. Test specimens representative of existing (installed) equipment
   a. Join other utility programs
   b. Investigate purchase of identical equipment and test
   c. Dismount samples or test spares
3. Provide protection or modify environment
   a. Refine service conditions and/or relax operational requirements
   b. Provide shielding
   c. Provide shielding and HVAC
   d. Relocate
4. Replace installed equipment or components with equipment having known qualification documentation

INDEX

EQUIPMENT WITH INCOMPLETE DOCUMENTATION
PRIOR TO FUEL LOAD
PROJECTION AS OF JANUARY 15, 1982

Manufacturer	Model	Vendor and Spec.	EQSS No.
Air Monitor	Veltron 800, Flow Transmitter	Powers Regul. (SH1-319)	319-01
AMP	52978 through 52980 splices	N/A (SH1-159)	159-02
Automatic Switch ASCO	HTX-8320A20	GE-NED (SH1-003)	3096
Barksdale	B1T D2H P1H	GE-NED (SH1-003)	3018 3021 3025
Beck	14-101-023645 operator	Fisher Control (SH1-310)	____
Crouse-Hinds	Chico Compounds	N/A (SH1-159)	____
Dwyer	1627 PDS	Powers Regul. (SH1-319)	319-01
Electro-Flex	Cea Sealtite	N/A (SH1-159)	____
Farr	N-240 Charcoal filter train	Farr (SH1-105)	____
Fenwal	17002-40	GE-NED (SH1-003)	____
Gems	XM-54854 Level Element	Delaval (SH1-473)	
General Electric	2CH6-041-1U 47D5 18673	GE (SH1-003)	3903 3902
General Electric	DC MCC's 7700 Line	GE (SH1-168)	____
General Electric	Series 100 Penetrations	GE (SH1-134)	134-02
General Electric	Series 200 Penetrations	GE (SH1-134)	174-01

Manufacturer	Model	Vendor and Spec.	EQSS No.
General Electric	CR2940 series Switches	N/A (SH1-159)	____
General Electric	EB25, EB1, CR151 terminal blocks	N/A (SH1-159)	____
ITT Barton	288A/289A	GE-NED (SH1-003)	3027
ITT General Controls	NH-91 MOD	Powers Regul. (SH1-319)	319-01
Limitorque	SMB-2 SMB-3	GE-NED (SH1-003)	____
Magnetrol	291-MPG-X-M14DC Level Switch	Magnetrol (SH1-407)	407-01
Magnetrol	3.5-751X MPG-MI4HY	GE-NED (SH1-003)	3143
Okonite	T35,T95 Tape	N/A (SH1-159)	159-01
Pyco/ California	145C3224	GE-NED (SH1-003)	3110
Raychem	WCSF-N	Raychem (SH1-159)	159-05
Raymond	MASR-49 MOD MASR-9 MOD	Powers Regul. (SH1-319)	319-01
Rosemount	1151 Transmitter	GE-NED (SH1-003)	3048
Square D	Model 4MCC Breaker Panel	Square D (SH1-115)	____
Static-O-Ring	5N,6N Series	GE-NED (SH1-003)	3032
Terry Turbine	CCS	GE-NED (SH1-003)	3050
Yarway	4418C	GE-NED (SH1-003)	3037

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: FLOW TRANSMITTER

MANUFACTURER/MODEL: Air Monitor/Veltron 800

EQUIPMENT SPECIFICATION(S): SH1-319

EQSS REFERENCE(S): 319-01

QUALIFICATION SUMMARY:

The flow transmitter was environmentally tested and functioned properly during and after the thermal, cycle, radiation, and seismic tests. However, during the final simulated LOCA test, the flow transmitter output was constant (20 MA dc) when power was applied and pressure differential varied. When the device was removed from the test chamber, three wires connecting the circuit board to the differential pressure sensor were missing insulation at one point and their remaining insulation was brittle. The device was repaired but not functionally retested.

RESOLUTION PROGRAM:

1. Replace wires on the two flow transmitters (1T46*FT004A&B). They are located in the secondary containment. Manufacturer is currently being requested to either provide qualified replacement wire or required characteristics of the wire for procurement and replacement.

2. Retest flow transmitter for applicable service conditions. Vendor has provided a proposal for retesting of this device. Completion of qualification testing is expected by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

1. The device was previously tested to an environment more severe than is required for qualification: (required service condition: 5.1×10^4 rads gamma, 136°F max. temperature; previous test: 1×10^7 rads gamma, 200°F max. temperature) although temperature durations were not in accordance with Shoreham requirements.

2. The only failure noted during the test was in the wire insulation. Retesting the device to less severe conditions with the wire replaced (with a qualified type) is being undertaken with a high confidence level.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: CONDUCTOR SEALED SPLICES

MANUFACTURER/MODEL: AMP/52978 through 52980

EQUIPMENT SPECIFICATION(S): SH1-159

EQSS REFERENCE(S): 159-02

QUALIFICATION SUMMARY:

1. The AMP conductor sealed splices are not known to have been environmentally tested. However, the insulating materials on the sealed splices (polyvinylidene fluoride) are the same as those used on the AMP terminals which have been tested to primary containment type service conditions.
2. The manufacturer is currently testing these splices, and a test report is expected to be available in mid-March 1982.

RESOLUTION PROGRAM:

The conductor sealed splices are expected to be qualification tested in the Shoreham miscellaneous component test program, to be completed by September 1982 or soon thereafter, if the new test being performed by the manufacturer is found to be deficient.

JUSTIFICATION FOR INTERIM OPERATION:

The insulating materials used in the AMP terminal EQ test have been exposed to a LOCA profile which envelops all Shoreham secondary containment postulated design basis accident conditions. The primary containment postulated service conditions are very close to the AMP terminal LOCA test and provide evidence that the insulating materials used in the sealed splices will not fail during a postulated accident.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Solenoid Valve

Manufacturer/Model: ASCO/HTX-8320A20

Equipment Specification: SH1-003

EQSS References: 3096

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1. DESCRIPTION

The devices under evaluation are ASCO solenoid valves, Model HT-X-8320-A20.

2. CONCLUSION

These solenoid valves have been qualified by test for the postulated accident temperature, pressure and humidity conditions only. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

1. Materials analysis (EDS Calculation No. 0630-001-025, Rev. 0) indicates that this device has a qualified life of 40 years.

2. The inboard MSIV solenoid valves should be replaced within 2 years of plant startup in order that they will not surpass their radiation tolerance (see Section 4.4 below). This data will be input into the plant preventive maintenance program to ensure timely replacement.

4. JUSTIFICATION FOR INTERIM OPERATION

1. These solenoid valves are required to function to operate the MSIV's. The MSIV's complete their safety function within a very short period of time subsequent to accident initiation (FSAR 5.5.5.3). In this short time, these solenoid valves will not be exposed to the full accident environment, and therefore, are not required to survive such.

2. Failure of this equipment will not prevent it from performing its safety function. These valves are normally energized (FSAR Figure 7.3.1-15) in order to maintain the MSIV's in an open position. On receipt of an accident signal, the MSIV's are closed by deenergizing their associated solenoid valves. According to Westinghouse Report No. NS-CE-755, which is a failure mode and effects study on solenoid valves designed to operate in the above manner, there is no falure which could prevent these valves from performing their required safety function.

3. The outboard MSIV solenoid valves are required to withstand an accident radiation dose of 1×10^5rads. Materials analysis (EDS Calculation No. 0630-001-025, Rev. 0) indicates that the limiting material contained in this device is a polyamide, with a radiation tolerance of 6×10^6rads. Therefore, these solenoid valves are expected to perform their safety function as required.

4. The inboard MSIV solenoid valves are required to withstand a 40 year plus accident integration radiation dose of 2.8×10^7rads. This accident dose is based on a required operating time plus margin of 70 minutes. Because the MSIV's complete their safety function in a very short period of time, reduction of this operating time requirement to 30 minutes will not adversely affect plant safety. The 2 year normal radiation plus 30 minute accident integrated radiation dose is 5.4×10^6rads. Materials analysis (EDS Calculation No. 0630-001-025, Rev. 0) indicates that the limiting material contained in this device is a polyamide, with a radiation tolerance of 6×10^6 rads. Therefore, these devices are expected to perform their safety function as required.

