ATTACHMENT 1

USI A-46 SEISMIC EVALUATION REPORT

for

Beaver Valley Power Station Unit No. 1 (BVPS-1)

January, 1996

TABLES

CONTENTS

GLOSSARY OF ACRONYMS

AFW	Auxiliary Feedwater
AMSAC	ATWS Mitigating System Actuation Circuitry
ARS	Amplified Response Spectra
ATWS	Anticipated Transient Without Scram
BAT	Boric Acid Tank
BVPS-1	Beaver Valley Power Station Unit No. 1
CVCS	Chemical and Volume Control System
DBE	Design Basis Earthquake
DLC	Duquesne Light Company
EDG	Emergency Diesel Generator
EIN	Equipment Identification Number
EPRI	Electric Power Research Institute
FRS	Frequency Response Spectra
GERS	Generic Equipment Ruggedness Spectra
GIP	Generic Implementation Procedure for the Seismic Verification of Nuclear Plant Equipment
GL	Generic Letter
GRS	Ground Response Spectrum
HAD	Heat Actuated Device
HVAC	Heating, Ventilation & Air Conditioning
IRS	In-structure Response Spectra (also ARS)
LAR	Limited Analytical Review
MCC	Motor Control Center
MSIV	Main Steam Isolation Valves
MWR	Maintenance Work Request
NRC	Nuclear Regulatory Commission
OSVS	Outlier Seismic Verification Sheet
P.E.	Professional (Registered) Engineer
PRT	Pressurizer Relief Tank
PSA	Peak Spectral Acceleration
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
ROB	Rule of the Box
RPI	Rod Position Indication
RWST	Refueling Water Storage Tank
SCE	Seismic Capability Engineer
SEWS	Screening Evaluation Work Sheet
SI	Safety Injection
SLC&RS	Supplemental Leak Collection & Recirculation System
SQUG	Seismic Qualification Utility Group
SRT	Seismic Review Team
SSE	Safe Shutdown Earthquake
SSEL	Safe Shutdown Equipment List

GLOSSARY OF ACRONYMS (Cont.)

SSER	Supplemental Safety Evaluation Report
SSI	Soil-Structure Interaction
SVDS	Screening Verification Data Sheet
T. S.	Technical Specification
T_c	Cold Leg Temperature
T_h	Hot Leg Temperature
USI	Unresolved Safety Issue
VCT	Volume Control Tank
ZPA	Zero Period Acceleration

Section 1

INTRODUCTION

1.1 PURPOSE

The purpose of this report is to document the seismic evaluations performed to address Unresolved Safety Issue (USI) A-46 at BVPS-1, using the Generic Implementation Procedure (GIP) by the Seismic Qualification Utility Group (SQUG). The relay evaluations are documented in a separate report.

1.2 PLANT DESCRIPTION

The BVPS-1 is located in Shippingport Borough, Beaver County, Pennsylvania, on the south bank of the Ohio River. The site is approximately one mile from Midland, Pennsylvania, five miles from East Liverpool, Ohio, and approximately 25 miles from Pittsburgh, Pennsylvania. The coordinates are 40°37' 18" north and 80°26' 2" west. The Universal Transverse Mercator coordinates are 547,900 meters east and 4,496,680 meters north. The site comprises approximately 501 acres including 26 acres of right of way. Approximately 479.5 acres, with the exception of approximately 21.5 acres on which BVPS-1 is located, are owned by Duquesne Light Company (DLC). The 21.5 acres on which BVPS-1 is located are owned jointly by the Central Area Power Coordinating Group (CAPCO) members as tenants in common without right of partition.

1.3 BACKGROUND

Because of the extent of the changes in the requirements for seismic qualification of equipment over the years, the U.S. Nuclear Regulatory Commission (NRC) initiated USI A-46, "Seismic Qualification of Equipment in Operating Nuclear Plants," in December 1980. The purpose of USI A-46 is to verify the seismic adequacy of essential equipment in operating plants which had not been qualified in accordance with more recent criteria.

In 1982, SQUG was formed to develop a practical approach for seismic qualification of equipment in operating plants. The approach developed by SQUG was to use experience with the performance of power plant and industrial equipment in actual earthquakes as the primary basis for evaluating the seismic ruggedness and functionality of essential equipment in nuclear power plants. In 1983, the NRC issued NUREG 1018 (Reference 6) which includes a general endorsement of the use of experience data for verification of the seismic adequacy of equipment in nuclear plants.

In early 1987, the NRC issued Generic Letter (GL) 87-02 to owners of operating nuclear plants which were licensed prior to development of modern seismic qualification standards. The recipients of GL 87-02 are referred to as A-46 plants and include BVPS-1. Essentially, all owners of A-46 plants, including Duquesne Light Company, are SQUG members. GL 87-02 requires

owners to take action to verify the seismic adequacy of important equipment in their plants. The SQUG approach embodied in the GIP is explicitly recognized by the NRC as the preferred method for accomplishing this objective.

In 1992, the NRC issued Supplement No. 1 to GI. 87-02 which transmitted Supplemental Safety Evaluation Report No. 2 on SQUG GIP, Revision 2, as corrected on February 14, 1992. References 1 and 2 are the basis for the seismic evaluations described in this report.

In Reference 4, Duquesne Light Company described their approach for resolving USI A-46. This approach was accepted by the NRC in Reference 5.

1.4 REPORT ORGANIZATION

The remaining sections of this report are organized in accordance with Section II.9.4 of the GIP. These sections include the following:

- Section 2, "Safe Shutdown Earthquake" - The BVPS-1 Ground Response Spectra (GRS) and In-Structure Response Spectra (IRS) are described. The bases for determining how seismic demand is determined for each equipment are provided in Section 5, and documented on the SVDS forms in Appendix 5.1 of this report.

- Section 3, "Project Team" - The Duquesne Light Company project team is discussed. Resumes for SCEs are included in Appendix 3.2 of this report.

- Section 4, "Safe Shutdown Equipment List (SSEL)" This section contains information from the SSEL report recommended for submittal to the NRC, per Section II.9.2 of the GIP. Descriptions of the safe shutdown path selection, plant operation procedures used, and Duquesne Light Company Operations Department review of the SSEL are discussed. Lists of equipment on the SSEL and Seismic Review SSEL are included in Appendices 4.3-1 and 4.3-2 of this report. The list of equipment included on the Relay Review SSEL is included in the Relay Report, Reference 3.

- Section 5, "Mechanical and Electrical Equipment Review" - Screening Verification and Walkdown results for mechanical and electrical equipment are discussed, in addition to the SVDS forms provided in Appendix 5.1. Instances in which the intent of a caveat is met without meeting the specific wording of the caveat rule are identified. A summary of outliers and their resolution is provided.

- Section 6, "Tanks and Heat Exchanger Review" - Results of the tanks and heat exchangers review are discussed. A summary of outliers and their resolution is provided.

- Section 7, "Cable and Conduit Raceway Review" - Results of the raceway review, including bounding samples and outliers, are summarized.

- Section 8, "Plan for Addressing Unresolved Outliers" - The plan and schedule for addressing remaining unresolved outliers are discussed.

- Section 9, "Significant or Programmatic Deviations from the GIP" - A statement is made that no significant or programmatic deviations from the GIP were made for the BVPS-1 A-46 Program.

- Section 10, "Third-Party Audit" - The Third-Party Audit is summarized, including resolution of recommendations made by the Auditor(s) during the initial Audit. The Audit report is included in Appendix 10.

Tables, figures and appendices are numbered according to the report section which references them.

Section 2

SAFE SHUTDOWN EARTHQUAKE

2.1 SEISMICITY

The BVPS-1 area is quiet seismically. Historically, no earthquake of epicentral Intensity V, or greater, Modified Mercalli, has occurred within 80 miles of the site. The nearest earthquake of epicentral Intensity V, or greater, took place on June 27, 1906 at Fairport, Ohio (near Cleveland), 80 miles northwest of the site. Only one earthquake having an epicenter within 60 miles of the site has been reported. This earthquake reportedly took place at Sharon, Pennsylvania, approximately 40 miles north of the site, on August 17, 1873. Details are limited, but it is estimated that it had an epicentral intensity of Modified Mercalli III and certainly no more than IV.

The site has experienced vibratory ground motion as a result of distant earthquakes, most notably the 1812 earthquake at New Madrid, Missouri, and the 1886 earthquake at Charleston, South Carolina. It is estimated that the latter earthquake may have caused ground motions in the vicinity of the site with an intensity of Modified Mercalli IV in the upland areas and possibly as high as V along some of the river banks, where the structures were located on alluvial soils of relatively recent age. Probably the New Madrid, Missouri, earthquakes resulted in much the same level of motion at Pittsburgh and Shippingport areas. Data are fragmentary and uncertain. It is known, however, that the nearest significant damage from the New Madrid earthquakes was at Cincinnati, Ohio, approximately 330 miles from the epicenter and about 250 miles closer to the epicenter than the site. The Attica, New York area, 180 miles northeast of the site, experienced an earthquake of epicentral Intensity VIII Modified Mercalli on August 12, 1929, and two earthquakes of epicentral Intensity VI have also occurred in this Attica area. An earthquake of epicentral Intensity VII to VIII occurred near Anna, Ohio, on March 8, 1937, and three earthquakes of epicentral Intensity VII have occurred in this same area. Anna, Ohio, is approximately 200 miles west of the site. Earthquakes which occurred in the Attica, New York, area and the Anna, Ohio, area apparently were not perceptible at the site.

2.2 GROUND RESPONSE SPECTRA

The BVPS-1 is founded on a soil site. The site Operational Basis Earthquake (OBE) is based on 0.06 g maximum ground acceleration at zero period, and the site Design Basis Earthquake (DBE)/Safe Shutdown Earthquake (SSE) is based on 0.125 g maximum ground acceleration at zero period. SSE response spectra for each earthquake used for the analysis of Class I structures are given in Appendix 2.2.

2.3 IN-STRUCTURE RESPONSE SPECTRA

As part of the re-analysis of Seismic Class I piping systems performed in 1979, Amplified Response Spectra (ARS) were developed using Soil Structure Interaction (SSI) methodology.

Appendix 2.3 presents the in-structure response spectra for the SSE, which were used in the SQUG evaluations. The methodology used in SSI-ARS is based upon a layered elastic media model for soil and a lumped mass model for structures. Analysis using these models involves:

1. The calculation of frequency-dependent stiffness at the surface of a layered medium using the program REFUND

2. Modification of a specified surface motion to account for embedment of the structure

3. The application of kinematic interaction principles to modify translational input specified at the surface to both a translational and rotational motion at the base of the rigid structure foundation using the program KINACT

4. Analysis of the structural model supported on frequency-dependent springs using the program FRIDAY.

The resulting ARS developed from this methodology were compared with ARS developed using a detailed finite element representation of the underlying soil medium with a lumped mass representation of the containment structure using the program PLAXLY. The amplified values of acceleration computed using the REFUND/KINACT/FRIDAY method are generally 30 to 100 percent larger than values computed using the more rigorous PLAXLY approach.

Variations in soil properties have generally been accounted for by developing ARS using mean values of soil moduli and damping ratio values adjusted for strain levels associated with earthquakes, and peak spreading the resulting ARS.

The soil properties are developed from subsurface data into a soil profile, in which each stratum has its own soil parameters. The required dynamic properties in each layer are described first by the small strain values of shear modulus, and then site response analysis is used to develop values of damping and shear modulus that are compatible with the strains to be expected during an earthquake.

Subsurface information was obtained from several sources, which include the BVPS-1 FSAR, the Geotechnical Design Criteria for BVPS-2, and the report on the Soil Densification Program for BVPS-2. Two seismic cross-hole surveys were performed by Weston Geophysical Laboratory, the first in 1968 and the second in 1977, in conjunction with the BVPS-2 Soil Densification Program.

The computer program SHAKE developed by Schnabel, Lysmer, and Seed was used to calculate strain compatible shear moduli, and damping from low strain values was determined from field testing and empirical formulae based on laboratory test data.

The amplified response spectra used in the analysis are based on the methodology described in the report entitled "Soil-Structure Interaction in the Development of Amplified Response Spectra for BVPS-1." This report was submitted to the NRC by Duquesne Light Company on June 11, 1979,

and included USNRC requested revisions (Docket No. 50-334). The USNRC SER, dated 5-22-92, issued relative to GL 87-02 and GIP-2, categorized BVPS-1 as having "conservative, design" in-structure response spectra.

The FRS of Appendix 2.3 are plotted at the 1% damping level associated with the SSE for structural analysis. The conversion to 5% damping curves (and 3% where needed) for A-46 use, was performed using the GIP section 4.4.3 guidance.

Section 3

PROJECT TEAM

3.1 SEISMIC REVIEW TEAM (SRT)

The SRT comprised members of the Duquesne Light Company Nuclear Group's staff and engineers of the consulting firm of EQE International. Safe Shutdown Equipment List (SSEL) and cabletray/conduit walkdowns were performed by DLC seismic capability engineers (SCEs), as were valve evaluations. Cabletray/conduit and tank/heat exchanger analyses were performed by both DLC and EQE SCEs. Anchorage analysis for SSEL items was performed almost exclusively by EQE. Additionally, EQE performed a preliminary, visual review of cabletrays/conduits to confirm the DLC sampling approach, and responded to questions on the SSEL and site ARS. As described below, EQE performed the third party audit, and prior to that, a preliminary audit.

The DLC SRT included a representative from the Operations Department, and six (6) SCEs, one (1) system engineer and two (2) relay review engineers from the Nuclear Engineering Department (the system engineer also performed relay review, making three (3) relay review engineers available). A member of the Nuclear Safety Department assisted in communicating with the NRC. All SCEs, system and relay engineers received SQUG training for their areas of involvement. Additionally, members of the Nuclear Safety Department and Operations Department had individuals trained who are not directly involved in the project currently.

Beyond the SRT, Nuclear Engineering Department staff engineers were involved in furnishing analysis to the SCEs for valve weak-link, component materials, and pump performance evaluations.

3.2 SEISMIC CAPABILITY ENGINEERS

The SCEs totaled six (6), as described above, and were trained by SQUG. Their resumes are included in Appendix 3.2.

3.3 THIRD-PARTY AUDITORS

The third-party audit was performed by EQE International's Mr. Gregory Hardy. His report and resume can be found in Appendix 10.0. Additionally, EQE's Mr. Ron Cushing performed a preliminary review earlier in 1995. A discussion of their findings and DLC's corrective actions can be found in Section 10. Mr. Cushing's qualifications are included with the SCEs of Appendix 3.2.

SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

The BVPS-1 Safe Shutdown Equipment List (SSEL) was prepared in accordance with Section II.3 and Appendix A of the GIP.

4.1 SAFE SHUTDOWN PATH SELECTION

4.1.1 Safe Shutdown Systems

The following sections describe the safe shutdown systems and main operating procedure steps necessary to meet USI A-46 requirements. The four basic functions of reactivity control, pressure control, inventory control, and decay heat removal are covered. Each section describes the plant systems and main operator actions that are used to accomplish these safe shutdown functions.

4.1.1.1 Reactivity Control Function

Initial reactivity control is achieved by control rod insertion initiated by either an automatic or manual reactor trip. The rods gravity fall into the core if either reactor trip breaker opens resulting in an interruption of power to the gripper coils. The operators will be able to verify that the reactor is subcritical by checking the power or intermediate range nuclear instruments (NI). The source range nuclear instruments will become available within 30 minutes following the reactor trip/shutdown. Once energized the source range instruments can also be used to monitor subcriticality. The GIP does not require the NI system to be listed on the SSEL. In the unlikely event that the reactor could not be tripped the operators would follow Emergency Operating Procedure FR-S.1 "Response to an ATWS." The rod position indication (RPI) system was not chosen because the control rod drive system is nuclear steam supply system (NSSS) supplied and all accident analysis assumes only one rod remains out of the core.

Boric acid addition is then used for long term reactivity control to compensate for the positive reactivity added by xenon decay and RCS cooldown (positive reactivity is added due to a cooldown of the fuel - doppler coefficient, and the cooldown of reactor coolant - moderator temperature coefficient). When the unit is at power, the quantity of boric acid retained in the RWST and boric acid storage tanks by technical specifications greatly exceeds the quantity required to compensate for xenon decay and concurrent RCS cooldown. For the plant shutdown, charging and boration will be accomplished by operating a minimum of one charging pump. The source of borated water could be from the RWST or the boric acid tanks; which will be used will depend upon whether other non-SQUG equipment is available (primarily the letdown subsystem). Two separate and independent flow paths can be used for RCS makeup and boration: the seal injection lines to the seals of the RCPs and the normal charging line to the loop B cold leg. The boration will probably have to be done without any CVCS letdown because the letdown line is assumed to be isolated due to a loss of containment instrument air.

Portions of the reactor plant sampling system are included so that the operators will be able to confirm that they are borated to the value required by Operating Surveillance Test OST 1.49.2 prior to blocking the automatic SI signals.

The safe shutdown equipment in these flowpaths is itemized on the SSEL (items 1101 through 1248).

4.1.1.2 Pressure Control Function

The RCS is the primary system used to achieve pressure control. Control is achieved by using the pressurizer heaters and the power-operated relief valves (PORVs)/Safeties.

The pressurizer has three PORVs in parallel that provide overpressure protection during normal operations. The PORVs may not be available because the air supply to the valves cannot be guaranteed; instead, the three pressurizer safeties were utilized for overpressure protection. Operation of the safeties is the backup for the PORVs which will operate if instrument air is available or accumulator tank GN-TK-1A or B is used. Pressure reduction (control) is accomplished by natural circulation RCS cooldown or intermittent use of the PORVs.

Based on the premise that failure of a pressurizer relief tank (PRT) rupture disk will not negate the ability to maintain a safe shutdown, no PRT associated equipment was selected.

Wide range RCS pressure instruments were selected to monitor the pressure control function.

The equipment used for the pressure control function is itemized on the SSEL (items 2101 through 2230B).

4.1.1.3 Inventory Control Function

The charging portion of the CVCS accomplishes RCS inventory control by providing makeup water. Charging flow to compensate for coolant contraction due to the RCS cooldown and any inventory losses due to leakage will be accomplished by operating a minimum of one charging pump. The pump will take its suction from the RWST or the boric acid tanks and inject borated water to the B cold leg via the charging header and/or into the RCS via the reactor coolant pump (RCP) seal injection lines. Charging flow control valve (FCV-CH-122) fails open on a loss of air. If this occurs charging flow could be manually controlled using valves CH-28, 29 and 30.

If it becomes necessary to remove inventory from the RCS due to minimal charging flow with no letdown, two options are available: 1) reestablish RCS letdown and swap the charging pump suction back to the VCT, or 2) cool the RCS to shrink the inventory thus reducing volume. The RCS can be borated to maintain adequate shutdown margin during the cooldown. If it is reestablished, letdown will prevent RCS overfilling. The CVCS letdown lines including the VCT are not on the SSEL and may not be available because there are many air operated valves in the flowpath.

The availability of seal return flow is not required to achieve a safe shutdown and may be locally or remotely isolated. When isolated, RV-CH-382A lifts and diverts RCP seal return flow to the PRT.

RWST and pressurizer level indication, and charging and RCP seal injection flow indication will serve to monitor the inventory control function. The equipment used for inventory control is identified on the SSEL (items 3101A through 3321).

4.1.1.4 Decay Heat Removal Function

The decay heat removal function is satisfied by the RCS, main steam and auxiliary feedwater (AFW) systems. Heat is transferred by natural circulation of the reactor coolant from the core to the steam generators (SGs); heat is released from the secondary side of the SGs by releasing steam to the atmosphere via the residual heat release valve and/or an atmospheric steam dump valve(s).

The RCS is a Westinghouse three-loop design capable of natural circulation heat transfer. This provides a means of heat removal when the RCPs are unavailable. Adequate SG level is required to maintain natural circulation.

Confirmation of flow while in natural circulation is accomplished through the monitoring of the following instrumentation: SG levels and pressures, RCS pressure and loop temperature indications, T_{cold} (Tc) and T_{hot} (Th) or thermocouples. Subcooling within the RCS is maintained by keeping system pressure greater than the saturation pressure which coincides with the hottest RCS temperature and continuous removal of heat from the SGs.

The main steam (MS) system is used to remove decay and sensible heat from the RCS. The secondary system could be isolated by operation of the main steam trip valves if the condenser or the condenser steam dumps become unavailable. The trip bypass valves are assumed to be closed at power but could be closed if required. Steam will be released to atmosphere via the Residual Heat Removal (RHR) valve or an atmospheric steam dump. The RHR and atmospheric steam dumps require instrument air for operation. However, they can be manually opened/throttled if the air system is unavailable. The MS components required for a safe shutdown are listed on the SSEL. A non-rugged pressure switch may cause the atmospheric steam dumps to open during the seismic event; if this would occur, the steam released would lessen the demand on the condenser steam dumps; or, if offsite power is lost, the atmospheric steam dumps would already be open.

The auxiliary feedwater (AFW) system is required to remove decay heat. SG inventory control is provided by the AFW system. The AFW system consists of one Turbine Driven AFW pump and two motor driven AFW pumps. All AFW pumps receive their water supply from the 140,000 gallon primary demineralized water storage tank (WT-TK-10). WT-TK-10 does not contain enough water to remove decay heat for 72 hours. If needed, the AFW pumps could be supplied with river water by manually repositioning a few valves. It is not expected that river water would

have to be used because there are sufficient quantities of water available in other tanks which could be utilized in the 8-10 hours available before WT-TK-10 is depleted. The AFW pump recirculation flow control valves are air operated and fail closed. In the event that this becomes a problem late in the scenario the pump(s) could be run intermittently to prevent pump damage due to low flow.

The decay heat removal components required for a safe shutdown are included on the SSEL (Items 4101A through 4217).

4.1.2 Supporting Systems

The following sections describe the supporting systems necessary to ensure that the basic safe shutdown functions described above will be achieved. These systems do not directly perform a safe shutdown function but must operate in order to support the safe shutdown systems.

4.1.2.1 River Water

The river water system is required to supply cooling water to several components required for a safe shutdown. Included are the emergency diesel generators (EDGs), the charging pumps and items in the control room ventilation system. The river water system has sufficient capability to also supply water to the SGs if needed. Seal water and motor cooling water will be self-supplied from the River Water pump discharge lines.

4.1.2.2 Emergency Power

The EDG, station batteries, inverters and emergency electrical distribution systems are required to support all the required shutdown functions. Operability of the EDG also requires the support of the air start tanks, the fuel oil system including the day tanks and the underground tanks, the remote excitation cabinet and the load sequencer. Other electrical support includes the 4KV, 480VAC, 120VAC and 125VDC emergency busses and distribution systems (transformers, MCCs, inverters and battery chargers).

4.1.2.3 HVAC

Several areas of the plant require ventilation during safe shutdown operations to protect electrical equipment from heat damage and allow access for operator actions. These areas are:

(1) Control Room
(2) Emergency Switchgear/Battery Rooms
(3) Charging Pump Cubicles (using SLC & RS)
(4) The AFW Pump Room (using SLC & RS)
(5) The Diesel Generator Rooms
(6) The River Water Pump Cubicles

Containment cooling would be lost during the shutdown due to the loss of cooling water. Operating experience and calculations show that containment internal temperatures do not exceed 120 degrees during a worst case loss of containment cooling. No operator action in containment is anticipated. If required, operators could still make containment entries using ice vests.

4.1.2.4 Heat Trace

Heat Trace required to maintain the RWST flow path is included to assure cold weather availability. Review of BAT piping resulted in a determination that its flowpath will experience ambient indoor temperatures only and maintain a 68°F minimum temperature.

4.1.2.5 Fire Protection

Fire protection systems are included where their seismically-induced activation could affect SSEL component function. These SSEL components include the AFW Pumps, EDGs and the charcoal bed filters. The auxiliary feedwater pumps and charcoal bed filters are protected by heat actuated devices (HADs). The HADs activate a deluge valve upon sensing a fire, releasing water to the system. The emergency diesel generators are protected by a carbon dioxide blanket system, triggered by HADs. All three systems are automatic in actuation.

4.1.2.6 General

Emergency lighting is provided throughout the plant. If it should fail during a seismic event, flashlights or portable lanterns will be used to support operator actions.

Communication is usually done by phone or plant page; should these fail, communication would be by walkie-talkie.

Decay heat will need to be removed from the spent fuel pool during the 72 hour period. No fuel pool cooling equipment is on the SSEL because decay heat removal or makeup to the fuel pool could be accomplished using existing procedures utilizing river water as the heat sink.

Equipment that is required to remain inactive during plant shutdown, including that which could load the diesel generators, is included for purposes of relay review to assure that no seismic-induced activation occurs.

4.2 OPERATIONS DEPARTMENT REVIEW OF SSEL

The Operations Department SSEL review was performed by Mr. Jeff Shipe, NSS. Mr. Shipe has been a Nuclear Control Operator at Shippingport Atomic Power Station, 1974-1978, an Operating Foreman, 1978-1984, and an Assistant Nuclear Shift Supervisor at BVPS-1, 1984-present. His review included both a review of the SSEL to the procedures listed in Table 4.2 and a successful plant shutdown enactment performed on the BVPS-1 Simulator. Only SSEL equipment was used during the simulation, and unavailable (non-SSEL) control board indications were taped-over.

The SSEL is endorsed by Mr. Shipe by letter, with computer-dated and reviewer-initialed, individual pages.

No procedures unique to SQUG are planned; however, the Operations Department has undertaken to introduce the SQUG shutdown scenario into operator training sessions.

4.3 SAFE SHUTDOWN EQUIPMENT LIST AND SUBSETS

Printouts of the SSEL database are included in Appendices 4.3-1, 4.3-2 and 4.3-3. Appendix 4.3-1 is a printout of the composite SSEL, which includes equipment requiring seismic reviews and relay reviews. The composite SSEL includes all equipment for which either a seismic adequacy or a relay chatter evaluation is required. It is organized by line number series as follows:

- Reactivity Control - 1000 Series: Rod drop - 1100; Boration - 1200.
- Pressure Control - 2000 Series: Reduction - 2100; Increase - 2200.
- Inventory Control - 3000 Series: CVCS - 3100; Leakoffs - 3200.
- Heat Removal - 4000 Series: AFW - 4100; Steam Dump - 4200
- Support Systems - 5000 Series: River Water - 5100; HVAC - 5200; Electrical (EDG) - 5300.
- Electrical Enclosures/Supports - 8000 Series.

This organization by function results in duplicate entries since equipment may serve multiple functions. However, there are 528 individual components on the SSEL.

SSEL line numbers as described above were used on forms (SSEL, SEWS, SVDS, OSVS); however, the Equipment Identification Number (EIN) is considered the primary tracking number. Forms such as SEWS created at various stages of SSEL evolution, had referenced SSEL line numbers corrected by line-out/revision after the SSEL was finalized.

Appendix 4.3-2 contains the Seismic Review SSEL; Appendix 4.3-3 is the SSEL sorted alphabetically using EIN.

The composite SSEL is the base document for the other lists derived from it and, as noted previously, is approved by the Operations Department representative. It is also approved by the systems engineer who authored it, Mr. Ronald Ferrie. Mr. Ferrie also acted as lead relay reviewer and his credentials can be found in the BVPS-1 A-46 Relay Evaluation Report.

Table 4.2

List of Procedures Used for
Safe Shutdown Equipment List Review

Based on the events observed during a simulation of a DBE at the BVPS Unit 1 Simulator, the following procedures would be used:

1) Emergency Operating Procedure E-0 Reactor Trip or Safety Injection. Purpose: provides actions to verify response of the automatic protection systems following manual or automatic actuation of a reactor trip or safety injection, to access plant conditions, and to identify the appropriate recovery procedures.

- Verify the reactor is shutdown
- Verify the turbine is tripped
- Verify steam to the turbine plant is secured
- Verify the main unit generator is tripped
- Verify power is available to the two emergency busses
- Verify safety injection is not required

2) Emergency Operating Procedure ES-0.1 Reactor Trip Response. Purpose: provides the necessary instructions to stabilize and control the plant following a reactor trip without a safety injection.

- Control plant temperature via the steaming rate
- Restore parameters to expected ranges
- Verify AC power is aligned
- Verify natural circulation of the reactor coolant system

3) Emergency Operating Procedure ES-0.2 Natural Circulation Cooldown. Purpose: provides actions to perform a natural circulation RCS cooldown and depressurization to cold shutdown, with no accident in progress, under requirements that will preclude any upper head void formation.

The following three procedures will provide additional guidance to control the plant in the event systems are disabled by the DBE.

1) Abnormal Operating Procedure 1/2.75.3 Acts of Nature - Earthquake. Purpose: provides action in the event of an earthquake.

2) Abnormal Operating Procedure 1.34.1 Loss of Station Instrument Air. Purpose: provides instructions necessary for controlling the plant during a loss of station instrument air; provides a list of all air operated valves outside of containment and the positions they fail to on loss of air.

3) Abnormal Operating Procedure 1.34.2 Loss of Containment Instrument Air. Purpose: provides instructions necessary for controlling the plant during a loss of containment instrument air; provides a list of all air operated valves in containment and the positions they fail to on loss of air.

In addition, other procedures may be used as deemed necessary by operations personnel.

MECHANICAL AND ELECTRICAL EQUIPMENT REVIEW

5.1 SUMMARY OF REVIEW

The reviews of the seismic adequacy of mechanical and electrical equipment on the BVPS-1 Safe Shutdown Equipment List (SSEL) were performed in accordance with Section II.4 of the Generic Implementation Procedure (GIP). The equipment which was reviewed for seismic capacity (Capacity) versus seismic demand (Demand), can be found in Appendix 4.3-2, the Seismic Review SSEL. The list includes some equipment that is found in or on other SSEL items, and considered seismically adequate thru "Rule-of-the-Box" (ROB) criteria. Such equipment is listed to identify its importance. Each item was inspected for mounting, interaction and any special vulnerability. Separate Seismic Evaluation Walkdown Sheets (SEWSs) were not generated for these items, but deficiencies were noted on the host SEWS and Outlier Seismic Verification Sheet (OSVS) as applicable.

Equipment characteristics were reviewed using record documents prior to each walkdown. A SEWS for each item was then completed to the extent possible in the field. Unanswered questions were recorded separately as unresolved issues. SEWS considerations that could not be answered in the field were completed at a later date, and the item's status held open. If a change on a SEWS was necessary, the initiating SCE initialed the change.

Walkdown inspection teams comprised a minimum of two (2) SQUG-trained Seismic Capability Engineers (SCE), occasionally three (3), and always included at least one (1) Professional Engineer (PE) licensed in the State of Pennsylvania. Initially, separate trains of equipment were inspected by separate SRTs to determine if significant differences in judgment existed -- none did. Most walkdowns occurred during BVPS-1 refueling outages 9R and 10R, but some off-outage inspections did occur as well.

During the walkdowns, electrical enclosures were inspected for device mountings that were unusual and which could significantly amplify. No unusual features were found. The lead relay reviewers joined the SCEs at times to verify essential relay types.

Signed Screening Verification Data Sheets (SVDSs) for each SSEL equipment item are contained in Appendix 5.1.

5.1.1 Seismic Capacity vs. Demand

The BVPS-1 Ground Response Spectrum is enveloped by the GIP Bounding Spectrum; also, the BVPS-1 Floor Response Spectra (FRS) are bounded by 1.5 times the Bounding Spectrum (BS) - all at 5% damping. The second criteria (FRS vs. 1.5BS) was used exclusively to satisfy the Capacity versus Demand caveat. This negated the need to determine height above grade. The grade elevations for various buildings containing SSEL components can be found in Table 5.1.

No use of Generic Equipment Ruggedness Spectra (GERS) was made in establishing equipment Capacity. No SSEL equipment failed to satisfy the Capacity versus Demand screen, except for two (2) intake structure HVAC fans and the River Water Pumps. No record FRS exists for the elevation at which they exist (see outlier discussions).

5.1.2 Equipment Class Descriptions

The BVPS-1 SSEL equipment is briefly described by equipment class in the following sections.

Class 1 - Motor Control Centers (MCC): MCCs manufactured by Allis-Chalmers are found in the auxiliary building (735'), diesel generator building (735'), safeguards building (735'), service building (713') and intake structure (705'). MCCs by Gould can be found in the safeguards building (756'). The MCCs are floor-mounted by way of welds to embedded channels. All have top entry conduit, often times substantial in number. The Allis-Chalmers MCCs were tested for response characteristics by WYLE Laboratories, which determined a lowest fundamental frequency of 11 Hz.

Class 2 - Low Voltage Switchgear (LVS): The equipment supplied by General Electric is located at elevation 713 of the service building. They are anchored by concrete expansion anchors. The equipment supplied by Westinghouse Electric Corp. is located at elevation 713 of the service building. They are anchored by concrete expansion anchors.

Class 3 - Medium Voltage Switchgear (MVS): This equipment is supplied by ITE and General Electric. All are located at elevation 713 of the service building. [illegible]s anchored by welds to embedded channels.

Class 4 - Transformers: Six (6) transformers are on the SSEL. Four (4) transformers are supplied by General Electric, and located at elevation 713 of the service building. The internal core and coils were subsequently replaced by ITE Gould cores and coils and the supporting base was revised to accommodate the change. Two of these transformers are attached with welds to embedded steel and two are anchored with concrete expansion anchors. Two (2) transformers are supplied by Westinghouse Electric Corp. and are located in the safeguards building at elevation 722. These are mounted on a Unistrut frame.

Class 5 - Horizontal Pumps: The horizontal pumps include three (3) CH charging pumps in the aux. building at elevation 722, two (2) boric acid transfer pumps in the aux. building at elevation 752, four (4) diesel generator fuel oil transfer pumps in the diesel generator building at elevation 735, and two (2) motor driven auxiliary feedwater pumps in the safeguards building at elevation 735. The pumps are supplied by Pacific Pump Dresser, Goulds Pumps Inc., Sier-Bath Pump, and IR/Cameron.

Class 6 - Vertical Pumps: The vertical pumps include three (3) river water pumps. They are located in the intake structure at elevation 705. They are supplied by Byron Jackson.

Class 7 - Fluid-operated Valves: Fluid-operated valves are located in the auxiliary building at elevation 722, in the safeguards building at elevations 735, 752 & 768, in the reactor containment building at elevations 707, 718, 752 & 767, in the intake structure at elevation 705 and the diesel generator building at elevation 735. Various manufacturers supplied the air- operated valves. Included in this class are relief valves and pressure regulators.

Class 8A - Motor-operated & Solenoid-operated Valves: Motor-operated valves are located in the auxiliary building at elevation 722, in the safeguards building at elevations 722 & 735, in the reactor containment building at elevations 718, & 767, in the intake structure at elevation 705, in the service building at elevation 713, in the PG pump room at elevation 722 and the diesel generator building at elevation 735. Various manufacturers supplied the motor-operated valves.

Class 8B - Solenoid-operated Valves: Solenoid-operated valves are located in the auxiliary building at elevation 722, in the safeguards building at elevations 722, 735 & 751 and in the reactor containment building at elevations 722, 735 & 751. Various manufacturers supplied the solenoid- operated valves. These valves are associated with the charging system, main steam system, reactor coolant system, and the reactor coolant sampling system.

Class 9 - Fans: Fans not included with air handling units (Class 10) are associated with the emergency switch gear supply and exhaust in the service building at elevation 725, diesel generator building exhaust at elevation 756, control room return air in the service building at elevation 713, leak collection exhaust in the auxiliary building at elevation 768 and the intake structure supply at elevation 725. American Warming and Vent. supplied the fans in the intake structure and Buffalo Forge Co. supplied the remaining fans.

Class 10 - Air Handlers: The air handlers include the control room air conditioning unit in the service building at elevation 713, the containment air compressor receiver tank air dryers in the service building at elevation 713 and the river water cooling coils associated with the control room air conditioning system in the service building at elevation 713. American Air Filter Co. supplied the cooling coils, Hankinson Corp. supplied the air drier tank and Trane supplied all the other equipment in this class.

Class 11 - Chillers: No chillers are included on the SSEL

Class 12 - Air Compressors: The air compressors on the SSEL are associated with the control room air conditioning system. They are supplied by Honeywell Inc. and are located in the service building at elevation 713.

Class 13 - Motor-Generators: No motor-generators are on the SSEL

Class 14 - Distribution Panels: The distribution panels are as follows: DC bus and vital bus distribution panels in the service building at elevation 713 and 735, 120 volt AC power distribution panels in the service building at elevation 713, 125 volt DC power distribution panels in the service building at elevation 735 and pressurizer heaters power distribution panels in the

safeguards building at elevation 735. This equipment was supplied by Reliance Electric Co., Static Products inc. and Harlo/Westinghouse.

Class 15 - Batteries on Racks: These are located in the service building at elevation 713. There are four (4) battery sets - two (2) each by Exide and by Gould.

Class 16 - Battery Chargers & Inverters: Battery chargers are supplied by LA Marche Mfg. Co. and are located in the service building at elevation 713. Inverters are supplied by Solidstate Controls Inc. and are located in the service building at elevation 713.

Class 17 - Engine-Generators: There are two (2) engine-generator sets on the SSEL. Both are supplied by Electro Motive.

Class 18 - Instruments on Racks: Instruments on racks are located in the auxiliary building at elevation 722, in the safeguards building at elevations 722, 735, 751 & 768, in the reactor containment building at elevations 701 & 718, in the yard area at elevation 735 and in the service building at elevation 713. Various manufacturers supplied these instruments.

Class 19 - Temperature Sensors: The RCS RTDs are located in the reactor containment building at elevation 718. They were supplied by RDF Corp.

Class 20 - Instrumentation & Control Panels and Cabinets: Instrumentation and control panels and cabinets include the control room consoles, vertical boards and panels located in the service building. Panels and cabinets are located in other service building areas at elevations 713 & 735, in the diesel generator building at elevation 735, in the safeguards building at elevation 735, in the service building at elevations 713 & 735 and the auxiliary building at elevation 768. Various manufacturers supplied the panels and cabinets.

Class 21 - Tanks and Heat Exchangers: This equipment is located in the auxiliary building at elevations 735, 722 & 752, in the diesel generator building at elevation 735, in the reactor containment building at elevation 767 and in the yard areas at elevations 724 & 735. Various manufacturers supplied the tanks and heat exchangers.

Class 0 - Other: This class includes the dampers in the ventilation and air conditioning systems for the control room air conditioning system, the emergency switchgear exhaust, the diesel generator building supply and exhaust, quench spray pump room outside air intake isolation, auxiliary feedwater pump room exhaust, leak collection and filtration system exhaust and the intake structure outside and recirculation air system.

5.1.3 Equipment Anchorage

Evaluation of loadpath was performed by the SCEs during walkdowns. On several occasions washers were replaced with larger types to improve anchor effectiveness. In general, all electrical enclosures were judged to be of adequate or superior structural design and fabrication.

Anchorage types found to be used on the SSEL equipment include embedded bolts, concrete expansion anchors, thru-bolts, nelson studs, welds and embedded channels and angles. Sizes and locations of anchorage were recorded during walkdowns for use later in performing anchorage capacity analysis. NDE was used on two (2) occasions - in determining the length of the bolts threaded into the shell anchors for the building service panel due to gaps under the base; in confirming the lengths of unknown expansion anchors on the PORV air/nitrogen accumulator tanks.

Concrete pads are tied to the floor slab thru reinforcing as detailed on BVPS-1 design drawings. No confirmation was attempted and such pads were considered to be adequate to transfer equipment loads to the floor slab.

Concrete expansion anchor types include Hilti Kwik-bolt & Drop-In, and Phillips Red-Head Self-Drilling & Drop-In. The length of all Hilti Kwik-bolts is known by virtue of controlled procurement, while shell types are standardized by their manufacturer. One instance of mismatched anchor components was discovered. These were replaced, and other anchors of the same size, timeframe and plant location extracted to prove that the problem was limited to the subject equipment.

Expansion-type anchorage checks were made during the walkdowns and were predominantly hand-wrench tightness checks during 9R; whereas, calibrated torque wrenches were used during 10R. Craft help was used for these checks during outages, while SCEs performed the checks non-outage. All accessible anchorage was checked for tightness. Inaccessible anchors were few and considered adequate based upon their use - e.g., shear loads only, or gravity loads - "self weight." Numerous shell anchors were inspected for proper recess after the attachment bolt had been removed. Several anchors that appeared to be in contact with an equipment base had the bolt hole enlarged slightly, and the anchor torque-tested to check for movement - none occurred. Walkdown inspection also included the observation of cracks and construction joints near expansion anchors.

Anchor analysis was performed by EQE using the GIP guidelines and reduction factors. Anchorage that failed either walkdown inspection or analytical review was classified as an outlier. Walkdown anchorage outliers that involved installation errors or deficiencies were corrected as they were found. See the outlier descriptions of Section 5.3 for examples.

5.1.4 Seismic Interaction

The SRTs assessed interaction risk while performing the walkdowns using the GIP guidelines of Section II.4.5 and Appendix D. Credibility, soft targets and consequences each are considered. Several situations in the control room necessitated the removal of unanchored storage cabinets. The control room ceiling panels will also be secured as described later in the outlier discussion section.

As noted above, the Allis-Chalmer MCCs were determined by WYLE Laboratories to have a lowest fundamental frequency of 11 Hz. This was used with the highest FRS PSA for any MCC location (intake structure, El. 735) in the deflection formula: displacement $\delta = PSA/[2\pi f]^2$; where PSA is the peak spectral acceleration and f is the enclosure's overall fundamental frequency of response. The resulting maximum deflection is 0.10 inch. This determination along with the conduit entry was considered in evaluating interaction where these types of MCCs were near a wall. If the object interacting with the MCC was itself flexible, then combined, worst case deflection was considered, or the possibility of interaction eliminated thru modification. The Gould MCCs had no potential interaction concerns because of the space around them.

Numerous instances of potential impact were identified. Where simple modifications were possible, maintenance work requests (MWRs) were generated and corrections made. Other potential impact situations were recorded for analytical evaluation of likelihood, consequence, and/or modification. See Section 5.3 for examples of interaction outliers.

5.2 INSTANCES OF INTENT BUT NOT LETTER OF CAVEAT MET

Instances in which the intent of a caveat is met without meeting the specific wording of the caveat rule are identified in Table 5.2.

