

BVPS-2 FSAR

BEAVER VALLEY POWER STATION UNIT 2

Duquesne Light Company

FSAR ELECTRICAL EQUIPMENT
QUALIFICATION SEPARATE SUBMITTAL

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EQUIPMENT QUALIFICATION REPORT MANUAL

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LIST OF EFFECTIVE CHANGES

The following section numbers have been changed:

<u>Old FSAR Section Number</u>	<u>New FSAR Section Number</u>
3.11.1	3.11.4.1
3.11.2	3.11.4.2 and 3.11.4.3
3.11.2.1	3.11.4.2
3.11.2.2	3.11.4.3
3.11.2.2.1	3.11.4.3.1
3.11.2.2.2	3.11.4.3.2
3.11.3	3.11.4.4
3.11.4	3.11.5.1
3.11.5	3.11.5.2
3.11.5.1	3.11.5.3
3.11.5.1.1	3.11.5.3.1
3.11.5.1.2	3.11.5.3.2
3.11.5.1.3	3.11.5.3.3
3.11.6	3.11.5.4

The following sections are new to this submittal:

New Sections and Section Numbers

3.11.1
 3.11.1.1
 3.11.1.2
 3.11.1.3
 3.11.1.4
 3.11.1.5
 3.11.2
 3.11.3
 3.11.4.4.1
 3.11.4.5
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 3.11.6.1.1
 3.11.6.1.2
 3.11.6.1.3
 3.11.6.1.4
 3.11.6.1.5
 3.11.7

LIST OF EFFECTIVE CHANGES (Cont)

The following sections were rewritten or revised in this submittal:

Rewritten or Revised Sections

3.11.4.1
3.11.4.2
3.11.4.3.2

The following tables have been added:

New Tables

Table 3.11-4
Table 3.11-5
Table 3.11-6

New Figures

Figure 3.11-11
Figure 3.11-12
Figure 3.11-13
Figure 3.11-14

All other Tables and Figures are identical to those in the last Amendment of the FSAR.

3.11 BVPS-2 FSAR ELECTRICAL EQUIPMENT QUALIFICATION SEPARATE SUBMITTAL

3.11.1 INTRODUCTION AND SUMMARY

The purpose of this document is to summarize the results of the environmental qualification program for Class 1E Safety-Related Equipment purchased through Stone and Webster Engineer Corporation (SWEC) for Beaver Valley Power Station - Unit 2 (BVPS-2). This Section 3.11 of the Final Safety Analysis Report (FSAR) has been separated from the FSAR as permitted by the Nuclear Regulatory Commission (NRC). The information provided in this document meets or exceeds the intent of the Institute of Electrical and Electronic Engineers (IEEE) Standard 323-1971, IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations, the intent of NUREG-0588 (USNRC), Revision 1, Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment, which interprets BVPS-2 as being a Category II type plant, and the intent of rule 10CFR50.49.

Table 1.10-1 of the FSAR presents BVPS-2 position on the PWR applicable items from the U.S. Nuclear Regulatory Commission's clarification of TMI Action Plan Requirements.

This document presents the status of the overall environmental qualification program as of June 1984.

The environmental qualification for equipment within the program is in varying stages of completion. Section 3.11.2 of this submittal reflects the status of equipment for which qualification is incomplete and Section 3.11.3 reflects qualification status for which the qualification

is complete. The summary of documentation and central file numbers for approved equipment are listed in Table 3.11-1.

3.11.1.1 Methodology for Environmental Qualification of Electrical Equipment

This section contains BVPS-2 positions and methodology on environmental qualification of Class 1E safety related equipment. Included in this section are references to qualification control procedures, manuals, samples and description of the forms used to document the qualification, the Environmental Qualification Tracking (EQT) System, and the quality assurance program.

3.11.1.2 Environmental Conditions

This section defines the range of environmental conditions for those areas in which Class 1E electrical equipment is located. It describes how the environments were developed, how each of the structures is divided into zones, the Component Service Categories, Normal Service Conditions (NSC), Anticipated Operation Occurrences (AOO), Accident Conditions (AC), Environmental Conditions, and Post Accident Operating Time, and references (Tables, Figures, etc.).

3.11.1.3 Maintenance/Surveillance Activities

This section contains a description on the implementation of the Maintenance/Surveillance program for maintaining the equipment in its qualified condition. The following aspects are amplified: Qualified Life/Replacement Interval Relationship, Failure Evaluation, Aging and

Inspection Criteria, Filing and Storage of Equipment Qualification Documentation, and finally, Spare/Replacement Parts Program.

3.11.1.4 Equipment Master List

This section contains a description of equipment master list development for Class 1E safety-related equipment, and the equipment master list with system locations and environments.

3.11.1.5 System Component Evaluation Worksheets (SCEW)

Reference Table 3.11-6

This table contains the specific qualification information for the Class 1E safety-related equipment. For each piece of equipment identified by the SWEC identification number, a SCEW has been made listing the following: procurement specification, vendor's name, manufacturer's name, model number, location, elevations, safety function, qualified life, environmental conditions, qualification summary and method, and status of qualification. These terms and others are further defined in these sections.

This document will be revised periodically as the overall environmental qualification program progresses.

BVPS-2 FSAR SECTION 3.11.2

IEEE 323-1974 STATUS OF
EQUIPMENT WHOSE QUALIFICATION
IS NOT COMPLETE

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IEEE 323-1974 STATUS OF
EQUIPMENT WHOSE QUALIFICATION
IS NOT COMPLETE

<u>Purchase Order</u>	<u>Equipment Description</u>	<u>Approval Status</u>
2BV-001	<u>Nuclear Steam Supply System</u>	
	Active Pump Motors	Incomplete
	Motor-Operated Valves	Incomplete
	RTD: RCS Bypass Mainfolds, and RCS Wall Mounted	Incomplete
	Level Transmitters	Incomplete
	Pressure/Differential Transmitters	Incomplete
	Flow Transmitters	Incomplete
	Flow Indicating Switches	Incomplete
	Hand Controllers	Incomplete
	Instrumentation and Protection Racks	Incomplete
	Recorders	Incomplete
	Reactor Trip Switchgear	Incomplete
	Process Cabinets	Incomplete
2BV-10	Primary Component Cooling Water Pumps	Incomplete
2BV-24	Quench Spray Pumps	Incomplete
2BV-67	Ball Valves Manual & Motor-Operated	Incomplete
2BV-76	Motor-Operated Butterfly Valves	Incomplete
2BV-76A	Motor-Operated Butterfly Valves	Incomplete

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<u>Purchase Order</u>	<u>Equipment Description</u>	<u>Approval Status</u>
2BV-77	Motor-Operated Carbon Steel Valves	Incomplete
2BV-82A	Motor-Operated Stainless Steel Valves	Incomplete
2BV-91	Motor-Operated Plug Valves	Incomplete
2BV-98A	Self Cleaning Strainers	Incomplete
2BV-134	Hydrogen Recombiner	Incomplete
2BV-157	Vent Filter Assemblies	Incomplete
2BV-160	Refrigerant Condensing Units	Incomplete
2BV-179	Air Conditioning Units	Incomplete
2BV-186	Air Flow Indicators and Controls	Incomplete
2BV-192	Self-Contained Air Conditioning Units	Incomplete
2BV-208	Steam Generators Auxiliary Feed Pumps and Drivers	Incomplete
2BV-209A	E/H Actuated Valve	Incomplete
2BV-230	Emergency Diesel Generators	Incomplete
2BV-311	Main Control Board	Incomplete
2BV-328	ASEA Relays	Incomplete
2BV-337	Isolating Regulating Transformers	Incomplete
2BV-342	130 Vdc Battery Chargers	Incomplete
2BV-358	125 Vdc Battery Breaker Switchgear	Incomplete
2BV-361A	Vital Bus Inverter Rectifiers	Incomplete

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<u>Purchase Order</u>	<u>Equipment Description</u>	<u>Approval Status</u>
2BV-363	AC/DC Distribution Panels	Incomplete
2BV-509A	Radiation Monitoring	Incomplete
2BV-555	Heat Tracing	Incomplete
2BV-635	Sump Level Transmitters and Switches	Incomplete
2BV-636	Resistance Temperature Detectors	Incomplete
2BV-651	Air-Operated Valves	Incomplete
2BV-672A	Chlorine Detectors	Incomplete
2BV-676	Hydrogen Analyzer	Incomplete
2BV-689	Temperature Switches	Incomplete
2BV-693	Flow & Differential Pressure Indicating Switches	Incomplete
2BV-709	Post Accident Monitoring Recorders	Incomplete
2BV-723	Analog Instruments and Ranks	Incomplete
2BV-731	Control & Relay Panels	Incomplete
2BV-931	Pre-Engineered Listing (PEL)	
	Okonite Splice Kits for 600 V Power Cable	Incomplete
	Westinghouse OT-2 Switches	Incomplete

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BVPS-2 FSAR SECTION 3.11.3

IEEE 323-1974 STATUS OF
EQUIPMENT WHOSE QUALIFICATION
IS COMPLETE

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IEEE 323-1974 STATUS OF EQUIPMENT WHOSE QUALIFICATION IS COMPLETE

<u>Purchase Order</u>	<u>Equipment Description</u>	<u>Approval Status</u>
2BV-001	<u>Nuclear Steam Supply System</u>	
	Air-Operated Valves (Solenoid Valves, Limit Switch)	Complete
	Indicators	Complete
2BV-11	Fuel Pool Cooling Pumps	Complete
2BV-15	Recirculation Spray Pumps	Complete
2BV-92	Feedwater Isolation Valves	Complete
2BV-94	Fire-Water Booster Pump	Complete
2BV-135	Quench Spray Chemical Injection Pump	Complete
2BV-150	Axial Flow Fans	Complete
2BV-162	Centrifugal Fans	Complete
2BV-185	Air & Motor-Operated Damper	Complete
2BV-211	Main Steam Trip Valve (Cabinet)	Complete
2BV-211A	Main Steam Trip Valve (Actuator)	Complete
2BV-224	Service Water Pumps	Complete
2BV-245	Diesel Generator Fuel Oil Transfer Pumps	Complete
2BV-304	4160 V Switchgear	Complete
2BV-307	480 V Unit Substations	Complete
2BV-309	5000 V Power Cable	Complete

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<u>Purchase Order</u>	<u>Equipment Description</u>	<u>Approval Status</u>
2BV-310	480 V MCC's	Complete
2BV-312	600 V Power Cable	Complete
2BV-317	Electrical Penetrations	Complete
2BV-324	300 V Instrument Control Cable	Complete
2BV-326	High Temperture Cable	Complete
2BV-350	125 Vdc Switchboards	Complete
2BV-389	600 V Control Cable	Complete
2BV-648A	Electrical Differential Pressure Transmitters	Complete
2BV-666A	Bellow Sealed Control Valves	Complete
2BV-719	In-Line SOV's	Complete
2BV-739	Isolation Devices	Complete
2BV-816	600 V Control Cable	Complete
2BV-816A	600 V Shielded Control Cable	Complete
2BV-821	1500/1600/142 NUC Series Terminal Blocks	Complete
2BV-827	300 V Control Cable	Complete
2BV-828	600 V Power Cable	Complete
2BV-835	Emergency Distribution Transformers	Complete
2BV-841	Control Storage Batteries	Complete
2BV-931	Pre-Engineered Listing	
	Kerite Splice Kits	Complete
	Raychem Splice Kits	Complete
	Rockbestos SIS Wire	Complete

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Purchase Order

Equipment Description

Approval Status

Marathon 1500 DJ
Terminal Blocks

Complete

3.11.4 METHODOLOGY FOR ENVIRONMENTAL QUALIFICATION OF ELECTRICAL EQUIPMENT

3.11.4.1 Equipment Identification and Environmental Conditions

The electrical equipment provided to accomplish the essential safety functions of initiating and maintaining reactor shutdown, reactor core cooling, engineered safety features, containment isolation, containment heat removal, hydrogen control, and to prevent significant radioactive releases to the environment are designed for all normal, abnormal, and accident environmental conditions during and after which this equipment must operate. All Class 1E safety-related electrical equipment, as listed in FSAR Section 3.11, is designed and qualified to perform the function for which it is required in the normal and design basis event environment. Equipment within Category 1 Systems listed in FSAR Table 3.2-1, which are required to perform Class 1E safety-functions are included in Table 3.11-1.

Table 3.11-1 lists all applicable equipment and the specific environments experienced by these components. Equipment operating times during normal, abnormal/anticipated operational occurrence, and accident environment are also provided. Each operating time is based on the length of time a component's specific safety function is required during a normal, abnormal, or accident condition. Also listed in Table 3.11-1 are the descriptions of spray and chemistry conditions. The FSAR sections referenced in Table 3.11-1 describe the safety function of each component.

Table 3.11-2 lists the environmental conditions during normal, abnormal, and accident conditions for all areas of BVPS-2 in which safety-related components are located. These environments are discussed in Section 3.11.5.2.

3.11.4.2 Qualification Tests and Analyses of Nuclear Steam Supply Steam Equipment

For Westinghouse Electric Corporation (Westinghouse) supplied nuclear steam supply system (NSSS) Class 1E equipment, the Duquesne Light Project meets or exceeds the intent of the IEEE Standard 323-1971, IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations, and the intent of NUREG-0588 (USNRC 1981), Revision 1 (Category II), Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment (with the exceptions delineated by Westinghouse in 1980) by an appropriate combination of any or all of the following: type testing, operating experience, qualification by analysis, and ongoing qualification. This commitment is satisfied for each individual piece of equipment by either implementation of the final version of WCAP-8587 Report (Westinghouse latest revision) or under the Westinghouse supplemental qualification program documented by Westinghouse (1975). Methodology for Qualifying Westinghouse Water Reactor Division (WRD) Supplied NSSS Safety-Related Electrical Equipment, WCAP-8587 (Westinghouse latest revision), has been revised from an earlier version to provide additional information requested by the USNRC staff concerning the methodology employed by Westinghouse to qualify safety-related electrical equipment. In response to USNRC staff requests for further information on the details of the qualification

program, Westinghouse submitted Supplement 1 to WCAP-8587, Equipment Qualification Data Packages, (EQDP) (Westinghouse latest supplement revisions). This supplement describes the performance specifications and requirements and the proposed test plan for each piece of safety-related electrical equipment. A Safety Evaluation Report (SER) issued November 10, 1983, indicates the acceptance of the WCAP-8587 and WCAP-9714/9750 methodology as well as twenty-two (22) specific test reports. Table 3.11-1 identifies all of the safety-related equipment and references the applicable qualification document or EQDP contained in Supplement 1. The Westinghouse supplied equipment in Table 3.11-1 consists of all equipment under the Purchase Order Number 2BV-001.

The Westinghouse WCAP-8587 equipment qualification program has been developed using IEEE-323-1974 and IEEE-344-1975 as a guide. Additional standards for qualification of specific types of electrical equipment employed in whole or in part include IEEE-382-1972, IEEE-383-1974, IEEE-117-1974 and IEEE-275-1966. More detailed information on qualification guides can be found in Section 5.2 of WCAP-8587.

The Westinghouse WCAP-8587 equipment qualification program includes generic environmental conditions (for example, temperature, pressure, relative humidity, chemical spray, and radiation) which are established for the applicable pieces of Westinghouse supplied Class 1E equipment. The generic environmental conditions for which the equipment is qualified are reported in the specific EQDP. For normal operating conditions, the generic levels for pressure, temperature, and humidity were developed by use of available architectural engineering interface information, which included SWEC input, and draft recommendations of the

IEEE concerning environmental parameters. Normal operating radiation doses have been derived from theoretical calculation assuming 40 years of continuous operation with a reactor power of 4100 MWth and steady state operating conditions. Abnormal environments, defined to recognize possible plant service abnormalities which could lead to short-term changes in equipment environments, were also generated from SWEC available interface information and draft recommendations of the IEEE. Accident environments are broken down into higher irradiation/lower saturated temperature condition of LOCA and lower irradiation/short term superheated temperature condition of a steamline break. Available preliminary containment analyses, often completed by SWEC and other architectural engineers, for Westinghouse NSSS plants committed to IEEE-323-1974 were used to develop a generic temperature/pressure profile. For a LOCA, radiation sources associated with an equivalent case meltdown for a 4100 MWth plant were used. The following analytical assumptions were made:

Equivalent Core Meltdown Sources

Fraction of Core Activity Released to Containment Atmosphere

Noble gases	100%
Halogens	50%
Remaining Inventory	1%

Gap Activity Sources

Fraction of Core Activity

Kr-85	30%
Other Noble Gases	10%
Halogens	10%

These are conservative estimates of the recommendations of Regulatory Guide 1.89, November 1974. Radiation exposures following a steamline break have been estimated by conservatively assuming 1% clad damage and considering the fraction of the core activity in the RCS as 0.3% Kr-85, 0.1% halogens and 0.1% of other noble gases. It was also conservatively assumed that all of the reactor coolant system inventory was instantaneously released into the containment atmosphere at the initiation of the incident. Furthermore, it has been conservatively assumed that the radiation doses resulting from a feedline break are equal to those in a steamline break.

Westinghouse has performed a plant specific review of all NSSS Class 1E equipment. This review verified that all equipment was enveloped by the generic environments developed in WCAP-8587, or corrections were made to equipment to support environment qualification. The review consisted of completing a SCEW sheet for each piece of equipment identified as Class 1E. The NSSS Class 1E equipment list was developed by Westinghouse, reviewed by SWEC and Duquesne Light Company. Plant specific environments were provided by SWEC. This included the responsibility for verifying correct locations and environmental and seismic conditions on a component by component basis. Generic qualification levels for normal, abnormal, and accident environments, as applicable, were listed on the SCEW sheets, and a determination made if they enveloped the plant specific levels. This review included all environmental conditions specified for the equipment including temperature, pressure, humidity, radiation, chemical spray, and

submergence. Post-accident operating time was specified by WCAP-8587 and determined to be directly applicable to plant specific requirements.

Each family of SCEW sheets was grouped together and an evaluation checklist was completed by family. This included review of margin, test sequence, installation requirements, and aging methodology. Additionally, seismic review of floor mounted equipment was conducted to compare plant specific response curves to qualified levels. All wall mounted and line mounted equipment was evaluated by SWEC.

Following this study, a final review of all equipment was made by Westinghouse, SWEC, and Duquesne Light to determine if results were satisfactory. Any changes to SCEW sheets or checklists were formally documented and agreed to by all parties.

3.11.4.3 Qualification Tests and Analyses of Balance of Plant Equipment

3.11.4.3.1 Environmental Qualification Criteria

The Class 1E equipment listed in Table 3.11-1 has been designed, fabricated, erected, and qualified to meet applicable federal regulations and guidelines. The requirements of GDC 1 of 10 CFR 50, Appendix A, are achieved by incorporating performance, design, construction, and testing requirements into equipment specifications and by the establishment of a system of reviews to assure conformance with these specified requirements. Appropriate auditable records are maintained in a permanent file. FSAR Chapter 17 provides further definition of how Criterion III of Appendix B to 10 CFR 50 is met.

The environmental requirements of GDC 4 are addressed in Section 3.11.4.1. The Class 1E equipment meets the requirements of GDC 4. The equipment is designed to operate satisfactorily or to fail in a safe mode. Furthermore, since components are procured to withstand the environments resulting from both abnormal events and accidents, the BVPS-2 Class 1E equipment meets the requirements of GDC 23.

General Design Criterion 50 requirements are achieved by analysis and testing of pressure boundary components to assure containment integrity. Inservice inspection is performed to demonstrate leaktight integrity of components such as seal seats and seals.

A detailed discussion on compliance with the following Regulatory Guides for appropriate equipment is provided in FSAR Section 1.8:

1. Regulatory Guide 1.30 - Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment.
2. Regulatory Guide 1.40 - Qualification Tests of Continuous-Duty Motors Installed Inside the Containment of Water-Cooled Nuclear Power Plants.
3. Regulatory Guide 1.63 - Electric Penetration Assemblies in Containment Structures for Light-Water-Cooled Nuclear Power Plants.
4. Regulatory Guide 1.73 - Qualification Tests of Electric Valve Operators Installed Inside the Containment of Nuclear Power Plants.

5. Regulatory Guide 1.89 - Qualification of Class 1E Equipment of Nuclear Power Plants as defined in NUREG 0588 (USNRC 1981) for a Type II plant.
6. Regulatory Guide 1.131 - Qualification Tests of Electric Cables, Field Splices, and Connections for Light-Water-Cooled Nuclear Power Plants.

3.11.4.3.2 Methods and Procedures for Environmental Qualification

The balance of plant (BOP) supplied Class 1E equipment will meet or exceed the requirements of IEEE Standard 323-1971 and NUREG-0588, Revision 1 (USNRC 1981) which interprets BVPS-2 as being a Category II type plant. The requirements for equipment are detailed within each equipment specification.

Equipment items (BOP and NSSS) located in a mild environment are not required to be environmentally qualified by type test. The equipment can be seismically qualified on unaged samples provided that no known age sensitive materials have been identified which would cause failure during seismic loading. The condition specified meets the intent of the definition for a mild environment as stated in Rule 10CFR50.49.

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 Standard 323-1971 are acceptable for demonstrating compliance with the objectives of IEEE Standard 323-1971. SWEC's EQ review group evaluated the following items which are referenced in the Evaluation Checklist (a sample is included

in Table 3.11.14); margin, aging, dose rate and synergistic effects, use of analysis, and operability time.

The qualification shall demonstrate that the analyzed or observed Class 1E performance characteristics of the device meet or exceed its Class 1E required performance characteristics. The qualification basis shall consist of a planned sequence of conditions that meet or exceed the specified environmental and service conditions, as listed in Table 3.11-1, at the location of the device. Each device shall be qualified by analysis, mild environment approach, and/or type testing of one or more typical production units which have been selected at random or by the extrapolation of data from analysis or a type test performed on similar equipment. When such extrapolation is employed, the basis for such extrapolation shall be included. Appropriate, fully documented operating experience may be used alone or in combination with the preceding methods to establish qualification. All planned maintenance actions necessary to ensure that installed equipment retains valid qualification for its design life shall be clearly stated in the qualification report. Typical of such requirements are component replacement, lubrication, and cleaning.

3.11.4.4 Qualification Test Results

The qualification test results for the Westinghouse WRD supplied NSSS and BOP safety-related electrical equipment are recorded in the applicable qualification documents and EQDPs as listed in Table 3.11-1. Westinghouse supplied equipment in Table 3.11-1 consists of all equipment under the Purchase Order Number 2BV-001.

3.11.4.4.1 EQ Reference Documents

The Qualification Program for Class 1E safety-related equipment has been systematically documented by the following procedures:

1. Duquense Light Company Nuclear Construction Division Procedure (NCDP) Number 3.7, "Equipment Qualification Program," (Latest Revision).

This procedure outlines and defines functions and responsibilities of DLC Departments within the Nuclear Construction, Nuclear and Engineering and Construction Divisions. The procedure further defines the Equipment Qualification responsibilities of the Stone & Webster Engineering Corporation. These activities include but are not limited to development of BVPS-2 EQ positions, equipment requiring Qualification, Environmental Conditions, Qualification Requirements and Specifications, Vendor Qualification Documentation and Review, Conditional Releases, Maintenance Requirements and Performance, Procurement of Equipment, Shipping and Storage of Equipment, Installation of Equipment, Testing, and Documentation and Records.

2. Beaver Valley Manual 2BVM-128, "Environmental Qualification Program for Class 1E Electrical Equipment," (Latest Revision).

This manual represents the program for documenting the qualification of Class 1E safety-related electrical equipment on BVPS-2. The project position has been a mechanical approach

in that all 1E safety-related equipment will be qualified to the methods outlined in IEEE 323, 1971 and NUREG-0588, Rev. 1, Cat. II as a minimum. When determined possible, equipment qualification will be upgraded to the standards set forth in Category I of NUREG-0588 Rev. 1, IEEE 323, 1974, and Reg. Guide 1.89 (for comments) as interrupted by SWEC/DLC. The manual describes the Class 1E master list and the methodology used to prepare and maintain this list of safety-related equipment, system checking, qualification requirements within the specification, program continuity, as well as program implementation responsibilities. The manual provides direction for requirements of the specification, evaluation of Environmental Qualification Documentation NSSS and BOP, Mild Environment Criteria, a milestone program for Class 1E equipment, and other related topics.

3. Beaver Valley Manual 2BVM-135, "Environmental Qualification Conditional Release Program for QA Class 1E Equipment," (Latest Revision).

This manual describes the method in which equipment is released for shipment and installation prior to completion of equipment qualification, process for tracking equipment, and specific steps that must be taken for all equipment requiring qualification.

4. Beaver Valley Manual 2BVM-119, "Environmental Conditions for Equipment Qualification Requirements," (Latest Revision).

The purpose of this document is to formally define the range of environmental conditions for those areas in which Class 1E electrical components are located. This document is a summary of the environmental conditions resulting from the following evaluations:

- Heating, Ventilating, and Air Conditioning Systems (HVAC) calculations.
- Radiation Protection Analyses documentation in FSAR Chapter 12 and 15.
- Loss-of-Coolant Accident and Main Steam Line Break Analyses Inside Containment.
- High Energy Line Break Analyses Outside the Containment.
- Flood Analyses Outside the Containment.
- Fluid Spray Analyses.

The environmental conditions evaluated are pressure, temperature, relative humidity, radiation, flooding, and fluid spray.

3.11.4.5 Qualification Forms Description and Samples

1. Supplies Documentation Data Form (SDDF) - This form is used to enter and track vendor documentation in the Project Document Control System (Central File). Reference Figure 3.11-11.

2. System Component Evaluation Worksheet (SCEW) - This sheet is the summary of the qualification for a piece of 1E equipment. Included in this sheet are the environmental envelop, test method, etc. for environmental conditions. Reference Figure 3.11-12.
3. EQT Component Evaluation Work Sheet - This sheet is the computerized form of item 2 above. Reference Table 3.11-5 for a description of the computer field names. Reference Figure 3.11-13.
4. Evaluation Checklist - This form is intended to assist in the evaluation of the vendor's EQ program and reports with respect to IEEE 323, 1971 and/or 1974 standards. Reference Figure 3.11-14.

3.11.4.6 Project Documentation Control System (Central File)

This system is set up to control all documentation, correspondence, quotes, procedure(s), plans, and reports, etc. that are supplied by the vendors. An SDDF form is used to enter documentation into this system. Each document has a unique number made up of fourteen characters, ie. 2701.100-150-021A.

These numbers and letters describe the type of document being entered, the type of equipment, the purchase specification/purchase order, and the number of documents for this purchase order and revision number (Reference 2BVM-29).

Environmental qualification documents in this system will be organized in the following manner:

1. SDDF

2. Test Report
3. Evaluation Checklist
4. SCEW Sheets
5. Supporting Documentation
6. Maintenance Manual
7. Miscellaneous Information

3.11.4.7 Environmental Qualification and Tracking System

The Environmental Qualification and Tracking System (EQT) is a database system designed to facilitate the qualification process by providing data storage, status and tracking information, and report generation. EQT, combined with Project Equipment System (PES), will support the identification of qualifiable equipment; the operability and safety functions for each equipment; the environment including normal, abnormal, and various accident conditions; the demonstrated capabilities; and the results of the comparisons between the required and demonstrated values. In addition, EQT will track the progress of the qualification process for each piece of equipment, and the internal consistency of the information in the database. The EQT system allows instant access to the most up-to-date data, and allows update of the database. Also, various reports are available to assist the user in the qualification process via checklist, sets of data for comparison, and identification of outstanding items or overdue actions. Finally, EQT can generate a "Component Evaluation Worksheet" showing the requirements and qualifications along with supporting documentation references for each piece of qualifiable equipment.

3.11.4.8 EQT's Data Structures Consist of the Following Files:

PES Plant Equipment System. This is the PES database containing equipment specific information. (Refer to the PES 300 report, currently in use by the project, for the EQ data stored in this file).

EZI Environmental Zone Index. This file contains a summary of the environmental conditions for each environmental zone, including Normal, Abnormal, and Accident conditions. Reference Table 3.11-4 for Zone Name and Descriptions.

EQS Environmental Qualification Summary Subsystem. This file contains the demonstrated qualifications, status and tracking information, and remarks and notes regarding the comparison of the demonstrated data to the required environment, for each "Environmental Qualification Summary Sheet." (For purposes of qualification, equipment qualified by the same document(s) is grouped by EQ Summary Sheet.)

3.11.5 ENVIRONMENTAL CONDITIONS

This section of the submittal defines and details the methodology used to determine the environmental conditions for BVPS-2.

3.11.5.1 Loss of Ventilation

Safety-related Class 1E ventilation systems are provided for those essential equipment listed in Table 3.11-1 which require a controlled environment to maintain the components' environmental qualification status. The following design bases are used for these systems:

1. Heating, ventilation, and air-conditioning (HVAC) systems, serving these equipment areas, are designed to Seismic Category I requirements (FSAR Section 9.4).
2. The design of the HVAC system in equipment and power supplies is provided so that no single active component failure can result in a loss of HVAC system function which would affect both redundant trains of essential equipment.
3. Redundant HVAC systems are connected to separate and independent onsite standby power supplies to assure system operation upon loss-of-offsite power (FSAR Section 8.3).
4. Failure modes for isolation valves and dampers are described in FSAR Section 9.4. Valves or dampers required for operation after postulated accidents fail in the safe position.
5. Equipment outside the containment building that is required to operate following a loss-of-coolant accident (LOCA) or a high-

energy pipe break is located so that it is either not exposed to postaccident ambient conditions or is designed to withstand these severe conditions.

6. Instrumentation and controls which incorporate audible and visual alarms enable the operator to continuously monitor the HVAC systems' performance.

For those plant locations where safety-related Class 1E ventilation systems are not provided, only the normal service environments assume operation of the nonsafety ventilation systems. No credit is taken for any ventilation in these areas during abnormal or accident conditions. These areas are the fuel building and the cable vault and rod control area pipe tunnel (auxiliary building) at el 718 feet 6 inches. The abnormal and accident temperatures listed in Table 3.11-2 for the fuel building are chosen based on the highest fuel pool temperatures at those times and with no ventilation systems operating. The abnormal temperature in the cable vault and rod control area pipe tunnel is based on the heat load from hot piping in the area and other miscellaneous heat loads, taking credit for the heat sink capability of the concrete walls of this underground area. The accident condition for this area is based on a high energy line break.

Based on the preceding features, the environmental conditions specified in Section 3.11.5.2 for equipment qualification consider the resulting ambient conditions which are included in the anticipated operational occurrences (Section 3.11.5.3.2).

3.11.5.2 Estimated Environmental Conditions

Table 3.11-2 defines the range of environmental conditions for those areas in which Class 1E electrical components are located. The environmental conditions evaluated are pressure, temperature, relative humidity, radiation, flooding, and fluid spray. These conditions were derived from the following analyses: P/VAC systems capabilities, radiation protection analyses documented in FSAR Chapters 12 and 15, LOCA, and main steam line break (MSLB) analyses inside containment, high energy line break analyses outside containment, flooding analyses outside containment, and fluid spray analyses. The following buildings and areas contain Class 1E components: reactor containment, safeguards building, main steam valve house, auxiliary building, fuel and decontamination building, cable vault and rod control area, service building, control building, diesel generator building, intake structure, alternate intake structure, and valve pit.

3.11.5.3 Service Conditions

The range of environments which may occur in each area is separated into three categories based upon expected duration and component operating requirements. These categories are normal service conditions (NSC), anticipated operational occurrences (AOO), and accident conditions (AC).

3.11.5.3.1 Normal Service Conditions

Normal service conditions are those environments which are maintained in each area during normal plant operating conditions including all levels of power generation, start-up, shutdown, and refueling. Table 3.11-2

gives the NSC values for pressure, temperature, relative humidity, and radiation. For use in equipment qualification, these values may be assumed continuous over the 40-year life of BVPS-2. Pressure, temperature, and humidity values are based on normally operating HVAC systems, both safety and nonsafety. Radiation values are based on a review of radiation sources, such as radioactive fluid system piping, valves, pumps, etc; and are cumulative over the 40-year BVPS-2 life. The accident doses are not added to the cumulative dose value but are listed separately under AC (Section 3.11.5.3.3).

Normal service radiation values are given in Table 3.11-2 for all buildings except the auxiliary building. This building, due to the number of different radiation areas, is subdivided into numbered cubicles. These cubicles are shown on Figures 3.11-6 through 3.11-10. Cubicle radiation values are given in Table 3.11-3.

3.11.5.3.2 Abnormal/Anticipated Operational Occurrences

Abnormal/anticipated operational occurrences are those environments which result from any abnormal plant transient which may be expected to occur during the life of BVPS-2. Examples of these occurrences are the loss of normal ventilation, loss-of-offsite electrical power, etc. Table 3.11-2 gives the AOO values for pressure, temperature, and humidity. Radiation doses are not given since the NSC values are cumulative over the 40-year life of BVPS-2 and include any AOO contributions. Only those HVAC systems, safety or nonsafety, not affected by the AOO are assumed to maintain the listed values of pressure, temperature, and humidity.

3.11.5.3.3 Accident (Environmental) Conditions

Accident (environmental) conditions are the most severe environments which may occur in each area following any postulated accident. In general, accidents causing the most severe environments include LOCAs, MSLBs inside containment, and high energy line breaks outside containment. Other accidents, such as moderate energy pipe failure causing flooding, or postulated system failures such as a loss of one fuel pool cooling train and increased fuel pool temperatures, can also cause severe transients which must be considered, especially in those areas with no high energy piping failures.

Table 3.11-2 lists the AC values for temperature, pressure, relative humidity, radiation, fluid spray, and flooding in each area. Radiation doses may be much higher during accident conditions than normal conditions and are given in Table 3.11-2 as a total dose due to the accident plus the 40-year cumulative dose. This single dose value can then be used to qualify equipment for the most conservative case of an accident occurring at the end of a 40-year component life.

Table 3.11-2 reflects the radiation environments which envelop conditions following LOCA events in which the primary system does not depressurize.

All AC values are assumed to occur only once during the BVPS-2 life. It should be noted, however, that all of the given values for one area may not necessarily occur during a single accident. The most severe value is given for each parameter in a specific area based on the worst accident with regard to that parameter. For example, the worst

temperature inside containment is due to a MSLB whereas the worst pressure is due to a LOCA.

3.11.5.4 References for Section 3.11

Westinghouse Electric Corporation (Westinghouse) latest revision. Methodology for Qualifying Westinghouse WRD Supplied NSSS Safety-Related Electrical Equipment. WCAP-8587.

Westinghouse latest supplement revisions. Equipment Qualification Data Packages. WCAP-8587, Supplement 1.

Westinghouse 1975. Personal Communication between C. Eicheldinger, Westinghouse, and B. Vassalo, USNRC. Letter NS-CE-692 dated July 10, 1975.

Westinghouse 1980. Results of a Westinghouse Review of Environmental Qualification References for WRD Supplied Category II Equipment with Respect to the Staff Positions in NUREG-0588 (Appendix 3 only). WCAP-9745.

USNRC 1981. Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment; Resolution of Generic Technical Activity A-24. NUREG-0588, Revision 1.

3.11.6 Maintenance/Surveillance Activities Relating to the
BVPS Unit 2

3.11.6.1 Environmental Qualification Program

Beaver Valley Power Station will implement a program to ensure that Class 1E safety-related permanent plant equipment is maintained, to the extent practicable, in its qualified condition. This program will be comprised of a combination of maintenance, surveillance, and testing activities. Maintenance on Class 1E safety-related equipment will be properly performed in accordance with approved written procedures and documented instructions appropriate to the circumstances in accordance with Regulatory Guide 1.33. Integrated into the overall program will be the special actions which will be taken to ensure that all the environmentally qualified Class 1E safety-related equipment is capable of operating to meet its system performance requirements. The following aspects relating to the environmental qualification of this equipment will be incorporated into the program:

- Qualified Life/Replacement Interval Relationship
- Failure Evaluations
- Aging and Inspection Criteria
- Equipment Qualification Documentation Files
- Spare/Replacement Parts Program

The following paragraphs provide amplification of how each of these aspects is currently planned to be addressed:

3.11.6.1.1 Qualified Life/Replacement Interval Relationship

Replacement intervals for harsh area equipment and constituent parts will be determined by their respective qualified life values. The individual equipment and part qualified life values will be based upon equipment qualification tests and engineering analysis of environmental stress mechanisms such as radiation, component wear, and thermal degradation. The summed effect of these factors will be utilized to establish the in-service use time range before unit replacement should be required. Because of installation locations and/or Technical Specification requirements, some qualified equipment may be scheduled for replacement during refueling outages. Where possible, such scheduling will cause the actual replacement intervals to be foreshortened if the outage occurs prior to the end of the qualified life value. Replacement occurrences are periodically reviewed through quality assurance audits to ensure that the required schedule is addressed.

For some qualified equipment, replacement of the entire unit within the overall equipment qualified life period may be the most cost-effective support method. For other items, periodic replacement of the age degradable parts may be the most prudent plan. Both replacement methods will be considered in developing the plant's preventive maintenance program.

3.11.6.1.2 Failure Evaluations

Failures of qualified equipment or constituent parts will be reported to the designated maintenance coordinator for analysis and follow-up to

determine what action may be required to reduce the risk of simultaneous failures of redundant equipment.

If accelerated degradation is observed during surveillance maintenance or if common mode type failures are encountered, the corrective action planning may involve consultation with the manufacturer, revision of applicable maintenance procedures, reduction of actual qualified life, or replacement of the equipment or parts with upgraded components.

Qualified equipment failure evaluations will be conducted and documented to provide sufficient information to support failure analysis and trending. In addition, the tracking of failure data for qualified equipment is expected to facilitate common mode failure evaluations and assist in the determination of the true failure cause/effect relationship.

3.11.6.1.3 Aging and Inspection Criteria

Each type of qualified equipment will have its age and wear degradable parts identified and specific degradation limit/ranges specified as part of the equipment surveillance and preventive maintenance program. As operational information relative to the rate at which degradation is occurring becomes available, the coordinator may request that qualified life values be reevaluated by Engineering to determine if they should be increased or decreased.

3.11.6.1.4 Filing and Storage of Equipment Qualification
Documentation

Equipment maintenance records as they relate to preserving the qualification status of equipment will be maintained by Duquesne Light Company. These records will include information relative to qualification testing, procurement of original equipment and spare parts, maintenance procedures, equipment history records, initial aging assessment, failure evaluation schedule and maintenance frequency, and appropriate qualification correspondence

3.11.6.1.5 Spare/Replacement Parts Program

Each BVPS-2 qualified original plant equipment purchase order/purchase specification and its related support documents will be reviewed to determine the necessary spare parts and inkind replacement equipment to be stocked in the DLC BVPS-2 storeroom inventory. These items will support maintenance, repair, and replacement of the permanent plant equipment. The procurement requisition documents for the identified spares will be prepared, reviewed, and approved in accordance with quality assurance administrative procedures to ensure the replacement/spare components are equivalent or better than the original plant equipment; and that the technical, quality and documentation requirements invoked are equivalent to those imposed in the original equipment procurement actions. These steps will be followed so that the qualified status of station equipment is maintained.

The spare parts and replacement equipment ordered in conjunction with the safety-related permanent plant equipment which was installed under

the Unit 2 Environmental Qualification Program will receive a review in their procurement cycle to ensure that the specific requirements necessary to maintain and document the equipment's environmental qualification status is included in the procurement documents. Engineering will review the plant equipment's Equipment Qualification Data Packages and other vendor submittals associated with the requisitioned items and make the following assessments:

- a. Identifies those items which are integral to the environmental qualification of the permanent plant equipment and which must be procured with documented qualification records from a qualified vendor.
- b. Identifies the appropriate vendor documentation submittals to establish or substantiate the acceptability of the item's performance in the specified environmental condition.
- c. Reviews the specified environmental conditions to ensure each item is qualified to perform acceptably in the "worst case" environment wherein it may be utilized.

The identified ordering requirements will be properly incorporated into the requisition packages prior to final approval and issuance for procurement actions.

Vendor submittals which demonstrate qualification of the spare parts to the identified environmental conditions, certifications of equivalency, and other documentation related to the equipment environmental qualification program will be reviewed by Engineering for completeness

and correctness. Identified nonconformance will be resolved prior to acceptance of the equipment for use in the station.

The procurement documents and approved EQ documentation submittal will be maintained as qualify assurance records.

3.11.7 Class 1E Master List

A master list of all Class 1E safety-related equipment has been prepared by the SWEC Environmental Qualification Coordinator (EQC) based on data contained in the Motor and Electric Load List, Instrument List (CS-1), and the Equipment List (EC-0). This list shall be periodically updated by the EQC and shall remain as part of the permanent Environmental Qualification Documentation Central File. Reference Table 3.11-1.

Equipment is selected from the above sources based on the asterisk(*) in the equipment mark number, which designates an item as Category 1. The asterisk, however, does not uniquely identify and track equipment performing a safety-related (1E) electrical function (i.e., pressure boundary items can be designated safety related and given an *). The Class 1E function of safety-related electrical equipment will be determined by the responsible SWEC System Engineer and Electrical or Control engineer, and the FSAR will be consistent with this listing. The list will be designated the Class 1E Master List.

The format taken by the Class 1E EQT-PES-300 Master List will be that of the System Component Evaluation Work Sheet.