5. This device is contained within a NEMA 4, 7 and 9 watertight and explosion proof enclosure (ASCO Drawing No. HV-166-592, Rev. 0) and, therefore, will not be affected by containment spray.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Pressure Switch

Manufacturer/Model: Barksdale/B1T

Equipment Specification: SH1-003

EQSS References: 3018

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1. DESCRIPTION

The devices under evaluation are Barksdale B1T-M12SS Pressure Switches. Barksdale catalogs indicate that the basic model number is B1T, with any additional suffixes denoting features such as switch rating which do not affect environmental qualification considerations.

2. CONCLUSION

These devices have been qualified by test for the postulated accident temperature and humidity conditions only. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

Materials analysis (EDS Calculation No. 0630-001-013, Rev. 0) indicates that the limiting part in this device, with respect to thermal aging, is the neoprene face gasket with a qualified life of 6 years. All other components are qualified for the 40 year life of the plant. This data will be input into the plant preventive maintenance program to ensure that this device does not exceed its qualified life.

4. JUSTIFICATION FOR INTERIM OPERATION

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 1 psi. A 1 psi differential is not expected to affect this device's function. Therefore, this device is expected to perform its safety function as required.

2. This device is required to withstand an accident dose of 9×10^5 rads but has not been subjected to radiation testing. However, materials analysis (EDS Calculation No. 0630-001-013) indicates that the limiting material in this device is BUNA-N, having a radiation tolerance of 3×10^6 rads. Therefore, this device is expected to perform its safety function as required.

3. Extrapolation of the test data indicates that this device is capable of withstanding the postulated HELB temperature conditions for at least 33.6 hours (EDS Calculation No. 0630-001-018, Rev. 0). After this time, it will be exposed to only normal ambient temperature conditions. In addition, this device will be accessible for repair after an HELB and will not see a harsh environment, other than the radiation addressed above after a LOCA. Therefore, this device is expected to remain operational for the required time of 1 day and not fail in a manner detrimental to plant safety for the duration of the accident (180 days).

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Pressure Switch

Manufacturer/Model: Barksdale/D2H

Equipment Specification: SH1-003

EQSS References: 3021

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1. DESCRIPTION

The devices under evaluation are Barksdale Pressure Switches, Models D2H-M150SS, D2H-M18SS, D2H-M80SS. Examination of Barksdale technical manuals indicates that they are generic to each other and to the model D1T-M18SS tested because the differing digits in the model numbers denote features which would not affect environmental qualification, specifically, the number of settings, the class of switching element, and the setting range. In addition, all models have identical weathersealed housings.

2. CONCLUSION

These devices have been qualified by test for the postulated accident temperature and humidity conditions only. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

1. The switch housing must be vented in order to alleviate a problem found during testing.

2. Materials analysis (EDS Calculation No. 0630-001-013 Rev. 0) indicates that the limiting part in this device, with respect to thermal aging, is the neoprene face gasket with a qualified life of 6 years. All other components are qualified for the 40 year life of the plant.This data will be input into the plant preventive maintenance program to ensure that this device does not exceed its qualified life.

4. JUSTIFICATION FOR INTERIM OPERATION

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 1 psi. A 1 psi differential is not expected to affect this device's function. Therefore, this device is expected to perform its safety function as required.

2. This device is required to withstand an accident radiation dose of 9×10^5 rads but has not been subjected to radiation testing. However, materials analysis (EDS Calculation No. 0630-001-013, Rev. 0) indicates that the limiting material in this device is made of BUNA-N, having a radiation tolerance of 3×10^6 rads. Therefore, this device is expected to perform its safety function as required.

3. Extrapolation of the test data indicates that this device is capable of withstanding the postulated HELB temperature conditions for at least 48.6 hours (EDS Calculation No. 0630-001-014, Rev. 0). After this time, it will be exposed to only normal ambient temperature conditions. In addition, this device will be accessible for repair after an HELB and will not see a harsh environment, other than radiation addressed above, after a LOCA. Therefore, this device is expected to remain operational for the required time of 1 day and not fail in a manner detrimental to plant safety for the duration of the accident (180 days).

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Pressure Switch

Manufacturer/Model: Barksdale/P1H

Equipment Specification: SH1-003

EQSS References: 3025

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1. DESCRIPTION

The devices under evaluation are Barksdale Pressure Switches, Model No. P1H-M34SS. According to Barksdale technical manuals, the basic model is the P1H, with all suffixes denoting options which have no effect on environmental qualification, such as switch electrical ratings. Therefore, qualification information for any P1H model is applicable to all.

2. CONCLUSION

These devices have been qualified by test for the postulated accident temperature and humidity conditions only. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

Materials analysis (EDS Calculation No. 0630-001-023, Rev. 0) indicates that the limiting part in this device is the neoprene face gasket with a qualified life of 6 years. All other components are qualified for the 40 year life of the plant. This data will be input into the plant preventive maintenance program to ensure this device does not exceed its qualified life.

4. JUSTIFICATION FOR INTERIM OPERATION

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 1 psi. A 1 psi differential is not expected to affect this device's function. Therefore, this device is expected to perform its safety function as required.

2. This device is required to withstand an accident dose of 1.7×10^6 rads but has not been subjected to radiation testing. However, materials analysis (EDS Calculation No. 0630-001-022, Rev. 0) indicates that the limiting material in this device is fish paper, having a radiation tolerance of 5×10^6 rads. Therefore, this device is expected to perform its safety function as required.

3. Extrapolation of the test data indicates that this device can withstand the postulated HELB temperature conditions for at least 33 hours (EDS Calculation No. 0630-001-023, Rev. 0). After this time, it will be exposed to only normal ambient temperature conditions. In addition, this device will be accessible for repair after an HELB and will not see a harsh environment, other than the radiation addressed above, after a LOCA. Therefore, this device is expected to remain operational for the required time of 7 days and not fail in a manner detrimental to plant safety for the duration of the accident (180 days).

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: ELECTRIC MOTOR OPERATED VALVE ACTUATOR

MANUFACTURER/MODEL: Beck 14-101-023645 (ES)

EQUIPMENT SPECIFICATION(S): SH1-310

EQSS REFERENCE(S): 310-01

QUALIFICATION SUMMARY:

A formal EQ test program was not completed; however, some testing was performed.

1. The test program did not include thermal aging or DBA testing; however, a thermal aging analysis was performed by the Wyle Laboratories
2. The motor capcitor failed a high potential test following the radiation test.
3. The radiation testing exceeded Shoreham's requirements for all components except the ESR board (electronic control board) which demonstrated operability after $1x10^7$ RADS. This exceeds the requirements for all applicable Shoreham radiation zones except Zone K which required $1.27x10^8$ RADS over 180 days.

RESOLUTION PROGRAM:

1. Replace the existing motor capacitors with ones more suited to the environment.
2. Test the valve actuator according to IEEE 382-194, IEEE 323-1974 and NUREG 0588 category 1 positions.

JUSTIFICATION FOR INTERIM OPERATION:

1. Existing motor capacitors are expected to be replaced.
2. Analysis to reduce the radiation dose requirement for the ESR boards in Zone K to less than $1x10^7$ will be performed or the ESR boards will be shielded or relocated.
3. The peak accident temperature for which each actuator must be qualified is 178°F. The manufacturer's rating for the actuator is -40°F to 185°F at 99% relative humidity, which exceeds the accident temperature requirement. Additionally, the Wyle Laboratories thermal aging analysis on the component materials (except the ESR board) yields an expected life of greater than 120 years at 185°F. The ESR board is an electronic control board and, according to IEEE 650-1979, can be exempted from thermal aging provided it is subjected to a burn-in period to eliminate infant mortality.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: CHICO "A" and "X" SEALING COMPOUNDS

MANUFACTURER/MODEL: Crouse-Hinds

EQUIPMENT SPECIFICATION(S): SH1-159

EQSS REFERENCE(S): NONE

QUALIFICATION SUMMARY:

These sealing compounds are inert and not affected by gamma radiation at the 10^8 level. Aging is not a critical factor because the compounds are under a sealed condulet assembly. However, no qualification documentation has been found.