5.3 SUMMARY OF OUTLIERS

A total of 230 outliers were identified for BVPS-1 SSEL equipment items. Short descriptions of each equipment outlier and its resolution are provided in Table 5.3. The following sections provide additional detail regarding selected outliers.

5.3.1 Open (Unresolved) Outliers

5.3.1.1 As required by the GIP, interaction concerns were addressed by the SRT during walkdown inspections while viewing individual equipment items. Questions of impact credibility and risk of damage were answered by individual SCEs as they viewed each component's surroundings. Generally, fluorescent light fixtures and their tubes were not judged to be threats, nor were wall-mounted emergency lights with batteries. However, as a result of third-party audit comments and additional inspection, these two interaction items have been determined to require further attention. All emergency lights and batteries in seismic areas will be inspected to assure that attachment hardware (e.g., screws) are in-place. Florescent light fixtures hung from chains will have their attachment hooks closed, and florescent tubes in fixtures near essential relay enclosures will have retention clips installed.

5.3.1.2 The control room (CR) ceiling is a continuous, suspended, wall-to-wall system of light-weight, formed-metal, open-lattice panels. Initial inspection proved that the panels resist removal from their individual support frames due to interference with certain features of the support members. However, further review disclosed some panels that would lift easily, which would allow them to fall. With some panels falling, the integrity of the remaining grid cannot be assured. Since failures of suspended ceilings are common in seismic events, the CR ceiling will have

positive restraint added to it in the form of tie-wraps at panel corners, or panel retention clips. Overall support of the entire ceiling is judged to be adequate.

5.3.1.3 The reactor coolant system temperature detectors (RTDs) were added to the SSEL prior to the last refueling outage, but were erroneously considered to be passive devices. They were given full support system and relay review, but were not walked down. Therefore, the SRT did not view the installation for interaction (anchorage review does not apply). Since these devices were installed in 1990 by way of a QA-controlled plant modification (DCP-698), both they and their installation are qualified to IEEE-344-75. Therefore, all SQUG concerns other than interaction are satisfied. DCP installation criteria included recommended wiring slack, and two-over-one situations are generally not concerns in the reactor containment. However, the RTDs will be considered outliers until the SRT views the installation during the next refueling outage.

5.3.1.4 The HVAC dampers and control systems on the SSEL which are not directly attached to an air-handler were originally qualified by way of various levels of test and analysis by the architect/engineer (Stone & Webster) and suppliers (Honeywell, American Warming & Ventilating). None of the existing documentation can be considered as equivalent to current requirements. Since SQUG does not specifically consider dampers located apart from air-handlers, these dampers are considered outliers (Class 0). Furthermore, since SQUG is developing criteria with which to evaluate such dampers, they will continue as outliers until SQUG criteria is available. All were given support system and relay review as appropriate, and walked down. Any additional interaction concerns have been identified as separate issues for resolution.

5.3.1.5 The BVPS-1 air supply system is not seismically qualified for functionality. Consequently, seven air-operated valves (AOVs) on the SSEL are not assured air supply for shutdown function as required (See Table 5.3.1.5). Three (3) of these, the power-operated relief valves (PORVs), have accumulator tanks available. The tanks are normally used with nitrogen during refueling, but are pressurized to normal air system pressure during power operation. Because of check valves, they would retain sufficient air to actuate the PORVs in the event of air system loss. The tanks and valving system are on the SSEL and have been judged to be adequate to operate the PORVs. The remaining four (4) valves require operator action for use in the SQUG shutdown scenario.

5.3.1.6 Transformers 1-8N, 1-8N1, 1-9P and 1-9P1 are outliers due to a lack of SQUG-required top bracing on the coils and because no analysis of the coil support arrangement is provided. The original qualification was based upon testing for the U.S. Navy and proper operation during the Sylmar earthquake. While the existing base-mounted coil support appears to be substantial, detailed vendor information for it is limited. Structural analysis of the base supporting the coils demonstrated that weak-way bending is not a problem.

The basis for the SQUG coil brace caveat is not well-documented; consequently, it is not clear whether it represents actual damage observed or vendor testing. The SQUG database contains two (2) "failures" of this type (coil contact with enclosure), but the transformers continued to function in both cases. Top bracing of the coils would appear to be very difficult to achieve while maintaining electrical integrity. The presence of shipping braces appears to be unrealistic. The

transformers will remain outliers until the coil support concern can be evaluated as to capacity, the coils braced, or the SQUG concern rationalized.

5.3.1.7 Three (3) control board strip chart recorders (LR-QS-100, TR-RC-410, TR-RC-413) are on the SSEL. They are cantilevered and meet the general acceptance criteria of Equipment Class 20. However, the separate review suggested by the Class 20 caveats identified the fact that these Westinghouse devices are required to have an independent rear support. Such a support is lacking for these recorders, making them outliers. Problem Report No. 1-95-605 and Basis for Continued Operation 1-95-012 have been written for this deficiency, and the recorders will either be supported properly or replaced with types not requiring support.

Three (3) strip chart recorders (FR-MS-478, 488, 498) of the same type are attached directly to the top of the benchboard. Their actual support conditions differ from the front and rear support arrangement which was their test configuration. The difference and its effect on their performance requires further review.

5.3.1.8 Switchboard Panel DC-SWBD-2 has two (2) of its four (4) anchors located less than the minimum distance from a construction joint (1.5" vs. 2.0"). The 2" minimum represents a 60% reduction of capacity, below which the SQUG reduction is 100% (full capacity requires 5" clear). The 100% reduction effectively eliminates the anchorage on one side of the panel, analytically leaves the panel without resistance to overturning, and makes the panel an outlier. The SQUG 100% reduction for a free edge nearby was based upon test results, and is perhaps due to the lateral forces created by expansion type anchors (Note: TRW Nelson stud testing - although substantially different in anchor mechanics - indicates approximately a 33% reduction in capacity for a comparably located "free" edge). However, while the construction joint will undoubtedly affect the anchors' capacity, it is not a free edge. The construction joint, to the contrary, was formed when one concrete section was poured against another. The construction joint is, therefore, a tight concrete-on-concrete planar surface that intersects an anchor's cone of influence. Such failure mechanisms as side-bursting and concrete splitting at a free surface, which are known to reduce anchor capacity, would not be present with a confined concrete surface such as this. The affected anchor will clearly have some capacity.

SQUG anchorage analysis of the DC-SWBD-1, 3 and 4 panels resulted in anchor bolt tensile loads of 54% of allowables. Since shear capacity would be unaffected (13% of capacity), the interaction limit of 100% would allow a 33% reduction in allowable to be taken for the nearness of the joint.

In summation, the subject panel will be identified as an outlier until the anchors can be either adequately tension tested in-situ, or additional anchorage provided thru design modification. While in-situ testing does not establish capacity margins (safety-factors) as normally assumed, the need for such margins -- wide-ranging installation uncertainty regarding concrete strength, hole size, angularity and setting method -- is absent with an existing anchor. Only concern over dynamic effects would make a margin prudent. For in-situ testing, a factor of three (3) for test load to calculated demand load would satisfy SQUG margins.

5.3.1.9 Inverter INV-VITBUS-4 also has anchorage that is too close to a floor construction joint. Its anchors, 3/4" diameter Hilti Kwik-bolts, are one (1) inch distant versus an acceptable 4" min. for 40% capacity; 7.5" for 100% capacity. The subject anchors were installed during a design modification (DCP-204) and were torque and tension tested as part of the QC controls in-place at that time. As discussed above, the applied testing proves that the anchor will resist a certain level and type of loading, with the exception of dynamic effects. The inverter is, therefore, considered an outlier under SQUG, to be resolved by testing or design modification.

5.3.1.10 Four (4) motor-operated valves, MOV-CH-115C & E, MOV-CH-350, and MOV-MS-105 are outliers. The three (3) CH valves have MOV operator restraint, while the MS valve is outside of the SQUG equipment class. They each possess weak-link analysis that requires further review to confirm seismic adequacy. Initial indications are that all will be found acceptable.

5.3.1.11 Control room HVAC VS-AC-1A is an outlier due to missing anchorage on one side of the unit, where it attaches to the supporting platform. A problem report and MWR are being generated to document and repair the attachment deficiency.

5.3.1.12 The River Water Pumps WR-P-1A, B & C are outliers because of Capacity/Demand and a discharge column overall length that exceeds that of the SQUG database pumps. There exists a record calculation, however, that considers the effect of anticipated seismic loads on the pumps. It concludes that the pumps will perform properly. The pump will be considered an outlier until the record analysis can be reviewed in greater depth for confirmation of its conclusions.

5.3.1.13 The AMSAC Panel contains programmable controllers for which no SQUG database guidance exists. Record qualification documentation exists, however, that will be reviewed for purposes of resolving the outlier. Additionally, SQUG is developing criteria for such devices which may also be used to confirm the AMSAC equipment's Capacity.

5.3.1.14 VS-F-57A, B & C are located at elevation 725 of the intake structure in the pump cubicles. FRS are available at the cubicle floor elevation, but not at the fan elevation. The cubicles are rigid, missile-protection, concrete structures with minimal resonance. The fans, however, will be considered outliers until a FRS is formulated for their location and compared to 1.5BS.

5.3.2 Significant Closed Outliers

5.3.2.1 Disconnect Switches SW-1-8N1 and SW-1-9P1 both had several anchors that failed the tightness test. It was determined that a mismatch of shell anchor plug and shell had produced the problem. The anchors were replaced with Hilti Kwik-bolts. Additionally, two (2) shell anchors of the same size and plant area were extracted to determine whether a particular crew performing installation may have repeated the mistake. The shells withdrawn were a Hilti Drop-in and a Phillips Red Head, both properly assembled and installed (withdrawal was extremely difficult). Hilti Kwik-bolts set deeper were installed as replacements. It was concluded that the mismatch installation was an isolated occurrence.

5.3.2.2 BAT-CHG-2 had three (3) of four (4) expansion anchors on one side fail the tightness check. Analysis showed that the single remaining bolt would have been sufficient to prevent overturning. Since the unit could not be removed to reset or replace the problem anchors, a steel angle and Hilti Kwik-bolts were installed on that side of the charger to assure proper anchorage.

5.3.2.3 MCC-1E-7 serving the EDG was found to have no weld connecting its rear base channel (inverted) to a channel embedded in its concrete support pad. This MCC's base channel was unlike all the other MCC base channels in that it and the embedded channel were the same size, providing no location for the standard fillet weld to be placed. A butt weld should have existed at the intersection of the channel's flanges, but none was found. The deficiency was resolved by installing flat bar tie-backs anchored to the wall along the tops of the MCC's sides. A problem report and LER were issued.

5.3.2.4 RK-AUX-REL A & B were missing tie-plate connections to adjacent cabinets and several base-to-support-channel bolts. These were installed, although the overall structural integrity was considered to be adequate in the as-found condition.

5.3.2.5 MOV-FW-160 is on the SSEL as a backup isolation valve requiring relay review. It was added even though several check valves exist between it and the primary system isolation valve. Check valves are rugged devices and the addition of the second isolation valve is very conservative -- unless the primary valve and the multiple check valves fail, its function is totally redundant. Furthermore, the valve's supporting MCC is non-safety powered and located in the turbine building. The MCC cannot be qualified due to interaction concerns. The MOV-FW-160 valve is, therefore, considered an outlier; but because of the system's multiple isolation features, it is an outlier for which no further corrective action is required.

Table 5.1

Effective Grade for BVPS-1 Structures

The effective grade for the structures which contain equipment on the SSEL are listed below. This elevation shall be used to determine if a piece of equipment is greater than or less than 40 feet above grade for the purpose of the SQUG review. The actual elevation of the equipment shall be used for comparison to the effective grade.

Bldg Abr	Building	Effective Grade
SRVB	Service Building	713' - 6"
AXLB	Auxiliary Building	722' - 6"
RCBX (1)	Reactor Containment	690' - 11"
DGBX	Diesel Generator Building	735' - 0"
PG-Pump	PG Water Pump Building	721' - 6"
INTS	Intake Structure	643' - 0"
SFGB	Safeguards (This designation	732' - 6" Safeguards
	includes the Safeguards Bldg,	722' - 6" Safeguards
	the Cable Vaults, Main Steam	722' - 6" MSCV
	Valve House, Cable Tunnel)	725' - 6" Cable Tunnel
YARD	Yard (South of Turbine Bldg)	735' - 0"

1) Applicable for equipment supported by the internal containment structure.

Table 5.2

Intent but Not Letter of Caveat Summary

(8 pages)

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
52-RTA	1. This component is mounted in the Reac-Tr-Swgr cabinet and is covered with the "rule of the box". The breaker is evaluated in the relay report.
52-RTB	1. This component is mounted in the Reac-Tr-Swgr cabinet and is covered with the "rule of the box". The breaker is evaluated in the relay report.
BAT-BKR-1	1. Cabinet exceeds the height for the equipment class (91 1/2" vs 90"). Additional height is sheet metal only and judged acceptable.
BAT-BKR-2	1. Cabinet exceeds the height for the equipment class (91 1/2" vs 90"). Additional height is sheet metal only and judged acceptable. 2. Conduits attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement
BAT-BKR-3	1. Cabinet exceeds the height for the equipment class (91 1/2" vs 90"). Additional height is sheet metal only and judged acceptable. 2. Conduit attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement.
BAT-BKR-4	1. Cabinet exceeds the height for the equipment class (91 1/2" vs 90"). Additional height is sheet metal only and judged acceptable. 2. Conduits attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement.
BAT-CHG-1	1. Conduits attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement.
BAT-CHG-2	1. Conduits attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement.
BAT-CHG-3	1. Conduits attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement.
BAT-CHG-4	1. Conduits attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement.
BNCHBD	1. Bottom of benchboard filled with fire foam that cannot be removed. Records indicate welds to embedded steel. Analysis indicated very low loading on welds and therefore judged to be acceptable.
CC-E-1A	1. A temporary lifting plate is welded to the fixed and free end supports. By engineering judgment this is judged inconsequential to the supports seismic capability.
CC-E-1B	1. A temporary lifting plate is welded to the fixed and free end supports. By engineering judgment this is inconsequential to the supports seismic capability.
CC-E-1C	1. A temporary lifting plate is welded to the fixed and free end supports. By engineering judgment this is inconsequential to the supports seismic capability.
EE-TK-1A	1. Buried tank cannot be visibly inspected. No interaction concerns exist for the tank.
EE-TK-1B	1. Buried tank cannot be visibly inspected. No interaction concerns exist for the tank.
FCV-CH-122	1. A 3/4" conduit located above this valve is not adequately supported. By engineering judgment the collapse of the conduit will not adversely affect the function of the valve.
FCV-RC-455C1	1. This valve has a spring loaded disc that allows free flow in one direction and metered (controlled) flow in the other. It functions somewhat like a check valve and check valves are inherently rugged.
FCV-RC-455C2	1. This valve has a spring loaded disc that allows free flow in one direction and metered (controlled) flow in the other. It functions somewhat like a check valve and check valves are inherently rugged.

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
FCV-RC-455D1	1. This valve has a spring loaded disc that allows free flow in one direction and metered (controlled) flow in the other. It functions somewhat like a check valve and check valves are inherently rugged.
FCV-RC-455D2	1. This valve has a spring loaded disc that allows free flow in one direction and metered (controlled) flow in the other. It functions somewhat like a check valve and check valves are inherently rugged.
FE-CDL-1A	1. The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. 2. The steel break glass rod on the panel (PCC-FE-1A) above is judged to be an unlikely interaction concern based on a tug test. All devices are mounted internally and free from impact of the steel rod.
FE-CDL-1B	1. The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. 2. The steel break glass rod on the panel (PCC-FE-1B) above is judged to be an unlikely interaction concern based on a tug test. All devices are mounted internally and free from impact of the steel rod.
FI-CH-122A	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
FI-CH-124	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
FI-CH-127	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
FI-CH-130	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
FI-CH-150	1. This component is mounted on the bench board and is covered with the "rule of the box" by the vertical board.
FI-FW-100A/B/C	1. These components are mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
FR-MS-478	1. This component is mounted on the benchboard and is covered with the "rule of the box" by the benchboard.
FR-MS-488	1. This component is mounted on the benchboard and is covered with the "rule of the box" by the benchboard.
FR-MS-498	1. This component is mounted on the benchboard and is covered with the "rule of the box" by the benchboard.
FT-CH-122	1. By engineering judgment the collapse of a lighting fixture located above this equipment will not adversely affect its function.
FT-CH-150	1. Due to configuration a 1/4" clearance to an adjacent reach rod is allowable, no interaction is expected.
HCV-CH-186	1. Differential movement between the valve and pipe is minimal since both are supported by the same adjacent wall.
INV-VITBUS-3	1. Cabinet exceeds the height for the equipment class (84" vs 80"). This is acceptable since the cabinet is constructed of heavy gauge material and no items of significant mass are mounted in the upper 1/4 of the cabinet, cabinet meets all other G.I.P. criteria.
INV-VITBUS-4	1. Cabinet exceeds the height for the equipment class (84" vs 80"). This is acceptable since the cabinet is constructed of heavy gauge material and no items of significant mass are mounted in the upper 1/4 of the cabinet, cabinet meets all other G.I.P. criteria.
LI-FW-474	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-FW-475	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-FW-476	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-FW-484	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-FW-485	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-FW-486	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
LI-FW-494	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-FW-495	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-FW-496	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-QS-100A/B/C	1. These components are mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-RC-459A	1. This component is mounted on the bench board and is covered with the "rule of the box" by the vertical board.
LI-RC-460	1. This component is mounted on the bench board and is covered with the "rule of the box" by the vertical board.
LI-RC-461	1. This component is mounted on the bench board and is covered with the "rule of the box" by the vertical board.
LI-WT-104A1	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LI-WT-104A2	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
LR-QS-100	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
MCC-1-E13	1. An in-basket is bolted to the side of the cabinet. This basket is light weight and will have no adverse affect on the cabinet.
MCC-1-E2	1. Flex conduit not used for top entry conduit. The length to support and bends in conduit are adequate to allow sufficient flexibility.
MCC-1-E4	1. Flex conduit not used for top entry conduit. The length to support and bends in conduit are adequate to allow sufficient flexibility.
MCC-1-E6	1. Flex conduit not used for top entry conduit. The length to support and bends in conduit are adequate to allow sufficient flexibility.
MOV-RW-102A1	1. Actuator to yoke bolts are recessed by about 1 thread. For 3/4" plate with 1/2" diameter bolt the factor of safety = 8 (Allis Chalmers calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. 2. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist.
MOV-RW-102A2	1. Actuator to yoke bolts are recessed by about 1 thread. For 3/4" plate with 1/2" diameter bolt the factor of safety=8 (Allis Chalmers calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. 2. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist.
MOV-RW-102B1	1. Actuator to yoke bolts are recessed by about 1 thread. For 3/4" plate with 1/2" diameter bolt the factor of safety=8 (Allis Chalmers calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. 2. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist.
MOV-RW-102B2	1. Actuator to yoke bolts are recessed by about 1 thread. For 3/4" plate with 1/2" diameter bolt the factor of safety=8 (Allis Chalmers calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. 2. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist.
MOV-RW-102C1	1. Actuator to yoke bolts are recessed by about 1 thread. For 3/4" plate with 1/2" diameter bolt the factor of safety=8 (Allis Chalmers calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. 2. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist.
MOV-RW-102C2	1. Actuator to yoke bolts are recessed by about 1 thread. For 3/4" plate with 1/2" diameter bolt the factor of safety=8 (Allis Chalmers calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. 2. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist.

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
MOV-RW-106A	1. Actuator to yoke bolt is recessed by about 1 thread on 1 bolt. This is considered acceptable by engineering judgment. 2. An overhead 1" stainless steel pipe is questionably supported for seismic loads. However, failure of this pipe is judged not to damage the valve.
MOV-RW-114A	1. Actuator to yoke bolt is recessed by about 1 thread on 1 bolt. This is considered acceptable by engineering judgment. 2. An overhead 1" stainless steel pipe is questionably supported for seismic loads. However, failure of this pipe is judged not to damage the valve.
PCC-FE-1A	1. The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. 2. The glass front is designed to be broken to access the manual CO_2 dump control. Since the controls work after the glass is broken any breakage caused by a seismic event would not affect operation of internal devices. 3. The steel break glass rod on the panel is judged to be an unlikely interaction concern based on a tug test of the rod.
PCC-FE-1B	1. The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. 2. The glass front is designed to be broken to access the manual CO_2 dump control. Since the controls work after the glass is broken any breakage caused by a seismic event would not affect operation of internal devices. 3. The steel break glass rod on the panel is judged to be an unlikely interaction concern based on a tug test of the rod.
PCV-GN-108	1. Missing nut on support adjacent valve is judged not to have an adverse affect on the seismic adequacy of this valve. Repaired per MWR 038659 (Problem Report 1-95-39)..
PCV-MS-101A	1. Based on a review of the stress report (11700.34-NP(B)-6590-X-001-0) the ARS used in analyzing the piping is for the containment building, since the pipe support structures are attached to the containment exterior. The Containment External (El. 792) 5% damping curve is enveloped by 1.5 x (Bounding Spectrum). Therefore, capacity exceeds the demand for these valves.
PCV-MS-101B	1. Based on a review of the stress report (11700.34-NP(B)-6590-X-001-0) the ARS used in analyzing the piping is for the containment building, since the pipe support structures are attached to the containment exterior. The Containment External (El. 792) 5% damping curve is enveloped by 1.5 x (Bounding Spectrum). Therefore, capacity exceeds the demand for these valves.
PCV-MS-101C	1. Based on a review of the stress report (11700.34-NP(B)-6590-X-001-0) the ARS used in analyzing the piping is for the containment building, since the pipe support structures are attached to the containment exterior. The Containment External (El. 792) 5% damping curve is enveloped by 1.5 x (Bounding Spectrum). Therefore, capacity exceeds the demand for these valves.
PCV-RW-130A	1. Compact pressure regulator in pipeline adjacent to a pipe support will not overstress pipe. 2. Pressure regulator valve is similar to pressure relief valves. Subject matter expert G. Hardy indicates regulator valves are in the experience database and considered appropriate in equipment class 7.
PCV-RW-130B	1. Compact pressure regulator in pipeline adjacent to a pipe support will not overstress pipe. 2. Pressure regulator valve is similar to pressure relief valves. Subject matter expert G. Hardy indicates regulator valves are in the experience database and considered appropriate in equipment class 7.

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
PCV-RW-130C	1. Compact pressure regulator in pipeline adjacent to a pipe support will not overstress pipe. 2. Pressure regulator valve is similar to pressure relief valves. Subject matter expert G. Hardy indicates regulator valves are in the experience database and considered appropriate in equipment class 7.
PI-RC-402A	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
PI-RC-403	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
PNL-AMSAC	1. Construction inspection per DCP 693 controls adequate to verify anchorage installed per the design outputs.
PNL-DIGEN-2	1. An overhead fluorescent light will not adversely affect the cabinet (i.e. rugged). 2. Several loose and missing screws in the back panel (cover) of cabinet. However, there are sufficient screws to secure the panel.
PNL-PR-HTR-A	1. Anchors not accessible due to panel covering or interfering with tools. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
PNL-PR-HTR-B	1. Anchors not accessible due to panel covering or interfering with tools. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
PNL-PR-HTR-D	1. Anchors not accessible due to panel covering or interfering with tools. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
PNL-PR-HTR-E	1. Anchors not accessible due to panel covering or interfering with tools. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
PNL-REL-41	1. Rigid conduits at top of the panel have sufficient length and bends for adequate flexibility.
RK-VS-AC-1A	1. Anchors not accessible due to panel covering or interfering with tools. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
RK-VS-AC-1B	1. Anchors not accessible due to panel covering or interfering with tools. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
RK-VS-E-567	1. Loose bolt supporting auxiliary panel repaired per MWR 043338.
SOV-MS-101A	1. The SOV is in the "rule of the box" with PNL-MS-101A.
SOV-MS-101A4	1. The SOV is in the "rule of the box" with PNL-MS-101A.
SOV-MS-101B	1. The SOV is in the "rule of the box" with PNL-MS-101B.
SOV-MS-101B4	1. The SOV is in the "rule of the box" with PNL-MS-101B.
SOV-MS-101C	1. The SOV is in the "rule of the box" with PNL-MS-101C.
SOV-MS-101C4	1. The SOV is in the "rule of the box" with PNL-MS-101C.
SOV-RC-455C1	1. The SOV is mounted on a 1/2" line which is below the figure B.8-1 limits. However, SOV is independently supported and therefore judged to be acceptable. 2. The clearance from SOV housing is approximately 1/16" to adjacent PCV-RC-455C valve actuator. They will move in-phase and not interact therefore judged to be acceptable

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
SOV-RC-455C2	1. The SOV is mounted on a 1/2" line which is below the figure B.8-1 limits. However, SOV is independently supported and therefore judged to be acceptable. 2. The clearance from SOV housing is approximately 1/16" to adjacent PCV-RC-455C valve actuator. They will move in-phase and not interact therefore judged to be acceptable
SOV-RC-455D1	1. The SOV is mounted on a 1/2" line which is below the figure B.8-1 limits. However, SOV is independently supported and therefore judged to be acceptable. 2. The clearance from SOV housing is approximately 1/16" to adjacent PCV-RC-455C valve actuator. They will move in-phase and not interact therefore judged to be acceptable
SOV-RC-455D2	1. The SOV is mounted on a 1/2" line which is below the figure B.8-1 limits. However, SOV is independently supported and therefore judged to be acceptable. 2. The clearance from SOV housing is approximately 1/16" to adjacent PCV-RC-455C valve actuator. They will move in-phase and not interact therefore judged to be acceptable
SOV-RC-456-1	1. The SOV is attached to a 1/2" tube and mounted on a support plate attached to PCV-RC-456.
SOV-RC-456-2	1. The SOV is attached to a 1/2" tube and mounted on a support plate attached to PCV-RC-456.
TR-RC-410	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
TR-RC-413	1. This component is mounted on the vertical board and is covered with the "rule of the box" by the vertical board.
TRF-SI-02	1. Transformer box solidly filled with epoxy. Coil attachment location is not a concern.
TRF-SI-06	1. Transformer box solidly filled with epoxy. Coil attachment location is not a concern.
TV-MS-101A	1. The east face of the operator is 1" clear of the platform steel. Impact is unlikely to prevent valve closing.
TV-MS-101C	1. The east face of the operator may interact with structural steel. Impact is unlikely to prevent valve closing.
TV-MS-111A	1. Diaphragm operated valve with cast iron yoke. Caveat applies to piston or spring operated relief valves not diaphragm valves.
TV-MS-111B	1. Diaphragm operated valve with cast iron yoke. Caveat applies to piston or spring operated relief valves not diaphragm valves.
TV-MS-111C	1. Diaphragm operated valve with cast iron yoke. Caveat applies to piston or spring operated relief valves not diaphragm valves.
TV-SS-105A1	1. Unistrut tube clamp adjacent to valve is missing. Tube clamp replaced by MWR 039274. Valve supported independently of tubing.
TV-SS-105A2	1. Unistrut tube clamps adjacent to valve and valve support u-bolt are missing. Tube clamp and u-bolt replaced by MWRs 032116 and 032117. Valve and tubing supported off rack.
VS-C-1A1	1. The equipment weight is small relative to the tension and shear capacity of a 3/8" redhead (4). Therefore, the anchorage is acceptable by engineering judgment. (Ref Calc. 8700-DSC-6534-Rev. 0)
VS-C-1B1	1. The equipment weight is small relative to the tension and shear capacity of a 3/8" redhead (4). Therefore, the anchorage is acceptable by engineering judgment. (Ref Calc. 8700-DSC-6534-Rev. 0)

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
VS-D-40-1C	1. A missing screw on the adjacent SOV cover (MWR 33422) will not prevent this component from operating. SOV and junction box have since been replaced per TER-9768.
VS-D-40-1D	1. Missing bolts on the associated SOV and junction box are judged to not have an adverse effect on the operation of the MOV (i.e. Prevent it from opening/closing). SOV and junction box have since been replaced per TER-9768.
VS-D-40-1F	1. Poor weld quality is judged to be structurally acceptable.
VS-D-57A1	1. Damper is mounted in concrete opening with a sheet metal plenum below it. Although not physically accessible nothing is present in the plenum or concrete intake hood to be a seismic interaction concern with the damper.
VS-D-57B1	1. Damper is mounted in concrete opening with a sheet metal plenum below it. Although not physically accessible nothing is present in the plenum or concrete intake hood to be a seismic interaction concern with the damper.
VS-D-57C1	1. Damper is mounted in concrete opening with a sheet metal plenum below it. Although not physically accessible nothing is present in the plenum or concrete intake hood to be a seismic interaction concern with the damper.
VS-F-40A	1. The 1/8" gap between anchor bolt head and the base of the vibration isolator is only on one side of the bolt head. The bolt head was tightness checked with a wrench and found to be tight.
VS-F-40B	1. The 1/8" gap between anchor bolt head and the base of the vibration isolator is only on one side of the bolt head. The bolt head was tightness checked with a wrench and found to be tight. 2. The > 1/4" gap was remeasured and found to be less than 1/4" on one side (dimension from bottom of bolt head to top of base for vibration isolator). Therefore, the intent of the caveat is judged to be met (i.e. gap<1/4").
VS-F-57A	1. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload. 2. Access from floor level. Embedment OK for shell anchors. Spacing is greater than fans VS-F-57B & C and no free edges exist. Concrete condition /strength is the same as adjacent cubicles. No essential relays in the fan assembly and no visible gaps.
VS-F-57B	1. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
VS-F-57C	1. Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload.
WR-P-1A	1. Overhead light fixtures on flexible support. Falling lights/parts unlikely and no soft targets exist. 2. Pump column support submerged in bay and is not accessible. Support is inspected by the ISI program. 3. Conduit against motor housing judged to not have an adverse effect on the operation of the pump or the wires in the conduit.
WR-P-1B	1. Overhead light fixtures on flexible support. Falling lights/parts unlikely and no soft targets exist. 2. Pump column support submerged in bay and is not accessible. Support is inspected by the ISI program. 3. Conduit against motor housing judged to not have an adverse effect on the operation of the pump or the wires in the conduit.

Notes for Screening Verification Data Sheets

Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule
WR-P-1C	1. Overhead light fixtures on flexible support. Falling lights/parts unlikely and no soft targets exist. 2. Pump column support submerged in bay and is not accessible. Support is inspected by the ISI program. 3. Conduit against motor housing judged to not have an adverse effect on the operation of the pump or the wires in the conduit.

Table 5.3

Equipment Outlier Description and Resolution Summary

(23 pages)

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
480VUS-1-8-N1	Anchorage **CLOSED**	SRVB El. 713	Broken bolt in shell anchor in front portion of cabinet (1 of 3).	Shell anchor replaced with Hilti Kwik-Bolt by MWR 019483. Performed analysis of as-found anchorage.
480VUS-1-9-P	Caveats (12) **CLOSED**	SRVB El. 713	Missing mounting screw on P2 Control DC switch.	Screw replaced by MWR 019631.
BAT-1	Caveats (3)	SRVB El. 713	Battery exceeds the weight for the equipment class. 600 lbs vs 450 lbs.	Review DCP 673 for seismic analysis of batteries and racks (2). Also locate seismic qualification of battery (cells).
BAT-2	Caveats (3)	SRVB El. 713	Battery exceeds the weight for the equipment class. 600 lbs vs 450 lbs.	Review DCP 673 for seismic analysis of batteries and racks (2). Also locate seismic qualification of battery (cells).
BAT-BKR-4	Interaction (5)	SRVB El. 713	Overhead conduit support may impact top corner of cabinet.	Determine deflections for components and compare to actual. Trim conduit support if required.
BAT-CHG-2	Anchorage (4) **CLOSED**	SRVB El. 713	Various anchors will not tighten.	Repair concrete anchorage Repaired on TER 9294 and MWR 38133. Further analysis of existing anchorage required Calc # 8700-DSC-6545.
BNCHBD	Caveats (9) **CLOSED**	SRVB El. 735	Some board mounted devices have missing attachment hardware (Problem Report 1-95-024).	Re-install missing hardware - completed prior to 10R restart.
	Caveats (3)	SRVB El. 735	Recorders FR-MS-478, 488, & 498 mounted directly on top of bench board have different support conditions than qualification test.	Review qualification test report for recorder capacity.
	Interaction (4)	SRVB El. 735	Suspended ceiling paned unrestrained.	Add panel clips or tie-wraps to positively secure ceiling sections.
DC-SWBD-1	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".	Review seismic qualification documentation. Followed by analysis and/or testing.
DC-SWBD-2	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".	Review seismic qualification documentation. Followed by analysis and/or testing.

Equipment ID	Type Status	Location	Issue
DC-SWBD-2	Anchorage (5)	SRVB El. 713	Anchorage [illegible] construction joint in floor [illegible] anchors.
DC-SWBD-3	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".
DC-SWBD-4	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".
EE-EG-1	Anchorage	DGBX El. 735	Anchor bolt design is unique but similar to cast-in-place bolts. Gap under portion of EDG skid is greater than 1/4". Only the ends of the EDG skid are grouted.
EE-EG-2	Anchorage	DGBX El. 735	Anchor bolt design is unique but similar to cast-in-place bolts. Gap under portion of EDG skid is greater than 1/4". Only the ends of the EDG skid are grouted.
EE-P-1A	Anchorage **CLOSED**	DGBX El. 735	Cracks in concrete pad require evaluation.
	Caveats (1) **CLOSED**	DGBX El. 735	Pump motor is (1) hp, which is outside the experience equipment class of motors 5hp to 2300hp.
EE-P-1B	Anchorage **CLOSED**	DGBX El. 735	Cracks in concrete pad require evaluation.
	Caveats (1) **CLOSED**	DGBX El. 735	Pump motor is (1) hp, which is outside the experience equipment class of motors 5hp to 2300hp.