ENVIRONMENTAL QUALIFICATION

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
AUXILIARY STEAM SYSTEM	10.4.10			
2ASS*AOV130A,B		Pipe tunnel	651	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
STEAM GENERATOR BLOWDOWN SYSTEM	10.4.8			
2BDG*AOV100A, B1,C1, (SOV&LMS)		RB-720 ft 6 in	651	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 1 hr
2BDG*AOV102A1,A2 (SOV&LMS) 2BDG*AOV102B1,B2 2BDG*AOV102C1,C2		RC-741 ft 10 in RC-742 ft 8 in RC-742 ft (inside crane wall)	651	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 1 hr
PRIMARY COMPONENT COOLING WATER SYSTEM	9.2.2.1			
2CCP*FI117A1,B1 2CCP*LI100A,B		CB-735 ft 6 in	617	NSC (18) AOO (18) AC NA
2CCP*DT100-1,-2 2CCP*DCV100-1,2		AB-740 ft AB-736 ft 6 in	648A 209	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2CCP*FT107A,B,C		RC-725 ft (inside crane wall)	648A	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2CCP*FT117A1,B1		RB-723 ft	648A	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2CCP*LT100A,B		AB-778 ft	648A	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2CCP*PT107A,B,C		RC-721 ft 6 in (outside crane wall)	648A	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)

TABLE 3.11-1

ON PARAMETERS FOR SAFETY-RELATED EQUIPMENT

<u>Temperature</u> (°F)	<u>BVPS-2 Environmental Conditions</u>			<u>Radiation</u> (Rads) (14)	<u>Spray</u> <u>Quaified</u>	<u>Reference</u> <u>Equip. Qual.</u> <u>Package</u>
	<u>Pressure</u> (psia)	<u>Humidity</u> (%)				
65-104	ATM	50-60		1×10^3	No	2707.650-651-100
120	ATM	90		(2)	No	
120	ATM	90		1×10^3 (7)	No	
65-104	(9)	40-75		1×10^3	No	2707.650-651-100
120	(9)	95		(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100		5×10^6	(5,6)	
85-105	9.1-11.6	30-60		(11)	No	2707.650-651-100
135	11.6	70		(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100		(10)	Yes (4,5)	

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75	ATM	50	3×10^2	No	Not Assigned
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
65-104	(9)	20-60	1×10^3	No	2702.310-648-014
120	ATM	90	(2)	No	
Fig 3.11-3-J (15)	Fig 3.11-3Q (15)	100	1×10^6	(5,6)	
85-105	9.1-11.6	30-60	(11)	No	2702.310-648-004
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (5)	
65-104	(9)	40-75	1×10^3	No	2702.310-648-014
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	(5,6)	
65-104	(9)	20-60	6×10^3	No	2702.310-648-014
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	(5,6)	
85-105	9.1-11.6	30-60	(11)	No	2702.310-648-004
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	

Also Available On
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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2CCP*DC100-1,-2	9.2.2.1	CB-707 ft 6 in	723	NSC (18)
2CCP*DKC100-1,-2				AOO (18)
2CCP*DPW100-1,-2				AC NA
2CCP*DK100-1,-2		CB-735 ft 6 in	723	NSC (18) AOO (18) AC NA
2CCP*FPW107A,B,C		CB-707 ft 6 in	723	NSC (18)
2CCP*FPW117A1,B1				AOO (18)
2CCP*FSH107A1,B1,C1				AC NA
2CCP*FYH107A,B1,C1				
2CCP*LPW100A,B				
2CCP*LSK100A,B				
2CCP*LX100A,B				
2CCP*LYK100A,B				
2CCP*PPW107A,B,C				
2CCP*PSH107A1,B1,C1				
2CCP*PYH107A1,B1,C1				
2CCP*P21A,B,C		AB-736 ft	10	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2CCP*MOV103A		RC-719 ft (outside crane wall)	76A	NSC 362.5 d/y ⁽¹⁾
2CCP*MOV103B				AOO 2.5 d/y ⁽¹⁾
2CCP*MOV103C				AC 401.5 d ⁽³⁾
2CCP*MOV112A		RC-720 ft	76A	NSC 362.5 d/y ⁽¹⁾
2CCP*MOV112B				AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2CCP*MOV114	9.2.2.1	RC-710 ft	76A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2CCP*MOV150-2		RC-713 ft(out- RC-725 ft side RC-725 ft crane RC-728 ft wall)	76	NSC 362.5 d/y ⁽¹⁾
2CCP*MOV151-2				AOO 2.5 d/y ⁽¹⁾
2CCP*MOV156-2				AC 401.5 d ⁽³⁾
2CCP*MOV157-2				
2CCP*MOV118	9.2.2.1	RB-773 ft 6 in	67	NSC 362.5 d/y ⁽¹⁾
2CCP*MOV119				AOO 2.5 d/y ⁽¹⁾
2CCP*MOV120				AC 40 hrs ⁽³⁾

TABLE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
75	ATM	50	3×10^2	No	2607.570-723-003
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	

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65-104	(9)	20-60	1×10^3	No	Not Assigned
120	ATM	90	(2)	No	
Fig 3.11-3J (15)	Fig 3.11-3Q (15)	100	1×10^6	Yes	
85-105	9.1-11.6	30-60	(11)	No	2706.450-76A-035
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2706.450-76A-035
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2706.450-76A-035
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2706.450-076-074
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
60-104	ATM	40-75	1×10^3	No	2760.440-067-055
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	No	

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2CCPMOV150-1		RB-730 ft	76	NSC 362.5 d/y
2CCP*MOV151-1		RB-725 ft		A00 2.5 d/y (1)
2CCP*MOV156-1				AC 401.5 d/y (3)
2CCP*MOV157-1				
2CCP*MOV173		AB-722 ft	76	NSC 362.5 d/y
2CCP*MOV175-1,2				A00 2.5 d/y (1)
2CCP*MOV176-1,2				AC 40 hrs (3)
2CCP*MOV128A,B	9.2.2.1	AB-722 ft	76	NSC 362.5 d/y
				A00 2.5 d/y (1)
				AC 401.5 d (3)
2CCP*MOV177-1,2	9.2.2.1	AB-722 ft	76	NSC 362.5 d/y
2CCP*MOV178-1,2				A00 2.5 d/y (1)
				AC 40 hrs (3)
2CCP*AOV170 (LMS&SOV)		RC-717 ft	651	NSC 362.5 d/y
2CCP*AOV171,172,173,174		RC-709 ft		A00 2.5 d/y (1)
2CCP*AOV107A,B,C		RC-720 ft 8 in (inside crane wall)		AC 1 hr (3)
Manual Transfer Switch for 2CCP-P21C	8.3.1.1.4	SB-730 ft 6 in	304	NSC 362.5 d/y
2CCP*TRS-P21C				A00 2.5 d/y (1)
				AC 401.5 d (3)
<u>CHEMICAL AND VOLUME CONTROL</u>				
Charging/HHSI pumps	9.3.4	AB-735 ft 6 in	001	NSC 362.5 d/y
2CHS*P21A,B,C		pump cubicle		A00 2.5 d/y (1)
				AC 401.5 d (3)
CHS boration valves		AB-712 ft 9 in		
2CHS*FCV113,A,B	9.3.4		001	NSC 362.5 d/y
2CHS*FCV114,A,B				A00 2.5 d/y (1)
				AC 1 hr (3)
CHS pump suction valves				
2CHS*LCV115C,E	9.3.4	AB-712 ft	001	NSC 362.5 d/y
				A00 2.5 d/y (1)
				AC 1 hr (3)
Boric Acid transfer pumps	9.3.4	AB-756 ft	001	NSC 362.5 d/y
2CHS*P22A,B				A00 2.5 d/y (1)
				AC 40 hrs (3)

TI APERTURE CARD

TABLE 3.11-1 (Cont)

BVPS-2 Environmental Conditions			Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
Temperature (°F)	Pressure (psia)	Humidity (%)			
65-104 120 Fig 3.11-4B	(9) (9) Fig 3.11-4B	40-75 95 100	1×10^3 (2) 5×10^6	No No Yes (5)	2706.450-076-074
65-104 120 Fig 3.11-3F (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^3 (2) 4×10^6	No No Yes (5)	2706.450-076-074
65-104 120 Fig 3.11-3F (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^3 (2) 1×10^7	No No Yes (5)	2706.450-076-074
65-104 120 Fig 3.11-3F (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	2×10^6 (2) 6×10^6	No No Yes (5)	2706.450-076-074
85-105 135 Fig 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2707.650-651-100
55-104 104 104	ATM ATM ATM	20-90 90 90	1×10^3 (2) 1×10^3 (7)	No No No	2701.150-304-010
65-120 120 Fig 3.11-3N (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	3×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP AE-2
65-104 120 Fig 3.11-3F (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP HE-2/HE-5
65-104 120 Fig 3.11-3F (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP HE-4
65-104 120 Fig 3.11-3L (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	3×10^6 (2) 3×10^6	No No Yes (5)	2220.100-001-035 W-EQDP AE-1 Also Available On Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2CHS*LCV460A,B 2CHS*MOV378	9.3.4	RC-712 ft RC-733 ft (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
CHS pump miniflow valves 2CHS*MOV275A,B,C	9.3.4	AB-737 ft pump cubicle	001	NSC 362.5 d/y AOO 2.5 d/y AC 4 months (1) (3)
2CHS*MOV380A,B 2CHS*MOV383A,B	9.3.4	AB-735 ft 6 in pump cubicle	001	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1) (3)
2CHS*MOV201	9.3.4	RC-708 ft	001	NCS 362.5 d/y AOO 2.5 d/y AC 401.5 d (1) (3)
Seal water valves 2CHS*MOV308A,B,C 2CHS*MOV381	9.3.4	RB-720 ft shielded cubicle	001	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d-308A, B,C, AC 1 hr (1) (3)
2CHS*MOV100A 2CHS*MOV100B	9.3.4	AB-721 ft AB-723 ft	91 91	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
2CHS*MOV111 2CHS*SOV206		AB-712 ft 6 in	82A 719	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
2CHS*MOV289		RB-720 ft 6 in (shielded area)	001	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
2CHS*MOV310		RC-719 ft 6 in (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
2CHS*AOV201 2CHS*AOV205 (SOV & Limit switch)		AB-735 ft 6 in	651	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
2CHS*MOV350 2CHS*LCV115B,D	9.3.4	AB-713 ft AB-721 ft	001	NSC 362.5 d/y AOO 2.5 d/y AC 40 hrs (1) (3)

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BVPS-2 Environmental Conditions			Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
Temperature (°F)	Pressure (psia)	Humidity (%)			
85-105 135 Fig 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2220.100-001-035 W-EQDP HE-1/HE-2/HE-5
65-120 120 Fig 3.11-3N (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	3×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP HE-4
65-120 120 Fig 3.11-3N	(9) ATM Fig 3.11-3Q	20-60 90 100	3×10^6 (2) 1×10^7	No No Yes	Not Assigned
85-105 135 Fig 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2220.100-001-035 W-EQDP HE-1
65-104 120 Fig 3.11-4B	(9) (9) Fig 3.11-4B	40-75 95 100	1×10^6 (2) 1×10^8	No No Yes (5)	2220.100-001-035 W-EQDP HE-4
65-104 120 Fig 3.11-3H (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes (5)	2706.380-091-008
65-104 120 Fig 3.11-3F (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes	2607.650-719-186
65-104 120 Fig 3.11-4B	(9) (9) Fig 3.11-4B	40-75 95 100	1×10^6 (2) 1×10^8	No No Yes (5)	2220.100-001-035 W-EQDP HE-4
85-105 135 Fig 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2220.100-001-035 W-EQDP HE-1
65-104 120 Fig 3.11-3M (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7 (7)	No No Yes (5)	2707.650-651-100
65-104 120 Fig 3.11-3H Fig 3.11-3I (15) for MOV350	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP HE-4 Also Available On Aperture Card

TABLE

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>	<u>Temp</u>
CHS valves 2CHS*MOV373	9.3.4	AB-711 ft	001	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 4 months ⁽³⁾	6 Fig for
2CHS*MOV8130A,B 8131A,B 8132A,B 8133A,B		AB-721 ft	001	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 4 months ⁽³⁾	6 Fig
2CHS*LI106, LI108, LI161, LI163		CB 735 ft 6 in	001	NSC (18) AOO (18) AC NA	7 7 7
2CHS*LT106 108 161 163		AB-757 ft	001	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 4 months ⁽³⁾	6 Fig
2CHS*SOV200A1 2CHS*SOV200A2 2CHS*SOV200B1 2CHS*SOV200B2 2CHS*SOV200C1 2CHS*SOV200C2 (SOV & Limit Switch)		RC-729 ft (inside crane wall)	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr	8 Fig
2CHS*AOV204 (SOV & Limit Switch)		RB-724 ft	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr	6 Fig
2CHS*FSV113A-1 2CHS*FSV113A-2 2CHS*FSV114A,B (SOV & Limit Switch)		AB-712 ft 9 in	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr	6 Fig
2CHS*HCV142 (Limit Switch & SOV)		RC-721 ft (inside crane wall)	651	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr	8 Fig
2CHS*AOV102	9.3.4	AB-760 ft	666A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr	6 Fig
2CHS*AOV203		AB-759 ft	666A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr	6 Fig
Manual Transfer Switch for CHS*P21C, 2CHS*TRS-P21C	8.3.1.14	SB-730 ft 6 in	304	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	5

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BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
-104 20 3.11-3I (15) MOV350	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP HE-4
-104 20 3.11-3H (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP HE-4
	ATM	50	3×10^2	No	2220.100-001-035
	ATM	50	(2)	No	W-EQDP ESE-14
	ATM	50	3×10^2 (7)	No	
-104 20 3.11-3L (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^3 (2) 1×10^6	No No Yes (5)	2220.100-001-035 W-EQDP ESE-4
-105 35 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2220.100-001-035 W-EQDP HE-1
-104 20 3.11-4B	(9) (9) Fig 3.11-4B	40-75 95 100	1×10^6 (2) 1×10^8	No No Yes (5)	2220.100-001-035 W-EQDP HE-4
-104 20 3.11-3I (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	1×10^6 (2) 1×10^7	No No Yes (5)	2220.100-001-035 W-EQDP HE-2/HE-5
-105 35 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2220.100-001-035 W-EQDP HE-1
-104 20 3.11-3L (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	3×10^6 (2) 3×10^6 (7)	No No Yes (5)	2707.650-666-093 2707.650-666-092
-104 20 3.11-3L (15)	(9) ATM Fig 3.11-3Q (15)	20-60 90 100	3×10^6 (2) 3×10^6 (7)	No No Yes (5)	2707.650-666-093 2707.650-666-092
-104 104 104	ATM ATM ATM	20-90 90 90	1×10^3 (2) 1×10^3 (7)	No No No	2601.150-304-003

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant (16) Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>	<u>Te</u>
CONTAINMENT VACUUM SYSTEM	9.5.10				
2LMS*PI950		CB-735 ft 6 in	001	NSC (18)	
2LMS*PI951				AOO (18)	
2LMS*PI952				AC NA	
2LMS*PI953					
2LMS*PT950 (XMTR)		RB-740 ft	001	NSC 362.5 d/y	
2LMS*PT951 (XMTR)				AOO 2.5 d/y (1)	
2LMS*PT952 (XMTR)				AC 4 months (3)	
2LMS*PT953 (XMTR)					
2LMS*PT950 (Sensor)	9.5.10	RC-727	001	NSC 362.5 d/y	
2LMS*PT951 (Sensor)		(Penetration		AOO 2.5 d/y (1)	
2LMS*PT952 (Sensor)		Area)		AC 4 months (3)	F1
2LMS*PT953 (Sensor)					
2LMS*SOV950	9.5.10	RB 720 ft 6 in	001	NSC 362.5 d/y	
2LMS*SOV951				AOO 2.5 d/y (1)	
2LMS*SOV952				AC 401.5 d (3)	F1
2LMS*SOV953					
2CVS*SOV151A		RB 720 ft 6 in	719	NSC 362.5 d/y	
2CVS*SOV151B				AOO 2.5 d/y (1)	
2CVS*SOV152A				AC 401.5 d (3)	F1
2CVS*SOV152B					
2CVS*SOV153A					
2CVS*SOV153B					
2LMS*PT106A		RB 740 ft	648A	NSC 362.5 d/y	
2LMS*PT106B				AOO 2.5 d/y (1)	
				AC 401.5 d (3)	
2LMS*PI106A		CB 735 ft 6 in	617	NSC 362.5 d/y	
2LMS*PI106B				AOO 2.5 d/y (1)	
				AC 401.5 d (3)	
AERATED DRAIN SYSTEM	9.3.3				
2DAS*AOV100A (SOV&LMS)		RC-724 ft 2 in	651	NSC 362.5 d/y	
		(outside crane		AOO 2.5 d/y (1)	
		wall)		AC 1 hr (3)	F1
2DAS*AOV100B (SOV&LMS)		RB-721 ft 6 in	651	NSC 362.5 d/y	
				AOO 2.5 d/y (1)	
				AC 1 hr (3)	F1

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3.11-1 (Cont)

BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
5	ATM	50	3×10^2	No	2220.100-001-035
5	ATM	50	(2)	No	W-EQDP ESE-14
5	ATM	50	3×10^2 (7)	No	
0-104	(9)	40-75	1×10^3	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP ESE-4
120	(9)	95	1×10^6	No	
5-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-21
3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
5-104	(9)	40-75	1×10^3	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP
3.11-4B	Fig 3.11-4B	100	5×10^6	No	
5-104	(9)	40-75	1×10^3	No	2607.650-719-186
120	(9)	95	(2)	No	
3.11-4B	Fig 3.11-4B	100	5×10^6	No	
0-104	(9)	40-75	1×10^3	No	2702.810-648-014
120	(9)	95	(2)	No	
120	-1/4 in H ₂ O	100	1×10^6	No	
5	ATM	50	3×10^2	No	Not Assigned
5	ATM	50	(2)	No	
5	ATM	50	3×10^2 (7)	No	
5-105	9.1-11.6	30-60	(11)	No	Not Assigned
135	11.6	70	(2)	No	
3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
5-104	(9)	40-75	1×10^6	No	Not Assigned
120	(9)	95	(2)	No	
3.11-4B	Fig 3.11-4B	100	1×10^8	(5,6)	

Also Available On
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8406270011-06

April 1984

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
HYDROGENATED DRAIN SYSTEM				
2DGS*AOV108A (SOV&LMS)	9.3.3	RC-724 ft 6 in (outside crane wall)	651	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
2DGS*AOV108B (SOV&LMS)		RB-723 ft 6 in	651	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr (1) (3)
EMERGENCY DIESEL GENERATOR SYSTEM				
PNL*DIGEN 1&2 2EGS*EG2-1&2 (and auxiliary equipment)	8.3.1.1.4	DG-732 ft 6 in	230	NSC (18) AOO (18) AC NA
2EGF*P21A,B,C,D	9.5.4	DG-732 ft 6 in	245	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1) (3)
2EGF*LIS203A,B 2EGF*LIS204A,B	9.5.4	DG-735 ft	693	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1) (3)
FUEL POOL COOLING SYSTEM				
2FNC*LI102A,B 2FNC*TI103A,B		CB-735 ft 6 in	617	NSC (18) AOO (18) AC NA
2FNC*TE103A,B		FB-756 ft	636	NSC 362.5 d/y AOO 2.5 d/y AC 60 hr (1) (3)
2FNC*LT102A,B		FB-756 ft	648A	NSC 362.5 d/y AOO 2.5 d/y AC 60 hr (1) (3)
2FNC*LPW102A,B 2FNC*LX102A,B 2FNC*TT103A,B 2FNC*TX103A1,A2,B1,B2		CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA

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TABLE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions			Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)				
85-105	9.1-11.6	30-60	(11)	No	2707.650-666-093	Fig 3.11-1A (12) Fig 3.11-1B (12)
135	11.6	70	(2)	No	2707.650-666-092	
Fig 3.11-1A (12)		100	(10)	Yes (4,5)		
65-104	(9)	40-75	1×10^6	No	Not Assigned	Fig 3.11-4B
120	(9)	95	(2)	No		
Fig 3.11-4B	Fig 3.11-4B	100	1×10^8	(5,6)		
65-104	ATM	20-90	3×10^2	No	Not Assigned	
120	ATM	90	(2)	No		
120	ATM	90	4×10^2	No		
65-104	ATM	20-90	3×10^2	No	2702.440-245-026	
120	ATM	90	(2)	No		
120	ATM	90	4×10^2	No		
65-104	ATM	20-90	3×10^2	No	2707.470-693-015	
120	ATM	90	(2)	No		
120	ATM	90	4×10^2	No		
75	ATM	50	3×10^2	No	Not Assigned	
75	ATM	50	(2)	No		
75	ATM	50	3×10^2 (7)	No		
65-104	(9)	50-70	1×10^3	No	2707.470-636-014	
150	(9)	100	(2)	No		
200	(9)	100	(19)	Yes (5)		
65-104	(9)	50-70	1×10^3	No	2702.310-648-014	
150	(9)	100	(2)	No		
200	(9)	100	(19)	Yes (5)		
65-104	ATM	50	1×10^3	No	2607.570-723-003	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2FNC*P21A,B		FB-729 ft 6 in	11	NSC 362.5 d/y A00 2.5 d/y AC 60 hr
(1) (3)				
FIRE PROTECTION				
2FPW*AOV204,205,206,221 (SOV & LMS)	9.5.1.6.2	RB-720 ft	651	NSC 362.5 d/y A00 2.5 d/y AC 1 hr
(1) (3)				
AUXILIARY FEEDWATER SYSTEM				
2FWE*FI100A,B,C,C1 2FWE*LI104A1,A2 2FWE*FI100A2,B2	10.4.9	CB-735 ft 6 in	617	NSC (18) A00 (18) AC NA
2FWE*FT100A,B,C,C1	10.4.9	SG-745 ft 6 in	648A	NSC 362.5 d/y A00 2.5 d/y AC 401.5 d
(1) (3)				
2FWE*LT104A1,A2,A3		Yard	648A	NSC 362.5 d/y A00 2.5 d/y AC 401.5 d
(1) (3)				
2FWE*HCV100A,B,C, D,E,F		SG-739 ft	209A	NSC 362.5 d/y A00 2.5 d/y AC 401.5 d
(1) (3)				
2FWE*FPW100A,B,C 2FWE*FSH100A,B,C 2FWE*FX100A,A1,B,B1,C,C1 2FWE*FYH100A,B,C 2FWE*LPW104A1,A2 2FWE*LX104A1,A2		CB-707 ft 6 in	723	NSC (18) A00 (18) AC NA
AUXILIARY FEEDWATER PUMPS				
2FWE*P23A&B		SG-719 ft 4 in	208	NSC 362.5 d/y A00 2.5 d/y AC 401.5 d
(1) (3)				
FEEDWATER SYSTEM				
2FWS*FT476 2FWS*FT477 2FWS*FT486 2FWS*FT487 2FWS*FT496 2FWS*FT497	10.4.7	SB-765 ft	001	NSC 362.5 d/y A00 2.5 d/y AC 1 hr
(1) (3)				

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TABLE 3.11-1 (Cont)

BVPS-2 Environmental Conditions					Reference
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Equip. Qual. Package
65-104	(9)	50-70	2 x 10 ⁶	No	2702.350-011-006
150	(9)	100	(2)	No	
150	(9)	100	2 x 10 ⁶ (7)	No	
65-104	(9)	40-75	1 x 10 ³	No	2707.650-651-100
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5 x 10 ⁶	Yes (5)	
75	ATM	50	3 x 10 ²	No	Not Assigned
75	ATM	50	(2)	No	
75	ATM	50	3 x 10 ² (7)	No	
65-104	(9)	20-90	1 x 10 ³	No	2702.310-648-014
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	2 x 10 ⁶	No	
-20 to 120	ATM	30-100	3 x 10 ²	No	2702.310-648-014
120	ATM	100	(2)	No	
120	ATM	100	3 x 10 ² (7)	Yes (5)	
65-104	(9)	20-90	1 x 10 ³	No	Not Assigned
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	2 x 10 ⁶	Yes (5)	
65-104	ATM	50	1 x 10 ³	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1 x 10 ³ (7)	No	
65-104	(9)	20-90	1 x 10 ³	No	Not Assigned
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	1 x 10 ⁶	Yes (5)	
Also Available On Aperture Card					
55-104	ATM	20-90	1 x 10 ³	No	2220.100-001-035 W-EQDP ESE-4
104	ATM	90	(2)	No	
104	ATM	90	2 x 10 ³	Yes (5)	

8406270011-08

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (28V-)</u>	<u>Component Operating Time</u>
2FWS*HYV157A,B,C 2FWS*HSV157A1,A2,A3,A4 2FWS*HSV157B1,B2,B3,B4 2FWS*HSV157C1,C2,C3,C4 2FWS*PS157A1,A2 2FWS*PS157B1,B2 2FWS*PS157C1,C2	10.4.7	MV-775 ft 8 in	92	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
2FWS*LI474 2FWS*LI475 2FWS*LI476 2FWS*LI477 2FWS*LI484 2FWS*LI485 2FWS*LI486 2FWS*LI487		CB-735 ft 6 in	001	NSC (18) AOO (18) AC NA
2FWS*LI494 2FWS*LI495 2FWS*LI496 2FWS*LI497		CB-735 ft 6 in	001	NSC 362.5 d/y (1) AOO 2.5 d/y AC 4 months
2FWS*LT474 2FWS*LT475 2FWS*LT476 2FWS*LT477 2FWS*LT484 2FWS*LT485 2FWS*LT486 2FWS*LT487 2FWS*LT494		RC-738 ft RC-738 ft RC-767 ft RC-717 ft RC-735 ft RC-735 ft RC-767 ft RC-717 ft RC-735 ft (inside crane wall)	001	NSC 362.5 d/y (1) AOO 2.5 d/y (1) AC 1 hr (3)
2FWS*LT495 2FWS*LT496 2FWS*LT497		RC-735 ft RC-767 ft RC-767 ft (inside crane wall)	001	NSC 362.5 d/y (1) AOO 2.5 d/y (1) AC 401.5 d (3)
2FWS*FCV478 (SOV&LMS) 2FWS*FCV498		SB-784 ft	001	NSC 362.5 d/y (1) AOO 2.5 d/y (1) AC 1 hr (3)
2FWS*FCV488 (SOV&LMS)		SB-782 ft	001	NSC 362.5 d/y (1) AOO 2.5 d/y (1) AC 1 hr (3)

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TABLE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
55-120	(9)	80-90	1×10^3	No	2706.330-092-005
120	(9)	90	(2)	No	
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-3
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-3
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
55-104	ATM	20-90	1×10^3	No	2220.100-001-035
120	ATM	90	(2)	No	W-EQDP HE-2/HE-5
Fig 3.11-5	Fig 3.11-5	100	8×10^3	Yes (3)	HE-3/HE-6
55-104	ATM	20-90	1×10^3	No	2220.100-001-035
120	ATM	90	(2)	No	W-EQDP HE-2/HE-5
Fig 3.11-5	Fig 3.11-5	100	8×10^3	Yes (5)	HE-3/HE-6

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant (16) Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2FWS PNL*2FWIV		RB-755 ft 6 in	731	NSC 362.5 d/y A00 2.5 d/y (1) AC 113 d (3)
2FWS*FCV479 (SOV&LMS) 489, 499		SB-782 ft	651	NSC 362.5 d/y A00 2.5 d/y (1) AC 1 hr (3)
Primary Plant Gas Supply				
2GNS*AOV101-1 2GNS*SOV101-1	9.5.9	RB-718 ft 6 in	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 1 hr (3)
2GNS*AOV101-2 2GNS*SOV101-2		RC-729 ft 3 in	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 1 hr (3)
2GNS*SOV854A 2GNS*SOV854B		RC-707 ft 5 in (inside crane wall)	719	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
2GNS*SOV853A 2GNS*SOV853B 2GNS*SOV853C 2GNS*SOV853D 2GNS*SOV853E 2GNS*SOV853F		RC-692 ft 11 in (inside crane wall)	719	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
HYDROGEN CONTROL SYSTEM 6.2.5				
2HCS*MOV110A 2HCS*MOV110B 2HCS*MOV112A 2HCS*MOV112B 2HCS*MOV113A 2HCS*MOV113B 2HCS*MOV120A 2HCS*MOV120B		SG-741 ft	91	NSC 362.5 d/y A00 2.5 d/y (1) AC 401.5 d (3)
H ₂ Recombiner 2HCS*RT21		Safeguards bldg. H ₂ recombinder cable 737 ft 6 in	134	NSC 362.5 d/y A00 2.5 d/y (1) AC 401.5 d (3)

BVPS-2 FSAR

LE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Reference Spray Qualified	Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
60-104	(9)	40-75	1×10^3	No	2601.600-731-010
120	(9)	95	(2)	No	
120	(9)	95	5×10^3 (21)	No	
55-104	ATM	20-90	1×10^3	No	2707.650-651-100
120	ATM	90	(2)	No	
Fig 3.11-5	Fig 3.11-5	100	8×10^3 (7)	Yes (5)	
65-104	(9)	40-75	1×10^3	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2607.650-719-186
135	11.6	70	(2)	No	2707.650-719-105
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2607.650-719-186
135	11.6	70	(2)	No	2707.650-719-105
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	

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65-104	(9)	20-90	1×10^3	No	2706.380-091-008
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	1×10^6	No	

65-104	(9)	20-90	1×10^3	None	Not Assigned
120	(9)	90	(2)	None	
120 (13)	(13)	90 (13)	1×10^6	No	

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
H ₂ Control Panel HCSPNL*2HCP		SG-738 ft 4 in	731	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HCS*MOV116 2HCS*MOV117	6.2.5	SG 718 ft 6 in	67	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HCS*SOV114A 2HCS*SOV114B 2HCS*SOV115A 2HCS*SOV115B		RB 720 ft 6 in	719	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
H ₂ Analyzers 2HCS*HA100A,B	6.2.5	RB-718 ft 6 in	676	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HCS*PNL100A,B	6.2.5	SB-730 ft 6 in	676	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Heat Tracing 2HTS*PNLA1 2HTS*PNLB1 2HTS*TRFA1SG 2HTS*TRFB1SG		SG-754 ft	555 835	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Heating, Ventilating, Air Conditioning (Control Building)				
2HVC*MOD201A,B,C,D 2HVC*MOD204A 2HVC*MOD204B		CB-747 ft CB-745 ft CB-748 ft	76A 76 76	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 2.75 d ⁽³⁾
2HVC*MOD202A&B 2HVC*MOD203A&B 2HVC*MOD205A&B 2HVC*MOD206A&B 2HVC*MOD209	9.4.1	CB-735 ft 6 in	185	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 2.5 d ⁽³⁾
2HVC*REF24A&B 2HVC*CH222A,B	9.4.1	CB-736 ft	160 157	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾

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BLE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions			Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)		
65-104	(9)	20-90	1×10^3	No	2601.600-731-010
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	1×10^6	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2760.440-067-055
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	2.2×10^6 (MOV116) 2.1×10^6 (MOV117)	Yes (5)	
65-104	(9)	40-75	1×10^6	No	2607.650-719-186
120	(9)	95	(2)	No	2707.650-719-105
Fig 3.11-4B	Fig 3.11-4B	100	1×10^8	No	
65-104	(9)	40-75	1×10^3	No	Not Assigned
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	
55-104	ATM	20-90	1×10^3	No	Not Assigned
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
65-104	(9)	20-90	1×10^3	No	2601.550-555-001
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	1×10^6	No	
75-104	ATM	50	3×10^2	No	2706.450-76A-035
104	ATM	50	(2)	No	2706.450-076-074
104	ATM	50	2×10^3	Yes (5)	
75-104	ATM	50	3×10^2	No	2610.210-185-107
104	ATM	50	(2)	No	
104	ATM	50	3×10^2 (7)	Yes (5)	
75-104	ATM	50	3×10^2	No	2610.100-160-055
104	ATM	50	(2)	No	2710.210-157-004
104	ATM	50	3×10^2 (7)	Yes (5)	

Also Available On
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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2HVC*FN241A&B	9.4.1	CB-735 ft 6 in	162	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2HVC*FN265A&B 2HVC*FN266A&B	9.4.1	AB-773 ft 6 in	162	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2HVC*ACU201A&B	9.4.1	CB-735 ft	179	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2HVC*PDS24A,B 2HVC*PDS25A,B 2HVC*PDS26		AB-790 ft 3 in AB-792 ft 7 in	693	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2HVC*PDS201A,B 2HVC*PDS241		CB-750 ft	693	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2HVC*AIT21A,B,C 2HVC*TS151A,B	9.4.1	CB-735 ft 6 in	672A	NSC (18) AOO (18) AC NA
2HVC*TS24A,B 2HVC*TS150A,B	9.4.1	CB-735 ft 6 in	689	NSC (18) AOO (18) AC NA
2HVC*TH21A,B 2HVC*TH21A1,B1	9.4.1	CB-707 ft 6 in	689	NSC (18) AOO (18) AC NA
Heating, Ventilating, Air Conditioning (Diesel Generator Building)				
2HVD*TC21A,B 2HVD*TT21A,B 2HVD*TX21A,B	9.4.6	CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA
2HVD*TK21A,B 2HVD*TKC21A,B		CB-735 ft 6 in	723	NSC (18) AOO (18) AC NA
2HVD*MOD21A&B 2HVD*MOD22A&B 2HVD*MOD23A&B	9.4.6	DG-772 ft DG-765 ft DG-765 ft	185	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 2.5 d (3)

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TABLE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
75-104	ATM	50	3×10^2	No	2610.130-162-037
104	ATM	50	(2)	No	
104	ATM	50	3×10^2 (7)	Yes (5)	
65-104	(9)	20-60	1×10^3	No	2610.130-162-037
120	ATM	90	(2)	No	
Fig 3.11-30 (15) Fig 3.11-3R (15)		100	1×10^6	Yes (5)	
75-104	ATM	50	3×10^2	No	Not Assigned
104	ATM	50	(2)	No	
104	ATM	50	3×10^2 (7)	No	
65-104	(9)	20-60	1×10^3	No	2707.470-693-015
120	ATM	90	(2)	No	
Fig 3.11-30 (15) Fig 3.11-3R (15)		100	1×10^6	Yes (6)	
75-104	ATM	50	3×10^2	No	2707.470-693-015
104	ATM	50	(2)	No	
104	ATM	50	3×10^2 (7)	No	
75-104	ATM	50	3×10^2	No	Not Assigned
104	ATM	50	(2)	No	
104	ATM	50	3×10^2 (7)	No	
75	ATM	50	3×10^2	No	2607.460-689-003
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
65-104	ATM	50	1×10^3	No	2607.460-689-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
75-104	ATM	50	3×10^2	No	2607.570-723-003
104	ATM	50	(2)	No	
104	ATM	50	3×10^2 (7)	No	
65-104	ATM	20-90	3×10^2	No	2610.210-185-107
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2HVD*FN270A&B	9.4.6	DG-763 ft 2 in	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVD*FN271A,B	9.4.6	DG-763 ft	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVD*FN222A&B	9.4.6	DG-770 ft 3 in	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Heating, Ventilating, Air Conditioning (Auxiliary Building)				
2HVP*FC21A,B 2HVP*FPW21A,B	9.4.3	CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA
2HVP*FK21A,B 2HVP*FKC21A,B		CB-735 ft 6 in	723	NSC (18) AOO (18) AC NA
2HVR*MOD21 2HVR*MOD22	6.5.3	AB-791 ft 6 in AB-793 ft 6 in	185	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVP*MOD21A&B	9.4.3	AB-748 ft	185	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVP*MOD22A&B 2HVP*MOD24A&B 2HVP*MOD30A&B	9.4.3	AB-793 ft AB-793 ft AB-789 ft, 791 ft	185	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVP*FN264A&B	9.4.3	AB-766 ft 6 in	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVP*FN265A&B	9.4.3	AB-756 ft MCC Cubicle	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVP*FT21A,B (PNL*2AFCE-AB-B,-C)	9.4.3	AB-778 ft	186	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾

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BLE 3.11-1 (Cont)

BVPS-2 Environmental Conditions				Spray Qualified	Reference Equip. Qual. Package
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)		
65-104	ATM	20-90	3×10^2	No	2710.100-150-020
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	
65-104	ATM	20-90	3×10^2	No	2710.100-150-020
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	
65-104	ATM	20-90	3×10^2	No	2710.100-150-020
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	Yes (5)	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
75	ATM	50	3×10^2	No	2607.570-723-003
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
65-104	(9)	20-60	1×10^3	No	2610.210-185-107
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	Yes (5)	
65-104	(9)	20-60	1×10^3	No	2610.210-185-107
120	ATM	90	(2)	No	
Fig 3.11-3K (15)	Fig 3.11-3Q (15)	100	1×10^6	Yes (5)	
65-104	(9)	20-60	4×10^4	No	2610.210-185-107
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	Yes (5)	
65-104	(9)	20-60	1×10^3	No	2710.100-150-020
120	ATM	90	(2)	No	
Fig 3.11-3L (15)	Fig 3.11-3Q (15)	100	1×10^6	No	
65-104	(9)	20-60	1×10^3	No	2710.100-150-020
104	ATM	60	(2)	No	
104	Fig 3.11-3Q	60	1×10^3 (7)	No	
65-104	(9)	20-60	4×10^4	No	2707.310-186-015
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1.2×10^5 (21)	Yes (5)	

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
Heating, Ventilating, Air Conditioning (Reactor Building)				
2HVR*MOD23A 2HVR*MOD25A		RB-774 ft	76A	NSC 362.5 d/y AOO 2.5 d/y AC 12 hrs (3)
2HVR*MOD23B 2HVR*MOD25B		RC-776 ft (outside crane wall)	76A	NSC 362.5 d/y AOO 2.5 d/y AC 12 hrs (3)
2HVR*FN201A,B,C	9.4.7	RC-700 ft 0 in (inside the crane wall)	150	NSC 362.5 d/y AOO 2.5 d/y AC NA
2HVR*FN206A&B	9.4.9	RB-774 ft	150	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)
2HVR*ACU207A&B	9.4.11	SG-748 ft 6 in	179	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)
2HVR*TS212A,B	9.4.11	SG-748 ft 6 in	689	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)
2HVR*MOD201A,B 2HVR*MOD202A,B	9.4.9	MV-773 ft 6 in	185	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)
2HVR*ACU208A&B	9.4.12	RB-719 ft 6 in	179	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)
2HVR*MOD26A&B 2HVR*MOD27A&B	9.4.12	RB-727 ft 6 in	185	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)
Manual Transfer SW for 2HVR*FN201C 2HVR*TRS-FN201C	8.3.1.1.4	SB-730 ft 6 in	307	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)
SUPPLEMENTARY LEAK COLLECTION SYSTEM				
2HVS*PDS204A,B 2HVS*PDS24A,B	6.5.3	AB-777 ft AB-781 ft 6 in	693	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d (1)

TABLE 3.11-1 (Cont)

TI APERTURE CARD

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
60-104	ATM	40-75	1×10^3	No	2706.450-76A-035
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	No	
85-105	9.1-11.6	30-60	(11)	No	2706.450-76A-035
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2710.100-150-020
135	11.6	70	(2)	No	
N/A	N/A	N/A	N/A	N/A	
60-104	ATM	40-75	1×10^3	No	2710.100-150-020
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	No	
65-104	(9)	20-90	1×10^3	No	Not Assigned
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	1×10^6	No	
65-104	(9)	20-90	1×10^3	No	2607.460-689-003
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	1×10^6	No	
55-120	(9)	80-90	1×10^3	No	2610.210-185-107
120	(9)	90	(2)	No	
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	
65-104	(9)	40-75	1×10^3	No	Not Assigned
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	
65-104	(9)	40-75	1×10^3	No	2610.210-185-107
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	(5,6)	
55-104	ATM	20-90	1×10^3	No	2701.180-307-016
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	Also Available On Aperture Card
65-104	(9)	20-60	4×10^4	No	2707.470-693-015
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	Yes (6)	

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2HVS*FC22A,B 2HVS*FPW22A,B		CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA
2HVS*FK22A,B 2HVS*FKC22A,B		CB-735 ft 6 in	723	NSC (18) AOO (18) AC NA
2HVS*FT22A,B (PNL*2AFCE-LC-B,-C)	9.4.3	AB-778 ft	186	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVS*MOD201A&B 2HVS*MOD202A&B 2HVS*MOD210A&B 2HVS*MOD211A&B 2HVS*MOD212A&B 2HVS*MOD213A&B 2HVS*MOD218A&B	6.5.3	AB-782 ft 0 in AB-787 ft 0 in AB-790 ft 6 in AB-787 ft 2 in AB-787 ft 2 in AB-787 ft 2 in AB-790 ft 6 in	185	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVS*FN204A&B 2HVS*MOD214A&B	6.5.3	AB-774 ft	162	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVS*MOD203A&B 2HVS*CH219A&B	6.5.3	AB-780 ft 11 in	157	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Heating, Ventilating, Air Conditioning (Screenwell and Pump House)				
2HVW*TRS-FN257C	9.4.8	IT-705 ft	731	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVW*FN257A,B,C	9.4.8	IT-726 ft	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2HVW*MOD21A,B,C 2HVW*MOD22A,B,C	9.4.8	IT-728 ft 0 in IT-722 ft 0 in	185	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 2.5 d ⁽³⁾
Heating, Ventilating, Air Conditioning (Service Building)				
2HVZ*TE21A,B	9.4.10	SB-772 ft	636	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾

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 CARD

BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No (5)	
75	ATM	50	3×10^2	No	2607.570-723-003
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No (5)	
65-104	(9)	20-60	4×10^4	No	2707.310-186-015
120	ATM	90	(2)	No	
Fig 3.11-3R (15)	Fig 3.11-3R (15)	100	4.1×10^4 (21)	Yes (5)	
65-104	(9)	20-60	1×10^3	No	2610.210-185-107
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	Yes (5)	
65-104	(9)	20-60	4×10^4	No	2610.130-162-037
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	Yes (5)	
65-104	(9)	20-60	4×10^4	No	2710.210-157-004
120	ATM	90	(2)	No	
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	No	
55-115	ATM	20-90	3×10^2	No	2610.600-731-010
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	Yes (5)	
55-115	ATM	20-90	3×10^2	No	2710.100-150-020
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	
55-115	ATM	20-90	3×10^2	No	2610.210-185-107
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	
55-104	ATM	20-90	1×10^3	No	2707.470-636-014
120	ATM	90	(2)	No	
120	ATM	90	2×10^3	Yes (5)	

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8406270011-15

Equipment	Reference FSAR Section	Plant ⁽¹⁶⁾ Location	Purchase Order No. (2BV-)	Component Operating Time	Tem
2HVZ*TS21A,B	9.4.10	RB-773 ft 6 in	689	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	
2HVZ*PDS21A,B 2HVZ*PDS22A,B 2HVZ*PDS216A,B		SB-775 ft	693	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	
2HVZ*TC21A,B 2HVZ*TKC21A,B 2HVZ*TT21A,B 2HVZ*TX21A,B		CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA	
2HVZ*TK21A,B		CB-735 ft 6 in	723	NSC (18) AOO (18) AC NA	
2HVZ*MOD21A&B 2HVZ*MOL 22A&B 2HVZ*MOD23A&B	9.4.10	RB-781 ft 5 in RB-783 ft 11 in RB-783 ft 0 in	185	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	
2HVZ*FN261A&B	9.4.10	RB-786 ft 8 in	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	
2HVZ*FN262A&B	9.4.10	RB-786 ft 6 in	150	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	
2HVZ*FN216A&B	9.4.10	RB-773 ft 6 in	162	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	
CONTAINMENT INSTRUMENT AIR SYSTEM					
Isolation Valves					
2IAC*MOV130 2IAC*MOV134	9.3.1	RB 732 ft	91	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	FI
2IAC*MOV133		RC 692 ft 11 in (outside crane wall)	91	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾	FI
Information Handling					
2IHA*PCABCB1 2IHA*OCABCB1 2IHA*OCABCB1		CB-707 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 113 d ⁽³⁾	

TI APERTURE CARD

Temperature (°F)	BVPS-2 Environmental Conditions			Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)		
0-104	ATM	40-75	1×10^3	No	2607.460-689-003
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	No	
5-104	ATM	20-90	1×10^3	No	2707.470-693-015
120	ATM	90	(2)	No	
120	ATM	90	2×10^3	Yes (6)	
5-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
75	ATM	50	3×10^2	No	2607.570-723-003
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
0-104	ATM	40-75	1×10^3	No	2610.210-185-107
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	No	
5-104	ATM	40-75	1×10^3	No	2710.100-150-020
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	No	
0-104	ATM	40-75	1×10^3	No	2710.100-150-020
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	No	
0-104	ATM	40-75	1×10^3	No	2610.130-162-037
120	ATM	95	(2)	No	
120	ATM	100	1×10^6	Yes (5)	
5-104	(9)	40-75	1×10^3	No	2706.380-091-008
120	(9)	95	(2)	No	
3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	
5-105	9.1-11.6	30-60	(11)	No	2706.380-091-008
135	11.6	70	(2)	No	
3.11-1A	Fig 3.11-1B	100	(10)	Yes (4,5)	
5-104	ATM	50	1×10^3	No	2601.600-731-010
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	

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8406270011-16

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant (16) Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2IHA*OCABCV1 2IHA*OCABCV2		RB-735 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
2IHA*OCABDG1		DG-732 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
2IHA*OCABSB1,B2,B3 2IHA*PCABSB1,2,3		SB-730 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
2IHA*OCABAB1 2IHA*PCABAB1		AB-755 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
2IHA*PCABCV1,V2		RB-755 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
2IHA*PCABDG1		DG-732 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
IHS 2BNCHBD*A,B,C 2VERTBD*A,B,C		CB-735 ft	311	NSC (18) AOO (18) AC NA
MAIN STEAM SYSTEM				
2MSS*PT101A,B,C	10.3.1	RB-735 ft 6 in	648A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
2MSS*PKC101A,A1,B,B1,C,C1 2MSS*PPW101A,B,C 2MSS*PSH101A,B,C 2MSS*PY101A,B,C 2MSS*PC101A,B,C		CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA
2MSS*PK101A,B,C		CB-735 ft 6 in	723	NSC (18) AOO (18) AC N/A
LMS for 2MSS*AOV102A,B,C		MV-789 ft	651	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)

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BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Equip. Qual. Package
60-104	(9)	40-75	1×10^3	No	2601.600-731-010
120	(9)	95	(2)	No	
120	(9)	95	3×10^4 (21)	No	
65-104	ATM	20-90	3×10^2	No	2601.600-731-010
120	ATM	90	(2)	No	
120	ATM	90	4×10^2 (7)	No	
55-104	ATM	20-90	1×10^3	No	2601.600-731-010
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
65-104	(9)	20-60	1×10^3	No	2601.600-731-010
120	ATM	90	(2)	No	
Fig 3.11-3L (15)	Fig 3.11-3Q (15)	100	1×10^6	No	
60-104	(9)	40-75	1×10^3	No	2601.600-731-010
120	(9)	95	(2)	No	
120	(9)	95	4×10^3 (21)	No	
65-104	ATM	20-90	3×10^2	No	2601.600-731-010
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	
75	ATM	50	3×10^2	No	2701.120-311-001
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
60-104	(9)	40-75	1×10^3	No	2702.310-648-014
120	(9)	95	(2)	No	
120	(9)	95	1×10^6	No	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
75	ATM	50	3×10^2	No	2607.570-723-003
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
55-120	(9)	80-90	1×10^3	No	2707.650-651-100
120	(9)	90	(2)	No	
Fig 3.11-2	Fig 3.11-2	100	1×10^6	(5,6)	Also Available On Aperture Card

Reference Tag Section	Plant ⁽¹⁶⁾ Location	Purchase Order No. (2BV-)	Component Operating Time
	RB-740 ft	651	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
10.3.1	MV-788 ft 10 in	211A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
10.3	MV-798 ft 8 in MV-798 ft	209A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
	CB-707 ft 6 in	723	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
10.3.1	RB-755 ft 6 in (logic cabinet only)	211A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
	CB-735 ft 6 in	001	NSC (18) AOO (18) AC NA
	RC-767 ft (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
	CB-735 ft 6 in	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)
	MV-789 ft	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)

TI APERTURE CARD

BVPS-2 FSAR
BLE 3.11-1 (Cont)

BVPS-2 Environmental Conditions				Spray Qualified	Reference Equip. Qual. Package
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)		
60-104	(9)	40-75	1×10^3	No	2707.650-651-100
120	(9)	95	(2)	No	
120	(9)	95	1×10^6	(5,6)	
55-120	(9)	80-90	1×10^3	No	2606.510-211-087
120	(9)	90	(2)	No	2706.510-211-007
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	2606.510-211-092
					2606.510-211-093
					2606.510-211-094
					2706.510-211-879
					2706.510-211-880
					2706.510-211-009
55-120	(9)	80-90	1×10^3	No	Not Assigned
120	(9)	90	(2)	No	
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
60-104	(9)	40-75	1×10^3	No	2606.510-211-087
120	(9)	95	(2)	No	2706.510-211-007
120	(9)	95	1×10^6	No	2606.510-211-092
					2606.510-211-093
					2606.510-211-094
					2706.510-211-879
					2706.510-211-880
					2706.510-211-009
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-3
Fig 3.11-1A(12)	Fig 3.11-1B(12)	100	(10)	Yes (4,5)	
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	
55-120	(9)	80-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP ESE-2
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2MSS*SOV102A1, A2,B1,C1,C2 (SOVs for preceding values)		RB-740 ft	651	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
2MSS*HYV101A,B&C 2MSS*SOV101A1,B1,C1	10.3.1	MV-788 ft 10 in	211A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
Steam Vents				
2SVS*PCV101A,B,C 2SVS*HCV104	10.3	MV-798 ft 8 in MV-798 ft	209A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
2SVS*PKC101A,B,C		CB-707 ft 6 in	723	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
PNL*2HYV101A,B&C	10.3.1	RB-755 ft 6 in (logic cabinet only)	211A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
2MSS*PI474,475,476,484, 485,486,494,495 496		CB-735 ft 6 in	001	NSC (18) AOO (18) AC NA
2MSS*FT474,475,484,485, 494,495		RC-767 ft (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
2MSS*PI496		CB-735 ft 6 in	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)
2MSS*PT474,475,476,484, 485,486 2MSS*PT494,495,496		MV-789 ft	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)

TI APERTURE CARD

BVPS-2 FSAR
LE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
60-104	(9)	40-75	1×10^3	No	2707.650-651-100
120	(9)	95	(2)	No	
120	(9)	95	1×10^6	(5,6)	
55-120	(9)	80-90	1×10^3	No	2606.510-211-087
120	(9)	90	(2)	No	2706.510-211-007
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	2606.510-211-092
					2606.510-211-093
					2606.510-211-094
					2706.510-211-879
					2706.510-211-880
					2706.510-211-009
55-120	(9)	80-90	1×10^3	No	Not Assigned
120	(9)	90	(2)	No	
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
60-104	(9)	40-75	1×10^3	No	2606.510-211-087
120	(9)	95	(2)	No	2706.510-211-007
120	(9)	95	1×10^6	No	2606.510-211-092
					2606.510-211-093
					2606.510-211-094
					2706.510-211-879
					2706.510-211-880
					2706.510-211-009
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-3
Fig 3.11-1A(12)	Fig 3.11-1B(12)	100	(10)	Yes(4,5)	
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	
55-120	(9)	80-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP ESE-2
Fig 3.11-2	Fig 3.11-2	100	1×10^6	Yes (5)	

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
QUENCH SPRAY SYSTEM				
Quench spray chemical injection pumps				
2QSS*P24A,B	6.2.2	SG-728 ft	135	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs
QSS Valves				
2QSS*MOV100A		SG-730 ft	82A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs
100B				
102A,B		SG-731 ft 6 in		
2QSS*MOV101A		SG-733 ft	82A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs
101B				
Quench Spray Pumps				
QSS*P21A,B	6.2.2	SG-721 ft	24	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs
2QSS*SOV100A,B	6.2.2	SG-758 ft	719	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs
2QSS*SOV101A,B		SG-733 ft		
2QSS*SOV102A,B				
2QSS*FIS102A,B		SG-729 ft	693	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs
2QSS*FIS105A,B		SG-730 ft		
Instrumentation				
2QSS*LI100A,B	6.2.2	CB-735 ft 6 in	617	NSC (18) AOO (18) AC NA
2QSS*LI101A,B				
2QSS*LT100A,B		Yard	648A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs
2QSS*LT101A,B				
2QSS*LT104A,B,C,D				
2QSS*FIS101A,B		SG-723 ft	693	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 hrs

3.11-1 (Cont)

JVPS-2 Environmental Conditions						Reference
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Equip. Qual. Package	
TI APERTURE CARD						
65-104	(9)	20-90	1 x 10 ³	No	2602.370-135-015	
120	(9)	90	(2)	No		
120 (13)	(13)	90 (13)	7 x 10 ⁶	No		
65-104	(9)	20-90	1 x 10 ³	No	Not Assigned	
120	(9)	90	(2)	No		
120 (13)	(13)	90 (13)	1 x 10 ⁶	Yes (5)		
65-104	(9)	20-90	1 x 10 ³	No	Not Assigned	
120	(9)	90	(2)	No		
120 (13)	(13)	90 (13)	2 x 10 ⁶ (MOV101A) 3.12 x 10 ⁶ (MOV101B)	Yes (5)		
65-104	(9)	20-90	1 x 10 ³	No	Not Assigned	
120	(9)	90	(2)	No		
120 (13)	(13)	90 (13)	7 x 10 ⁶	No		
65-104	(9)	20-90	1 x 10 ³	No	2607.650-719-186	
120	(9)	90	(2)	No	2707.650-719-105	
120 (13)	(13)	90(13)	1 x 10 ⁶	No		
65-104	(9)	20-90	1 x 10 ³	No	2707.470-693-015	
120	(9)	90	(2)	No		
120 (13)	(13)	90 (13)	1 x 10 ⁶	No		
75	ATM	50	3 x 10 ²	No	Not Assigned	
75	ATM	50	(2)	No		
75	ATM	50	3 x 10 ² (7)	No		
20-120	ATM	20-90	2 x 10 ⁴	No	2702.310-648-014	
120	ATM	90	(2)	No		
120	ATM	90	2 x 10 ⁴ (7)	Yes (5)		
65-104	(9)	20-90	1 x 10 ³	No	2707.470-693-015	
120	(9)	90	(2)	No		
120 (13)	(13)	90 (13)	1 x 10 ⁶	Yes (5,6)	Also Avail	