RESOLUTION PROGRAM:

The compounds are expected to be qualification tested in a Crouse-Hinds type EYS fitting in the Shoreham miscellaneous component test program by September 1982 or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

1. The sealing compounds are ceramic and, as determined by analysis, are not affected by the radiation levels applicable to Shoreham.
2. Additional material analysis will be performed by the testing laboratory prior to performing the qualification testing.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: DIFFERENTIAL PRESSURE SWITCH

MANUFACTURER/MODEL: Dwyer/1627

EQUIPMENT SPECIFICATION(S): SH1-319

EQSS REFERENCE(S): 319-01

QUALIFICATION SUMMARY:

The differential pressure switch was subjected to environmental qualification testing at a higher temperature than required for qualification. Thus, during final functional testing, the differential between the switch turn-on pressure (increasing) and turn-off (decreasing) exceeded the allowable limit. The differential was 0.4" H_2O while the allowable range is 0.07" to 0.27" H_2O.

RESOLUTION PROGRAM:

Retest the pressure switches to the applicable service conditions. The vendor has provided a proposal for retesting of this device. Qualification testing is expected to be completed by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

1. In the previous qualification test, the device was subjected to a 200°F environment which is more severe than is required for qualification (required maximum temperature: 158°F). Thus, retesting to a milder temperature requirement is being undertaken with a high level of confidence.
2. Should the switches exceed the allowable limit as in the final functional test, the following would occur: Since the pressure switch is required to start the spare RBSVS exhaust fan automatically if the running fan stops, the spare fan will start with the exceeded differential. The slight time delay (0.27" H_2O vs. 0.40" H_2O differential pressure) is considered insignificant, since the running fan differential pressure decreases very quickly.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: FLEXIBLE CONDUIT

MANUFACTURER/MODEL: Electro-Flex/CEA Sealtite

EQUIPMENT SPECIFICATION(S): SH1-159

EQSS REFERENCE(S): None

QUALIFICATION SUMMARY:

No qualification documentation has been found, despite inquiries to the conduit and jacket materials manufacturers and independent testing laboratories.

RESOLUTION PROGRAM

The flexible conduit is expected to be qualification tested in the Shoreham miscellaneous component test program to be completed by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

This flexible conduit is connected to the termination boxes of motors, instruments, etc,. and is not used in the primary containment. Therefore, it must be qualified only for secondary containment service conditions. Zone 13 is the most severe accident temperature zone ($218^{o}F$ decreasing to $108^{o}F$ after 11 hours), and Zone K is the most severe radiation zone (1.27×10^{8} rads gamma after 180 days). This conduit is considered as having a very high likelihood of passing the proposed qualification test due to the following:

1. During the initial period of the postulated accident when the conduit is exposed to a higher temperature and 100% steam environment, the radiation dose will not exceed 5.4×10^{5} rads gamma, which is within the radiation threshold (10^{5} to 10^{6} rads gamma) for polyurethane compounds (flexible conduit jacket material). When the total accident radiation dose is reached (180 days), the ambient conditions have returned to $104^{o}F$ and 95% humidity. Thus, failure due to radiation should not occur during a harsh environment.

2. The conduit itself is composed of a tightly woven steel core which would limit the seepage of the steam environment into the cable terminations should the jacket of the conduit split or deteriorate during the postulated 100% humidity environment.

3. Cable, splices, switchboard wire, tape, and terminating devices are individually qualified.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: CHARCOAL FILTER TRAIN

MANUFACTURER/MODEL: Farr/N-240

EQUIPMENT SPECIFICATION(S): SH1-105

EQSS REFERENCE(S): None

QUALIFICATION SUMMARY:

The charcoal filter trains are composed of many devices integral to their operation. These devices can be grouped as follows:

a. Devices with qualification data.
b. Devices with limited or no qualification data available.

c. Devices with data which demonstrate qualification may be in doubt, which are planned to be replaced.

RESOLUTION PROGRAM:

Qualification for the entire charcoal filter train will be provided under a proposal by ANCO Engineers, a subvendor to the manufacturer, with final qualification documentation expected to be available by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

Devices in groups b and c above, will be evaluated by ANCO to determine the effect that a failure of these components would have on safe operation and availability of the charcoal filter trains. In addition, qualified replacement devices will be identified. Replacement will be procured and installed, if failure of a specific device is determined to be detrimental to the performance of the filter train's safety function. This evaluation study is expected to be available by June 1982.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Temperature Switches

Manufacturer/Model: Fenwal 17002-40

Equipment Specification: SH1-003

EQSS References: 3040

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1. DESCRIPTION

The devices under evaluation are Fenwal 17002-40 Temperature Switches.

2. CONCLUSION

These devices have been qualified by test for the postulated accident temperature and humidity conditions only. Testing also included exposure to a radiation environment. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

Materials analysis (EDS Calculation No. 0630-001-024, Rev. 0) indicates that this device has a qualified life of at least 40 years.

4. JUSTIFICATION FOR INTERIM OPERATION

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 8 psig. Since it will be exposed to this higher pressure for only approximately 4 seconds and is hermetically sealed, this pressure spike should not affect the device's function. Therefore, this device is expected to perform its safety function as required.

2. This device is required to withstand an accident dose of 5×10^5rads, but has only been tested to 1.7×10^5rads. Materials analysis (EDS Calculation No. 0630-001-024, Rev. 0) indicates that the limiting material is TAGT wire insulation containing teflon with a radiation tolerance of 2×10^4rads. Since this type of insulation is also made up of asbestos and fiberglass braid (radiation tolerance of greater than 5×10^5rads), it should retain its insulating capability despite possible failure of the teflon. All other materials have a radiation tolerance of greater than 5×10^5rads. Therefore, this device is expected to perform its safety function as required.

3. The required operability time for these devices is currently under evaluation.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: LEVEL ELEMENTS

MANUFACTURER/MODEL: Gems XM-54854

EQUIPMENT SPECIFICATION(S): SH1-473

EQSS REFERENCE(S): NONE

QUALIFICATION SUMMARY:

No qualification documentation has been found to date.

RESOLUTION PROGRAM:

A Vendor test program to qualify the referenced Gems level elements to IEEE 323-1974 is in progress and scheduled for completion by August 1982. Testing is being performed according to Wyle laboratories Final Qualification Plan 45102-1. Review of the test plan indicated that the qualification will encompass Shoreham's service conditions and comply with IEEE 323-1974 and category I positions of NUREG 0588.

JUSTIFICATION FOR INTERIM OPERATION:

The vendor will submit an interim qualification report for the level elements by May 30, 1982. The interim report will include a summary of the results of the following tests, including functional testing after each step.

1. Radiation
2. Aging (Cycle, thermal, pressure)
3. Seismic
4. 30 day LOCA simulation

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type:	Blower
Manufacturer/Model:	General Electric Blower/2CH6-041-1U
Equipment Specification:	SH1-003
EQSS References:	3903

1. DESCRIPTION

The device under evaluation is a General Electric Blower, Model 2CH6-041-1U.

2. CONCLUSION

This device has been qualified by test for all postulated plant accident conditions for which this equipment is required to operate (LOCA) except radiation. Therefore, this device is not fully qualified to the requirements of NUREG-0588, Category II. However, use of this device for interim operation can be justified.

3. LIMITATIONS

Analysis of the materials of construction (EDS Calculation No. 0630-001-026, Rev. 0) indicates the limiting material to be the neoprene wire insulation, with a qualified life of 6 years. All other materials are qualified for the 40 year life of the plant.

4. JUSTIFICATION FOR INTERIM OPERATION

This device is required to withstand an accident radiation dose of 4.14×10^6 rads but has not been subjected to radiation testing. However, materials analysis (EDS Calculation No. 0630-001-026, Rev. 0) indicates the limiting material in this device is polypropylene, with a radiation tolerance of 1×10^7 rads. Therefore, this device is expected to perform its safety function as required.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type:	Electric Heater
Manufacturer/Model:	General Electric/47D518673
Equipment Specification:	SH1-003
EQSS References:	3902

1. DESCRIPTION

The device under evaluation is a General Electric Electric Heater, Model No. 47D518673.