Resolution
[illegible] Review seismic qualification [illegible] Followed by analysis and/or testing.
Anchorage analysis required for EDG. Calculation 52233-C-018 analyzed EDG anchorage and found it to be acceptable.
Anchorage analysis required for EDG. Calculation 52233-C-018 analyzed EDG anchorage and found it to be acceptable.
Per RC-30A &B the anchor embedment depth is 18" with a 7" sleeve. The cracks in the concrete pad will not effect the adequacy of the cast-in place anchors.
The 1 hp pump weighs less than the 5 hp pump in experience equipment class. By engineering judgment, the smaller pump is adequate for the applied seismic forces.
Per RC-30A &B the anchor embedment depth is 18" with a 7" sleeve. The cracks in the concrete pad will not effect the adequacy of the cast-in place anchors.
The 1 hp pump weighs less than the 5 hp pump in experience equipment class. By engineering judgment, the smaller pump is adequate for the applied seismic forces.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
DC-SWBD-2	Anchorage (5)	SRVB El. 713	Anchorage does not meet GIP criteria due to construction joint in floor near one row of anchors.	Perform additional analysis after verification of continuous rebar through the construction joint
DC-SWBD-3	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".	Review seismic qualification documentation. Followed by analysis and/or testing.
DC-SWBD-4	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".	Review seismic qualification documentation. Followed by analysis and/or testing.
EE-EG-1	Anchorage	DGBX El. 735	Anchor bolt design is unique but similar to cast-in-place bolts. Gap under portion of EDG skid is greater than 1/4". Only the ends of the EDG skid are grouted.	Anchorage analysis required for EDG. Calculation 52233-C-018 analyzed EDG anchorage and found it to be acceptable.
EE-EG-2	Anchorage	DGBX El. 735	Anchor bolt design is unique but similar to cast-in-place bolts. Gap under portion of EDG skid is greater than 1/4". Only the ends of the EDG skid are grouted.	Anchorage analysis required for EDG. Calculation 52233-C-018 analyzed EDG anchorage and found it to be acceptable.
EE-P-1A	Anchorage **CLOSED**	DGBX El. 735	Cracks in concrete pad require evaluation.	Per RC-30A &B the anchor embedment depth is 18" with a 7" sleeve. The cracks in the concrete pad will not effect the adequacy of the cast-in place anchors.
	Caveats (1) **CLOSED**	DGBX El. 735	Pump motor is (1) hp, which is outside the experience equipment class of motors 5hp to 2300hp.	The 1 hp pump weighs less than the 5 hp pump in experience equipment class. By engineering judgment, the smaller pump is adequate for the applied seismic forces.
EE-P-1B	Anchorage **CLOSED**	DGBX El. 735	Cracks in concrete pad require evaluation.	Per RC-30A &B the anchor embedment depth is 18" with a 7" sleeve. The cracks in the concrete pad will not effect the adequacy of the cast-in place anchors.
	Caveats (1) **CLOSED**	DGBX El. 735	Pump motor is (1) hp, which is outside the experience equipment class of motors 5hp to 2300hp.	The 1 hp pump weighs less than the 5 hp pump in experience equipment class. By engineering judgment, the smaller pump is adequate for the applied seismic forces.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
EE-P-1C	Caveats (1) **CLOSED**	DGBX El. 735	Pump motor is (1) hp, which is outside the experience equipment class of motors 5hp to 2300hp.	The 1 hp pump weighs less than the 5 hp pump in experience equipment class. By engineering judgment, the smaller pump is adequate for the applied seismic forces.
EE-P-1D	Caveats (1) **CLOSED**	DGBX El. 735	Pump motor is (1) hp, which is outside the experience equipment class of motors 5hp to 2300hp.	The 1 hp pump weighs less than the 5 hp pump in experience equipment class. By engineering judgment, the smaller pump is adequate for the applied seismic forces.
FCV-RC-455C1	Caveats (4)	RCBX El. 767	Equipment mounted on 1/2" diameter copper tube which is less than 1" diameter pipe.	Further analysis required.
FCV-RC-455C2	Caveats (4)	RCBX El. 767	Equipment mounted on 1/2" diameter copper tube which is less than 1" diameter pipe.	Further analysis required.
FCV-RC-455D1	Caveats (4)	RCBX El. 767	Equipment mounted on 1/2" diameter copper tube which is less than 1" diameter pipe.	Further analysis required.
FCV-RC-455D2	Caveats (4)	RCBX El. 767	Equipment mounted on 1/2" diameter tube which is less than 1" diameter pipe.	Further analysis required.
FE-CDL-1A	Caveats (10)	DGBX El. 735	Review of relays in panel not complete / lack of documentation.	Complete review of relays in panel. Obtain documentation for panel and relays or perform qualification testing.
FE-CDL-1B	Caveats (10)	DGBX El. 735	Review of relays in panel not complete / lack of documentation.	Complete review of relays in panel. Obtain documentation for panel and relays or perform qualification testing.
FR-MS-478	Caveats	SRVB El. 735	Actual support condition for strip chart recorder mounted on top of the benchboard differs from their tested configuration.	Further review of the mounting differences is required.
FR-MS-488	Caveats	SRVB El. 735	Actual support condition for strip chart recorder mounted on top of the benchboard differs from their tested configuration.	Further review of the mounting differences is required.
FR-MS-498	Caveats	SRVB EL. 735	Actual support condition for strip chart recorder mounted on top of the benchboard differs from their tested configuration.	Further review of the mounting differences is required.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
FT-CH-124	Anchorage **CLOSED**	SFGB El. 722	Transmitter is mounted to block wall with expansion (shell) anchors.	Anchorage analysis for support shows anchorage to be acceptable (Calc. #52233-C-019). Required capacities for expansion anchors in concrete block walls were determined.
FT-CH-127	Anchorage **CLOSED**	SFGB El. 722	Transmitter is mounted to block wall with expansion (shell) anchors.	Anchorage analysis for support shows anchorage to be acceptable (Calc. #52233-C-019). Required capacities for expansion anchors in concrete block walls were determined.
FT-CH-130	Anchorage **CLOSED**	SFGB El. 722	Transmitter is mounted to block wall with expansion (shell) anchors.	Anchorage analysis for support shows anchorage to be acceptable (Calc. #52233-C-019). Required capacities for expansion anchors in concrete block walls were determined.
FW-P-3A	Anchorage	SFGB El. 735	Concrete pad requires evaluation.	Further evaluation required.
FW-P-3B	Anchorage	SFGB El. 735	Concrete pad requires evaluation.	Further evaluation required.
HCV-CH-389	Caveats (4 ,5)	RCBX El. 707	Caveat 4 - Limits valves to piping 1" and larger. This valve is three-way 3/4" AOV. Caveat 5 - Figure B.7-1 restrictions preclude this valve and the 3g static load yoke stresses are unknown.	Locate existing qualification reports or create qualification analysis.
HCV-MS-104	Caveats (5)	SFGB El. 752	Valve is outside of GIP Figure B.7-1 dimensions for centerline of pipe to top of valve. Air supply to valve is not assured.	Perform 3G or weak-link check analysis on valve. Operator action required if no air available.
INV-VITBUS-1	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Width 55 1/2" vs 40".	Review DCP 1531 seismic qualification and analysis of inverter cabinet included in DCP 1531 documentation.
INV-VITBUS-2	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Width 55 1/2" vs 40".	Review DCP 1531 seismic qualification and analysis of inverter cabinet included in DCP 1531 documentation.
INV-VITBUS-4	Anchorage (5)	SRVB El. 713	Anchorage does not meet GIP criteria due to construction joint in floor near one row of anchors.	Perform additional analysis after verification of continuous rebar through the construction joint.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
FT-CH-124	Anchorage **CLOSED**	SFGB El. 722	Transmitter is mounted to block wall with expansion (shell) anchors.	Anchorage analysis for support shows anchorage to be acceptable (Calc. #52233-C-019). Required capacities for expansion anchors in concrete block walls were determined.
FT-CH-127	Anchorage **CLOSED**	SFGB El. 722	Transmitter is mounted to block wall with expansion (shell) anchors.	Anchorage analysis for support shows anchorage to be acceptable (Calc. #52233-C-019). Required capacities for expansion anchors in concrete block walls were determined.
FT-CH-130	Anchorage **CLOSED**	SFGB El. 722	Transmitter is mounted to block wall with expansion (shell) anchors.	Anchorage analysis for support shows anchorage to be acceptable (Calc. #52233-C-019). Required capacities for expansion anchors in concrete block walls were determined.
FW-P-3A	Anchorage	SFGB El. 735	Concrete pad requires evaluation.	Further evaluation required.
FW-P-3B	Anchorage	SFGB El. 735	Concrete pad requires evaluation.	Further evaluation required.
HCV-CH-389	Caveats (4 ,5)	RCBX El. 707	Caveat 4 - Limits valves to piping 1" and larger. This valve is three-way 3/4" AOV. Caveat 5 - Figure B.7-1 restrictions preclude this valve and the 3g static load yoke stresses are unknown.	Locate existing qualification reports or create qualification analysis.
HCV-MS-104	Caveats (5)	SFGB El. 752	Valve is outside of GIP Figure B.7-1 dimensions for centerline of pipe to top of valve. Air supply to valve is not assured.	Perform 3G or weak-link check analysis on valve. Operator action required if no air available.
INV-VITBUS-1	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Width 55 1/2" vs 40".	Review DCP 1531 seismic qualification and analysis of inverter cabinet included in DCP 1531 documentation.
INV-VITBUS-2	Caveats (1)	SRVB El. 713	Cabinet exceeds the dimensions for the equipment class. Width 55 1/2" vs 40".	Review DCP 1531 seismic qualification and analysis of inverter cabinet included in DCP 1531 documentation.
INV-VITBUS-4	Anchorage (5)	SRVB El. 713	Anchorage does not meet GIP criteria due to construction joint in floor near one row of anchors.	Perform additional analysis after verification of continuous rebar through the construction joint.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
LCV-CH-460A	Interaction (1)	RCBX El. 718	1 5/8" clearance between valve and concrete wall.	Further analysis is required to check deflection of valve.
LCV-CH-460B	Interaction (1)	RCBX El. 718	1 5/8" clearance between valve and concrete wall.	Further analysis is required to check deflection of valve.
LR-QS-100	Caveats	SRVB El.735	Cantilevered strip chart recorder lacks rear support required by the vendors seismic qualification. Problem Report No. 1-95-605	Provide rear support as detailed by the vendor's requirements or replace recorder with a type not requiring rear support.
LT-FW-494	Anchorage (2) **CLOSED**	RCBX El. 718	Anchorage not covered by GIP. The base of the instrument rack is bolted to the steel beams of platform.	Performed calculation for the connection to structural steel (Calc #52233-C-020).
LT-QS-100A	Interaction (1, 4)	YARD El. 735	Scaffolding too close to equipment.	Remove scaffolding.
LT-QS-100B	Interaction (1, 4)	YARD El. 735	Scaffolding too close to equipment.	Remove scaffolding.
LT-QS-100C	Interaction (1, 4)	YARD El. 735	Scaffolding too close to equipment.	Remove scaffolding.
LT-QS-100D	Interaction (1, 4) Caveats (5)	YARD El. 735	Wooden structure over transmitter could collapse. Natural frequency not evaluated.	Evaluate or replace wood structure. Evaluate. natural frequency.
LT-RC-459	Caveats (2) **CLOSED**	RCBX El. 718	Rack base is bolted to structural steel. This configuration is not covered in the GIP.	Adequacy of anchorage determined by analysis (Calc #52233-C-020).
LT-RC-460	Caveats (2) **CLOSED**	RCBX El. 718	Rack base is bolted to structural steel. This configuration is not covered in the GIP.	Adequacy of anchorage determined by analysis (Calc #52233-C-020).
LT-RC-461	Caveats (2) **CLOSED**	RCBX El. 718	Rack base is bolted to structural steel. This configuration is not covered in the GIP.	Adequacy of anchorage determined by analysis (Calc #52233-C-020).
MCC-1-E5	Caveats (12) **CLOSED**	W C VAULT El. 735	Cubicles AR and AD have contactor mounting screws with missing heads.	Replaced broken screws per MWR 019711.
MCC-1-E7	Anchorage **CLOSED**	DGBX El. 735	Embedded channel & welds not as specified on design drawing, therefore insufficient support provided for MCC. Prob Rpt 1-95-44	Support top of MCC to prevent overturning. Support installed per TER 9344 & MWR 38903.
MCC-1-E9	Interaction	SRVB El. 713	Raceway brace could impact top rear corner of MCC. Clearance is 1/4".	Remove raceway brace where impact will occur.
MOV-CH-115C	Caveats (5, 6)	AXLB El. 722	Support attached to yoke. Yoke subject to piping loads. Weak link analysis checks yoke as if it was not braced.	Further piping analysis is required to investigate removal of the seismic restraint on the valve. Review 8700-DMC-2957 and SCE-047-2.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
MOV-CH-115E	Caveats (5, 6)	AXLB El. 722	Support attached to yoke. Yoke subject to piping loads. Weak link analysis checks yoke as if it was not braced.	Further piping analysis is required to investigate removal of the seismic restraint on the valve. Review 8700-DMC-2957 and SCE-047-2.
MOV-CH-350	Caveats (6)	AXLB El. 722	Actuator and yoke are braced independently. Actuator is restrained to the concrete floor and piping is supported off the structural steel.	Further analysis required of the seismic restraint. Review of weak link and pipe stress calculation.
	Interaction (1)	AXLB El. 722	Various clearance violations.	Further analysis is required.
MOV-CH-378	Caveats (5) **CLOSED**	RCBX El. 718	Centerline pipe to top of operator of Figure B.8-1 restrictions preclude this valve and the 3g check is not completed.	Based on engineering review of weak link analysis the valve is adequate for 1g seismic plus operating loads.
MOV-CH-381	Caveats (5) **CLOSED**	SFGB El. 722	Centerline pipe to top of operator of Figure B.8-1 restrictions preclude this valve and the 3g check is not completed.	Based on engineering review of weak link analysis the valve is adequate for 1g seismic plus operating loads.
	Interaction (4) **CLOSED**	SFGB El. 722	3 1/4" clearance between MOV and adjacent TV-CH-204.	Based on engineering review of pipe stress calculations the MOV will not interact with the adjacent valve.
MOV-FW-160	Caveats **CLOSED**	TRBB El. 693	Valve is a backup isolation valve requiring relay review. The valve is a non-safety related component located in the turbine building. The power supply to the valve is non-safety and cannot be assured.	The valve is a backup isolation valve. Several check valves exist between the valve and the primary isolation valve. Check valves are rugged devices. MOV-FW-160 is toally redundant since the primary isolation valve and all the intervening check valves would be required to fail along with it.
MOV-MS-105	Caveats (5)	SFGB El. 735	Existing vendor calculation checks yoke to "G" values that are less than those found in the pipe stress calculation.	Further review and possible analysis required to determine yoke acceptability.
MOV-RC-537	Interaction (1)	RCBX El. 767	Motor operator is 1/2" clear of copper air tubing.	Determine component deflection for comparison to 1/2" actual.
PCC-FE-1A	Caveats (10)	DGBX El. 735	Review of relays in panel not complete / lack of documentation for panel.	Complete review of relays in panel. Obtain documentation for panel and relays or perform qualification testing.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
PCC-FE-1B	Caveats (10)	DGBX El. 735	Review of relays in panel not complete / lack of documentation for panel.	Complete review of relays in panel. Obtain documentation for panel and relays or perform qualification testing.
PCV-1A-108	Caveats (4)	RCBX El. 767	Valve is mounted on a 3/4" threaded pipe.	Further analysis required
PCV-1A-109	Caveats (4)	RCBX El. 767	Valve is mounted on a 3/4" threaded pipe.	Further analysis required
PCV-MS-101A	Other	SFGB El. 752	Air supply to operate valve is not assured.	Operator action to operate valve.
PCV-MS-101B	Other	SFGB El. 752	Air supply to operate valve is not assured.	Operator action to operate valve
PCV-MS-101C	Other	SFGB El. 752	Air supply to operate valve is not assured.	Operator action to operate valve.
PCV-RC-455C	Caveat (5)	RCBX El. 767	Valve does not comply with dimension requirements of GIP Figure B.7-1.	Perform 3G or weak-link check analysis on valve.
PCV-RC-455D	Caveats (5)	RCBX El. 767	Valve does not comply with dimension requirements of GIP Figure B.7-1.	Perform 3G or weak-link check analysis on valve.
PCV-RC-456	Caveats (5)	RCBX El. 767	Valve does not comply with dimension requirements of GIP Figure B.7-1.	Perform 3G or weak-link check analysis on valve.
PNL-AC-E1	Caveats (1)	SRVB El. 713	Panel exceeds the dimensions for the equipment class. Height 50" vs 40" and Depth 16" vs 12".	Review seismic qualification documentation.
PNL-AC-E2	Caveats (1)	SRVB El. 713	Panel exceeds the dimensions for the equipment class. Height 50" vs 40" and Depth 16" vs 12".	Review seismic qualification documentation.
PNL-AC-E3	Caveats (1)	SRVB El. 713	Panel exceeds the dimensions for the equipment class. Height 50" vs 40" and Depth 16" vs 12".	Review seismic qualification documentation.
PNL-AC-E4	Caveats (1)	SRVB El. 713	Panel exceeds the dimensions for the equipment class. Height 50" vs 40" and Depth 16" vs 12".	Review seismic qualification documentation.
PNL-AMSAC	Caveats (2)	SRVB El. 713	Panel contains programmable controllers.	Determine effect of controllers on circuit(s). Determine whether controllers have been seismically qualified.
PNL-BLDG-SER-A	Anchorage	SRVB El. 735	Gap under cabinet varies 3/16" to 3/4". Shims exist around anchor locations.	Anchorage calulation (#52233-C-025) by EQE shows the anchorage to be acceptable.
	Interaction	SRVB El. 735	Suspended ceiling panels lack restraint and can impact cabinet.	Secure the ceiling panels so as to prevent their falling down.
PNL-BLDG-SER-B	Anchorage	SRVB El. 735	Gap under cabinet varies 3/16" to 3/4". Shims exist around anchor locations.	Anchorage calulation (#52233-C-025) by EQE shows the anchorage to be acceptable.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
PNL-BLDG-SER-B	Interaction	SRVB El. 735	Suspended ceiling panels lack restraint and can impact cabinet.	Secure the ceiling panels so as to prevent their falling down.
PNL-PR-HTR-A	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Height 64" vs 40" and width 44 1/2" vs 40".	Review seismic qualification documentation. Compare seismic demand to SQUG database levels.
PNL-PR-HTR-B	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Height 64 1/4" vs 40" and width 44" vs 40".	Review seismic qualification documentation. Compare seismic demand to SQUG database levels.
PNL-PR-HTR-D	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Height 64" vs 40" and width 44 1/2" vs 40".	Review seismic qualification documentation. Compare seismic demand to SQUG database levels.
PNL-PR-HTR-E	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Height 64 1/4" vs 40" and width 44" vs 40".	Review seismic qualification documentation. Compare seismic demand to SQUG database levels.
PNL-REL-21	Anchorage (6)	SRVB El. 713	Depressed section of floor (3" deep) beneath one corner of cabinet.	Fill area beneath cabinet or shim under cabinet frame.
PNL-REL-22	Anchorage (6)	SRVB El. 713	Depressed section of floor (3" deep) beneath one corner of cabinet.	Fill area beneath cabinet or shim under cabinet frame.
PNL-SI-02	Caveats (7)	SFGB El. 722	Anchorage analysis not completed for rack on which the panel is mounted.	Complete anchorage analysis for the rack.
PNL-SI-06	Caveats (7)	SFGB El. 722	Anchorage analysis not completed for rack on which the panel is mounted.	Complete anchorage analysis for the rack.
PNL-VITBUS-1	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Length 72" vs 40".	Review seismic qualification documentation.
PNL-VITBUS-2	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Length 72" vs 40".	Review seismic qualification documentation.
PNL-VITBUS-3	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Length 72" vs 40".	Review seismic qualification documentation.
PNL-VITBUS-4	Caveats (1)	SRVB El. 735	Panel exceeds the dimensions for the equipment class. Length 72" vs 40".	Review seismic qualification documentation.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
PT-RC-402	Anchorage **CLOSED**	RCBX El. 717	Anchorage not covered by GIP. The base of the instrument rack is bolted to the steel beams of platform.	Performed calculation for the connection to structural steel (Calc #52233-C-020).
QS-RACK-2	Caveat (6)	YARD El. 735	Construction in area prevents complete access to attached lines.	Final review to be done during walk-down for acceptance of DCP-2163.
QS-RACK-3	Interaction (4)	YARD El. 735	Wood roof on adjacent weather shelter could fall on instrument lines.	Install a seismic restraint to the roof. (Ref. EM 107301)
RK-AUX-RELA	Caveats (5, 11) **CLOSED**	SRVB El. 713	Tie plates at top of cabinet which connect adjacent panel are absent. Missing bolts that connect cabinet to base channel. Relay D4 is missing mounting screw.	Install tie plates between top of panel and RK-REAC-TEST-A. Replaced missing 3/8" bolts per MWR-019461. Replaced missing screw by MWR-019461.
RK-AUX-RELB	Caveats (5, 11) **CLOSED**	SRVB El. 713	Tie plates at top of cabinet which connect adjacent panel are absent. Relay J6 is missing mounting screw in upper left corner.	Install tie plates between top of panel and RK-REAC-TEST-B. Replaced missing screw by MWR-019464.
RK-PRI-PROC-10	Caveats (11) **CLOSED**	SRVB El. 713	Mounting screw missing for TM-422-N, F, H3.	Replaced missing screws per MWR 019469.
RK-PRI-PROC-14	Caveats (11) **CLOSED**	SRVB El. 713	Mounting screw missing for TM-432-H1, H2, H3.	Replaced missing screws per MWR 019471.
RK-PRI-PROC-15	Anchorage **CLOSED**	SRVB El. 713	Panel base to base channel 3/8" bolts loose (3 total).	Tightened loose bolts and replaced missing bolt per MWR 019479.
RK-PRI-PROC-17	Anchorage **CLOSED**	SRVB El. 713	Base channel connection bolt (1 of 4) to WF missing nut and washer.	Replaced missing nut and washer for base channel bolt. (MWR 019474)
RK-PRI-PROC-25	Caveats (11) **CLOSED**	SRVB El. 713	Mounting screw missing on front panel for FC-498D.	Replaced missing screw per MWR 019472.
RK-PRI-PROC-26	Caveats (11) **CLOSED**	SRVB El. 713	Mounting screw missing for unmarked device and two blank plates.	Replaced missing screws per MWR 019473.

Table 5.3

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
RK-RAD-MON-7	Caveats (3, 5)	SRVB El. 735	Two strip chart recorders are mounted in the cabine. (RR-RM-700 and RR-RM-800).The rear of the recorders are not supported in the manner recommended by the vendor.	Strip chart recorders will be reviewed separately for seismic qualification and proper support..
	Interaction	SRVB El. 735	Cabinet touches adjacent cabinet (RK-RAD-MON-1) in the middle. At outside edges of the cabinets there is 3/8" clearance. Sheet metal sides bulge outward to touch.	Attach adjacent cabinets together and either stiffen side panels or shim between cabinets to prevent interaction of the cabinet sides.
RK-VS-E567	Caveats (8)	SRVB El. 713	Two rigid conduits attach to an adjacent panel (RK-VS-E8-12), differential panel movement can cause a problem.	Install flex conduits between the panels. MWR 046347/TER 9841 written to perform the work.
	Interaction (3,5)	SRVB El. 713	Insufficient clearance to adjacent pipe support 5/8" copper tube on panel moves freely causing stress on tubing joints internal to panel.	Modify pipe support to gain sufficient clearance. Add clamp/anchor to copper tube on panel face. TERs to be developed
RK-VS-E8-12	Caveats (8)	SRVB El. 713	Two rigid conduits attach to an adjacent panel (RK-VS-E567), differential panel movement can cause a problem.	Install flex conduits between the panels. MWR 046347/TER 9841 written to perform the work.
RV-EE-201A	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-201B	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-201C	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-202A	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
RV-EE-202B	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-202C	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-203A	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-203B	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-203C	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-204A	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-204B	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-EE-204C	Caveats (4,9)	DGBX El. 735	Valve is mounted on 1/2" diameter pipe. Connections between tank and pipe and valve are threaded.	Further analytical review required or perform tug test on pipe connection during next outage.
RV-RC-551A	Caveats (1) **CLOSED**	RCBX El. 767	Valve is not in SQUG database.	Seismic qualification per Target Rock, VTI #8700-06.039-0164A.
RV-RC-551B	Caveats (1) **CLOSED**	RCBX El. 767	Valve is not in SQUG database.	Seismic qualification per Target Rock, VTI #8700-06.039-0164A.
RV-RC-551C	Caveats (1) **CLOSED**	RCBX El. 767	Valve is not in SQUG database.	Seismic qualification per Target Rock, VTI #8700-06.039-0164A.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
SW-1-8N1	Anchorage **CLOSED**	SRVB El. 713	Loose shell type expansion anchors (3 of 6). Anchors found to be improperly installed. Problem Report 1-93-61	Replace anchors with Hilti Kwik bolts. Perform anchorage analysis for the cabinet. Anchorage analysis 8700-DSC-6550. Replaced anchor bolts per MWR 019484 & 019650.
SW-1-9P1	Anchorage **CLOSED**	SRVB El. 713	Shell anchors removed for inspection were found to be improperly installed. Problem Report 1-93-61	Replace 3 of 4 anchors with Hilti Kwik bolts. Perform anchorage analysis for the cabinet. Anchorage analysis 8700-DSC-6550. Replaced anchor bolts per MWR 019616.
TR-RC-410	Caveats	SRVB El. 735	Cantilevered strip chart recorder lacks rear support required by the vendors seismic qualification. Problem Report No. 1-95-605	Provide rear support as detailed by the vendor's requirements or replace recorder with a type not requiring rear support.
TR-RC-413	Caveats	SRVB El. 735	Cantilevered strip chart recorder lacks rear support required by the vendors seismic qualification. Problem Report No. 1-95-605	Provide rear support as detailed by the vendor's requirements or replace recorder with a type not requiring rear support.
TRANS-1-8-N1	Caveats (4)	SRVB El. 713	Transformer coils are not top braced.	Perform analysis to determine existing support adequacy or add top support to transformer.
TRANS-1-8N	Caveats (4)	SRVB El. 713	Transformer coils are not top braced.	Perform analysis to determine existing support adequacy or add top support to transformer.
TRANS-1-9-P1	Caveats (4)	SRVB El. 713	Transformer coils are not top braced.	Perform analysis to determine existing support adequacy or add top support to transformer.
TRANS-1-9P	Caveats (4)	SRVB El. 713	Transformer coils are not top braced.	Perform analysis to determine existing support adequacy or add top support to transformer.
TRB-RC-410	Interaction	RCBX El. 718	RTD's not walked down.	A walkdown of the RTD's is planned during next refueling outage for interaction.
TRB-RC-413	Interaction	RCBX El. 718	RTD's not walked down.	A walkdown of the RTD's is planned during next refueling outage for interaction.
TRB-RC-420	Interaction	RCBX El. 718	RTD's not walked down.	A walkdown of the RTD's is planned during next refueling outage for interaction.
TRB-RC-423	Interaction	RCBX El. 718	RTD's not walked down.	A walkdown of the RTD's is planned during next refueling outage for interaction.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
TRB-RC-430	Interaction	RCBX El. 718	RTD's not walked down.	A walkdown of the RTD's is planned during next refueling outage for interaction.
TRB-RC-433	Interaction	RCBX El. 718	RTD's not walked down.	A walkdown of the RTD's is planned during next refueling outage for interaction.
TRF-SI-02	Caveats (11)	SFGB El 722	Anchorage analysis not completed for rack that the transformer is mounted.	Complete anchorage analysis for the rack.
TRF-SI-06	Caveats (11)	SFGB El 722	Anchorage analysis not completed for rack that the transformer is mounted.	Complete anchorage analysis for the rack.
TV-CH-200A	Caveats (5, 6, 7)	RCBX El. 718	Exceeds limits of Figures B.7-1 & B.7-2 Operator and pipe are mounted to same wall 7' to one pipe support.	Perform 3G yoke analysis. Review pipe stress analysis for effect of independent operator support.
TV-CH-200B	Caveats (5, 6, 7)	RCBX El. 718	Exceeds limits of Figures B.7-1 & B.7-2 Operator and pipe are mounted to same wall 7' to one pipe support.	Perform 3G yoke analysis. Review pipe stress analysis for effect of independent operator support.
TV-CH-200C	Caveats (5, 6, 7)	RCBX El. 718	Exceeds limits of Figures B.7-1 & B.7-2 Operator and pipe are mounted to same wall 7' to one pipe support.	Perform 3G yoke analysis. Review pipe stress analysis for effect of independent operator support.
TV-MS-101A	Caveats (1)	SFGB El. 752	Power assisted check valve is not in the experience database.	Review seismic qualification documentation or perform analysis.
TV-MS-101B	Caveats (1)	SFGB El. 752	Power assisted check valve is not in the experience database.	Review seismic qualification documentation or perform analysis.
TV-MS-101C	Caveats (1)	SFGB El. 752	Power assisted check valve is not in the experience database.	Review seismic qualification documentation or perform analysis.
VERTBD	Caveats (11)	SRVB El. 735	Strip chart recorders TR-RC-410 & 413 and LR-QS-100 are not seismically qualified or mounted. Problem report 1-95-605.	Replace recorders with qualified devices.
	Caveats (9) **CLOSED**	SRVB El.735	Some devices lacked retention clips (Problem Report 1-95-024).	Replace clips - Completed prior to 10R startup.
	Other	SRVB El. 735	Ceiling panels could fall and strike board.	Add clips or tie-wrap to ceiling panels.
VS-AC-1A	Caveats	SRVB El. 713	Anchorage of internal components could not be verified (accessed) at time of inspection.	Further review and inspection required.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-AC-1A	Anchorage	SRVB El. 713	Two hold down bolts were found to be missing.	Hold down bolts to be installed by MWR.
	Interaction	SRVB El. 713	Cooling water lines are hard piped into the cooling coils.	Further engineering review is required.
VS-AC-1B	Caveats	SRVB El. 713	Anchorage of internal components could not be verified (accessed) at time of inspection.	Further review and inspection required.
	Interaction	SRVB El. 713	Cooling water lines are hard piped into the cooling coils.	Further engineering review is required.
	Anchorage	SRVB El. 713	One of four shell type anchors improperly installed. The anchor is ineffective.	Calculation 52733-C-011 confirmed the anchorage to be adequate with only 3 of 4 anchors. Subject anchor to be replaced.
VS-AD-10	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AD-3	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AD-4	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity.
VS-AD-5	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
VS-AD-5	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity.
VS-AD-6	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-AD-7	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AD-8	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AD-9	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
VS-AD-9	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-1	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-10	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-11	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-12	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-13	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-AFD-13	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-14	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-15	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-2	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-3	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-4	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-5	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class.	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class.	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity.
	Interaction	SRVB El. 713	Conduit support rod in contact with operator. Conduit in contact with damper drive rod.	Modify rod and/or conduit to clear.
VS-AFD-6	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-AFD-6	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-7	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-8	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-AFD-9	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-C-1A1	Anchorage **CLOSED**	SRVB El. 713	Load path from C.G. to wall bracket not adequate.	Attach component to existing wall bracket by adding connection bolts per TER 9047 and MWR 036772 Calculation 8700-DSC-6534
VS-C-1B1	Anchorage **CLOSED**	SRVB El. 713	Load path from C.G. to wall bracket not adequate.	Attach component to existing wall bracket by adding connection bolts per TER 9047 and MWR 034492 Calculation 8700-DSC-6534
VS-D-16A	Anchorage	SRVB El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting
	Cap vs Dem	SRVB El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-16B	Anchorage	SRVB El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting
	Cap vs Dem	SRVB El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-22-1A	Anchorage	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class. Anchorage not accessible at time of inspection.	Perform Engineering Analysis to Evaluate Damper Seismic mounting. Obtain access to anchorage next outage.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-D-22-1A	Cap vs Dem	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Mounting.
VS-D-22-1B	Anchorage	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class. Anchorage not accessible at time of inspection.	Perform Engineering Analysis to Evaluate Damper Seismic mounting. Obtain access to anchorage next outage.
	Cap vs Dem	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity.
VS-D-22-2A	Anchorage	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic mounting.
	Cap vs Dem	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-22-2B	Anchorage	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic mounting.
	Cap vs Dem	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-22-2C	Anchorage	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class. Missing anchor bolts	Perform Engineering Analysis to Evaluate Damper's Seismic mounting. MWR 04339 to replace bolts
	Cap vs Dem	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-22-2D	Anchorage	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class. missing Anchor bolts.	Perform Engineering Analysis to Evaluate Damper's Seismic mounting. MWR 04339 to replace bolts
	Cap vs Dem	DGBX El. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-4-12A	Anchorage	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-4-12B	Anchorage	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-D-4-15A	Anchorage	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-4-15B	Anchorage	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
VS-D-4-15B	Cap vs Dem	SFGB El. 735	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-4-7A	Anchorage	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-4-7B	Anchorage	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-4-8A	Anchorage	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class.	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class. Adjacent Rod Hung Pipe May Impact Damper.	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity. Analyze Pipe Deflection for Interaction with Damper.
	Interaction	AXLB El. 768	Adjacent Rod Hung Pipe May Impact Damper.	Analyze Pipe Deflection for Interaction with Damper.
VS-D-4-8B	Anchorage	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class. Companion flange missing bolts.	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting. MWR 039971 to replace missing bolts.
	Cap vs Dem	AXLB El. 768	Damper is not in SQUG Earthquake Experience Equipment Class.	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-D-40-1A	Caveats (7) Interaction (2)	SRVB El. 713	Two rigid conduits - one attached to SOV and one attached to Limitorque motor. Bolt missing from SOV mounting plate.	One conduit clip (for SOV) removed to allow flexibility and bolting corrected per MWR 044843 Conduit clip to be removed from conduit for motor.
VS-D-40-1F	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-40-1G	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-40-1H	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-40-1K	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-40-1M	Anchorage	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic in-duct mounting.
	Cap vs Dem	SRVB El. 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-57A1	Anchorage	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper Seismic mounting.
	Cap vs Dem	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-57A2	Anchorage	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper Seismic mounting.
	Cap vs Dem	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-D-57B1	Anchorage	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper Seismic mounting.
	Cap vs Dem	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-57B2	Anchorage	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic mounting.
VS-D-57B2	Cap vs Dem	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-57C1	Anchorage	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic mounting
	Cap vs Dem	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-57C2	Anchorage	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic mounting.
	Cap vs Dem	INTS El. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-E-14A	Caveats (2,6,7)	SRVB El. 713	Anchorage details are not accessible.	Further field inspection required when equipment is taken out of service.
VS-E-14B	Caveats (2,6,7)	SRVB El. 713	Anchorage details are not accessible.	Further field inspection required when equipment is taken out of service.
VS-F-40A	Caveats (1) **CLOSED**	SRVB El. 713	Fan exceeds the weights for the equipment class - 1000 lbs vs 2650 lbs.	Anchorage evaluation by EQE documented by Calc. 52233-C-009 shows anchorage to be OK. SSRAP Report does not limit fan weight.
VS-F-40B	Caveats (1) **CLOSED**	SRVB El. 713	Fan exceeds the weight for the equipment class - 1000 lbs vs 2650 lbs.	Anchorage evaluation by EQE documented by Calc. 52233-C-009 shows anchorage to be OK. SSRAP Report does not limit fan weight.
VS-F-4A	Caveats (1) **CLOSED**	AXLB El. 768	Fan exceeds the weight for the equipment class - 1000 lbs vs 5000 lbs.	The fan was seismically qualified by analysis by the vendor in 1972. Analysis located on reel BV-34 / frame 1497. SSRAP Report does not limit fan weight.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
VS-F-4A	Caveats (1) **CLOSED**	AXLB El. 768	Fan exceeds the pressure (12" H_2O vs 15") for the equipment class.	The fan was seismically qualified by analysis by the vendor in 1972. Analysis located on reel BV-34 / frame 1497.
	Interaction **CLOSED**	AXLB El. 768	An overhead unit heater and piping is supported by rod hangers and its failure could cause water spray on the fans electric motor.	The piping and heater are passive equipment on rod hangers which resist seismic acceleration due to damping via the rods.
VS-F-4B	Caveats (1) **CLOSED**	AXLB El. 768	Fan exceeds the weight for the equipment class - 1000 lbs vs 5000 lbs.	The fan was seismically qualified by analysis by the vendor in 1972. Analysis located on reel BV-34 / frame 1497. SSRAP Report does not limit fan weight.
	Caveats (1) **CLOSED**	AXLB El. 768	Fan exceeds the pressure (12" H_2O vs 15") for the equipment class.	The fan was seismically qualified by analysis by the vendor in 1972. Analysis located on reel BV-34 / frame 1497.
	Interaction **CLOSED**	AXLB El. 768	An overhead unit heater and piping is supported by rod hangers and its failure could cause water spray on the fans electric motor.	The piping and heater are passive equipment on rod hangers which resist seismic acceleration due to damping via the rods.
VS-F-57A	Cap vs Dem	INTS El. 733	Building response spectrum not available for this elevation.	Develop IRS for fan seismic demand to compare to 1.5 Bounding Spectrum.
VS-F-57B	Cap vs Dem	INTS El. 733	Building response spectrum not available for this elevation.	Develop IRS for fan seismic demand to compare to 1.5 Bounding Spectrum.
VS-F-57C	Cap vs Dem	INTS El. 733	Building response spectrum not available for this elevation.	Develop IRS for fan seismic demand to compare to 1.5 Bounding Spectrum.
WR-P-1A	Caveats (2)	INTS El. 705	Overall shaft length exceeds length in database.	Perform engineering review of existing pump qualification analysis and review ISI inspection data.
	Cap vs Dem	INTS El. 705	IRS 3% damping curves are above the Bounding Curves.	Perform engineering review of existing pump qualification analysis.
WR-P-1B	Caveats (2)	INTS El. 705	Overall shaft length exceeds length in database.	Perform engineering review of existing pump qualification analysis and review ISI inspection data.

Mechanical and Electrical Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
WR-P-1B	Cap vs Dem	INTS El. 705	IRS 3% damping curves are above the Bounding Curves.	Perform engineering review of existing pump qualification analysis.
WR-P-1C	Caveats (2)	INTS El. 705	Overall shaft length exceeds length in database.	Perform engineering review of existing pump qualification analysis and review ISI inspection data.
	Cap vs Dem	INTS El. 705	IRS 3% damping curves are above the Bounding Curves.	Perform engineering review of existing pump qualification analysis.

Table 5.3.1.5

Air-operated Valves - Alternatives to Air Supply

(1 page)

Table 5.3.1.5

Air-operated Valves - Alternatives to Air Supply

VALVE EIN	NSA	SSE	AIR FOR NSA TO SSE?	AIR TO REMAIN @ SSE?	ALTERNATIVE	RESOLUTION
FCV-CH-122	OPEN	CLOSED	YES	YES	NONE	OPERATOR ACTION*
FCV-FW-103A	CLOSED	OPEN	YES	YES	NONE	OPERATOR ACTION**
FCV-FW-103B	CLOSED	OPEN	YES	YES	NONE	OPERATOR ACTION**
HCV-MS-104	CLOSED	OPEN	YES***	YES***	HAND-WHEEL	OPERATOR ACTION
PCV-MS-101A	CLOSED	OPEN	YES***	YES***	HAND-WHEEL	OPERATOR ACTION
PCV-MS-101B	CLOSED	OPEN	YES***	YES***	HAND-WHEEL	OPERATOR ACTION
PCV-MS-101C	CLOSED	OPEN	YES***	YES***	HAND-WHEEL	OPERATOR ACTION
PCV-RC-455C	CLOSED	OPEN	YES	YES	ACCUMULATOR	N/A
PCV-RC-455D	CLOSED	OPEN	YES	YES	ACCUMULATOR	N/A
PCV-RC-456	CLOSED	OPEN	YES	YES	ACCUMULATOR	N/A

NOTES:
* See Section 4.1.1.3
** See Section 4.1.1.4
*** Valve is throttling.
SSE = Safe Shutdown Equipment position
NSA = Normal System Arrangement

Section 6

TANKS AND HEAT EXCHANGER REVIEW

6.1 SUMMARY OF REVIEW

The tanks and heat exchangers on the BVPS-1 SSEL were evaluated in accordance with Section II.7 of the GIP, except for the buried EDG fuel oil tanks and Air Accumulator Tanks GN-TK-1A & 1B. The buried tanks were reviewed using existing criteria and recent analysis appropriate to their physical environment. The accumulators were reviewed using SQUG criteria applied to a recent analysis performed for operability. Thirty-one (31) tanks and heat exchangers were reviewed. All tanks except one (1) were reviewed by DLC SCEs and reviewed by EQE engineers; the one exception being the Seal Water Hx (CH-E-1), which EQE reviewed in total.

6.2 SUMMARY OF OUTLIERS

Table 6.2 summarizes the tank and heat exchanger outliers. Additional discussion follows:

QS-TK-1 (Refueling Water Storage Tank) - The RWST is a 52' x 38' Dia., flat-bottom, cylindrical, stainless steel tank containing 2000 ppm borated water. The tank is on a slab at grade, and was designed by Stone & Webster Engineering Corporation. It is encircled for approximately 2/3 of its height by an 18" thick reinforced concrete shell. The shell is separated from the tank by foam and a small interstitial space. The tank was evaluated to determine that no interaction between the tank and shell occurs, but its stand-alone GIP evaluation determined that its base overturning moment Demand exceeds Capacity. However, the tank's anchor chairs are embedded in the concrete shell, which was ignored for the GIP evaluation. Consideration of this fact should resolve the outlier issue. An interaction concern regarding temporary scaffolding will be resolved with its near-term removal (it is seismically evaluated and tied-back).

WT-TK-10 (Demineralized Water) - This tank is a 30' X 30' Dia., flat-bottom, cylindrical, carbon steel tank containing demineralized water. The tank is on a slab at grade, and was designed by Stone & Webster Engineering Corporation. The outlier determination resulted from base overturning moment Demand exceeding Capacity. A more refined analysis should resolve the outlier.

CH-TK-1A & 1B (7700 ppm Boron) - These boric acid storage tanks are 12' Dia. X 10' high, curved-bottom, cylindrical, stainless steel tanks, supported on four (4) 52" high W8x31 columns. They are located at elevation 752 of the auxiliary building, and were furnished by Westinghouse Electric Corporation. The outlier determination resulted in-part from overstress in the leg to tank attachment, or in the legs' anchorage - depending on column end-restraint assumptions. Additional analysis by EQE has shown the tanks to be seismically qualified. A remaining issue is interaction with several duct and conduit supports. These will require tank deflection determinations to resolve. It appears that the interaction would do no more than affect the insulation layer on the tank, which is several inches thick.

GN-TK-1A & 1B (PORV Nitrogen Accumulators) - These accumulators were installed primarily for PORV operation for over pressure protection during refueling. They are then charged with nitrogen, but are open to the containment air system during operation, and are valved to provide air to the PORVs as necessary. The tanks are vertically mounted on the exterior of the crane wall in containment using tubular frames and four (4) wall plates each. Their outlier status resulted from inspection of the expansion anchors used to attach the plates to the wall - four (4) bolts were loose - one in each bottom wall plate. Analysis show that the plates are in constant compression (no tension on bolts), and the remaining bolts have low loading. The tanks were concluded to be seismically acceptable as-found.

EE-E-1B (EDG Heat Exchanger) - This heat exchanger has cast iron end-bells, which violates Footnote 1 of GIP Table 7-6, regarding parameters for acceptance criteria. The loads on the end-bells were evaluated and found to result in stresses less than 20% of the material's tensile strength. The EE-E-1A heat exchanger has previously had its end-bells changed to steel.

EE-TK-3A/B/C/D/E/F and 4A/B/C/D/E/F - These EDG air start tanks are supported on steel frames. Concrete expansion anchors at the base of the support legs attach base plates to the floor. The anchors are spaced too near one another to assign full GIP capacities to them, resulting in a calculated overstress. However, it is believed that a refined analysis of the support/plate system will resolve the outlier.

CC-E-1A/B/C - These heat exchangers have nelson stud spacing violations. The anchorage is more than adequate, and additional analysis is expected to resolve the outlier.

Table 6.2

Tank and Heat Exchanger Outlier Description and Resolution Summary

(3 pages)

Tank and Heat Exchanger Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
CC-E-1A	Anchorage	AXLB El. 735	Headed studs (CIP anchor) fail GIP anchor criteria	More detailed analysis required.
CC-E-1B	Anchorage	AXLB El. 735	Headed studs (CIP anchor) fail GIP anchor criteria	More detailed analysis required.
CC-E-1C	Anchorage	AXLB El. 735	Headed studs (CIP anchor) fail GIP anchor criteria	More detailed analysis required.
CH-TK-1A	Other (Cap vs Dem) **CLOSED**	AXLB El. 752	Tank does not pass GIP analysis criteria.	More detailed analysis performed by EQE (Calc. #52233-C-031) qualified the tank.
	Other (Interaction)	AXLB El. 752	Ductwork stiffeners 1/4" from insulation. Conduit support approx. 1" clear. Abandoned vertical strut near tank. Strut touching tank on north side.	Analysis of tank and support interaction to determine deflections and possible interaction.
CH-TK-1B	Other (Cap vs Dem **CLOSED**	AXLB El. 752	Tank does not pass GIP analysis criteria.	More detailed analysis performed by EQE (Calc. #52233-C-031) qualified the tank.
	Other (Interaction)	AXLB El. 752	Possible interaction with unistrut ductwork support(s).	Analysis of tank and support interaction to determine deflections and possible interaction.
EE-E-1B	Caveats **CLOSED**	DGBX El. 735	Heat exchanger has cast iron end bell.	Heat exchanger end bell evaluated for loading and stresses to determine adequacy by calculation 8700-DMC-2978. Stresses determined to be low and the end bells adequate.
EE-TK-1A	Other **CLOSED**	YARD El. 724	Tank is buried and not accessible for visual inspection.	Existing seismic analysis and qualification documentation (8700-DMC-2494, 2795 & 2796) qualify the tank.
EE-TK-1B	Other **CLOSED**	YARD El. 724	Tank is buried and not accessible for visual inspection.	Existing seismic analysis and qualification documentation (8700-DMC-2494, 2795 & 2796) qualify the tank.
EE-TK-2A	Interaction	DGBX El. 735	Cover for emergency light batteries is missing a restraint screw. Cover could fall and impact level switches on the tank.	Replace missing screw on cover.
EE-TK-3A	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.

Tank and Heat Exchanger Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
EE-TK-3B	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-3C	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-3D	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-3E	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-3F	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-4A	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-4B	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-4C	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-4D	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-4E	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
EE-TK-4F	Anchorage	DGBX El. 735	Floor anchor bolts do not meet GIP acceptance criteria.	Further engineering evaluation required.
GN-TK-1A	Anchorage **CLOSED**	RCBX El. 767	Two concrete anchors didn't pass SQUG hand tightness test performed for walkdown. Problem Report 1-95-045	Check and repair of anchors as required performed by MWR 038887. Performed engineering analysis of as found condition for operability. Comparison of analysis of record (8700-DSC-0133-1) to SQUG anchorage criteria found anchorage acceptable..

Tank and Heat Exchanger Equipment Outlier Description and Resolution Summary

Equipment ID	Type Status	Location	Outlier Description	Outlier Resolution
GN-TK-1B	Anchorage **CLOSED**	RCBX El. 767	Two concrete anchors didn't pass SQUG hand tightness test performed for walkdown. Problem Report 1-95-045	Check and repair of anchors as required performed by MWR 038888. Performed engineering analysis of as found condition for operability. Comparison of analysis of record (8700-DSC-0133-1) to SQUG anchorage criteria found anchorage acceptable.
QS-TK-1	Anchorage	YARD El. 735	Base overturning moment demand exceeds capacity. Vertical anchorage plates do not meet GIP criteria.	Further engineering evaluation required.
WT-TK-10	Anchorage	YARD El. 735	Base overturning moment exceeds the anchorage capacity for the tank per GIP criteria.	Further engineering evaluation required.

Section 7

CABLE AND CONDUIT RACEWAY REVIEW

7.1 SUMMARY OF RACEWAY REVIEW

The reviews of cable tray and conduit systems at BVPS-1 were performed per the guidelines of Section II.8 of the Generic Implementation Procedure (GIP). All safety-related cabletray & raceway was inspected as part of the A-46 review. Three (3) SRTs initially reviewed the reactor containment's cable & conduit raceways. A single SRT comprising two (2) SCEs, one of whom was a P.E., reviewed the remainder of the plant's raceway. For purposes of continuity, this same team reviewed the containment raceways a second time. Complete records were kept of all plant area inspections.

The BVPS-1 raceway encompass most standard types and configurations. They range from lightly loaded to substantially loaded. Trays are typically 30" ladder type (T. J. Cope) and are supported in all of the SQUG-defined fashions -- single to multi-tier, strut-hung, cantilever bracket, frame, and floor-to-ceiling. Conduit vary in diameter up to 6", and are of both aluminum (majority) and steel. All raceway was generally well-supported. Unistrut is a common structural support, with ridge-face nuts used. Concrete inserts, welds to embedded steel, and expansion anchors were all found as attachment means. No rigid boots were found. No cast iron inserts were found and none are known to have been used at BVPS-1. Tug tests were used to check lightly loaded fixtures. Tie-wraps were regularly checked and were found to be sound.

Prior to SQUG walkdowns, the Color-separation Resolution Program resulted in the inspection of all safety-related conduit and raceway. Over 18,000 separate items were inspected and catalogued. Identified deficiencies (eg., missing bolts, clearances) are being systematically corrected.

7.2 EVALUATION OF BOUNDING SAMPLES

As part of the in-plant review, worst-case bounding samples of raceway supports were selected for further analytical reviews. Bounding samples were selected by EQE to encompass the diversity and extreme of the plant's existing raceway support systems. Thirteen (13) were subjected to GIP analysis by a team of EQE and Duquesne Light SCEs. All but one (1) analysis has produced satisfactory results (i.e., samples acceptable).