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant (16) Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>	<u>T</u>
2QSS*LSK100A1,B1				AOO (18)	
2QSS*LSL100A1,B1				AC NA	
2QSS*LX100A,B,101A,B					
2QSS*LYK100A1,B1					
2QSS*LYL100A1,B1					
2QSS*PPW102A,B					
RADIATION MONITORS					
2HVR*RQ104A,B	11.5	RC-782 ft (outside crane wall)	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	8 F
2HVR*DAU104A,B	11.5	SB-730 ft 6 in	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	5
2SWS*RQI100A,B,C,D	11.5	DG 759 ft	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	6
2RMR*RQI303	12.3	RB-735 ft 6 in	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	6
2HVS*RQI109A,B,C	11.5	AB 773 ft 6 in	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	6 F
2RMR*RO206,207	12.3	RC-767 ft (inside crane wall)	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	8 F
2RMR*DAU206,207	12.3	SB-730 ft 6 in	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	5
2RMC*RQ201	12.3	CB-740 ft	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	
2RMR*RQ202	12.3	RB-767 ft 6 in	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	6
2RMR*DAU202	12.3	SB-730 ft 6 in	509A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	5

BVPS-2 FSAR

3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions			Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)				
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
<div>TI APERTURE CARD</div>						
-105	9.1-11.6	30-60	(11)	No		Not Assigned
135	11.6	70	(2)	No		
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)		
-104	ATM	20-90	1×10^3	No		Not Assigned
104	ATM	90	(2)	No		
104	ATM	90	1×10^3 (7)	No		
-104	ATM	20-90	3×10^2	No		Not Assigned
120	ATM	90	(2)	No		
120	ATM	90	4×10^2	Yes (5)		
-104	(9)	40-75	1×10^3	No		Not Assigned
120	(9)	95	(2)	No		
120	(9)	95	1×10^6	No		
-104	(9)	20-60	1×10^3	No		Not Assigned
120	ATM	90	(2)	No		
Fig 3.11-30 (15)	Fig 3.11-3R (15)	100	1×10^6	Yes (5)		
-105	9.1-11.6	30-60	(11)	No		Not Assigned
135	11.6	70	(2)	No		
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)		
-104	ATM	20-90	1×10^3	No		Not Assigned
104	ATM	90	(2)	No		
104	ATM	90	1×10^3 (7)	No		
75	ATM	50	3×10^2	No		Not Assigned
75	ATM	50	(2)	No		
75	ATM	50	3×10^2 (7)	No		
-104	ATM	40-75	1×10^3	No		Not Assigned
120	ATM	95	(2)	No		
120	ATM	100	1×10^6	No		
-104	ATM	20-90	1×10^3	No		Not Assigned
104	ATM	90	(2)	No		
104	ATM	90	1×10^3 (7)	No		

Also Available On
Aperture Card

8406270011-20

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant (16) Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>	<u>Te</u>
REACTOR COOLANT SYSTEM					
RCS Valves					
2RCS*HIC250A,B	5.4.13	CB-735 ft 6 in	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 40 hr	
2RCS*MOV535,536,537	5.4.13	RC-784 ft	001	NSC 362.5 d/y	
2RCS*PCV455C,455D,456	5.4.12	(inside crane wall)		AOO 2.5 d/y (1) AC 4 months (3)	Fi
2RCS*AOV101 (SOV and Limit Switch)	5.4.12	RB-720 ft	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)	Fi
2RCS*SOV200A		RC-768 ft	001	NSC 362.5 d/y	
2RCS*SOV200B		(inside crane		AOO 2.5 d/y (1)	
2RCS*SOV201A		wall)		AC 40 hr (3)	Fi
2RCS*SOV201B					
2RCS*AOV519 (SOV and Limit Switch)		RB-720 ft	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)	Fi
2RCS*HCV250A,B	5.4.12	RC-742 ft	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 40 hr (3)	Fi
2RCS *MOV590,591,592, 593,594,595 (Limit Switches only)		RC-732 ft (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)	Fi
2RCS*TI410	5.4.12	CB-735 ft 6 in	001	NSC (18)	
2RCS*TI413				AOO (18)	
2RCS*TI420				AC NA	
2RCS*TI423					
2RCS*TI430					
2RCS*TI433					

3.11-1 (Cont)

BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP HE-1
3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-104	(9)	40-75	1×10^3	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP HE-2/HE-5
3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	HE-3/HE-6
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP HE-10
3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-104	(9)	40-75	1×10^3	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP HE-2/HE-5
3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	HE-3/HE-6
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP HE-10
3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP HE-3/HE-6
3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	

TI
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Also Available On
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8406270011-21

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2RCS*MOV557A,B,C		RC-717 ft (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2RCS*FT414,415,416 424,425		RC-717 ft (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 5 min
2RCS*FT426,434,435 436				
2RCS*LI459A		CB-735 ft 6 in	001	NSC (18)
2RCS*LI460				AOO (18)
2RCS*LI461				AC NA
2RCS*PI402				
2RCS*PI403				
2RCS*LT459		RC-717 ft	001	NSC 362.5 d/y ⁽¹⁾
2RCS*LT460		(inside crane wall)		AOO 2.5 d/y ⁽¹⁾ AC 4 months ⁽³⁾
2RCS*LT461				
2RCS*PT402	5.4.12	RC-717 ft	001	NSC 362.5 d/y ⁽¹⁾
2RCS*PT403		(inside crane wall)		AOO 2.5 d/y ⁽¹⁾ AC 4 months ⁽³⁾
2RCS*PT455		RC-717 ft	001	NSC 362.5 d/y ⁽¹⁾
2RCS*PT456		(inside crane wall)		AOO 2.5 d/y ⁽¹⁾ AC 5 min
2RCS*PT457				
2RCS*TE411D		RC-735 ft	001	NSC 362.5 d/y ⁽¹⁾
2RCS*TE412B		RC-734 ft		AOO 2.5 d/y ⁽¹⁾
2RCS*TE412C		RC-735 ft		AC 5 min
2RCS*TE412D		RC-735 ft (inside crane wall)		
2RCS*TE432B,C,D	5.4.12	RC-735 ft	001	NSC 362.5 d/y ⁽¹⁾
2RCS*TE421D		RC-735 ft		AOO 2.5 d/y ⁽¹⁾
2RCS*TE422B		RC-734 ft		AC 5 min
2RCS*TE422C		RC-735 ft (inside crane wall)		
2RCS*TE422D		RC-735 ft	001	NSC 362.5 d/y ⁽¹⁾
2RCS*TE431D		(inside crane wall)		AOO 2.5 d/y ⁽¹⁾ AC 5 min
2RCS*TE410		RC-732 ft	001	NSC 362.5 d/y ⁽¹⁾
2RCS*TE413		(inside crane wall)		AOO 2.5 d/y ⁽¹⁾ AC 4 months ⁽³⁾
2RCS*TE420				
2RCS*TE423				
2RCS*TE430				
2RCS*TE433				

TI APERTURE CARD

BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-49
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-4
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-14
75	ATM	50	3×10^2 (7)	No	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-3
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-1
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-1
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-5
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-5
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-5
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	

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Aperture Card

85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-5
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-6
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	

8406270011-22

<u>Equipment</u>	<u>Reference</u> <u>FSAR Section</u>	<u>Plant</u> ⁽¹⁶⁾ <u>Location</u>	<u>Purchase</u> <u>Order No.</u> <u>(2BV-)</u>	<u>Component</u> <u>Operating</u> <u>Time</u>
RESIDUAL HEAT REMOVAL SYSTEM	5.4.7			
2RHS*FT605A,B	5.4.7	RC-710 ft	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)
2RHS*TRSMOV702A	5.4.7	RB-735 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)
2RHS*TRS-MOV701B		RB-735 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)
RHS Supply Isolation Valves 2RHS*MOV701A,B 2RHS*MOV702A,B		RC-720 ft 6 in (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
RHS Return & Cross Connect Valves 2RHS*MOV720A,B 2RHS*MOV750A,B		RC-720 ft 6 in (inside crane wall)	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 4 months (3)
RECIRCULATION SPRAY SYSTEM	6.2.2			
2RSS*LI151A,B 2RSS*TI150A,B		CB-735 ft 6 in	617 617	NSC (18) AOO (18) AC NA
2RSS*TE150A1,A2,B1,B2		SG-688 ft	636	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
2RSS*FT157A,B,C,D		SG-745 ft	648A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
2RSS*FIS157C,D		SG-742 ft	693	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
2RSS*LPW151A,B 2RSS*LX151A,B 2RSS*TT150A1,A2,B1,B2 2RSS*TX150A1,A2,B 2RSS*TY150A,B		CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA

TI APERTURE CARD

BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Reference Spray Qualified	Equip. Qual. Package
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE-3
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
60-104	(9)	40-75	1×10^3	No	2601.600-731-010
120	(9)	95	(2)	No	
120	(9)	95	4×10^3 (21)	No	
60-104	(9)	40-75	1×10^3	No	2601.600-731-010
120	(9)	95	(2)	No	
120	(9)	95	6×10^3 (21)	No	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP HF-1
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP HE-1
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
75	ATM	50	3×10^2	No	Not Assigned
75	ATM	50	(2)	No	
75	ATM	50	3×10^2 (7)	No	
65-104	(9)	20-90	1×10^3	No	2702.470-636-014
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	2×10^7	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2702.310-648-014
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	2×10^7	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2707.470-693-015
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	1×10^6	Yes (5)	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	Also Available On
120	ATM	80	1×10^3 (7)	No	Aperture Card

8406270(11-23)

February 1984

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
Recirculation Spray Pumps				
2RSS*P21A,B,C,D	6.2.2	SG-735 ft	15	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2RSS*MOV154C,D		SG-749 ft	82A	NSC 362.5 d/y ⁽¹⁾
2RSS*MOV156A,B,C,D		SG-738 ft	82A	AOO 2.5 d/y ⁽¹⁾
2RSS*MOV155A,B,C,D		SG-691 ft	76	AC 401.5 d ⁽³⁾
STEAM DRAINS SYSTEM				
2SDS*AOV111A,B,C (LMS&SOV)		MV-780 ft 6 in	651	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr ⁽³⁾
2SDS*AOV111A,A2,B1,B2 C1,C2,129A,B (LMS&SOV)				
SAFETY INJECTION SYSTEM				
2SIS*FT940	6.3	RB-722 ft 6 in	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 months ⁽³⁾
2SIS*FT943	6.3	AB-715 ft	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 months ⁽³⁾
2SIS*MOV863A,B	6.3	863A-SG-732 ft 863B-SG-728 ft	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 months ⁽³⁾
2SIS*MOV864A,B	6.3	SG-731 ft	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 months ⁽³⁾
2SIS*MOV865A,B,C	6.3	RC-694 ft (inside crane wall)	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr ⁽³⁾
2SIS*MOV867A,B	6.3	AB-711 ft 6 in	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 months ⁽³⁾
2SIS*MOV867C,D	6.3	867C-RB- 718 ft 6 in 867D-RB- 721 ft 6 in	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 4 months ⁽³⁾

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TABLE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
65-104	(9)	20-90	1×10^3	No	2602.510-015-031
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	2.2×10^6	No	
65-104	(9)	20-90	1×10^3	No	Not Assigned
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	2.4×10^6 (MOV154)	Yes (5)	
			7×10^5 (MOV155)		
			3.1×10^6 (MOV156)		
55-120	(9)	80-90	1×10^3	No	2707.650-651-100
120	(9)	90	(2)	No	
Fig 3.11-2	Fig 3.11-2	100	1×10^6	(5,6)	
65-104	(9)	40-75	1×10^3	No	2220.100-001-035 W-EQDP ESE-4
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	
65-104	(9)	20-60	1×10^6	No	2220.100-001-035 W-EQDP ESE-4
120	ATM	90	(2)	No	
Fig 3.11-3I (15)	Fig 3.11-3Q (15)	100	1×10^7	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035 W-EQDP HE-4
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	7×10^6	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035 W-EQDP HE-4
120	(9)	90	(2)	No	
120 (13)	(13)	90 (13)	7×10^6	Yes (5)	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035 W-EQDP HE-1
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
65-104	(9)	20-60	4×10^4	No	2220.100-001-035 W-EQDP HE-4
120	ATM	90	(2)	No	
Fig 3.11-3I (15)	Fig 3.11-3Q (15)	100	1×10^7	Yes (5)	
65-104	(9)	40-75	1×10^6	No	2220.100-001-035 W-EQDP HE-4
120	(9)	95	(2)	No	
Fig 3.11-4B (shielded area)	Fig 3.11-4B	100	1×10^8	Yes (5)	

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2SIS*MOV869A,B	6.3	RB-720 ft	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 4 months (3)
2SIS*MOV8809A,B	6.3	SG-720 ft 6 in	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
2SIS*MOV8811A,B	6.3	8811A-SG-728 ft 8811B-SG-728 ft	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
2SIS*MOV8888A,B	6.3	SG-737 ft	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 4 months (3)
2SIS*MOV8889	6.3	SG-737 ft	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 4 months (3)
2SIS*MOV8890A,B	6.3	SG-720 ft 6 in	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
2SIS*MOV841	6.3	AB-711 ft 6 in	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
2SIS*AOV889	6.3	SG-742 ft 9 in	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 1 hr (3)
2SIS*HCV868A 2SIS*SOV840	6.3	RB-718 ft	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
2SIS*HCV868B	6.3	AB-713 ft	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 40 hrs (3)
2SIS*MOV836	6.3	RB-720 ft	001	NSC 362.5 d/y A00 2.5 d/y (1) AC 4 months (3)

BLE 3.11-1 (Cont)

BVPS-2 Environmental Conditions					Reference
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Equip. Qual. Package
65-104	(9)	40-75	1×10^6	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP HE-4
Fig 3.11-4B (shielded area)	Fig 3.11-4B	100	1×10^8	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP HE-4
120 (13)	(13)	90 (13)	1×10^6	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP HE-1
120 (13)	(13)	90 (13)	1×10^6	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP HE-4
120 (13)	(13)	90 (13)	2.4×10^6	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP HE-4
120 (13)	(13)	90 (13)	2.4×10^6	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP HE-4
120 (13)	(13)	90 (13)	1×10^6	Yes (5)	
65-104	(9)	20-60	4×10^4	No	2220.100-001-035
120	ATM	90	(2)	No	W-EQDP HE-4
Fig 3.11-3I (15)	Fig 3.11-3Q (15)	100	1×10^7	Yes (5)	
65-104	(9)	20-90	1×10^3	No	2220.100-001-035
120	(9)	90	(2)	No	W-EQDP HE-4
120 (13)	(13)	90 (13)	7×10^6	Yes (5)	
65-104	(9)	40-75	1×10^6	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP HE-10
Fig 3.11-4B (shielded area)	Fig 3.11-4B	100	1×10^8	Yes (5)	
65-104	(9)	20-60	4×10^4	No	2220.100-001-035
120	ATM	90	(2)	No	W-EQDP HE-10
Fig 3.11-3I (15)	Fig 3.11-3Q (15)	100	1×10^7	Yes (5)	
65-104	(9)	40-75	1×10^6	No	2220.100-001-035
120	(9)	95	(2)	No	W-EQDP HE-4
Fig 3.11-4B (shielded area)	Fig 3.11-4B	100	1×10^8	Yes (5)	

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2SIS*MOV842	6.3	RC-738 ft (outside crane wall)	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr
Pumps				
2SIS*P21A,B	6.3	SG-720 ft	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 40 hrs
2SIS*FIS970A 2SIS*FIS970B		SG-723 ft	001	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 40 hrs
2SIS*HIC868A,B		CB-735 ft 6 in	001	NSC (18) AOO (18) AC NA
SAMPLING SYSTEM				
	9.3.2			
2SSR*AOV100A1 (SOV&LMS) 2SSR*AOV102A1 2SSR*AOV129A1 2SSR*AOV128A1 2SSR*AOV109A1 2SSR*AOV130A1 2SSR*AOV112A1		RC-718 ft 6 in (outside crane wall)	651	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr
2SSR*AOV100A2 (SCV&LMS) 2SSR*AOV102A2 2SSR*AOV129A2 2SSR*AOV128A2 2SSR*AOV109A2 2SSR*AOV130A2 2SSR*AOV112A2 2SSR*AOV117A,B,C	9.3.2	RB-722 ft 3 in	651	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr
2SSR*AOV108 (SOV&LMS) 2SSR*AOV101A,B,C, 2SSR*AOV106A,B,C,D		RC-719 ft 9 in (inside crane wall)	651	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr
SERVICE WATER SYSTEM				
	9.2.1			
2SWS*MOV148A 2SWS*MOV148B		RB-720 ft	76A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d

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Temperature (°F)	BVPS-2 Environmental Conditions			Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)				
85-105 135 Fig 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-iB (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2220.100-001-035 W-EQDP HE-1	
65-104 120 120 (13)	(9) (9) (13)	20-90 90 90 (13)	1×10^3 (2) 1×10^6	No No Yes (5)	2220.100-001-035 W-EQDP AE-2	
65-104 120 120 (13)	(9) (9) (13)	20-90 90 90 (13)	1×10^3 (2) 1×10^6	No No Yes (5)	2220.100-001-035 W-EQDP ESE-40	
75 75 75	ATM ATM ATM	50 50 50	3×10^2 (2) 3×10^2 (7)	No No No	2220.100-001-035 W-EQDP	I
85-105 135 Fig 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2707.650-651-100	
65-104 120 Fig 3.11-4B	(9) (9) Fig 3.11-4B	40-75 95 100	1×10^6 (2) 1×10^8	No No Yes (5)	2707.650-651-100	
85-105 135 Fig 3.11-1A (12)	9.1-11.6 11.6 Fig 3.11-1B (12)	30-60 70 100	(11) (2) (10)	No No Yes (4,5)	2707.650-651-100	
65-104 120 Fig 3.11-4B	(9) (9) Fig 3.11-4B	40-75 95 100	1×10^3 (2) 5×10^6	No No Yes (5)	2706.450-76A-035 Also Available On Aperture Card	

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2SWS*MOV107A		AB-730 ft	76A	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 1 hr (3)
2SWS*MOV107B				
2SWS*MOV107C				
2SWS*MOV107D				
2SWS*MOV105A,B,C,D		SG-753 ft	77	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
Pumps				
2SWS*P21A,B,C	9.2.1	Intake structure el 705 ft 0 in operating level	224	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2SWS*PT117A,B		IT-709 ft 6 in	648A	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2SWS*PC117A,B		CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA
2SWS*PPW117A,B				
2SWS*PSL117A2,B2				
2SWS*PYL117A2,A3,B2,B3				
2SWS*AOV118A,B,C (SOV&LMS)		IT-706 ft	651	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 1 hr (3)
2SWS*AOV114 (SOV&LMS)		RC-720 ft (outside crane wall)	651	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 1 hr (3)
2SWS*AOV110A,B,C (SOV&LMS)		RC-717 ft (outside crane wall)	651	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 1 hr (3)
2SWS*PT113A	9.2.1	Yard	648A	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 1 hr (3)
2SWS*PT113B		(valve pit)		
2SWS*PT113C				
2SWS*PT113D				
2SWS*MOV170A,B		IT-721 ft	67	NSC 362.5 d/y (1) AOO 2.5 d/y (3) AC 401.5 d (3)
2SWS*MOV102A,B		IT-705 ft	76	
2SWS*MOV102C1,C2		IT-705 ft		

TI
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Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
65-104	(9)	20-60	1 x 10 ³	No	2706.450-76A-035
120	ATM	90	(2)	No	
Fig 3.11-3F (15)	Fig 3.11-3Q (15)	100	4 x 10 ⁶	Yes (5)	
65-104	(9)	20-90	1 x 10 ³	No	2606.450-077-152
120	(9)	90	(2)	No	2606.450-077-116
120 (13)	(13)	90 (13)	2.3 x 10 ⁶ (MOV105A)	Yes (5)	
			2.6 x 10 ⁶ (MOV105B)		
			2 x 10 ⁶ (MOV105C)		
			2.4 x 10 ⁶ (MOV105D)		
55-115	ATM	20-90	3 x 10 ²	No	2601.100-224-072
120	ATM	90	(2)	No	
120	ATM	90	4 x 10 ²	No	
55-115	ATM	20-90	3 x 10 ²	No	2702.310-648-014
120	ATM	90	(2)	No	
120	ATM	90	4 x 10 ²	Yes (5)	
65-104	ATM	50	1 x 10 ³	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1 x 10 ³ (7)	No	
55-115	ATM	20-90	3 x 10 ²	No	2707.650-651-100
120	ATM	90	(2)	No	
120	ATM	90	4 x 10 ²	Yes (5)	
85-105	9.1-11.6	30-60	(11)	No	2707.650-651-100
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	(4,5)	
85-105	9.1-11.6	30-60	(11)	No	2707.650-651-100
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
40-104	ATM	30-100	3 x 10 ²	No	2702.310-648-014
104	ATM	100	(2)	No	
104	ATM	100	3 x 10 ² (7)	Yes (5)	
55-115	ATM	20-90	3 x 10 ²	No	2760.440-067-152
120	ATM	90	(2)	No	2706.450-076-074
120	ATM	90	4 x 10 ²	No	

Also Available On
Aperture Card

8406270011-27

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2SWS*MOV113A,B,C,D		DG-737 ft	77	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 2.5 d
2SWE*MOV116,AB 2SWS*MOV103A,B 2SWS*MOV106A,B 2SWS*MOV120A,B	9.2.1	Yard (valve pit)	76	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d
2SWM*MOV562 2SWM*MOV563 2SWM*MOV564 2SWM*MOV565	9.2.1	Yard (valve pit)	91	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr
2SWS*MOV160 2SWS*MOV161 2SWS*MOV162 2SWS*MOV163 2SWS*MOV164 2SWS*MOV165 2SWS*MOV166 2SWS*MOV167 2SWS*MOV152-1 2SWS*MOV153-1 2SWS*MOV154-1 2SWS*MOV155-1		RB-723 ft RB-725 ft RB-724 ft RB-725 ft RB-724 ft RB-724 ft RB-722 ft RB-723 ft RB-721 ft RB-725 ft RB-721 ft RB-724 ft	76	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d
2SWS*MOV152-2 2SWS*MOV153-2 2SWS*MOV154-2 2SWS*MOV155-2		RC-725 ft RC-725 ft RC-725 ft RC-725 ft (outside crane wall)	76	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d
2SWS*MOV104A,B,C,D		SG-723 ft	77	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d
2SWS*STRM47,48	9.2.1	IT-706 ft 8 in	98A	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d
2SWS*P25A,B	9.2.1	CB-735 ft 6 in	94	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d
Manual transfer SW for 2SWS*P21C 2SWS*TRS-P21C Amendment 5	8.3.1.1.4	SB-730 ft 6 in	304	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
GASEOUS VENTS SYSTEM	9.3.3			
2VRS*SOV109A1		RB-720 ft 6 in	651	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr
2VRS*SOV109A2		RC-727 ft (outside crane wall)	651	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1 hr
Control Panels and Racks				
RK*2RC-PRT-A	7.2	CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2RC-PRT-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2VV-REL-A		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2VV-REL-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2AUX-RPST-A		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2AUX-RPST-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2NUC-INS		CB-735 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2P-TST-A		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2P-TST-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
GASEOUS VENTS SYSTEM	9.3.3			
2VRS*SOV109A1		RB-720 ft 6 in	651	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
2VRS*SOV109A2		RC-727 ft (outside crane wall)	651	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
Control Panels and Racks				
RK*2RC-PRT-A	7.2	CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2RC-PRT-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2VV-REL-A		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2VV-REL-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2AUX-RPST-A		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2AUX-RPST-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2NUC-INS		CB-735 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2P-TST-A		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2P-TST-B		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA

TI APERTURE CARD

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
65-104	(9)	40-75	1×10^3	No	2707.650-651-100
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	(5,6)	
85-105	9.1-11.6	30-60	(11)	No	2707.650-651-100
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-16
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-16
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-23
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-23
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-16
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-16
120	ATM	80	1×10^3 (7)	No	
75	ATM	50	3×10^2	No	2220.100-001-035
75	ATM	50	(2)	No	W-EQDP ESE-10
75	ATM	50	3×10^2 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-17
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-17
120	ATM	80	1×10^3 (7)	No	

Also Available On
Aperture Card

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
2SWS*MOV113A,B,C,D		DG-737 ft	77	NSC 362.5 d/y AOO 2.5 d/y AC 2.5 d
2SWE*MOV116,AB 2SWS*MOV103A,B 2SWS*MOV106A,B 2SWS*MOV120A,B	9.2.1	Yard (valve pit)	76	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d
2SWM*MOV562 2SWM*MOV563 2SWM*MOV564 2SWM*MOV565	9.2.1	Yard (valve pit)	91	NSC 362.5 d/y AOO 2.5 d/y AC 1 hr
2SWS*MOV160 2SWS*MOV161 2SWS*MOV162 2SWS*MOV163 2SWS*MOV164 2SWS*MOV165 2SWS*MOV166 2SWS*MOV167 2SWS*MOV152-1 2SWS*MOV153-1 2SWS*MOV154-1 2SWS*MOV155-1		RB-723 ft RB-725 ft RB-724 ft RB-725 ft RB-724 ft RB-724 ft RB-722 ft RB-723 ft RB-721 ft RB-725 ft RB-721 ft RB-724 ft	76	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d
2SWS*MOV152-2 2SWS*MOV153-2 2SWS*MOV154-2 2SWS*MOV155-2		RC-725 ft RC-725 ft RC-725 ft RC-725 ft (outside crane wall)	76	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d
2SWS*MOV104A,B,C,D		SG-723 ft	77	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d
2SWS*STRM47,48	9.2.1	IT-706 ft 8 in	98A	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d
2SWS*P25A,B	9.2.1	CB-735 ft 6 in	94	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d
Manual transfer SW for 2SWS*P21C 2SWS*TRS-P21C Amendment 5	8.3.1.1.4	SB-730 ft 6 in	304	NSC 362.5 d/y AOO 2.5 d/y AC 401.5 d

TI APERTURE CARD

BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
65-104	ATM	20-90	3×10^2	No	2606.450-077-152
120	ATM	90	(2)	No	2606.450-077-116
120	ATM	90	4×10^2	Yes (5)	
40-104	ATM	0-100	3×10^2	No	2706.450-076-074
104	ATM	100	(2)	No	
104	ATM	100	3×10^2 (7)	Yes (5,6)	
40-104	ATM	0-100	3×10^2	No	2706.380-091-008
104	ATM	100	(2)	No	
104	ATM	100	3×10^2 (7)	Yes (5)	
65-104	(9)	40-75	1×10^3	No	2706.450-076-074
120	(9)	95	(2)	No	
Fig 3.11-4B	Fig 3.11-4B	100	5×10^6	Yes (5)	

85-105	9.1-11.6	30-60	(11)	No	2706.450-076-074
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (5)	

65-104	(9)	20-90	1×10^3	No	2606.450-077-152
120	(9)	90	(2)	No	2606.450-077-116
120 (13)	(13)	90 (13)	7×10^6	Yes (5)	
55-115	ATM	20-90	3×10^2	No	2706.620-98A-005
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	
75-104	ATM	50	3×10^2	No	2710.270-094-002
104	ATM	50	(2)	No	2710.270-094-017
104	ATM	50	3×10^2 (7)	Yes	2710.210-094-018
55-104	ATM	20-90	1×10^3	No	
104	ATM	90	(2)	No	2701.150-304-010
104	ATM	90	1×10^3 (7)	No	

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component operating Time</u>
REAC*2T-SWGR		RB-755 ft 6 in	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 1 hr (3)
NE-41A,B,-42A,B,-43A,B-, 44A,B	7.2	RC-705 ft	001	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
RK*2PRI-PROC-1	7.2	CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2PRI-PROC-2		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2PRI-PROC-3		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2PRI-PROC-4		CB-707 ft 6 in	001	NSC (18) AOO (18) AC NA
RK*2SEC-PROC-A,-B		CB-707 ft 6 in	723	NSC (18) AOO (18) AC NA
PNL*REL-241, 257, 259 PNL*2SEQ-247, 248, 251, 256, 257, 259		SB-730 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
PNL*REL-242, 243, 247, 249, 251, 252, 253 PNL*REL-281,-282,-269, -279 PNL*2SEQ-244, 245, 246, 252, 253, 254, 255		SB-730 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
PNL*2BLG-SER		CB-735 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (3) AC 401.5 d (3)
PNL*2UV-T-A,B		SB-730 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 113 d (3)
PNL*2SHUTDN PNL*REL-280,-290		CB-707 ft	731	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)

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BVPS-2 Environmental Conditions					
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
60-104	(9)	40-75	1×10^3	No	Not Assigned
120	(9)	95	(2)	No	
120	(9)	95	1×10^6	No	
85-105	9.1-11.6	30-60	(11)	No	2220.100-001-035
135	11.6	70	(2)	No	W-EQDP ESE8/9
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-13
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-13
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-13
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-13
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2220.100-001-035
120	ATM	80	(2)	No	W-EQDP ESE-13
120	ATM	80	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2607.570-723-003
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2601.600-731-010
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2601.600-731-010
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
75	ATM	50	3×10^2	No	2601.600-731-010
75	ATM	50	(2)	No	2610.100-160-055
75	ATM	50	3×10^2 (7)	No	
55-104	ATM	20-90	1×10^3	No	2601.600-731-010
104	ATM	90	(2)	No	Also Available On
104	ATM	90	1×10^3 (7)	No	Aperture Card
65-104	ATM	50	1×10^3	No	2601.600-731-010
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
PNL*ALTSHDN PNL*REL-250 PNL*REL-260	7.2	AB-755 ft 6 in	731	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 113 d ⁽²⁰⁾
PNL*2HCS	6.2.5	SG-738 ft 4 in	731	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Electrical Equipment				
4160 V Emer. SWgr 2AE(0), 2DF(P) 4KVS*2AE 4KVS*2DF	8.3.1.1.2	SB-730 ft 6 in	304	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Transf. for emer. Sub Sta 2-8N, 2-9P TR*2-8N TR*2-9P	8.3.1.1.2	SB-730 ft 6 in	307	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
480 V sub sta. 480VUS*2-8 480VUS*2-9	8.3.1.1.2	SB-730 ft 6 in	307	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Cable-5000 V PWR NKB-05, 09, 20, 31, 40, 51, 53, 55	8.3.3	Various in RC	309	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Cable-5000 V PWR NKB-36, 38, 46, 48	8.3.3	SB-730 ft 6 in	309	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d
480 V Emer. Mot Cont Cnt (0) (P) MCC*2-E01 MCC*2-E02	8.3.1.1.3	IT-705 ft	310	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
480 V Emer. Mot Cont Cnt (0) (P) MCC*2-E03 MCC*2-E04	8.3.1.1.3	AB-755 ft 6 in	310	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
480 V Emer. Mot Cont Cnt (0) (P) MCC*2-E05 MCC*2-E06 MCC*2-E13 MCC*2-E14 Amendment 5	8.3.1.1.3	RB-735 ft 6 in	310	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾

TI APERTURE CARD

Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
75-104	ATM	40-75	1×10^3	No	2601.600-731-010
104	ATM	95	(2)	No	
104	ATM	95	1×10^6	No	
65-104	(9)	20-90	1×10^3	No	2601.600-731-010
120	(9)	90	(2)	No	
120	(9)	90	1×10^6	No	
55-104	ATM	20-90	1×10^3	No	2701.150-304-010
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2701.180-307-016
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2701.180-307-016
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2701.180-307-016
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
85-105	9.1-11.6	77-60	(11)	No	2701.170-309-030
135	11.6	70	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
55-104	ATM	20-90	1×10^3	No	2701.170-309-030
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-115	ATM	20-90	3×10^2	No	2701.160-310-029
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	No	
65-104	(9)	20-60	1×10^3	No	2701.160-310-029
104	ATM	60	(2)	No	
104	Fig 3.11-Q (15)	60	1×10^3 (7)	No	
60-104	(9)	40-75	1×10^3	No	2701.160-310-029
120	(9)	95	(2)	No	
120	(9)	95	1×10^6	No	

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
480 V Emer. Mot Cont Cnt (O) (P) MCC*2-E07 MCC*2-E08	8.3.1.1.3	DG-732 ft	310	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
480 V Emer. Mot Cont Cnt (O) (P) MCC*2-E09 MCC*2-E10	8.3.1.1.3	CB-707 ft 6 in	310	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
480 V Emer. Mot Cont Cnt (O) (P) MCC*2-E11 MCC*2-E12	8.3.1.1.3	SG-737 ft 6 in	310	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
2BNCHBD*A,B,C 2VERTBD*A,B,C	3.1.2.1.9	CB-735 ft 6 in	311	NSC (18) AOO (18) AC NA
CABLE-600 V pwr NKZ-01, 10, 12, 15, 19, 21, 23, 26, 27, 28, 29, 35, 36, 37, 40, 41	8.3.3	Various (17) in plant	312	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
300 V Instr Cable NKC -01, -02, -03, -04, -05, -06, -40, -48	8.3.3	Various (17) in plant	324	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Cable-High Temp. NKZ-16, 17, 18, 30, 31	8.3.3	Various (17) in plant	2BV-326	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Con. Elect. Penetration 2RCP	8.3.1.1.16	RC elevations in ft (outside crane wall)	317	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
*04A/C		761,		
*05A/C,		761,		
*20C/C, *20D/C,		745, 741,		
*03A/C, *06A/C		761, 761,		
*19C/C, *21C/C, *03B/C		745, 745, 757,		
*06B/C		757,		
*19E/C, *21E/C		737, 737		
*06C/C		745,		
*16D/C, *06D/C, *13D/C		741, 741, 741		
*06E/C, *15E/C, *16E/C,		737, 737, 737		
*12E/C		741		

Temperature (°F)	BVPS-2 Environmental Conditions			Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)				
65-104	ATM	20-90		3×10^2	No	2701.160-310-029
120	ATM	90		(2)	No	
120	ATM	90		4×10^2	No	
65-104	ATM	50		1×10^3	No	2701.160- 310-029
120	ATM	80		(2)	No	
120	ATM	80		1×10^3 (7)	No	
65-104	(9)	20-90		1×10^3	No	2701.160-310-029
120	(9)	90		(2)	No	
120 (13)	(13)	90 (13)		1×10^6	No	
75	ATM	50		3×10^2	No	2701.120-311-001
75	ATM	50		(2)	No	
75	ATM	50		3×10^2 (7)	No	
45-120	9.1-11.6	20-90		(11)	No	2701.170-312-181
150	11.6	100		(2)	No	2701.170-312-082
g 3.11-1A (12)	Fig 3.11-1B (12)	100		(10)	Yes (4,5)	
45-120	9.1-11.6	20-90		(11)	No	2701.170-324-071
150	11.6	100		(2)	No	
g 3.11-1A (12)	Fig 3.11-1B (12)	100		(10)	Yes (4,5)	
45-120	9.1-11.6	20-90		(11)	No	2701.170-326-091
150	11.6	100		(2)	No	
g 3.11-1A (12)	Fig 3.11-1B (12)	100		(10)	Yes (4,5)	
85-105	9.1-11.6	30-60		(11)	No	2601.350-317-021
135	11.6	70		(2)	No	2701.350-317-112
g 3.11-1A (12)	Fig 3.11-1B (12)	100		(10)	Yes (4,5)	2701.350-317-001
						2701.350-317-066

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
*10C/C		745,		
*10D/C,		741,		
*14E/C,		737,		
*16C/C,		745,		
*10E/C		737,		
*11C/C, *14C/C, *02C/C		745, 745, 746		
*11D/C, *14D/C, *02E/C		741, 741, 737,		
*01C/C,		745,		
*03D/C		741,		
*07D/C, *12D/C		741, 741, 741,		
*07E/C		737		
Vital bus 1 volt reg XFMR REG*VITBS2-1B	8.3.1.1.17	CB-707 ft	337	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1.5 d
Vital bus 2 volt reg XFMR REG*VITBS2-2B	8.3.1.1.17	CB-707 ft	337	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1.5 d
Vital bus 3 volt reg XFMR REG*VITBS2-3B	8.3.1.1.17	CB-707 ft	337	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1.5 d
Vital bus 4 volt reg XFMR REG*VITBS2-4B	8.3.1.1.17	CB-707 ft	337	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1.5 d
Vital bus 3 volt reg XFMR REG*VITBS2-3C	8.3.1.1.17	CB-707 ft	337	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1.5 d
Vital bus 4 volt reg XFMR REG*VITBS2-4C	8.3.1.1.17	CB-707 ft	337	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 1.5 d
125 V station control Battery BAT*2-1, 2-2, 2-3, 2-4	8.3.2	SB-730 ft 6 in	841	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 2 hr
Station battery charger 2-1, 2-2, 2-7 BAT*CHG2-1 BAT*CHG2-2 BAT*CHG2-7	8.3.2	SB-730 ft	342	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d
125 V dc switchboard 2-1, 2-2 DC*SWBD2-1 DC*SWBD2-2	8.3.2	SB-730 ft	350	NSC 362.5 d/y ⁽¹⁾ AOO 2.5 d/y ⁽³⁾ AC 401.5 d

BLE 3.11-1 (Cont)

Temperature (°F)	BVPS-2 Environmental Conditions			Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)				
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
65-104	ATM	50	1×10^3	No	2701.340-337-005	
120	ATM	80	(2)	No		
120	ATM	80	1×10^3 (7)	No		
55-104	ATM	20-90	1×10^3	No	2601.240-841-010	
104	ATM	90	(2)	No		
104	ATM	90	1×10^3 (7)	No		
55-104	ATM	20-90	1×10^3	No	2601.240-342-001	
104	ATM	90	(2)	No		
104	ATM	90	1×10^3 (7)	No		
					Also Available On Aperture Card	
55-104	ATM	20-90	1×10^3	No	2701.260-350-002	
104	ATM	90	(2)	No	2701.260-350-019	
104	ATM	90	1×10^3 (7)	No	2701.260-350-018	

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<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
Station battery BKR 2-1, 2-2 BAT*BKR2-1 BAT*BKR2-2	8.3.2	SB-730 ft	358	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
BAT*BKR 2-3, 2-4	8.3.2	SB-730 ft 6 in	363	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Emergency ac DIST XFMR TRF*PWR2-E1, -E2	8.3.1.1.17	SB-730 ft	835	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Emergency ac DIST XFMR TRF*PWR2-E3, -E4	8.3.1.1.17	CB-707 ft	835	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Emergency ac DIST XFMR TRF*PWR-E5, -E6	8.3.1.1.17	IT-709 ft	835	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Vital bus inverter INV*VITBS2-1, 2-2, 2-3, 2-4	8.3.1.1.17	SB-730 ft	361	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Vital bus rectifier RECT*VITBS 2-1, 2-2, 2-3, 2-4	8.3.1.1.17	SB-730 ft	361	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Vital bus 1 & 3 Volt reg XFMR REG/SS*VITBS2-1 & 3	8.3.1.1.17	SB-730 ft	361	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Vital bus 2 & 4 Volt reg XFMR REG/SS*VITBS2-2 & 4	8.3.1.1.17	SB-730 ft	361	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Emer 120 Vac Distr Pnl PNL*AC2-E1, -E2, -E7, -E8	8.3.1.1.17	SB-730 ft 6 in	363	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Emer 120 Vac Distr Pnl PNL*AC2-E3, E-4	8.3.1.1.17	CB-707 ft 6 in	363	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾
Emer 120 Vac Distr Pnl PNL*AC2-E5, -E6	8.3.1.1.17	IT-705 ft	363	NSC 362.5 d/y AOO 2.5 d/y ⁽¹⁾ AC 401.5 d ⁽³⁾

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Temperature (°F)	BVPS-2 Environmental Conditions		Radiation (Rads) (14)	Spray Qualified	Reference Equip. Qual. Package
	Pressure (psia)	Humidity (%)			
55-104	ATM	20-90	1×10^3	No	Not Assigned
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2601.260-363-004
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2701.340-835-007
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2701.340-835-007
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No (15)	
55-115	ATM	20-90	3×10^2	No	2701.340-835-007
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	Yes (5)	
55-104	ATM	20-90	1×10^3	No	Not Assigned
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	Not Assigned
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	Not Assigned
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	Not Assigned
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
55-104	ATM	20-90	1×10^3	No	2601.260-363-004
104	ATM	90	(2)	No	
104	ATM	90	1×10^3 (7)	No	
65-104	ATM	50	1×10^3	No	2601.260-363-004
104	ATM	80	(2)	No	
104	ATM	80	1×10^3 (7)	No	
55-115	ATM	20-90	3×10^2	No	2601.260-363-004 Also Available On Aperture Card
120	ATM	90	(2)	No	
120	ATM	90	4×10^2	Yes (5)	

<u>Equipment</u>	<u>Reference FSAR Section</u>	<u>Plant⁽¹⁶⁾ Location</u>	<u>Purchase Order No. (2BV-)</u>	<u>Component Operating Time</u>
125 dc Distr Pnl PNL*DC2-02, -03	8.3.2	CB-707 ft 6 in	363	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
125 dc Distr Pnl PNL*DC2-06, -07	8.3.2	SB-730 ft 6 in	363	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
125 dc Distr Pnl PNL*DC2-10, -11	8.3.2	RB-735 ft 6 in	363	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
Press heater distr PNL PNL*2RCP-H2A, -H2B, -H2C, -H2D, -H2E	8.3.1.1.17	RB-755 ft 6 in	363	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
Cable - 600 V shielded control NKA-02, 03, -04, -05, -06, -07, -08, -18, -19, -21, -22, -23, -24, -25, -28, -30, -69, -70, -71, -72, -73, -74, -75	8.3.3	Various (17)	389 & 816A	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
Cable - 600 V control NKA-29, -31, -44, -62, -63, -64, -65, -66, -67, -68, -78, -79, -81, -88, -98	8.3.3	Various (17)	816	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
Marathon Terminal Blocks (no mark numbers)	8.3.1.1.16	Various (17)	821	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
300 V Instrument Cable NKC-01,02,03,04,05,06, 07,08,09,12,40,48,	8.3.3	Various (17)	827	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)
600 V Insulated Power Cable NKZ-01,04,05,07,10,12, 19,21,23,24,26,28,29,30, 35,36,37,40,41	8.3.3	Various (17)	828	NSC 362.5 d/y AOO 2.5 d/y (1) AC 401.5 d (3)

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BLE 3.11-1 (Cont)

BVPS-2 Environmental Conditions					Reference
Temperature (°F)	Pressure (psia)	Humidity (%)	Radiation (Rads) (14)	Spray Qualified	Equip. Qual. Package
65-104	ATM	50	1×10^3	No	2601.260-363-004
120	ATM	80	(2)	No	
120	ATM	80	1×10^3 (7)	No	
55-104	ATM	50	1×10^3	No	2601.260-363-004
104	ATM	80	(2)	No	
104	ATM	80	1×10^3 (7)	No	
60-104	(9)	40-75	1×10^3	No	2601.260-363-004
120	(9)	95	(2)	No	
120	(9)	95	1×10^6	No	
60-104	(9)	40-75	1×10^3	No	2601.260-363-004
120	(9)	95	(2)	No	
120	(9)	95	1×10^6	No	
45-120	9.1-11.6	20-90	(11)	No	2601.170-389-008
150	11.6	100	(2)	No	2701.170-816-092
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
45-120	9.1-11.6	20-90	(11)	No	2701.170-816-162
150	11.6	100	(2)	No	2701.170-816-094
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (4,5)	
45-120	9.1-11.6	20-90	(11)	No	2701.170-821-089
150	11.6	100	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (5)	
45-120	9.1-11.6	20-90	(11)	No	2701.170-827-096
150	11.6	100	(2)	No	2701.170-827-187
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (5)	
45-120	9.1-11.6	20-90	(11)	No	2701.170-828-170
150	11.6	100	(2)	No	
Fig 3.11-1A (12)	Fig 3.11-1B (12)	100	(10)	Yes (5)	Also Available On Aperture Card

The following notes provide clarification of the data in this table.

NOTES:

1. Duration is based on a loss of offsite power condition (LOP) with only safety related failure, maintenance, etc (LV), since equipment downtime resulting from expected maintenance.
2. Radiation doses are not given since the normal service condition values are cumulative contributions.
3. Includes 10 percent margin.
4. Containment spray systems (CSS) 2,000 ppm boric acid and NaOH. pH between 8.5 and 10.5.
5. Inside containment, all components will be sprayed. Outside containment, each component cubicle/area.

Spray rate is at least 0.15 gal/min-ft² and the entire surface of the sprayed component.
6. Yes - spray of fluid from pipe failure if in same cubicle.
7. Negligible accident contribution.
8. Deleted
9. This area is normally maintained at a slightly negative pressure due to the supplemental air flow.
10. AC radiation exposure is 2×10^8 rads (includes gamma and beta doses). This is an additional 8×10^7 rads gamma and 1.5×10^8 rads beta inside the crane wall; and 2×10^7 rads gamma and 1.5×10^8 rads beta outside the crane wall.
11. NSC Radiation Dose is described below. The beta dose is applicable to organic materials and equipment qualification.

INSIDE CRANE WALL:	2×10^7 rads (gamma)
	3×10^6 rads (beta)

OUTSIDE CRANE WALL:	4×10^4 rads (gamma)
	3×10^6 rads (beta)

CONTAINMENT PENETRATION AREA:	1×10^5 rads (gamma)
	3×10^6 rads (beta)

ventilation available, and loss of all nonsafety related area ventilation due to equipment maintenance periods is of shorter duration.

over the 40-year life of the plant and include the anticipated operational occurrences (A00)

nt must be evaluated to determine if there is a postulated piping failure in the same

t is wetted.

ary leak collection and release system (SLCRS).

uate qualification level for all BVPS-2 components in the containment. Accident contributions gamma and 1.5×10^8 rads beta outside the crane wall.

s only, and should be considered equivalent to a gamma dose of the same magnitude for

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NOTES (Cont):

12. Figures 3.11-1A and 3.11-1B are based on worst-case accident generating a contain
13. No high energy pipe break. All areas maintained at 120°F, based on emergency con
Pressure will be slightly negative and humidity 90 percent maximum.
14. AC radiation doses include both normal and accident doses as a total accumulated
15. For high energy line break (HELB) analysis, the auxiliary building was broken in
Class 1E powered components. The curves are only valid for the node(s) identifi
16. The plant locations are identified with the following abbreviations:

AB - Auxiliary Building
 CB - Control Building
 DG - Diesel Generator Building
 FB - Fuel Building
 IT - Primary Intake Structure
 MV - Main Steam Valve House
 RB - Cable Vault and Rod Control Area
 RC - Reactor Containment
 SB - Service Building
 SG - Safeguards Area

17. Due to cable location in various plant areas, the worst environment for each cat
18. Equipment available for continuous operation in a mild environment.
19. AC radiation exposure is 7×10^3 rads (gamma)
 3×10^3 rads (beta)

The beta dose is applicable to organic materials only, and should be considered

20. AC operation time for this equipment is only when a fire exists in the control b
21. For this specific equipment, the general area accident exposures stated in Table
exposures at the exact location of the component within the general area.