2. CONCLUSION

This device has been qualified by test for the plant temperature, pressure, and humidity conditions only. Therefore, it does not fully meet the requirements of NUREG 0588, Category II. However, use of this device for interim operator can be justified.

3. LIMITATIONS

Materials analysis (EDS Calc. No. 0630-001-028, Rev. 0) indicates that this device has a qualified life of at least 40 years.

4. JUSTIFICATION FOR INTERIM OPERATION

This device is required to withstand an accident radiation dose of 3×10^6 rads but has not been subjected to radiation testing. However, materials analysis (EDS Calculation No. 0630-001-028, Rev. 0) indicates that the limiting material contained within this device is fiberglass, having a radiation tolerance of 1×10^{12} rads. Therefore, this device is expected to perform its safety function as required.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: 125 V DC MOTOR CONTROL CENTERS

MANUFACTURER/MODEL: General Electric/7700 Line

EQUIPMENT SPECIFICATION(S): SH1-168

EQSS REFERENCE(S): None

QUALIFICATION SUMMARY:

General Electric has provided data which indicates most components installed in the four MCC's have been irradiated to 1 x 10^6 rads gamma in a separate test program for another utility. Various reports for HFA and Agastat relays installed in the MCC's were also found.

RESOLUTION PROGRAM:

The need for additional qualification testing is under evaluation

JUSTIFICATION FOR INTERIM OPERATION:

1. Three of the 125V dc MCC's are installed in environmentally protected rooms or cubicles where they experience controlled humidity and temperature during all postulated accident conditions. The radiation environment for which these MCC's must function (180 day post-accident duration) is 3.1 x 10^5 rads gamma which is within GE's radiation test data.

2. The fourth MCC is located in the unprotected environment of the reactor building (secondary containment) and must function during a LOCA only: normal temperature, humidity and pressure with a radiation of 2.9×10^6 rads gamma. This level of radiation is only slightly higher than the radiation test data provided by GE. During a PBOC environment, the MCC will be subjected to a harsh temperature and humidity environment. However, the equipment fed from the MCC is not required to operate during or after a PBOC. Also this MCC is fed independently of the remaining 125V dc distribution system. In addition, conduit entries will be sealed to limit entry of steam inside the MCC enclosure.

Based on the required operation conditions the 125Vdc MCC's should function properly during and after all postulated accidents.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: CONTAINMENT ELECTRICAL PENETRATION

MANUFACTURER/MODEL: General Electric, series 100 Medium Voltage

EQUIPMENT SPECIFICATION(S): SH1-134

EQSS REFERENCE(S): 134-02

QUALIFICATION SUMMARY:

The containment electical penetrations qualification documentation meets the requirement for radiation and cycle testing; however the following areas were not fully addressed

1. A qualified life was not established.

2. LOCA test duration was insufficient to directly demonstrate a post accdent operability time of 180 days

RESOLUTION PROGRAM:

A purchase order is being placed with the manufacturer (G.E.) to perform a data search. The additional data is expected to be evaluated and analyzed with respect to the identified deficiencies by June 1982.

JUSTIFICATION FOR INTERIM OPERATION:

1. The qualification documentation addresses all phases of qualification except thermal aging. The effects of thermal aging are long term and will not significantly degrade the penetration in the time required to establish complete qualification. Additionally, the penetrations withstood a thermal cycle test of 120 cycles form 50°F to 150°F to simulate normal temperature excursions within the reactor building, over the life of the plant. The thermal cycle test provides evidence that the penetrations have a sufficient thermal life to justify interim operation.

2. The LOCA profile used in the test program exceeded the required profile for the first 10 days. For the remainder of the required 180 day profile the postulated temperature is 150°F which is the normal temperature for the required zones. Therefore, a failure after 10 days is unlikely because the penetrations will be operating in their normal environment.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: CONTAINMENT ELECTRICAL PENETRATION

MANUFACTURER/MODEL: General Electric, Series 200 Low Voltage

EQUIPMENT SPECIFICATION(S): SHI-134

EQSS REFERENCE(S): 134-01

QUALIFICATION SUMMARY:

The containment electrical penetration qualification documentation meets the requirement for radiation and cycling testing; however the following areas were not fully addressed.

1. A qualified life was not established.
2. LOCA test duration was insufficient to directly demonstrate a post accident operability time of 180 days.

RESOLUTION PROGRAM:

A purchase order is being placed with the manufacturer (G.E.) to perform a data search. The additional data is expected to be evaluated and analyzed with respect to the identified deficiencies by June 1982.

JUSTIFICATION FOR INTERIM OPERATION:

1. The qualification documentation addresses all phases of qualification except thermal aging. The effects of thermal aging are long term and will not significantly degrade the penetration in the time required to establish complete qualification. Additionally, the penetrations withstood a thermal cycle test of 120 cycles from 50°F to 150°F to simulate normal temperature excursions, within the reactor building, over the life of the plant. The thermal cycle test provides evidence that the penetrations have a sufficient thermal life to justify interim operation.

2. The LOCA profile used in the test program exceeded the required profile for the first 13 days. For the remainder of the required 180 days profile the postulated temperature is 150°F which is the normal temperature for the required zones. Therefore, a failure after 13 days is unlikely, because the penetrations will be operating in their normal environment.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: PUSH BUTTON STATIONS

MANUFACTURER/MODEL: General Electric/CR2940

EQUIPMENT SPECIFICATION(S): SH1-159

EQSS REFERENCE(S): None

QUALIFICATION SUMMARY:

Qualification decomentation specific to these devices has not been found.

RESOLUTION PROGRAM:

The push button stations are expected to be qualification tested in the Shoreham miscellaneous component test program to be completed by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

1. Similar push button stations differ from these push button stations by having a metal mounting ring, rather than a plastic ring, and using compounds that are thoroughly traceable. However , GE has advised that the compounds in the two types of devices are very similar. The similar devices have been successfully irradiated to 1 x 10^6 rads gamma. Due to the similarity of the tested device to the Shoreham device, these data provide evidence of the radiation tolerance of the Shoreham devices, except for the plastic mounting ring.

2. The push button stations are operated only when the environment is not harsh;therefore, qualification requires that the devices withstand the a cident environment without the occurence of a spurious short or open circuit. Since these stations are installed in a metal enclosure with liquid seal-tite conduit fittings, the devices should not be effected by the accident environment.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/ JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: TERMINAL BLOCKS

MANUFACTURER/MODEL: General Electric/EB25, EB1, CR151

EQUIPMENT SPECIFICATION(S): SH1-159

EQSS REFERENCE(S): None

QUALIFICATION SUMMARY:

Qualification specific to these devices has not been found.

RESOLUTION PROGRAM:

The terminal blocks are expected to be qualification tested in the Shoreham miscellaneous component test program to be completed by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

1. Similar terminal blocks have been successfully irradiated to 1×10^5 rads gamma. Due to the similarity of the tested devices to the Shoreham device, these test data provide evidence of the radiation tolerance of the terminal blocks used at Shoreham.

2. The terminal blocks are installed in NEMA 12 enclosures which limit the entry of dust and other contaminating material.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type:	Differential Pressure Indicating Switch
Manufacturer/Model:	ITT Barton/288A; 289A
Equipment Specification:	SH1-003
EQSS References:	3027

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1. DESCRIPTION

The devices under evaluation are ITT Barton 288A and 289A Differential Pressure Indicating Switches (DPIS). Examination of ITT Barton technical manuals indicates that these two models are generic. Both DPIS's contain a dial indicator for local pressure measurements and a snap-action switch, which is actuated by a cam attached to the indicator movement, for sending a signal at the setpoint pressure.

2. CONCLUSION

These devices have been qualified by test for the postulated accident temperature and humidity conditions only. Testing also included exposure to a radiation environment. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

Materials analysis (EDS Calculation No 0630-001-010, Rev. 0) indicates that this device has a qualified life of 40 years.

4. JUSTIFICATION FOR INTERIM OPERATION

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 1 psi. A 1 psi differential is not expected to affect this device's function. Therefore, this device is expected to perform its safety function as required.