7.3 SUMMARY OF OUTLIERS

Seven (7) outliers were identified during the plant walk-downs and one (1) thru analysis. Table 7.3 summarizes the nature of the outliers and their resolution. Maintenance Work Requests (MWRs) are being issued where indicated.

Table 7.3

Cable & Conduit Raceway Outliers and Resolutions

(1 page)

Table 7.3

Cable & Conduit Raceway Outliers and Resolutions

1CL7150C2 Inclusion Rules	AXLB. El. 722	Conduit bank of 11 conduits are attached to a support which is not attached to a wall, causing an overspan between adjacent supports.	Static analysis using "g" acceleration value based on actual frequency of conduit span. An as-built of the conduit bank to be furnished by drafting.
1CK91201 Inclusion Rules	SRVB. El. 713.	An overspan condition, possibly due to two missing clamps, was identified on conduit 1CK9120L-1". Tag number 28820 is in place to repair. These missing clamps result in a span between supports greater than the GIP guidelines allow.	Static analysis of conduit. Re-install supports (clamps) - MWR .
1CC9300E Inclusion Rules	SRVB. El. 713.	An overspan condition, possible due to a missing clamp, was identified on conduit 1CC9300E-1". The conduit is connected on both sides to equipment by flex conduit. (The conduit is resting on several conduits which run perpendicular to this run).	Re-install supports - MWR .
N/A Other seismic performance concerns	SRVB. El. 725.	Rod hung piping is routed through this area. Its collapse could potentially damage raceway. (Drain line, doesn't always flow full).	Perform static analysis of pipe/supports or formal hazards review. As-builds to be provided later.
RC-P-1A, 1B, 1C Other seismic performance concerns	RCBX El. 738.	Support has questionable anchorage at base (Not attached)	Add attachment at the base of the support. MWR
Cable Tray Assembly to Reactor Head Rod Drive Assembly	RCBX El 767-10	Floor-mounted cable tray failed SQUG check.	STRUDL analysis 8700-DSC-6530 was performed which qualified the subject raceway.
Various Other seismic performance concerns.	YARD El. 735.	A non-ferrous (wood) shed is built in this area for weather protection and could collapse.	Remove wood structure or analyze.

PLAN FOR ADDRESSING UNRESOLVED OUTLIERS

The resolution of USI A-46 outliers for BVPS-1 progressed in parallel with the inspection and assessment process. Consequently, numerous outliers have already been resolved by corrective maintenance action, review of existing qualification documentation and/or additional analysis.

The outliers which remain unresolved will be prioritized according to their safety significance and scope. If any modifications are required for these outliers, it is planned to schedule them for implementation during one of the next three BVPS-1 refueling outages.

SIGNIFICANT OR PROGRAMMATIC DEVIATIONS FROM THE GIP

No significant or programmatic deviations from the GIP have been made in the BVPS-1 A-46 Program.

Section 10

THIRD-PARTY AUDITS

As required by Section I.2.2.7 of the GIP, a third-party audit was performed by an individual who is not part of the Seismic Review Team. The third-party audit report is included in Appendix 10.1 of this report. Earlier, a preliminary, informal review was also conducted. Due to personnel availability and DLC's submittal commitment, the third-party audit was conducted prior to completion of the program, and consequently includes issues that would have normally been resolved prior to a final audit. It is expected that a return visit by the auditor will confirm proper resolution of all issues prior to submittal of DLC's completion letter. Responses to both the preliminary review and third-party audit follow.

10.1 Mr. Ron Cushing's preliminary review observations and DLC responses:

Control Room Ceiling was not specifically addressed in the SEWS - Initial inspection of the ceiling indicated well-fitting sections with little apparent room for movement. Latter hands-on effort proved that most of the ceiling panels are difficult to raise out of their framing tees due to a lip on the tees. However, due to Mr. Cushing's comment and the fact that positive retention does not exist, the ceiling was made an interaction issue, and is addressed in this report.

Uncompleted SEWS - The SEWS are considered to be working documents in accordance with GIP guidance. SEWS were signed and dated at the time of equipment inspection to record SCEs and time of walkdown. Checklist questions that cannot be answered, such as anchorage analysis which depend upon field-measured bolt and/or weld size and location, were left blank or marked "unknown." Either was acceptable since they are equivalent in meaning, and either prevents the overall checklist question of seismic adequacy from being answered "yes." Upon reaching a final determination of a "yes" or "no" for a checklist question, the entry was initialed and dated. All SEWS will be complete prior to SVDS sign-off. The SVDS, which constitutes a conclusive, final and submitted record, to the contrary, was always to be complete prior to signature.

SEWS Capacity versus Demand not completed - This determination was to be made in the office following determination of natural frequency and actual location of the SSEL component at which the seismic demand level is derived. Mr. Cushing suggested that 1.5 Bounding Spectrum versus FRS be used since the 8 Hz and 40 ft. height limits do not apply. This criteria was applied as specified by the GIP, Section 4.2.

Dampers as outliers - Mr. Cushing noted the number of Class 0 dampers and suggested that they be reviewed under new guidelines being developed by SQUG. DLC had participated in initiating this effort and chose this option as described elsewhere in this report.

Rule-of-the-box (ROB) and use of SEWS for subcomponents - Mr. Cushing suggested that where SEWS exist for subcomponents that are found on ROB items, that they be used. DLC practice is that such concerns are included under the "any other concerns" consideration for the ROB item,

and since the SCEs are trained in the equipment class requirements applicable to certain subcomponents, no individual subcomponent SEWS are needed. Additionally, the GIP (3.3.3) specifically addresses ROB individual components as not requiring separate evaluation (since the experience base already includes them).

10.2 Mr. Hardy's audit observations and DLC's responses:

10.2.1 Audit Item 5.2

Twelve SEWS were generated for these tanks - one (1) per tank - by two (2) SRTs. The SRTs each produced six (6) of the SEWS. One SRT identified friction as the only available means of restraint, whereas, the second SRT noted the need to evaluate the tank for longitudinal restraint. One (1) of the second SRT's SEWS (EE-TK-3B) did not contain this statement - apparently in error. The existence of eleven (11) SEWS that addressed lateral restraint, five (5) of which called for evaluation, would appear to offset the one SEWS lacking a note, and assures that further review would occur. The potential for lateral movement has since been evaluated as noted on the five (5) SEWS, and friction is, in fact, sufficient to prevent movement.

10.2.2 Audit Item 5.3

- The Diesel Air-Start Compressor (EE-C-1A) interaction was not thought to be a threat by the SRT at the time of initial walkdown. (See 10.2.3).

- The "grout pad" is actually the compressor's base frame partially filled with grout. It is believed that the bolt in question is a structural, thru-bolt (steel-on-steel), which connects the pump to the upper flange of the support frame's channel member. The bolt's nut is on the underside of the support frame's flange, and therefore, embedded in grout used to fill a portion of the frame to increase mass and reduce vibration. The crack, therefore, has no effect on the bolt. The nature of this bolt was decided by the SRT in the field, but was not noted on the SEWS. Further review could identify no additional detail on the vendor's drawing. However, the compressor is clearly skid-mounted, and an expansion anchor used to make the compressor-to-base connection would be both unlikely and difficult to install. The thru-bolt assumption, therefore, remains in effect.

10.2.3 Audit Item 5.4

The diesel generator tank level indicator has an emergency light/battery above and nearby. The SRT discounted it as a threat. A return visit will be made to confirm the presence of the attachment screw and further assess the likelihood of interaction (distance, height, etc). Additionally, all such emergency lights in seismic areas will be inspected for installation of attachment hardware.

10.2.4 Audit Item 5.5

As noted in the audit comment, the cabinet's load path and attachment welds had been inspected by the SRT during a previous walkdown, and no problem existed.

10.2.5 Audit Item 5.6

- Mr. Hardy apparently reviewed the field sketch of the fan, which does not identify the anchorage type. The SEWS file sketch does call out 1/2" Phillips Red Heads (an expansion anchor). It was drawn in the office using the field sketch and the design drawing - the source of the anchor type information. Additional information on the anchors for the vibration isolators had been sent to EQE prior to the audit, and it appears in the EQE anchorage calculation.

- The SEWS for VS-F-40A does note that "light fixtures have 16" clearance above the fan", which the SRT considered sufficient.

- The issue of excessive fan weight was considered based strictly on the GIP equipment class description and SQUG training. Both sources give weight limits - the GIP as typical, the training as a numerical limit. This is true for the equipment classes of fans, air handlers, and chillers. The fan is, therefore, considered an outlier. The outlier resolution will be based in-part upon the fact that the Senior Seismic Review and Advisory Panel (SSRAP) report does not specify a weight limit.

10.2.5 Audit Item 5.7

The crack referred to was not identified on the SEWS because it is not near the original concrete anchors inspected during the SQUG walkdowns. The anchor involved was a 3/8" Hilti Kwik-bolt installed as part of supplemental anchorage required because all but one of the original anchors on that side failed the tightness check. The subject anchor was designed and installed to existing plant procedures since it was part of a corrective action. It was QC-inspected and tension-tested to 120% of the anticipated load, an indication that the crack is not detrimental.

10.2.6 Audit Item 5.9

The determination of an Allis-Chalmers MCC (type involved) maximum seismic deflection was noted earlier in this report as having been established at 0.10". This fact was identified to the SCEs early in the initial walkdowns. Distance to walls for interaction risk was judged accordingly. It was also understood that this determination was enveloping and on file, and did not require repeating. One (1) exception was MCC-E9 where a raceway strut was involved, and removal was the preferred resolution because both items can deflect.

10.2.7 Audit Item 5.10

Bars acting as spacers are now so noted on the SEWS for the two (2) Exide battery sets with this arrangement.

10.2.8 Audit Item 5.11

The Caveat #4 could have been a "No", since it asks if either coil top bracing or an evaluation exists. A top brace does not; the SRT evaluated the existing coil support frame to be adequate based on judgment. A formal analysis was not performed, nor was one found in the records. Although the form and extent of evaluation required by the GIP and SSRAP is unclear, all four transformers will be considered outliers. Further discussion can be found in Section 5.3, "Summary of Outliers.".

Caveat #10 should have been identified as Yes or Unknown. All pads on this floor elevation are tied to the base mat using typical bent bar ties as shown on reinforced concrete drawings. This is well known to the SCEs who considered the pad to be sufficiently robust to be judged adequate without the need for analysis. However, this determination should yield a Yes, not N/A; therefore, the transformer's support pads will again be reviewed.

10.2.9 Audit Item 5.12

The EDG Carbox Fire Protection system has been added as an interaction concern. It was already one of three (3) fire protection concerns under review as a generic BVPS-1 SQUG issue - EDG, auxiliary feedwater pumps, and charcoal bed filters. The discussion of each can be found in the BVPS-1 A-46 Relay Evaluation Report.

10.2.10 Audit Item 5.13

Concrete Block Walls (CBWs) were reviewed extensively under IEB 80-11 and IN 87-67, with some modification to upgrade seismic walls that did not meet review criteria under IEB 80-11. All IEB 80-11 results were submitted to the NRC, and the CBWs were subsequently (and selectively) inspected by the NRC during the 1992 BVPS-1 Structural Audit. The CBWs are controlled for purposes of inspection and modification.

The walls mentioned by Mr. Hardy were fully analyzed and modified under IEB 80-11, "Masonry Wall Design dated May 8, 1980." In general, CBWs were not evaluated again for SQUG, but the record review analyses for the subject walls will be reviewed again to resolve Mr. Hardy's concern.

10.2.11 Audit Item 5.14

The bad actor relays are discussed in the Relay Report. The basis for acceptance is the SQUG Program EPRI GERS capacity data for the subject relay configured as BVPS-1 uses it. There are no data being used outside of the relay GERS database.

10.3 General

Comments made by the auditors were very helpful, and were incorporated into the BVPS-1 SQUG implementation wherever possible. Where confusion appeared to exist as to what the SEWS information conveyed, clarifying changes were made.

REFERENCES

1. Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment, dated February 1992, copyright Seismic Qualification Utility Group (SQUG), Revision 2, corrected February 14, 1992.

2. USNRC, "Supplement No. 1 to Generic Letter (GL) 87-02 that Transmits Supplemental Safety Evaluation Report No. 2 (SSER No. 2) on SQUG Generic Implementation Procedure, Revision 2, as corrected on February 14, 1992 (GIP-2)," dated May 22, 1992.

3. "USI A-46 Relay Evaluation Summary Report for Beaver Valley Power Station Unit No. 1 (BVPS-1)," dated December, 1995.

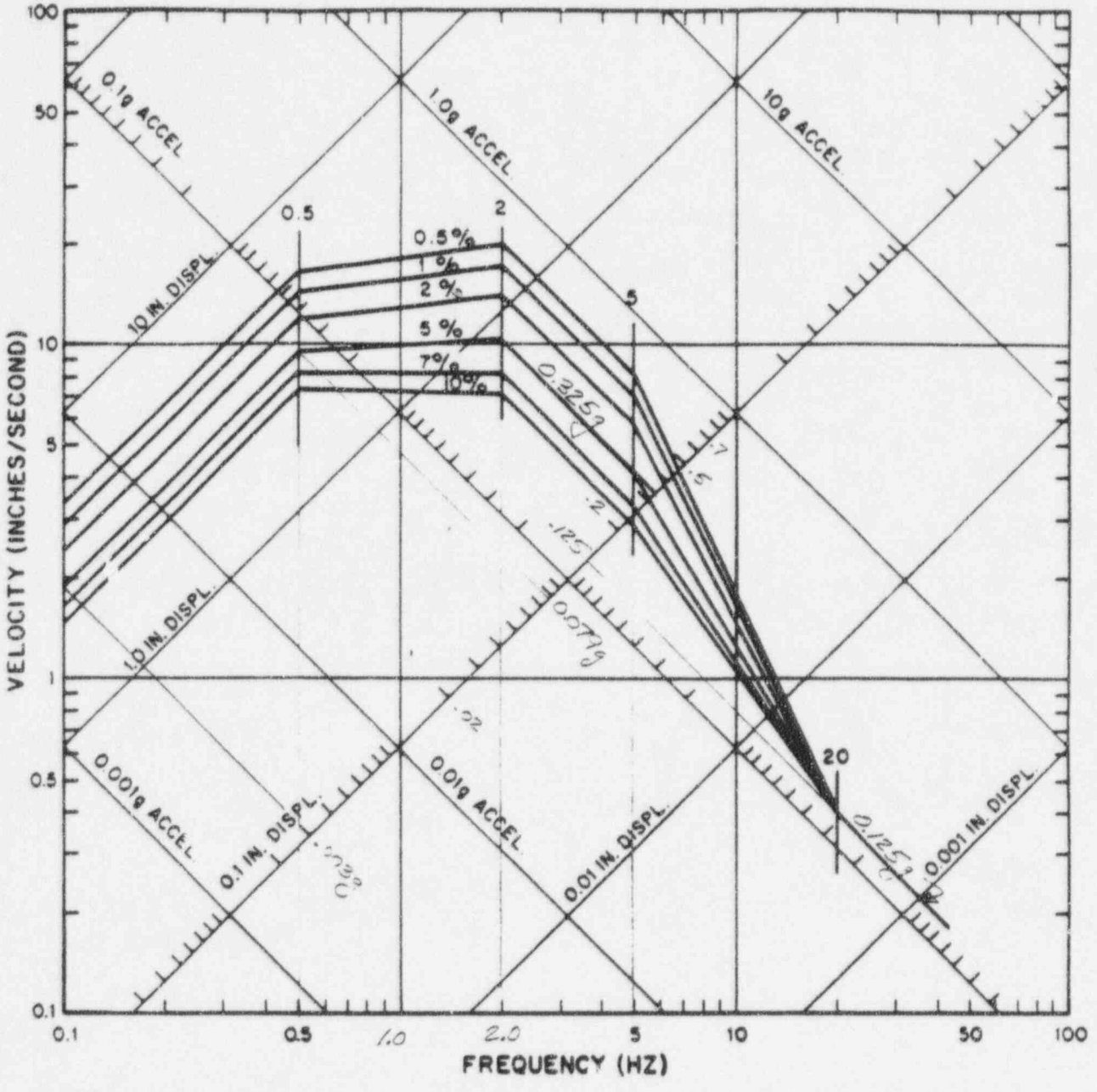
4. Duquesne Light Company letters to USNRC, dated September 22, 1992, and February 19, 1993, committing to SQUG resolution of USI A-46.

5. USNRC letter dated November 20, 1992 accepting Duquesne Light the Company Commitment to SQUG of September 22, 1992.

6. NUREG-1018, "Seismic Qualification of Equipment in Operating Plants - Status Report Unresolved Safety Issue A-46," U.S. Nuclear Regulatory Commission, September 1983.

APPENDIX 2.2

BVPS-1 Ground Response Spectra



NOTES

1. SAFE SHUTDOWN EARTHQUAKE: $a_h = 0.125g$.
2. FINAL BVPS-1 RESPONSE SPECTRA (SWEC, 1979).

FIGURE
HORIZONTAL RESPONSE SPECTRA
BEAVER VALLEY POWER STATION-UNIT 1

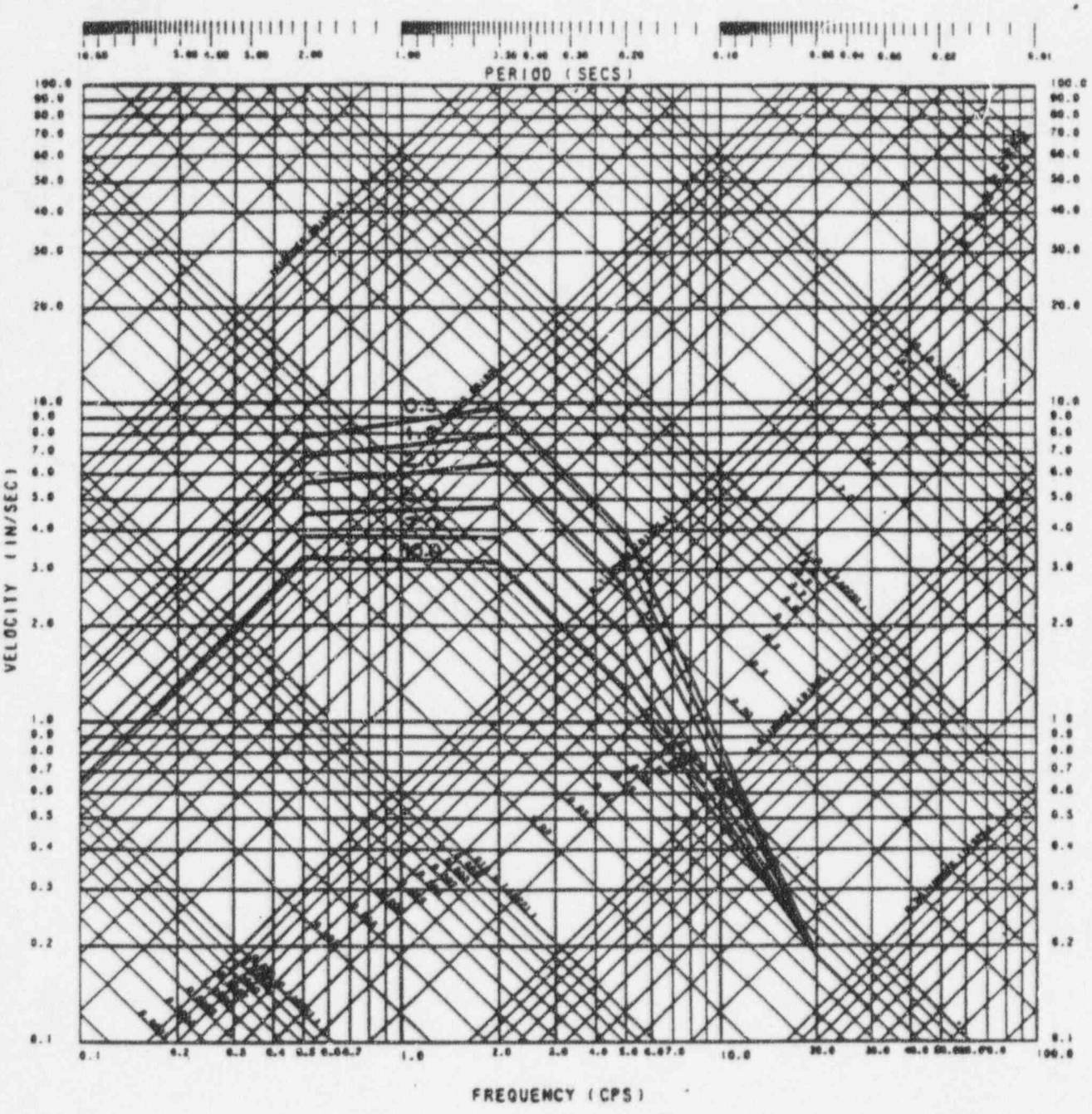
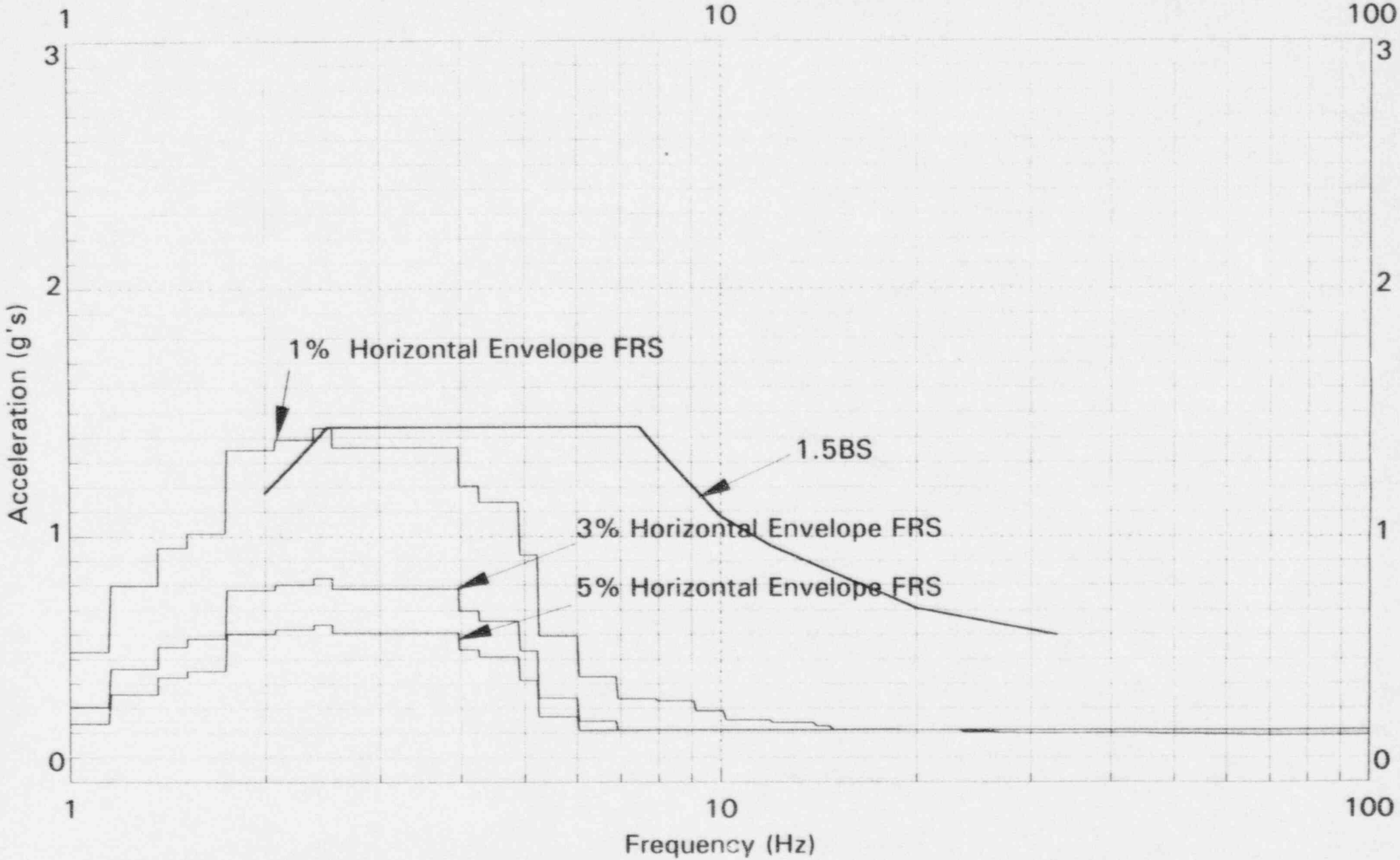


FIGURE
RESPONSE SPECTRA 0.06G OBE
BEAVER VALLEY POWER STATION-UNIT 1

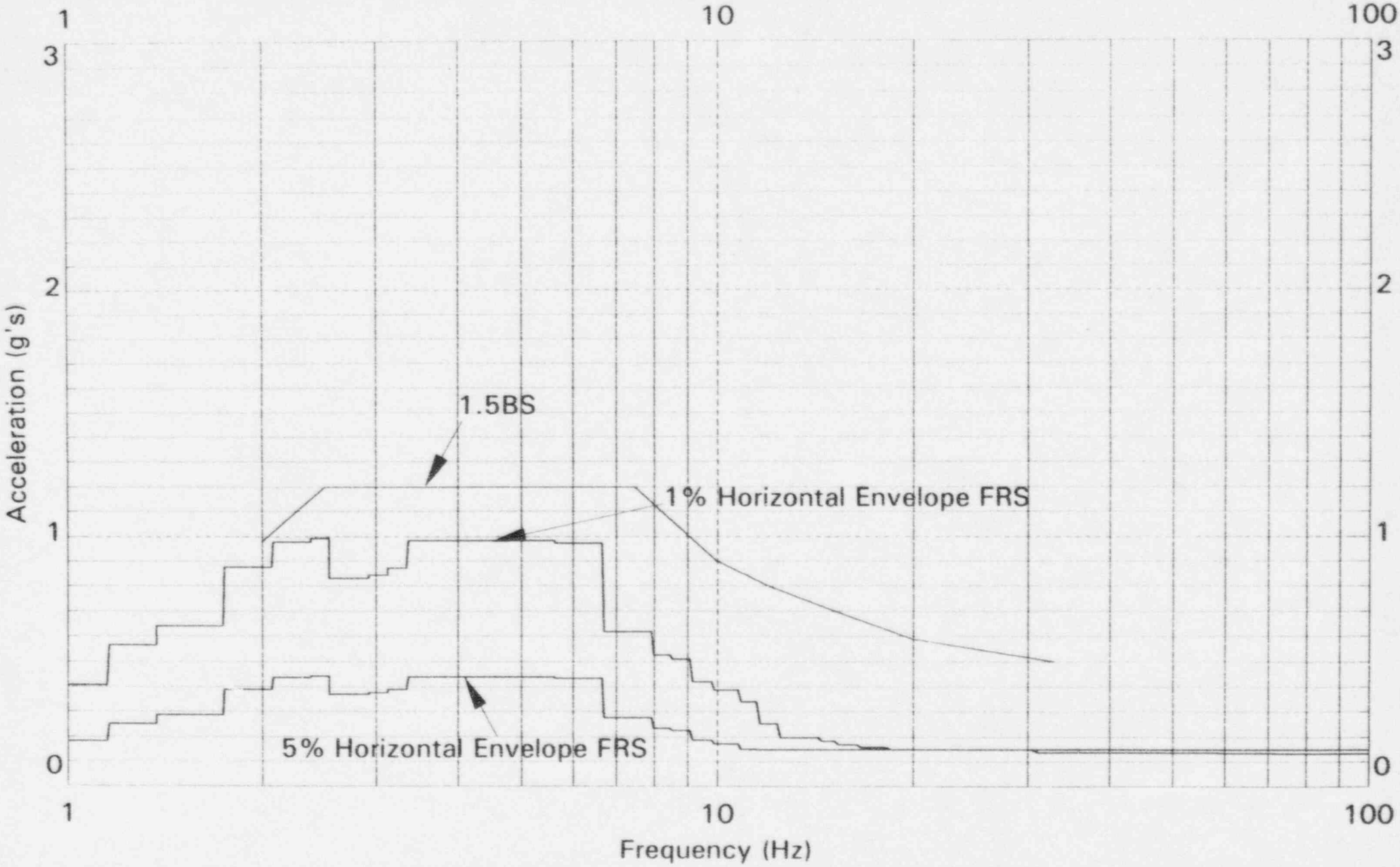
APPENDIX 2.3

BVPS-1 Amplified Response Spectra (ARS/IRS)

SQUG Review AUXILIARY BUILDING (AXLB) ELEV. 768 & BELOW
Horizontal Envelope vs. 1.5BS

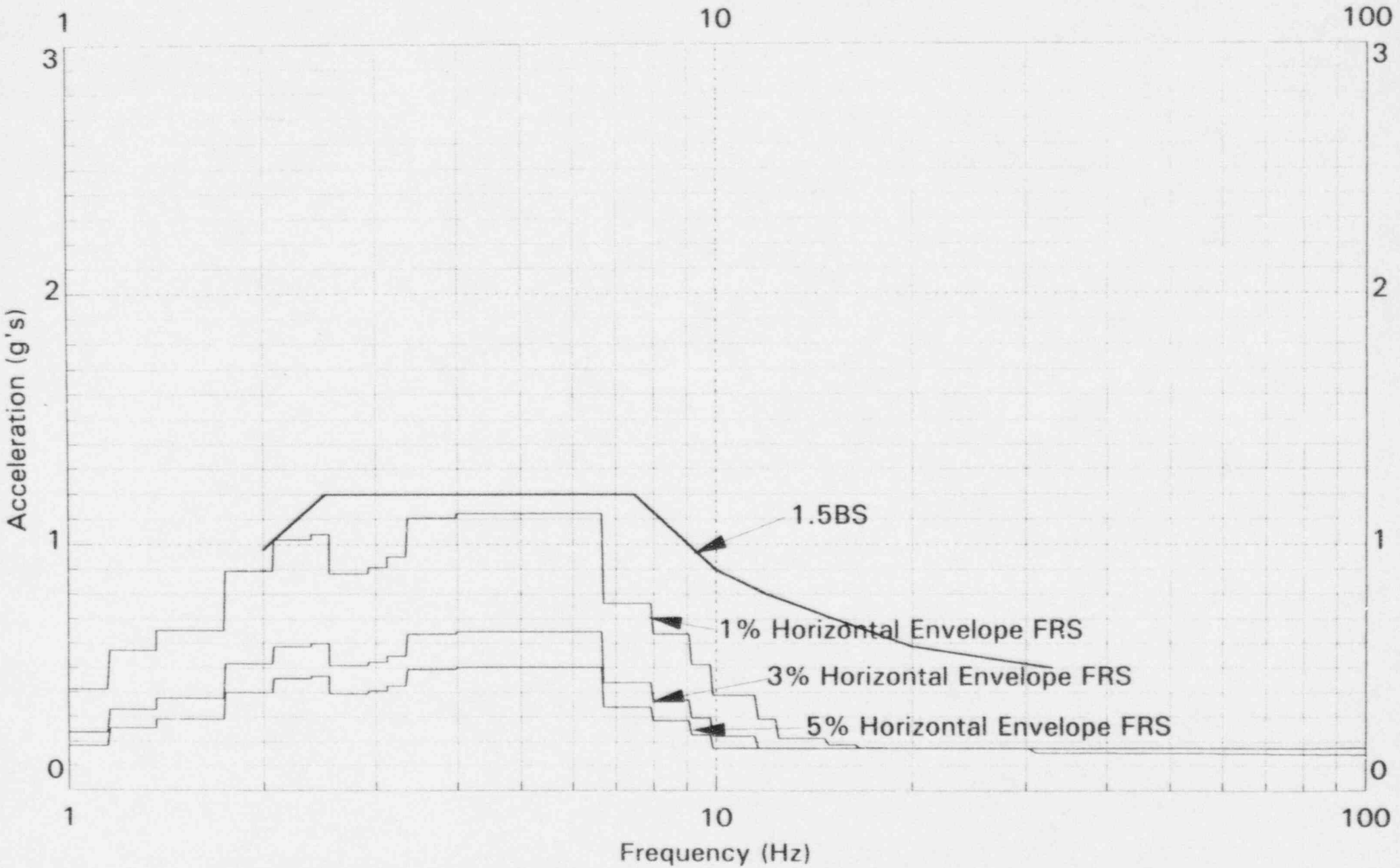


SQUG Review DIESEL GENERATOR BUILDING (DGBX) ELEV. 735
Horizontal SSE Envelope vs. 1.5BS

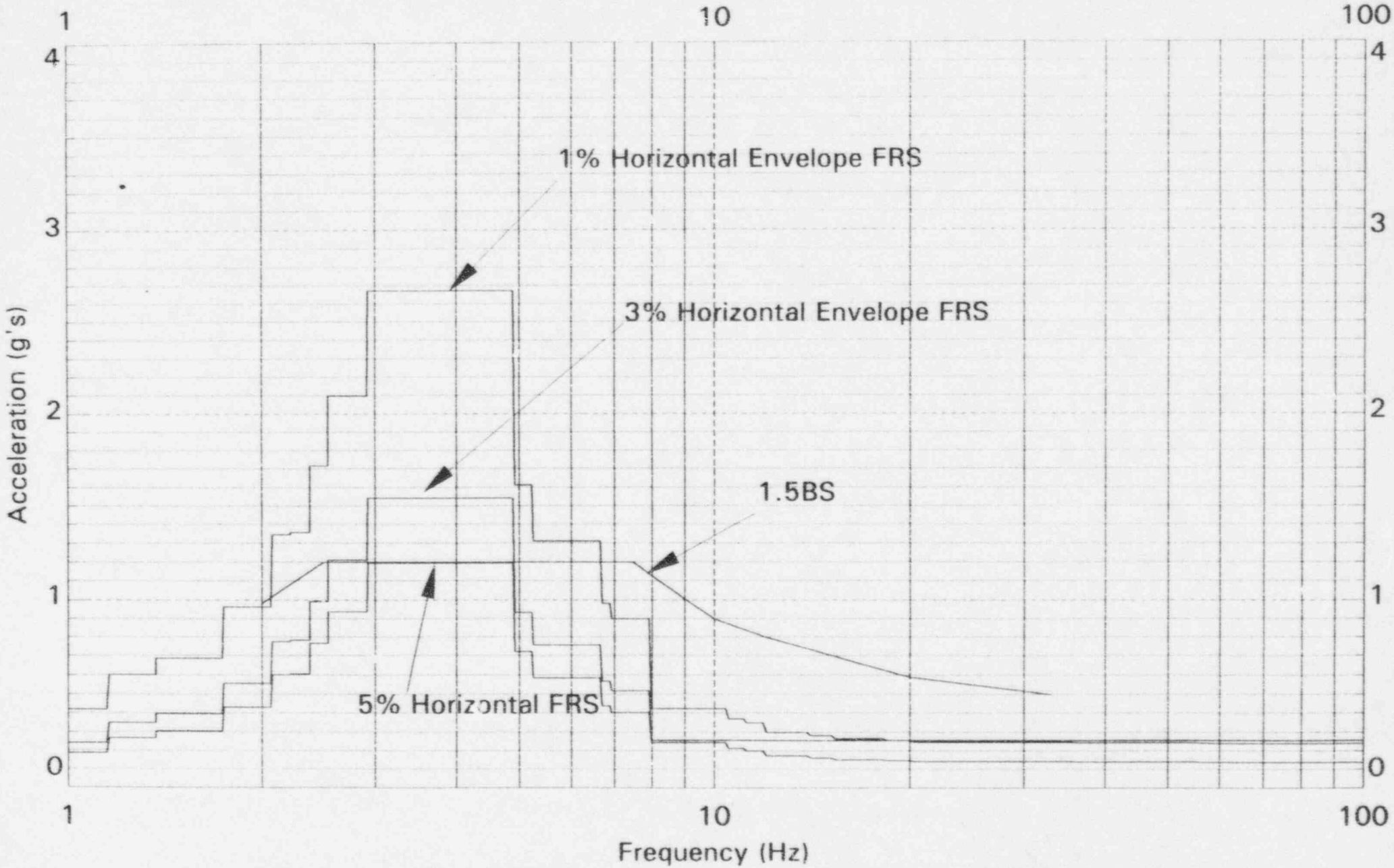


SQUG Review DIESEL GENERATOR BUILDING (DGBX) ELEV. 755

Horizontal SSE Envelope vs. 1.5BS

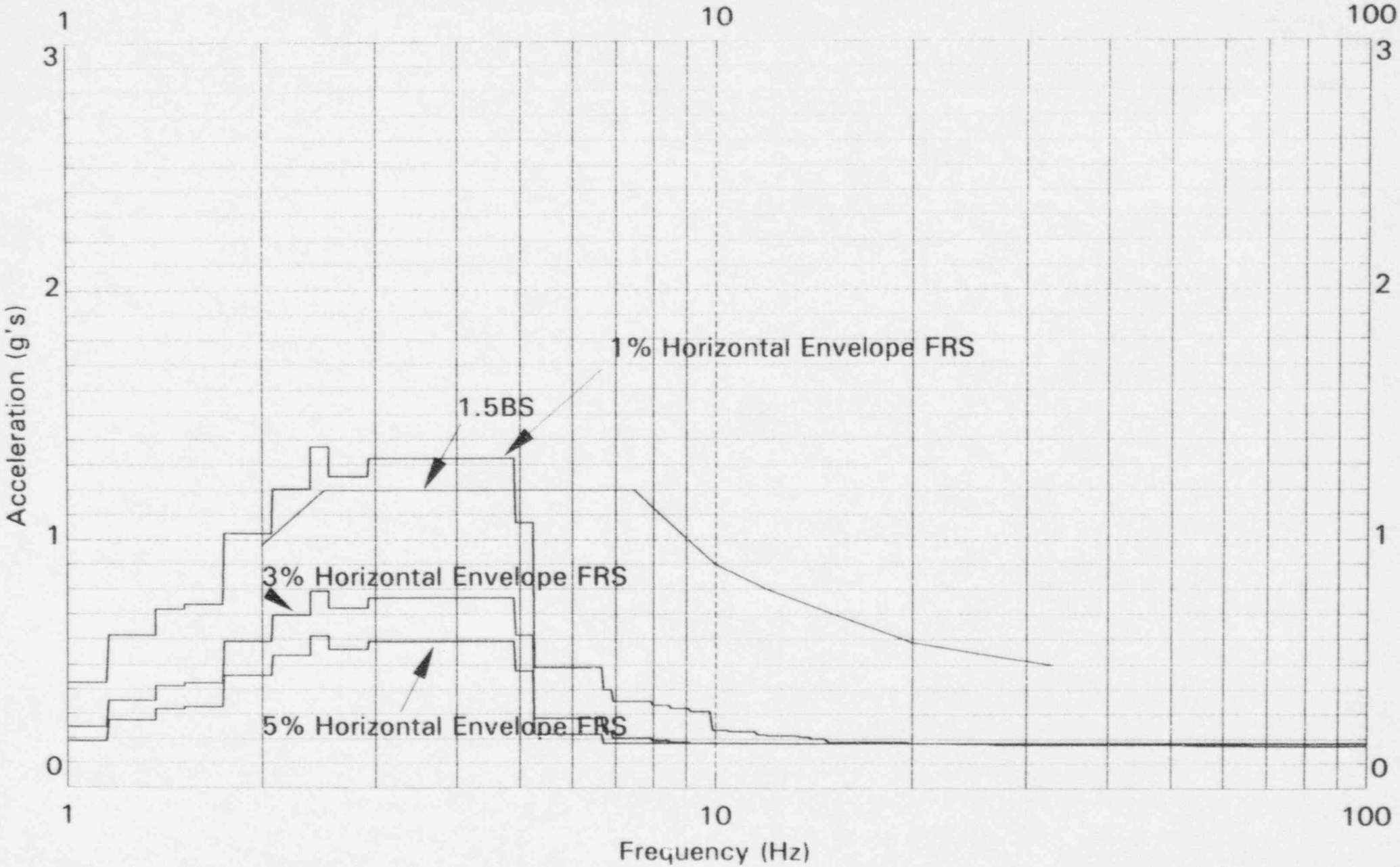


SQUG Review INTAKE STRUCTURE (INTS) ELEV. 705
Horizontal SSE Envelope vs. 1.5BS

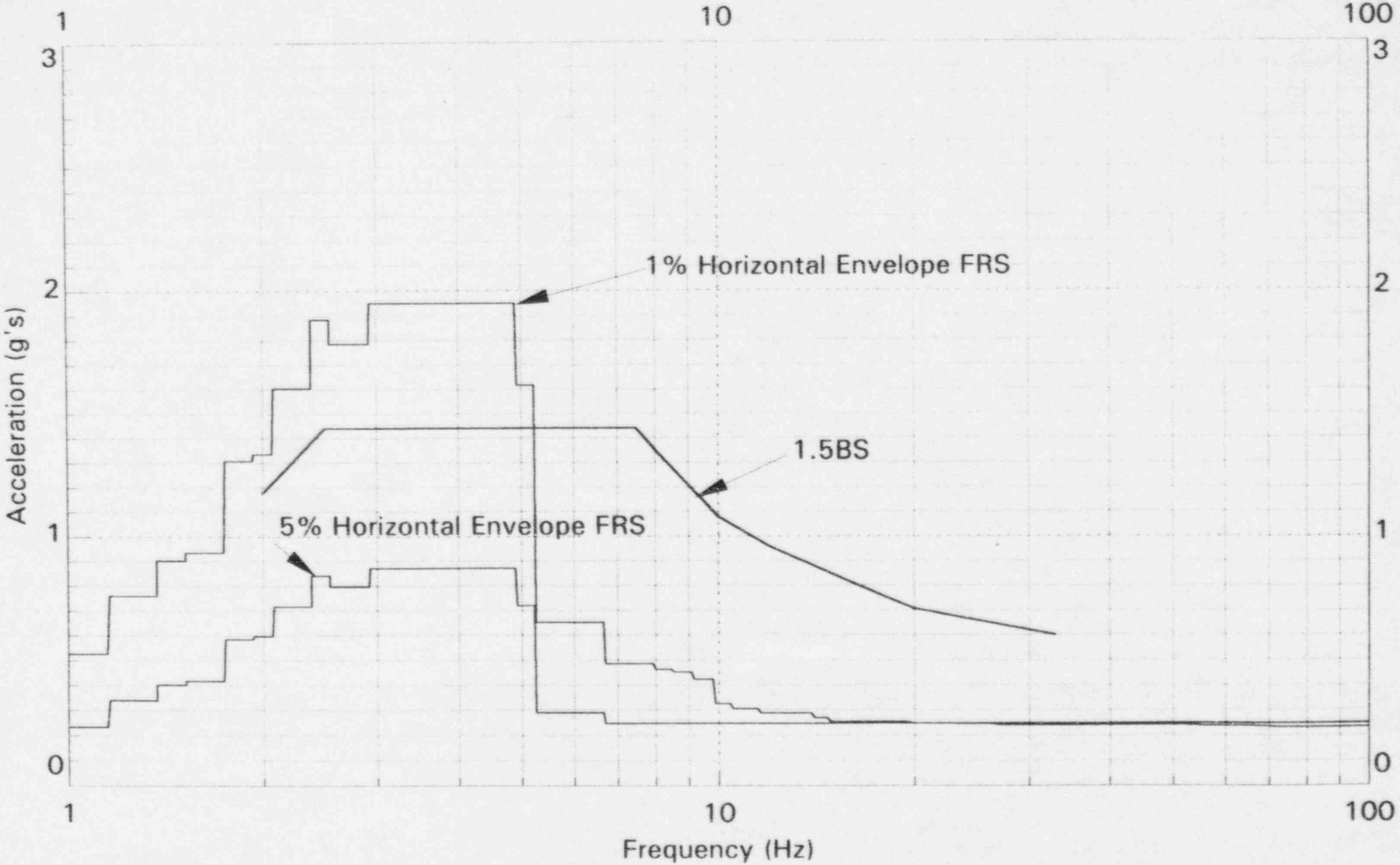


SQUG Review MAIN STEAM/CABLE VAULT (MSCV) ELEV. 753.5

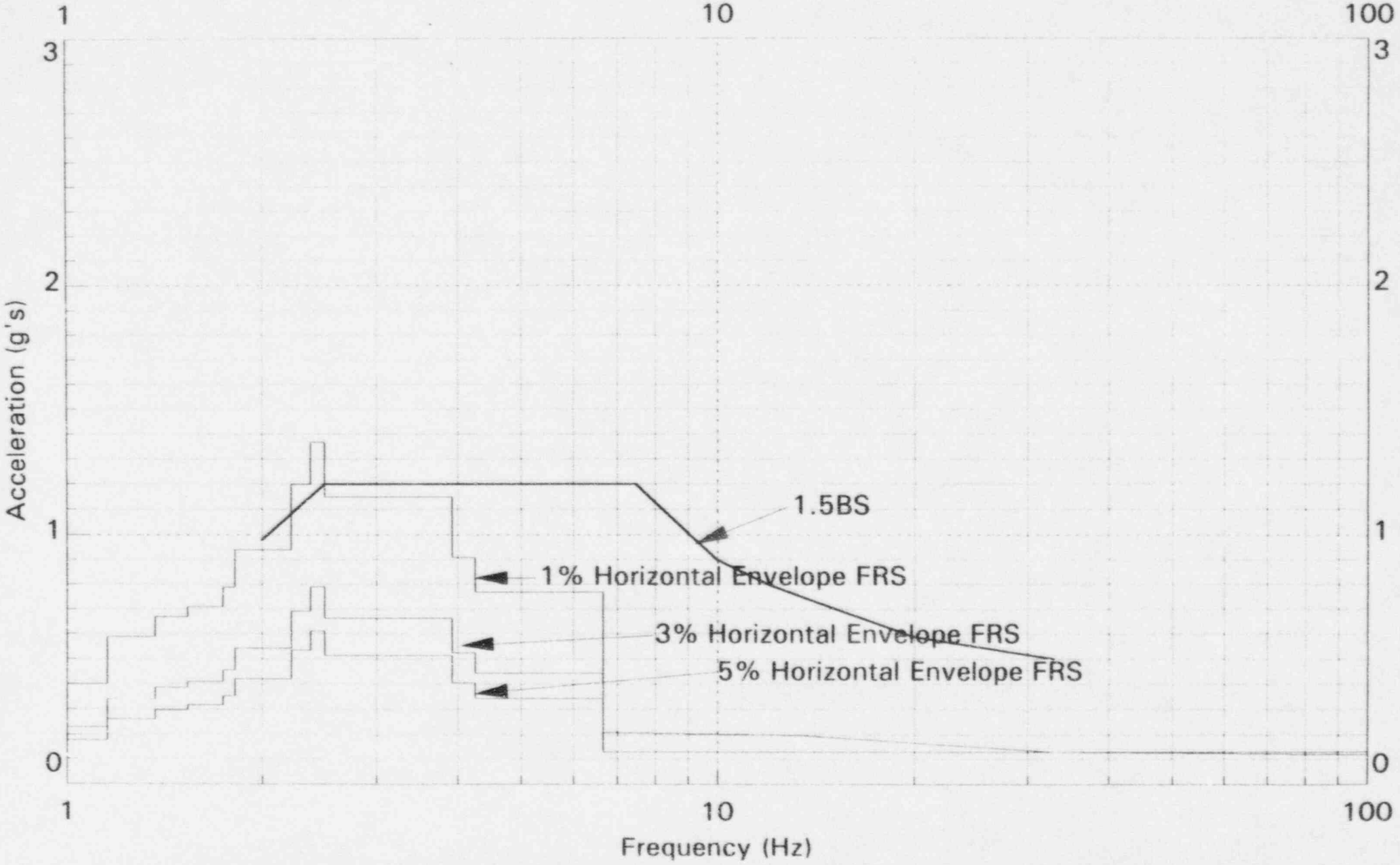
Horizontal SSE Envelope vs. 1.5BS



SQUG Review MAIN STEAM/CABLE VAULT (MSCV) EL. 768
Horizontal SSE Envelope vs. 1.5BS