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LE 3.11-1 (Cont)

ment isolation B (CIB) signal and containment spray operation.

e cooling system (ECCS), spray, and auxiliary feedwater pumps running during accident conditions.

dose.

o area nodes. Temperature transient curves are only included for the nodal areas that contain
d on the curves. The pressure transient curves are valid for the identified elevations.

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gory (e.g. temperature, radiation) was chosen for qualification.

equivalent to a gamma dose of the same magnitude for equipment qualification.

ilding (below el 735 ft-6 in) or in the cable tunnel.

3.11-2 were not used. A specific calculation was performed to determine individual equipment

BVPS-2 FSAR
TABLE 3.11-2

PLANT ENVIRONMENTAL CONDITIONS

Area	Normal Service Conditions (NSC)				Anticipated Operational Occurrences (AOO)			
	Temperature (°F)	Pressure (psia)	Relative Humidity (%)	Radiation Dose (rad)	Temperature (°F)	Pressure (psia)	Relative Humidity (%)	
Reactor Containment								
Inside crane wall	85-105	9.1-11.6	30-60	(8)	135	11.6	70	
Outside crane wall	85-105	9.1-11.6	30-60	(8)				
Main Steam Valve House (el 773 ft 6 in)	55-120	(9)	80-90	1 x 10 ³	120	(9)	90	
Safeguards Building	65-104	(9)	20-90	1 x 10 ³	120	(9)	90	
Cable Vault and Rod Control Areas								
el 773 ft 6 in	60-104	Atm.	40-75	1 x 10 ³	120	Atm.	95	
el 755 ft 6 in	60-104	(9)	40-75	1 x 10 ³	120	(9)	95	
el 735 ft 6 in	60-104	(9)	40-75	1 x 10 ³	120	(9)	95	
el 718 ft 6 in	65-104	(9)	40-75	1 x 10 ³	120	(9)	95	
General area								
el 718 ft 6 in (shielded cubicle)	65-104	(9)	40-75	1 x 10 ⁶	120	(9)	95	

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

Accident Conditions (AC)

Area	Temperature (°F)	Pressure (psia)	Relative Humidity (%)	Radiation Dose (rad)(3)	Spray Potential(1)(4)	Flood Level
Reactor Containment Inside crane wall	Figure 3.11-1A (2)	Figure 3.11-1B (2)	100	(10)	Containment spray systems 2,000 ppm boron; NaOH pH=8.5 to 10.5	708 ft - 1 in
Outside Crane Wall	Figure 3.11-1A (2)	Figure 3.11-1B (2)	100	(10)	Containment spray systems 2,000 ppm boron; NaOH ph = 8.5 to 10.5	708 ft - 6 in
Main Steam Valve House (el 773 ft 6 in)	Figure 3.11-2	Figure 3.11-2	100	1 x 10 ⁶	Yes - spray of fluid from pipe failure if in the same cubicle.	None
Safeguards Building						
RSS pump cubicles	No high energy pipe break All areas maintained at 120°F based on ECCS, spray, and auxiliary feedwater pumps running during accident conditions. Pressure will be slightly negative and humidity 90% max.			2 x 10 ⁷	Yes - spray of fluid from pipe failure if in the same cubicle.	691 ft - 1 in 719 ft - 6 in
North cubicle (el 718 ft 6 in)				1 x 10 ⁶	Yes	719 ft - 0 in
South cubicle (el 718 ft 6 in)				1 x 10 ⁶	Yes	718 ft - 9 in
H ₂ recombiner rooms (el 737 ft 6 in)				1 x 10 ⁶	Yes	None
Air conditioning rooms (el 748 ft 0 in)				1 x 10 ⁶	Yes	748 ft - 8 in

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

Area	Normal Service Conditions (NSC)				Anticipated Operational Occurrences (A00)		
	Temperature (°F)	Pressure (psia)	Relative Humidity (%)	Radiation Dose (rad)	Temperature (°F)	Pressure (psia)	Relative Humidity (%)
Auxiliary Building el 710 ft 6 in	65-104	(9)	20-60	Refer to Figures 3.11-6 and 3.11-7 and Table 3.11-3	120	Atm.	90
el 718 ft 6 in	65-104	(9)	20-60	Refer to Figure 3.11-7 and Table 3.11-3	120	Atm.	90
el 735 ft 6 in General except Charging pump cubicle	65-104	(9)	20-60	Refer to Figure 3.11-8 and Table 3.11-3	120	Atm.	90
Charging pump cubicle	65-120	(9)	20-60		120	Atm.	90
el 755 ft 6 in (except MCC cubicles)	65-104	(9)	20-60	Refer to Figure 3.11-9 and Table 3.11-3	120	Atm.	90
MCC cubicles	65-104	(9)	20-60	Refer to Figure 3.11-9 and Table 3.11-3	104	Atm.	60
el 773 ft 6 in	65-104	(9)	20-60	Refer to Figure 3.11-10 and Table 3.11-3	120	Atm.	90

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

Accident Conditions (AC)

<u>Area</u>	<u>Temperature (°F)</u>	<u>Pressure (psia)</u>	<u>Relative Humidity (%)</u>	<u>Radiation Dose (rad)(3)</u>	<u>Spray Potential(1)(4)</u>	<u>Flood Level</u>
Cable Vault and Rod Control areas						
el 773 ft 6 in	120	Atm.	100	1×10^6	No	None
el 755 ft 6 in	120	(9)	95	1×10^6	No	None
el 735 ft 6 in	120	(9)	95	1×10^6	No	None
el 718 ft 6 in	Figure	Figure	100	5×10^6	Yes - fluid spray from piping	719 ft - 2 in
General area	3.11-4A	3.11-4B				
el 718 ft 6 in	Figure	Figure	100	1×10^8	failure if in the same cubicle.	719 ft - 2 in
(shielded cubicle)	3.11-4A	3-11-4B				

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

Area	Normal Service Conditions (NSC)				Anticipated Operational Occurrences (AOO)		
	Temperature (°F)	Relative Pressure (psia)	Radiation Humidity (%)	Dose (rad)	Temperature (°F)	Relative Pressure (psia)	Humidity (%)
Service Building							
el 780'-6", 760'-6"; 745'-6"	55-104	Atm.	20-90	1 x 10 ³	120	Atm.	90
el 730'-6"	55-104	Atm.	20-90	1 x 10 ³	104	Atm.	90
Diesel Generator Bldg.							
All areas	65-104	Atm.	20-90	3 x 10 ²	120	Atm.	90
Alternate Shutdown Panel Room							
	75-104	Atm.	40-70	Refer to Figure 3.11-9 and Table 3.11-3 (Zone 7B)	104	Atm.	95

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

Area	Accident Conditions (AC)					
	Temperature (°F)	Pressure (psia)	Relative Humidity (%)	Radiation Dose (rad)(3)	Spray Potential(1)(4)	Flood Level
Auxiliary Building						
el 710 ft 6 in South	Figure 3.11-3A through -3R	Figure 3.11-3Q	100	Refer to Figures 3.11-6	Yes - fluid spray from pipe failure	711 ft - 1 in
el 710 ft 6 in North	(5)	Figure 3.11-3Q	100	through 3.11-10 and		711 ft - 6 in
el 718 ft 6 in all areas	(5)	Figure 3.11-3Q	100	Table 3.11-3	Same	None
el 735 ft 6 in all areas except: Charging pump cubicle	(5)	Figure 3.11-3Q	100	Refer to Figures 3.11-6 through	Same	None
Charging pump cubicle	(5)	Figure 3.11-3Q	100	3.11-10 and Table 3.11-3	Same	736 ft - 0 in
el 755 ft 6 in all areas except: Boric acid tanks, VCT cubicles, and MCC cubicles	(5)	Figure 3.11-3Q	100		Same	None
MCC cubicles	104	Figure 3.11-3Q	60	Refer to Figures 3.11-6 through	Same	(13)
Boric acid tanks and VCT cubicles	(5)	Figure 3.11-3Q	100	3.11-10 and Table 3.11-3	Same	756 ft - 0 in
el 773 ft 6 in all areas	(5)	Figure 3.11-3Q	100		Same	None
Service Building						
el 780 ft 6 in	Figure 3.11-5	Figure 3.11-5	100	8 x 10 ³	Yes - fluid spray from piping failure	None
el 730 ft 6 in, (Gen Area)	Use A00 values continuous for duration of operation			Refer to NSC; No negligible accident contribution.		None

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

<u>Area</u>	<u>Accident Conditions (AC)</u>					<u>Flood Level</u>
	<u>Temperature (°F)</u>	<u>Pressure (psia)</u>	<u>Relative Humidity (%)</u>	<u>Radiation Dose (rad)(3)</u>	<u>Spray Potential(1)(4)</u>	
el 730 ft 6 in (Hallway by West Wall)	Use A00 values continuous for duration of operation			4 x 10 ³	No	None
el 745 ft 6 in,	Use A00 values continuous for duration of operation			2 x 10 ³	No	None
el 760 ft 6 in						
Diesel Generator Bldg. All areas	Use A00 values continuous for duration of operation			4 x 10 ²	Yes	(13)
Alternate Shutdown Panel Room	Use A00 values continuous for duration of operation			Refer to Figure 3.11-9 and Table 3.11-3 (Zone 78)	No	None

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

Area	Normal Service Conditions (NSC)				Anticipated Operational Occurrences (AOO)		
	Temperature (°F)	Pressure (psia)	Relative Humidity (%)	Radiation Dose (rad)	Temperature (°F)	Pressure (psia)	Relative Humidity (%)
Control Building el 735 ft 6 in							
Control Room	75	Atm.	50	3×10^2	75	Atm.	50
Computer Room	75	Atm.	50	3×10^2	75	Atm.	50
Equipment Room	75-104	Atm.	50	3×10^2	104	Atm.	50
el 725 ft 6 in north and south	65-104	Atm.	50	3×10^2	120	Atm.	80
el 707 ft 6 in	65-104	Atm.	50	1×10^3	120	Atm.	80
plus tunnel north of Auxiliary Bldg.							
Fuel and Decontamination Building							
All areas except:	65-104	(9)	50-70	1×10^3	150	(9)	100
Fuel pool pumps and Hx cubicles	65-104	(9)	50-70	2×10^6	150	(9)	100
Intake Structure							
All areas	55-115	Atm.	20-90	3×10^2	120	Atm.	90
Alternate Intake Structure							
All areas	45-104	Atm.	20-90	3×10^2	104	Atm.	90
Valve Pit	40-104	Atm.	0-100	3×10^2	104	Atm.	100

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

Area	Accident Conditions (AC)					Flood Level
	Temperature (°F)	Pressure (psia)	Relative Humidity (%)	Radiation Dose (rad)(3)	Spray Potential(1,4)	
Control Building	Use A00 values continuous for duration of operation				(6)	
el 735 ft 6 in						
Control Room				3 x 10 ²		None
Computer Room				3 x 10 ²		None
Equipment Room				4 x 10 ²		735 ft - 11 in
el 725 ft 6 in north				4 x 10 ²		None
el 725 ft 6 in south				2 x 10 ³		None
el 707 ft 6 in				1 x 10 ³		None
plus tunnel north of Auxiliary Bldg.						
Fuel and Decontamination Building	200	slightly negative	100	7 x 10 ³	Yes	730 ft - 5 in
All areas except:				(gamma)		
	150	slightly negative	100	3 x 10 ³		730 ft - 5 in
				(beta) (12)		
Fuel pool pumps and Hx cubicles				2 x 10 ⁶		
Intake Structure	Use A00 values continuous for duration of operation			4 x 10 ²	Yes	714 ft - 6 in
All areas						
Alternate Intake Structure	Use A00 values continuous for duration of operation			Refer to NSC	No	(13)
All areas				negligible accident contribution.		
Valve Pit	Use A00 values continuous for duration of operation			Refer to NSC	Yes	(13)
				negligible accident contribution.		

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

NOTES:

1. Inside containment, all components will be sprayed. Outside containment, each component must be evaluated to determine if there is postulated piping failure in the same cubicle/area.
2. Figures 3.11-1A and 3.11-1B are based on worst-case accident generating a CIB signal and containment spray operation.
3. Radiation doses include both normal and accident doses as a total accumulated dose.
4. Containment spray: (Wetted only) (2,000 PPM Boric Acid) pH 8.5 - 10.5

Outside containment spray: (Wetted only) (Water only)
5. For HELB analysis the auxiliary building was broken into area nodes. Temperature transient curves are only included for the nodal areas that contain Class 1E powered components. The pressure transient curves are valid for the identified elevations.
6. Spray is present only in the ventilation room.
7. LOCA - Loss-of-coolant accident
MSLB - Main steam line break
HELB - High energy ($T > 200^{\circ}\text{F}$ or $P > 275$ psig) line break
MEPC - Moderate energy ($T < 200^{\circ}\text{F}$ and $p < 275$ psig) pipe crack
8. NSC radiation dose is described below.

Inside Crane Wall: 2×10^7 Rads (gamma)
 3×6^6 Rads(beta) (12)
Outside Crane Wall: 4×10^4 Rads (gamma)
 3×10^6 Rads (beta) (12)
Containment 1×10^5 Rads (gamma)
Penetration Area: 3×10^6 (beta) (12)
9. This area is normally maintained at a slightly negative pressure due to the supplementary leak collection.

BVPS-2 FSAR
TABLE 3.11-2 (Cont)

NOTES: (Cont)

10. AC radiation exposure is 2×10^8 Rads (includes gamma and beta doses). This is an adequate qualification level for all BVPS-2 components in the containment. Accident contributions are 8×10^7 Rads gamma and 1.5×10^8 Rads beta inside the crane wall; and 2×10^7 Rads gamma and 1.5×10^8 rads beta outside the crane wall.
11. The inside temperatures for normal operating conditions have been based on ASHRAE 1-percent frequency of occurrence level for outside air temperature. (An exception to this is the diesel generator building outside air temperature of 102°F.)
12. The beta dose is applicable to organic materials only and should be added to the gamma dose for purposes of qualification.
- 13 Flood level not calculated due to redundant cubicles/equipment.

TABLE 3.11-3
AUXILIARY BUILDING RADIATION DOSES

<u>Area</u>	<u>Figure</u>	<u>Cubicle/ Zone</u>	<u>NSC 40 Year Radiation Dose (Rad)</u>	<u>AC + NSC Radiation Dose (Rad)*</u>
Auxiliary Bldg. El 710'-6" South				
	3.11-6	54-72	1×10^6	1×10^7
	3.11-6	73	3×10^5	1×10^7
	3.11-6	74	4×10^4	1×10^7
	3.11-6	75	4×10^4	1×10^7
	3.11-6	Stairway	1×10^3	1×10^7
El 710'-6" north				
	3.11-7	26-27	2×10^6	3×10^6
	3.11-7	28-29	2×10^6	$6 \times 10^{6*}$
	3.11-7	76 (General area)	1×10^3	$4 \times 10^{6*}$
El 718'-6"				
	3.11-7	1	2×10^6	1×10^7
	3.11-7	2	9×10^8	9×10^8
	3.11-7	3	2×10^7	3×10^7
	3.11-7	4-5	7×10^5	1×10^7
	3.11-7	6-7	3×10^7	4×10^7
	3.11-7	8-9	3×10^8	3×10^8
	3.11-7	10-12	9×10^8	9×10^8
	3.11-7	13-14	3×10^6	1×10^7
	3.11-7	15	2×10^8	2×10^8
	3.11-7	16-17	7×10^7	8×10^7
	3.11-7	18	2×10^8	2×10^8
	3.11-7	19-25	1×10^6	1×10^7
	3.11-7	30	3×10^6	1×10^7
	3.11-7	31	3×10^5	1×10^7
	3.11-7	32-34	3×10^6	1×10^7
	3.11-7	35	2×10^7	2×10^7
	3.11-7	36	3×10^6	1×10^7
	3.11-7	36a	6×10^3	1×10^7
	3.11-7	36b	1×10^3	1×10^7
	3.11-7	Vent chase	6×10^3	1×10^7
	3.11-7	76 (General area)	1×10^3	1×10^7

TABLE 3.11-3 (Cont)
AUXILIARY BUILDING RADIATION DOSES

<u>Area</u>	<u>Figure</u>	<u>Cubicle/ Zone</u>	<u>NSC 40 Year Radiation Dose (Rad)</u>	<u>AC + NSC Radiation Dose (Rad)*</u>
E1 735'-6"	3.11-8	37	3×10^8	3×10^8
	3.11-8	38	1×10^6	1×10^7
	3.11-8	39-41	3×10^6	1×10^7
	3.11-8	42-43	3×10^6	3×10^6
	3.11-8	44	2×10^7	2×10^7
	3.11-8	Vent chase	6×10^3	1×10^7
	3.11-8	77 (General area)	1×10^3	1×10^6
E1 755'-6"	3.11-9	45-50	3×10^6	3×10^6
	3.11-9	51-52	7×10^6	7×10^6
	3.11-9	53	3×10^6	3×10^6
	3.11-9	MCC area	1×10^3	1×10^3
	3.11-9	Vent chase	6×10^3	1×10^6
	3.11-9	78 (General area)	1×10^3	1×10^6
E1 773'-6"	3.11-10	80	4×10^4	1×10^6
	3.11-10	81	6×10^3	1×10^6
	3.11-10	79 (General area)	1×10^3	1×10^6

NOTE

*AC + NSC dose in cubicles 28-29 shall be 3×10^7 rads at distances greater than 12 feet from safety injection lines 2SIS-008-5-2 and 2SIS-008-6-2. AC + NSC dose in the general area (zone 76) is 5×10^5 rads at distances greater than 12 feet from lines.

BVPS-2 FSAR

TABLE 3.11-4

Environmental Zone Index

<u>Zone Number</u>	<u>Zone Location Description</u>
AB-CP-C	AUX BLDG CHARGING PUMP CUBICLE
AB-FT21	AUX BLDG 2HVP*FT21A&B
AB-FT22	AUX BLDG 2HVS*FT22A&B
AB-1-76A	AUX BLDG 710 NODE 1, ZONE 76 A
AB-1-76B	AUX BLDG 718 NODE 1, ZONE 76 B
AB-12-47	AUX BLDG 755 NODE 12, ZONE 47
AB-12-48	AUX BLDG 755 NODE 12, ZONE 48
AB-12-53	AUX BLDG 755 NODE 12, ZONE 53
AB-12-78	AUX BLDG 755 NODE 12, ZONE 78
AB-12MCC	AUX BLDG 755 MCC CUBICLES
AB-22-33	AUX BLDG 710-735 NODE 22, ZONE 23
AB-22-38	AUX BLDG 735 NODE 22, ZONE 38
AB-27-79	AUX BLDG 773 NODE 27, ZONE 79
AB-28-81	AUX BLDG 773 NODE 28, ZONE 81
AB-29-79	AUX BLDG 773 NODE 29, ZONE 79
AB-29-80	AUX BLDG 773 NODE 29, ZONE 80
AB-3-76	AUX BLDG 718 NODE 3, ZONE 76
AB-30-79	AUX BLDG 773 NODE 30, ZONE 79
AB-4-21	AUX BLDG 718 NODE 4, ZONE 21
AB-6-72	AUX BLDG 710 NODE 6, ZONE 72
AB-6-73	AUX BLDG 710 NODE 6, ZONE 73
AB-6-74	AUX BLDG 710 NODE 6, ZONE 74
AB-6-75	AUX BLDG 710 NODE 6, ZONE 75

BVPS-2 FSAR

TABLE 3.11-4 (Cont)

<u>Zone Number</u>	<u>Zone Location Description</u>
AB-8-77	AUX BLDG 735 NODE 8, ZONE 77
AB-9-77	AUX BLDG 735 NODE 9, ZONE 77
CB707D	CONTROL BLDG 707 TNEL NO AUX B
CB725A	CONTROL BLDG 725-6 NORTH
CB725C	CONTROL BLDG 725-6 SOUTH
CB735B	CONTROL BLDG 735-6
DBALL-A	DECONTAMINATION BLDG ALL AREAS
DG-ALL	EMERGENCY DIESEL GENERATOR BLD
FBFPPC	FUEL BLDG FUEL POOL PUMP CUB.
FBGEN	FUEL BLDG GENERAL AREA
FBPEN-Z	FUEL BLDG PENETRATION ZONE
ISALL-A	ALT INTAKE STRUCTURE ALL AREAS
ITALL-A	INTAKE STRUCTURE ALL AREAS
MV-773	MAIN STEAM VALVE HOUSE 773
RB718GA	CABLE VAULT & ROD CONTRL GEN AREA
RB718SA	CABLE VAULT & ROD CONTRL SHLD AREA
RB735	CABLE VAULT & ROD CONTRL 735 ELEV
RB755	CABLE VAULT & ROD CONTRL 755 ELEV
RB773	CABLE VAULT & ROD CONTRL 773 ELEV
RC-ICW	RC INSIDE CRANE WALL
RC-OCW	RC OUTSIDE CRANE WALL
SB730GA	SERVICE BLDG 730-6 GEN AREA
SB730H	SERVICE BLDG 730-6 HALLWAY
SB745-6	SERVICE BLDG 745-5

BVPS-2 FSAR

TABLE 3.11-4 (Cont)

<u>Zone Number</u>	<u>Zone Location Description</u>
SB760-6	SERVICE BLDG 760-6
SB780-6	SERVICE BLDG 780-6
SG-RSPCA	SG RECIRC SPRAY PUMP CUB - A
SG-RSPCB	SG RECIRC SPRAY PUMP CUB - B
SG-RSPCC	SG RECIRC SPRAY PUMP CUB - C
SG-RSS-D	SAFEGUARDS BLDG RSS PUMP CUBLS
SG-741-D	SAFEGUARDS BLDG 741 - D
SG718N-E	SG BLDG NORTH EAST CUBICLE
SG718N-W	SG BLDG NORTH WEST CUBICLE
SG718S-E	SG BLDG SOUTH EAST CUBICLE
SG718S-W	SG BLDG SOUTH WEST CUBICLE
SG718T	SG BLDG TUNNEL
SG732H2	SG BLDG HYDROGEN RECOMB RM
SG741NC	SG BLDG NORTH CUBICLE
SG741SC	SG BLDG SOUTH CUBICLE
SG748AC	SG AIR CONDITIONING RMS
VPAREA	VALVE PIT AREA
YARD	YARD AREAS

TABLE 3.11-5

Data Dictionary - Glossary of Field Names and Descriptions

EQUIPMENT ID:	Equipment identification number
SPEC. NO.:	Specification number
QUAL LIFE:	Qualified life of equipment
QUAL REF:	Qualified demonstrated values reference number
ZONE REF:	Environmental zone
DESCRIPTION:	Equipment description
VENDOR:	Prime vendor for specification
MANUFACTURER:	Subvendor for specification
MODEL:	Vendors model number for equipment
BUILDING:	Building in which equipment is located
EMG COND	Accident condition
OPCODE	Operational code from NUREG 0588 Appendix E
TEMP	Maximum accident temperature for environmental zone
OPTIME	Required operation time
DUR	Duration of maximum temperature
SAFETY FUNCTION	Safety function of equipment
TOTDUR	Total duration of accident
MAXPRES	Maximum pressure during accident
MINPRES	Minimum pressure
HUM	Humidity

BVPS-2 FSAR

TABLE 3.11-5 (Cont)

RADS	Radiation (accident +40 yrs)
CHEM	Spray (chemical or water)
	Yes, no, sub - submergence
OPT PARAMETER	Optional parameter not used at this time
OPT VAL	Optional value not used at this time
DEMONSTRATED VALUES	Qualified values from test reports
QUALMETH	Qualification Method
	SMA - simultaneous type test and analysis
	SQT - sequential type test
	SQA - sequential type test and analysis
	EMA - engineering and mathematical analysis
	OPX - operating experience
NORMAL CONDITIONS	
TEMPERATURE	Qualified maximum normal temperature
PRESSURE	Qualified maximum normal pressure
RELATIVE HUMIDITY	Qualified maximum normal humidity
RADIATION	Qualified forty year radiation dose
ZONE	Maximum normal environments for equipment

BVPS-2 FSAR

TABLE 3.11-5 (Cont)

ABNORMAL CONDITIONS

EXCURSION TYPE	Cause of abnormal condition
	LV - loss of ventilation
	LOP - loss of offsite power
EXCURSION VALUE	Maximum temperature
DURATION (HRS)	Duration of maximum temperature
EXCURSION/YEAR	Number of occurrences per year
PESQUAL REMARKS:	To include regulatory guide information (i.e. Regulatory Guide 1.97 equipment), and other information
EQS QUAL REMARKS:	To include SWEC file number, plus other information

BVPS-2FSAR

JOBNUMBER: 1224100
CLIENT: DUQUESNETable 3.11-6
STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEETDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

EQUIPMENT ID: 2HVD*FN222A	DESCRIPTION: DSL GEN BLDG EXH FAN
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 182T, CZ, TYPE P
ZONE REF: DG-ALL	BUILDING: DG

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS								OPT PARAMETER	OPT VAL
	TEMP	DUR	TOTDUR	HAXPRES	MINPRES	HUM	RADS	CHEM				

DBA	120	9636	9636	14.4	14.4	90	4.0E02	YES				
-----	-----	------	------	------	------	----	--------	-----	--	--	--	--

DEMONSTRATED												
VALUES	260			14.4		100	2.0E08	NO				
QUALMETH	SHA			SHA		SHA	SHA					

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVD*FN222B	DESCRIPTION: DSL GEN BLDG EXH FAN
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 182T, CZ, TYPE P
ZONE REF : DG-ALL	BUILDING: DG

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS						OPT PARAMETER	OPT VAL
	TEMP	DUR	TOTDUR	HAXPRES	MINPRES	HUM	RADS	CHEM		

DBA	120	9636	9636	14.4	14.4	90	4.0E02	YES
-----	-----	------	------	------	------	----	--------	-----

DEMONSTRATED								
VALUES	260			14.4		100	2.0E08	NO
QUALMETH	SHA			SHA		SHA	SHA	

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVD*FN270A	DESCRIPTION: DSL GEN BLDG SUP FAN
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 265T, CZ, TYPE P
ZONE REF: DG-ALL	BUILDING: DG

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS						
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM	OPT PARAMETER

DBA	120	9636	9636	14.4	14.4	90	4.0E02	YES	
-----	-----	------	------	------	------	----	--------	-----	--

DEMONSTRATED									
VALUES	260			14.4		100	2.0E08	NO	
QUALMETH	SHA			SHA		SHA	SHA		

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVDWFN270B	DESCRIPTION: DSL GEN BLDG SUP FAN
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 265T, CZ, TYPE P
ZONE REF: DG-ALL	BUILDING: DG

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS							
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM	OPT PARAMETER	OPT VAL

DBA	120	9636	9636	14.4	14.4	90	4.0E02	YES		
-----	-----	------	------	------	------	----	--------	-----	--	--

DEMONSTRATED										
VALUES	260			14.4		100	2.0E08	NO		
QUALMETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOBNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVD*FN271A DESCRIPTION: DG BLDG SECONDARY SUPPLY FANS
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: MODEL: LTR
ZONE REF : BUILDING: DG

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS								OPT VAL
TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CREM	OPT PARAMETER		OPT VAL	

DEMONSTRATED
VALUES
QUALMETH

*****NORMAL CONDITIONS*****

	DEMONSTRATED VALUE	QUAL METH	ZONE
TEMPERATURE			
PRESSURE			
RELATIVE HUMIDITY			
RADIATION			

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE
EXCURSION VALUE
DURATION (HRS)
EXCURSIONS/YEAR

PES QUAL REMARKS:
EQS QUAL REMARKS:

PRELIMINARY

JOBNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVDWFN271B	DESCRIPTION: DG BLDG SECONDARY SUPPLY FANS
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE:	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF:	MODEL: LTR
ZONE REF :	BUILDING: DG

EHG COND	OPCODE	OPTIME	SAFETY	FUNCTIONS						
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM	OPT PARAMETER	OPT VAL

DEMONSTRATED
VALUES
QUALHETH

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	HETH	

TEMPERATURE
PRESSURE
RELATIVE HUMIDITY
RADIATION

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE
EXCURSION VALUE
DURATION (HRS)
EXCURSIONS/YEAR

PES QUAL REMARKS:
EQS QUAL REMARKS:

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVP*FN264A DESCRIPTION: EMER EXH FN CHGR PHP CUB
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 286T,CZ,TYPE P
ZONE REF : AB-12-78 BUILDING: AB

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS							OPT PARAMETER	OPT VAL
TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM				

HEL B	130	.028	9636	15.81	14.36	100	1.0E06	YES		
-------	-----	------	------	-------	-------	-----	--------	-----	--	--

DEMONSTRATED										
VALUES	260			14.4		100	2.0E08	NO		
QUALMETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED VALUE	QUAL METH	ZONE
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		60
RADIATION	2.0E06		1.0E03

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	100
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOBNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVP=FN264B
SPEC NO.: 150
QUAL LIFE: 40
QUAL REF: 2BV-150-01
ZONE REF: AB-12-78

DESCRIPTION: EMER EXH FN CHGR PHP CUB
VENDOR: JOY MANUFACTURE CO
MANUFACTURER: RELIANCE ELECTRIC
MODEL: 285T, CZ, TYPE P
BUILDING: AB

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS				OPT PARAMETER				OPT VAL
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM			

HELB	130	.028	9636	15.81	14.36	100	1.0E06	YES
DEMONSTRATED VALUES	260			14.4		100	2.0E08	NO
QUALMETH	SHA			SHA		SHA	SHA	

*****NORMAL CONDITIONS*****			
	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SMA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		60
RADIATION	2.0E08		1.0E03

```
*****ABNORMAL CONDITIONS*****
EXCURSION TYPE          LOP
EXCURSION VALUE        120
DURATION (HRS)          60
EXCURSIONS/YEAR         1
```

PES QUAL REMARKS:
EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVP*FN265A	DESCRIPTION: MCC CUBICLE RECIRC FANS
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 18-14-1770
ZONE REF: AB-12-78	BUILDING: AB

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS								OPT PARAMETER	OPT VAL
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM				

HEL B	130	.028	9636	15.81	14.36	100	1.0E06	YES				
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DEMONSTRATED												
VALUES	260			14.4		100	2.0E08	NO				
QUAL METH	SHA			SHA		SHA	SHA					

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		60
RADIATION	2.0E08		1.0E03

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SNEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

PAGE 10

JOBNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVP*FN265B DESCRIPTION: MCC CUBICLE RECIRC FANS
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 18-14-1770
ZONE REF: AB-12-78 BUILDING: AB

EMG COND OPCODE OPTIME SAFETY FUNCTIONS
TEMP DUR TOTDUR MAXPRES MINPRES HUM RADS CHEM OPT PARAMETER OPT VAL

HELB
130 .028 9636 15.81 14.36 100 1.0E06 YES

DEMONSTRATED
VALUES 260 14.4 100 2.0E08 NO
QUALMETH SMA SMA SHA SHA

*****NORMAL CONDITIONS*****

	DEMONSTRATED VALUE	QUAL METH	ZONE
TEMPERATURE	260	SMA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		60
RADIATION	2.0E08		1.0E03

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE LOP
EXCURSION VALUE 120
DURATION (HRS) 60
EXCURSIONS/YEAR 1

PES QUAL REMARKS:
EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOBNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVR*FN201A DESCRIPTION: RC AIR RECIRC FAN
SPEC NO.: 159 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 5008-UCZ "G" TYPE P
ZONE REF: RC-ICH BUILDING: RC

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS						OPT PARAMETER	OPT VAL
	TEHP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEN		

LOCA	369	0.03	9636	59.4	8.9	100	2.0E08	YES		
------	-----	------	------	------	-----	-----	--------	-----	--	--

DEMONSTRATED				14.4		100	2.0E08	NO		
VALUES	260			SHA		SHA	SHA			
QUALMETH	SHA									

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	105
PRESSURE	14.4		9.1
RELATIVE HUMIDITY	100		60
RADIATION	2.0E08		2.0E07

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	135
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:
EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

PAGE 12

JOSHNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVR*FN201B
SPEC NO.: 150
QUAL LIFE: 40
QUAL REF: 2BV-150-01
ZONE REF: RC-ICH

DESCRIPTION: RC AIR RECIRC FAN
VENDOR: JOY MANUFACTURE CO
MANUFACTURER: RELIANCE ELECTRIC
MODEL: 5008-UCZ "G" TYPE P
BUILDING: RC

ENIG COND OPCODE OPTIME SAFETY FUNCTIONS CHEM OPT PARAMETER OPT VAL

LOC 369 0.03 9636 59.4 8.9 100 2.0E08 YES

DEMONSTRATED 260 14.4 100 2.0E08 NO
VALUES SHA SHA SHA SHA

*****NORMAL CONDITIONS*****
DEMONSTRATED QVAL ZONE
VALUE METH SHA
TEMPERATURE 260 105
PRESSURE 14.4 9.1
RELATIVE HUMIDITY 100 60
RADIATION 2.0E08 2.0E07

*****ABNORMAL CONDITIONS*****
EXCURSION TYPE LOP
EXCURSION VALUE 135
DURATION (HRS) 60
EXCURSIONS/YEAR 1

PES QUAL REMARKS:
EQS QUAL REMARKS: EQ RPT SNEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVR*FN201C DESCRIPTION: RC AIR RECIRC FAN
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 5008-UCZ "G" TYPE P
ZONE REF: RC-ICH BUILDING: RC

ENG COND	OPCODE	OPTIIE	SAFETY FUNCTIONS							OPT PARAMETER	OPT VAL
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM			

LOCA	369	0.03	9636	59.4	8.9	100	2.0E08	YES		
------	-----	------	------	------	-----	-----	--------	-----	--	--

DEMONSTRATED VALUES	260			14.4		100	2.0E08	NO		
QUALHETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED VALUE	QUAL HETH	ZONE
TEMPERATURE	260	SHA	105
PRESSURE	14.4		9.1
RELATIVE HUMIDITY	100		60
RADIATION	2.0E08		2.0E07

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	135
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SPEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOBNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVR*FN206A DESCRIPTION: MAIN STM VLV AREA RECIRC FAN
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 365T CZ TYPE P
ZONE REF : RB773 BUILDING: MV

ENG COND	OPCODE	OPTIME	SAFETY	FUNCTIONS								
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEN	CPT PARAMETER	OPT VAL		

DBA	120	9636	9636	14.36	14.36	100	1.0E06	NO				
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DEMONSTRATED												
VALUES	260			14.4		100	2.0E08	NO				
QUALMETH	SMA			SMA		SMA	SMA					

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SMA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		75
RADIATION	2.0E08		1.0E03

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SNEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

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JOB NUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVR*FN206B DESCRIPTION: MAIN STM VLV AREA RECIRC FAN
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 365T CZ TYPE P
ZONE REF : RB773 BUILDING: MV

EMG COND	OPCODE	OPTIME	SAFETY	FUNCTIONS								
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM	OPT	PARAMETER	OPT	VAL

DBA	120	9636	9636	14.36	14.36	100	1.0E06	NO				
-----	-----	------	------	-------	-------	-----	--------	----	--	--	--	--

DEMONSTRATED												
VALUES	260			14.4		100	2.0E08	NO				
QUALHETH	SMA			SMA		SMA	SMA					

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	HETH	
TEMPERATURE	260	SMA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		75
RADIATION	2.0E08		1.0E03

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SNEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JCSNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVM*FN257A DESCRIPTION: INTAKE CUB. 4 SUPPLY FN
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 192T CZ TYPE P
ZONE REF: ITALL-A BUILDING: IT

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS								OPT PARAMETER	OPT VAL
	TEMP	DUR	TOTDUR	MAXPRES	HINPRES	HUM	RADS	CHEM				
MEPC	120	9636	9636	14.4	14.4	90	4.0E02	YES				
DEMONSTRATED												
VALUES	260			14.4		100	2.0E08	NO				
QUALMETH	SMA			SMA		SMA	SMA					

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SMA	115
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SWEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1204100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVMW257B	DESCRIPTION: INTAKE CUB. 3 SUPPLY FN
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 182T CZ TYPE P
ZONE REF: ITALL-A	BUILDING: IT

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS							
	TEMP	DUR	TOTDUR	HAXPRES	MINPRES	HUM	RADS	CHEM	OPT PARAMETER	OPT VAL

MEPC	120	9636	9636	14.4	14.4	90	4.0E02	YES		
DEMONSTRATED										
VALUES	260			14.4		100	2.0E08	NO		
QUALMETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	115
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PE3 QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVMWFN257C	DESCRIPTION: INTAKE CUB. 2 SUPPLY FN
SPEC NO.: 150	VEINDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 182T CZ TYPE P
ZONE REF : ITALL-A	BUILDING: IT

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS							
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUMI	RADS	CHEM	OPT PARAMETER	OPT VAL

HEPC	120	9636	9636	14.4	14.4	90	4.0E02	YES		
DEMONSTRATED										
VALUES	260			14.4		100	2.0E08	NO		
QUALHETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	HETH	
TEMPERATURE	260	SHA	115
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JCNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVZ*FN261A DESCRIPTION: EMERG.SWGR SUPP FN
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 405T CZ TYPE P
ZONE REF: RB773 BUILDING: HV

EHS COND	OPCODE OPTIIE		SAFETY FUNCTIONS			HUM	RADS	CHEM	OPT PARAMETER	OPT VAL
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES					

DBA	120	9636	9636	14.36	14.36	100	1.0E06	NO		
DEMONSTRATED										
VALUES	260			14.4		100	2.0E08	NO		
QUALHETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	HETH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		75
RADIATION	2.0E08		1.0E03

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:
EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVZ*FN261B
SPEC NO.: 159
QUAL LIFE: 40
QUAL REF: 2BV-150-01
ZONE REF: PB773

DESCRIPTION: EMERG. SMOKE SUPP FN
VENDOR: JOY MANUFACTURE CO
MANUFACTURER: RELIANCE ELECTRIC
MODEL: 405T CZ TYPE P
BUILDING: MV

ENG CODE	OPCODE	OPTIME	SAFETY FUNCTIONS						OPT PARAMETER	OPT VAL
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM		

OBA	120	9636	9636	14.36	14.36	100	1.0E06	NO
DEMONSTRATED VALUES	260			14.4		100	2.0E09	NO
QUAL METH	SHA			SHA		SHA	SHA	

*****NORMAL CONDITIONS*****			
	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		75
RADIATION	2.0E08		1.0E03

```
*****ABNORMAL CONDITIONS*****
EXCURSION TYPE          LCP
EXCURSION VALUE         120
DURATION (HRS)           60
EXCURSIONS/YEAR         1
```

PES QUAL REMARKS:
EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JCNUMBER: 1224100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVZ*FN262A	DESCRIPTION: EMERG SHGR RH EXH FAN
SPEC NO.: 150	VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40	MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01	MODEL: 404T CZ TYPE P
ZONE REF: RB773	BUILDING: MV

ENG COND	OPCODE	OPTIME	SAFETY	FUNCTIONS							
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM	OPT PARAMETER	OPT VAL	

DBA	120	9636	9636	14.36	14.36	100	1.0E06	NO			
DEMONSTRATED											
VALUES	260			14.4		100	2.0E08	NO			
QUALMETH	SHA			SHA		SHA	SHA				

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		75
RADIATION	2.0E08		1.0E03

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

PRELIMINARY

JOB NUMBER: 1224100
CLIENT: DUQUESNEDOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNITSTONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEETEQUIPMENT ID: 2HVZ*FN262B
SPEC NO.: 150
QUAL LIFE: 40
QUAL REF: 2BV-150-01
ZONE REF: RB773DESCRIPTION: EMERG SHWR RH EXH FAN
VENDOR: JOY MANUFACTURE CO
MANUFACTURER: RELIANCE ELECTRIC
MODEL: 594T CZ TYPE P
BUILDING: HV

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS							
	TEMP	DUR	TOTDUR	MAXPRES	MINPRES	HUM	RADS	CHEM	OPT PARAMETER	OPT VAL
DBA	120	9636	9636	14.36	14.36	100	1.0E06	NO		
DEMONSTRATED										
VALUES	260			14.4		100	2.0E08	NO		
QUALMETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.36
RELATIVE HUMIDITY	100		75
RADIATION	2.0E08		1.0E03

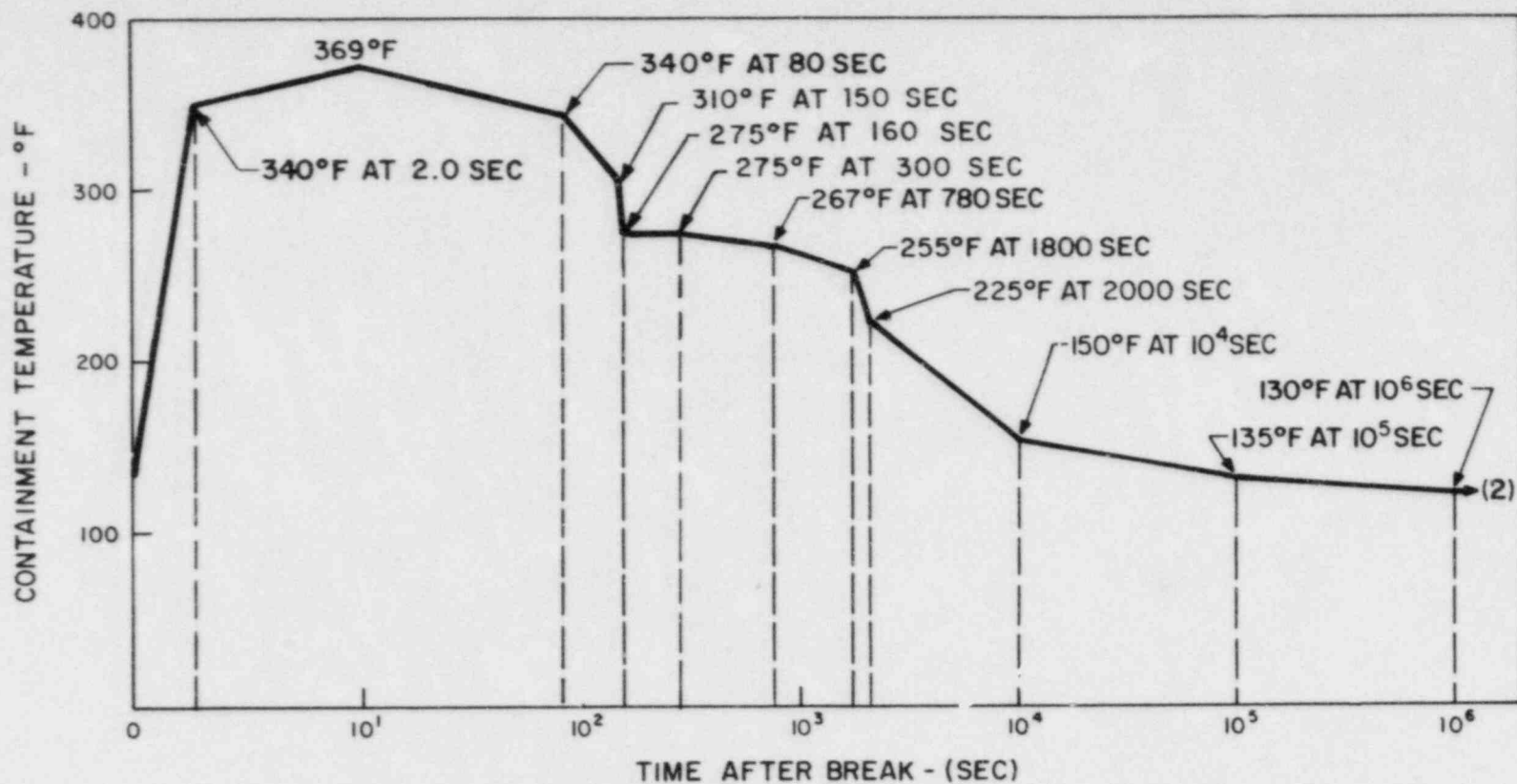
*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SHEC FILE #: 2710.100-150-020 , 2710.100-150-021

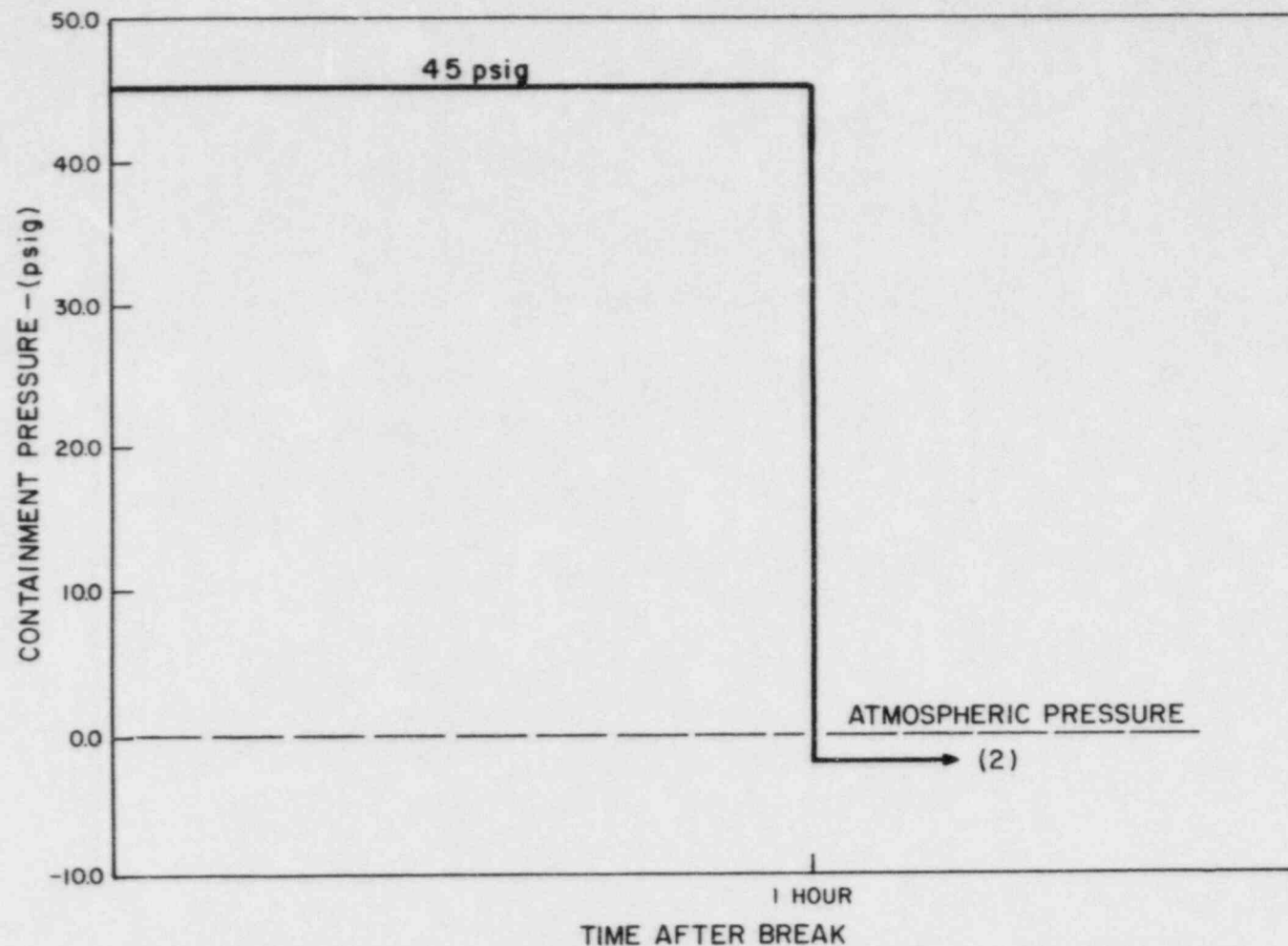
PRELIMINARY



NOTES:

1. TEMPERATURE INCREASES LINEARLY FROM 105°F TO 135°F IN 0.1 SEC.
2. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 130°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
3. ACCIDENT TYPE - MSLB, LOCA

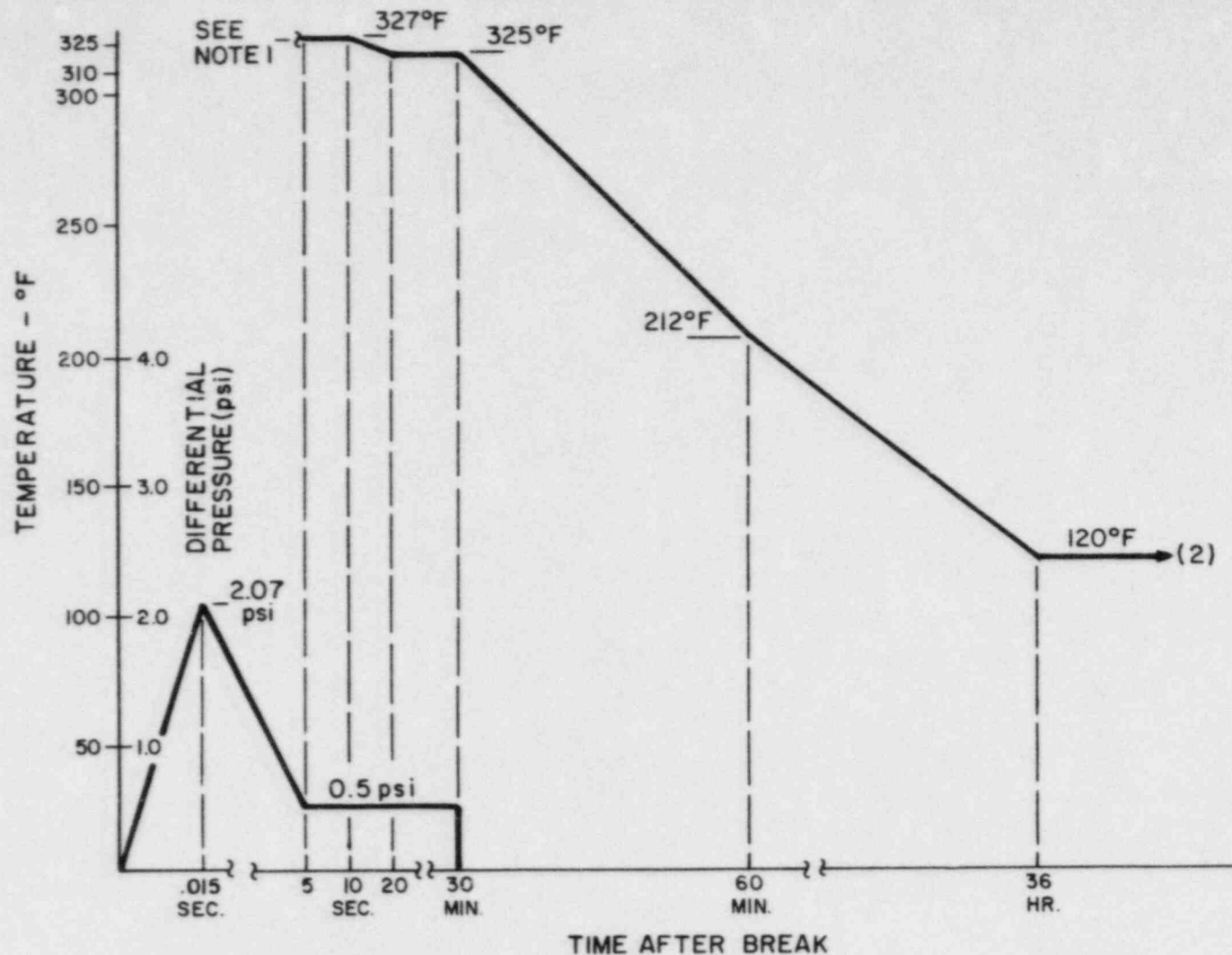
FIGURE 3.11-1A
CONTAINMENT TEMPERATURE ENVELOPE
FOR EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION - UNIT 2
FINAL SAFETY ANALYSIS REPORT



NOTES:

1. PRESSURE INCREASES FROM 8.9 psiA TO 59.4 psiA IN 11 SEC.
2. BEYOND THIS POINT PRESSURE WILL BE BELOW ATMOSPHERIC FOR AS LONG AS THE COMPONENT MUST OPERATE.
3. ACCIDENT TYPE — MSLB, LOCA

FIGURE 3.11-1B
CONTAINMENT PRESSURE ENVELOPE
FOR EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT



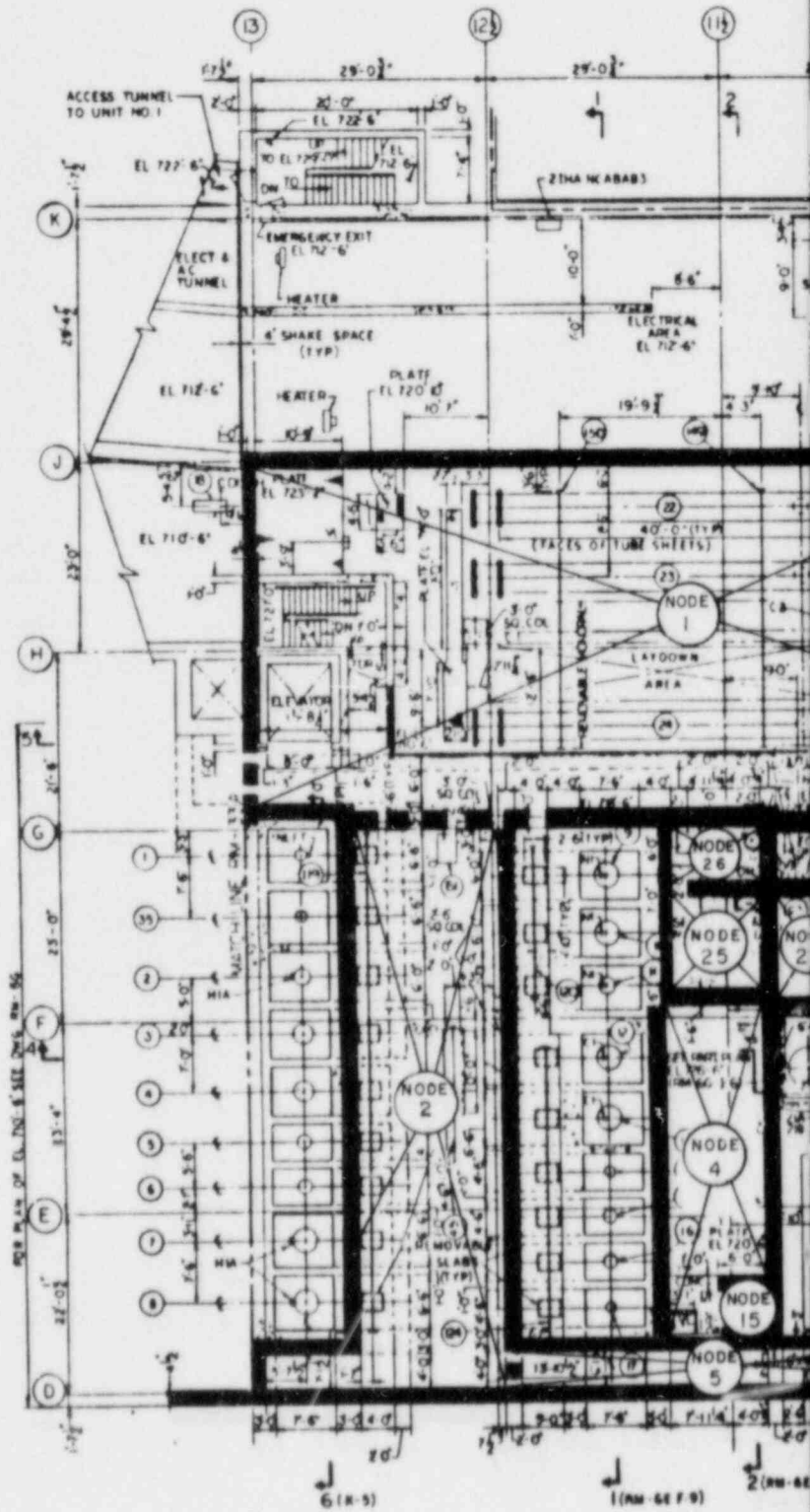
NOTES:

1. TEMPERATURE INCREASES FROM 120°F TO 310°F IN 0.05 SEC. AND FROM 310°F TO 327°F IN THE NEXT 5 SECONDS.
2. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 120°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
3. ACCIDENT TYPE - MSLB

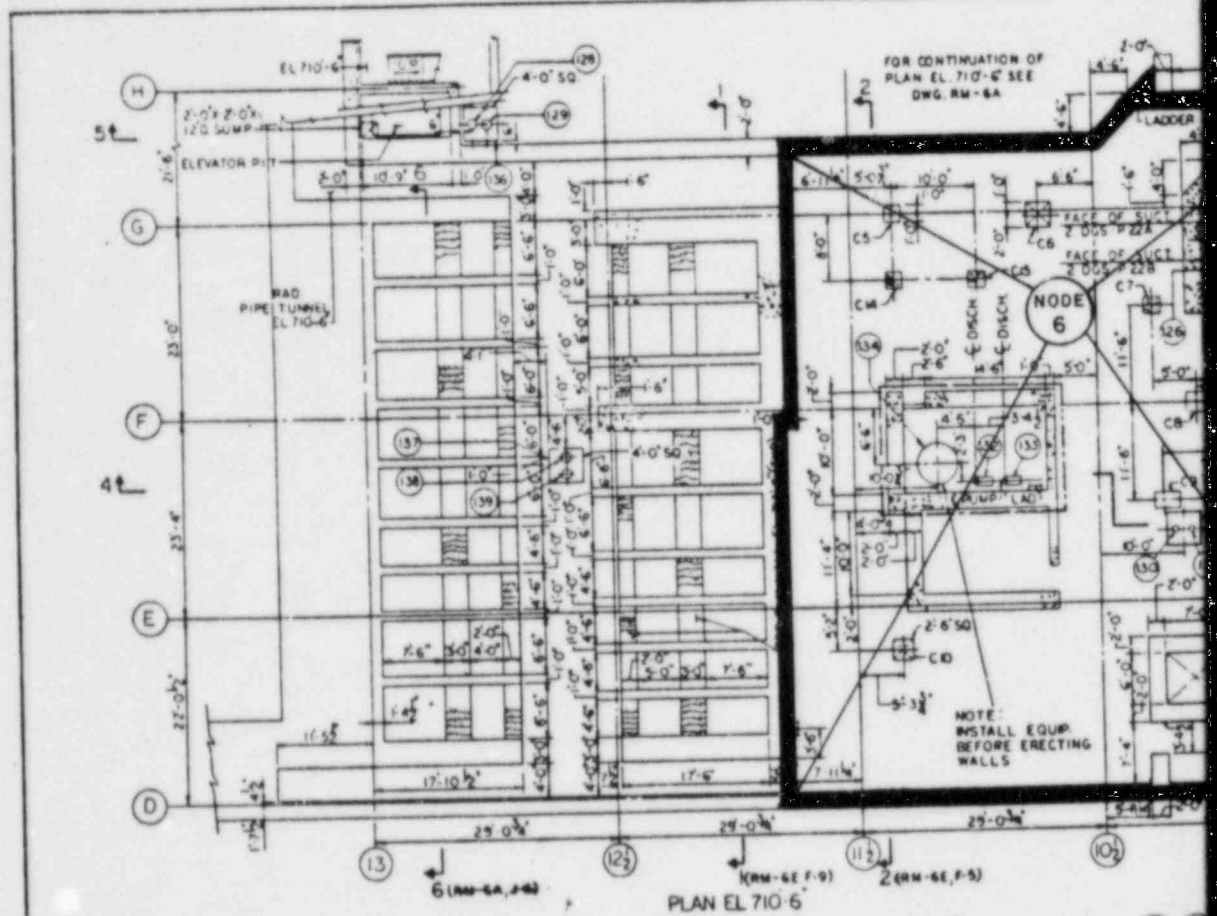
FIGURE 3.11-2
MAIN STEAM VALVE HOUSE
PRESSURE/TEMPERATURE TRANSIENTS-
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT

LEGEND

ITEM NO	MARK NO	EQUIPMENT DESCRIPTION & LOCATION
1	20HPS-FLT-21	BORIC ACID FILTER (C-4)
2	21HC-IDE-21	FUEL POOL DRAIN EXCHANGER (C)
3	21HC-FLT-20A	FUEL POOL FILTER (C-4)
4	21HC-FLT-20B	FUEL POOL FILTER (C-7)
5	20HPS-FLT-20A	COOLANT RECOVERY FILTER (C-7)
6	20HPS-FLT-20B	COOLANT RECOVERY FILTER (C-7)
7	20HPS-EX-21A	KEYSER HEAT EXCH (C-6)
8	20HPS-EX-21B	EXHAUST HEAT EXCH (C-6)
9	20HPS-DEAN-20	HEATED DECONTAMINANT LUGER (C-6)
10	20HPS-DEAN-20	HEATED DECONTAMINANT LUGER (C-6)
11	20HPS-DEAN-22	CATIONIC DECONTAMINANT LUGER (C-6)
12	20HPS-DEAN-22	CATIONIC DECONTAMINANT LUGER (C-6)
13	20HPS-DEAN-22	CATIONIC DECONTAMINANT LUGER (C-6)
14	20HPS-DEAN-22	CATIONIC DECONTAMINANT LUGER (C-6)
15	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
16	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
17	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
18	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
19	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
20	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
21	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
22	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
23	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
24	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
25	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
26	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
27	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
28	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
29	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
30	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
31	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
32	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
33	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
34	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
35	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
36	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
37	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
38	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
39	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
40	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
41	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
42	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
43	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
44	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
45	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
46	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
47	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
48	20HPS-FLT-20B	FUEL POOL FILTER (C-7)
49	20HPS-FLT-20A	FUEL POOL FILTER (C-7)
50	20HPS-FLT-20B	FUEL POOL FILTER (C-7)



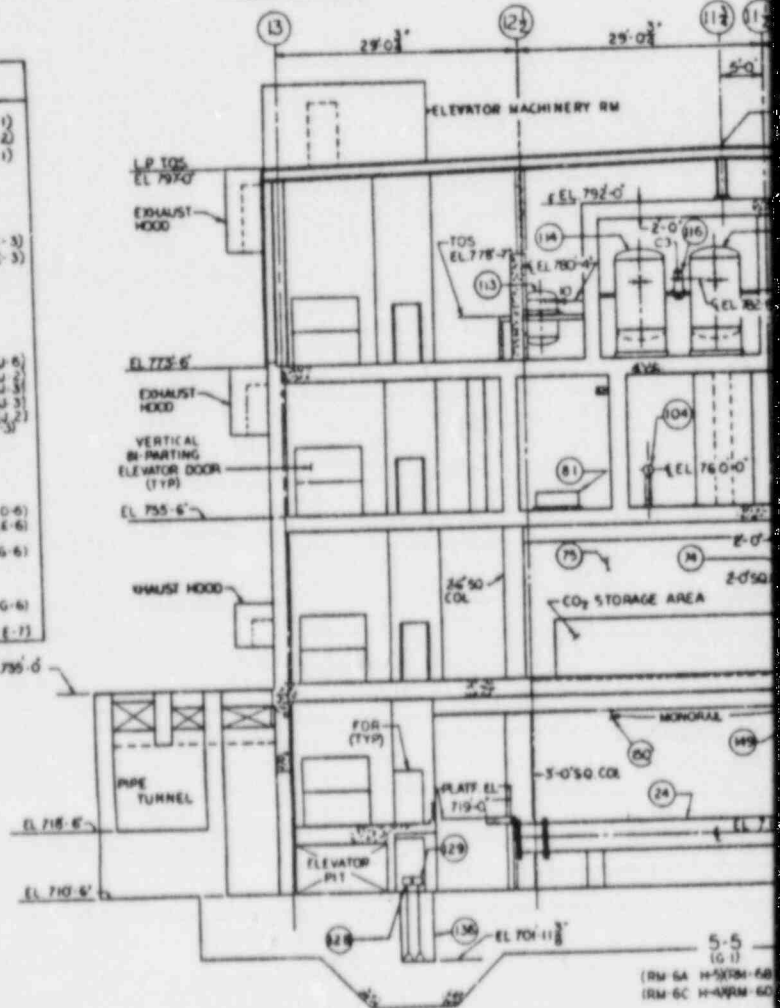
PLAN EL710-6

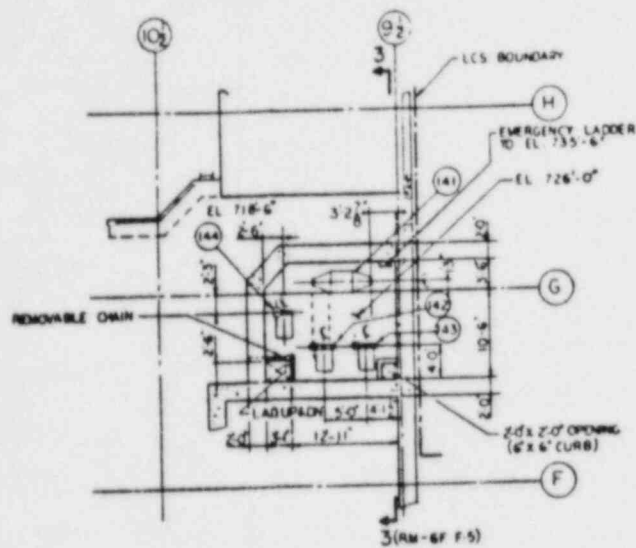
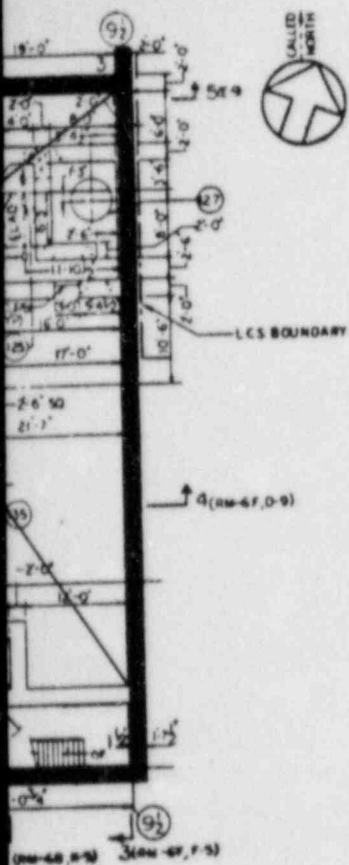


PLAN EL 710'-6"

LEGEND

ITEM NO.	MARK NO.	EQUIPMENT DESCRIPTION & LOCATION
125	ZDGS-P22A	PRIMARY DRAINS TRANSFER PUMP (F-1)
126	ZDGS-P22B	PRIMARY DRAINS TRANSFER PUMP (F-2)
127	ZDGS-TK22	PRIMARY DRAINS TRANSFER TANK (F-1)
128	ZDAS-P20301	SUMP PUMP (B-1)
129	ZDAS-P20302	SUMP PUMP (B-1)
130	ZDAS-P20303	SUMP PUMP (E-3)
131	ZDAS-P20304	SUMP PUMP (F-3)
132	ZSIS-P23A	BORON INJECTION RECIRC. PUMP (E-3)
133	ZSIS-P23B	BORON INJECTION RECIRC. PUMP (E-3)
134	ZSIS-TK22	BORON INJECTION TANK (D-3)
135	ZDAS-TK2030	SUMP PIT (E-3)
136	ZDAS-TK2030	SUMP PIT (B-1)
137	ZDAS-TK2030	SUMP PIT (B-3)
138	ZDAS-P20301	SUMP PUMP (B-3)
139	ZDAS-P20302	SUMP PUMP (B-3)
140	ZSIS-P22	POS. DISCH. HYDRO. TEST PUMP (U-6)
141	ZGWS-FIT-22	SWEEP GAS FILTER (U-2)
142	ZGWS-FN-22A	SWEEP GAS BLOWER (U-3)
143	ZGWS-FN-22B	SWEEP GAS BLOWER (U-3)
144	ZGWS-FN-23	ALTN. CONTMT. PURGE BLOWER (U-2)
145	ZHVS-HOOD-50	ELEVATED RELEASE GAS (RM-6) (U-2)
146	ZMHR-IRN-20	MONORAIL SYSTEM (RM-6C F-5)
147	ZMHR-IRN-22	MONORAIL SYSTEM (RM-6C H-7)
148	ZMHR-IRN-23	MONORAIL SYSTEM (RM-6C G-8)
149	ZMHR-IRN-203A	MONORAIL SYSTEM (RM-6A F-4)
150	ZMHR-IRN-203B	MONORAIL SYSTEM (RM-6A F-4)
151	ZSGC-RQ1-100	LIQUID WASTE PROCESS EFFL. (RM-6A D-6)
152	ZSGC-RQ1-101	REACTOR COOLANT LETDOWN (RM-6B E-6)
153	ZCEP-RQ1-100	COMPONENT COOLING (RM-6A G-6)
154	ZSNA-RQ1-100	AUXILIARY STEAM CONDENSATE (RM-6A G-6)
155	ZSNA-RQ1-100	STEAM GEN. BLOWDOWN SAMPLE (RM-6A E-7)

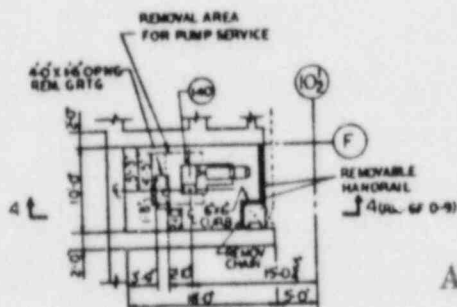




PART PLAN EL 726'-0"

NOTE
1. ACCIDENT TYPE - HELB, MEPC.

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PART PLAN EL 726'-6"

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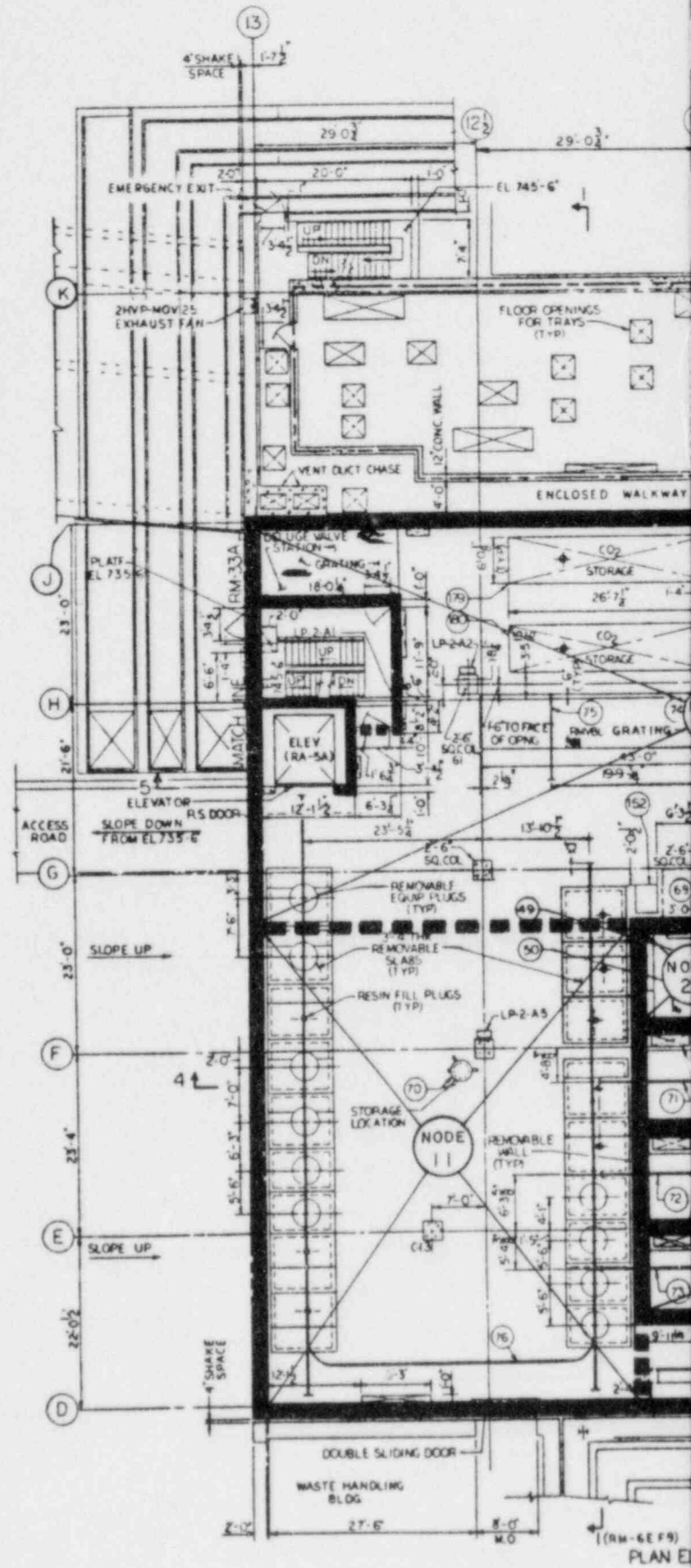
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FIGURE 3.11-3B
AUXILIARY BUILDING
HIGH ENERGY LINE BREAK NODES
EL. 710'-6"
BEAVER VALLEY POWER STATION - UNIT 2
FINAL SAFETY ANALYSIS REPORT

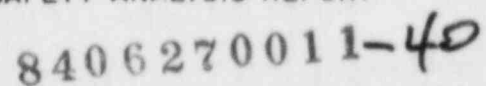
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LEGEND

ITEM NO	MARK NO	EQUIPMENT DESCRIPTION & LOCATION
46	2CCP-P21A	CCW PUMP (F-4)
47	2CCP-P21B	CCW PUMP (F-4)
48	2CCP-P21C	CCW PUMP (G-4)
49	2OHS-E21	SEAL WATER HEAT EXCHANGER (E-5)
50	2OHS-E22	NON-REGENERATIVE HT EXCH-6
51	2OHS-P21A	CHARGING PUMP (F-7)
52	2OHS-P21B	CHARGING PUMP (F-8)
53	2OHS-P21C	CHARGING PUMP (F-7)
54	2OHS-E22A	DEGASIFIER (H-6) RV 71
55	2OHS-FLT24A	GASEOUS WASTE FILTER (H-6)
56	2OHS-FLT24B	GASEOUS WASTE FILTER (H-6)
57	2OHS-E25A	DEGASIFIER TRIM COOLER (G-6)
58	2OHS-FLT25	GASEOUS WASTE FILTER (H-6)
59	2OHS-E25B	DEGASIFIER (H-7) RV 71
60	2MHP-CRN-235	MONORAIL SYSTEM (G-5)
61	2MHP-CRN-236	MONORAIL SYSTEM (H-8)
62	2OHS-E27B	DEGASIFIER TRIM COOLER (G-7)
63	2OHS-AE21	BORONOMETER (RM-6A F-6)
64	2OHS-OA100B	OXYGEN ANALYZER (G-7)
65	2OHS-TK22A	WASTE GAS CHARCOAL BED (G-7)
66	2OHS-TK22B	WASTE GAS CHARCOAL BED (G-7)
67	2OHS-TK22C	WASTE GAS CHARCOAL BED (H-7)
68	2OHS-TK22D	WASTE GAS CHARCOAL BED (H-7)
69	2SIS-TK23	BORON INJEC SURGE TANK (F-6)
70	2OHS-TK24	RESIN FILL TANK (D-7)
71	2MHP-CRN-237	MONORAIL SYSTEM (F-6)
72	2MHP-CRN-238	MONORAIL SYSTEM (F-7)
73	2MHP-CRN-239	MONORAIL SYSTEM (F-8)
74	2MHP-CRN-240	MONORAIL SYSTEM (F-5)
75	2MHP-CRN-241	MONORAIL SYSTEM (E-5)
76	2MHP-CRN-242	MONORAIL SYSTEM (E-8 D 7, D-8)
77	2MHP-CRN-243	MONORAIL SYSTEM (G-4)
78	2OHS-OA100A	OXYGEN ANALYZER (G-7)

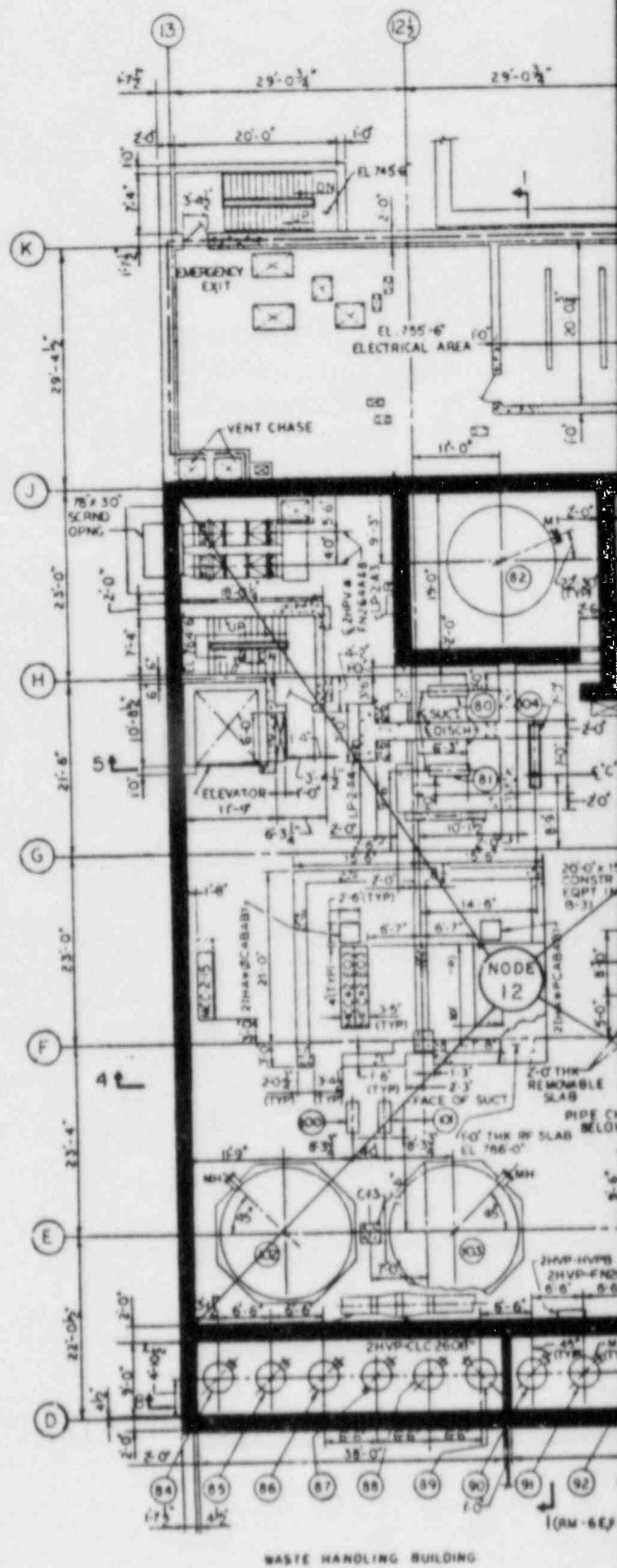


PLAN E



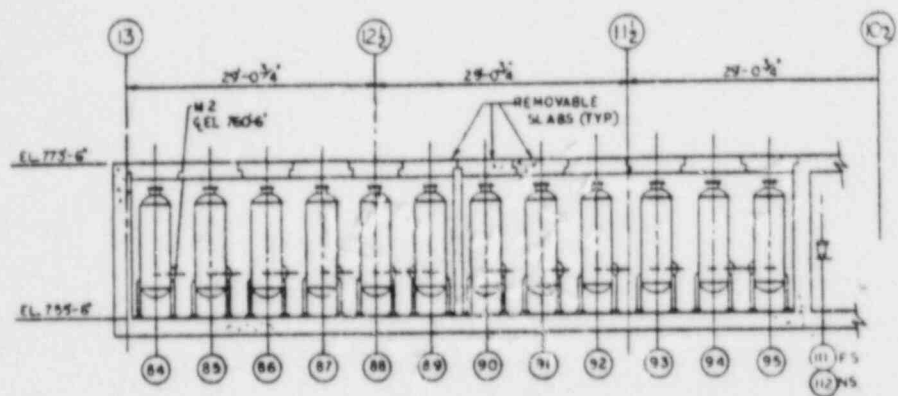
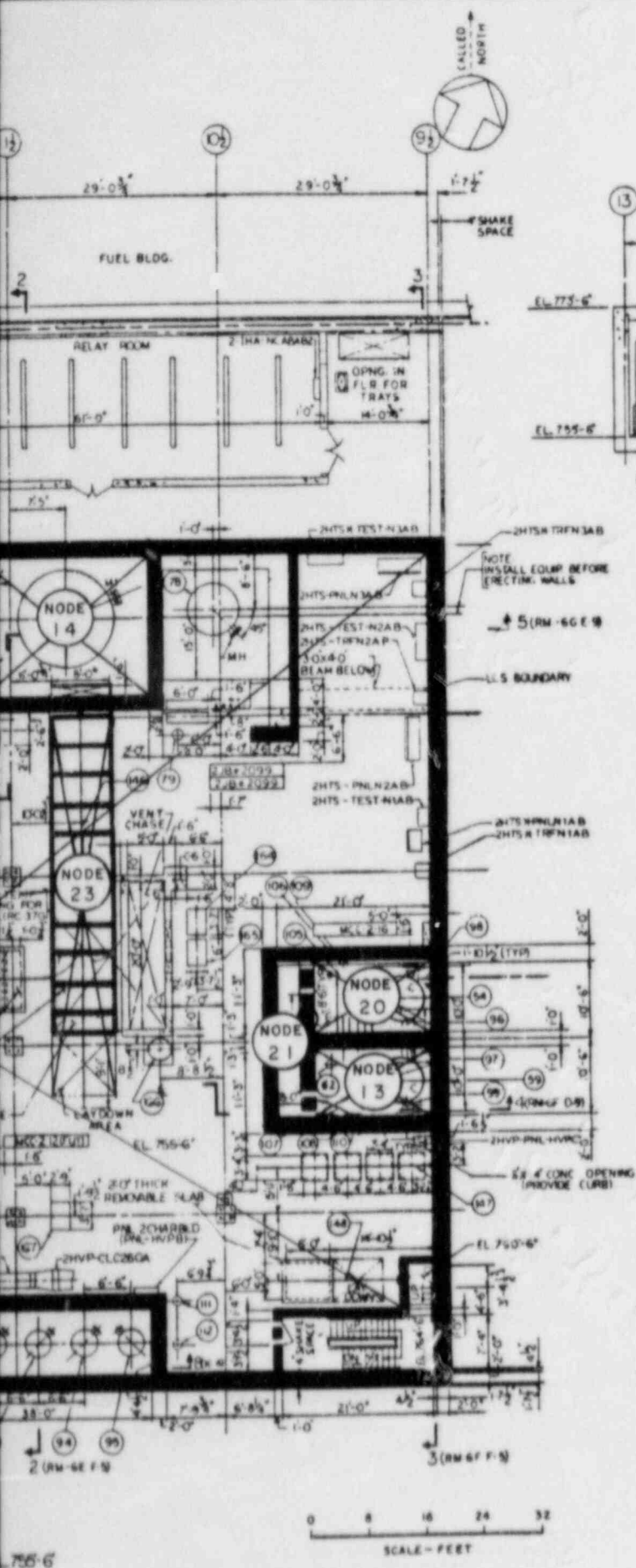
LEGEND

ITEM NO	MARK NO.	EQUIPMENT DESCRIPTION & LOCATION
78	2CHS-TK22	VOLUME CONTROLLING TANK (F-4)
79	2CHS-TK23	CHEMICAL MIXING TANK (F-5)
80	2CHS+P22A	BORIC ACID TRANSFER PUMPS (E-3)
81	2CHS+P22B	BORIC ACID TRANSFER PUMPS (E-3)
82	2CHS+TK28A	BORIC ACID TANK (E-4)
83	2CHS+TK21B	BORIC ACID TANK (F-4)
84	2GWS-TK23A	CHARCOAL DELAY BEDS (C-8)
85	2GWS-TK23B	CHARCOAL DELAY BEDS (C-8)
86	2GWS-TK23C	CHARCOAL DELAY BEDS (D-8)
87	2GWS-TK23D	CHARCOAL DELAY BEDS (D-8)
88	2GWS-TK23E	CHARCOAL DELAY BEDS (D-8)
89	2GWS-TK23F	CHARCOAL DELAY BEDS (E-8)
90	2GWS-TK23G	CHARCOAL DELAY BEDS (E-8)
91	2GWS-TK23H	CHARCOAL DELAY BEDS (E-8)
92	2GWS-TK23J	CHARCOAL DELAY BEDS (E-8)
93	2GWS-TK23K	CHARCOAL DELAY BEDS (F-8)
94	2GWS-TK23L	CHARCOAL DELAY BEDS (F-8)
95	2GWS-TK23M	CHARCOAL DELAY BEDS (F-8)
96	2BMS-E22A	DEGASIFIER VENT CONDENSER (H-6)
97	2BMS-E22B	DEGASIFIER VENT CONDENSER (H-7)
98	2BMS-E22A	DEGASIFIER VENT CHILLER (H-6)
99	2BMS-E22B	DEGASIFIER VENT CHILLER (H-7)
100	2SGC-P26A	TEST TANK PUMP (D-7)
101	2SGC-P26B	TEST TANK PUMP (D-7)
102	2SGC-TK23A	TEST TANK (D-7)
103	2SGC-TK23B	TEST TANK (D-7)
104	2GWS-E-22	AIR EJECTOR VENT CHILLER (H-5)
105	2BMS-E2MA1	DEGASIFIER RECOVERY EXCH (H-6)
106	2BMS-E2MA2	DEGASIFIER RECOVERY EXCH (H-6)
107	2BMS-E2MB1	DEGASIFIER RECOVERY EXCH (H-7)
108	2BMS-E2MB2	DEGASIFIER RECOVERY EXCH (H-7)
109	2GWS-E21A	WASTE GAS CHILLER (H-6)
110	2GWS-E21B	WASTE GAS CHILLER (H-6)
111	2GWS-FIT23A	AIR EJECTOR VENT FILTER (F-8)
112	2GWS-FIT23B	AIR EJECTOR VENT FILTER (F-8)
158	2BMP-AQ1302	AUXILIARY BLDG 718B (RM-68 F-6) AIRBORNE
159	2BMP-AQ1304	AUXILIARY BLDG 718C (RM-68 F-6) AIRBORNE
160	2GWS-AQ1303	AERATED VENT TRANS LINE (RM-68 G-6)
161	2BMP-AQ1306	AUXILIARY BLDG 735A (RM-68 G-6) AIRBORNE
162	2BMP-AQ1308	AUXILIARY BLDG 735B (RM-68 G-6) AIRBORNE
163	2BMP-AQ1306	AUXILIARY BLDG 718A (RM-68 G-6) AIRBORNE
164	2BMP-AQ1380	AUXILIARY BLDG 755A (G-6) AIRBORNE
165	2BMP-AQ1382	AUXILIARY BLDG 755B (G-6) AIRBORNE
166	2HVS-TK21	SEAL TANK (F-6)
167	2GWS-AQ1302	AIR EJECTOR DELAY BED EXHAUST (F-6)
168	2BMP-AQ1301	FUEL BLDG VENT (RM-60 F-4) AIRBORNE
169	2HVS-AQ1307	ELEVATED RELEASE (RM-60 F-4) MONITOR
170	2BMP-AQ1301	LEAK COLLECTION VENTILATION AIRBORNE (RM-60 G-4)
171	2HVS-AQ1301	VENTILATION VENT (RM-60 H-5) MONITOR
172	2BMP-AQ1303	WASTE HANDLING BLDG (RM-60 F-8) AIRBORNE
173	2ASS-E24A	CO2 REBOILER OR CLR (RM-6A G-8)
174	2ASS-E24B	CO2 REBOILER OR CLR (RM-6A H-8)
175	2OBS-P28	SUMP PUMP (G-3)
176	2OBS-P29	SUMP PUMP (G-3)
177	2SWS-AQ1101	COMPONENT COOLING SERVICE WATER (RM-6A G-6)
178	2SWS-AQ1102	COMPONENT COOLING HEAT EXCH. SERVICE WATER (RM-6A G-9)
179	2FFU-TK22	CO2 STORAGE TANK (RM-6B E-4)
180	2FFU-TK23	CO2 STORAGE TANK (RM-6B E-4)

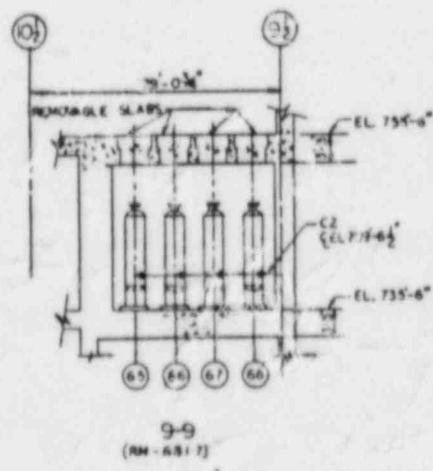


WASTE HANDLING BUILDING

PLAN



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NOTES

1. ACCIDENT TYPE - HELB, MEPC

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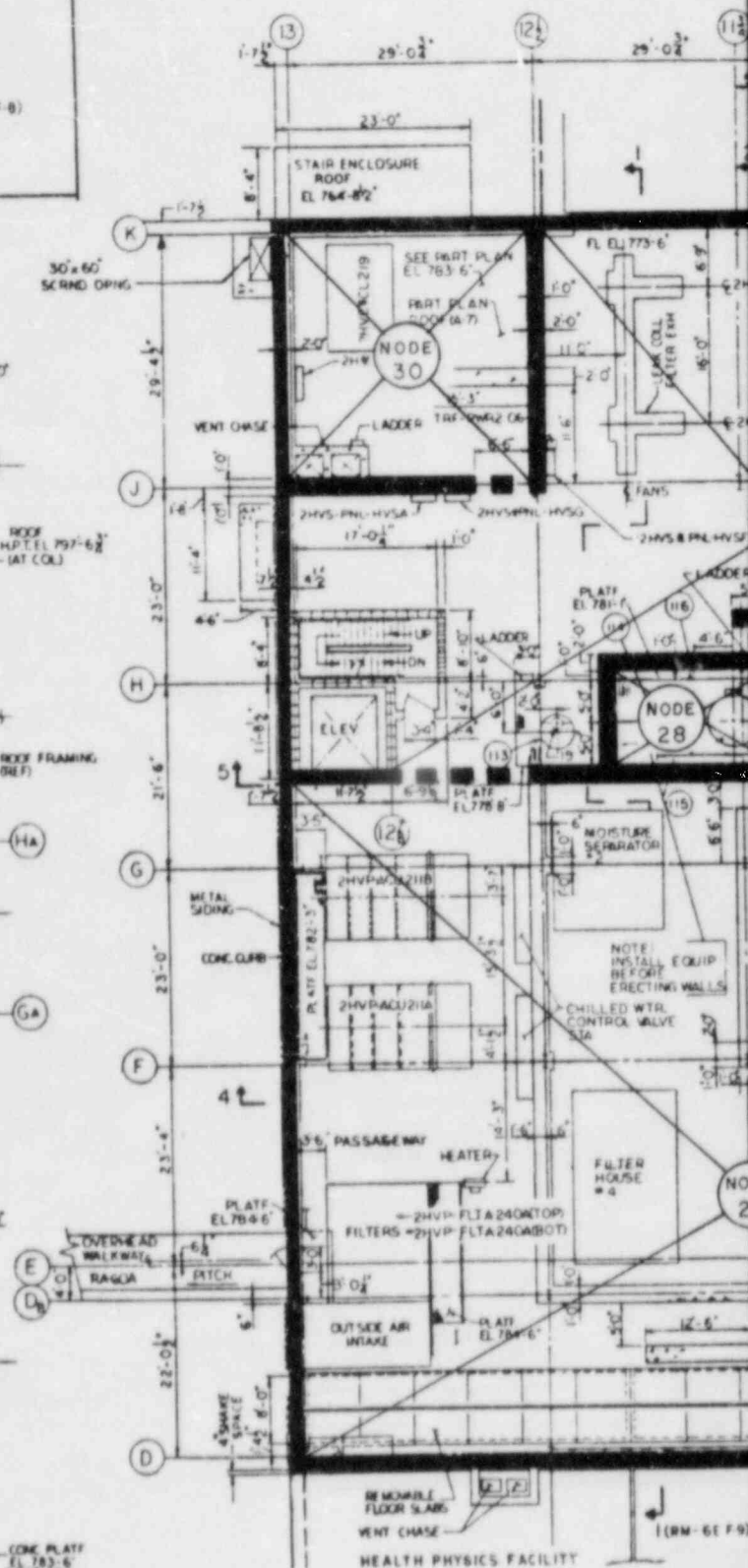
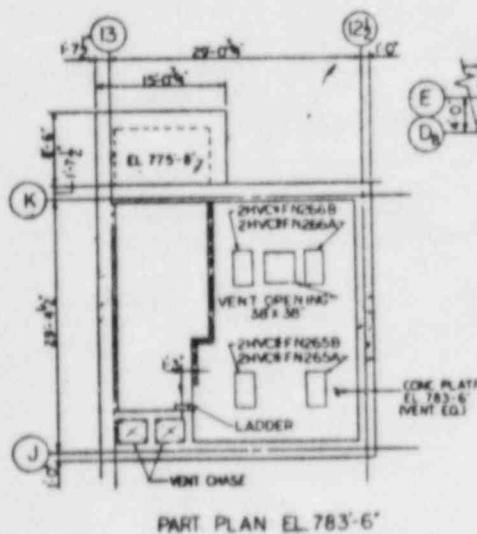
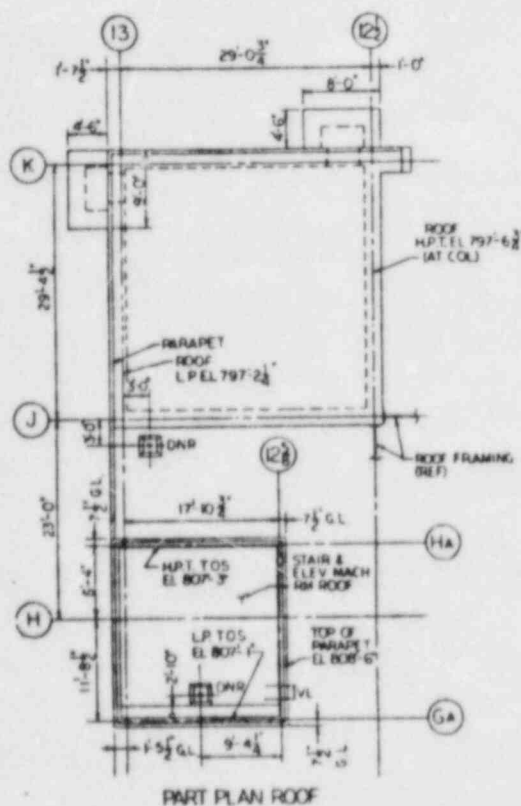
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**FIGURE 3.11-3D
AUXILIARY BUILDING
HIGH ENERGY LINE BREAK NODES
EL. 755'-6"
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT**