2. This device is required to withstand an accident radiation dose of 4.14×10^6 rads but has only been tested to 3×10^6 rads (ITT Barton Test Report No. R3-288A-1). However, materials analysis (EDS Calculation No. 0630-001-010, Rev. 0) indicates the limiting materials in this device are Viton and PVC, both having a radiation tolerance level of 1×10^7 rads . Therefore, this device is expected to perform its safety function as required.

3. Extrapolation of the test data indicates that this device is capable of withstanding the postulated HELB temperature conditions for at least 48.6 hours (EDS Calculation No. 0630-001-009, Rev. 0). After this time, it will be exposed to only normal ambient temperature conditions. In addition, this device will be accessible for repair after an HELB and will not see a harsh environment, other than the radiation addressed above, after a LOCA. Therefore, this device is expected to remain operational for the required time of 180 days.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: MOTOR OPERATED DAMPER ACTUATOR

MANUFACTURER/MODEL: ITT General/NH-91

EQUIPMENT SPECIFICATION(S): SH1-319

EQSS REFERENCE(S): 319-01

QUALIFICATION SUMMARY:

Previous qualification testing of damper actuators resulted in certain malfunctions during testing (relief solenoid valve failed to open, valve disc became stuck to valve seat) and required corrective actions

RESOLUTION PROGRAM:

1. The manufacturer has advised that a requalification test program is currently being scheduled. It cannot be determined at this time when final qualification documentation will be available.

2. The actuators installed in the secondary containment are expected to be modified. (Install a filter screen and change valve seat material).

JUSTIFICATION FOR INTERIM OPERATION:

The damper actuators installed in the Shoreham plant will be modified in the same manner as was the test specimen. The previous test demonstrated that after these modifications were made, retesting for 200 hours to a 200°F saturated steam environment did not result in any unsatisfactory performance and the actuator functioned as designed. This test provides evidence that the modified actuator is capable of operation in a harsh environment.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: MOTOR OPERATED VALVE ACTUATORS

MANUFACTURER/MODEL: Limitorque/SMB-2 SMB-3

EQUIPMENT SPECIFICATION(S): SH-003 (GE-NED)

EQSS REFERENCE(S): 003-01

QUALIFICATION SUMMARY:

Several MOV actuators were purchased prior to the issuing of IEEE standard 323-1971. These actuators have been tested according to Limitorque documents 600198 and 600376A and lack complete qualification documentation as required by this standard. The documentation was incomplete as follows: 1. Although the brakes supplied with the actuators are LOCA tested, they were not exposed to radiation. 2. The actuators were only cycled 150 times instead of 500 required per IEEE standard 382-1972. 3. The LOCA profile peaked at 239°F for one hour before decreasing thus not meeting the Shoreham primary containment accident conditions.

RESOLUTION PROGRAM:

Spare actuators are available at the plant for a requalification test program which is under consideration.

JUSTIFICATION FOR INTERIM OPERATION:

1. The materials used in the brake will be evaluated to determine if they are radiation sensitive. This evaluation is expected to be completed prior to June 1982.

2. Limitorque has been manufacturing actuators for many years with relatively minor manufacturing changes to the actuators and motors. Therefore, although the actuator tested was not cycled to the IEEE standard requirement, based on tests and operating experience to date, there is sufficient evidence to indicate that these actuators are capable of operation in accordance with the requirements of the IEEE standard.

3. The actuators have successfully passed a design basis accident test program. Although the temperature levels were slightly lower than those required for qualification, the 10°F or 15°F difference is relatively small. The existing reports demonstrate that the actuators are qualified for use in harsh environments.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: LEVEL SWITCHES

MANUFACTURER/MODEL: Magnetrol/291-MPG-X-M14DC

EQUIPMENT SPECIFICATION(S): SH1-407

EQSS REFERENCE(S): 407-1

QUALIFICATION SUMMARY:

Level switch test documentation did not include sufficient radiation exposure and a specific design basis event test with functional testing.

RESOLUTION PROGRAM:

Requalification testing by the manufacturer to the applicable service condition is scheduled for completion in December 1982.

JUSTIFICATION FOR INTERIM OPERATION:

1. The non-metallic parts of the Series 291 level switches are a phenolic terminal block and the Viton O-ring and seal. These non-metallic materials are used in other equipment which has been successfully qualified for the secondary containment environment where these level switches are installed. In addition, these materials were tested as documented in Magnetrol test report 43235-1, and functioned after radiation exposure to 4.4×10^4 rads gamma although this is less than the accident radiation requirements for these switches (4.2×10^6 rads gamma).
2. The switches were previously tested as follows: humidity levels between 95% and 100% were maintained at 300°F for 160 hours with cycle aging over 2000 cycles at rated load completed before high contact resistance was noted on one switch contact. This provides evidence of level switch operation when exposed to a harsh environment.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Level Switch

Manufacturer/Model: Magnetrol/3.5-751X-MPG-M14HY

Equipment Specification: SH1-003

EQSS References: 3143

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1. DESCRIPTION

The devices under evaluation are Magnetrol level switches, Model No. 3.5-751-1X-MPG-M14HY. It has been determined by contact with the manufacturer that this model and the BCS-751 model tested are the same with respect to equipment qualification, differing only in the switching elements, the bellows size, and the drain size.

2. CONCLUSIONS

These devices have been qualified by test for the postulated accident temperature and humidity conditions only. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

Materials analysis (EDS Calculation No. 0630-001-027, Rev. 0) indicates that this device has a qualified life of 6 years. This data will be input into the plant preventive maintenance program to ensure that this device does not surpass its qualified life.

4. JUSTIFICATION FOR INTERIM OPERATION

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 1 psi. A 1 psi differential is not expected to affect this device's function. Therefore, this device is expected to perform its safety function as required.

2. This device is required to withstand an accident dose of 9×10^5 rads but has only been tested to 4.4×10^4 rads as an assembled unit. However, Table 1 of Wyle Laboratories test report No. 43235-1 indicates that each part of this device was irradiated separately to at least 1×10^6 rads without significant damage. Therefore, this device is expected to perform its safety function as required.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: SPLICING TAPE

MANUFACTURER/MODEL: Okonite/T35 & T95

EQUIPMENT SPECIFICATION(S): SH1-159

EQSS REFERENCE(S): 159-01

QUALIFICATION SUMMARY:

Although the Okonite splicing tapes were tested on Okonite/5 KV power cables and performed adequately, the cables used at Shoreham (EPR/Hypalon or EPR/Neoprene) were not included in the test. The concern is that due to the synergistic effects between the cable jacket and splicing tapes materials, the cable jackets may crack during design basis accident test and allow steam to penetrate into splices.

RESOLUTION PROGRAM:

Typical splices using Okonite tapes and Okonite power cables are expected to be qualification tested in the Shoreham miscellaneous component test program to be completed by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

Although cracks developed in the Okonite Hypalon or Neoprene power cable jackets** after the combination of thermal aging, radiation and LOCA chamber-chemical spray testing, the cracks were not evident prior to the LOCA chamber test. Therefore, the Okonite test results indicate that the splices and jacket material would not fail during an elevated temperature and radiation environment (design basis accident). Direct chemical or water spray testing is not applicable to these since they are installed in gasketed termination boxes.

** Per Okonite test report number NQRN-1

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type:	Temperature Element
Manufacturer/Model:	Pyco; California Alloy; NECI/145C3224
Equipment Specification:	SH1-003
EQSS References:	3110

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1. DESCRIPTION

The devices under evaluation are PYCO 102-9039-08, California Alloy 145C3224P001 & 145C3224P2, and NECI 145C3224P001 temperature elements. These items are considered generic as determined by review of their GE purchase part drawing (GE PPD 145C3224).

2. CONCLUSION

1. The following devices have been qualified by test for the postulated accident te mperature, humidity, and radiation conditions only:

1E41*TE053 A, B
1E41*TE054 A, B
1E41*TE055 A, B
1E41*TE056 A, B
1G33*TE071 A Thru F

Therefore, these devices do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

2. The following devices appear not to be qualified because their postulated pressure and temperature environment is more severe than that for which they have been tested to.