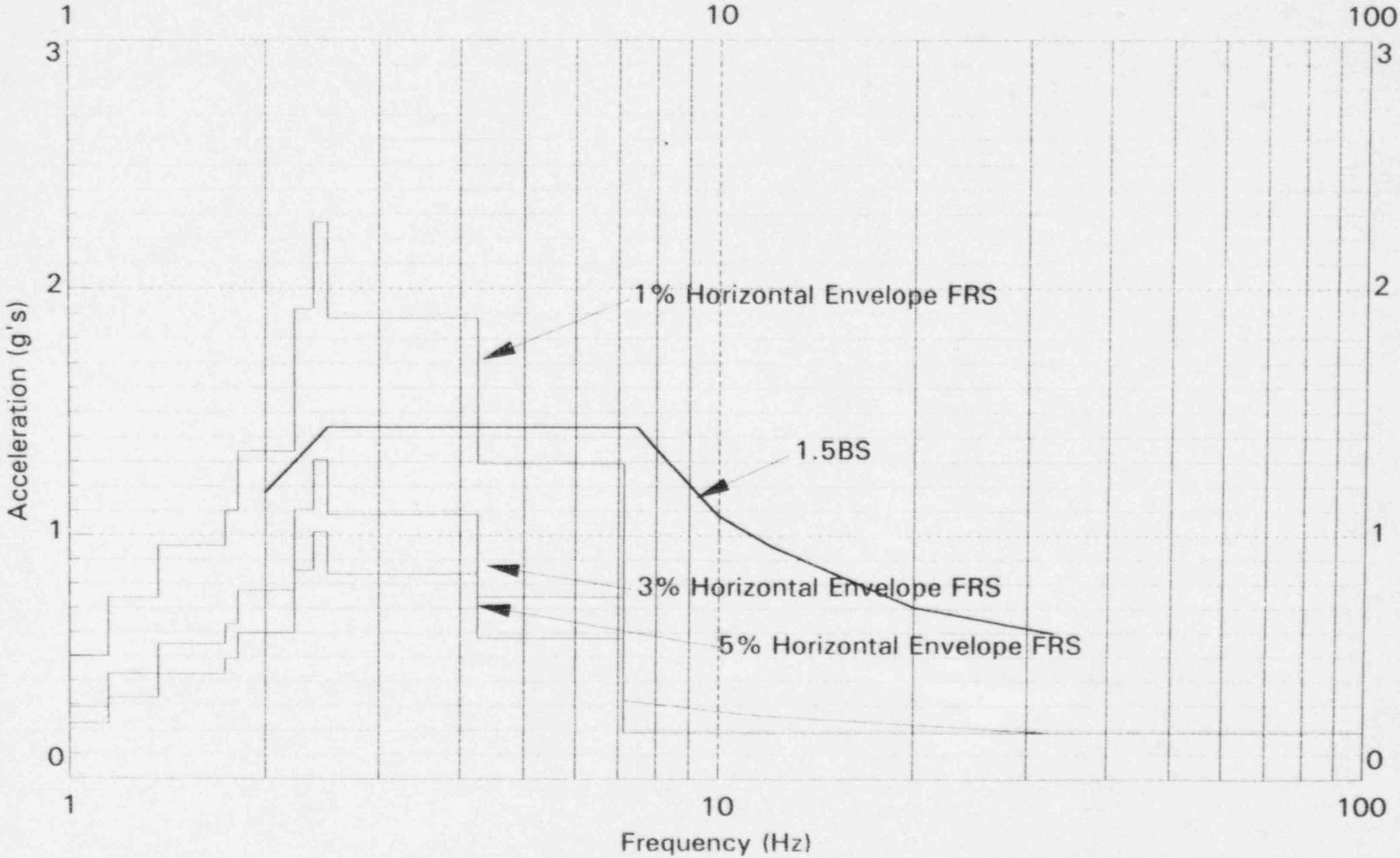


SQUG Review REACTOR CONTAINMENT (RCBX) ELEV. 738
Horizontal SSE Enveiope vs. 1.5BS

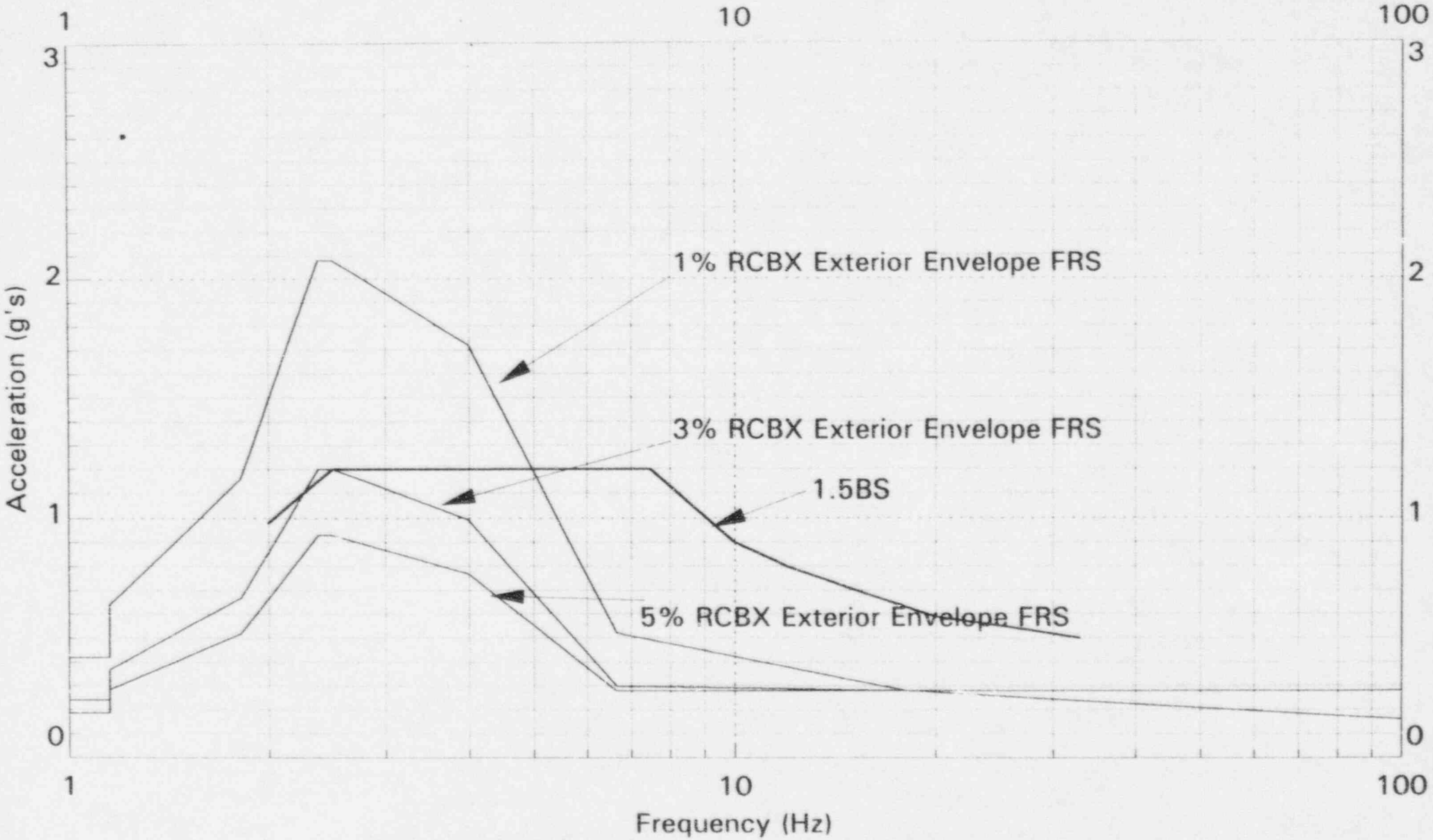


SQUG Review REACTOR CONTAINMENT (RCBX) ELEV. 767

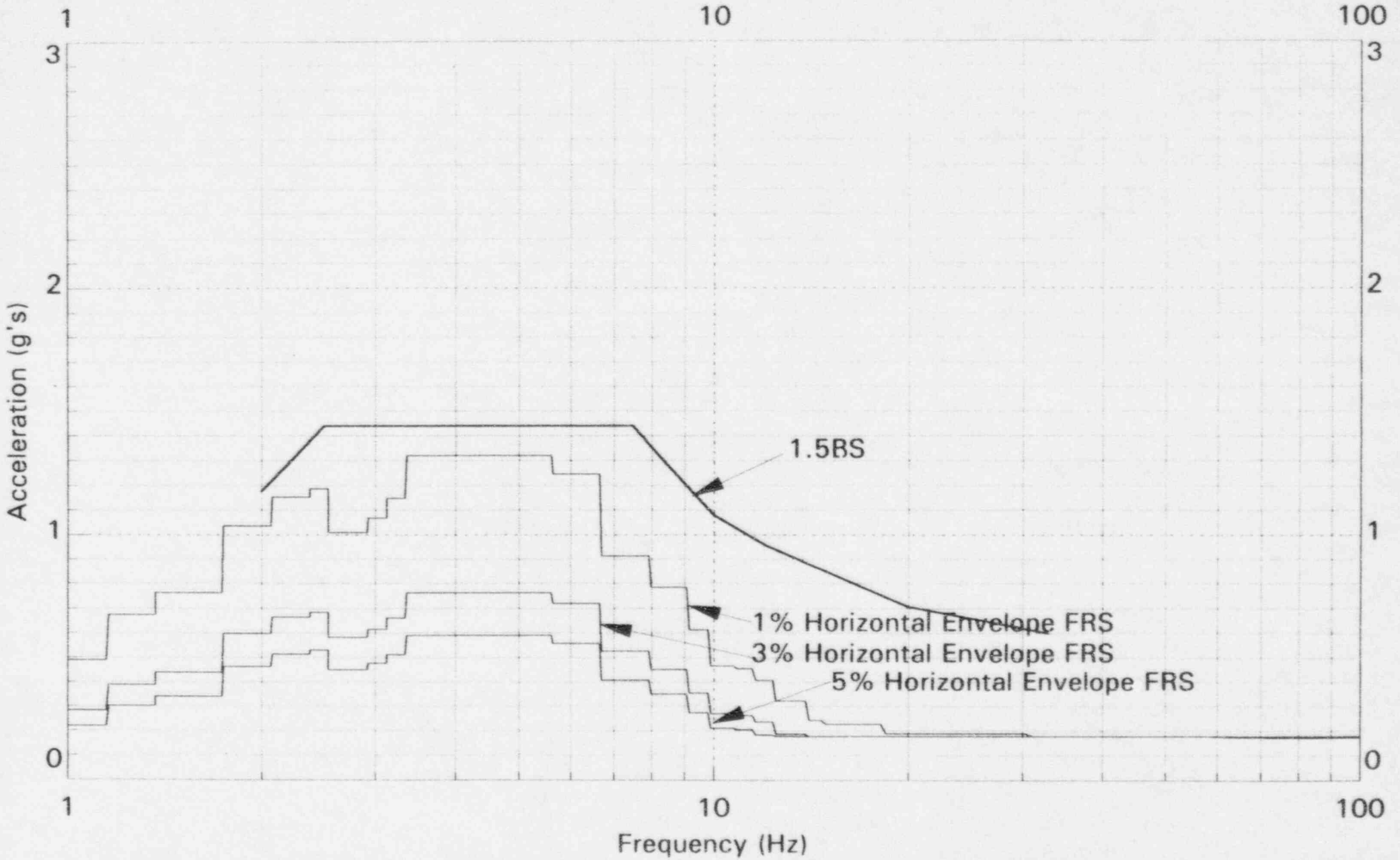
Horizontal Envelope vs. 1.5BS



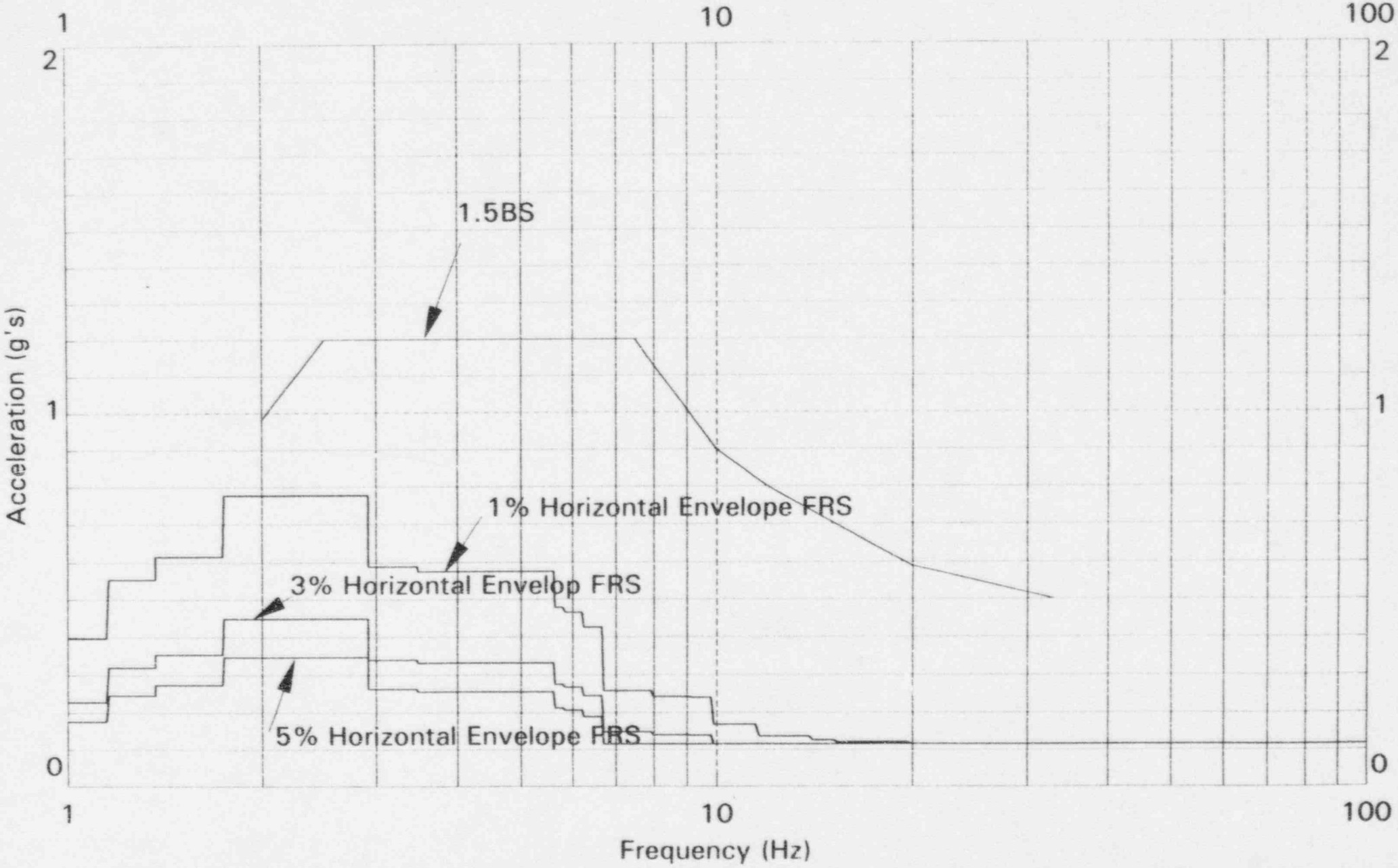
SQUG Review EXTERIOR REACTOR CONTAINMENT (RCBX) EL.792.
Horizontal Envelope vs. 1.5BS
(FRS are drawn to envelope broadened ARS)



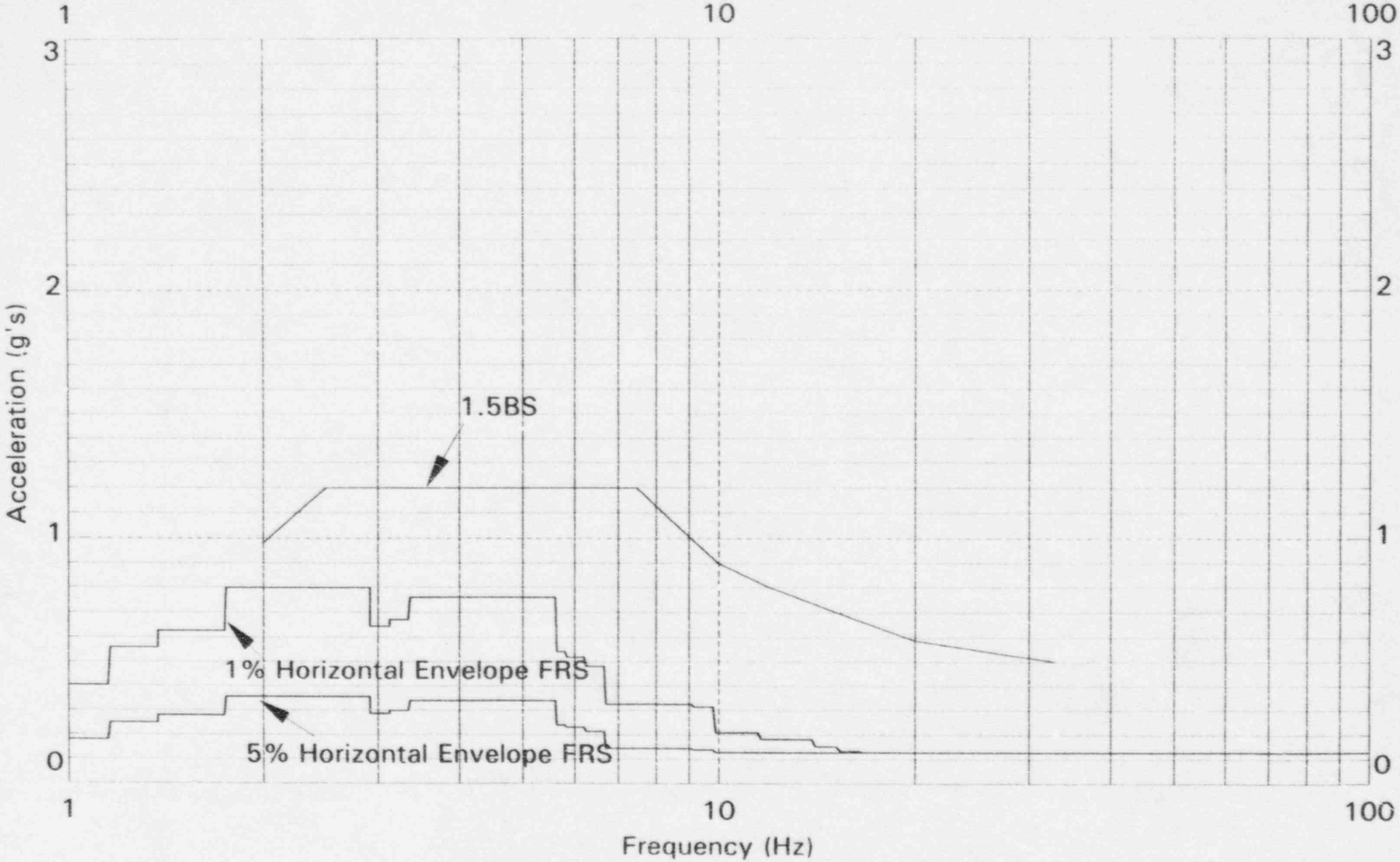
SQUG Review SAFEGAURDS BUILDING (SFGB) EL. 733
Horizontal Envelope vs. 1.5BS



SQUG Review SERVICE BUILDING (SRVB) ELEV. 713
Horizontal SSE Envelope vs. 1.5BS



SQUG Review SERVICE BUILDING (SRVB) ELEV. 735
Horizontal SSE Envelope vs. 1.5BS



APPENDIX 3.2
Resumes for Seismic Capability Engineers

PAUL V. DAVIS

EDUCATION:

Associate in Science - Civil Engineering Technology, Youngstown State University, 1978
Bachelor in Science - Civil Engineering Technology, Youngstown State University, 1988

PROFESSIONAL HISTORY:

Duquesne Light Co., Senior Engineer, 1990 - present
Stone & Webster Engineering Corp., Senior Field Designer, 1979 - 1990
L. K. Comstock & Company, Inc., Field Engineer, 1972 - 1976, 1978 - 1979
Kaiser Engineers, Inc., Junior Engineer, 1978

PROFESSIONAL EXPERIENCE:

Mr. Davis joined Duquesne Light Company in January of 1990 as an Engineer in the General and Plant Engineering section. He is presently a Senior Engineer involved in structural and mechanical analyses regarding the continuous operation and upgrade of Beaver Valley Nuclear Power Station's systems, components, and parts. He has been responsible for the detailed seismic analysis and qualification of structural, mechanical and electrical components, including anchorage and supporting structure evaluations. Toward the resolution of BV-1 A46 concerns, he has been performing duties as a Seismic Capability Engineer.

Prior to joining Duquesne Light Company Mr. Davis came to the Beaver Valley Power Station in the employ of Stone & Webster Engineering Corp. in September 1980 as a Senior Field Designer. The gist of his work was making installation modifications to duct and piping systems during the BV-2 construction phase. Upon completion of construction he underwent a transition into plant modifications and upgrades. From December of 1972 to his coming to Beaver Valley Power Station Mr. Davis worked as a Field Designer/Engineer at several nuclear power plants - Three Mile Island 1 & 2, North Perry 1 & 2, Washington Public Power System No. 2, and North Anna 1 & 2. During this time his tasks included construction and modifications of piping/duct systems and mechanical components and analysis of existing piping/duct systems and mechanical components. Throughout this time Mr. Davis gained considerable knowledge related to the installation details and modifications of Nuclear Power Plant components. Seismic considerations were a key factor in the determination of how these modifications were to be made and also in the analysis of those modifications.

TRAINING:

SQUG Generic Implementation Procedure, walkdown screening seismic evaluation training - August, 1993.

WILLIAM HWANG

EDUCATION:

B. S. - Civil Engineering - Taiwan Cheng Kung University, 1960
M. S. - Applied Mechanics - Kansas State University, 1965.

REGISTRATION:

Registered Engineer-in-Training in Pa.
Registered Professional Engineer in Pa.
Registered Professional Land Surveyor in Pa.

PROFESSIONAL HISTORY:

1. Duquesne Light Company, Pittsburgh, Pa. Nuclear Engineering Department Senior Engineer 1969 - Present.
2. Peter F. Loftus Corporation, Pittsburgh, Pa. Civil & Structural Engineering Department Structural Engineer 1965 - 1968.

PROFESSIONAL EXPERIENCE:

As senior engineer with Nuclear Engineering Department of Duquesne Light Company, has been responsible for the development of seismic qualification specifications of class 1E safety-related electrical components, detailed seismic design of various category I structures and anchorage analysis for SQUG USI A-46 SSEL components.

Served as structural engineer with Peter F. Loftus Corp., I was involved with the structural and foundation design of electrical substation structures and transmission towers. Also performed the detail design of the generator support and oil storage facility of combustion turbine unit.

TRAINING:

SQUG Generic Implementation Procedure, walkdown screening seismic evaluation training - November, 1992.
EPRI Add-On seismic IPE training - December, 1992.
CYGNA Energy Services Pipe Support Design Seminar - November, 1983.
Structural Dynamics - February through May, 1981.

CARMEN V. MANCUSO

EDUCATION:

B. S. - Civil Engineering - University of Pittsburgh 1979

REGISTRATION:

Registered Professional Engineer, State of Pennsylvania

PROFESSIONAL HISTORY:

Duquesne Light Company, Nuclear Group, Shippingport, Pa., Senior Engineer, 1982-present.
Schneider Consulting Engineers, Bridgeville, Pa., Stress Analyst, 1979-1982

PROFESSIONAL EXPERIENCE:

Mr. Mancuso currently serves as a Project Engineer/Project Manager for Design Change Modifications performed to the Beaver Valley Power Station. Beaver Valley Power Power Station is a two Unit Pressurized water reactor plant located in Shippingport, Pennsylvania. His duties include the management of construction and modification projects through the detailed design, procurement, and installation phases. Included in these responsibilities is ensuring that site licensing requirements are complied with for individual projects.

Mr. Mancuso has served as a design engineer and stress analyst for a variety of projects at the Beaver Valley Power Station, including design of new support systems as well as analyzing existing as-found conditions to determine system operability.

Specific areas of responsibility includes: a) pipe stress analysis and pipe support analysis (considering normal loads, thermal loads and seismic loads), b) structural analysis of structural steel and concrete structures, c) Anchor bolt and base plate design for component supports (including seismic loads), e) development of seismic qualification requirements and review of seismic qualification reports for compliance with IEEE 344, "Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations", f) design of seismic conduit and raceway systems.

TRAINING:

Pipe Support Design Seminar, Cygna Engineering, Instructor Thomas Ward Fundamentals of Seismic Engineering, Vantage Training Services, Instructor Dr. Charles Farwell Piping Design, Analysis and Fabrication, The Center, Instructor Walter Sperko Pipe Support and Hanger Design. The Center, Instructor Jacques L. Boulay PWR Specialty Training, Westinghouse Nuclear Training Services, Instructor Phil McHale. SQUG Generic Implementation Procedure, walkdown screening seismic evaluation training - August, 1993.

PATRICK G. PAUVLINCH

EDUCATION:

B. S. - Civil Engineering, Penn State University, 1984

REGISTRATION:

Registered Engineer-in-Training: Pennsylvania

PROFESSIONAL HISTORY:

Duquesne Light Company - Beaver Valley Power Station, Shippingport, Pennsylvania: Senior Engineer, 1993 to Present
Engineer I, 1990 to 1993

Stone & Webster Engineering Corp. - Beaver Valley Power Station
Shippingport, Pennsylvania:
Engineer 1984 to 1990

PROFESSIONAL EXPERIENCE:

Mr. Pauvlinch presently serves as a Senior Engineer for the General and Plant Engineering Section of the Nuclear Engineering Department at Beaver Valley Power Station. His Responsibilities include interpretation and utilization of computer analysis (STRUDL, NUPIPE, Finite Element etc.) to solve complex plant system and component problems. He interprets and effectively uses industry codes and standards (ANSI, ASME, AWS, AISC, etc.) while adhering to plant licensing procedures (UFSAR, Tech. Specs.) and overall design basis.

Mr. Pauvlinch is actively involved in the walkdown and seismic qualification (per the General Implementation Procedure, GIP) of components on the Beaver Valley Powwer Station's Safe Shutdown Equipment List for USAI A-46 Project completion.

Mr. Pauvlinch performs detailed design analysis and verification on piping, piping supports, equipment, equipment supports, structural supports, and electrical equipment using various computer code (STRUDL, NUPIPE, Finite Element) and manual calculation methods. He is responsible for solving urgent day to day problems associated with the continued operability and reliability of the plant while dealing with long term goals set forth by management.

TRAINING:

SQUG Generic Implementation Procedure, walkdown screening seismic evaluation training - February, 1993.
EPRI Add-On seismic IPE training March, 1993.

GLENN S. RITZ

EDUCATION:

1986 - MS-IE, University of Pittsburgh
1970 - 1971 - Candidate for MS-CE, University of Pittsburgh
1969 - BS-CE, University of Pittsburgh
1965 - 1966 - Candidate for BS Mathematics, Alderson-Broaddus College

REGISTRATION:

Registered Professional Engineer, State of Pennsylvania, No. PE-024749-E

PROFESSIONAL HISTORY:

1970 - Present; Employee of Duquesne Light Co., Pittsburgh, PA

PROFESSIONAL EXPERIENCE:

Mr. Ritz is currently a Principal Engineer with the Nuclear Engineering Department, Corporate Nuclear Services Unit, Nuclear Group, at Beaver Valley Nuclear Power Station. He is the Project Manager for the Beaver Valley Unit No. 1 USI A-46 Project. He concurrently acts as a civil/structural staff engineer, seismic engineer, and internal consultant to associate engineers. Duties include design and analysis of structural systems (e.g., buildings, equipment supports), specifying and evaluating seismic equipment qualification, and advising associate engineers on issues such as bolting, analytical techniques, and failure assessments. He has held this position since 1984, when he was reassigned from the former Engineering & Construction Division due to Corporate reorganization.

Prior to 1984, Mr. Ritz worked in the former Structural Engineering Department, where he held the positions of Engineer, Project Engineer and Senior Project Engineer. His work assignments included review of Architect/Engineer design documents for both Units of the Beaver Valley Power Station. Additionally, he worked on civil/structural projects involving the Utility's fossil fuel generating stations, power transmission system, waste disposal/compliance issues, and subsidiary steam heating system for the city of Pittsburgh.

TRAINING:

Severe Loading Symposium, Dr. John D. Stevenson, Case Western Reserve, 1973.
PWR Specialty Training, Westinghouse Nuclear Training Services. Structural Dynamics Lecture Series, February thru May, 1981.
Advanced Frame and Finite Element Analysis, Georgia Institute of Technology, 1988.
Seismic Seminar, WYLE Laboratories, 1989.
SQUG SSEL, Relay Review, IPEEE Add-on and Seismic Capability Engineer (walkdown) training, September/October, 1992.

G. THOMAS WESTBROOK

EDUCATION:

B. S. Civil Engineering - West Virginia University, 1979
Masters Program Studies - West Virginia University, 1979 - 1981

REGISTRATION:

Professional Engineer, PA License Number PE-037526-E, 1988
Engineer-in-Training, WV 1979

PROFESSIONAL HISTORY:

Duquesne Light Co.;
- Senior Engineer 1990 - Present
- Engineer I, 1987 - 1990
- Engineer II, 1981 - 1987

Triad Engineering, Field/Lab Technician/Draftsman/Analyst - Summers 1978, 1979, 1980

PROFESSIONAL EXPERIENCE:

Mr. Westbrook currently serves as a Senior Engineer in the General and Plant Engineering Section of the Nuclear Engineering Department at Beaver Valley Power Station.

Responsibilities include the preparation of specifications for seismic qualification of equipment/components, evaluation of seismic test reports for components, preparation of structural site design/installation standards and specifications, and analysis/design of anchorage for equipment and supports. Mr. Westbrook is the in-house specialist on concrete anchor bolts and protective coatings.

Other responsibilities include design and analysis of structures, equipment, pipe supports, HVAC duct supports, conduit and cable tray supports, and coordination of field modifications.

Mr. Westbrook successfully completed the SQUG Walkdown Screening and Seismic Valuation Training Course, Nov. 9 thru 13, 1992 and the Seismic IPE Add-on Training Course, Nov. 30 thru Dec. 3, 1992. He has been involved in the equipment walkdowns of items on the SSEL for Unit 1 of the Beaver Valley Power Station. Performed analysis and evaluations of equipment on the walkdown list. Also, developed resolution for deficiencies discovered during walkdowns.

TRAINING:

Structural Repair of Concrete and Masonry, ASCE 1989
GT-Strudl Course, Georgia Institute of Technology 1988
Protective Coatings Course, KTA-TATOR, Inc 1983

CYNA Energy Services Pipe Support Design Seminar, 1983
PWR Specialty Training, 1982.
SQUG Generic Implementation Procedure, walkdown screening training, November 1992.

RICHARD D. AUGUSTINE

PROFESSIONAL HISTORY

EQE International, Stratham, New Hampshire, Principal Engineer, 1987-present
Impell Corporation, New York, New York, Project Engineer, 1986-1987
Cygna Energy Services, Boston, Massachusetts, Structural Engineer, 1985-1986
Butler Service Group, Charlotte, North Carolina, Structural Engineer, 1984-1985
Pullman-Higgins, Seabrook, New Hampshire, Field Engineer, 1983-1984
Butler Service Group, Braintree, Massachusetts, Design Engineer, 1981-1982
Bechtel Power Corporation, San Francisco, California, Design Engineer, 1980-1981

PROFESSIONAL EXPERIENCE

Since joining EQE, Mr. Augustine has been involved in various projects relating to the EQE seismic experience data base. In the field he has used the data base to seismically qualify electrical and mechanical equipment and various piping systems in nuclear power plants. Similar evaluation work has been performed on nuclear-plant cranes. He has used his extensive knowledge of nuclear piping in conjunction with data base experience to perform piping qualification tasks and develop performance criteria. In addition he has been involved in organizing and updating the seismic experience data base.

Mr. Augustine was assigned as USI A-46 Task Leader at Indian Point Unit 2. He has completed the SQUG Seismic Capability Training required for USI A-46 evaluations. In addition to work at Indian Point, he has performed IPEEE/A-46 walkdowns as an SCE at the TMI, Savannah River, Oyster Creek, Calvert Cliffs 1 and 2, and Keonee facilities. His work has included seismic screening of equipment, tanks and heat exchangers; conduit and cable tray screening and analytical reviews; and outlier resolutions.

Mr. Augustine has participated in various piping and equipment evaluation projects for DOE facilities including work at the Savannah River Plant and Princeton Plasma Physics Laboratory. At Savannah River, Mr. Augustine was a member of seismic review teams who reviewed relays, raceways, control panels, piping, and equipment in the K, L, and P reactors. At Princeton, he was project engineer for the seismic evaluation of Tritium handling systems.

Other assignments have included acting as project lead for the seismic verification of the diesel air start system at the Ginna Nuclear Plant, cable tray verification at TMI Unit 1, seismic II/I interaction review at Browns Ferry Unit 2 and Salem Unit 1, equipment seismic verification at Surry and North Anna, and seismic verification of HVAC duct and isolation dampers at Oyster Creek. Mr. Augustine has also participated as a seismic capability engineer on seismic review teams for seismic verification of equipment at several nuclear power plants.

PROFESSIONAL EXPERIENCE (Continued)

Before joining EQE, Mr. Augustine was involved in the evaluation of anchorage for safety-related rotating equipment at the Comanche Peak Nuclear Station. Mr. Augustine has also participated in a number of conduit projects. At the Fitzpatrick Nuclear Station in upstate New York, he provided engineering solutions to conduit routing and support problems. At the Pilgrim Nuclear station he contributed to the design of a conduit support framework in the cable spreading room.

Also at Pilgrim, Mr. Augustine was involved in the seismic requalification of the main fuel pool hoist and trolley. In another project at this facility, he participated in the design of a reinforced concrete shield-wall to be placed on the operating floor of the turbine building.

At the Seabrook Nuclear Station, he was involved in reconciliation of ASME Class 1, 2, and 3 piping and pipe supports. This effort required determining from design change documents for each support the capacity of these components to withstand deadweight, thermal, seismic, and transient loads imposed by the piping systems.

In a prior assignment at Seabrook, Mr. Augustine was responsible for overseeing the installation of piping and supports in the diesel generator building. Work involved checking the layout and structural configurations of piping and restraints, instructing staff on both drawing interpretation and procedural requirements, and resolving interferences encountered during construction. He also supervised completion of as-built drawings.

At the Brunswick Steam Electric Plant, Mr. Augustine worked in the engineering support group during refueling and plant modification outages. He participated in the design of new pipe supports and the redesign of existing ones. Following design, he supervised installation of supports and resolved interference problems. Non-outage work consisted primarily of routing and supporting Class IE conduit.

Mr. Augustine designed the supporting structure framework for the mainsteam, feedwater, and pressurizer piping systems at the McGuire Nuclear Station. The design included seismic analysis, field measurement and layout, and base plate analysis.

While with Bechtel, Mr. Augustine supervised the piping simplified stress analysis group for the Susquehanna Nuclear project. In this capacity he managed the stress review and new design of piping systems and supports. He also performed seismic and gravity stress calculations. During this period, he also designed both large and small bore supports, including snubbers, struts, anchors, and springs.

EDUCATION

COLORADO STATE UNIVERSITY: B.S. Civil Engineering, 1979

REGISTRATIONS

Civil Engineer: New Hampshire
Structural Engineer: New Hampshire

JEAN-PAUL CONOSCENTE

PROFESSIONAL HISTORY

EQE International, San Francisco, California, Principal Engineer, January 1988 - present
URS/Blume Engineers, San Francisco, California, Lead Engineer, 1987; Engineering Intern, 1985
Borie-SAE, Paris, France, Engineering Intern, 1986

PROFESSIONAL EXPERIENCE

Mr. Conoscente has a wide range of practical and research experience in structural engineering, earthquake engineering, equipment qualification, lifeline analysis, and structural mechanics.