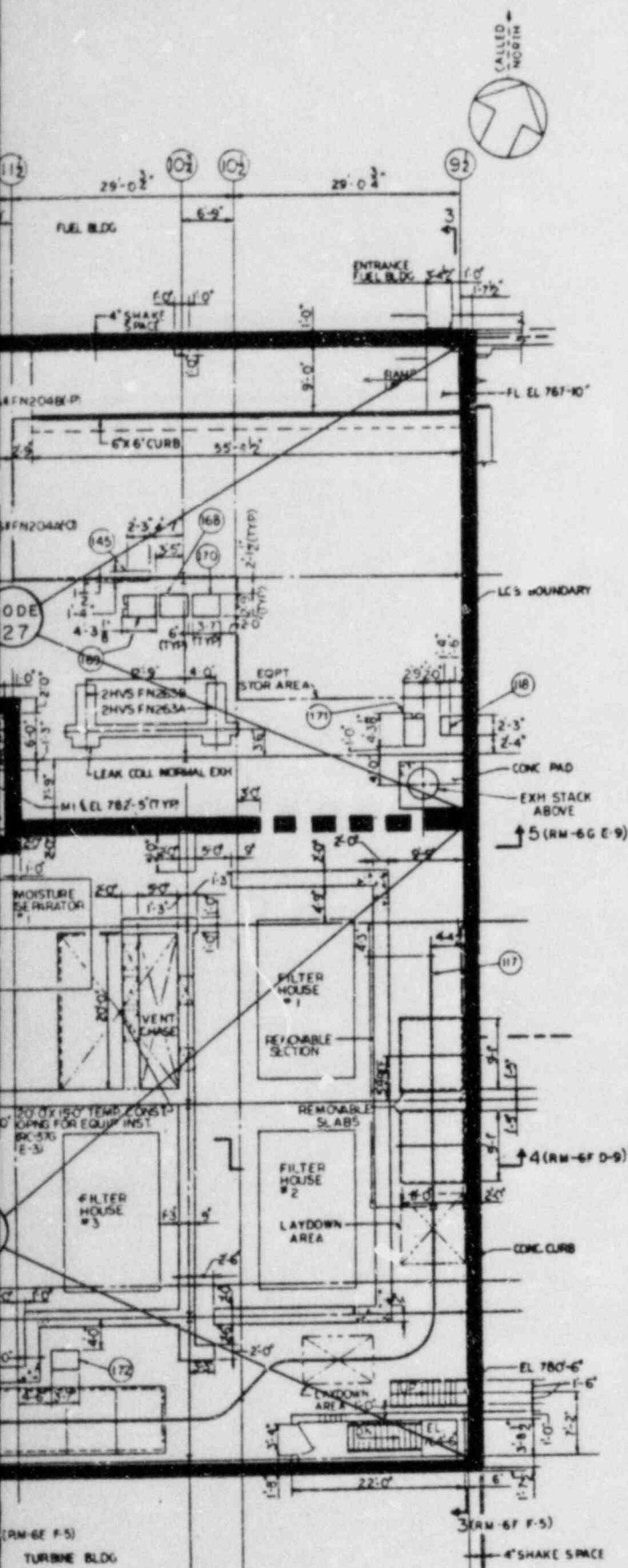
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LEGEND

ITEM NO	MARK NO	EQUIPMENT DESCRIPTION & LOCATION
113	2CHS 1K 25	BASIC ACID BATCHING TANK (E-5)
114	2CCP-TK21A	COMPONENT COOLING SURGE TANK (E-5)
115	2CCP-TK21B	COMPONENT COOLING SURGE TANK (E-5)
116	2CCP-TK22	CHEMICAL ADDITION TANK (E-5)
117	2MNH-CRN-225	MONORAIL SYSTEM (RM-6)
118	2HVS-402/203	VENTILATION VENT GAS
119	2MNH-CRN-211	MONORAIL SYSTEM (RM-6A)
120	2MNH-CRN-212	MONORAIL SYSTEM (RM-6A)
121	2SSA-PNL-21	SAMPLE PANEL (RM-6A)
122	2SSA-PNL-21	CONDITIONING RACK (RM-6A)
123	2SSA-PNL-21	SECONDARY SAMPLE CHILLER (RM-6A)
124	2MNH-CRN-213	MONORAIL SYSTEM (RM-6A)



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NOTE
1. ACCIDENT TYPE - HELB

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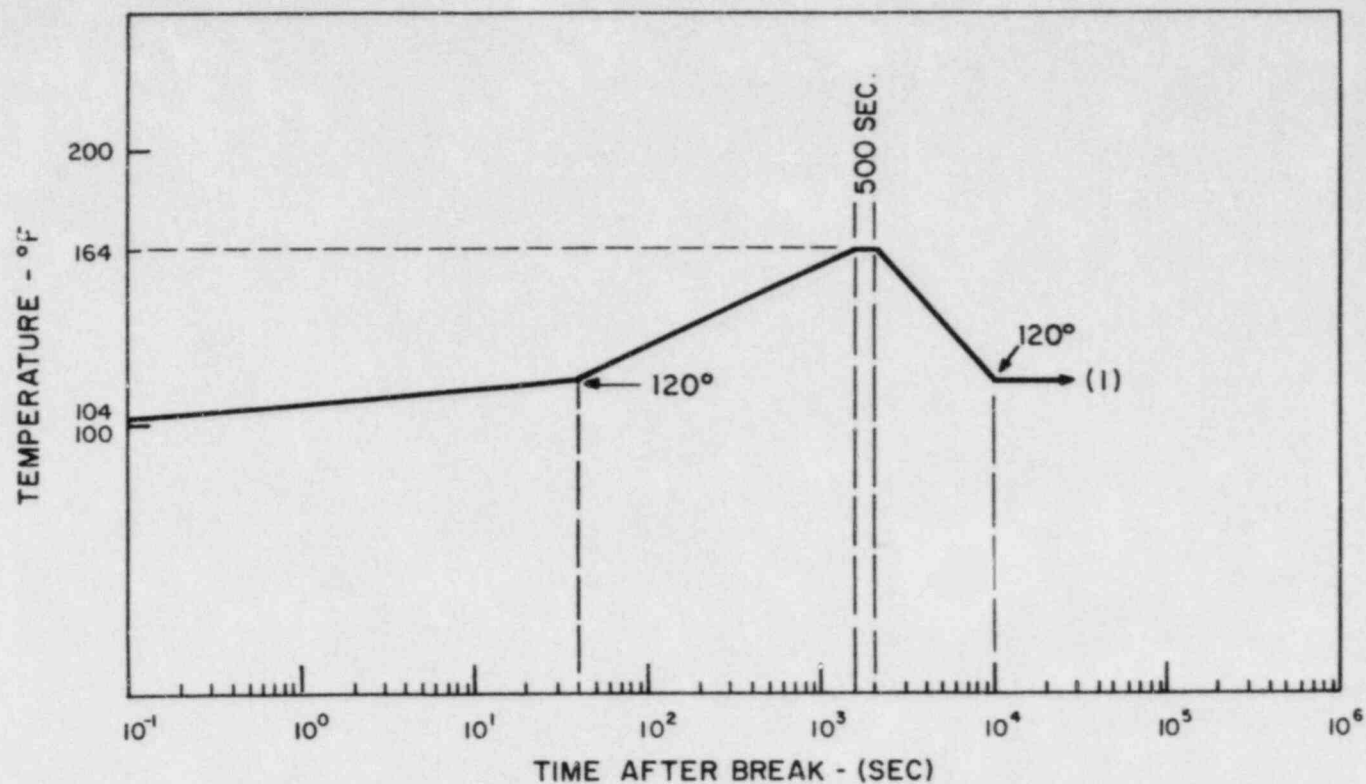
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FIGURE 3.11-3E
AUXILIARY BUILDING
HIGH ENERGY LINE BREAK NODES
EL. 773'-6"
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT

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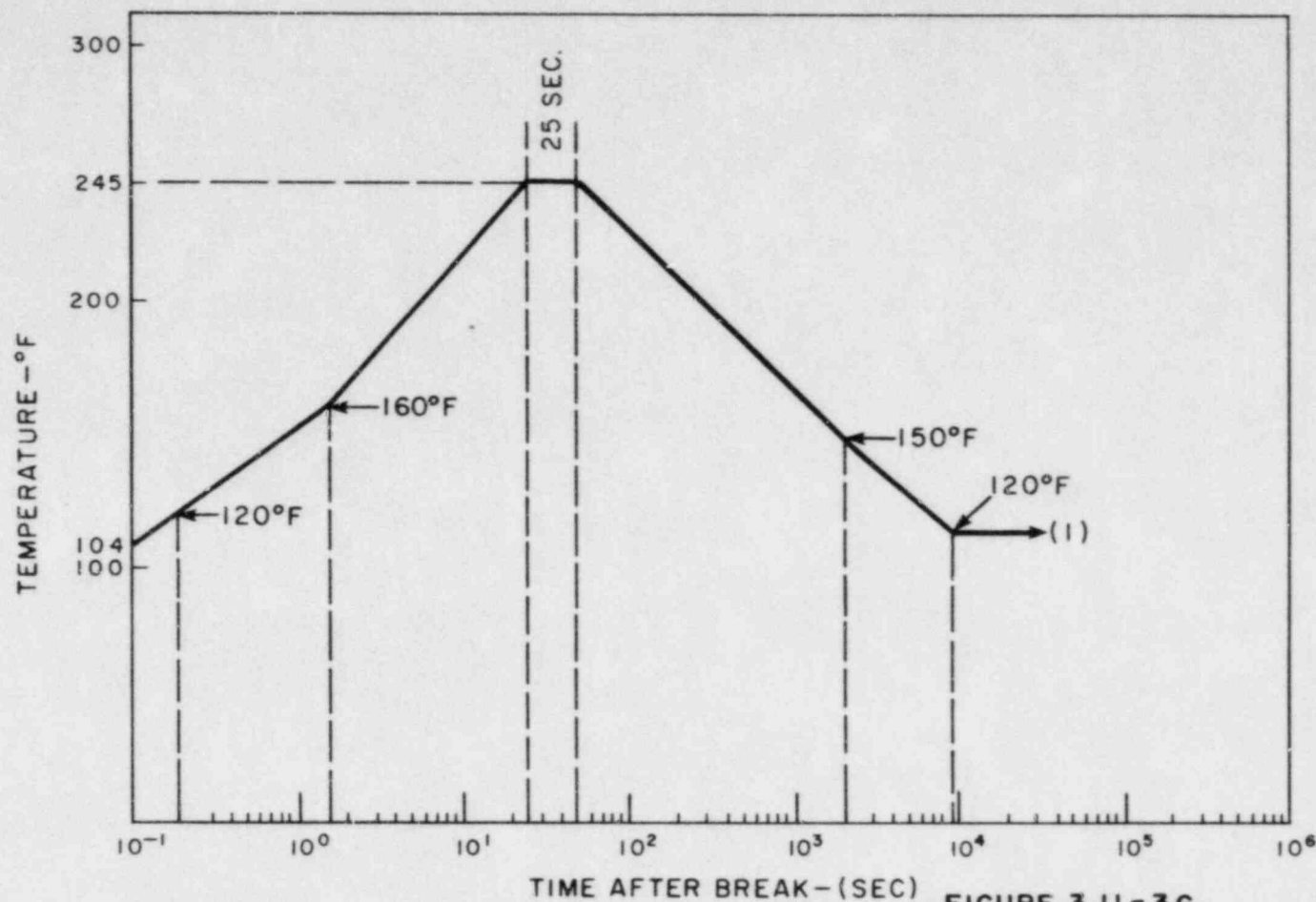


NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 120°F FOR AS LONG AS THE COMPONENT MUST OPERATE.

2. ACCIDENT TYPE - HELB

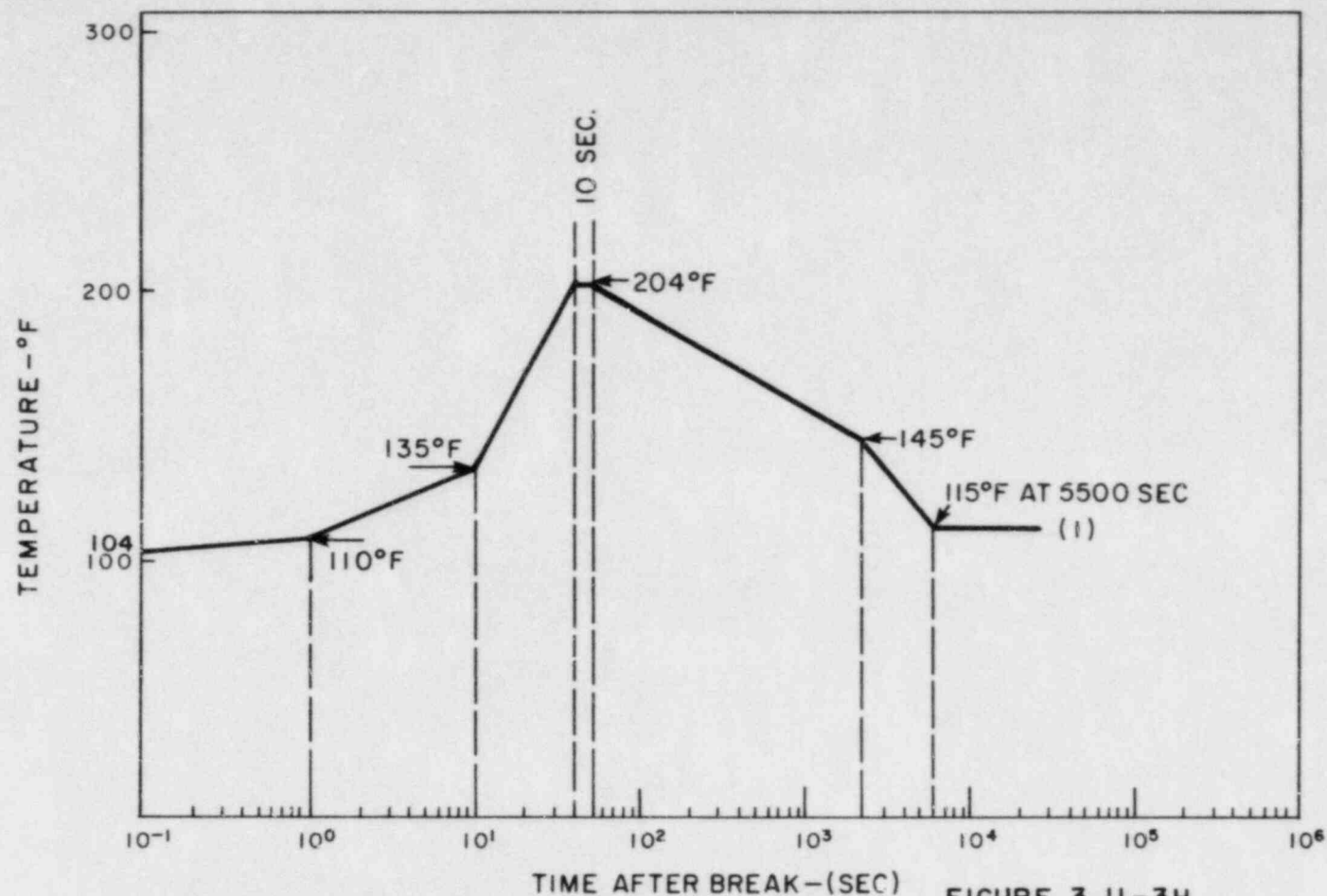
FIGURE 3.11-3F
AUXILIARY BUILDING NODE 1
EL. 710'-6" & 718'-6"
TEMPERATURE TRANSIENTS -
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION - UNIT 2
FINAL SAFETY ANALYSIS REPORT



NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 120°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
2. ACCIDENT TYPE - HELB

FIGURE 3.11-3G
AUXILIARY BUILDING NODE 3
EL. 718'-6"
TEMPERATURE TRANSIENTS—
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION—UNIT 2
FINAL SAFETY ANALYSIS REPORT

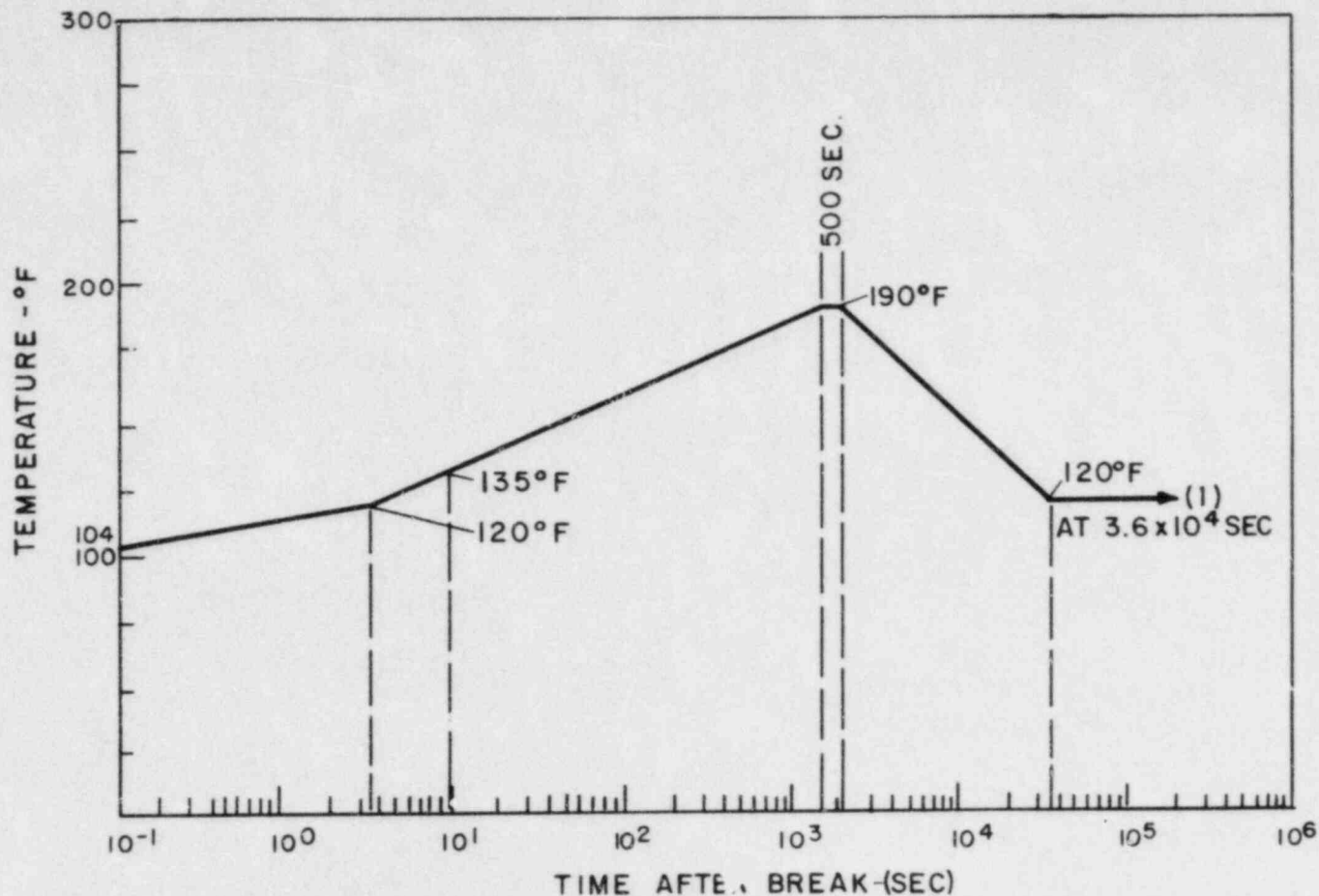


NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 115°F FOR AS LONG AS THE COMPONENT MUST OPERATE.

2. ACCIDENT TYPE - HELB

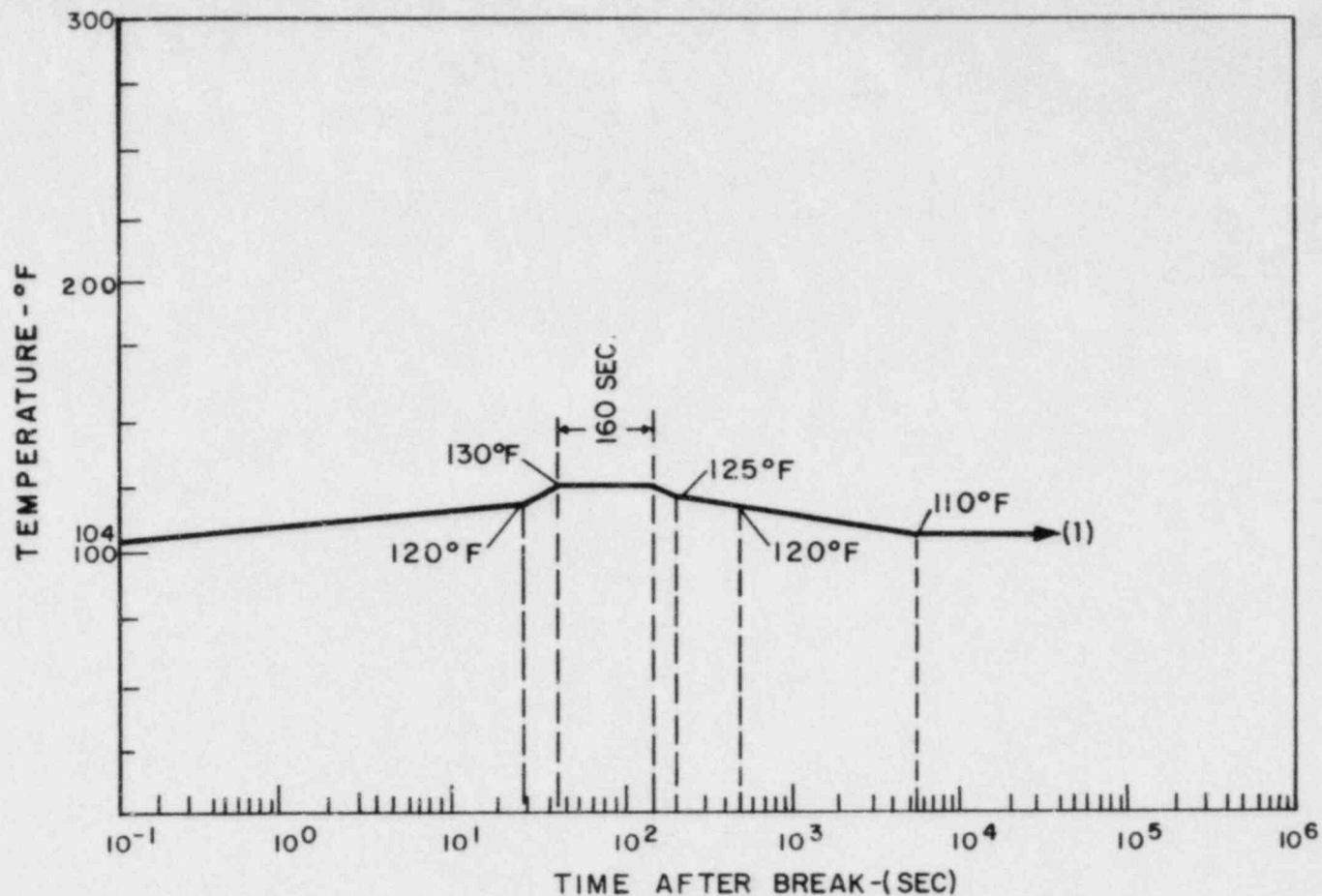
FIGURE 3.11-3H
AUXILIARY BUILDING NODE 4
EL. 718'-6"
TEMPERATURE TRANSIENTS-
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT



NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 120°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
2. ACCIDENT TYPE - HELB

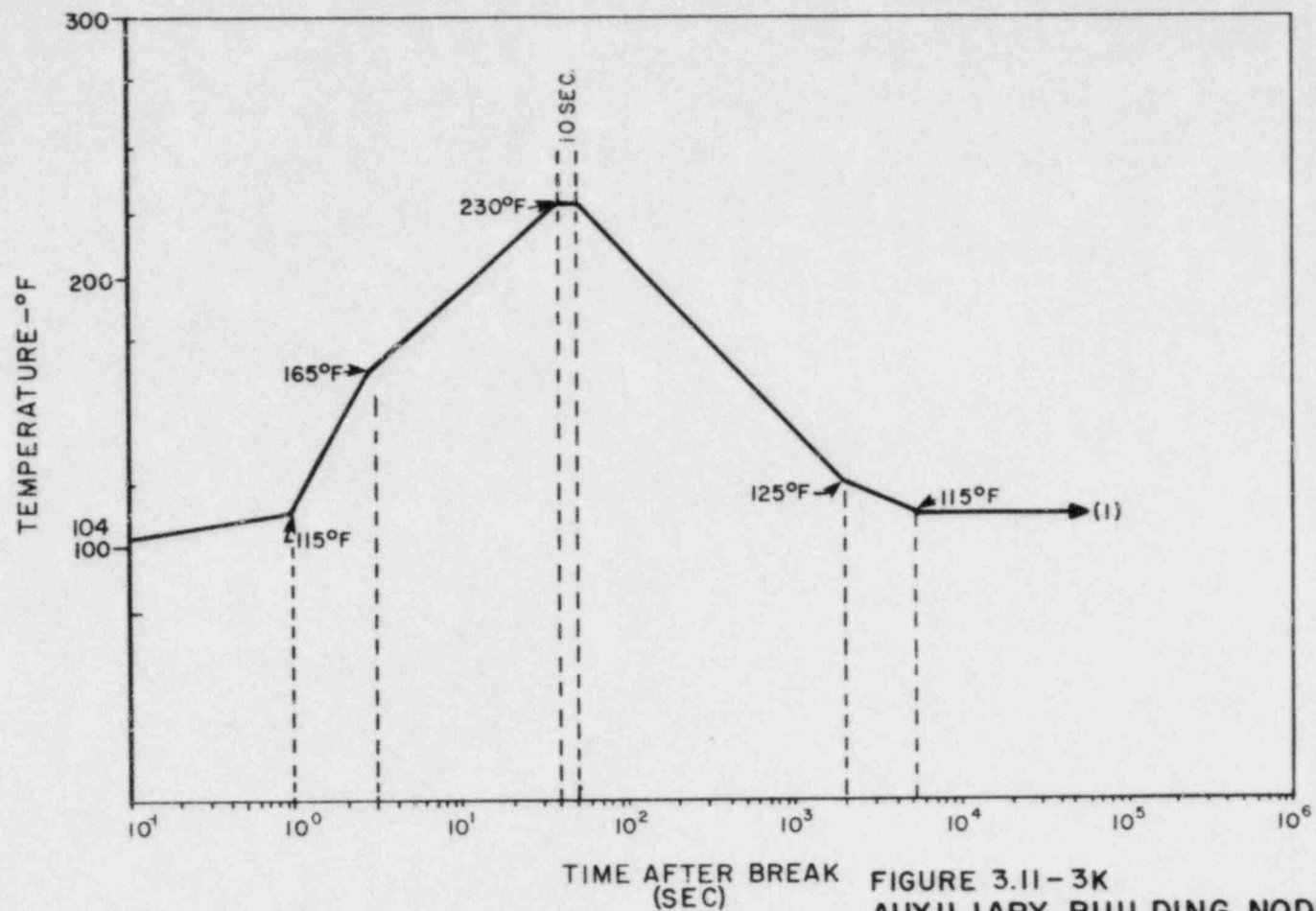
FIGURE 3.11-3I
 AUXILIARY BUILDING NODE 6
 EL. 710'-6"
 TEMPERATURE TRANSIENTS-
 EQUIPMENT QUALIFICATION
 BEAVER VALLEY POWER STATION-UNIT 2
 FINAL SAFETY ANALYSIS REPORT



NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 110°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
2. ACCIDENT TYPE - HELB

FIGURE 3.11-3J
 AUXILIARY BUILDING NODE 8
 EL. 735'-6"
 TEMPERATURE TRANSIENTS-
 EQUIPMENT QUALIFICATION
 BEAVER VALLEY POWER STATION-UNIT 2
 FINAL SAFETY ANALYSIS REPORT

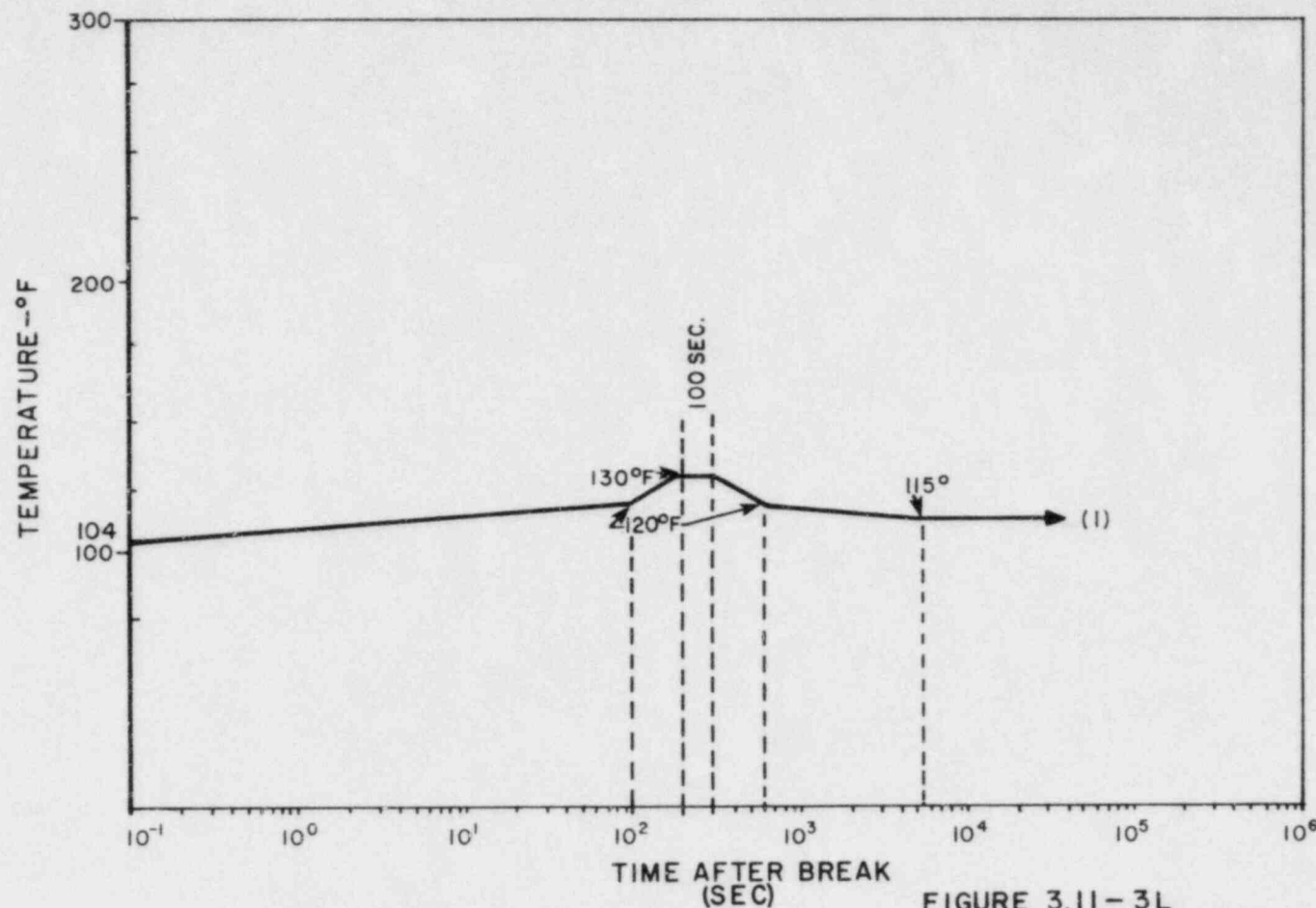


NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 115°F FOR AS LONG AS THE COMPONENT MUST OPERATE.

2. ACCIDENT TYPE - HELB

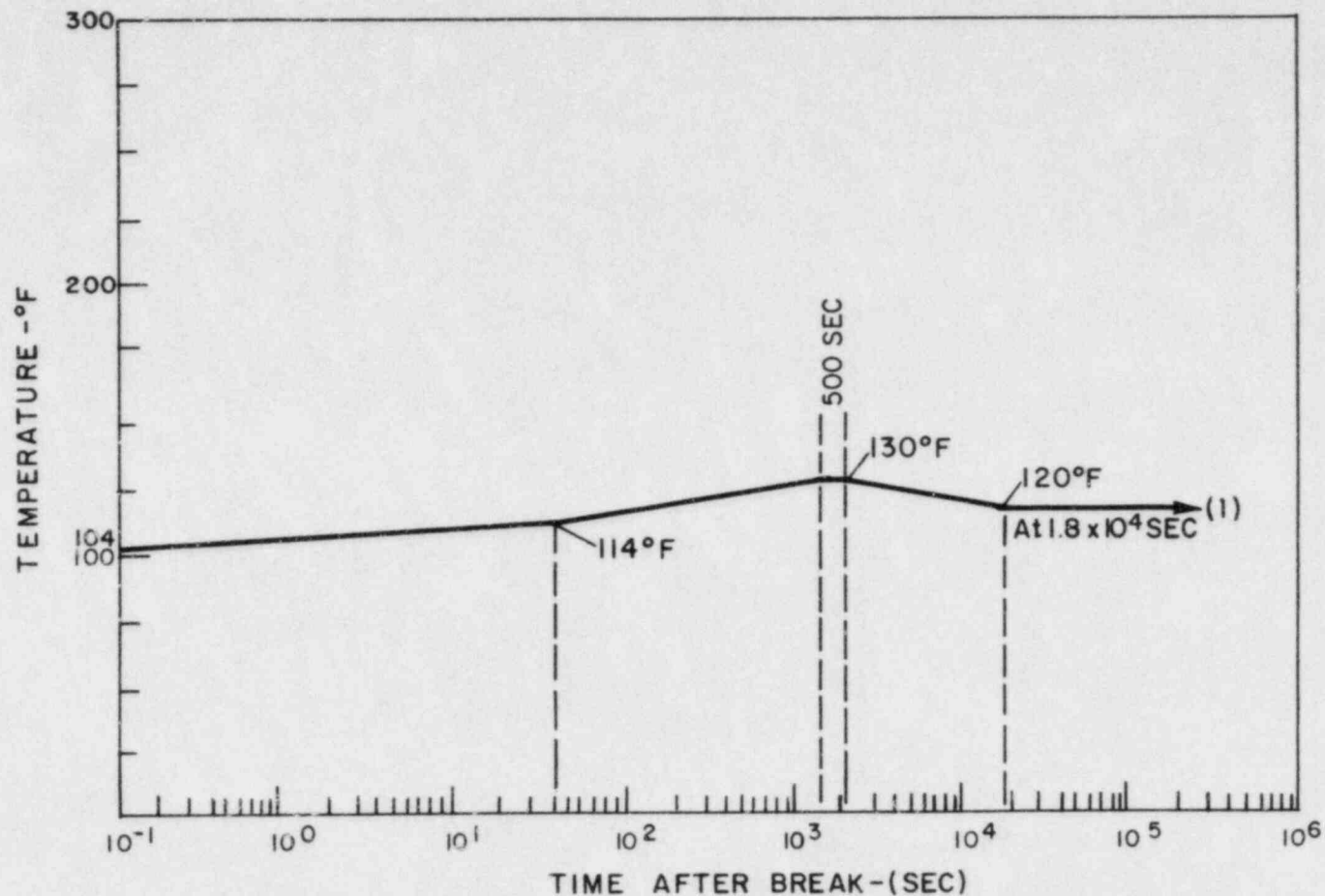
FIGURE 3.11-3K
AUXILIARY BUILDING NODE 9
EL. 735'-6"
TEMPERATURE TRANSIENTS-
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT



NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 115°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
2. ACCIDENT TYPE - HELB

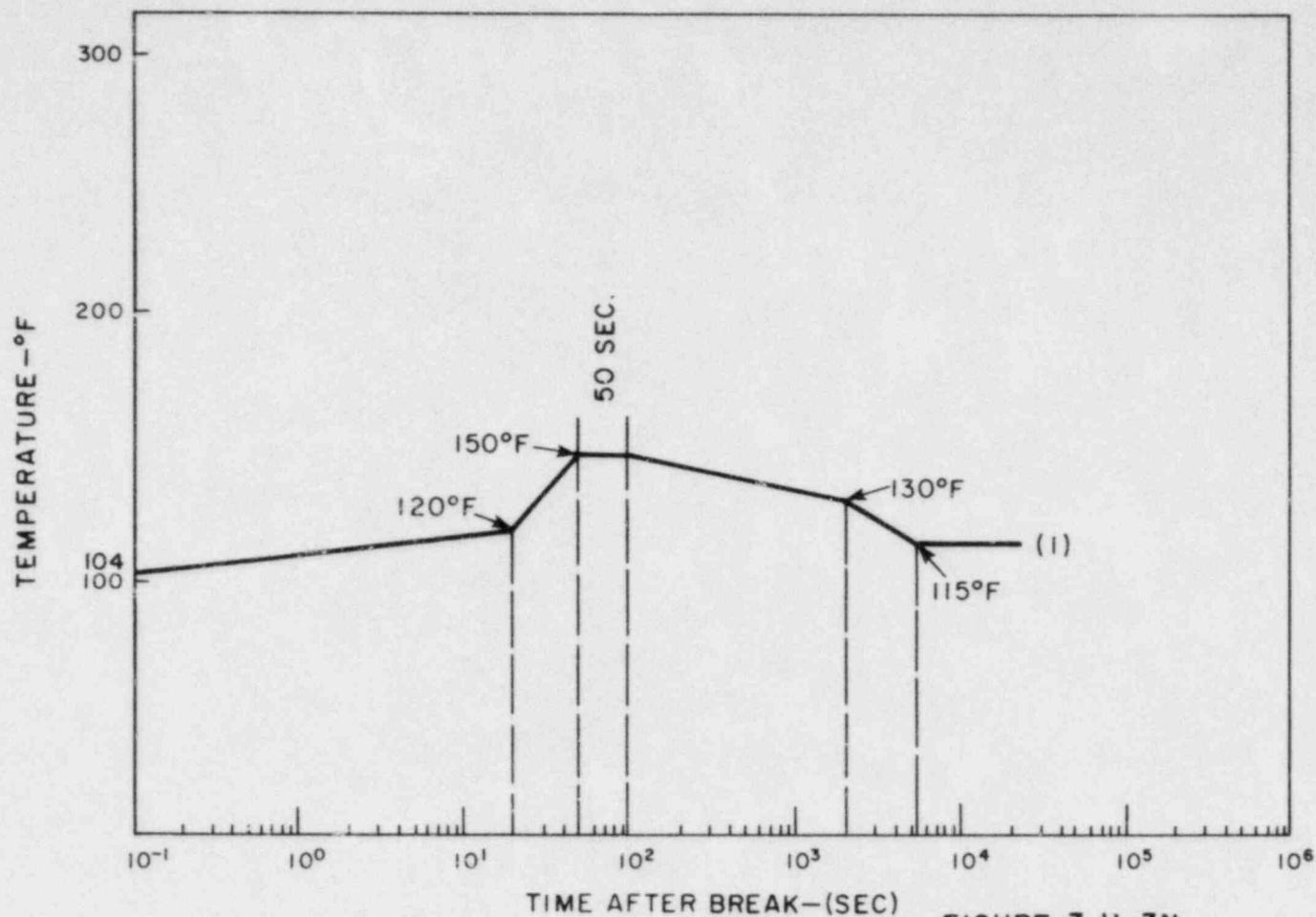
FIGURE 3.11-3L
AUXILIARY BUILDING NODE 12
EL. 755'-6"
TEMPERATURE TRANSIENTS-
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT



NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 120°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
2. ACCIDENT TYPE-HELB

FIGURE 3.11-3M
 AUXILIARY BUILDING NODE 22
 EL. 735'-6"
 TEMPERATURE TRANSIENTS-
 EQUIPMENT QUALIFICATION
 BEAVER VALLEY POWER STATION-UNIT 2
 FINAL SAFETY ANALYSIS REPORT

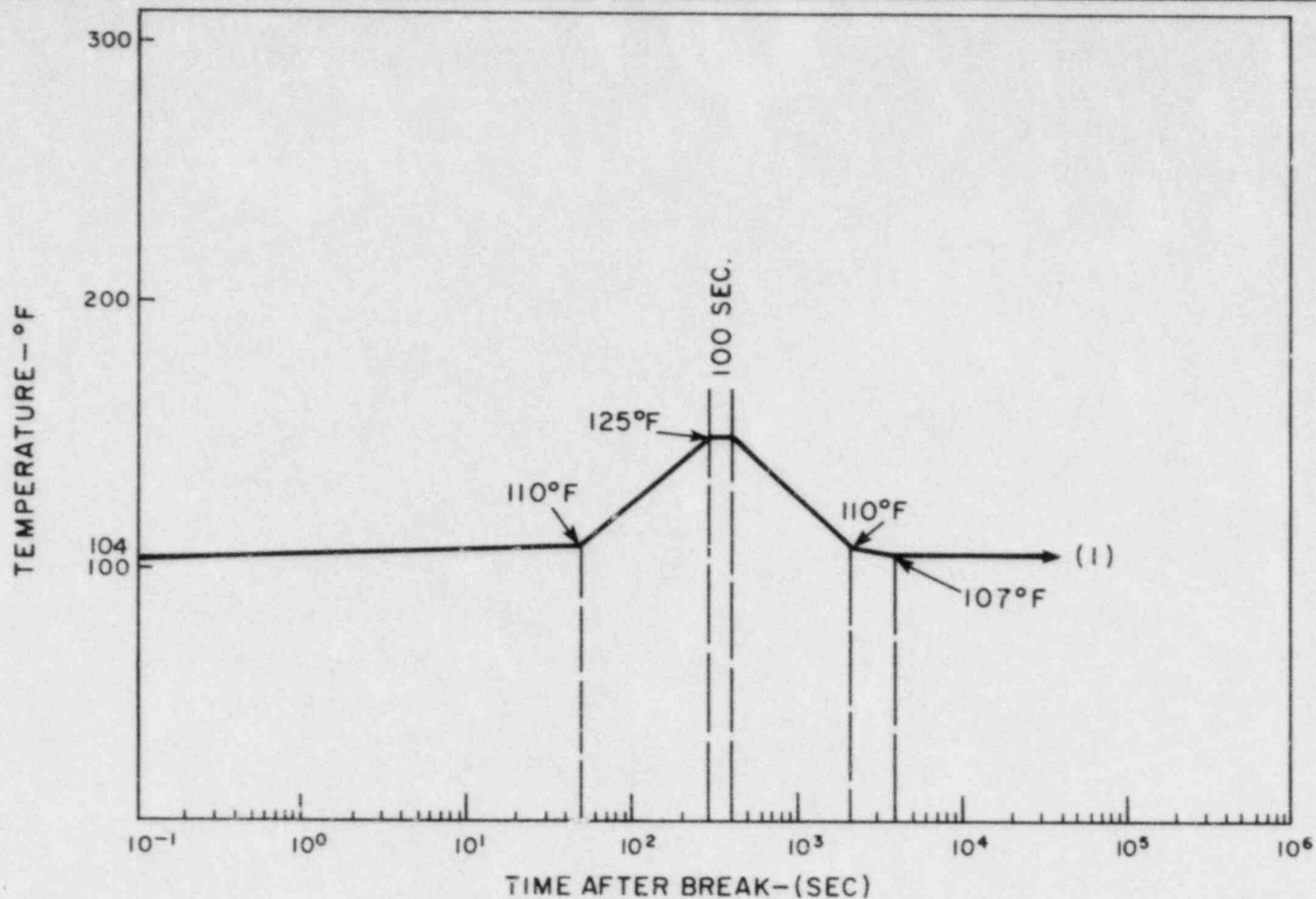


NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE
CONSTANT AT 115°F FOR AS LONG AS THE
COMPONENT MUST OPERATE.

2. ACCIDENT TYPE-HELB

FIGURE 3.11-3N
AUXILIARY BUILDING NODE 24
EL. 735'-6"
TEMPERATURE TRANSIENTS-
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT



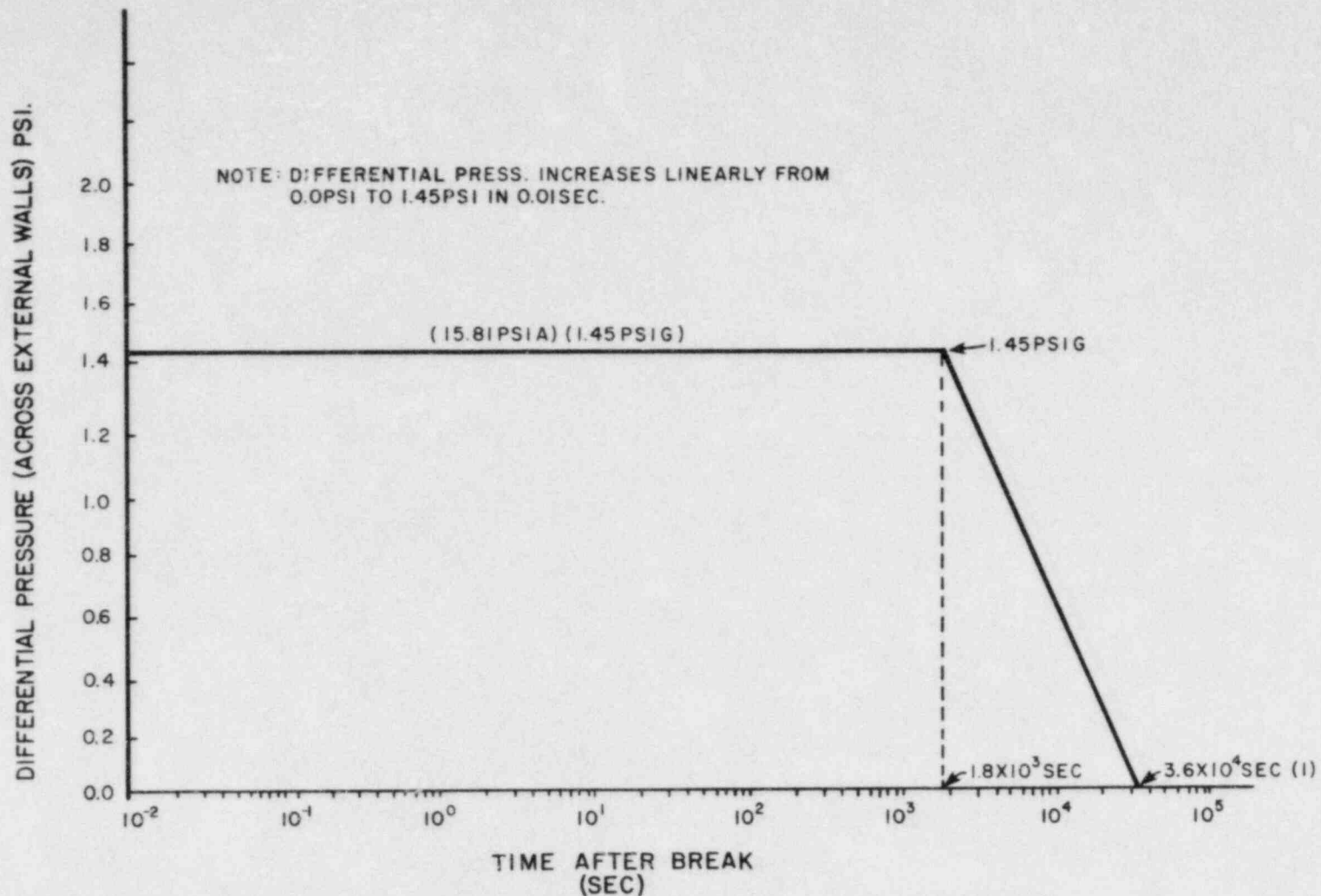
NOTE:

1. BEYOND THIS POINT TEMPERATURE WILL BE CONSTANT AT 107°F FOR AS LONG AS THE COMPONENT MUST OPERATE.

2. ACCIDENT TYPE-HELB

FIGURE 3.11-30
AUXILIARY BUILDING
NODES 27,28,29 & 30 EL. 773'-6"
TEMPERATURE TRANSIENTS-
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT

Figure 3.11-3P has been deleted.