1B21*TE059 A thru D
1B21*TE043 AX, BX, CX, DX

Approaches to resolution are under evaluation.

3. LIMITATIONS

Analysis (EDS Calculation No. 0630-001-017, Rev. 0) indicates that this device has a qualified life of 28.9 years. This data will be input into the plant preventive maintenance program to ensure this device does not exceed its qualified life.

4. JUSTIFICATION FOR INTERIM OPERATION

The following justifications pertain to the equipment identified in Section 2.1 above.

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 1 psi. A 1 psi differential is not expected to affect this device's function. Therefore this device is expected to perform its safety function as required.

2. Environmental testing indicates that this device can withstand the postulated HELB temperature conditions for 168 hours. After this time, the device will be exposed to only normal ambient temperature conditions. In addition, this device will be accessible for repair after an HELB and will not see a harsh environment, other than radiation, after a LOCA. Therefore, this device is expected to remain operational for the required time of 180 days.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: HEAT SHRINK TERMINATIONS

MANUFACTURER/MODEL: Raychem/WCSF-N

EQUIPMENT SPECIFICATION(S): SH1-159

EQSS REFERENCE(S): 159-05

QUALIFICATION SUMMARY:

Although the WCSF-N Raychem heat shrink terminations have been qualified they were not tested on the jacketed cables used at Shoreham (EPR Hypalon or EPR Neoprene jackets). The concern is that due to the synergistic effects between the jacket and the Raychem materials, the cable jackets may crack during a design basis accident test allowing steam to penetrate into the terminations.

RESOLUTION PROGRAM:

Typical Raychem terminations on Okonite power cables are expected to be qualification tested in the Shoreham miscellaneous component test program to be completed by September 1982, or soon thereafter.

JUSTIFICATION FOR INTERIM OPERATION:

Although the Okonite cable test reports show that cracks developed in the Hypalon and Neoprene power cable jackets** after the combination of thermal aging, radiation and LOCA chamber-chemical spray testing, the cracks were not evident prior to the LOCA chamber test. Therefore, the Okonite test results indicate that the Raychem terminations installed on Okonite cable jackets would not fail during an elevated temperature and radiation environment (design basis accident) only. Direct chemical and water spray testing is not applicable to these terminations since they are installed in gasketed termination boxes.

** Per Okonite test report number NQRN-1

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: MOTOR OPERATED DAMPER ACTUATOR

MANUFACTURER/MODEL: Raymond/MASR-9, 49

EQUIPMENT SPECIFICATION(S): SH1-319

EQSS REFERENCE(S): 319-01

QUALIFICATION SUMMARY:

The damper actuators were qualification tested; however, during the cycle aging test, the actuator froze after 400 cycles and oil leaked out of the actuator past the body and shaft. The failure was attributed to the misallignment of various metal parts. The actuator was returned to the manufacturer for machining of the spring clutch assembly but there was no evidence that it was included in the remaining portion of the test.

RESOLUTION PROGRAM:

1. Retest actuator with a reworked spring clutch assembly for applicable service conditions. The vendor has provided a proposal for retesting of this device. Qualification testing is expected to be completed by September 1982, or soon thereafter.
2. Actuators located in the field should have the spring clutch assemblies reworked. Instructions for the modifications are currently being requested from the manufacturer.

JUSTIFICATION FOR INTERIM OPERATION:

1. The Raymond actuators are used in the motor operated dampers which serve the standby ventilation system and the charcoal filter trains. During normal plant operation, two of three exhaust fans are running. During the postulated accident, only one of three exhaust fans must function so that a failure in all three associated dampers (1T46*MOD036A,B,C) and thus loss of all three fans is highly improbable. The other actuators (1T46*MOD031A,B, 047A,B, 048A,B) are in dampers that are tied to the operation of the charcoal filter trains and during an accident, only one filter is required to operate. These actuators are redundant and ducted such that one failure in each pair of actuators would not impair the operation of a charcoal filter train.
2. The actuator was tested to an environment of 180°F, 90% humidity for 1 day and 180 F, 50% humidity for 27 days prior to the cycle aging test. Therefore, there is evidence that the actuator is qualified for operation in a harsh environment.
3. A listing of materials used in the actuators will be evaluated to the required service conditions. This evaluation is expected by June 1982.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Differential Pressure Transmitter

Manufacturer/Model: Rosemount/1151

Equipment Specification: SH1-003

EQSS References: 3048

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1. DESCRIPTION

The devices under evaluation are Rosemount Differential Pressure Transmitters, models 1151 AP, 1151 DP and 1151 GP. Analysis of Rosemount technical manuals indicates that these transmitters are all variations of the basic model 1151 transmitter, the only differences among them being the type of pressure they measure [i.e.; Atmospheric Pressure (AP), Differential Pressure (DP) and Gauge Pressure (GP)]. Therefore, for the purposes of environmental qualification, these transmitters are considered generic. In addition, Rosemount has stated that all test data for their 1152 transmitter, except for radiation, is applicable to the model 1151 (Rosemount Report No. 117415, Rev. A).

2. CONCLUSION

The following equipment has been qualified by test for all postulated plant accident environments:

1E41 * FT003	1B21*LT154A through D
1E51 * FT003	1B21*LT155B and D
1G33 * FT011	1B21*PT156 A through D
1G33 * FT012	1B21*PT158A through D
1G33 * FT013	1C71*PT007A through D
	1E11*PT165A through D

3. LIMITATIONS

1. The remaining Rosemount transmitters shown on the Equipment Qualification Summary Report (EQSR) have been qualified for a radiation dose of only 2×10^6 rads, but are required to withstand a postulated accident radiation dose of 4.14×10^6. Therefore, this equipment does not fully meet the requirements of NUREG-0588, Category II.

2. Materials analysis indicates that the qualified life of these transmitters is 1.4 years. (Wyle Laboratories Report No. 17464-0902, July 29, 1981). This data will be input into the plant preventive maintenance program to ensure that this equipment would have a degraded condition detected if used beyond its qualified life.

4. JUSTIFICATION FOR INTERIM OPERATION

The postulated accident radiation dose of 4.14×10^6 rads for the devices discussed in section 3.1 above is a conservative determination based on the end of life fission product inventory in the core. However, the postulated accident dose may be expected to remain less than this conservatively calculated dose prior to the first refueling outage due to a smaller fission product inventory expected in the life of the first core. This expectation will be confirmed by analysis. Therefore, this device is expected to perform its required safety function at least until the first refueling outage.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION*

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/
JUSTIFICATION FOR INTERIM OPERATION

EQUIPMENT TYPE: 480 V AC MOTOR CONTROL CENTERS AND CIRCUIT BREAKER PANELS

MANUFACTURER/MODEL: Square D/Model 4

EQUIPMENT SPECIFICATION(S): SH1-115

EQSS REFERENCE(S): None

QUALIFICATION SUMMARY:

Qualification documentation for this equipment has not been found.

RESOLUTION PROGRAM:

A qualification proposal and test plan are in negotiation with the manufacturer.

JUSTIFICATION FOR INTERIM OPERATION:

1. Many of the MCC's and panels are installed in environmentally protected rooms or cubicles where they experience controlled humidity and temperature during all postulated accident conditions. The radiation environment for which these MCC's must function (180 day post-accident duration) is 3.1×10^5 rads gamma which is within the capability of most electrical equipment.

2. The remainder of the MCC's are located in the unprotected environment of the reactor building (secondary containment) and must function only during a LOCA: normal temperature, humidity and pressure with a radiation dose of 4.2×10^6 rads gamma. Since this level of radiation is within the capability of most electrical equipment, this equipment should function as required in this environment. During a PBOC environment, these MCC's will be subjected to a harsh temperature and humidity environment. However, the equipment fed from these MCC's are not required to operate during or after a "PBOC". Also these MCC's are fed independent of the remaining 480VAC distribution system. In addition, conduit entries will be sealed to limit entry of steam inside the enclosures.

3. A material analysis study for all MCC's and panels is expected to be available prior to testing . This study will determine the susceptability of the materials to failure in a steam and radiation environment.