As a principal engineer for EQE's Engineering Consultants division, Mr. Conoscente's structural engineering experience includes the seismic and tornado analysis of major steel and concrete structures for industrial plants, including the analysis of the Oak Ridge National Laboratory High Flux Isotope Reactor for seismic and extreme wind load; the evaluation of twin high-rise buildings in Oakland for seismically induced building pounding; the seismic fragility analysis of the N-Reactor Core at the Department of Energy (DOE) Hanford Facility.

Mr. Conoscente also has extensive experience in developing design as well as probabilistic in-structure floor response spectra, including constructing building models and soil-structure models, and performing the SSI analysis. Past experience includes the development of design and probabilistic floor response spectra for various buildings at the Three Mile Island, North Anna, Surry, Brunswick, and Washington Power nuclear plants. Mr. Conoscente has conducted seismic fragility evaluations of several buildings at the Three Mile Island, Oyster Creek, and Washington Power facilities for resolution of the Individual Plant Examination for External Events (IPEEE).

Mr. Conoscente also has significant equipment qualification experience. He was Project Manager in charge of the seismic qualification efforts of the Airborne Activity Confinement System (AACS) at the Savannah River Site (SRS) reactors, using the Seismic Qualification Utility Group (SQUG) Generic Implementation Procedure (GIP) methodology. At SRS, Mr. Conoscente also performed SQUG GIP evaluations of critical safety systems in support of the reactor restart program. Mr. Conoscente has completed the SQUG certified walkdown screening and seismic evaluation training course. He also participated as a seismic capability engineer for resolution of A-46 issues at the Three Mile Island Nuclear Plant. Mr. Conoscente performed the seismic margins assessment walkdown of Comanche Peak Steam Electric Station to address the Individual Plant Examination for External Events. He also conducted seismic fragility evaluations for structures and equipment at the Hope Creek Nuclear Generating Station for resolution of the IPEEE.

Mr. Conoscente also participated in Risk Management and Prevention Program (RMPP) evaluations and seismic studies for the TOSCO Chemical Plant in Martinez and the PG&E Power Plant in Pittsburg, California.

PROFESSIONAL EXPERIENCE (Continued)

He also has extensive experience in the seismic risk assessment of lifeline facilities. He was Project Manager in charge of the resolution of safety issues related to the safe operation and shutdown of the Trans-Alaska pipeline facilities. Additional projects include a reliability study to assess the impact of an earthquake on the electrical distribution system of British Columbia, Canada; and the vulnerability evaluation of key substations for the City of Seattle, Washington. Mr. Conoscente is also an active member of the French Association for Earthquake Engineering Lifelines Committee, which is currently rewriting the French Seismic Code Provisions for buried pipelines.

Past research projects while at EQE include the United States Nuclear Regulatory Commission (USNRC) Structural Damping Research Program; and the development of a state-of-the-art computer code to analyze impacting structural systems. Mr. Conoscente developed seismic evaluation criteria for HVAC duct and electrical cable tray and conduit systems based on past seismic experience data. This method has been adopted by the Seismic Qualification Utility Group for the seismic evaluation of cable trays and conduit in older nuclear power plants.

Mr. Conoscente also participated in earthquake reconnaissance studies following the 1988 Saguenay, Quebec, the 1989 Loma Prieta, and the 1994 Northridge earthquakes.

At URS/Blume, Mr. Conoscente performed the seismic evaluation of large industrial steel-frame buildings, including models representing the beam-column connections by nonlinear elements. He also used analytical models to develop state-of-the-art methods for the seismic evaluation of tanks for the Electric Power Research Institute (EPRI). Additional project experience include a EPRI generic study of the importance of soil-structure interaction on the dynamic response of nuclear power plant structures based on actual recordings.

As an engineering intern with Borie-SAE, Mr. Conoscente developed a computer program for the analysis of a prestressed concrete bridge during an incremental launching construction. As an engineering intern with URS/Blume he prepared designs for the dredging of a creek and participated in the structural design of the Portman Hotel in San Francisco.

EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY, California: M.S. Structural Engineering and Mechanics, 1987
ECOLE SPECIALE DES TRAVAUX PUBLICS, Paris, France. Diplome d'Ingenieur des Travaux Publics, 1986

REGISTRATIONS

Professional Engineer: California

PROFESSIONAL AFFILIATIONS

Structural Engineers Association of Northern California
Earthquake Engineering Research Institute
French Association for Earthquake Engineering

PUBLICATIONS

With J. Betbeder-Matibet, D. Amir-Mazaheri, et al. "The January 17, 1994 Northridge Earthquake." Reconnaissance report from the French Association of Earthquake Engineering, March 1994.

With T. R. Roche, C. Abou-Jaoude, and J. R. Diser. "Comparison Between Analytical and Test Results for Transformer Base Details." ASME Pressure Vessels and Piping Conference, Denver, Colorado, 1993.

Methods Used for the Treatment of Non-Proportionally Damped Structural Systems." NUREG/CR-6013, 1993.

"Dynamic Analysis of Impacting Structural Systems". Tenth World Conference on Earthquake Engineering, Madrid, Spain, July 1992.

With A.P. Asfura. "A Simplified Analytical Method to Evaluate Pipe-to-Pipe Impact Loads". ASME Pressure Vessels and Piping Conference, New Orleans, Louisiana, June 1992.

With J.J. Johnson, P.S. Hashimoto, O.R. Maslenikov. "USNRC Structural Damping Research Program". Presented at the 18th Water Reactor Safety Information Meeting, October 1990; and at the Third Symposium on Current Issues Related to Nuclear Power Plant Structures, Equipment, and Piping, Orlando, Florida, December 1990.

With J.A. Lambright, M.P. Bohn, J.J. Johnson, et al. "Analysis of Core Damage Frequency Due to External Events at the DOE N-Reactor". Sandia Report SAND89-1147, Category UC-610, November 1990.

With L.J. Bragagnolo, S.J. Eder. "A Proposed Methodology for the Seismic Design of HVAC Systems". Presented at the ATC-29 Seminar and Workshop, October 1990.

With S. J. Eder. "Alternative Seismic Design Guidelines for Flexibly Supported Distribution Systems." Fourth U.S. National Conference on Earthquake Engineering, Palm Springs, California, May 1990.

With S. J. Eder, B. N. Sumodobila, and S. P. Harris. "Seismic Fatigue Evaluation of Rod Hung Systems." Tenth Conference on Structural Mechanics in Reactor Technology, Anaheim, California, August 1989.

With C. Scawthorn, K. Jacobs, H. W. Johnson, R. Augustine, and S. W. Swan. "The Saguenay, Quebec Earthquake of November 25, 1988." Annual Earthquake Engineering Research Institute meeting, San Francisco, California, February 1989.

With P. D. Smith and S. J. Eder. "SQUG Cable Tray and Conduit Evaluation Procedure." Second Symposium on Current Issues Related to Nuclear Power Plant Structures, Equipment, and Piping, Orlando, Florida, December 1988.

"Structural Reliability of a Sheet Piling Wall." Berkeley, CA: University of California, May 1987.

RONALD W. CUSHING

PROFESSIONAL HISTORY

EQE International, Inc., Irvine, California, Principal Engineer, 1988-present
Bechtel Western Power Corporation - Peach Bottom Atomic Power Station, Delta, Pennsylvania, Senior Startup Engineer, 1987-1988
Bechtel Construction, Inc. - Diablo Canyon Nuclear Power Plant, Avila Beach, California, Field Engineer, 1987-1987
Bechtel Western Power Corporation - Palo Verde Nuclear Generating Station, Wintersburg, Arizona, Startup Engineer, 1981-1987
Bechtel Power Corporation - Startup Support Group, Norwalk, California, Startup Engineer, 1981-1981
Allis-Chalmers Corporation - Compressor and Custom Pump Division, Irvine, California, Field Engineer, 1976-1981

PROFESSIONAL EXPERIENCE

At EQE, Mr. Cushing is a principal engineer for EQE Engineering Consultants involved in the application of earthquake experience data for component seismic verification at nuclear power plants. Major duties include plant walkdowns and evaluation of seismic adequacy of mechanical and electrical equipment, piping, cable tray and HVAC systems. Specific attention is given to operability, II/I, spatial interaction, and anchorage concerns.

Mr. Cushing has investigated sites which have experienced major seismic activity for the SQUG earthquake experience database. He is a subject matter expert on the SQUG walkdown training team, and has instructed engineers how to apply SQUG methodology to the resolution of Unresolved Safety Issue A-46.

Mr. Cushing has extensive experience in construction and startup testing in nuclear and fossil fueled power plants and petroleum refineries, including valve testing, pump performance and vibration testing, system functional and preoperational testing on such systems as plant cooling water, condensate, main and auxiliary steam, turbine control and lube oil, main and auxiliary feedwater, chemical injection, service gas, and demineralizer systems. He was responsible for all plant fire protection systems from construction phase to turnover to client, including Halon, CO_2 and air supervised and deluge water systems. He wrote and performed Halon and CO_2 flooding tests. He performed vibration, fan performance, and HVAC damper testing on all HVAC systems. He participated in piping walkdowns of all of the above systems and prepared those systems and packages for turnover to client operations department. He also wrote and reviewed administrative, mechanical prerequisite and pre-operational startup tests for Taiwan and Korea nuclear projects. He has also performed valve maintenance during refueling outages. Duties included planning and supervision of removal, analysis, repair, and installation of various valves in plant.

Mr. Cushing is responsible for maintaining a database of replacement parts and components for equipment in nuclear power facilities. Involvement includes collecting experience data and incorporating it into programs which he helped develop for utilities to use in the seismic evaluation of those parts. He is an author of the industry guidelines for the seismic technical evaluation for replacement items.

Mr. Cushing has participated in the development of seismic design criteria for fire protection piping and equipment to be installed in nuclear facilities. Development of these criteria involved dynamic analysis of piping, determination of allowable loads and design configurations, and determination of compliance with NFPA and ANSI/ASME codes.

PROFESSIONAL EXPERIENCE (CONTINUED)

Mr. Cushing has conducted root cause analysis of failed plant components. He set up and implemented a failure analysis report program and was responsible for assigning failure reports to proper work group and coordinating completion and distribution. He distributed and tracked implementation of recommended corrective actions. Mr. Cushing also has worked as a member of a Preventative Maintenance Task Force reviewing and evaluating Preventative Maintenance requirements.

Mr. Cushing has extensive experience traveling to client locations, such as water treatment and petrochemical plant as well as both fossil and nuclear power plants. He has been involved in consultation, construction, startup, repair and rebuilding of high pressure and large capacity pumps, compressors, motors, and turbines.

Mr. Cushing has supervised work crews in field repairs. He became involved in company evaluations of products requiring performance tests and technical data collection and analysis of high pressure feedwater pumps, condensate pumps, circulating water pumps, slurry pumps, etc.

EDUCATION

PURDUE UNIVERSITY: B.S. Industrial Engineering, 1976

REGISTRATION

Mechanical Engineer: California

PUBLICATIONS AND REPORTS

"Guideline for the Seismic Technical Evaluation of Replacement Items for Nuclear Power Plants (PSE-001)." February, 1993. With S. P. Harris, H. W. Johnson, J. M. Abeles. Electric Power Research Institute. Charlotte, N. C. Report NP-7484.

"Seismic Open Items Resolution (Phase 1) for Chin Shan Nuclear Power Station." September, 1992. With W. H. Tong, G. S. Hardy, L. W. Tiong. Prepared for Taiwan Power Company.

"April 1992 Earthquakes in Desert Hot Springs, California." July, 1992. Phenomenal News. Prepared for the U. S. Department of Energy.

"Guidelines for the Seismic Design of Fire Protection Systems." June, 1991. With B. Benda and G. E. Driesen. Paper presented at Pressure Vessel and Piping Conference, San Diego, CA.

"Use of Seismic Experience Data for Technical Evaluation of Commercial Grade Replacement Items." June, 1991. With R. D. Campbell. Paper presented at Pressure Vessel and Piping Conference, San Diego, CA.

DOUGLAS J. FREELAND

PROFESSIONAL HISTORY

EQE International, Inc., Irvine, California, Principal Engineer, 1990-present
Bechtel Corporation, Norwalk, California, Engineering Supervisor, 1971-1990
Liquid Metal Engineering Center, Canoga Park, California, Stress Analyst, 1970-1971
Rocketdyne, Canoga Park, California, Stress Analyst, 1968-1970

PROFESSIONAL EXPERIENCE

Mr. Freeland has over 25 years of professional mechanical engineering and project management experience in the design and analysis of systems and equipment at power, industrial, Department of Energy, and petrochemical facilities

As a Principal Engineer at EQE, Mr. Freeland is involved in the application of experience data to the evaluation of mechanical, electrical, instrumentation, control, HVAC, raceway and piping systems and components for earthquakes and other natural phenomena hazards. His responsibilities have included evaluation and analysis of systems and equipment for seismic events at several power plants, including response to Nuclear Regulatory Commission Unresolved Safety Issue A-46, utilizing the methods developed by the Seismic Qualification Utility Group (SQUG). The efforts involve field investigations, analysis, development of criteria, and retrofit design. He performed post-earthquake investigations following the 1994 Northridge Earthquake and documented the performance of piping systems.

In addition, Mr. Freeland has performed seismic assessments under the Risk Management and Prevention Program (RMPP) at various chemical, industrial and refinery facilities in California to minimize the potential for release of Acutely Hazardous Materials . He has evaluated the adequacy of non-seismically designed piping at several power plants in support of the Main Steam Isolation Valve Leakage Closure Committee of the boiling water reactor (BWR) Owners' Group. He participated in the development of criteria for the seismic evaluation of HVAC ducts at a DOE site.

Prior to joining EQE, Mr. Freeland performed and supervised the design and analysis of critical and noncritical piping systems and hardware for major power and petrochemical plants. He was responsible for evaluating the technical adequacy, development of project criteria and training for pipe stress and support analysis. He frequently traveled to various plants to trouble-shoot critical piping systems and equipment during start-up and operation. Mr. Freeland also developed analytical methods and directed structural testing for rocket engine valves and control components and for liquid sodium system piping, pressure vessels, and components.

EDUCATION

CALIFORNIA STATE UNIVERSITY, Northridge, CA: Mechanical Engineering, 1968
Seismic Qualification Utility Group (SQUG) "Walkdown Screening and Seismic Evaluation Training Course"

REGISTRATION

Mechanical Engineer: California

PHILIP S. HASHIMOTO

PROFESSIONAL HISTORY

EQE International, Inc., Irvine, California, Senior Consultant, 1985-Present
Structural Mechanics Associates, Inc., Newport Beach, California, Technical Manager, 1980-1985
Engineering Decision Analysis Company, Irvine, California, Senior Staff Engineer, 1979-1980
Agbabian Associates, El Segundo, California, Staff Engineer, 1977-1979
H.J. Degenkolb and Associates, San Francisco, California, Structural Designer, 1976-1977

PROFESSIONAL EXPERIENCE

Mr. Hashimoto has over 19 years of experience in the analysis and capacity evaluation of nuclear plant, hardened, industrial, and conventional structures. He has evaluated these structures for a variety of extreme loadings, including earthquake, tornado, extreme wind, and nuclear weapons effects. He has been responsible for the development of methodology and criteria used in these studies. Mr. Hashimoto has presented and defended his technical results to DOE, NRC, and other independent review groups.

Mr. Hashimoto has specialized in the capacity evaluation of DOE and nuclear plant civil structures for seismic and tornado loadings. He is familiar with the full range of applicable codes and criteria, including DOE 6430.1A, DOE 5480.28, DOE-STD-1020, BNL 52361, USNRC Standard Review Plan, EPRI Seismic Margin Assessment guidelines, ACI 318, ACI 349, ACI 530, ACI 531, AISC Manual of Construction and LRFD specifications, and Uniform Building Code. He is a member of ACI Committee 349, Code Requirements for Nuclear Safety Related Concrete Structures and the Dynamic Analysis of Nuclear Structures Committee of the ASCE Structural Division.

Mr. Hashimoto has performed the dynamic seismic analysis of numerous civil structures at nuclear plants and DOE facilities. He has employed both linear and nonlinear analysis methods with a variety of analytical representations, ranging from simplified approximations to detailed finite element models. He has implemented various structural analysis software, such as SAP IV, DRAIN-2D, EASE, ALGOR, etc.

Mr. Hashimoto has directed the seismic and tornado analysis and capacity evaluations of numerous DOE structures and storage tanks, including those at the Idaho National Engineering Laboratory, Kansas City Plant, Hanford Reservation, Rocky Flats Plant, and High Flux Isotope Reactor. He has served as Project Manager for EQE's Basic Ordering Agreement with Westinghouse Idaho Nuclear Company. Projects at the INEL performed under his direction include seismic evaluations of high level liquid waste (HLLW) tank vaults and Bin Set 1 at the Idaho Chemical Processing Plant (ICPP), structural evaluation of the Irradiated Fuels Storage Facility, independent review of seismic analyses for ICPP Building 666 and HLLW tanks, seismic upgrade design of water storage tanks at Argonne National Laboratory-West, and structural fragilities for the Advanced Test Reactor probabilistic risk assessment.

Mr. Hashimoto is currently serving as EQE's Project Manager for the DOE Kansas City Plant Structural Evaluation Program, a five year, multi-million dollar effort to evaluate the adequacy of all buildings at the plant for gravity, seismic, and wind loads following current DOE criteria. In this capacity, he has been responsible for development of project plans and schedules, specification of criteria and methods, coordination of project staff, review of technical results, and interfacing with the site contractor and DOE.

PROFESSIONAL EXPERIENCE (CONTINUED)

He has managed a diversity of other projects at DOE sites, including the seismic evaluation of N Reactor Building 181 at the Hanford Reservation, seismic fragility evaluation of N Reactor buildings, seismic evaluation and upgrade of process tanks at the Rocky Flats Plant, and seismic and wind evaluation of buildings at the High Flux Isotope Reactor by deterministic and probabilistic methods.

He has directed and performed seismic probabilistic risk assessments and seismic margin assessments for commercial nuclear and DOE reactors. Mr. Hashimoto has most recently served as project manager for such studies in response to seismic Individual Plant Examination of External Events for the Monticello, Prairie Island, Surry, and North Anna nuclear power plants. He has evaluated civil structures and vertical storage tanks in over 25 nuclear power plant probabilistic risk assessments and seismic margin assessments.

Mr. Hashimoto developed the structural capacity fragilities for Phase I of the USNRC's Seismic Safety Margins Research Program (SSMRP) and the applications of the SSMRP methodology to other nuclear plants. He performed special studies to assess the effect of nonlinear behavior on structure seismic response and in-structure seismic input, identify sources of structure dynamic response random variability, and quantify structure modeling uncertainties.

Using methodology and techniques similar to those adopted for the seismic structural fragilities, Mr. Hashimoto generated the probabilistic distributions of the internal pressure capacities of nuclear containment structures subjected to loss-of-coolant accidents. Detailed techniques were developed to analyze both reinforced and prestressed containments as well as non-structural components such as hatches, penetrations, etc.

He was the principal investigator on two major earthquake engineering research studies sponsored by the USNRC. He investigated the adequacy of R.G. 1.61, which specify damping criteria for design basis elastic analysis of nuclear power plant structures. He also performed research into guidelines and criteria for structure stiffness and damping based upon actual earthquake motions recorded in a low aspect ratio shear wall building.

For the Electric Power Research Institute, Mr. Hashimoto performed a research study to investigate the use of data on the performance of ground mounted, anchored vertical storage tanks in past earthquakes to assess the seismic adequacy of essential nuclear plant tanks. This study demonstrated that experience data are applicable to nuclear plant tanks, and anchored tanks are capable of surviving earthquakes having ground motions greater than most nuclear plant design bases without a loss of fluid contents. Detailed seismic evaluations of selected database tanks were performed using current analytical methods.

Mr. Hashimoto directed a program to seismically qualify cable tray supports at Seabrook Station. Selected cable tray systems were dynamically analyzed using detailed finite element models. Other systems were qualified by parametric comparison to representative configurations subjected to shake table testing.

Mr. Hashimoto participated in various projects utilizing earthquake experience data to demonstrate seismic adequacy of nuclear plant components. He applied data towards the evaluation of cable tray systems. In addition, he developed quantitative data supporting the use of earthquake experience data in seismic interaction studies of piping systems.

PROFESSIONAL EXPERIENCE (CONTINUED)

Mr. Hashimoto has conducted various studies of structures subjected to nuclear weapons and accidental explosion effects. He performed analyses to predict the response of lined and unlined water-filled cavities for the DIABLO HAWK event at the Nevada Test Site. Mr. Hashimoto participated in conceptual design studies of the hardened shelter concept for the MX Missile. Mr. Hashimoto has also evaluated the loading, response, and resistance of device assembly facilities subjected to accidental explosions.

EDUCATION

UNIVERSITY OF CALIFORNIA, Berkeley: M.S. Civil Engineering, 1976
UNIVERSITY OF CALIFORNIA, Berkeley: B.S. Civil Engineering, 1975

REGISTRATION

Civil Engineer: California

AFFILIATIONS

American Society of Civil Engineers
American Concrete Institute
ASCE Dynamic Analysis Committee
ACI Committee 349
Earthquake Engineering Research Institute

U.S. CITIZENSHIP

Yes

PUBLICATIONS

With M.W. Johnson, D.K. Nakaki, J.J. Wilson, D.T. Lynch, and M.A. Drury, "Structural Load Inventory Database for the Kansas City Plant," presented at the Fourth DOE Natural Phenomena Hazards Mitigation Conference, Atlanta, Georgia, October 19-22, 1993.

With A.K. Basak, "Seismic Capacity and Failure Modes of Flat-Bottom Storage Tanks," Journal of Energy Engineering, American Society of Civil Engineers, August, 1993.

With L.K. Steele, J.J. Johnson, and R.W. Mensing, "Review of Structural Damping Values for Elastic Seismic Analysis of Nuclear Power Plants," prepared for the U.S. Nuclear Regulatory Commission, NUREG/CR-6011, March 1993.

With L.W. Tiong, L.K. Steele, J.J. Johnson, and J.L. Beck, "Stiffness and Damping Properties of a Low Aspect Ratio Shear Wall Building Based on Recorded Earthquake Responses," prepared for the U.S. Nuclear Regulatory Commission, NUREG/CR-6012, March 1993.

PUBLICATIONS (CONTINUED)

With E.D. Uldrich and W.D. McGee, "Seismic Scoping Evaluation of High Level Liquid Water Tank Vaults at the Idaho Chemical Processing Plant," presented at the Third DOE Natural Phenomena Hazards Mitigation Conference, St. Louis, Missouri, October 15-18, 1991.

With L.K. Steele, J.J. Johnson, and J.F. Costello, "Review of Regulatory Guide 1.61 Structure Damping Criteria," Transactions of the 11th Conference on Structural Mechanics in Reactor Technology, Volume K, August 1991.

With L.W. Tiong, J.L. Beck, and J.F. Costello, "Structural Properties of a Low-Rise Shear Wall Building Obtained from Recorded Earthquake Responses," Transactions of the 11th Conference on Structural Mechanics in Reactor Technology, Volume K, August 1991.

With A.K. Basak, "Failure Modes of Flat Bottom Vertical Storage Tanks", presented at the ASCE Specialty Conference on Energy in the 90's, Pittsburgh, Pennsylvania, March, 1991.

With J.J. Johnson, J.F. Costello, And O.R. Maslenikov, "A Reassessment of Structural Damping Values", presented at the Third Symposium on Current Issues Related to Nuclear Power Plant Structures, Equipment and Piping, Orlando, Florida, December, 1990.

With J.L. Beck and J.F. Costello, "Seismic Analysis of a Low-Rise Shear Wall Building Using Actual Recorded Earthquake Motions", presented at the Third Symposium on Current Issues Related to Nuclear Power Plant Structures, Equipment and Piping, Orlando, Florida, December, 1990.

With M.K. Ravindra, R.D. Campbell, P.G. Prassinos, R.C. Murray, "Seismic Risk Analysis of Spent Fuel Pools." Paper presented at the Tenth Conference on Structural Mechanics in Reactor Technology, Los Angeles, California, August, 1989.

With S.P. Harris and R.L. Stover, "Seismic High Wind, Tornado, and Probabilistic Risk Assessments - The High Flux Isotope Reactor, Oak Ridge National Laboratory." Paper presented at the Tenth Conference on Structural Mechanics in Reactor Technology, Los Angeles, California, August, 1989.

With L.W. Tiong, "Earthquake Experience Data on Anchored, Ground-Mounted Vertical Storage Tanks." Prepared for Electric Power Research Institute, EPRI NP-6276, 3412 Hillview Avenue, Palo Alto, CA 94304. March 1989.

With P.G. Prassinos, C.Y. Kimura, D.B. McCallen, R.C. Murray, Lawrence Livermore National Laboratory. M.K. Ravindra, R.D. Campbell, A.M. Nafday, W.H. Tong, EQE Engineering Inc., "Seismic Failure and Cask Drop Analyses of the Spent Fuel Pools at Two Representative Nuclear Power Plants." Prepared for Division of Safety Issue Resolution, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, January 1989.

With H.T. Tang and L.W. Tiong, "Earthquake Experience Data Relevant to Nuclear Plant Vertical Storage Tanks." Paper presented at the Second Symposium on Current Issues Related to Nuclear Power Plant Structures, Equipment and Piping with Emphasis on Resolution of Seismic Issues in Low Seismicity Regions, Orlando, Florida, December, 1988.

With L.W. Tiong and H.T. Tang, "Earthquake Experience Data on Ground Mounted Anchored Vertical Storage Tanks." Paper presented at the Ninth World Conference on Earthquake Engineering, Tokyo, Japan, 1988.

PUBLICATIONS (CONTINUED)

With M.K. Ravindra and G.S. Hardy, "Seismic Margins Review of Nuclear Power Plants: Fragility Aspects." Paper presented at the Ninth Conference on Structural Mechanics in Reactor Technology, Lausanne, Switzerland, August 1987.

With M.K. Ravindra, G.S. Hardy, M.J. Griffin, "Seismic Margin Review of the Maine Yankee Atomic Power Station." Prepared for Division of Engineering Safety Office of Nuclear Regulatory Research U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, March 1987.

With D.A. Wesley and R.B. Narver. "Seismic Capacities of Existing Nuclear Plant Structures." Paper presented at the Seventh Conference on Structural Mechanics in Reactor Technology, Chicago, IL, August 1983.

With D.A. Wesley, "Seismic Structural Fragility Investigation for the Zion Nuclear Power Plant." Prepared for Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, October 1981.

With D.A. Wesley, "Random Variability of Dynamic Characteristics of Nuclear Power Plant Shear Wall Structures." Paper presented at the Sixth Conference on Structural Mechanics in Reactor Technology, Paris, France, August 1981.

With D.A. Wesley. "Nonlinear Structural Response Characteristics of Nuclear Power Plant Shear Wall Structures." Paper presented at the Sixth Conference on Structural Mechanics in Reactor Technology, Paris, France, August 1981.

CARL R. NELMAN

PROFESSIONAL HISTORY

EQE International, Inc., Irvine, California, Project Engineer, 1990-present
Rockwell International Corporation, Downey, California, Stress Analyst, 1987-1989; Project Engineer, 1984-1987
Bechtel Power Corporation, Norwalk, California, Piping Engineer, 1983-1984

PROFESSIONAL EXPERIENCE

At EQE Mr. Nelman is Project Engineer for various seismic interaction, analysis, and seismic qualification efforts for nuclear facility systems, piping, and equipment. The efforts involve review of data from past earthquake investigations, post earthquake investigations, development of criteria based on the EQE Earthquake Experience Database, analysis, field investigations, and retrofit design. The systems and components evaluated include mechanical, electrical, instrumentation, electrical raceways, and piping systems. Major programs have included seismic interaction evaluation for Comanche Peak Steam Electric Station and Watts Bar Nuclear Plant equipment, piping, HVAC, and electrical raceways, and piping evaluation for the Beznau Facility in Switzerland. Mr. Nelman has performed A-46 and IPEEE evaluations for Brunswick and Oconee Nuclear Power Plants.

As a mechanical engineer for Rockwell International from 1987 to 1990, Mr. Nelman performed duties as a Stress Analyst for the Space Shuttle program. He performed various analysis reports for numerous components of the Stabilized Payload Deployment System; and performed numerous NASTRAN analyses for many and varied components of payload integration mounting hardware, and Shuttle component systems, payloads, and hardware kits.

Mr. Nelman also served as a Project Engineer for Rockwell from 1984 to 1987. His primary responsibility was for the design, development, manufacture, and installation of an MX Missile Guidance and Control Assembly (GCA) Insertion/Removal Trainer for the Air Force. In addition, he provided project engineer services for design, development, and manufacture of coolant hoses and test equipment fixtures for the Small ICBM GCA.

As a Piping Engineer for Bechtel Power Corp. from 1983 to 1984 Mr. Nelman was assigned to the Palo Verde Nuclear Power Plant project. He was responsible for specifying piping and valves for installation, performing material suitability studies, and researching ASME B & PV Code interpretations.

In addition to his work in the private sector, Mr. Nelman is a member of the Naval Reserve Civil Engineer Corps. He holds the rank of Commander, and has a Secret security clearance. Mr. Nelman, is a registered Professional Engineer in the State of California. As Stress Analyst for the Space Shuttle Program for Rockwell International, he performed various stress analysis calculations for numerous components of Stabilized Payload Deployment, performed NASTRAN stress analysis for numerous components of payload integration mounting hardware, performed stress analysis and prepared final report for various Shuttle components, payloads, and hardware "kits." For the MX and Small ICBM Missile Programs, he was also the Project Engineer responsible for the design, development, manufacturing, and installation of an MX Missile Guidance and Control Assembly (GCA) Insertion/Removal Trainer and Coolant Hoses for the Small ICBM GCA.

EDUCATION

SAN DIEGO STATE UNIVERSITY, San Diego, CA: B.S. Mechanical Engineering, 1982
UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, CA: B.A. Psychology, 1974

AFFILIATIONS

Society of American Military Engineers
Tau Beta Pi
Pi Tau Sigma

REGISTRATION

Mechanical Engineer: California

PUBLICATIONS

"Eathquake Preparedness," The Military Engineer, July 1993.

"Earthquake Preparedness Can Prevent Disasters", Navy Civil Engineer, Winter 1995.

THOMAS R. ROCHE

PROFESSIONAL HISTORY

EQE International, Inc., Irvine, California, Technical Manager, 1987-present
Bechtel Western Power Corporation, Arizona Nuclear Power Project, Principal Startup Engineer, 1983-1987
Bechtel Western Power Corporation, Norwalk, California, Mechanical Engineer, 1982-1983

SUMMARY

Mr. Roche has over twelve years of experience in the design, engineering, startup and analysis of systems and equipment at power, industrial and Department of Energy facilities. His responsibilities have included evaluation and analysis of systems and equipment for seismic events, preoperational testing of nuclear power plant systems, system engineer for nuclear and non-nuclear power plant systems, equipment qualification and post earthquake investigations.

PROFESSIONAL EXPERIENCE

At EQE Mr. Roche is a Technical Manager and Group Manager in the Engineering Consultants Division. He is responsible for various seismic evaluation efforts for systems and equipment. The efforts involve development of criteria, analysis, field investigations and retrofit design. Systems and components evaluated include mechanical, electrical, instrumentation, control, raceway and piping systems.

Mr. Roche is responsible for seismic evaluation efforts related to Nuclear Regulatory Commission Unresolved Safety Issue A-46 and Individual Plant Examination of External Events (IPEEE) for nuclear facilities. He is the Project Manager for A-46 and seismic IPEEE programs for the Brunswick, H.B. Robinson, Shearon Harris and Comanche Peak power plants. In this capacity, he evaluates the performance of equipment, subsystems and relays for design basis as well as beyond design basis seismic events. He also participated in related programs for the Beznau, Limerick, San Onofre and Donald C. Cook nuclear power plants as well as the Department of Energy Advance Test Reactor and Savannah River Site.

Recently, Mr. Roche has focused on the performance of lifelines and industrial facilities during the 1994 Northridge earthquake. Investigations were performed to gain a better understanding of the performance of industrial facilities and electrical power systems in order to help mitigate the effects of future earthquakes. He was a Principal Investigator for post-earthquake reconnaissance efforts sponsored by the Electric Power Research Institute (EPRI), Lawrence Livermore National Laboratory (LLNL), and the National Earthquake Hazards Reduction Program (NEHRP). He was the industrial facilities Group Coordinator for Earthquake Engineering Research Institute (EERI) post-earthquake reconnaissance publications. He also contributed sections on industrial facilities and lifelines to reports published by the National Center for Earthquake Engineering Research (NCEER), and the California Seismic Safety Commission.

Mr. Roche has performed and supervised the startup of nuclear power plant systems and equipment, including mechanical, electrical, instrumentation and control systems. In this capacity, Mr. Roche successfully supervised the testing and commissioning of Palo Verde Nuclear Generating Station emergency cooling water and related systems.

PROFESSIONAL EXPERIENCE (Continued)

Mr. Roche evaluated the performance of non-seismically designed piping and condensers in past earthquakes in support of the Main Steam Isolation Valve Leakage Closure Committee of the boiling water reactor (BWR) Owners' Group. This study involved research and field investigations of secondary side systems and equipment during past earthquakes and comparison to nuclear power BWR plants. He analyzed the seismic capacity to seismic demand for large steam surface condensers for earthquake experience database power plants and representative BWR plants. He participated in Nuclear Regulatory Commission (NRC) presentations related to this issue.

Mr. Roche has contributed to the development of the earthquake experience data base generated for the Seismic Qualification Utilities Group (SQUG). He concentrates on the response of systems to earthquakes at power and industrial facilities. Systems are investigated for the effects of power interruption, relay actuations due to vibration, relay actuations due to system transients, spurious electrical and pneumatic signals, and control room alarms. He performed post-earthquake investigations following the 1987 Whittier Narrows, the 1987 Superstition Hills, the 1989 Loma Prieta, and the 1994 Northridge Earthquakes. This seismic experience data is being utilized by the nuclear industry to resolve the seismic issues associated with the NRC's Unresolved Safety Issue A-46.

Mr. Roche was the systems engineer for safety and non-safety systems at the Palo Verde Nuclear Generating Station. Systems included feedwater, steam, sulfuric acid, hypochlorite, cooling water and emergency core cooling. He resolved design and hardware problems encountered during construction, startup and operation of Palo Verde Units 1, 2 and 3. He provided revised designs, dispositions to nonconformances and resolved licensing issues.

Mr. Roche performed high energy line break analysis for San Onofre Nuclear Generating Station Unit 1. Analysis involved establishing guidelines, field verifications, calculations, system evaluation for safe shutdown and technical writing. Mr. Roche also administered contracts for replacement of emergency cooling water storage tanks for unit 1, conducted studies for upgrading San Onofre Units 2 and 3 water cooling supply to reactor coolant pumps and provided engineering for system modifications.

EDUCATION

CALIFORNIA POLYTECHNIC STATE UNIVERSITY, San Luis Obispo, B.S., 1982
UNIVERSITY OF CALIFORNIA, Irvine, "Management Practice for Engineers and Professionals," University Extension Program

REGISTRATION

Mechanical Engineer: California

RELATED TRAINING

Completed the Seismic Qualification Utility Group (SQUG) "Systems and Relay Evaluation Course"

Completed the Seismic Qualification Utility Group (SQUG) "Walkdown Screening and Seismic Evaluation Training Course"

Completed the EPRI "Add-on Seismic IPE Training Course"

APPENDIX 4.3-1
Composite Safe Shutdown Equipment List (SSEL)

Operations Department SSEL Review Statement:

I have reviewed the Safe Shutdown Equipment List (SSEL) dated 12-20-95, to ensure the SSEL is compatible with approved normal and emergency operating procedures for hot shutdown of the plant following a seismic event along with the possible loss of offsite power for seventy two hours. I have paid particular attention to the four safe shutdown functions: reactor reactivity control, reactor coolant system pressure, reactor coolant system inventory, and decay heat removal. I have also participated in both simulator demonstrations conducted at the BVPS Unit-1 Simulator. Based on my review, I have found the SSEL to be acceptable.