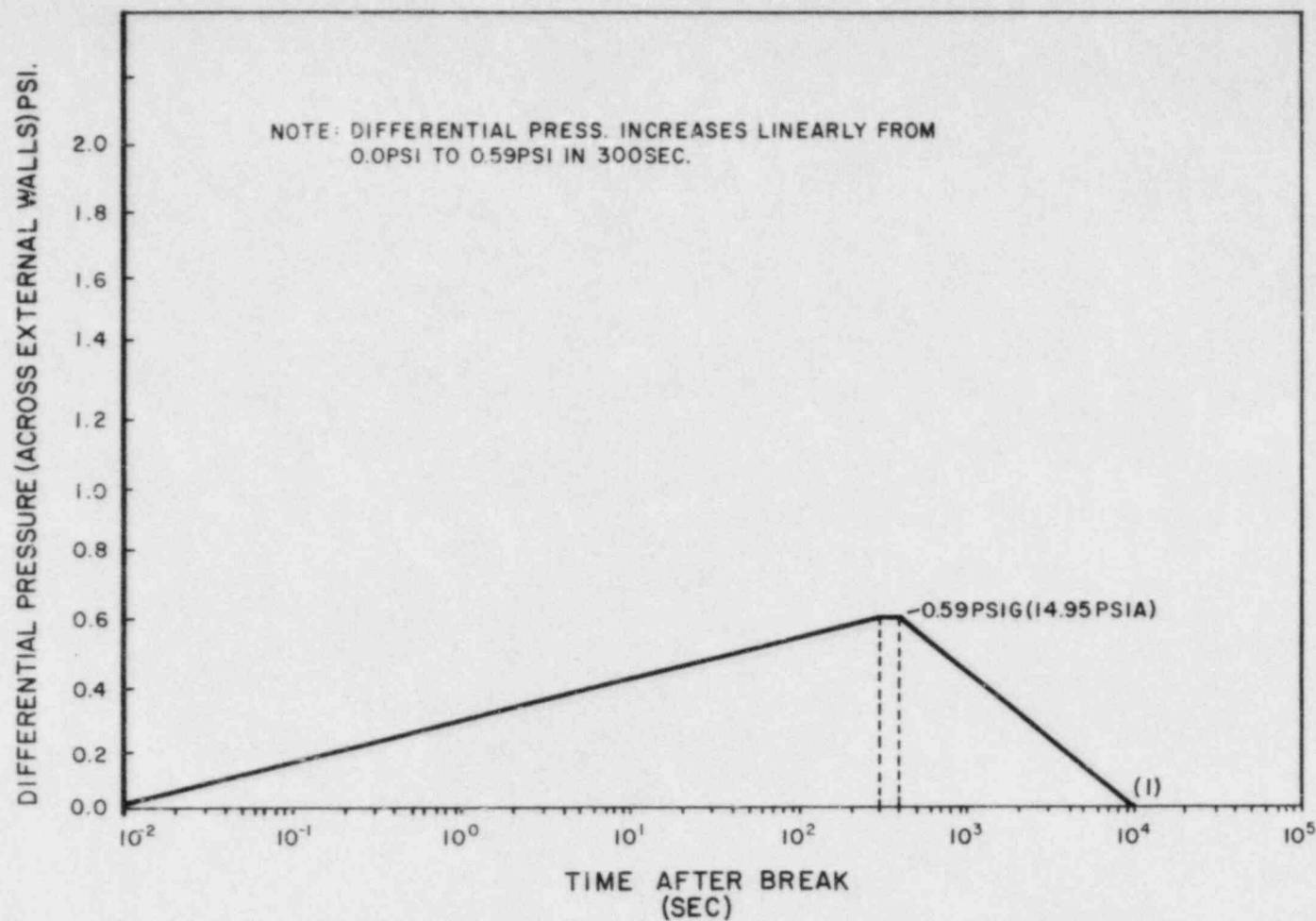


NOTE:

1. BEYOND THIS POINT PRESSURE WILL BE CONSTANT AT 14.36PSIA FOR AS LONG AS THE COMPONENT MUST OPERATE.

2. ACCIDENT TYPE - HELB

FIGURE 3.11-3Q
AUXILIARY BUILDING
EL. 710'-6" THRU. 755'-6"
PRESSURE TRANSIENTS-
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT



NOTE:

1. BEYOND THIS POINT PRESSURE WILL BE CONSTANT AT 14.36PSIA FOR AS LONG AS THE COMPONENT MUST OPERATE.

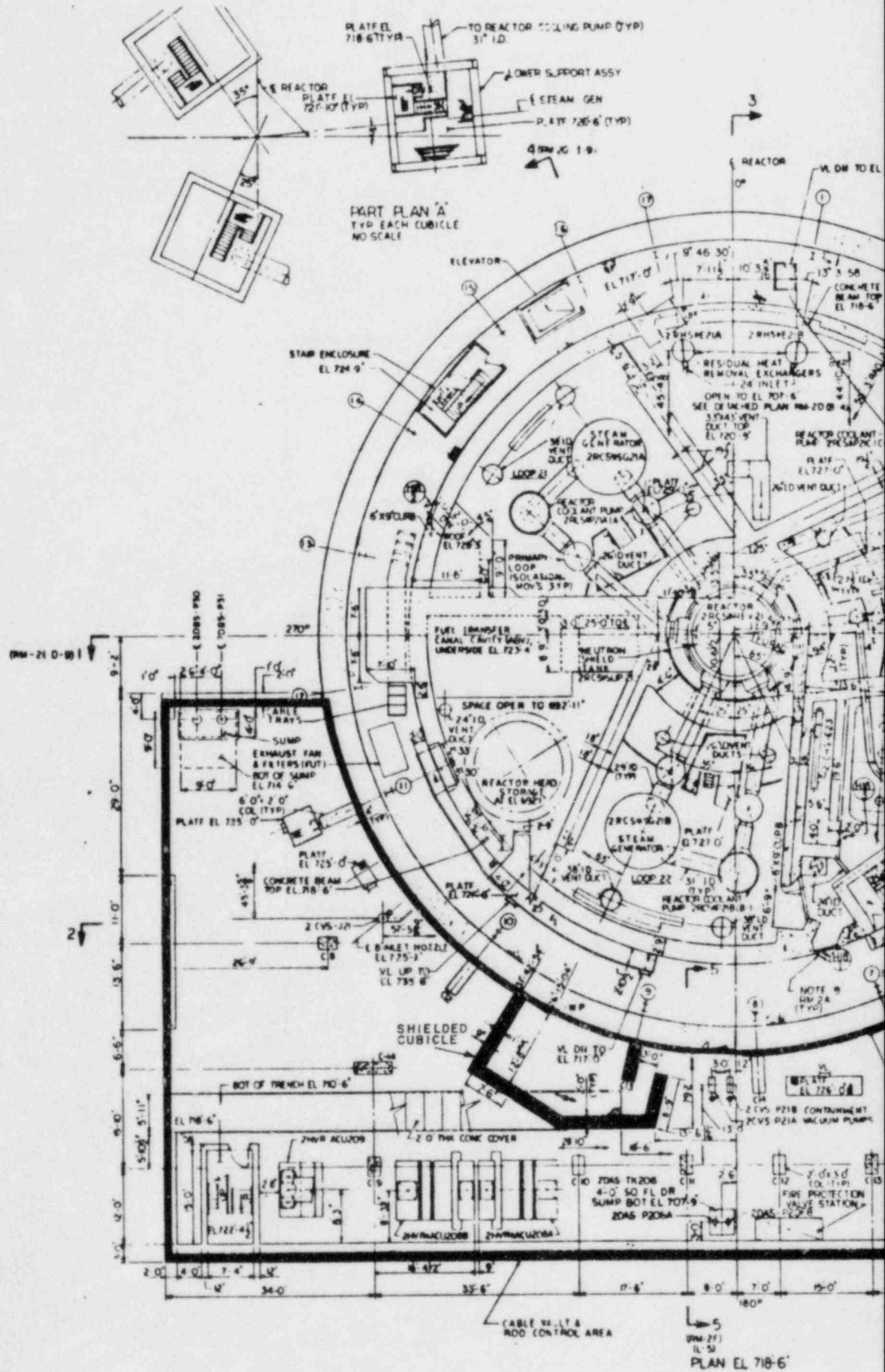
2. ACCIDENT TYPE - HELB

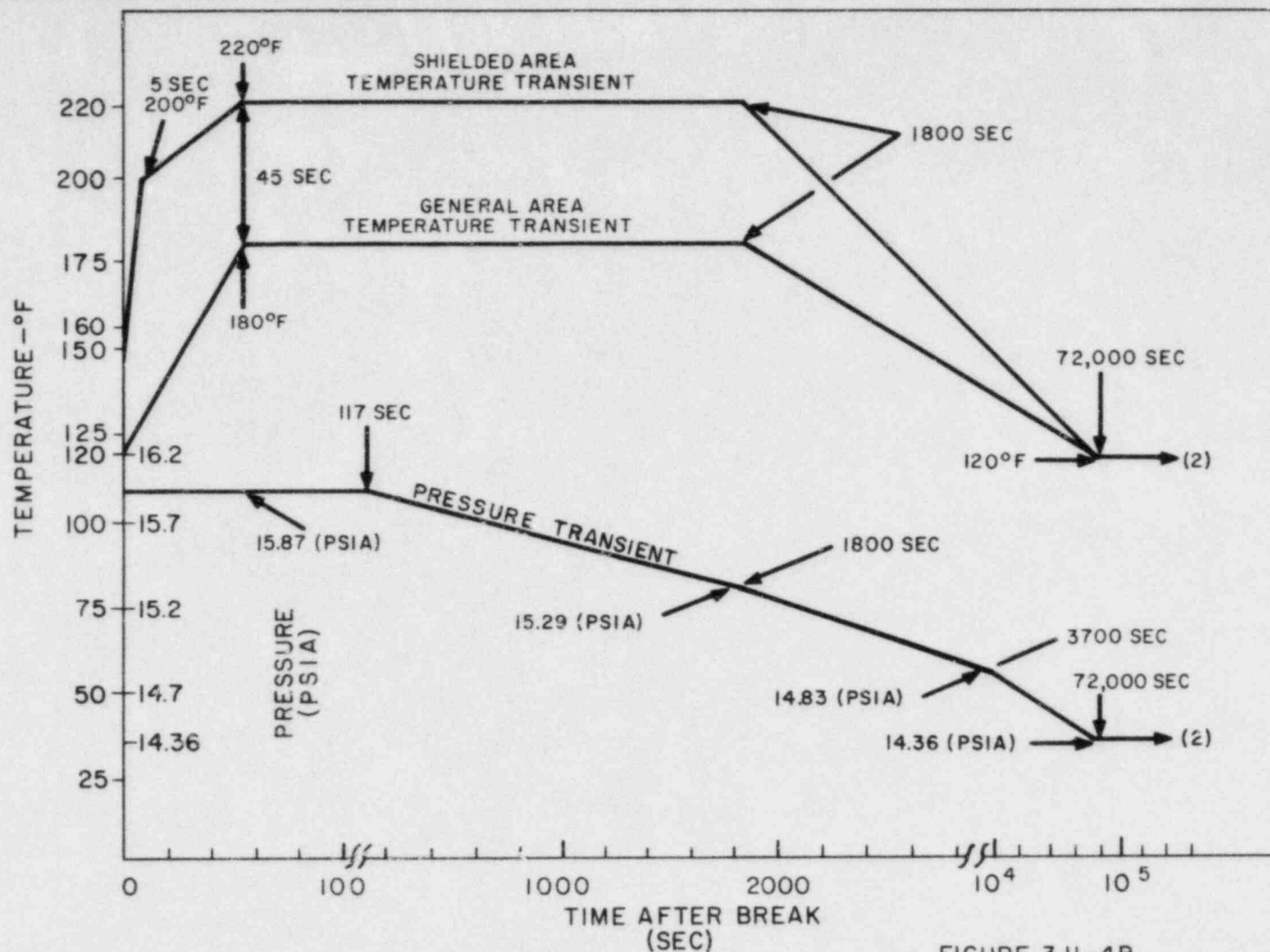
FIGURE 3.11-3R

AUXILIARY BUILDING
EL. 773'-6"

PRESSURE TRANSIENTS-
EQUIPMENT QUALIFICATION

BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT

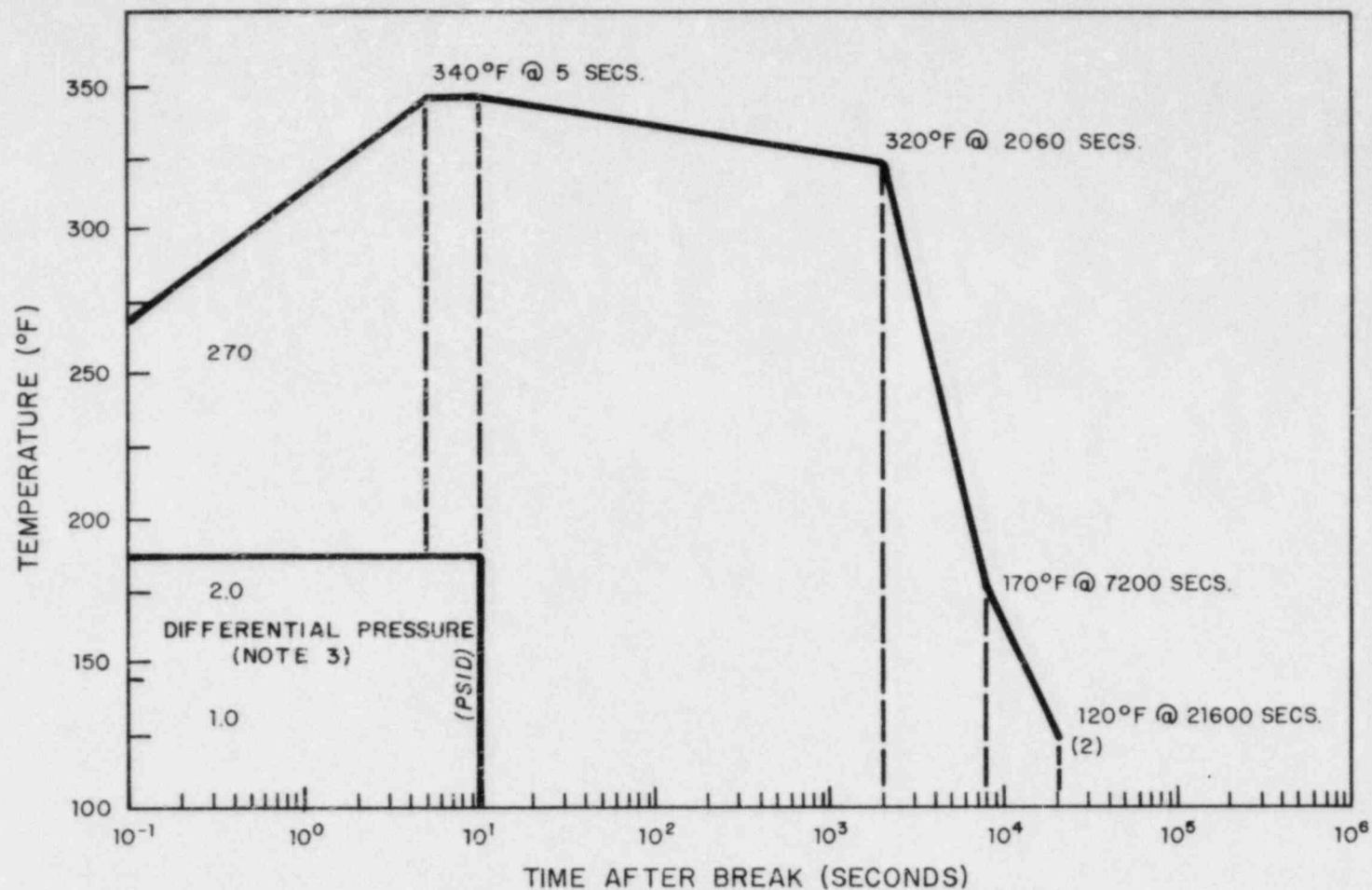




NOTE:

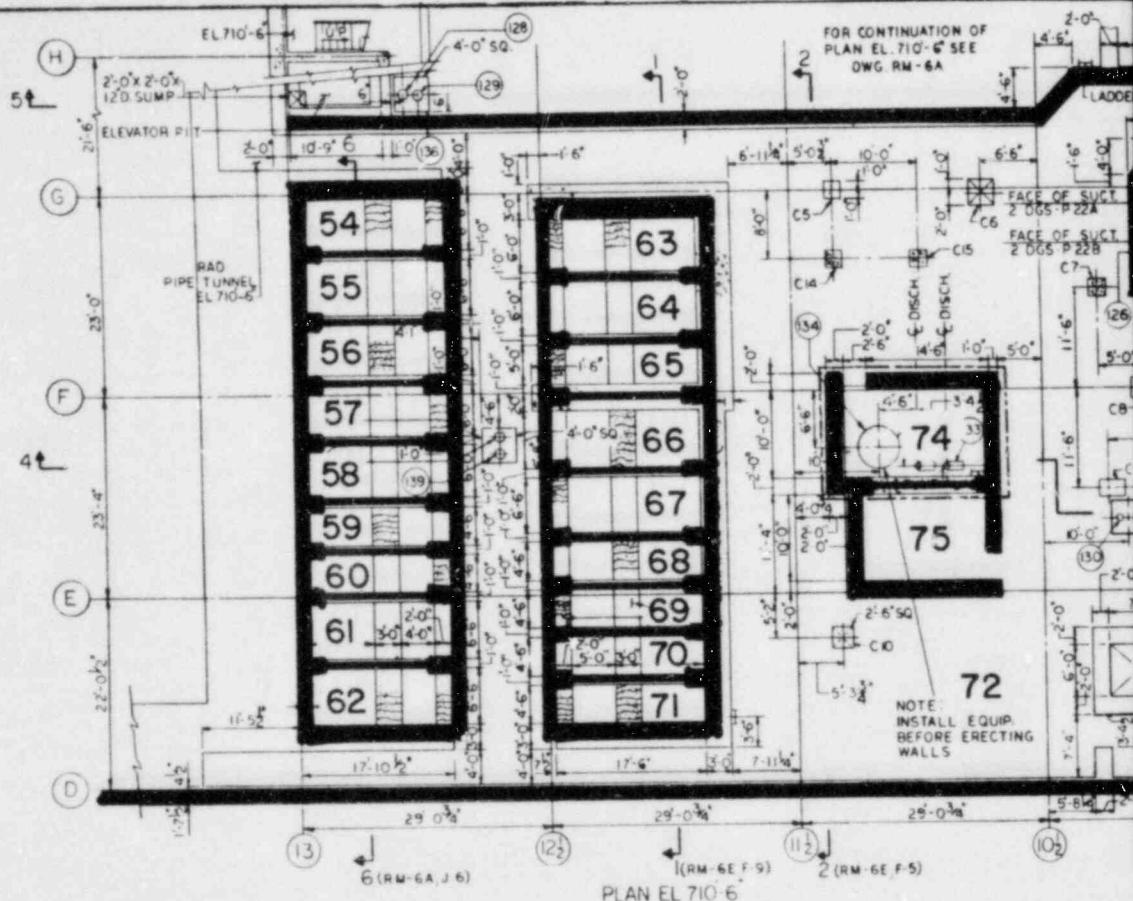
1. PRESSURE INCREASES FROM 14.36 PSIA TO 15.87 PSIA IN 2 SEC. TEMPERATURE RISE AS SHOWN
2. BEYOND THIS POINT TEMPERATURE AND PRESSURE WILL BE CONSTANT AT 120°F AND 14.36 PSIA RESPECTIVELY FOR AS LONG AS THE COMPONENT MUST OPERATE.
3. ACCIDENT TYPE - HELB

FIGURE 3.11-4B
CABLE VAULT AND ROD CONTROL
AREA (EL. 718' - 6") PRESSURE
AND TEMPERATURE TRANSIENTS -
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT



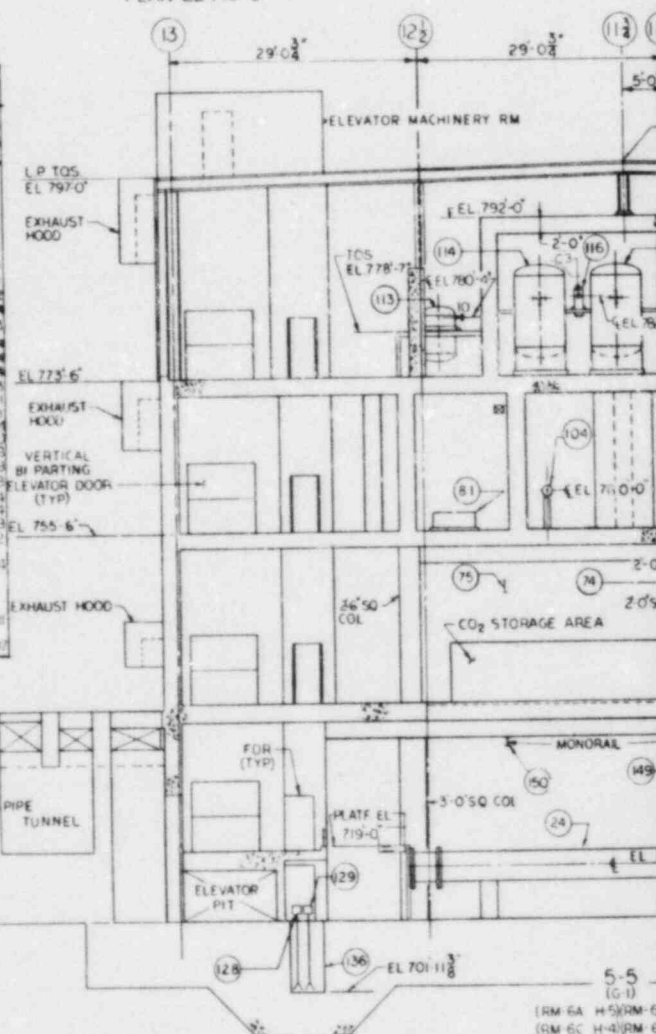
- NOTES: 1. TEMPERATURE INCREASE LINEARLY FROM 104°F TO 270°F IN .1 SECONDS.
2. BEYOND THIS POINT, TEMPERATURE WILL BE 120°F FOR AS LONG AS THE COMPONENT MUST OPERATE.
3. DIFFERENTIAL PRESSURE ACROSS EXTERNAL WALLS (EX.FLOOR, CEILING, AND WALLS)
4. ACCIDENT TYPE—HELB

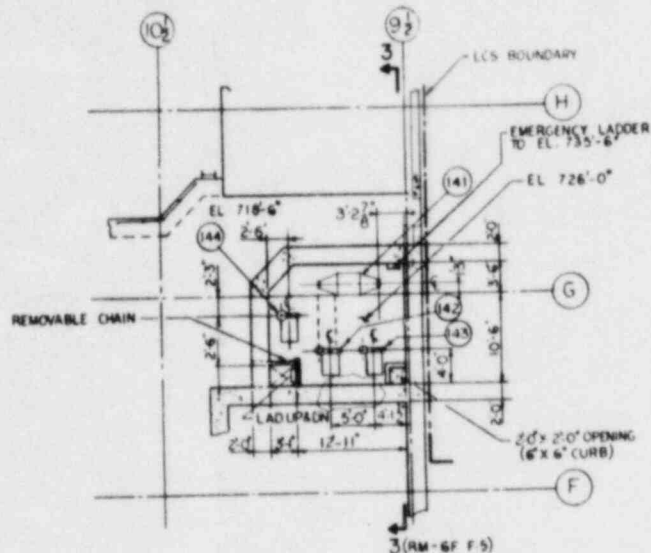
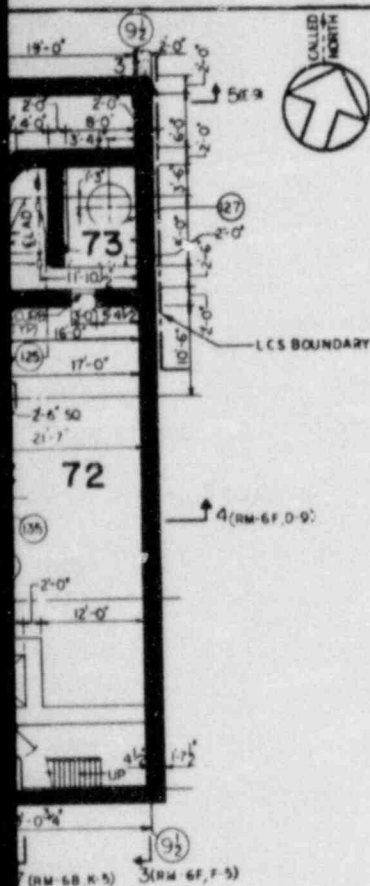
FIGURE 3.11-5
SERVICE BUILDING EL. 780'-6"
PRESSURE-TEMPERATURE TRANS.
EQUIPMENT QUALIFICATION
BEAVER VALLEY POWER STATION - UNIT 2
FINAL SAFETY ANALYSIS REPORT



LEGEND

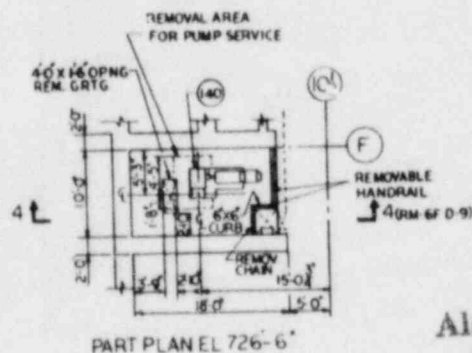
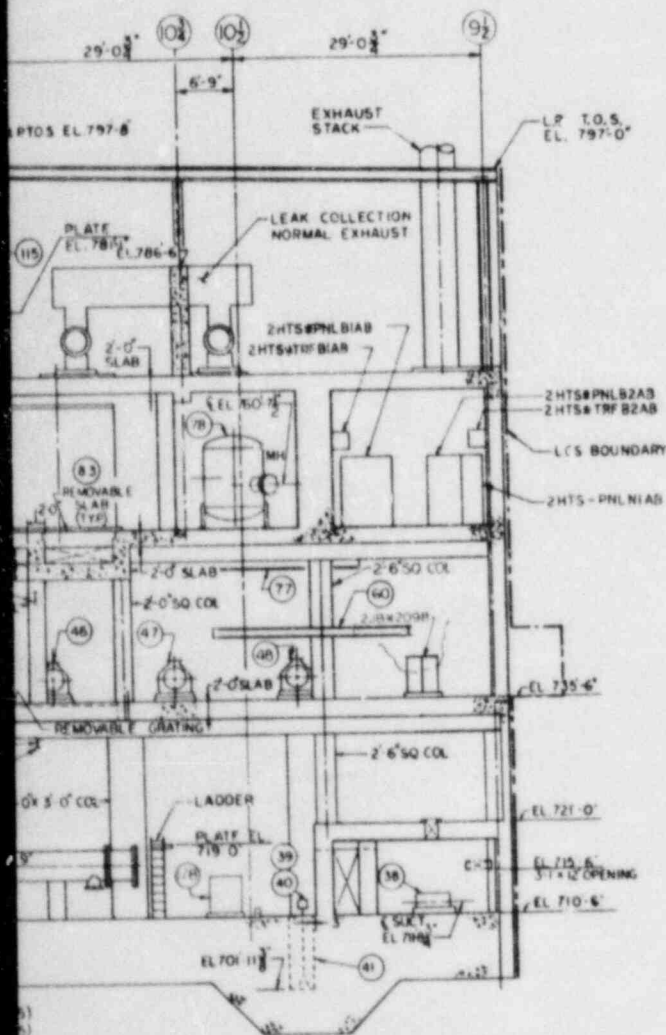
ITEM NO.	MARK NO.	EQUIPMENT DESCRIPTION & LOCATION	S&W FILE NO.
125	2DGS-P22A	PRIMARY DRAINS TRANSFER PUMP (F-1)	2 360-055-003
126	2DGS-P22B	PRIMARY DRAINS TRANSFER PUMP (F-2)	2 360-055-003
127	2DGS-TK22	PRIMARY DRAINS TRANSFER TANK (F-1)	3 300-030-006
128	2DAS-P20301	SUMP PUMP (B-1)	2 250-007-004
129	2DAS-P20302	SUMP PUMP (B-1)	2 250-007-004
130	2DAS-P20303	SUMP PUMP (E-3)	2 250-007-004
131	2DAS-P20304	SUMP PUMP (F-3)	2 250-007-004
132	2SIS-P23A	BORON INJECTION RECIRC. PUMP (E-3)	3 324-900-001-001
133	2SIS-P23B	BORON INJECTION RECIRC. PUMP (E-3)	3 324-900-001-001
134	2SIS-TK22	BORON INJECTION TANK (D-3)	3 440-003-001
135	2DAS-TK203B	SUMP PIT (E-3)	2 250-007-004
136	2DAS-TK203D	SUMP PIT (B-1)	2 250-007-004
137	2DAS-TK203C	SUMP PIT (B-3)	2 250-007-004
138	2DAS-P203C1	SUMP PUMP (B-3)	2 250-007-004
139	2DAS-P203C2	SUMP PUMP (B-3)	2 250-007-004
140	2SIS-P22	ROS. DISPL. HYDRO. TEST PUMP (J-3)	3 324-900-001-001
141	2GWS-FN-22A	SWEET GAS BLOWER (J-3)	3 324-900-001-001
142	2GWS-FN-22B	SWEET GAS BLOWER (J-3)	3 324-900-001-001
143	2GWS-FN-22C	SWEET GAS BLOWER (J-3)	3 324-900-001-001
144	2GWS-FN-22D	ALTN. CONTMT. PURGE BLOWER (J-3)	3 324-900-001-001
145	2HUS-HQ001/100	ELEVATED RELEASE GAS (DRAG) (F-3)	2 250-007-004
146	2MHR-CRN-210	MONORAIL SYSTEM (RM-6C, F-5)	2 250-007-004
147	2MHR-CRN-222	MONORAIL SYSTEM (RM-6C, H-2)	2 250-007-004
148	2MHR-CRN-237	MONORAIL SYSTEM (RM-6C, G-8)	2 250-007-004
149	2MHR-CRN-239A	MONORAIL SYSTEM (RM-6A, F-4)	2 250-007-004
150	2MHR-CRN-239B	MONORAIL SYSTEM (RM-6A, F-4)	2 250-007-004
151	2SSC-RQ1-100	LIQUID WASTE PROCESS EFFLUENT (RM-6A, D-6)	2 250-007-004
152	2CHN-RQ1-101	REACTOR COOLANT LETDOWN (RM-6B, E-7)	2 250-007-004
153	2CCP-RQ1-100	COMPONENT COOLING (RM-6A, G-6)	2 250-007-004
154	2CNA-RQ1-100	AUXILIARY STEAM CONDENSATE (RM-6A, G-6)	2 250-007-004
155	2SSR-RQ1-100	STEAM GEN. BLOWDOWN SAMPLE (RM-6A, E-7)	2 250-007-004





PART PLAN EL 726'-0"

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PART PLAN EL 726'-6"

Also Available On
Aperture Card

NOTE
1 FOR NOTES & REFERENCE DRAWINGS SET RM 6A

8406270011-44

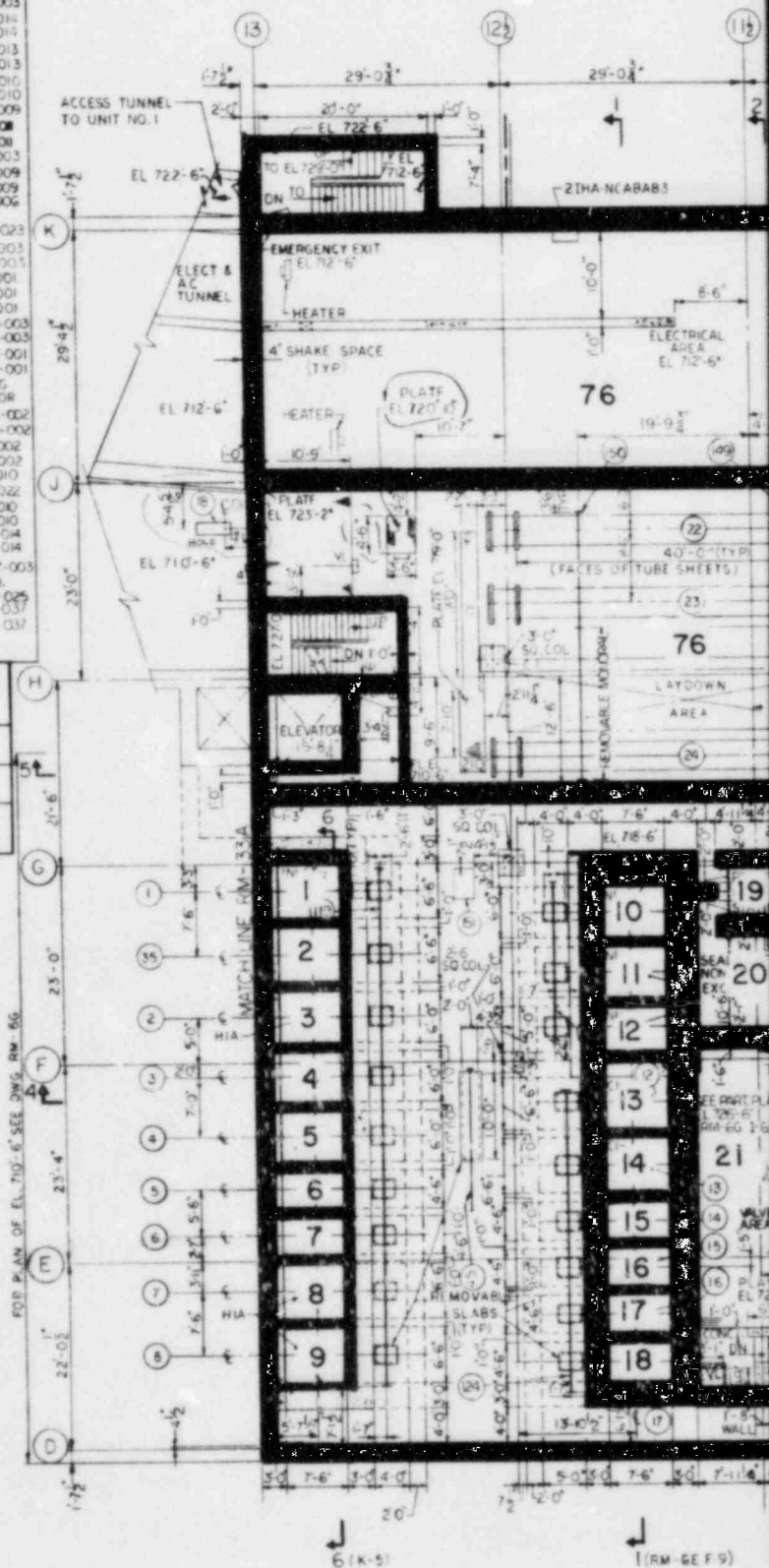
FIGURE 3.11-6
RADIATION ZONE DESIGNATIONS
AUXILIARY BUILDING
EL. 710'-6"
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT

LEGEND

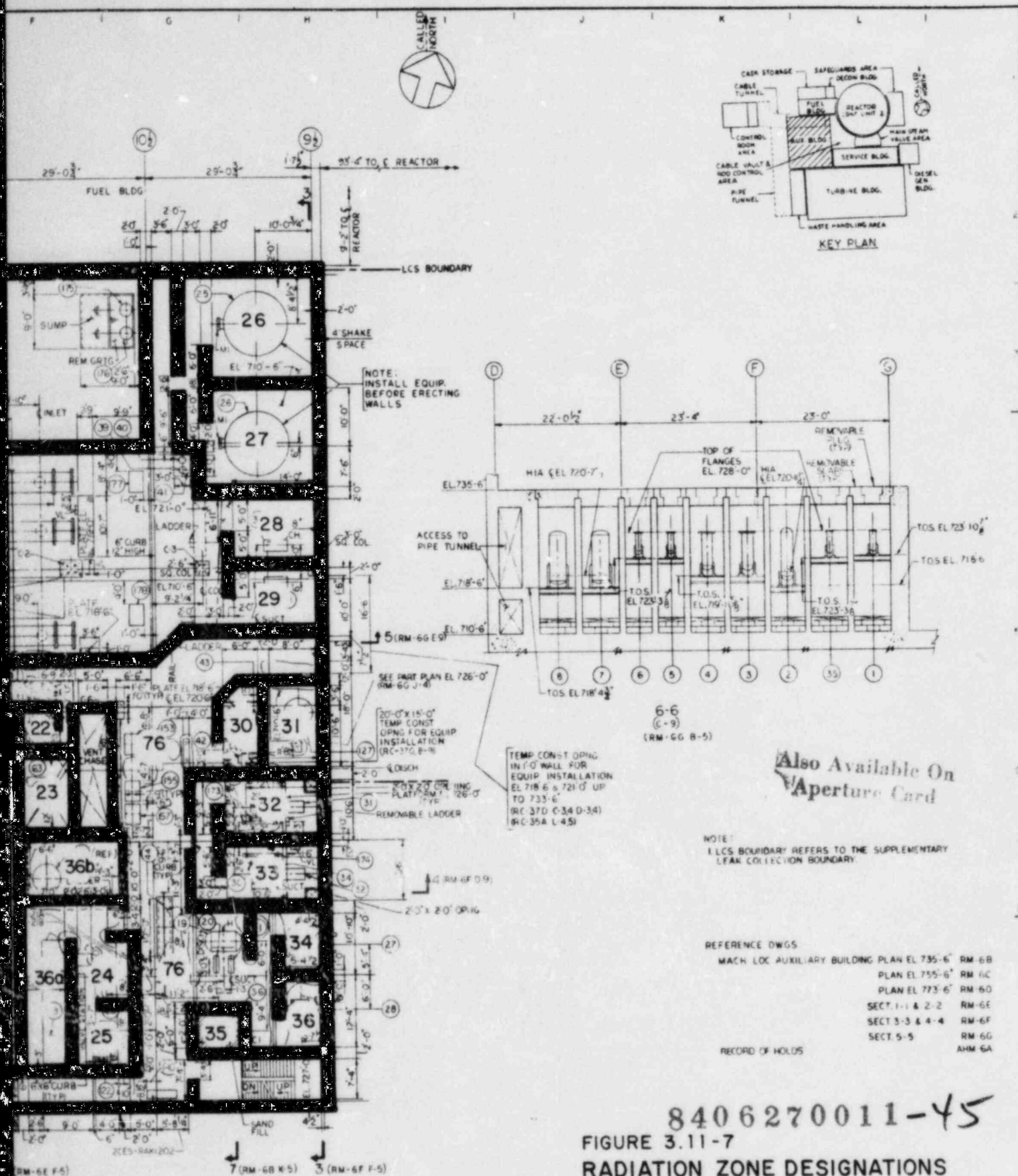
ITEM NO.	MARK NO.	EQUIPMENT DESCRIPTION & LOCATION	S&W FILE NO.
1	2CHS-FLT21	BORIC ACID FILTER (C-5)	2.760-517-006
2	2FNC-IDE21	FUEL POOL ION EXCHANGER (C-6)	3.450-050-003
3	2FNC-FLT21A	FUEL POOL FILTER (C-6)	2.770-026-003
4	2FNC-FLT21B	FUEL POOL FILTER (C-7)	2.770-026-003
5	2BRS-FLT21A	COOLANT RECOVERY FILTER (C-7)	2.770-026-014
6	2BRS-FLT21B	COOLANT RECOVERY FILTER (C-7)	2.770-026-014
7	2BRS-IDE21A	KESUM REM. ION EXCH. (C-8)	3.450-050-013
8	2BRS-IDE21B	KESUM REM. ION EXCH. (C-8)	3.450-050-013
9	2CHS-DEMN21	MIXED BED DEMINERALIZER (E-6)	3.450-054-010
10	2CHS-DEMN22	CATION BED DEMINERALIZER (E-6)	3.450-054-010
11	2CHS-DEMN23	ANION BED DEMINERALIZER (E-7)	3.450-054-009
12	2CHS-DEMN24	DEBORATING DEMINERALIZER (E-7)	3.450-054-008
13	2CHS-FLT23	SEAL WATER FILTER (E-7)	2.760-517-003
14	2CHS-FLT24	SEAL WATER INJECTION FLT (E-8)	2.760-517-009
15	2CHS-FLT24B	SEAL WATER INJECTION FLT (E-8)	2.760-517-009
16	2CHS-FLT22	REACTOR COOLANT FILTER (E-8)	2.760-517-006
17	2FPW-F2G	FP BOOSTER PUMP (D-4)	
18	2ABR-TK23	CONDENSATE RECEIVER TANK (G-7)	3.360-030-023
19	2ABR-P23A	CONDENSATE RECEIVER PUMP (G-7)	2.450-194-003
20	2ABR-P23B	CONDENSATE RECEIVER PUMP (G-7)	2.450-194-003
21	2CCP-E21B	CCP HEAT EXCHANGER (E-4)	4.110-012-001
22	2CCP-E21C	CCP HEAT EXCHANGER (E-4)	4.110-012-001
23	2CCP-E21A	CCP HEAT EXCHANGER (E-5)	4.110-012-001
24	2LWS-TK21A	LIQUID WASTE TANK (H-3)	3.300-095-003
25	2LWS-TK21B	LIQUID WASTE TANK (H-4)	3.300-095-003
26	2LWS-TK21C	LIQUID WASTE TANK (H-5)	2.600-036-001
27	2GWS-C21B	GAS COMPRESSOR (H-7)	2.600-036-001
28	2GWS-TK21A	CONDENSATE POT (S-6)	BY PIPING
29	2GWS-TK21B	CONDENSATE POT (S-6)	BY PIPING
30	2GWS-TK21C	CONDENSATE POT (S-6)	BY PIPING
31	2BRS-P22A	DEGASIFIER RECIRC. PUMP (H-6)	2.380-094-002
32	2BRS-P22B	DEGASIFIER RECIRC. PUMP (H-7)	2.380-094-002
33	2BRS-E21A	DEGASIFIER STM. HTR. (H-6)	4.180-031-002
34	2BRS-E21B	DEGASIFIER STM. HTR. (H-7)	4.180-031-002
35	2SQC-FLT21	CLEAN-UP FILTER (D-6)	2.770-026-010
36	2GWS-TK21	WASTE GAS SURGE TANK (G-8)	3.280-054-022
37	2LWS-P21A	LIQUID WASTE PUMP (H-4)	2.380-194-010
38	2LWS-P21B	LIQUID WASTE PUMP (H-5)	2.380-194-010
39	2DAS-P203A1	SUMP PUMP (G-4)	2.250-007-014
40	2DAS-P203A2	SUMP PUMP (G-4)	2.250-007-014
41	2DAS-TK203A	SUMP PIT (G-4)	2.250-037-003
42	2GWS-TRP21	SWEEP GAS WATER TRAP (H-6)	BY PP FAB.
43	2GWS-E23	SWEEP GAS CHILLER (H-6)	4.180-507-025
44	2MHP-CRN239A	MONORAIL SYSTEM (G-7)	2.580-017-037
45	2MHP-CRN239B	MONORAIL SYSTEM (G-7)	2.580-017-037

46 TO 77 SEE DWG RM-58
78 TO 112 & 158 TO 180 SEE DWG RM-60
113 TO 124 SEE DWG RM-60
125 TO 157 SEE DWG RM-60

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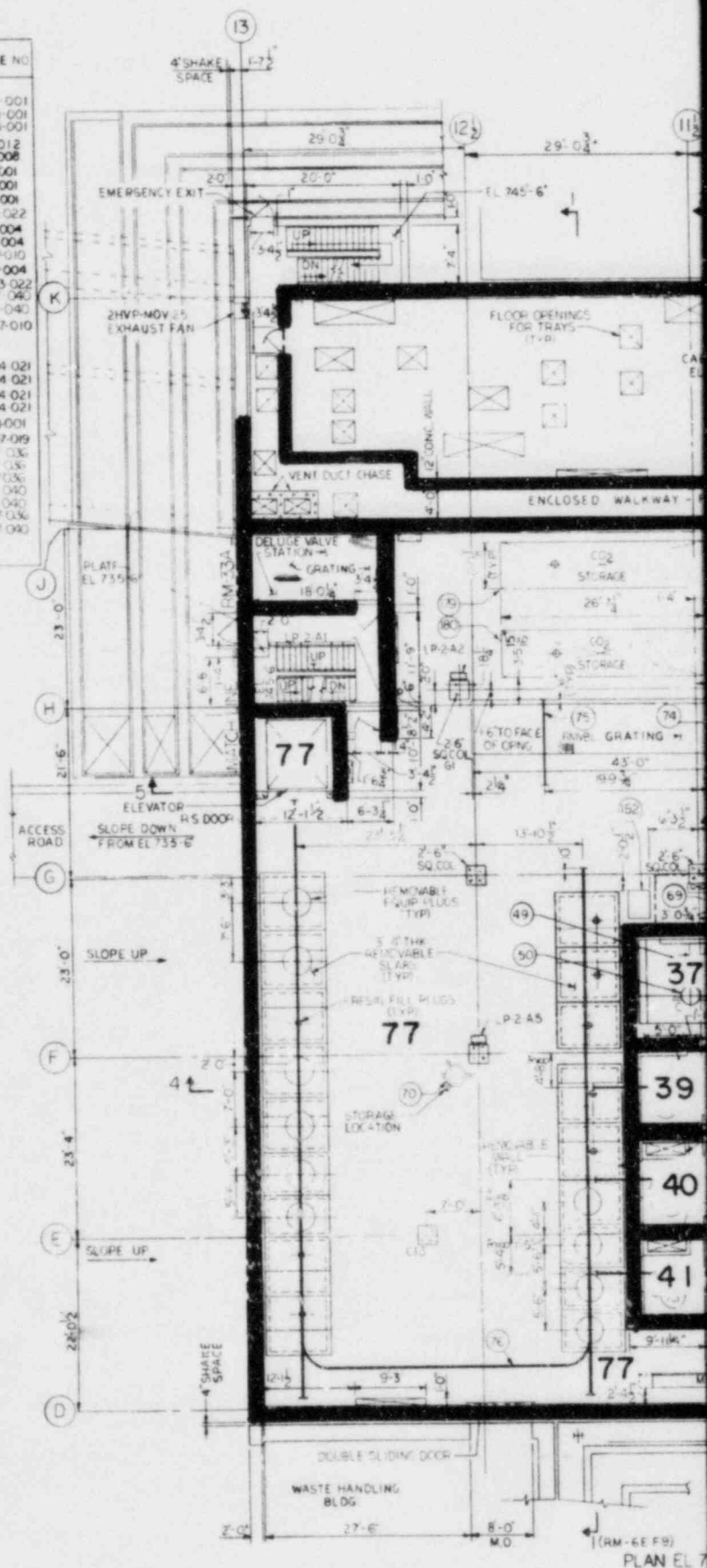