Based on the required operating conditions, the 480 V AC MCC's should function properly during and after all postulated accidents.

*Final complete documentation is not expected prior to fuel load.

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Pressure Switch

Manufacturer/Model: Static-O-Ring/5N, 6N Series

Equipment Specification: SH1-003

EQSS References: 3032

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1. DESCRIPTION

The devices under evaluation are Static-O-Ring Series 5N & 6N Pressure Switches. The equipment serial numbers have been sent to the manufacturer. Static-O-Ring is in the process of providing the applicability of qualification documentation and the materials of construction.

2. CONCLUSION

(Later)

3. LIMITATIONS

(Later)

4. JUSTIFICATION FOR INTERIM OPERATION

(Later)

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Turbine

Manufacturer/Model: Terry Corporation/CCS

Equipment Specification: SH1-003

EQSS References: 3050

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1. DESCRIPTION

The equipment under evaluation is the HPCI turbine, Terry Corporation model CCS, and accessory devices. A General Electric test program is currently in progress for this turbine and its accessories.

2. CONCLUSION

(Later)

3. LIMITATIONS

(Later)

4. JUSTIFICATION FOR INTERIM OPERATION

(Later)

EQUIPMENT WITH INCOMPLETE DOCUMENTATION

QUALIFICATION SUMMARY/RESOLUTION PROGRAM/JUSTIFICATION FOR INTERIM OPERATION

Equipment Type: Level Indicator

Manufacturer/Model: Yarway/4418C

Equipment Specification: SH1-003

EQSS References: 3037

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1. DESCRIPTION

The devices under evaluation are Yarway remote level indicating switches, Model 4418C. Examination of Yarway test data indicates that all 4400 series level switches are generic.

2. CONCLUSION

These devices have been qualified by test for the postulated accident temperature and humidity conditions only. Therefore, they do not fully meet the requirements of NUREG-0588, Category II. However, use of this equipment for interim operation can be justified.

3. LIMITATIONS

Materials analysis (EDS Calculation No. 0630-001-016, Rev. 0) indicates that the limiting parts in this device, with respect to thermal aging, are the neoprene grommet and cover gasket and the cork and rubber control module casing gasket, all having a qualified life of 6 years. This data will be input to the plant preventive maintenance program to ensure that this device does not exceed its qualified life.

JUSTIFICATION FOR INTERIM OPERATION

1. The postulated accident pressure environment is higher than the pressure for which this device has been tested by a margin of less than 1 psi. A 1 psi differential is not expected to affect this device's function. Therefore, this device is expected to perform its safety function as required.

2. This device is required to withstand an accident radiation dose of 9 x 10^5 rads but has not been subjected to radiation testing. However, materials analysis (EDS Calculation No. 0630-001-016, Rev. 0) indicates that the limiting materials of this device are vinyl and diallyl phthalate, both having a radiation tolerance of 1 x 10^6rads. Therefore, this device is expected to perform its safety function as required.

3. Extrapolation of the test data indicates that this device is capable of withstanding the postulated HELB temperature conditions for at least 16.6 hours (EDS Calculation No. 0630-001-015). After this time it will be exposed to only normal ambient temperature conditions. In addition, this device will be accessible for repair after an HELB and will not see a harsh environment, other than the radiation addressed above, after a LOCA. Therefore, this device is expected to remain operational for the required time of 1 day and not fail in a manner detrimental to plant safety for the duration of the accident (180 days).

APPENDIX H

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE

APPENDIX H

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE

A	Agitator
A/D	Analogue/Digital Converter
ABR	Auxiliary Boiler Room
ACC	Air-Cooled Condenser
ACH	Air Chamber
ACT	Actuator
ACU	Air-Conditioning Unit
AD	Air Dryer
ADS	Absorber
AE	Air Eliminator
AF	Air Filter
AO	Air Operator
AOD	Air-Operated Damper
AOV	Air-Operated Valve
APH	Air Preheater
ASS	Automatic Selector Switch
B	Boiler
B/A	Buffer Amplifier
BA	Battery
BC	Battery Charger
BIS	Switchgear Breaker Test Set
BLO	Blower
BPD	Bushing Potential Device
BRK	Breaker
C	Compressor
C/D	Carrier Demodulator
C/F	Signal Failure Alarm
C/M	Carrier Modulator
CC	Conductivity Controller
CCV	Conductivity Control Valve
CE	Conductivity Element
CI	Conductivity Indicator
CIS	Conductivity Indicating Switch
CIT	Conductivity Indicating Transmitter
CIV	Combined Intermediate Valve
CLC	Cooling Coil
CLR	Chlorine Recorder
CLZ	Chlorine Analyzer
CM	Conductivity Monitor
CNV	Conveyor, Feeder
CON	Continuous
CPD	Coupling Type Potential Device
CPG	Coupling
CR	Conductivity Recorder
CRN	Crane or Hoist
CRS	Conductivity Recorder Switch
CS	Conductivity Switch

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE (CONT)

ABBREVIATION	FULL TITLE
CSK	Cask
CT	Conductivity Transmitter
CTR	Current Transformer
CV	Control Valve
CYL	Cylinder
D	Condensing Chambers
DA	Deaerator
DE	Demineralizer, Deionizer
DEM	Deminster
DG	Diesel Generator Building
DH	Desuperheater
DI	Ionization Fire Detector
DMP	Damper
DO	Door
DR	Density Recorder
DRY	Dryer
DT	Density Transmitter
DTC	Thermal Fire Detectors
E	Heat Exchanger
E/E	Voltage to Voltage Converter - Repeater
E/H	Voltage to Hydraulic Converter
E/I	Voltage to Current Converter
E/P	Voltage to Pneumatic Converter
E/S	Electric Power Supply
E/Y	Auctioneer
ECD	Electric Control Drive
EFV	Excess Flow Check Valve
EHC	Electro-Hydraulic Control
EI	Voltage Indicator
EJ	Ejector, Eductors
EL	Elevator
ELA	Laundry Equipment
EN	Elapsed Time Totalizer
ENC	Enclosure
ENG	Engine
EOL	End of Line
ER	Voltage Recorder
ET	Voltage Transmitter
EV	Explosive Valve
EXJ	Expansion Joint
FAN	Fan
FC	Flow Controller
FCD	Flow Control Damper
FCV	Flow Control Valve
FDI	Flow Differential Indicator

ABBREVIATION	FULL TITLE
FDS	Flow Differential Switch
FE	Flow Element
FG	Flow Glass
FI	Flow Indicator
FIC	Flow Indicating Control
FIS	Flow Indicating Switch
FISL	Feedwater Isolation
FIT	Flow Indicating Transmitter
FK	Flow Square Root Extractor
FL	Filter
FLT	Filter Train
FN	Flow Totalizer
FNM	Flow Totalizing Meter
FNR	Flow Totalizing Recorder
FNT	Flow Totalizing Transmitter
FQ	Flow Integrator
FR	Flow Recorder
FRC	Flow Recorder Control
FS	Flow Switch
FT	Flow Transmitter
FUN	Funnel, Flush Funnel
G	Generator
GD	Gear Drive, Increase/Decrease
GN	Generator Neutral Equipment
GZ	Gas Analyzer
H	Heater
HC	Hand Control
HCC	Heating Coil, Reheat Coil
HCU	Hydraulic Control Unit
HCV	Hand Control Valve
HD	Hood
HDS	Disconnect Switch Bus
HFU	Heater Fan Unit
HIC	Hand Indicating Controller
HO	Hydraulic Operator
HOV	Hydraulic Operated Valve
HSG	Housing
HSS	Hand Selector Switch
HSV	Hand Selector Valve
HV	Hand Valve
HVU	Heating and Ventilation Unit
HZR	Frequency Recorder
HZT	Frequency Transmitter
H2E	Hydrogen Element
H2I	Hydrogen Indicator
H2R	Hydrogen Recorder

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE (CONT)