Jeffrey P. Shipe

12/20/95

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1101	A	02	52-RTA	01/REACTOR TRIP BREAKER 'A'	DWG RE-27B	SRVB	713	ROD M/G	R	1	CLOSED	OPEN	NO	RE-21TZ	DC-SWBD-1 BK 8-7	A
1102	B	02	52-RTB	01/REACTOR TRIP BREAKER 'B'	DWG RE-27B	SRVB	713	ROD M/G	R	1	CLOSED	OPEN	NO	RE-21TZ	DC-SWBD-2 BK 8-7	A
1201A	A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S	R	ON	ON	YES	RE-22ET	VITAL BUS 3	A
1201B	A	20	LI-QS-100A	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S	R	ON	ON	YES	RE-22ET	VITAL BUS 3	A
1202A	B	18	LT-QS-100B	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S	R	ON	ON	YES	RE-22ET	VITAL BUS 4	A
1202B	B	20	LI-QS-100B	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S	R	ON	ON	YES	RE-22ET	VITAL BUS 4	A
1203A	A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S	R	ON	ON	YES	RE-22EV	VITAL BUS 1	A
1203B	A	20	LI-QS-100C	QS/RWST LEVEL INDICATOR		SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22EV	VITAL BUS 1	A
1204A	B	18	LT-QS-100D	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S	R	ON	ON	YES	RE-22EV	VITAL BUS 2	A
1204B	B	20	LR-QS-100	QS/RWST LEVEL RECORDER		SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22EV	VITAL BUS 2	A
1205A	A	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	ISO 6.24-268 & 3875	AXLB	722	COL 10-1/4 & J	S	R	ON	ON	YES	RE-22L	VITAL BUS 2	A
1205B	A	20	FI-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VTI 1.12-75	SRVB	735	CONT RM BB-A	S	R	ON	ON	YES	RE-22L	VITAL BUS 2	A
1206	N/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	ISO 6.24-268	AXLB	722	BLENDER	S	2	OPEN	CLOSED	YES	RE-22L	VITBUS II/III BK	A
1206C	N/A	08B	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	RK-3A	AXLB	722	BLENDER CUB	S	R	ENERG	ENERG	YES	RE-21FT	PNL-DC-3 BK 8-23	A
1207	N/A	21	QS-TK-1	QS/RWST	DWG RV-24A	YARD	735	YARD	S	R	N/A	N/A	NO	RE-63V	MCC1-E11, E12	A
1208	A	08A	MOV-CH-115B	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S	R	CLOSED	OPEN	YES	RE-21FR	MCC1-E3 BK J	A
1209	B	08A	MOV-CH-115C	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S	R	OPEN	CLOSED	YES	RE-21FR	MCC1-E3 BK K	A
1210	B	08A	MOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S	R	CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	A
1211	B	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S	R	OPEN	CLOSED	YES	RE-21FR	MCC1-E4 BK K	A
1212	A	05	CH-P-1A	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1A CUBICLE	S	R	RUN	RUN	YES	RE-21FN	BUS AE BK E11	A
1213	B	05	CH-P-1B	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1B CUBICLE	S	R	OFF	OFF	YES	RE-21FN	BUS DF BK F11	A
1214	A/B	05	CH-P-1C	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1C CUBICLE	S	R	OFF	OFF	YES	RE-21FP	BUS AE/DF BK E15	A

CERTIFICATION:

The information identifying the equipment required to bring the plant to a safe shutdown condition on this Safe Shutdown Equipment List (SSEL) is, to the best of our knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or Type Name/Title	Signature	Date
RON FERRIE / ENGINEER	Ron Ferrie	12/27/95
[illegible] / ~~ENGINEER~~	Jeffry P. [illegible]	12/22/95

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1215	A	08A	MOV-CH-289	CH/CHARGING HEADER ISOLATION	ISO 6.24-268	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E5 BK BB	A
1216	B	08A	MOV-CH-310	CH/CHARGING HEADER ISOLATION	ISO 6.24-253	RCBX	693	49-3 RAD AZ 350	R		OPEN	OPEN	NO	RE-21FS	MCC1-E6 BK AX	A
1217	A	08A	MOV-CH-275A	CH/CH-P-1A MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1A CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK H	A
1218	A	08A	MOV-CH-275B	CH/CH-P-1B MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1B CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK P	A
1219	A	08A	MOV-CH-275C	CH/CH-P-1C MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1C CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK Q	A
1220	B	08A	MOV-CH-373	CH/CHARGING PUMP RECIRC ISOLATION	ISO 6.24-256	AXLB	722	BLENDER	R		OPEN	OPEN	NO	RE-21FR	MCC1-E4 BK Q	A
1221	N/A	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	ISO 6.24-256 RM-2A RP-10C	AXLB	722	LETDOWN CUBICLE	S	4	N/A	N/A	NO	N/A	N/A	A
1222	A	08A	MOV-SI-867A	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E5 BK W	A
1223	B	08A	MOV-SI-867B	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E6 BK W	A
1224	A	07	FCV-CH-160	CH/CHARGING FILL HEADER FLOW CONTROL VALVE	ISO 6.24-273	SFGB	722	PENT A	R	16	CLOSED	CLOSED	NO	RE-22P	VITAL BUS 2	A
1225	A	08A	MOV-CH-308A	CH/RCP-1A SEAL WATER CONTAINMENT ISOLATION VALVE	ISO 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E3 BK AE	A
1226	A	08A	MOV-CH-308B	CH/RCP-1B SEAL WATER CONTAINMENT ISOLATION VALVE	ISO 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E3 BK AF	A
1227	A	08A	MOV-CH-308C	CH/RCP-1C SEAL WATER CONTAINMENT ISOLATION VALVE	ISO 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E3 BK AH	A
1228	B	08A	MOV-CH-370	CH/SEAL INJ HEADER ISOLATION	ISO 6.24-267	AXLB	722	BLENDER ROOM	R		OPEN	OPEN	NO	RE-21FS	MCC1-14 BK AC	A
1229	B	07	HCV-CH-186	CH/RCP SEAL SUPPLY, HAND CONT	VTI-07.86-7	AXLB	722	BLENDER ROOM	S	R	THROT	OPEN	NO	RE-22G	VITAL BUS 2	A
1230	A	08A	MOV-CH-303A	CH/RCP 1A #1 SEAL LEAKOFF ISOLATION	ISO 6.13-220	RCBX	692	FLOOR SE		R	OPEN	OPEN	NO	RE-21FS	MCC1-17 BK AQ	A
1231	A	08A	MOV-CH-303B	CH/RCP 1B #1 SEAL LEAKOFF ISOLATION	ISO 6.13-221	RCBX	692	FLOOR SE		R	OPEN	OPEN	NO	RE-21FS	MCC1-19 BK AK	A
1232	B	08A	MOV-CH-303C	CH/RCP 1C #1 SEAL LEAKOFF ISOLATION	ISO 6.13-222	RCBX	692	FLOOR SE		R	OPEN	OPEN	NO	RE-21FS	MCC1-18 BK AK	A
1233	A	07	HCV-CH-389	CH/EXCESS LETDOWN DRAIN DIVERT VALVE	VTI-07.88-9	RCBX	707	EXC LETD PLATF	S	R 7	OPEN	OPEN	NO	RE-21FU	PNL-DC-3 BK 8-18	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J Sh.- / ENGINEER — Print or Type Name/Title
Jeffrey S Shaw — Signature
12/22/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1234	A	08A	MOV-SI-869A	SI/HHSI RCL HOT LEG ISOLATION VALVE	ISO 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5 BK AR	A
1235	B	08A	MOV-SI-869B	SI/HHSI RCL HOT LEG ISOLATION VALVE	ISO 6.24-368	SFGB	722	PENT C	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E6 BK BJ	A
1236	A	08A	MOV-SI-836	SI/HHSI RCL COLD LEG ISOLATION VALVE	ISO 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5 BK AB	A
1237	A	08A	MOV-SI-863A	SI/1A LHSI TO CHG PUMPS SUPPLY VALVE	ISO 6.24-115	SFGB	735	NW	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5 BK U	A
1238	B	08A	MOV-SI-863B	SI/1B LHSI TO CHG PUMPS SUPPLY VALVE	ISO 6.24-114	SFGB	735	NW	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E6 BK U	A
1239	B	08B	TV-SS-106D	SS/1B RCS HOTLEG RV SIDE OF LOOP STOP SAMPLE ISOLATION	ISO 6.24-3402, RP-18A	RCBX	738	B RCP CUBICLE	S R		CLOSED	OPEN	YES	RE-21XS	PN-AC-10 BK10-20	A
1240	A	08B	TV-SS-105A1	RC/HOTLEG SAMPLE HDR INSIDE CNMT ISOL TRIP VALVE	ISO 6.24-3402, RP-18A	RCBX	718	PENT	S R		OPEN	OPEN	YES	RE-21XH	PNL-DC-3 BK 8-59	A
1241	B	08B	TV-SS-105A2	RC/HOTLEG SAMPLE HDR OUTSIDE CNMT ISOL TRIP VALVE	VTI 7.067-0133,0261	SFGB	722	PENT A	S R		OPEN	OPEN	YES	RE-21XJ, ISO 6.24-3401,3754, RP-18A	PNL-DC-2 BK 8-59	A
1244	N/A	21	CH-TK-1A	CH/BORIC ACID TANK		AXLB	752	BA TANK CUB	S		N/A	N/A	NO	N/A	N/A	A
1245	N/A	21	CH-TK-1B	CH/BORIC ACID TANK		AXLB	752	BA TANK CUB	S		N/A	N/A	NO	N/A	N/A	A
1246	A	05	CH-P-2A	CH/BORIC ACID TRANSFER PUMP		AXLB	752	BA PUMP CUB	S R		OFF	ON	YES	RE-21FQ	MCC1-E11 BK B	A
1247	B	05	CH-P-2B	CH/BORIC ACID TRANSFER PUMP		AXLB	752	BA PUMP CUB	S R		OFF	ON	YES	RE-21FQ	MCC1-E12 BK B	A
1248	B	08A	MOV-CH-350	CH/EMERGENCY BORATION ISOLATION	VTI-6.48-5	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FS	MCC1-E4 BK S	A
2101	N/A	07	RV-RC-551A	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
2102	N/A	07	RV-RC-551B	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
2103	N/A	07	RV-RC-551C	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
2104	A	08A	MOV-RC-535	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E5 BK BE	A
2105	A	07	PCV-RC-455C	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-2 BK 8-35	A
2106	B	08A	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BC	A

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R TERRIE / ENGINEER
Print or Type Name/Title

R Ferrie
Signature

12/27/95
Date

J Sh... / ~~ENGINEER~~
Print or Type Name/Title

Jeffrey C. Rhya
Signature

12/22/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2107	B	07	PCV-RC-456	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
2108	A	08A	MOV-RC-537	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK 8D	A
2109	A	07	PCV-RC-455D	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
2110A	A	18	PT-RC-402	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-1B	RCBX	717	ANNULUS COL 4-5	S R		ON	ON	YES	RE-22BM	VITAL BUS 3	A
2110B	A	20	PI-RC-402A	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BM	VITAL BUS 3	A
2111A	B	18	PT-RC-403	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-1B, RK-1F	RCBX	701	A CUBICLE	S R		ON	ON	YES	RE-22BM	VITAL BUS 2	A
2111B	B	20	PI-RC-403	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BM	VITAL BUS 2	A
2118	A	07	FCV-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2119	A	07	FCV-RC-455C2	RC/(PCV-RC-455C) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2120	B	07	FCV-RC-455D1	RC/(PCV-RC-455D) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2121	B	07	FCV-RC-455D2	RC/(PCV-RC-455D) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2122	B	08B	SOV-RC-455C1	SI/(PCV-RC-455C) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2123	B	08B	SOV-RC-455C2	SI(PCV-RC-455C) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2124	A	08B	SOV-RC-455D1	SI/(PCV-RC-455D) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2125	A	08B	SOV-RC-455D2	SI(PCV-RC-455D) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2126	A	08B	SOV-RC-456-1	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2127	A	08B	SOV-RC-456-2	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2128	N/A	07	PCV-GN-108	SI/(PCV-RC-455D) NITROGEN PRESSURE CONTROL	DWG RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2129	N/A	07	PCV-GN-109	SI/(PCV-RC-455C) NITROGEN PRESSURE CONTROL	DWG RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2130	N/A	07	PCV-IA-108	IA/(PCV-RC-455D) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	S		OPEN	OPEN	NO	N/A	N/A	A
2131	N/A	07	PCV-IA-109	IA/(PCV-RC-455C) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	S		OPEN	OPEN	NO	N/A	N/A	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J Shope / ENGINEER — Print or Type Name/Title
Jeffrey L Shope — Signature
12 22 95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2132	N/A	21	GN-TK-1A	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
2133	N/A	21	GN-TK-1B	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
2201A	A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
2201B	A	20	LI-QS-100A	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
2202A	B	18	LT-QS-100B	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
2202B	B	20	LI-QS-100B	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
2203A	A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A
2203B	A	20	LI-QS-100C	QS/RWST LEVEL INDICATOR		SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A
2204A	B	18	LT-QS-100D	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
2204B	B	20	LR-QS-100	QS/RWST LEVEL RECORDER		SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
2205A	B	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	ISO 6.24-268 & 3875	AXLB	722	COL 10-1/4 & J	S R		ON	ON	YES	RE-22L	VITAL BUS 2	A
2205B	B	20	FI-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VTI 1.12-75	SPVB	735	CONT RM BB-A	S R		ON	ON	YES	RE-22L	VITAL BUS 2	A
2206	N/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	ISO 6.24-268	AXLB	722	BLENDER	S	2	OPEN	CLOSED	YES	RE-22L	VITBUS II/III BK	A
2206C	N/A	08B	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	RK-3A	AXLB	722	BLENDER CUB	S R		ENERG	ENERG	YES	RE-22L	PNL-DC-3 BK 8-23	A
2207	N/A	21	QS-TK-1	QS/RWST	DWG RV-24A	YARD	735	YARD	S R		N/A	N/A	NO	RE-63V	MCC1-E11, E12	A
2208	A	08A	MOV-CH-115B	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E3 BK J	A
2209	B	08A	MOV-CH-115C	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E3 BK K	A
2210	B	08A	MOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	A
2211	B	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E4 BK K	A
2212	A	05	CH-P-1A	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1A CUBICLE	S R		RUN	RUN	YES	RE-21FN	BUS AE BK E11	A
2213	B	05	CH-P-1B	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1B CUBICLE	S R		OFF	OFF	YES	RE-21FN	BUS DF BK F11	A
2214	A/B	05	CH-P-1C	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1C CUBICLE	S R		OFF	OFF	YES	RE-21FP	BUS AE/DF BK E15	A

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R TERRIE / ENGINEER — Ron Terrie — 12/27/95
Print or Type Name/Title — Signature — Date

J Shipe / ENGINEER — Jeffrey C Shipe — 12/27/95
Print or Type Name/Title — Signature — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- EQUIPMENT Building	Flr.Elv.	LOCATION ----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2215	A	08A	MOV-CH-289	CH/CHARGING HEADER ISOLATION	ISO 6.24-268	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E5 BK BB	A
2216	B	08A	MOV-CH-310	CH/CHARGING HEADER ISOLATION	ISO 6.24-253	RCBX	693	49-3 RAD AZ 350	R		OPEN	OPEN	NO	RE-21FS	MCC1-E6 BK AX	A
2217	A	08A	MOV-CH-275A	CH/CH-P-1A MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1A CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK H	A
2218	A	08A	MOV-CH-275B	CH/CH-P-1B MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1B CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK P	A
2219	A	08A	MOV-CH-275C	CH/CH-P-1C MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1C CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK Q	A
2220	B	08A	MOV-CH-373	CH/CHARGING PUMP RECIRC ISOLATION	ISO 6.24-256	AXLB	722	BLENDER	R		OPEN	OPEN	NO	RE-21FR	MCC1-E4 BK Q	A
2221	N/A	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	ISO 6.24-256 RM-2A RP-10C	AXLB	722	LETDOWN CUBICLE	S	4	N/A	N/A	NO	N/A	N/A	A
2222	A	08A	MOV-SI-867A	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	OPEN	YES	RE-21XT	MCC1-E5 BK W	A
2223	B	08A	MOV-SI-867B	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	OPEN	YES	RE-21XT	MCC1-E6 BK W	A
2224	A	21	PZR-HTR-A	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JR	480V BUS 1N1 BK N12	A
2225	B	21	PZR-HTR-B	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JR	480V BUS 1P1 BK	A
2226	A	21	PZR-HTR-D	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS 1N BK N	A
2227	B	21	PZR-HTR-E	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS 1P BK P	A
2228A	A	18	FT-CH-124	CH/RCP-1C SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3952, RK-3E	SFGB	722	PENT A	S	R	ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2228B	A	20	FI-CH-124	CH/RCP-1C SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2229A	B	18	FT-CH-127	CH/RCP-1B SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3953, RK-3E	SFGB	722	PENT A	S	R	ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
2229B	B	20	FI-CH-127	CH/RCP-1B SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
2230A	A	18	FT-CH-130	CH/RCP-1A SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3630, RK-3E	SFGB	722	PENT A	S	R	ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
2230B	A	20	FI-CH-130	CH/RCP-1A SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
3101A	A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S	R	ON	ON	YES	RE-22ET	VITAL BUS 3	A

CERTIFICATION:

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K FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

T Shaw / ENGINEER
Print or Type Name/Title

Signature

12/22/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<-- Building	EQUIPMENT Flr.Elv.	LOCATION --> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3101B	A	20	LI-QS-100A	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
3102A	B	18	LT-QS-100B	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-68,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
3102B	B	20	LI-QS-100B	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
3103A	A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-68,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A
3103B	A	20	LI-QS-100C	QS/RWST LEVEL INDICATOR		SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A
3104A	B	18	LT-QS-100D	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-68	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
3104B	B	20	LR-QS-100	QS/RWST LEVEL RECORDER		SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
3105A	B	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	ISO 6.24-268 & 3875	AXLB	722	COL 10-1/4 & J	S R		ON	ON	YES	RE-22L	VITAL BUS 2	A
3105B	B	20	FI-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VTI 1.12-75	SRVB	735	CONT RM BB-A	S R		ON	ON	YES	RE-22L	VITAL BUS 2	A
3106	N/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	ISO 6.24-268	AXLB	722	BLENDER	S	2	OPEN	CLOSED	YES	RE-22L	VITBUS II/III BK	A
3106C	N/A	08B	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	RK-3A	AXLB	722	BLENDER CUB	S R		ENERG	ENERG	YES	RE-21FT	PNL-DC-3	A
3107	N/A	21	QS-TK-1	QS/RWST	DWG RV-24A	YARD	735	YARD	S R		N/A	N/A	NO	RE-63V	MCC1-E11, E12	A
3108	A	08A	MOV-CH-115B	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E3 BK J	A
3109	B	08A	MOV-CH-115C	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E3 BK K	A
3110	B	08A	MOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	A
3111	B	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E4 BK K	A
3112	A	05	CH-P-1A	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1A CUBICLE	S R		RUN	RUN	YES	RE-21FN	BUS AE BK E11	A
3113	B	05	CH-P-1B	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1B CUBICLE	S R		OFF	OFF	YES	RE-21FN	BUS DF BK F11	A
3114	A/B	05	CH-P-1C	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1C CUBICLE	S R		OFF	OFF	YES	RE-21FP	BUS/AE/DF BK E15	A
3115	A	08A	MOV-CH-289	CH/CHARGING HEADER ISOLATION	ISO 6.24-268	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E5 BK BB	A
3116	B	08A	MOV-CH-310	CH/CHARGING HEADER ISOLATION	ISO 6.24-253	RCBX	693	49-3 RAD AZ 350	R		OPEN	OPEN	NO	RE-21FS	MCC1-E6 BK AX	A
3117	A	08A	MOV-CH-275A	CH/CH-P-1A MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1A CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK H	A

CERTIFICATION:

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J Shaw / ENGINEER — Print or Type Name/Title
Jeffrey O Shaw — Signature
12/27/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<-- EQUIPMENT Building	Flr.Elv.	LOCATION --> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3118	A	08A	MOV-CH-275B	CH/CH-P-1B MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1B CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK P	A
3119	A	08A	MOV-CH-275C	CH/CH-P-1C MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1C CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK Q	A
3120	B	08A	MOV-CH-373	CH/CHARGING PUMP RECIRC ISOLATION	ISO 6.24-256	AXLB	722	BLENDER	R		OPEN	OPEN	NO	RE-21FR	MCC1-E4 BK Q	A
3121	N/A	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	ISO 6.24-256 RM-2A RP-10C	AXLB	722	LETDOWN CUBICLE	S	4	N/A	N/A	NO	N/A	N/A	A
3122	A	08A	MOV-SI-867A	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E5 BK W	A
3123	B	08A	MOV-SI-867B	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E6 BK W	A
3124A	A	18	LT-RC-459	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S	R	ON	ON	YES	RE-22BH	VITAL BUS 1	A
3124B	A	20	LI-RC-459A	RC/PZR LEVEL INDICATOR	VTI 7.70-0002, RK-3A	SRVB	735	CONT RM BB-B	S	R	ON	ON	YES	RE-22BH	VITAL BUS 1	A
3125A	B	18	LT-RC-460	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S	R	ON	ON	YES	RE-22BJ	VITAL BUS 2	A
3125B	B	20	LI-RC-460	RC/PZR LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM BB-B	S	R	ON	ON	YES	RE-22BJ	VITAL BUS 2	A
3126A	A	18	LT-RC-461	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S	R	ON	ON	YES	RE-22BK	VITAL BUS 3	A
3126B	A	20	LI-RC-461	RC/PZR LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM BB-B	S	R	ON	ON	YES	RE-22BK	VITAL BUS 3	A
3127	A	08A	MOV-SI-863A	SI/1A LHSI TO CHG PUMPS SUPPLY VALVE	ISO 6.24-115	SFGB	735	NW	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E4	A
3128	B	08A	MOV-SI-863B	SI/1B LHSI TO CHG PUMPS SUPPLY VALVE	ISO 6.24-114	SFGB	735	NW	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5	A
3129	A	07	HCV-CH-389	CH/EXCESS LETDOWN DRAIN DIVERT VALVE	VTI-07.88-9	RCBX	707	EXC LETD PLATF	S	R 7	OPEN	OPEN	NO	RE-21FU	PNL-DC-3 BK 8-18	A
3130	B	08A	MOV-CH-370	CH/SEAL INJ HEADER ISOLATION	ISO 6.24-267	AXLB	722	BLENDER ROOM	R		OPEN	OPEN	NO	RE-21FS	MCC1-14 BK AC	A
3131	B	07	HCV-CH-186	CH/RCP SEAL SUPPLY, HAND CONT	VTI-07.86-7	AXLB	722	BLENDER ROOM	S	R	THROT	OPEN	NO	RE-22G	VITAL BUS 2	A
3132A	A	18	FT-CH-124	CH/RCP-1C SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3952, RK-3E	SFGB	722	PENT A	S	R	ON	ON	YES	RE-22G	PRI-PROC 20	A
3132B	A	20	FI-CH-124	CH/RCP-1C SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
3133A	B	18	FT-CH-127	CH/RCP-1B SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3953, RK-3E	SFGB	722	PENT A	S	R	ON	ON	YES	RE-22G	PRI-PROC 9	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J Shipe / ENGINEER — Print or Type Name/Title
Jeff P Shipe — Signature
12/22/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	SGNT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3133B	B	20	FI-CH-127	CH/RCP-1B SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
3134A	A	18	FT-CH-130	CH/RCP-1A SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3630, RK-3E	SFGB	722	PENT A	S R		ON	ON	YES	RE-22G	PRI-PROC 6	A
3134B	A	20	FI-CH-130	CH/RCP-1A SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
3201	A	08A	MOV-RC-535	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E5 BK BE	A
3202	B	08A	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BC	A
3203	A	08A	MOV-RC-537	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BD	A
3204	A	07	LCV-CH-460A	CH/LETDOWN ISOLATION VALVE	ISO 6.24-242	RCBX	718	A CUBICLE	S R	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-18	A
3205	B	07	LCV-CH-460B	CH/LETDOWN ISOLATION VALVE	ISO 6.24-242	RCBX	718	A CUBICLE	S R	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-18	A
3206	A	07	TV-CH-200A	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/8,07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
3206C	A	08B	SOV-CH-200A	CH/(TV-1CH-200A) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3206D	A	08B	SOV-CH-200A1	CH/(TV-1CH-200A) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A
3207	A	07	TV-CH-200B	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/8,07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
3207C	A	08B	SOV-CH-200B	CH/(TV-1CH-200B) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3207D	A	08B	SOV-CH-200B1	CH/(TV-1CH-200B) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A
3208	A	07	TV-CH-200C	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/8.07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
3208C	A	08B	SOV-CH-200C	CH/(TV-1CH-200C) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3208D	A	08B	SOV-CH-200C1	CH/(TV-1CH-200C) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A
3209	A	08A	MOV-CH-378	CH/RCP SEAL LEAKOFF ISOLATION	ISO 6.24-380	RCBX	718	PENT #19	S R	8	OPEN	CLOSED	YES	RE-21FR	MCC1-E5 BK BA	A
3210	B	08A	MOV-CH-381	CH/RCP SEAL LEAKOFF ISOLATION	ISO 6.24-255	SFGB	722	PENT A	S R	8	OPEN	CLOSED	YES	RE-21FR	MCC1-E6 BK AW	A
3211	A	08A	MOV-CH-137	CH/EXCESS LETDOWN HX FLOW CONT	ISO 6.24-1613	RCBX	707	EXC LETD PLATF	R		CLOSED	CLOSED	NO	RE-21FS	PNL-AC-E1 BK 13	A

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R FERRIE / ENGINEER — Ron Ferrie — 12/27/95
Print or Type Name/Title — Signature — Date

J [illegible] / ENGINEER — [signature] — 12/27/95
Print or Type Name/Title — Signature — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3212A	B	18	FY-CH-150	CH/LETDOWN FLOW TRANSMITTER	VTI 7.050-0010	AXLB	722	COL 11-1/2 & G	S R		ON	ON	YES	RE-22J,DWG RK-3A	VITAL BUS 2	A
3212B	B	20	FI-CH-150	CH/LETDOWN FLOW INDICATION	VTI 1.12-75	SRVB	735	CONT RM BB-A	S R		ON	ON	YES	RE-22J	VITAL BUS 2	A
3216	N/A	07	RV-CH-382A	CH/SEAL RTRN HDR RELIEF VALVE	ISO 6.24-1548	RCBX	718	ANNULUS COL 5	S		CLOSED	CLOSED	NO	N/A	N/A	A
3217	A	07	TV-SS-108	SS/PZR LIQUID SPACE SAMPLE ISOLATION	ISO ISI-2821A,3680,RP-18 A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	NO	RE-21KR	PNL-AC-10 BK 7	A
3218	A	07	TV-SS-110	SS/PZR VAPOR SPACE SAMPLE ISOLATION	DWG RM-32A, RP-18A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	NO	RE-21KR	PNL-AC-10 BK 7	A
3219	A	08A	MOV-RH-700	RH/RHR INLET ISOLATION	ISO 6.24-3197	RCBX	692	W OF SI ACC 1A	R		CLOSED	CLOSED	NO	RE-21JV	MCC1-E5 BK P	A
3320	A	08A	MOV-RH-720A	RH/RHR RETURN ISOLATION	ISO 6.24-3189	RCBX	692	W OF SI ACC 1B	R		CLOSED	CLOSED	NO	RE-21JV	MCC1-E5 BK Q	A
3321	B	08A	MOV-RH-720B	RH/RHR RETURN ISOLATION	ISO 6.24-3191	RCBX	692	W OF SI ACC 1C	R		CLOSED	CLOSED	NO	RE-21JV	MCC1-E6 BK Q	A
4101A	A	18	LT-WT-104A1	WT/WT-TK-10 LEVEL TRANSMITTER	ISO 6.24-4016	YARD	735	YARD	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4101B	A	20	LI-WT-104A1	WT/WT-TK-10 LEVEL INDICATOR		SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4102A	B	18	LT-WT-104A2	WT/WT-TK-10 LEVEL TRANSMITTER	ISO 6.24-4017	YARD	735	YARD	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4102B	B	20	LI-WT-104A2	WT/WT-TK-10 LEVEL INDICATOR		SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4103A	A	18	FT-FW-100A	FW/AUX FEED TO SGA TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4103B	A	20	FI-FW-100A	FW/AUX FEED TO SGA INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4104A	B	18	FT-FW-100B	FW/AUX FEED TO SGB TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 4	A
4104B	B	20	FI-FW-100B	FW/AUX FEED TO SGB INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22DZ	VITAL BUS 4	A
4105A	A	18	FT-FW-100C	FW/AUX FEED TO SGC TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4105B	A	20	FI-FW-100C	FW/AUX FEED TO SGC INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4106	N/A	21	WT-TK-10	WT/DEMIN WATER STORAGE TANK	DWG RV-34A,RP-6C	YARD	735	YARD	S		N/A	N/A	NO		N/A	A
4107	A	05	FW-P-3A	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	VTI 2.40-11,12	SFGB	735	AUX FEED PUMP	S R		OFF	ON	YES	RC-21C,M,RE-21H E,RM-1B,6.24-64	BUS 4E BK E16	A
4107C	A	07	FCV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	ISO 6.24-774	SFGB	735	AFW ROOM	S R		CLOSED	OPEN	YES	RE-21HD	PNL-DC-3 BK 8-53	A

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R FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

J Shaw / ENGINEER
Print or Type Name/Title

J. R. Shaw
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4107D	A	18	FIS-FW-151A	FW/AUX FW PUMP FW-P-3A SUCTION LINE FROM WT-TK-10 FIS	ISO 6.24-3831, 3833	SFGB	722	AFW ROOM	S		ENERG	ENERG	YES	RE-21HD	PNL-DC-3 BK 8-53	A
4108	B	05	FW-P-3B	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	VTI 2.40-11,12	SFGB	735	AUX FEED PUMP	S R		OFF	ON	YES	RC-21C,M,RE-21HE,RM-1B,G.24-64	BUS OF BK F16	A
4108C	B	07	FCV-FW-103B	FW/3B AFW PUMP RECIRCULATION VALVE	ISO 6.24-774	SFGB	735	AFW ROOM	S R		CLOSED	OPEN	YES	RE-21HE	PNL-DC-3 BK 8-53	A
4108D	B	18	FIS-FW-151B	FW/AUX FW PUMP FW-P-3B SUCTION LINE FROM WT-TK-10 FIS	ISO 6.24-3832	SFGB	722	AFW ROOM	S		ENERG	ENERG	YES	RE-21HE	PNL-DC-3 BK 8-53	A
4108E	A/B	088	DV-FP-12	FP/AUX FEED WATER PUMP DELUGE VLV	RB-16C	SFGB	722	NE	R		CLOSED	CLOSED	NO	10.1-474	PNL-DC-4	A
4109	B	08A*	MOV-FW-151A	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK A6	A
4110	A	08A	MOV-FW-151B	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK A6	A
4111	B	08A	MOV-FW-151C	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK AH	A
4112	A	08A	MOV-FW-151D	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK AH	A
4113	B	08A	MOV-FW-151E	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK AJ	A
4114	A	08A	MOV-FW-151F	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK AJ	A
4115	N/A	08A	MOV-FW-160	FW/FW-P-4 DISCHARGE ISOLATION VALVE	ISO 6.24-383	TRBB	693	BASEMENT @ PUMP	R		CLOSED	CLOSED	NO	RE-21HF	MCC1-43 BK 3J	A
4116	A	08A	MOV-RW-103A	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-128	MCC1-E3 BK B	A
4117	B	08A	MOV-RW-103B	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-128	MCC1-E4 BK B	A
4118	N/A	20	FR-MS-478	FW/RC-E-1A LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S R		ON	ON	YES	RE-22Z	VITAL BUS 2	A
4119	N/A	20	FR-MS-488	FW/RC-E-1B LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S R		ON	ON	YES	RE-22AA	VITAL BUS 2	A
4120	N/A	20	FR-MS-498	FW/RC-E-1C LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A
4121A	A	18	LT-FW-474	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3394, RK-1B	RCBX	718	ANNULUS COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A
4121B	A	20	LI-FW-474	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J Shaw / ENGINEER — Print or Type Name/Title
Jeffrey C Shaw — Signature
12/27/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT Building	Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4122A	B	18	LT-FW-475	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3394, RK-1B	RCBX	718	ANNULUS COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 2	A
4122B	B	20	LI-FW-475	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 2	A
4123A	A	18	LT-FW-476	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3885, RK-1B	RCBX	718	ANNULUS COL 15	S R		ON	ON	YES	RE-22Z	VITAL BUS 3	A
4123B	A	20	LI-FW-476	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Z	VITAL BUS 3	A
4124A	A	18	LT-FW-484	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3361, RK-1A, 1F	RCBX	738	ANNULUS COL 9	S R		ON	ON	YES	RE-22X	VITAL BUS 1	A
4124B	A	20	LI-FW-484	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22X	VITAL BUS 1	A
4125A	B	18	LT-FW-485	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3363, RK-1A, 1F	RCBX	738	ANNULUS COL 9	S R		ON	ON	YES	RE-22X	VITAL BUS 2	A
4125B	B	20	LI-FW-485	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22X	VITAL BUS 2	A
4126A	A	18	LT-FW-486	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3362, RK-1A, 1F	RCBX	718	ANNULUS COL 9	S R		ON	ON	YES	RE-22AA	VITAL BUS 3	A
4126B	A	20	LI-FW-486	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22AA	VITAL BUS 3	A
4127A	A	18	LT-FW-494	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	DWG RK-1B, RK-6D	RCBX	718	ANNULUS COL 5	S R		ON	ON	YES	RE-22Y	VITAL BUS 1	A
4127B	A	20	LI-FW-494	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Y	VITAL BUS 1	A
4128A	B	18	LT-FW-495	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3364, RK-1B, 1F	RCBX	718	ANNULUS COL 5	S R		ON	ON	YES	RE-22Y	VITAL BUS 2	A
4128B	B	20	LI-FW-495	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Y	VITAL BUS 2	A
4129A	A	18	LT-FW-496	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3885, RK-1B	RCBX	718	ANNULUS COL 4	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A

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R FERRIE / ENGINEER
Print or Type Name/Title

R Ferrie
Signature

12/27/95
Date

J Shaw / ENGINEER
Print or Type Name/Title

Jeffrey S Shaw
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
41298	A	20	LI-FW-496	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A
4201A	A	19	TRB-RC-413	RC/LOOP 1A HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	EL 732	S R	19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
4201B	B	19	TRB-RC-410	RC/LOOP 1A COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	EL 732	S R	19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4202A	A	19	TRB-RC-423	RC/LOOP 1B HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	EL 732	S R	19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
4202B	B	19	TRB-RC-420	RC/LOOP 1B COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	EL 732	S R	19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4203A	A	19	TRB-RC-433	RC/LOOP 1C HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	EL 732	S R	19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
4203B	B	19	TRB-RC-430	RC/LOOP 1C COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	EL 732	S R	19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4203C	B	20	TR-RC-410	RC/REACTOR COOLANT COLD LEG 3 PEN RECORDER		SRVB	735	CONT RM VB-A	R		ON	ON	YES	RE-22BP	VITAL BUS 2	A
4203D	A	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER		SRVB	735	CONT RM VB	R		ON	ON	YES	RE-22BN	VITAL BUS 1	A
4204	A	07	HCV-MS-104	MS/RESIDUAL HEAT RELEASE	ISO 6.24-6	SFGB	752	MSVH	S R	10	CLOSED	OPEN	YES	RE-22DR	VITBUS 1 BK 1-7	A
4205	A	07	PCV-MS-101A	MS/A LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4205C	A	08B	SOV-MS-101A	MS/(PCV-1MS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-3 BK 8-14	A
4205D	A	08B	SOV-MS-101A4	MS/(PCV-1MS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-3 BK 8-23	A
4205E	A	18	PS-MS-101A	MS/ATMOSPHERE STEAM DUMP S.G. 1A	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-3 BK 8-14	A
4206	B	07	PCV-MS-101B	MS/B LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	751	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4206C	B	08B	SOV-MS-101B	MS/(PCV-1MS-101B) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-14	A
4206D	B	08B	SOV-MS-101B4	MS/(PCV-1MS-101B) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-23	A
4206E	B	18	PS-MS-101B	MS/ATMOSPHERE STEAM DUMP S.G. 1B	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-2 BK 8-14	A
4207	B	07	PCV-MS-101C	MS/C LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J Shop / ENGINEER — Print or Type Name/Title
Jeff Shop — Signature
12/27/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4207C	B	088	SOV-MS-101C	MS/(PCV-1MS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-14	A
4207D	B	088	SOV-MS-101C4	MS/(PCV-1MS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-23	A
4207E	B	18	PS-MS-101C	MS/ATMOSPHERE STEAM DUMP S.G. 1C	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-2 BK 8-14	A
4208	B	08A	MOV-MS-101A	MS/MAIN STEAM TRIP [TV-MS-101A] BYPASS VALVE	ISO 6.24-2	SFGB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK BH	A
4209	B	08A	MOV-MS-101B	MS/MAIN STEAM TRIP [TV-MS-101B] BYPASS VALVE	ISO 6.24-2	SFGB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK BN	A
4210	B	08A	MOV-MS-101C	MS/MAIN STEAM TRIP [TV-MS-101C] BYPASS VALVE	ISO 6.24-2	SFGB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK BP	A
4211	A/B	07	TV-MS-101A	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) B-6	A
4211C	A	088	SOV-MS-112A1	MS/(TV-1MS-101A) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-6	A
4211D	B	088	SOV-MS-112A2	MS/(TV-1MS-101A) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-6	A
4212	A/B	07	TV-MS-101B	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) B-6	A
4212C	A	088	SOV-MS-112B1	MS/(TV-1MS-101B) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
4212D	B	088	SOV-MS-112B2	MS/(TV-1MS-101B) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
4213	A/B	07	TV-MS-101C	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) B-6	A
4213C	A	088	SOV-MS-112C1	MS/(TV-1MS-101C) PILOT VALVE	RK-8A	' uB	735	QUEN SPRAY PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-22	A
4213D	B	088	SOV-MS-112C2	MS/(TV-1MS-101C) PILOT VALVE	RK-8A	;FGB	735	QUEN SPRAY PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-22	A
4214	B	08A	MOV-MS-105	MS/AFW TURBINE STEAM SUPPLY ISOLATION	6.48-95,96	SFGB	735	MSVH	S R		OPEN	CLOSED	YES	RE-21HY, ISO 6.24-625	MCC1-E6 BK BA	A
4215	A	07	TV-MS-111A	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
4216	A	07	TV-MS-111B	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
4217	A	07	TV-MS-111C	MS/MAIN STM PRE-NRTRN DRAIN ;SOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A

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Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

J Shyr / ENGINEER
Print or Type Name/Title

Jeffrey P Ryan
Signature

12/22/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5101	A	06	WR-P-1A	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	A CUBICLE	S R		ON	ON	YES	RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1AE BK E10	A
5101C	A	09	VS-F-57A	VS/INTAKE STRUCTURE CUBICLE #1 SUPPLY FAN	RB-2E	INTS	725	A CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E1 BK B	A
5101D	A	0	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	725	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK B	A
5101E	A	0	VS-D-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	725	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK B	A
5102	B	06	WR-P-1B	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	B CUBICLE	S R		OFF	ON	YES	RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1OF BK F10	A
5102C	B	09	VS-F-57B	VS/INTAKE STRUCTURE CUBICLE #2 SUPPLY FAN	RB-2E	INTS	725	B CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E2 BK B	A
5102D	B	0	VS-D-57B1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	725	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E2 BK B	A
5102E	B	0	VS-D-57B2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	725	B CIBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E2 BK B	A
5103	A/B	06	WR-P-1C	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	C CUBICLE	S R		OFF	ON	YES	RE-21KX,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1AE OR 1DF B	A
5103C	A/B	09	VS-F-57C	VS/INTAKE STRUCTURE CUBICLE #3 SUPPLY FAN	RB-2E	INTS	725	C CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E1/2 BK E	A
5103C	A/B	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	725	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 BK E	A
5103E	A/B	0	VS-D-57C2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	725	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 BK E	A
5104	B	08A	MOV-RW-102A1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK D	A

CERTIFICATION:

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R. FERRIE / ENGINEER Print or Type Name/Title	Ron Ferrie Signature	12/27/95 Date
J. Shore / ENGINEER Print or Type Name/Title	Signature	12/27/95 Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5105	A	08A	MOV-RW-102A2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK G	A
5106	B	08A	MOV-RW-102B1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK D	A
5107	A	08A	MOV-RW-102B2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK G	A
5108	B	08A	MOV-RW-102C1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK H	A
5109	A	08A	MOV-RW-102C2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK H	A
5110	A	07	PCV-RW-130A	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3345	INTS	705	A CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3345	N/A	A
5111	B	07	PCV-RW-130B	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3346	INTS	705	B CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3346	N/A	A
5112	A/B	07	PCV-RW-130C	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3347	INTS	705	C CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3347	N/A	A
5113	N/A	21	CH-E-7A	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1A CUB	S		N/A	N/A	NO	N/A	N/A	A
5114	N/A	21	CH-E-7B	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1B CUB	S		N/A	N/A	NO	N/A	N/A	A
5115	N/A	21	CH-E-7C	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1C CUB	S		N/A	N/A	NO	N/A	N/A	A
5116	N/A	21	CC-E-1A	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
5117	N/A	21	CC-E-1B	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
5118	N/A	21	CC-E-1C	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
5119	B	08A	MOV-RW-106A	RW/CCR HT EXCH ISOLATION	6.48-51,52	AXLB	722	N/A	S R	1B	OPEN	CLOSED	YES	RE-21LA,6.24-68	MCC1-E4 BK P	A
5120	B	08A	MOV-RW-106B	RW/CCR HT EXCH ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		OPEN	OPEN	NO	RE-21LA	MCC1-E4 BK D	A
5121	A	08A	MOV-RW-113A	RW/DIESEL GEN COOLING ISO	ISO 6.24-159	PG PUMP	722	PG PUMP	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E3 BK H	A
5122	A	08A	MOV-RW-113B	RW/DIESEL GEN COOLING ISO	ISO 6.24-160	PG PUMP	722	PG PUMP	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E7 BK J	A
5123	B	08A	MOV-RW-113C	RW/DIESEL GEN COOLING ISO	ISO 6.24-159	PG PUMP	722	PG PUMP	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK H	A

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R FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

J Shea / ENGINEER
Print or Type Name/Title

Jeffrey P Shea
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ----> Rm. or Row/Col.	SOR?	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5124	B	08A	MOV-RW-113D1	RW/DIESEL GEN COOLING ISO	ISO 6.24-160	DGBX	735	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK J	A
5125	A	08A	MOV-RW-114A	RW/CCR HT EXCH ISOLATION	ISO 6.24-68	AXLB	722	N/A	S R	18	OPEN	CLOSED	YES	RE-21LA	MCC1-E5 BK D	A
5126	A	08A	MOV-RW-114B	RW CCR HT EXCH ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		OPEN	OPEN	NO	RE-21LA	MCC1-E3 BK AC	A
5127	A	08A	MOV-RW-116	RW/STRAINER ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E3 BK AD	A
5128	B	08A	MOV-RW-117	RW/STRAINER ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E3 BK G	A
5129	N/A	21	EE-E-1A	EE/DIESEL GEN COOLING HT EXCH	ISO 6.24-159, RM-10A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5130	N/A	21	EE-E-1B	EE/DIESEL GEN COOLING HT EXCH	ISO 6.24-160, RM-10A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5131	A	08A	MOV-RW-116A	RW/AUX RW PUMP SUPPLY TO A RW HDR REACTOR PLANT	ISO 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E7 BK Y	A
5132	B	08A	MOV-RW-116B	RW/AUX RW PUMP SUPPLY TO B RW HDR REACTOR PLANT	ISO 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E8 BK Z	A
5133	A	08A	MOV-RW-103A	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-128	MCC1-E3 BK B	A
5133C	A/B	08B	DV-FP-9	FP/LOWER CHARCOAL VENT FILTER DELUGE VALVE	RB-16C	STOR	735	LUNCH ROOM	R		CLOSED	CLOSED	NO	RE-21GV	PNL-DC-4	A
5134	B	08A	MOV-RW-103B	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-128	MCC1-E4 BK B	A
5135	A	08A	MOV-RW-103C	RW/'B' HDR RW FLOW TO RECIRC SPRAY	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21LA	MCC1-E3 BK C	A
5136	B	08A	MOV-RW-103D	RW/'B' HDR RW FLOW TO RECIRC SPRAY	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21LA	MCC1-E4 BK C	A
5201	A	09	VS-F-55A	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E9 BK P	A
5201C	A	18	TS-HV-55A	VS/TEMP SWITCH FOR VS-F-55A	DWG RB-17G	SRVB	713	SW EMERG SWGR	S		ENERG	ENERG	YES	RE-21MZ		A
5202	B	09	VS-F-55B	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK X	A
5202C	B	18	TS-HV-55B	VS/TEMP SWITCH FOR VS-F-55B	DWG RB-17G	SRVB	713	SW EMERG SWGR	S		ENERG	ENERG	YES	RE-21MZ		A
5203	A	09	VS-F-16A	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	ON	ON	YES	RE-21MZ	MCC1-E9 BK AF	A
5204	B	09	VS-F-16B	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK AC	A
5205	A	0	VS-D-16A	VS/EMERG SWITCHGEAR EXHAUST DAMPER	DWG RB-17L	SRVB	725	CABLE MEZZ	S R		OPEN	OPEN	NO	RE-21MZ	MCC1-E9 BK AF	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J SHAW / ENGINEER — Print or Type Name/Title
Jeffrey P Shaw — Signature
12/27/95 — Date

PI WER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5206	B	0	VS-D-16B	VS/EMERG SWITCHGEAR EXHAUST DAMPER	DWG RB-17L	SRVB	725	CABLE MEZZ	S R		CLOSED	OPEN	YES	RE-21MZ	MCC1-E10 BK AC	A
5207	A	08A	VS-D-4-1A	VS/MAIN FILTER BANK UPSTREAM BYPASS ISOLATION DAMPER	8700-RB-8H (L 1/2-10 1/2)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	NO	RE-21MS	MCC1-E3 BK V	A
5208	B	08A	VS-D-4-1B	VS/MAIN FILTER BANK UPSTREAM BYPASS ISOLATION DAMPER	8700-RB-8H (L 1/2-10 1/2)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	NO	RE-21MS	MCC1-E4 BK V	A
5209	A	08A	VS-D-4-2A	VS/MAIN FILTER BANK LEAK COLLECTION TRAIN B IN ISOL DAM	8700-RB-8H (K 1/2-10)	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MS	PNL-AC-E1 BK 3	A
5210	B	08A	VS-D-4-2B	VS/MAIN FILTER BANK LEAK COLLECTION TRAIN A IN ISOL DAM	8700-RB-8H (K-10)	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MS	PNL-AC-E2 BK 2	A
5211	B	08A	VS-D-4-3B	VS/CHG PUMP CUBICLE NORM EXHAUST DAMPER	8700-RB-8B (J-10 1/2)&4-	AXLB	722	BLENDER CUBICLE	R		CLOSED	CLOSED	NO	RE-21MT	MCC1-E4 BK W	A
5212	A	08A	VS-D-4-4A	VS/CHG PUMP CUBICLE EMER EXHAUST DAMPER	8700-RB-8H (K 1/2-9 3/8)	AXLB	768	BY BATCH TANK	R		OPEN	OPEN	NO	RE-21MS	PNL-AC-E1 BK 3	A
5213	B	08A	VS-D-4-4B	VS/CHG PUMP CUBILCE EMER EXHAUST DAMPER	8700-RB-8H (K1/2-9 3/8)	AXLB	768	BY BATCH TANK	R		OPEN	OPEN	NO	RE-21MS	PNL-AC-E2 BK 2	A
5214	A	0	VS-D-4-7A	VS/LEAK COLL EXHAUST FAN 4A SUCTION ISOLATION DAMPER	8700-RB-8G (G 1/2-11)	AXLB	768	AT FAN	S R		CLOSED	OPEN	YES	RE-21MS	N/A	A
5215	B	0	VS-D-4-7B	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	8700-RB-8G (G 1/2-11)	AXLB	768	NORTH WALL	S		CLOSED	OPEN	NO	RE-21MS	N/A	A
5216	A	0	VS-D-4-8A	VS/LEAK COLL EXHAUST FAN 4B SUCTION ISOLATION DAMPER	8700-RB-8G (G 1/2-12)	AXLB	768	AT FAN	S R		CLOSED	OPEN	YES	RE-21MS	N/A	A
5217	B	0	VS-D-4-8B	VS/LEAK COLL EXHAUST FAN 4B DISCHARGE BACKFLOW DAMPER	8700-RB-8G (G 1/2-12)	AXLB	768	NORTH WALL	S		CLOSED	OPEN	NO	RE-21MS	N/A	A
5218	A/B	08A	VS-D-4-9A	VS/MAIN FILTER BANK [1VS-FL-4,5,6] IN DAMPER	8700-RB-8H (K-10 1/4)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	YES	RE-21MS	PNL-AC-11 BK 1	A
5219	A/B	08A	VS-D-4-9B	VS/MAIN FILTER BANK [1VS-FL-4,5;6] OUT DAMPER	8700-RB-8H (K-10 7/8)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	YES	RE-21MS	PNL-AC-11 BK 1	A
5220	A/B	08A	VS-D-4-10A	VS/MAIN FILTER BANK [1VS-FL-7,8,9] IN DAMPER	8700-RB-8J SECT 17-17	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	YES	RE-21MS	PNL-AC-11 BK 1	A
5221	A/B	08A	VS-D-4-10B	VS/MAIN FILTER BANK [1VS-FL-7,8;9] OUT DAMPER	8700-RB-8J SECT 17-17	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	YES	RE-21MS	PNL-AC-11 BK 1	A