PLAN E



LEGEND

ITEM NO	MARK NO	EQUIPMENT DESCRIPTION & LOCATION	S&W FILE NO
46	2CCP#P21A	CCW PUMP (F-4)	2,260-010-001
47	2CCP#P21B	CCW PUMP (F-4)	2,260-010-001
48	2CCP#P21C	CCW PUMP (F-4)	2,260-010-001
49	2CHS-E21	SEAL WATER HEAT EXCHANGER (E-6)	4,190-001-012
50	2CHS-E22	NON-REGENERATIVE HT EXCHG	4,140-001-008
51	2CHS#P21A	CHARGING PUMP (F-7)	2,320-001-001
52	2CHS#P21B	CHARGING PUMP (F-7)	2,320-001-001
53	2CHS#P21C	CHARGING PUMP (F-7)	2,320-001-001
54	2BWS-EV21A	DEGASIFIER (H-6) RV 71	3,360-023-022
55	2GWS-FLT24A	GASEOUS WASTE FILTER (H-8)	2,780-510-004
56	2GWS-FLT24B	GASEOUS WASTE FILTER (H-8)	2,780-510-004
57	2BWS-E25A	DEGASIFIER TRIM COOLER (G-6)	4,180-507-010
58	2GWS-FLT25	GASEOUS WASTE FILTER (H-8)	2,780-510-004
59	2BWS-EV21B	DEGASIFIER (H-7) RV 71	3,360-023-022
60	2MHP-CRN-235	MONORAIL SYSTEM (G-5)	2,580-017-040
61	2MHP-CRN-236	MONORAIL SYSTEM (H-8)	2,580-017-040
62	2BWS-E25B	DEGASIFIER TRIM COOLER (G-7)	4,180-507-010
63	2CHS-AE21	BORONMETER (RM-6A F-6)	
64	2GWS-OA100B	OXYGEN ANALYZER (G-7)	
65	2GWS-TK22A	WASTE GAS CHARCOAL BED (G-7)	3,280-054-021
66	2GWS-TK22B	WASTE GAS CHARCOAL BED (G-7)	3,280-054-021
67	2GWS-TK22C	WASTE GAS CHARCOAL BED (H-7)	3,280-054-021
68	2GWS-TK22D	WASTE GAS CHARCOAL BED (H-7)	3,280-054-021
69	2SIS-TK23	BORON INJEC SURGE TANK (F-6)	3,420-001-001
70	2CHS-TK24	RESIN FILL TANK (D-7)	3,280-037-019
71	2MHP-CRN-220A	MONORAIL SYSTEM (F-6)	2,580-017-036
72	2MHP-CRN-220B	MONORAIL SYSTEM (F-7)	2,580-017-036
73	2MHP-CRN-220C	MONORAIL SYSTEM (F-8)	2,580-017-036
74	2MHP-CRN-221A	MONORAIL SYSTEM (F-5)	2,580-017-040
75	2MHP-CRN-221B	MONORAIL SYSTEM (E-5)	2,580-017-040
76	2MHP-CRN-223	MONORAIL SYSTEM (E-8, D-8)	2,580-017-036
77	2MHP-CRN-234	MONORAIL SYSTEM (G-4)	2,580-017-040
78	2GWS-OA100A	OXYGEN ANALYZER (G-7)	



PLAN EL 7

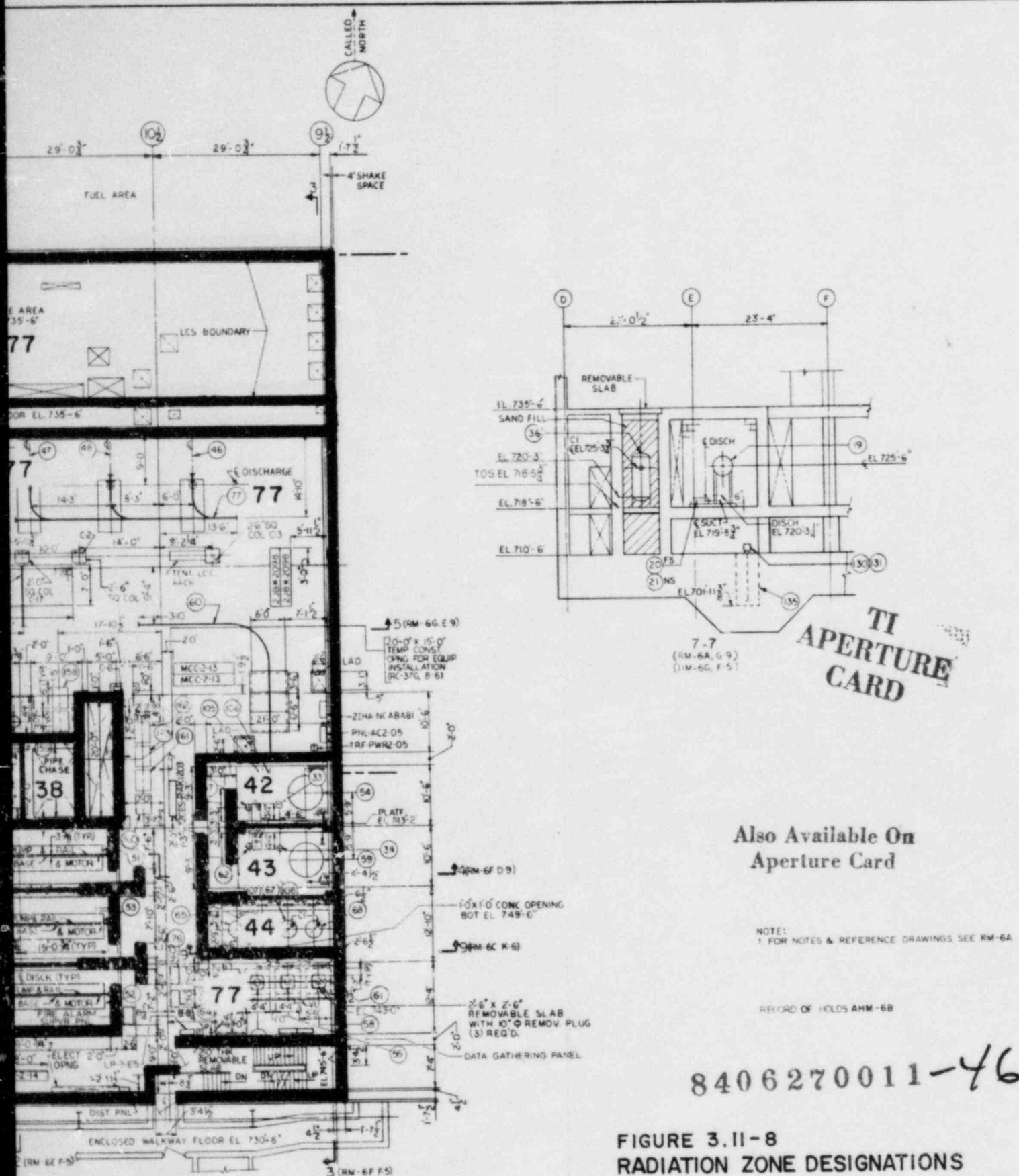
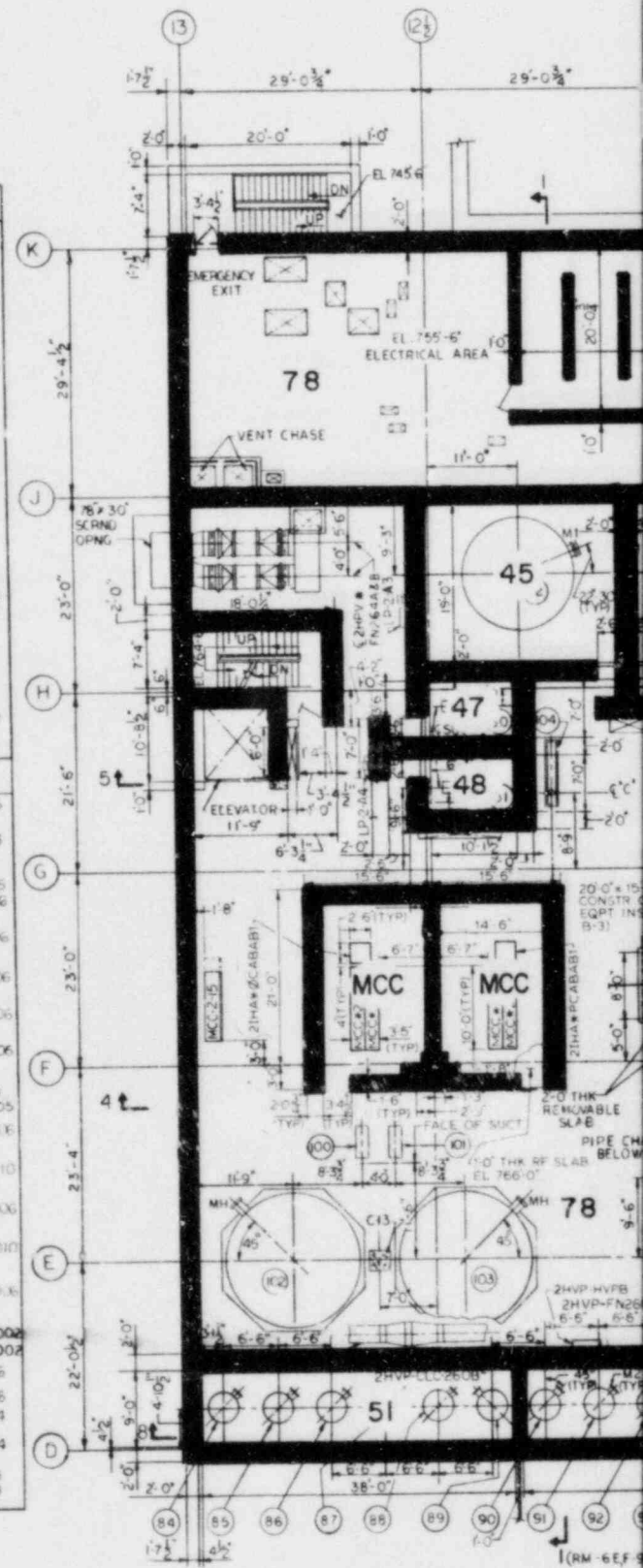


FIGURE 3.11-8
RADIATION ZONE DESIGNATIONS
AUXILIARY BUILDING
EL. 735'-6"
BEAVER VALLEY POWER STATION-UNIT 2
FINAL SAFETY ANALYSIS REPORT

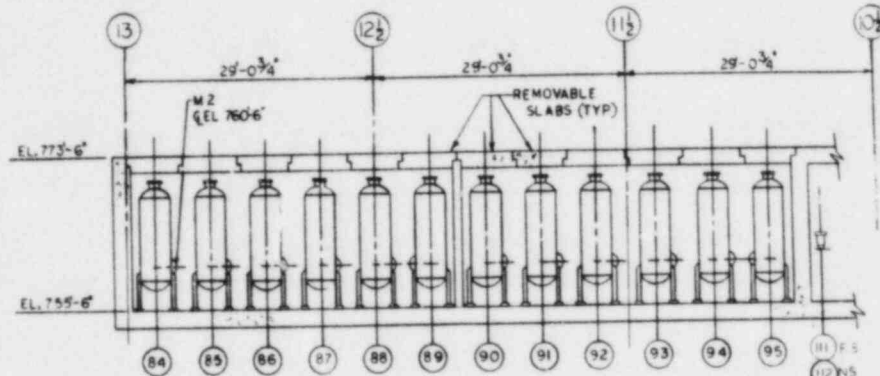
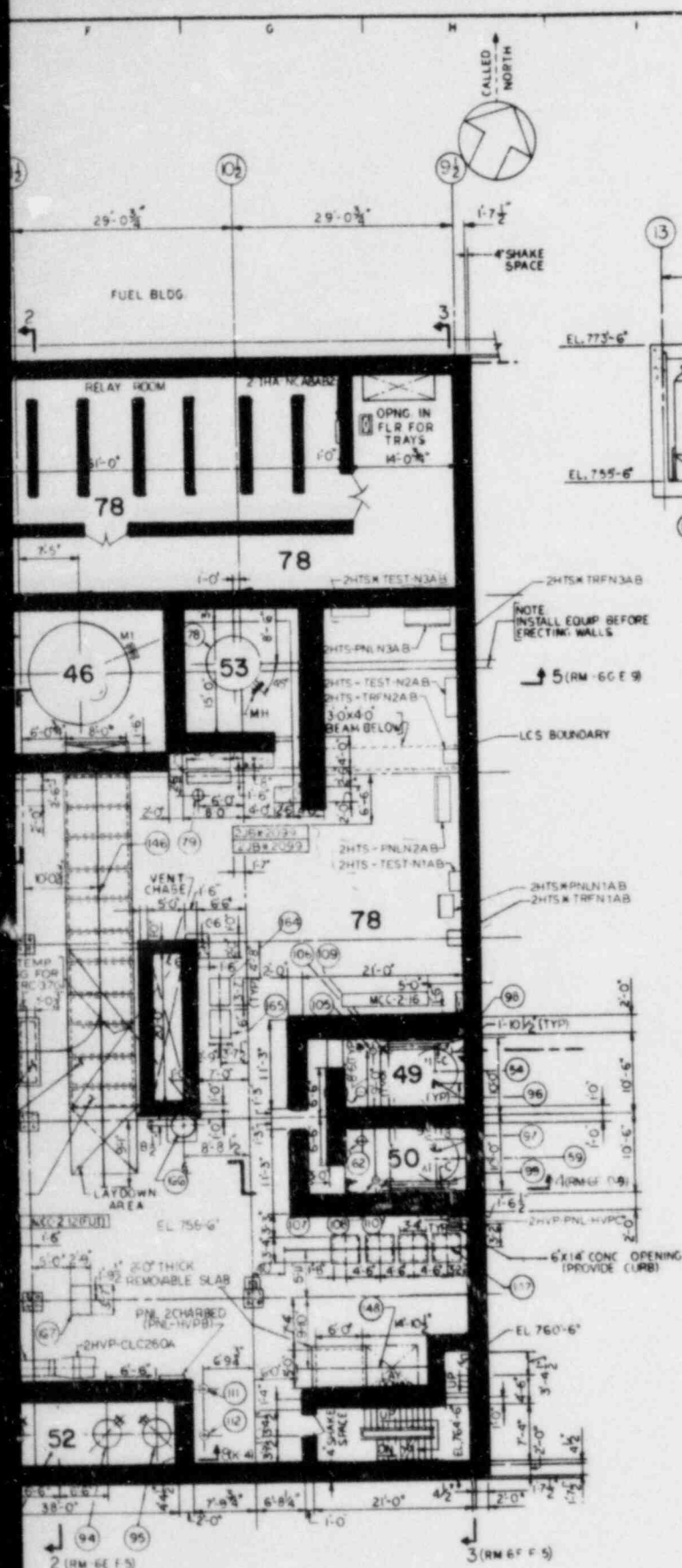
LEGEND

ITEM NO.	MARK NO.	EQUIPMENT DESCRIPTION & LOCATION	S&W FILE NO.
78	2CHS-TK22	VOLUME CONTROL TANK (G-4)	3.250-001-005
79	2CHS-TK23	CHEMICAL MIXING TANK (F-5)	3.380-001-006
80	2CHS-P22A	BORIC ACID TRANSFER PUMP (E-5)	2.230-001-001
81	2CHS-P22B	BORIC ACID TRANSFER PUMP (E-5)	2.230-001-001
82	2CHS-TK21A	BORIC ACID TANK (E-4)	3.470-033-008
83	2CHS-TK21B	BORIC ACID TANK (F-4)	3.470-033-008
84	2CHS-TK23A	CHARCOAL DELAY BEDS (C-6)	3.280-095-013
85	2CHS-TK23B	CHARCOAL DELAY BEDS (C-6)	3.280-095-013
86	2CHS-TK23C	CHARCOAL DELAY BEDS (D-8)	3.280-095-013
87	2CHS-TK23D	CHARCOAL DELAY BEDS (D-8)	3.280-095-013
88	2CHS-TK23E	CHARCOAL DELAY BEDS (D-8)	3.280-095-013
89	2CHS-TK23F	CHARCOAL DELAY BEDS (E-6)	3.280-095-013
90	2CHS-TK23G	CHARCOAL DELAY BEDS (E-6)	3.280-095-013
91	2CHS-TK23H	CHARCOAL DELAY BEDS (E-6)	3.280-095-013
92	2CHS-TK23J	CHARCOAL DELAY BEDS (E-6)	3.280-095-013
93	2CHS-TK23K	CHARCOAL DELAY BEDS (F-8)	3.280-095-013
94	2CHS-TK23L	CHARCOAL DELAY BEDS (F-8)	3.280-095-013
95	2CHS-TK23M	CHARCOAL DELAY BEDS (F-8)	3.280-095-013
96	2CHS-E22A	DEGASIFIER VENT CONDENSER (H-6)	4.180-031-003
97	2CHS-E22B	DEGASIFIER VENT CONDENSER (H-7)	4.180-031-003
98	2CHS-E22A	DEGASIFIER VENT CHILLER (H-6)	4.180-031-004
99	2CHS-E22B	DEGASIFIER VENT CHILLER (H-7)	4.180-031-004
100	2SGC-P26A	TEST TANK PUMP (D-7)	2.380-194-020
101	2SGC-P26B	TEST TANK PUMP (D-7)	2.380-194-020
102	2SGC-TK23A	TEST TANK (D-7)	3.280-030-024
103	2SGC-TK23B	TEST TANK (D-7)	3.280-030-025
104	2CHS-E22	AIR EJECTOR VENT CHILLER (E-5)	4.180-031-004
105	2BRS-E2M1	DEGASIFIER RECOVERY EXCH (H-6)	4.180-031-001
106	2BRS-E2M2	DEGASIFIER RECOVERY EXCH (H-6)	4.180-031-001
107	2BRS-E2M1	DEGASIFIER RECOVERY EXCH (H-7)	4.180-031-001
108	2BRS-E2M2	DEGASIFIER RECOVERY EXCH (H-7)	4.180-031-001
109	2CHS-E21A	WASTE GAS CHILLER (H-6)	BY PIPING FABRICATOR
110	2CHS-E21B	WASTE GAS CHILLER (H-6)	BY PIPING FABRICATOR
111	2CHS-FLT23A	AIR EJECTOR VENT FILTER (F-8)	2.780-512-001
112	2CHS-FLT23B	AIR EJECTOR VENT FILTER (F-8)	2.780-512-001
5			
158	2RMP-RQ1302	AUXILIARY BLDG. 718B (RM 6B F-6) AIRBORNE	2.890-509-006
159	2RMP-RQ1304	AUXILIARY BLDG. 718C (RM 6B F-6) AIRBORNE	2.890-509-006
160	2CHS-RQ1103	AERATED VENT TRANS LINE (RM 6B G-6)	2.890-509-005
161	2RMP-RQ1306	AUXILIARY BLDG. 735A (RM 6B G-6) AIRBORNE	2.890-509-006
162	2RMP-RQ1308	AUXILIARY BLDG. 735B (RM 6B G-6) AIRBORNE	2.890-509-006
163	2RMP-RQ1300	AUXILIARY BLDG. 718A (RM 6B G-6) AIRBORNE	2.890-509-006
164	2RMP-RQ1310	AUXILIARY BLDG. 755A (G-6) AIRBORNE	2.890-509-006
165	2RMP-RQ1312	AUXILIARY BLDG. 755B (G-6) AIRBORNE	2.890-509-006
166	2CHS-TK21	SEAL TANK (F-6)	BY PIPING FAB
167	2CHS-RQ1102	AIR EJECTOR DELAY BED EXHAUST (F-7)	2.890-509-005
168	2RMP-RQ1301	FUEL BLDG VENT (RM 6D F-4) AIRBORNE	2.890-509-010
169	2CHS-RQ1107	ELEVATED RELEASE (RM 6D F-4) MONITOR	2.890-509-010
170	2RMP-RQ1301	LEAK COLLECTION VENTILATION (RM 6D G-4) AIRBORNE	2.890-509-006
171	2CHS-RQ1101	VENTILATION VENT (RM 6D H-5) MONITOR	2.890-509-010
172	2RMP-RQ1303	WASTE HANDLING BLDG (RM 6D F-8) AIRBORNE	2.890-509-006
173	2ASS-E24A	DGSPR REBOILER DR CLR (RM 6A G-6)	4.320-250-002
174	2ASS-E24B	DGSPR REBOILER DR CLR (RM 6A H-6)	4.320-250-002
175	2OBS-P2B	SUMP PUMP (G-3)	2.250-007-036
176	2OBS-P29	SUMP PUMP (G-3)	2.250-007-036
177	2CHS-RQ1101	COMPONANT COOLING SERVICE WATER (RM 6A G-4)	2.890-509-014
178	2CHS-RQ1102	COMPONANT COOLING HEAT EXCH (RM 6A G-5) SERVICE WATER	2.890-509-014
179	2FPD-TK22	CO2 STORAGE TANK (RM 6B E-4)	3.190-174-046
180	2FPD-TK23	CO2 STORAGE TANK (RM 6B E-4)	3.190-174-046

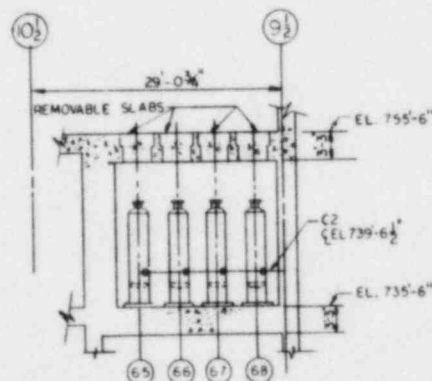


WASTE HANDLING BUILDING

PLAN



8-8
(G-8)



9-9
(RM-6817)

TI
APERTURE
CARD

NOTE
1. FOR NOTES & REFERENCE DRAWINGS SEE RM-6A

Also Available On
Aperture Card

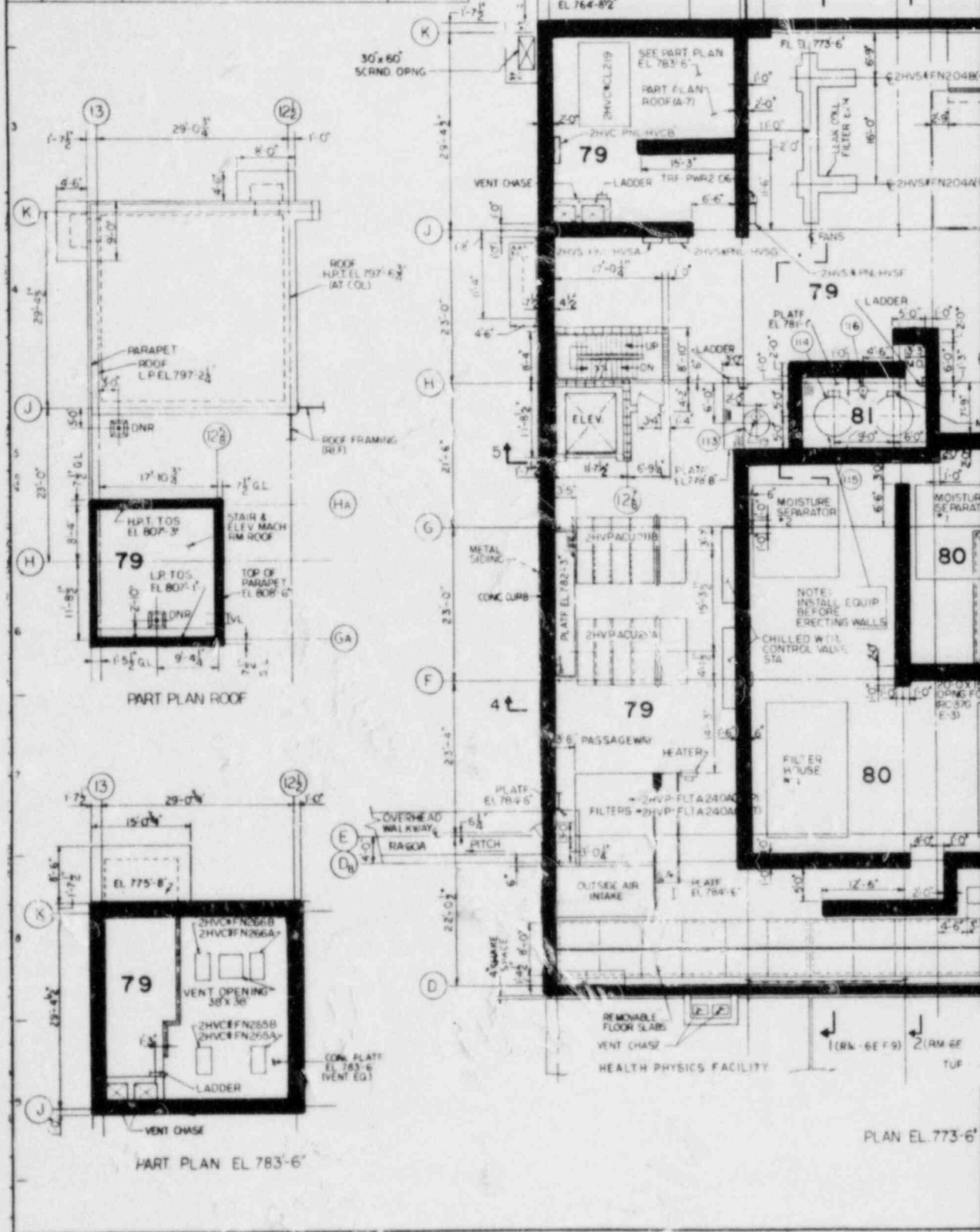
RECORD OF HOLDS AHM-6C

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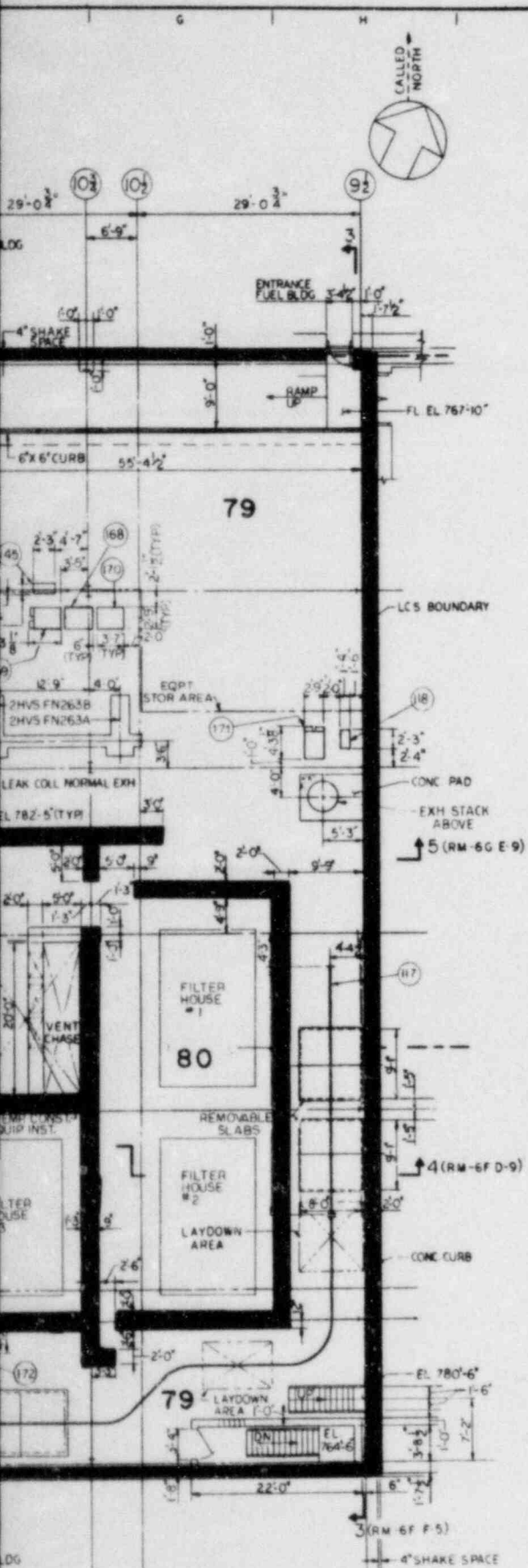
FIGURE 3.11-9
RADIATION ZONE DESIGNATIONS
AUXILIARY BUILDING
EL. 755'-6"
BEAVER VALLEY POWER STATION - UNIT 2
FINAL SAFETY ANALYSIS REPORT

LEGEND

ITEM NO	MARK NO.	EQUIPMENT DESCRIPTION & LOCATION	S & W FILE NO
113	2CHS-TK25	ROBIC ACID BATCHING TANK (E-5)	3470-004-004
114	2CCP-TK21A	COMPONENT COOLING SURGE TANK (E-5)	3230-054-001
115	2CCP-TK21B	COMPONENT COOLING SURGE TANK (E-5)	3230-054-001
116	2CCP-TK22	CHEMICAL ADDITION TANK (E-5)	
117	2MPC-CRN225	MONORAIL SYSTEM (H-6)	2580-07-045
118	2MPC-CRN203	VENTILATION VENT GAS	2890-509-000
119	2MPC-CRN211	MONORAIL SYSTEM (RM-6A C-6)	2580-07-037
120	2MPC-CRN212	MONORAIL SYSTEM (RM-6A E-6)	2580-07-037
121	2SSR-PNL21	SAMPLE DRIVE (RM-6A F-6)	2740-114-005
122	2SSR-RK21	CONDITIONING RACK (RM-6A F-6)	2740-114-004
123	2SSR-CHL21	SECONDARY SAMPLE CHILLER (RM-6A F-6)	2740-114-007
124	2MPC-CRN213	MONORAIL SYSTEM (RM-6A E-6)	2580-07-037



PLAN EL. 773'-6"



TI
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NOTE:
1. FOR NOTES & REFERENCE DRAWINGS SEE RM-6A

8406270011-48

FIGURE 3.11-10
RADIATION ZONE DESIGNATIONS
AUXILIARY BUILDING
EL. 773'6"
BEAVER VALLEY POWER STATION - UNIT 2
FINAL SAFETY ANALYSIS REPORT

ATTACH TO DOCUMENT

BVPS-2 FSAR
Figure 3.11-12
System Component Evaluation Worksheet

SYSTEM: HVD	PURCHASE ORDER NO.: 2BV-150
EQUIPMENT MARK NO.: 2HVD*FN270A&B	VENDOR: JOY
	MANUFACTURER: RELIANCE
SERVICE: DSL GEN BLDG SUP FAN	MODEL NO.: 265T, C ₂ , TYPE P
SAFETY FUNCTION: SAFETY-RELATED HVAC	PLANT LOCATION: EL 763'-2" DIESEL GEN BLDG
	ACCURACY-SPEC: N/A
	DEMON: N/A
QUALIFIED LIFE: 40 YEARS	NUREG-0588 CATEGORY (C):

ENVIRONMENTAL CONDITIONS AND QUALIFICATIONS

NORMAL ENVIRONMENT	SPECIFIED	QUALIFIED	METHOD	REF. DOC.	OUTSTANDING
TEMPERATURE (F)	65-104	260°F	SMA	NUC-9	
PRESSURE (PSIA)	ATM	ATM	SMA	NUC-9	
HUMIDITY (%)	20-90	100	SMA	NUC-9	
RADIATION (RADS)	3x10 ²	2x10 ⁸	SMA	NUC-9	
CHEMICAL SPRAY	NO	N/A	N/A	N/A	
SUBMERGENCE	NO	N/A	N/A	N/A	
AGING	362 1/2 d/y	40 YR LIFE	EMA	NUC-9	
A.O.O. ENVIRONMENT	LOP(2)	SEE	SEE		
TEMPERATURE (F)	120	ABOVE	ABOVE	NUC-9	
PRESSURE (PSIA)	ATM			NUC-9	
HUMIDITY (%)	90			NUC-9	
RADIATION (RADS)	(4)			NUC-9	
CHEMICAL SPRAY	NO				
SUBMERGENCE	NO				
AGING	2 1/2 d/y(3)	↓	↓	NUC-9	
ACCIDENT ENVIRONMENT	MEPC			NUC-9	
TEMPERATURE (F)	120	260°F	SMA	NUC-9	
PRESSURE (PSIA)	ATM	ATM	SMA	NUC-9	
HUMIDITY (%)	90	100	SMA	NUC-9	
RADIATION (RADS)	3x10 ²	2x10 ⁸	SMA	NUC-9	
CHEMICAL SPRAY	NONE(5)				
SUBMERGENCE	NO				
OPERATING TIME	401 1/2	YES	YES	NUC-9	

FLOOD LEVEL: NONE

ABOVE FLOOD LEVEL: YES

NOTES: ALL NOTES ARE INDICATED
BY (). REFER TO 2BVM-128
ATTACHMENT 2 NOTES (PP2-5)
FOR EXPLANATION.

DOCUMENTATION REFERENCES:
SWEC FILE NO. 2701.100-150-021A
NUC-9

BVPS-2 FSAR

Figure 3.11-13

PAGE 3

JCSNUMBER: 1224100
CLIENT: DUQUESNE

DOCKET NUMBER: 50-412
STATION: BEAVER VALLEY UNIT

STONE AND WEBSTER ENGINEERING CORPORATION
COMPONENT EVALUATION WORK SHEET

EQUIPMENT ID: 2HVD*FN270A DESCRIPTION: DSL GEN BLDG SUP FAN
SPEC NO.: 150 VENDOR: JOY MANUFACTURE CO
QUAL LIFE: 40 MANUFACTURER: RELIANCE ELECTRIC
QUAL REF: 2BV-150-01 MODEL: 265T, CZ, TYPE P
ZONE REF: DG-ALL BUILDING: DG

ENG COND	OPCODE	OPTIME	SAFETY FUNCTIONS			HUM	RADS	CHEM	OPT PARAMETER	OPT VAL
	TEHP	DUR	TOTOUR	MAXPRES	MINPRES					

DBA	120	9636	9636	14.4	14.4	90	4.0E02	YES		
-----	-----	------	------	------	------	----	--------	-----	--	--

DEMONSTRATED										
VALUES	260			14.4		100	2.0E08	NO		
QUALMETH	SHA			SHA		SHA	SHA			

*****NORMAL CONDITIONS*****

	DEMONSTRATED	QUAL	ZONE
	VALUE	METH	
TEMPERATURE	260	SHA	104
PRESSURE	14.4		14.4
RELATIVE HUMIDITY	100		90
RADIATION	2.0E08		3.0E02

*****ABNORMAL CONDITIONS*****

EXCURSION TYPE	LOP
EXCURSION VALUE	120
DURATION (HRS)	60
EXCURSIONS/YEAR	1

PES QUAL REMARKS:

EQS QUAL REMARKS: EQ RPT SWEC FILE #: 2710.100-150-020 , 2710.100-150-021

S&W EVALUATION OF VENDOR ENVIRONMENTAL QUALIFICATION
DOCUMENTATION SUBMITTAL FOR CLASS 1E ELECTRICAL EQUIPMENT

BEAVER VALLEY POWER STATION - UNIT NO. 2
DUQUESNE LIGHT COMPANY

- I. The contents of the submittal must be sufficiently complete and detailed to enable the evaluator to make a judgment on the effectiveness of the vendor's environmental qualification of the equipment of concern for its intended application.

This evaluation form is not intended to be the sole determinant of whether or not a piece of equipment is qualified. It shall be used as an aid to help the evaluator in determining the adequacy of the vendor's qualification program and results.

II. Equipment/Documentation Identification

- A. PURCHASE ORDER/
SPECIFICATION NO.: _____
- B. EQUIPMENT TYPE: _____
- C. EQUIPMENT ID NO.(s): _____
- D. VENDOR: _____
- E. MANUFACTURER: _____
- F. The evaluation checklist for Vendor Environmental Qualification Documentation is attached. Below is a list of S&W Engineers who have reviewed the applicable documentation with respect to their discipline.
1. Reponsible Engineer (RE) _____
Preparer/Review Group
2. Equipment Specialist (SPT) 1. _____
2. _____
3. _____
3. Engineering Mechanics Division (EMD) _____
4. Equipment Qualification Coordinator (EQC) _____

NOTES:

1. Use EAP 9.2 for general technical document review guidance
2. Refer to 2BVM-128 for project specific requirements
3. Refer to 2BVM-119 for environmental conditions

G. APPLICABLE QUALIFICATION DOCUMENT:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

H. APPLICABLE QUALIFICATION STANDARDS (including applicable IEEE-323 daughter standards):

- | | |
|-----------------|----------|
| 1. IEEE 323-197 | 5. _____ |
| 2. IEEE 344-197 | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

III. Evaluation

A. GENERAL REQUIREMENT		YES	NO	NA	COMMENTS
		REF/PAGE			
RE SPT	1. Can the following be adequately determined for the equipment from the vendor submittals?				
	a. Class IE function(s)	___	___	___	_____
	b. Power requirements	___	___	___	_____
	c. Extremes of performance and electrical characteristic (e.g., electromagnetic interference)	___	___	___	_____
	d. Installation and connections	___	___	___	_____
	e. Requirements necessary to maintain qualification	___	___	___	_____
	f. Qualified life	___	___	___	_____
	g. Auxiliary devices necessary to support qualification	___	___	___	_____
	h. Normal/abnormal/accident operating environments	___	___	___	_____
	i. Synergistic effects	___	___	___	_____
	j. Aging methodology	___	___	___	_____
	k. Radiation dose rate	___	___	___	_____
	l. Test set-up	___	___	___	_____

		YES	NO	NA	COMMENTS
		REF/PAGE			
	m. Qualification auditability	___	___	___	_____
	n. Approval signature and date	___	___	___	_____
B.	TYPE TEST (if performed) NON-IEEE - 344 TESTS				
RE SPT	1. Is the report adequate to evaluate the operating assumptions/conclusions made by Vendor?	___	___	___	_____
RE SPT	2. Have the SWEC-specified safety function(s) been demonstrated satisfactorily?	___	___	___	_____
RE SPT EQC	3. Are the units to be tested identified?	___	___	___	_____
	Are the units the same as those specified by SWEC?	___	___	___	_____
RE SPT	4. Was equipment qualified for a unique installed orientation (horizontal, installation. (Check all that are permissible.)	___	___	___	_____
	a. Horizontal	___	___	___	_____
	b. Vertical	___	___	___	_____
	c. Horizontal, Elevated (Piping, Duct, etc)	___	___	___	_____
	d. Vertical, Elevated (Piping, Duct, etc)	___	___	___	_____
	e. Counted at ___ degrees from Vertical (Piping, Duct, etc)	___	___	___	_____
	f. Other - clarify	___	___	___	_____
RE SPT EQC	5. Are the interfaces (structural requirements, power and signal connections, and sealants required for qualification described?	___	___	___	_____

BVPS-2 FSAR
Figure 3.11-14 (Cont)

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ATTACHMENT 7
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			YES	NO	NA	COMMENTS
			REF/PAGE			
RE SPT EQA	6.	Do normal/abnormal parameters for qualified life envelope SWEC specified plant normal/abnormal conditions?	—	—	—	
			—	—	—	
	7.	Do accident parameters used in qualification envelope SWEC-specified plant accident specifications?	—	—	—	
			—	—	—	
RE SPT EQC *EMD	8.	Were type test conducted in the following sequence? List supplier justification for omitted steps or variation in test sequence and compare actual test sequence severity. Attach to System Component Evaluation Worksheet.	—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
			—	—	—	
RE SPT EQC	9.	Is the test sequence acceptable (i.e., consistent with IEEE 323-1974 or daughter standards)?	—	—	—	
			—	—	—	

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		YES	NO	NA	COMMENTS
		REF/PAGE			
RE SPT	10.	If combined environmental/power supply service conditions were used during qualification, were they consistent with the intended application?			
RE SPT	11.	Has margin been applied properly during testing? Identify margins, if any, provided by the Equipment Qualification on the System Component Evaluation Worksheet. Compare the listed margins to the suggested IEEE 323, 1974 values. Provide justification for any margin values listed less than the recommended IEEE 323, 1974 values. Operating time margins for duration less than 10 hrs should be 1 hr plus operating time; for long duration, operating time plus 10 percent.			
RE SPT	12.	Have adequate failure/acceptance criteria been justified?			
RE SPT	13.	a. Have any synergistic effects (as described in RG-1.89 Section C 7a) been identified?			
		b. Do the synergistic effects have an impact on the equipment?			
		c. If they do have an impact, has the equipment demonstrated it can adequately withstand the synergistic effects for the SWEC specified application?			
	14.	Aging simulation			

BVPS-2 FSAR
Figure 3.11-14 (Cont)

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ATTACHMENT 7
PAGE 7 OF 11

		YES	NO	NA	COMMENTS
		REF/PAGE			
RE SPT	a.	Has the aging methodology been explained? (List methodology used.)			
		If the Arrhenius method is used, was the activation energy constant adequately addressed?			
RE SPT EQC	b.	Has appropriate consideration been given to the stress at which material changes occur due to accelerated aging stress?			
RE SPT EQC	c.	Has an adequate base stress been determined from which the aging conditions (e.g., time and temperature for thermal aging are developed?			
		Is sufficient data available to check results?			
RE SPT EQC	d.	Does the normal condition integrated radiation dose envelop the SWEC specified dose?			
RE SPT EQC	e.	Are the vibration, operational, environmental, and energy cycles to which the equipment to subjected adequate to justify the claims of advance life condition of the equipment (i.e., for the SWEC specified application)?			
RE SPT EQC	f.	Do the aging results support the qualified life as stated by the vendor?			

			YES	NO	NA	COMMENTS	
			REF/PAGE				
RE	15.	a.	Have any radiation dose rate effects been identified?	___	___	___	_____
		b.	Does the radiation dose have an impact on the equipment?	___	___	___	_____
		c.	If it does have an impact, has the equipment demonstrated it can adequately withstand the radiation effects for the SWEC specified application?	___	___	___	_____
RE	16.		DBE/POST-DBE Testing				
SPT		a.	Has the equipment adequately demonstrated its SWEC-specified safety function?	___	___	___	_____
		b.	Was margin added and was it applied adequately?	___	___	___	_____
RE	17.		If failures occurred during testing, were they adequately shown to be random failures?	___	___	___	_____
SPT							
RE	18.		Has the vendor properly executed mathematics and transfer of data to graphs, charts, and writeups?	___	___	___	_____
SPT							
RE	19.		Does vendor data support his conclusions?	___	___	___	_____
SPT							
C.	TYPE TEST (if performed) IEEE-344 Seismic Testing						
RE	1.		Are the vendor submittals in accordance with (as a minimum) the requirements of IEEE 344, 1971 and the additional seismic acceptance criteria specified for this equipment?	___	___	___	_____
*EMD							

*EMD - 344 Seismic Review

			YES	NO	NA	COMMENTS
			REF/PAGE			
RE *EMD	2.	Is the vendor adequately detailing the specified seismic testing and/or analysis procedures (including reporting format/content) to the detail requirements specified for this equipment?	---	---	---	
D. ANALYSIS (if included in support of qualification)						
RE SPT *EMD	1.	Does the mathematical model adequately describe the electrical equipment to be qualified and it is based upon established principles, operating experience, or verifiable test data?	---	---	---	
RE SPT *EMD	2.	Does the mathematical model encompass all environmental parameters listed in the specification?	---	---	---	
RE SPT *EMD	3.	Is the mathematical model a function of time and the pertinent environmental parameters to which the equipment is subjected?	---	---	---	
RE SPT *EMD	4.	Has the basis for extrapolation been established by subjecting the equipment to a comparable environment for a time or level necessary to justify the results?	---	---	---	
RE SPT *EMD	5.	Do the calculations, if used, demonstrate that the equipment performance meets or exceeds that specified?	---	---	---	

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E. OPERATING EXPERIENCE (if included in support of qualification)		YES	NO	NA	COMMENTS
		REF/PAGE			
RE SPT	1. Is the operating environment justified in the light of any noncontinuous measurements of the environment?	____	____	____	_____ _____ _____
RE SPT *EMD	2. Are the location and mounting arrangements of the equipment in the operating facility described and are they equivalent to qualification configurations?	____	____	____	_____ _____ _____ _____
RE SPT *EMD	Is the operating equipment representative of the equipment being qualified?	____	____	____	_____ _____ _____
RE SPT	4. Does the documentation of the operating equipment's Class 1E performance include measurement or determination of all performance characteristics essential to the Class 1E function, the recording and analysis of all failures and trends and a log of all maintenance performed during the operating period?	____	____	____	_____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
RE SPT	5. Does the submittal present a comparison of past recorded operating environment and Class 1E performance with SWEC equipment specifications?	____	____	____	_____ _____ _____ _____ _____
RE SPT	6. Do the past operating conditions envelope the SWEC equipment specification?	____	____	____	_____ _____ _____
IV. Approval					
RE SPT EQC *EMD	Has vendor used an approach consistent with recognized industry standards (IEEE series)?	____	____	____	_____ _____ _____ _____

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Figure 3.11-14 (Cont)

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ATTACHMENT 7
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		YES	NO	NA	COMMENTS
		REF/PAGE			
RE	Is the submittal auditable?	___	___	___	_____
SPT		___	___	___	_____
EQC					
RE	Is an audit of the vendors	___	___	___	_____
SPT	filed data required?	___	___	___	_____
EQC					
RE	If so, are periodic audits	___	___	___	_____
SPT	of the vendors filed data	___	___	___	_____
EQC	required?	___	___	___	_____
RE	Has an engineering rationale	___	___	___	_____
SPT	been provided where required?	___	___	___	_____
EQC	Is it orderly and logical with	___	___	___	_____
	respect to the application?	___	___	___	_____
RE	Has data been properly handled	___	___	___	_____
SPT	throughout the submittal?	___	___	___	_____
EQC					
RE	Are the results within	___	___	___	_____
SPT	specified limits?	___	___	___	_____
EQC					
*EMD					
RE	Are conclusions consistent	___	___	___	_____
SPT	with data submitted?	___	___	___	_____
EQC					
*EMD					
RE	After having reviewed the	___	___	___	_____
SPT	vendor's qualification sub-	___	___	___	_____
EQC	mittal, is it acceptable	___	___	___	_____
*EMD	based upon all of the pre-	___	___	___	_____
	viously stated comments being	___	___	___	_____
	satisfied?	___	___	___	_____
RE	V. Additional Comments				
SPT					
EQC					
*EMD					

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Evaluator

Date