ABBREVIATION	FULL TITLE
H2T	Hydrogen Transmitter
H2Z	Hydrogen Analyzer
I/E	Current to Voltage Converter
I/H	Current to Hydraulic Converter
I/I	Current Repeater
I/P	Current to Pneumatic Converter
I/S	Inverter Supply
IC	Current Controller
II	Current Indicator
INV	Inverter
IPB	Isolated Phase Bus
IR	Current Recorder
IRM	Intermediate Range Monitoring
IT	Current Transmitter
JB	Junction Box (Boxes for Terminations, etc, need not be numbered)
L/U	Logic Unit
LC	Level Controller
LCV	Level Control Valve
LDI	Level Differential Indicator
LDS	Level Differential Switch
LDT	Level Differential Transmitter
LE	Level Element
LG	Level Glass
LGT	Lights
LI	Level Indicator
LIC	Level Indicating Controller
LIS	Level Indicating Switch
LIT	Level Indicating Transmitter
LR	Level Recorder
LRS	Level Recording Switch
LS	Level Switch
LT	Level Transmitter
LTS	Level Transmitting Switch
M	Mixer
M/U	Manual Unit
MC	Moisture Controller
MCB	Main Control Board
MCC	Motor Control Center
MDS	Motor-Operated Switch Disconnect
ME	Moisture Element
MFD	Manifold
MG	Motor Generator
MGR	Motor Generator Room

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE (CONT)

ABBREVIATION	FULL TITLE
MI	Moisture Indicator
MIC	Moisture Indicating Controller
MIT	Moisture Indicating Transmitter
MO	Motor Operator
MOD	Motor Operated Damper
MOT	Motor
MOV	Motor Operated Valve
MR	Moisture Recorder
MS	Magnetic Switch
MSH	Motor Space Heater (MSH for pumps, valves, elec PNL, etc, shall not be identified with separate numbers)
MST	Magnetic Starter
MSV	Main Steam Stop Valve
MSW	Moisture Switch
MT	Moisture Transmitter
MT	Test Motor
NAI	Sodium Indicator
NAZ	Sodium Analyzer
NNE	Eccentricity Element
NNI	Eccentricity Indicator
NNR	Eccentricity Recorder
NNS	Eccentricity Switch
NNT	Eccentricity Transmitter
NPB	Nonsegregated Phase Bus
NRV	Non Return Valve
NSA	Neutron Source Critical
NXE	Expansion Element
NXI	Expansion Indicator
NXR	Expansion Recorder
NXS	Expansion Switch
NXT	Expansion Transmitter
O2R	Oxygen Recorder
O2Z	Oxygen Analyzer
P	Pump
P/C	Potentiometric Transducer Conditioning Module
P/D	Proportional Delay Unit
P/E	Pneumatic-Electrical Converter
P/I	Pneumatic to Current Converter
P/U	Pneumatic Unit
PBM	Piggyback Motor
PC	Pressure Controller
PCD	Pressure Control Damper
PCV	Pressure Control Valve
PD	Photoelectric Detector

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE (CONT)

ABBREVIATION	FULL TITLE
PDC	Pressure Differential Controller
PDI	Pressure Differential Indicator
PDR	Pressure Differential Recorder
PDS	Pressure Differential Switch
PDT	Pressure Differential Transmitter
PDV	Pressure Differential Valve
PHE	pH Element
PHI	pH Indicator
PHR	pH Switch
PHT	pH Transmitter
PI	Pressure Indicator
PIC	Pressure Indicating Controller
PIS	Pressure Indicating Switch
PNE	Position Element
PNI	Position Indicator
PNL	Panel
PNR	Position Recorder
PNS	Position Switch (PNS for AOV/MOV do not have to be assigned)
PNT	Position Transmitter
PR	Pressure Recorder
PS	Pressure Switch
PSA	Pipe Support Restraint
PSB	Portable Steam Boiler
PSG	Pipe Support Guide
PSRH	Pipe Support Rod Hanger
PSS	Pipe Support Sliding
PSSH	Pipe Support Spring Support
PSSP	Pipe Support Snubber/Suppressor
PSST	Pipe Support Strut
PT	Pressure Transmitter
PUR	Purifier
PWR	Pipe Whip Restraints
R/E	Resistance to Voltage Converter
R/I	Resistance to Current Converter
RA	Resistor Assembly
RAK	Rack or Storage Stand
RB	Radial Beams
RC	Recombiner
RCL	Ultrasonic Resin Cleaner
RCO	Restricting Control Orifice
RD	Rupture Disc
RE	Radiation Element
REC	Rectifier
REF	Refrigeration Unit
RFP	Retractable Fill Pipe
RI	Radiation Indicator

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE (CONT)

ABBREVIATION	FULL TITLE
RIS	Radiation Indicating Switch
RK	Instrument Rack
RO	Restriction Orifices
RP	Pneumatic Relay
RR	Radiation Recorder
RS	Radiation Switch
RT	Radiation Transmitter
RTS	Radiation Transmitter Switch
RV	Relief Valve
S	Permanent Strainer
S/A	Summing Amplifier
S/C	Signal Characterizer
S/G	Signal Generator
SC	Speed Controller
SCT	Signal Conditioner - Temporary
SDF	Seal Drywell Floor
SE	Seal
SH	Shield
SHE	Shop Equipment
SI	Speed Indicator
SIC	Speed Indicating Controller
SIL	Silencer
SIR	Speed Recorder
SIR	Speed Recorder
SIX	Speed Demand Indicator
SK	Skimmer
SL	Speed Limiter
SLG	Sling
SLU	Seal Oil Unit
SOV	Solenoid Operated Valve
SP	Sparger
SPPB	Suppression Pool Pump Back
SR	Separator
SRM	Source Range Monitor
ST	Speed Transmitter
STE	Special Test Instrument
STT	Temporary Strainer
STU	Sewage Treatment Unit
SUP	Support Equipment
SV	Safety Valve
SW	Service Water Wells Isolation Gates
SWC	Screenwell
SWE	Shield Wall Extension
SWG	Switchgear
T	Transformer
TBE	Tubes, Condenser

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE (CONT)

ABBREVIATION	FULL TITLE
TC	Temperature Controller
TCV	Temperature Control Valve
TDI	Temperature Differential Indicator
TDR	Temperature Differential Recorder
TDS	Temperature Differential Switch
TDT	Temperature Differential Transmitter
TE	Temperature Element
TG	Turning Gear
TI	Temperature Indicator
TIC	Temperature Indicating Controller
TIP	Transversing Incore Probe
TIS	Temperature Indicating Switch
TIT	Temperature Indicating Transmitter
TK	Tank, Sump, Shipping Container, Reservoir
TL	Liner
TM	Temperature Monitor
TO	Tool
TP	Potential Transformer
TR	Temperature Recorder
TRK	Trash Rack
TRP	Trap
TRS	Temperature Recording Switch
TRV	Temperature Relief Valve
TS	Temperature Switch
TSC	Traveling Water Screen
TT	Temperature Transmitter
TU	Turbine
TUE	Turbidity Element
TUI	Turbidity Indicator
TUR	Turbidity Recorder
TUT	Turbidity Transmitter
TVC	Television Camera
TVM	Television Monitor
TX	Transceiver, Base Station
UBI	Ultrasonic Equipment Cleaner
UC	Unit Cooler
UEC	Ultrasonic Cleaning Transducer
UH	Unit Heater
UT	Unit Trip
VBA	Vibration Alarm
VBE	Vibration Element
VBI	Vibration Indicator
VBM	Vibtration Monitor
VBR	Vibration Recorder
VBS	Vibration Switch
VBT	Vibration Transmitter

LIST OF ABBREVIATIONS FOR EQUIPMENT TYPE (CONT)

ABBREVIATION	FULL TITLE
VBX	Vibration Test Point
VCH	Valve Chest
VH	Vehicle
VM	Vibrating Motor
VR	Viscosity Recorder
VT	Viscosity Transmitter
VU	Ventilator Unit
WB	Baler (Solid Waste)
WC	Water Chiller
WDW	Window-Includes Leaded Glass
WHS	Warehouse
WI	Watt Indicator
WR	Watt Recorder
WX	Watt Counter
XL	Lighting Transformer
XXX	Downcomer
Z	Penetration
ZIU	Zone Indicating Unit
ZN	Zone Module