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R FERRIE / ENGINEER
Print or Type Name/Title

Ray Ferrie
Signature

12/27/95
Date

J Shaw / ENGINEER
Print or Type Name/Title

Jeffrey P. Shaw
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5222	A	09	VS-F-4A	VS/LEAK COLLECTION EXHAUST FAN	DWG RM-2B, VTI 10.001-153	AXLB	768	NE CORNER	S R		ON	ON	YES	RE-21MS	480V BUS 1N BK5	A
5223	B	09	VS-F-4B	VS/LEAK COLLECTION EXHAUST FAN	DWG RM-2B, VTI 10.001-153	AXLB	768	NE CORNER	S R		OFF	ON	YES	RE-21MS	480V BUS 1P BK6	A
5224	A	0	VS-D-4-12A	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	8700-RB-5L&5P SECT 24-24	SFGB	735	VS-AC-7 RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E1 BK 7	A
5225	B	0	VS-D-4-12B	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	8700-RB-5L&5P SECT 24-24	SFGB	735	VS-AC-7 RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	A
5226	A	0	VS-D-4-15A	VS/AUX FEED PUMP RM EXHAUST DAMPER	8700-RB-5L&5P SECT 24-24	SFGB	735	AUX FD PUMP RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E1 BK 7	A
5227	B	0	VS-D-4-15B	VS/AUX FEED PUMP RM EXHAUST DAMPER	8700-RB-5L&5P SECT 24-24	SFGB	735	AUX FD PUMP RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	A
5228	A	08A	VS-D-5-2	VS/CNMT PURGE & EXHAUST TO MAIN FILTER BANK DAMPER	8700-RB-8H (K-10 1/4)	AXLB	768	OVERHEAD	R		CLOSED	CLOSED	NO	RE-21MH	PNL-AC-11 BK 5	A
5229	A	08A	VS-D-7-2A	VS/AUX BLDG A SYSTEM MAIN FILTER BANK IN DAMPER	8700-RB-8G (G7/8-10 1/4)	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MA	PNL-AC-7 BK 16	A
5230	B	08A	VS-D-7-4A	VS/AUX BLDG B SYSTEM MAIN FILTER BANK IN DAMPER	8700-RB-8G (SECT Y-Y)	AXLB	768	ABOVE EXH FANS	R		CLOSED	CLOSED	NO	RE-21MA	PNL-AC-8 BK 45	A
5231	B	08B	SOV-VS-209A1	VS/UPPER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	780	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A
5231C	A/B	08B	DV-FP-8	FP/UPPER CHARCOAL VENT FILTER DELUGE VALVE	RB-16C	STOR	735	LUNCH ROOM	R		CLOSED	CLOSED	NO	RE-21GW	PNL-DC-4	A
5232	B	08B	SOV-VS-209A2	VS/UPPER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	780	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A
5233	B	08B	SOV-VS-209B1	VS/LOWER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	768	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A
5234	B	08B	SOV-VS-209B2	LOWER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	768	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A
5235	A	10	VS-AC-1A	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MK	480V BUS 1N BK N	A
5236	B	10	VS-AC-1B	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MK	480V BUS 1P BK P	A

CERTIFICATION:

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J Shaw / ENGINEER — Print or Type Name/Title
Jeffrey C. Shaw — Signature
12/22/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5237	A	09	VS-F-40A	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E9 BK C	A
5238	B	09	VS-F-40B	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E10 BK C	A
5239	A/B	0	VS-AD-7	VS/VS-F-40A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5240	A/B	0	VS-AD-8	VS/VS-F-40B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5241	A/B	0	VS-AD-9	VS/VS-F-40A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5242	A/B	0	VS-AD-10	VS/VS-F-40B DISCHARGE DAMPER	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5243	A/B	08A	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK U	A
5244	A/B	08A	VS-D-40-1B	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK J	A
5245	A/B	08A	VS-D-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK V	A
5246	A/B	08A	VS-D-40-1D	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK K	A
5247	A/B	07	VS-D-40-1F	VS/MIN OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5248	A/B	07	VS-D-40-1G	VS/MAX OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5249	A/B	07	VS-D-40-1H	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5250	A/B	07	VS-D-40-1K	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5251	A/B	07	VS-D-40-1M	VS/VS-F-40A & B EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5252	A/B	0	VS-AD-3	VS/VS-AC-1A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5253	A/B	0	VS-AD-4	VS/VS-AC-1B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5254	A/B	0	VS-AD-5	VS/VS-AC-1A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5255	A/B	0	VS-AD-6	VS/VS-AC-1B DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE 21MJ	N/A	A

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R FERRIE / ENGINEER — Ron Ferrie — 12/27/95
Print or Type Name/Title — Signature — Date

T Shaw / ENGINEER — [signature] — 12 27 95
Print or Type Name/Title — Signature — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5237	A	09	VS-F-40A	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E9 BK C	A
5238	B	09	VS-F-40B	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E10 BK C	A
5239	A/B	0	VS-AD-7	VS/VS-F-40A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5240	A/B	0	VS-AD-8	VS/VS-F-40B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5241	A/B	0	VS-AD-9	VS/VS-F-40A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5242	A/B	0	VS-AD-10	VS/VS-F-40B DISCHARGE DAMPER	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5243	A/B	08A	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK U	A
5244	A/B	08A	VS-D-40-1B	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK J	A
5245	A/B	08A	VS-D-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK V	A
5246	A/B	08A	VS-D-40-1D	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK K	A
5247	A/B	07	VS-D-40-1F	VS/MIN OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5248	A/B	07	VS-D-40-1G	VS/MAX OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5249	A/B	07	VS-D-40-1H	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5250	A/B	07	VS-D-40-1K	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5251	A/B	07	VS-D-40-1M	VS/VS-F-40A & B EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5252	A/B	0	VS-AD-3	VS/VS-AC-1A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5253	A/B	0	VS-AD-4	VS/VS-AC-1B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5254	A/B	0	VS-AD-5	VS/VS-AC-1A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5255	A/B	0	VS-AD-6	VS/VS-AC-1B DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A

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R FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

T Sha / ENGINEER
Print or Type Name/Title

Signature

12 22 95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- EQUIPMENT LOCATION ---> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING S.S. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5300D	A	12	EE-C-2A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN #1	S R		ON	ON	YES	RE-21BX	MCC1-E8 BK N	A
5300E	B	12	EE-C-1B	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN #2	S R		ON	ON	YES	RE-21BX	MCC1-E7 BK T	A
5300F	B	12	EE-C-2B	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN #2	S R		ON	ON	YES	RE-21BX	MCC1-E8 BK T	A
5301	A	17	EE-EG-1	EE/#1 DIESEL GENERATOR	DWG RM-10A	DGBX	735	DIESEL GEN #1	S R		OFF	ON	YES	N/A	N/A	A
5302	B	17	EE-EG-2	EE/#2 DIESEL GENERATOR	DWG RM-10A	DGBX	735	DIESEL GEN #2	S R		OFF	ON	YES	N/A	N/A	A
5303	A	05	EE-P-1A	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #2	S R		OFF	ON	YES	RE-21BX	MCC1-E7 BK Q	A
5304	A	05	EE-P-1B	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #2	S R		OFF	ON	YES	RE-21BX	MCC1-E7 BK R	A
5305	B	05	EE-P-1C	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #1	S R		OFF	ON	YES	RE-21BX	MCC1-E8 BK Q	A
5306	B	05	EE-P-1D	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #1	S R		OFF	ON	YES	RE-21BX	MCC1-E8 BK R	A
5307	A	21	EE-TK-1A	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	724	YARD	S		N/A	N/A	NO	N/A	N/A	A
5308	B	21	EE-TK-1B	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	724	YARD	S		N/A	N/A	NO	N/A	N/A	A
5309	A	21	EE-TK-2A	EE/EDG FUEL OIL DAY TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5310	B	21	EE-TK-2B	EE/EDG FUEL OIL DAY TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5311	A	21	EE-TK-3A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5311C	A	07	RV-EE-201A	EE/3A AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5312	A	21	EE-TK-3B	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5312C	A	07	RV-EE-201B	EE/3B AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5313	A	21	EE-TK-3C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5313C	A	07	RV-EE-201C	EE/3C AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5314	A	21	EE-TK-3D	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5314C	A	07	RV-EE-202A	EE/3D AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5315	A	21	EE-TK-3E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

JShaw / ENGINEER — Print or Type Name/Title
Signature
12/27/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5256	A/B	0	VS-AFD-1	VS/ZONE 5 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5257	A/B	0	VS-AFD-2	VS/ZONE 4 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5258	A/B	0	VS-AFD-3	VS/ZONE 1 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5259	A/B	0	VS-AFD-4	VS/ZONE 2 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5260	A/B	0	VS-AFD-5	VS/ZONE 3 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5261	A/B	0	VS-AFD-6	VS/ZONE 3 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5262	A/B	0	VS-AFD-7	VS/ZONE 2 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5263	A/B	0	VS-AFD-8	VS/ZONE 1 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5264	A/B	0	VS-AFD-9	VS/ZONE 4 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5265	A/B	0	VS-AFD-10	VS/ZONE 5 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5266	A/B	0	VS-AFD-11	VS/ZONE 4 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5267	A/B	0	VS-AFD-12	VS/ZONE 1 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5268	A/B	0	VS-AFD-13	VS/ZONE 2 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5269	A/B	0	VS-AFD-14	VS/ZONE 3 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5270	A/B	0	VS-AFD-15	VS/ZONE 5 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5271	A	12	VS-C-1A	VS/TEMP CONT AIR COMP		SRVB	713	CR VENT	S R		OFF	ON	YES	RE-21MS	AC-PNL-E3 BK 5	A
5272	B	12	VS-C-1B	VS/TEMP CONT AIR COMP		SRVB	713	CR VENT	S R		OFF	ON	YES	RE-21MS	AC-PNL-E4 BK 5	A
5273	A	10	VS-C-1A1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER		SRVB	713	CR VENT	S R		N/A	N/A	N/A	RE-21MS	AC-PNL-E3 BK 5	A
5274	B	10	VS-C-1B1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	VTI 10.1-300	SRVB	713	CR VENT	S R		N/A	N/A	N/A	RE-21MS	AC-PNL-E4 BK 5	A
5277	A	10	VS-E-14A	VS/RIVER WATER COOLING COILS	VTI 10.1-45	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
5278	B	10	VS-E-14B	VS/RIVER WATER COOLING COILS	VTI 10.1-45	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
5300C	A	12	EE-C-1A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN B1	S R		ON	ON	YES	RE-21BX	MCC1-E7 BK N	A

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R FERRIE / ENGINEER — Ron Ferrie — 12/27/95
Print or Type Name/Title — Signature — Date

J Shipp / ENGINEER — Jeffrey P Shipp — 12/27/95
Print or Type Name/Title — Signature — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5315C	A	07	RV-EE-202B	EE/3E AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5316	A	21	EE-TK-3F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5316C	A	07	RV-EE-202C	EE/3F AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5317	B	21	EE-TK-4A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5317C	B	07	RV-EE-203A	EE/4A AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5318	B	21	EE-TK-4B	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5318C	B	07	RV-EE-203B	EE/4B AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5319	B	21	EE-TK-4C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5319C	B	07	RV-EE-203C	EE/4C AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5320	B	21	EE-TK-4D	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5320C	B	07	RV-EE-204A	EE/4D AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5321	B	21	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5321C	B	07	RV-EE-204B	EE/4E AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5322	B	21	EE-TK-4F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5322C	B	07	RV-EE-204C	EE/4F AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5323	A	20	PNL-DIGEN-1	EE/DIESEL GENERATOR #1 CONTROL PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #1	S		ON	ON	YES	N/A	N/A	A
5324	B	20	PNL-DIGEN-2	EE/DIESEL GENERATOR #2 CONTROL PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
5325	A	09	VS-F-22A	VS/DG BLDG EXHAUST FAN		DGBX	756	DG#1 ROOF	S	R	OFF	ON	YES	RE-21MP	MCC1-E7 BK E	A
5326	B	09	VS-F-22B	VS/DG BLDG EXHAUST FAN		DGBX	756	DG#2 ROOF	S	R	OFF	ON	YES	RE-21MP	MCC1-E8 BK E	A
5327	A	0	VS-D-22-1A	VS/DG BLDG EXHAUST DAMPER	VTI 10.1-1073,RB-27A	DGBX	756	DG#1 ROOF	S	R	CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5328	B	0	VS-D-22-1B	VS/DG BLDG EXHAUST DAMPER	VTI 10.1-1073,BR-27A	DGBX	756	DG#2 ROOF	S	R	CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5329	A	0	VS-D-22-2A	VS/DG BLDG AIR SUPPLY DAMPER		DGBX	745	DG#1	S	R	CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A

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R FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/22/95
Date

J Shipe / ENGINEER
Print or Type Name/Title

J. Shipe
Signature

12/22/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5330	B	0	VS-D-22-2B	VS/DG BLDG AIR SUPPLY DAMPER		DGBX	745	DG#2	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5331	A	0	VS-D-22-2C	VS/DG BLDG AIR SUPPLY DAMPER		DGBX	745	DG#1	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5332	B	0	VS-D-22-2D	VS/DG BLDG AIR SUPPLY DAMPER		DGBX	745	DG#2	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5333	A	04	TRANS-1-8N	37/480V EMERG BUS 1N TRANS-1-8N	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	4KV BUS AE	A
5334	B	04	TRANS-1-9P	37/480V EMERG BUS 1P TRANS-1-9P	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	4KV BUS DF	A
5335	A	16	INV-VITBUS-1	UPS/UPS 1	DWG RE-27B	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-111	MCC1-E9	A
5336	B	16	INV-VITBUS-2	UPS/UPS 2	DWG RE-27B	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-111	MCC1-E10	A
5337	A	16	INV-VITBUS-3	UPS/UPS 3	DWG RE-27B	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-111	MCC1-E9	A
5338	B	16	INV-VITBUS-4	UPS/UPS 4	DWG RE-27B	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-196	MCC1-E10	A
5339	A	20	SSW-VITBUS-1	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-27B, 21EB, 38D	SRVB	713	EMERG SWGR #1	S R		ON	ON	YES	1.24-181	MCC1-E13	A
5340	B	20	SSW-VITBUS-2	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 38D	SRVB	713	EMERG SWGR #2	S R		ON	ON	YES	1.24-181	MCC1-E14	A
5341	A	20	SSW-VITBUS-3	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-27B, 21EB, 38D	SRVB	713	EMERG SWGR #1	S R		ON	ON	YES	1.24-181	MCC1-E13	A
5342	B	20	SSW-VITBUS-4	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 38D	SRVB	713	EMERG SWGR #2	S R		ON	ON	YES	1.24-181	MCC1-E14	A
5343	A	16	BAT-CHG-1	39/BATTERY CHARGER #1	DWG RE-27B	SRVB	713	AE SWGR	S R	14	ON	ON	YES	RE-1Z	MCC1-E9	A
5344	B	16	BAT-CHG-2	39/BATTERY CHARGER #2	DWG RE-1V, 27B	SRVB	713	DF SWGR	S R	14	ON	ON	YES	RE-1Z	MCC1-E10	A
5345	A	16	BAT-CHG-3	39/BATTERY CHARGER #3	DWG RE-27B	SRVB	713	AE SWGR	S R	14	ON	ON	YES	RE-1V	MCC1-E9	A
5346	B	16	BAT-CHG-4	39/BATTERY CHARGER #4	DWG RE-1V, 27B	SRVB	713	DF SWGR	S R	14	ON	ON	YES	RE-1V	MCC1-E10	A
5347	A	15	BAT-1	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	AE SWGR	S		CHARGED	YES	YES	RE-1Z	N/A	A
5348	B	15	BAT-2	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	DF SWGR	S		CHARGED	YES	YES	RE-1Z	N/A	A
5349	A	15	BAT-3	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	AE SWGR	S		CHARGED	YES	YES	RE-1V	N/A	A
5350	B	15	BAT-4	39/125 VOLT DC STATIONARY BATTERY	DWG RE-21EA, 27B	SRVB	713	DF SWGR	S		CHARGED	YES	YES	RE-1V	N/A	A

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R. FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

T. Shaw / ~~ENGINEER~~ — Print or Type Name/Title
Signature
12/22/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8001	A	02	480VUS-1-8-N	37/1N 480V SUBSTATION 480VUS-1-8-N	DWG RE-27B, 38B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	4KV BUS AE	A
8002	A	02	480VUS-1-8-N1	37/480 VOLT AC EMERGENCY SWGR	DWG RE-27B	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8003	B	02	480VUS-1-9-P	37/1P 480V SUBSTATION 480VUS-1-9-P	DWG RE-27B, 38B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	4KV BUS DF	A
8004	B	02	480VUS-1-9-P1	37/480 VOLT AC EMERGENCY SWGR	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8005	A	03	4KVS-1AE	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	DWG RE-27B, 21U, 38B	SRVB	713	EMERG SWGR #1	S		ON	ON	YES	N/A	N/A	A
8006	B	03	4KVS-1DF	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	DWG RE-21Z, 27B, 38B	SRVB	713	EMERG SWGR #2	S		ON	ON	YES	N/A	N/A	A
8007	A	02	BAT-BKR-1	39/MAIN DC BUS #1 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	EMERG SWGR #1	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8008	B	02	BAT-BKR-2	39/MAIN DC BUS #2 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	EMERG SWGR #2	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8009	A	02	BAT-BKR-3	39/MAIN DC BUS #3 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	EMERG SWGR #1	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8010	B	02	BAT-BKR-4	39/MAIN DC BUS #4 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	EMERG SWGR #2	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8011	A/B	20	BMCHBD	38/CONTROL ROOM MAIN CONTROL BOARD	DWG RE-27A, 38A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8012	A	14	DC-SWBD-1	39/DC BUS 1	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8013	B	14	DC-SWBD-2	39/DC BUS 2	DWG RE-1V, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8014	A	14	DC-SWBD-3	39/DC BUS 3	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8015	B	14	DC-SWBD-4	39/DC BUS 4	DWG RE-1V, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8016	A	20	NM-NI-31A	02/SOURCE RANGE PREAMPLIFIER		SFGB	735	W CABLE VAULT	S		N/A	N/A	N/A	N/A	N/A	A
8017	B	20	NM-NI-32A	02/SOURCE RANGE PREAMPLIFIER		SFGB	735	E CABLE VAULT	S		N/A	N/A	N/A	N/A	N/A	A
8018	A	01	MCC-1-E1	EE/480V MOTOR CONTROL CENTER	DWG RE-53A, 37M, 21DB	INTS	705	A CUBICLE	S	R	ON	ON	YES	RE-21DB	480V 8N BK 7	A
8019	B	01	MCC-1-E2	EE/480V MOTOR CONTROL CENTER	DWG RE-53A, 37M, 21DB	INTS	705	B CUBICLE	S	R	ON	ON	YES	RE-21DB	480V 9P BK 8	A

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Ron Ferrie
Signature

12/27/95
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T Shaw / ENGINEER
Print or Type Name/Title

Jeffrey P Shaw
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8020	A	01	MCC-1-E3	EE/480V MOTOR CONTROL CENTER	DWG RE-21DB, RE-38C, 48C	AXLB	735	COL 8-7/8	S	R	ON	ON	YES	RE-21DB	480V 8N BK 8	A
8021	B	01	MCC-1-E4	EE/480V MOTOR CONTROL CENTER	DWG RE-21DB, RE-38C, 48C	AXLB	735	COL 8-7/8	S	R	ON	ON	YES	RE-21DB	480V 9P BK 9	A
8022	A	01	MCC-1-E5	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	W CABLE VAULT	S	R	ON	ON	YES	RE-21DB	480V 8N BK 6	A
8023	B	01	MCC-1-E6	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	E CABLE VAULT	S	R	ON	ON	YES	RE-21DB	480V 9P BK 14	A
8024	A	01	MCC-1-E7	EE/480V MOTOR CONTROL CENTER	DWG RE-58A, RE-21DC	DGBX	735	DIESEL GEN #1	S	R	ON	ON	YES	RE-21DC	480V 8N BK 14	A
8025	B	01	MCC-1-E8	EE/480V MOTOR CONTROL CENTER	DWG RE-58A, RE-21DC	DGBX	735	DIESEL GEN #2	S	R	ON	ON	YES	RE-21DC	480V 9P BK 7	A
8026	A	01	MCC-1-E9	EE/480V MOTOR CONTROL CENTER	DWG RE-27B, 38C	SRVB	713	AE SWGR	S	R	ON	ON	YES	RE-21DC	480V 8N BK 11	A
8027	B	01	MCC-1-E10	EE/480V MOTOR CONTROL CENTER	DWG RE-27B, 38C	SRVB	713	DF SWGR	S	R	ON	ON	YES	RE-21DC	480V 9P BK 11	A
8028	A	01	MCC-1-E11	EE/480V MOTOR CONTROL CENTER	DW , 42K	SFGB	735	W CABLE VAULT	S	R	ON	ON	YES	RE-21DC	480V 9P1 BK 21	A
8029	B	01	MCC-1-E12	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	E CABLE VAULT	S	R	ON	ON	YES	RE-21DC	480V 8N BK 15	A
8030	A	01	MCC-1-E13	EE/480V MOTOR CONTROL CENTER	DWG RE-38Q, 42G	SFGB	756	MCC ROOM	S	R	ON	ON	YES	RE-21DC	480V 9P BK 15	A
8031	B	01	MCC-1-E14	EE/480V MOTOR CONTROL CENTER	DWG RE-42K	SFGB	735	E CABLE VAULT	S	R	ON	ON	YES	N/A	480V BUS 1P	A
8034	A	14	PNL-AC-BUS-1E	38/VITAL BUS DIST PANEL 1E	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8035	B	14	PNL-AC-BUS-1F	38/VITAL BUS DIST PANEL 1F	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8036	A	14	PNL-AC-E1	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8037	B	14	PNL-AC-E2	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8038	A	14	PNL-AC-E3	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8039	B	14	PNL-AC-E4	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8040	A	20	PNL-BLDG-SER-A	VS/PLANT VENTILATION CONTROL PANEL	DWG RE-27A	SRVB	735	CONTROL			ON	ON	YES	N/A	N/A	A
8041	B	20	PNL-BLDG-SER-B	VS/PLANT VENTILATION CONTROL PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A

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R Ferrie
Signature

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Print or Type Name/Title

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528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8042	B	14	PNL-DC-2	39/125 VOLT DC POWER DISTRIBUTION PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	NO	N/A	N/A	A
8043	A	14	PNL-DC-3	39/125 VOLT DC POWER DISTRIBUTION PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	NO	N/A	N/A	A
8044	A	20	PNL-DG-SEQ-1	36/RELAY PANEL	DWG RE-27B, 25R	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8045	B	20	PNL-DG-SEQ-2	36/RELAY PANEL	DWG RE-27B, 25R	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8046	A	20	PNL-DGEA-1	36/RELAY PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #1	S		ON	ON	YES	N/A	N/A	A
8047	B	20	PNL-DGEA-2	36/RELAY PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
8048	A	14	PNL-PR-HTR-A	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JR, 42K	SFGB	735	W CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8049	B	14	PNL-PR-HTR-B	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JR, 42K	SFGB	735	E CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8050	A	14	PNL-PR-HTR-D	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JS, 42K	SFGB	735	W CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8051	B	14	PNL-PR-HTR-E	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JS, 42K	SFGB	735	E CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8052	A	20	PNL-REL-19	36/RELAY PANEL	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8053	A/B	20	PNL-REL-21	36/RELAY PANEL	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8054	B	20	PNL-REL-22	36/RELAY PANEL	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8055	A	20	PNL-REL-31	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8056	B	20	PNL-REL-32	38/AUX RELAY PANEL	DWG RE-21EA, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8057	A	20	PNL-REL-33	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8058	B	20	PNL-REL-34	38/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8059	A	20	PNL-REL-35	38/RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8060	B	20	PNL-REL-36	38/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8061	A	20	PNL-REL-37	38/RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A

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R FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

T. Shaw / ~~ENGINEER~~
Print or Type Name/Title

Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8062	B	20	PNL-REL-3B	3B/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8063	B	20	PNL-REL-DGI	3G/RELAY PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
8064	A	20	PNL-SHUTDN-A	01/EMERGENCY SHUTDOWN PANEL	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8065	B	20	PNL-SHUTDN-B	01/EMERGENCY SHUTDOWN PANEL	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8066	A	14	PNL-VITBUS-1	3B/VITAL BUS DIST PANEL 1	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8067	B	14	PNL-VITBUS-2	3B/VITAL BUS DIST PANEL 2	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8068	A	14	PNL-VITBUS-3	3B/VIBAL BUS DIST PANEL 3	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8069	B	14	PNL-VITBUS-4	3B/VITAL BUS DIST PANEL 4	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8070	A/B	02	REAC-TR-SWGR	01/REACTOR TRIP SWITCHGEAR	DWG RE-27B	SRVB	713	ROD M/G ROOM	S		N/A	N/A	N/A	N/A	N/A	A
8071	A	20	RK-AUX-RELA	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8072	B	20	RK-AUX-RELB	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8073	A	20	RK-AUX-RPTST-A	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8074	B	20	RK-AUX-RPTST-B	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8075	A	20	RK-NUC-INS-1	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8076	B	20	RK-NUC-INS-2	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8077	A	20	RK-PRI-PROC-1	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8078	A	20	RK-PRI-PROC-2	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8079	A	20	RK-PRI-PROC-3	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8080	B	20	RK-PRI-PROC-10	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A

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B. FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

J. Thyne / ENGINEER
Print or Type Name/Title

J. Thyne
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<-- EQUIPMENT LOCATION --> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8081	B	20	RK-PRI-PROC-12	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8082	B	20	RK-PRI-PROC-11	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8083	B	20	RK-PRI-PROC-13	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8084	A	20	RK-PRI-PROC-14	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8085	A	20	RK-PRI-PROC-15	04/PLANT PROCESS INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8086	A	20	RK-PRI-PROC-16	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8087	A	20	RK-PRI-PROC-17	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8088	A	20	RK-PRI-PROC-18	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8089	B	20	RK-PRI-PROC-25	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8090	B	20	RK-PRI-PROC-26	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8091	B	20	RK-PRI-PROC-30	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8092	B	20	RK-PRI-PROC-31	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8093	A	20	RK-PRI-PROC-34	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8094	A	20	RK-PRI-PROC-35	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8095	A	20	RK-REAC-PROT-A	01/REACTOR PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8096	B	20	RK-REAC-PROT-B	01/REACTOR PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A

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R FERRIE / ENGINEER
Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

J. Shaw / ~~ENGINEER~~
Print or Type Name/Title

Jeffrey P. Shaw
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8097	A	20	RK-REC-P-TST-A	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8098	B	20	RK-REC-P-TST-B	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8099	A	20	RK-SEC-PROC-A	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8100	B	20	RK-SEC-PROC-B	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8101	A	20	RK-SEC-PROC-C	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8102	B	20	RK-SEC-PROC-D	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8102A	A	20	RK-VS-AC-1A	44A/CONTROL ROOM TEMP CONTROL AIR COMPRESSOR RACK		SRVB	713	AC EQUIP ROOM	S		N/A	N/A	N/A	N/A	N/A	A
8102B	B	20	RK-VS-AC-1B	44A/CONTROL ROOM AIR HANDLING UNIT SUPPLY FANS RACK		SRVB	713	AC EQUIP ROOM	S		N/A	N/A	N/A	N/A	N/A	A
8102C	A/B	20	RK-VS-E567	VS/CONTROL ROOM HEATERS VS-E-5, 6 & 7		SRVB	713	AC EQUIP ROOM	S		N/A	N/A	N/A	N/A	N/A	A
8102D	A/B	20	RK-VS-E8-12	VS/RACK FOR VS-E-8-1 & 8-2		SRVB	713	AC EQUIP ROOM	S		N/A	N/A	N/A	N/A	N/A	A
8103	A	03	SW-1-8N1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-27B	SRVB	713	AE SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A
8104	B	03	SW-1-9P1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-27B	SRVB	713	DF SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A
8105	A	04	TRANS-1-8-N1	37/480V AUX EMERG BUS 1N1	DWG RE-27B	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8106	B	04	TRANS-1-9-P1	37/480V AUX EMERG BUS 1P1	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8107	A/B	20	VERTBD	01/MAIN INSTRUMENTATION DISPLAY PANEL	DWG RE-27A, 38A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8108	A	20	PNL-REL-40	36/RELAY PANEL 40	RE-27C, 25H	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8109	B	20	PNL-REL-41	36/RELAY PANEL 41	RE-27C, 25H	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8115	A	20	PNL-PAS-RA	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRVB	735	RELAY ROOM	S		ON	ON	YES	N/A	N/A	A

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R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/22/95 — Date

J. Shi / ENGINEER — Print or Type Name/Title
J. M. P. Hsu — Signature
12/22/95 — Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT Building	Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8116	B	20	PNL-PAS-RB	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRVB	735	RELAY ROOM	S		ON	ON	YES	N/A	N/A	A
8117	A/B	20	PNL-AMSAC	45B/ANTICIP TRANS W/O SCRAM MITIGATING SYS ACTUAT CIRCT	RE-27C	SRVB	713	PROCESS RACK RM	S		ON	ON	YES	8700-1.20-1174 THRU 1177	N/A	A
8118	B	01	MCC-1-14	37/480V MCC FED FROM 480V SUBSTA 1-4 BUS1H BKR4H7	RE-38C, 48D	AXLB	735	SOUTH OF LWFL1B	S		ON	ON	YES	N/A	N/A	A
8119	A	20	TB-348A	VS/TERM BOX W/RELAY LOC NR TB-348	DWG RE-25AW	AXLB	768	COL G1/8&111/2	S		ON	ON	YES	RE-21MS	PNL-AC-E1	A
8120	B	20	TB-349A	VS/TERM BOX W/RELAY LOC NR TB-349	DWG RE-25AW	AXLB	768	COL G1/8&111/2	S		ON	ON	YES	RE-21MS	PNL-AC-E2	A
8121	A/B	18	QS-RACK-1	QS/RACK FOR RWST HEAT TRACE (EAST SIDE OF RWST)	DWG 1.81-52 SH 3	YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8122	A/B	18	QS-RACK-2	QS/RACK FOR RWST HEAT TRACE (NE SIDE OF RWST)	DWG 1.81-52 SH 2	YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8123	A/B	18	QS-RACK-3	QS/RACK FOR RWST HEAT TRACE (SOUTH SIDE OF RWST)		YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8124	A/B	18	QS-RACK-4	QS/RACK FOR RWST HEAT TRACE (SE SIDE OF RWST)		YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8125	A	18	PNL-MS-101A	MS/INSTRUMENT RACK FOR SOV-MS-101A AND SOV-MS-101A4	RK8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8126	B	18	PNL-MS-101B	MS/INSTRUMENT RACK FOR SOV-MS-101B AND SOV-MS-101B4	RK-8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8127	B	18	PNL-MS-101C	MS/INSTRUMENT RACK FOR SOV-MS-101C AND SOV-MS-101C4	RK-8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8128	A/B	20	RK-RAD-MON-7	RM/RADIATION MONITOR RACK #7		SRVB	735	CONTROL ROOM	S		ON	ON	YES	N/A	VITAL BUS 1, 2	A
8129	A	18	PNL-SI-02	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8130	A	04	TRF-SI-02	45/SAFETY INJECTION HEAT TRACE PNL-SI-02	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8131	B	18	PNL-SI-06	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8132	B	04	TRF-SI-06	45/SAFETY INJECTION HEAT TRACE PNL-SI-06	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A

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Print or Type Name/Title

Ron Ferrie
Signature

12/27/95
Date

J. Shipe / ENGINEER
Print or Type Name/Title

Jeff P. Shipe
Signature

12/27/95
Date

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8133		20	FE-CDL-1A	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM WEST	DWG RM-10A	DGBX	735	DGBX WEST	S R		CLOSED	CLOSED	NO	RE-21GX	PNL-DC-3 BK 8-3	A
8134		20	FE-CDL-1B	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM EAST	DWG RM-10A	DGBX	735	DGBX EAST	S R		CLOSED	CLOSED	NO	RE-21GX	PNL-DC-2 BK 8-3	A
8135		20	PCC-FE-1A	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-10A	DGBX	735	DGBX WEST	S		N/A	N/A	N/A	N/A	N/A	A
8136		20	PCC-FE-1B	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-10A	DGBX	735	DGBX EAST	S		N/A	N/A	N/A	N/A	N/A	A

CERTIFICATION:

The information identifying the equipment required to bring the plant to a safe shutdown condition on this Safe Shutdown Equipment List (SSEL) is, to the best of our knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

R FERRIE / ENGINEER — Print or Type Name/Title
Ron Ferrie — Signature
12/27/95 — Date

J. Shipp / ENGINEER — Print or Type Name/Title
J. A. Shipp — Signature
12/27/95 — Date

SSEL FOOTNOTES
(Column 11)

1. Rx Trip Breaker opens automatically upon loss of power to the undervoltage relay.

2. Air-operated valve - Fails open upon lose of air; if failed open, valve could be isolated and flow controlled with bypass valve CH-29 Blender Cubicle, CH-22 would be closed to isolate FCV-122.

3. (DELETED)

4. Analysis of Charging Pump established it's ability to operate without CCR in Seal Water Heat Exchanger.

5. (DELETED)

6. Letdown Isolation Valves CH-LCV-460 A & B are air-operated and will fail closed on a loss of air.

7. Excess letdown is normally isolated at power.

8. Closing MOV-CH-378 or 381 causes RV-CH-382A to lift which diverts flow to the PRT.

9. Main Steam Isolation Valves MS-TV-101 A, B & C are air-operated and fail closed on loss of power or air.

10. The RHR and atmospheric valves require air to open but in the event of a loss of air, can be manually opened.

11. (DELETED)

12. Each Train has 100% of required capacity.

13. Air Recirculation Dampers are air-operated and fail open.

14. The Battery Chargers were chosen in addition to the batteries because of the "72-hour" requirement.

15. (DELETED)
16. Air-operated valve fails closed on loss of air.

17. Needs to be closed to throttle aux. feed flow after first 1/2 hour.

18. This valve may be needed to go closed in the unlikely event that river water will need to be supplied to the steam generators.

19. TRB's are considered NSSS equipment, immersed in RCS fluid.

20. PORV's require air to operate, mechanically acceptable.

GENERAL :

A. Number series are assigned as follows ("Function" field designators underlined):
   1000 - **R**eactivity Control; 1100 Rods & 1200 Boration
   2000 - RCS **P**ressure Control; 2100 Decrease & 2200 Increase
   3000 - RCS **I**nventory Control; 3100 CVCS & 3200 Leakoffs
   4000 - RCS **H**eat Removal; 4100 Aux Feed & 4200 Steam Dump
   5000 - Support Systems; 5100 River Water (**S1**), 5200 HVAC (**S2**) & 5300 (and up) Electrical (**S3**)
   7000 - **NOT INCLUDED HERE** - Supplemental equipment not part of A-46, but SQUGGED to confirm seismic adequacy.
   8000 - Enclosures/supports for electrical equipment
   9000+- Essential relays (**Separate List**)

APPENDIX 4.3-2

Seismic Review Safe Shutdown Equipment List (SSEL)

BEAVER VALLEY POWER STATION Unit 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8001	A	02	480VUS-1-B-N	37/1N 480V SUBSTATION 480VUS-1-B-N	DWG RE-27B, 38B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	4KV BUS AE	A
8002	A	02	480VUS-1-B-N1	37/480 VOLT AC EMERGENCY SWGR	DWG RE-27B	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8003	B	02	480VUS-1-9-P	37/1P 480V SUBSTATION 480VUS-1-9-P	DWG RE-27B, 38B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	4KV BUS DF	A
8004	B	02	480VUS-1-9-P1	37/480 VOLT AC EMERGENCY SWGR	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8005	A	03	4KVS-1AE	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	DWG RE-27B, 21U, 38B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8006	B	03	4KVS-1DF	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	DWG RE-21Z, 27B, 38B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
5347	A	15	BAT-1	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	AE SWGR	S		CHARGED	YES	YES	RE-1Z	N/A	A
5348	B	15	BAT-2	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	DF SWGR	S		CHARGED	YES	YES	RE-1Z	N/A	A
5349	A	15	BAT-3	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	AE SWGR	S		CHARGED	YES	YES	RE-1V	N/A	A
5350	B	15	BAT-4	39/125 VOLT DC STATIONARY BATTERY	DWG RE-21EA, 27B	SRVB	713	DF SWGR	S		CHARGED	YES	YES	RE-1V	N/A	A
8007	A	02	BAT-BKR 1	39/MAIN DC BUS #1 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	AE SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8008	B	02	BAT-BKR-2	39/MAIN DC BUS #2 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	DF SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8009	A	02	BAT-BKR-3	39/MAIN DC BUS #3 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	AE SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8010	B	02	BAT-BKR-4	39/MAIN DC BUS #4 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	DF SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
5343	A	16	BAT-CHG-1	39/BATTERY CHARGER #1	DWG RE-27B	SRVB	713	AE SWGR	S	R 14	ON	ON	YES	RE-1Z	MCC1-E9	A
5344	B	16	BAT-CHG-2	39/BATTERY CHARGER #2	DWG RE-1V, 27B	SRVB	713	DF SWGR	S	R 14	ON	ON	YES	RE-1Z	MCC1-E10	A
5345	A	16	BAT-CHG-3	39/BATTERY CHARGER #3	DWG RE-27B	SRVB	713	AE SWGR	S	R 14	ON	ON	YES	RE-1V	MCC1-E9	A
5346	B	16	BAT-CHG-4	39/BATTERY CHARGER #4	DWG RE-1V, 27B	SRVB	713	DF SWGR	S	R 14	ON	ON	YES	RE-1V	MCC1-E10	A
8011	A/B	20	BNCHBD	38/CONTROL ROOM MAIN CONTROL BOARD	DWG RE-27A, 38A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
5116	N/A	21	CC-E-1A	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
5117	N/A	21	CC-E-1B	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
5118	N/A	21	CC-E-1C	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
1221	N/A	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	ISO 6.24-256 RM-2A RP-10C	AXLB	722	LETDOWN CUBICLE	S	4	N/A	N/A	NO	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5113	N/A	21	CH-E-7A	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1A CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
5114	N/A	21	CH-E-7B	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1B CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
5115	N/A	21	CH-E-7C	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1C CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
1212	A	05	CH-P-1A	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1A CUBICLE	S	R	RUN	RUN	YES	RE-21FN	BUS AE BK E11	A
2213	B	05	CH-P-1B	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1B CUBICLE	S	R	OFF	OFF	YES	RE-21FN	BUS DF BK F11	A
1214	A/B	05	CH-P-1C	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1C CUBICLE	S	R	OFF	OFF	YES	RE-21FP	BUS AE/DF BK E15	A
1246	A	05	CH-P-2A	CH/BORIC ACID TRANSFER PUMP	VTI 2.32-001	AXLB	752	BA PUMP CUBICLE	S	R	OFF	ON	YES	RE-21FQ	MCC1-E11 BK B	A
1247	B	05	CH-P-2B	CH/BORIC ACID TRANSFER PUMP	VTI 2.32-001	AXLB	752	BA PUMP CUBICLE	S	R	OFF	ON	YES	RE-21FQ	MCC1-E12 BK B	A
1244	N/A	21	CH-TK-1A	CH/BORIC ACID TANK	RM-2B, VTI 3.47-010	AXLB	752	BA TANK CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
1245	N/A	21	CH-TK-1B	CH/BORIC ACID TANK	RM-2B, VTI 3.47-010	AXLB	752	BA TANK CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
8012	A	14	DC-SWBD-1	39/125 VDC SWITCHBOARD NO 1	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8013	B	14	DC-SWBD-2	39/125 VDC SWITCHBOARD NO 2	DWG RE-1V, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8014	A	14	DC-SWBD-3	39/125 VDC SWITCHBOARD NO 3	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8015	B	14	DC-SWBD-4	39/125 VDC SWITCHBOARD NO 4	DWG RE-1V, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
5300C	A	12	EE-C-1A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN #1	S	R	ON	ON	YES	RE-21BX	MCC1-E7 BK N	A
5300E	B	12	EE-C-1B	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN #2	S	R	ON	ON	YES	RE-21BX	MCC1-E7 BK T	A
5300D	A	12	EE-C-2A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN #1	S	R	ON	ON	YES	RE-21BX	MCC1-E8 BK N	A
5300F	B	12	EE-C-2B	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN #2	S	R	ON	ON	YES	RE-21BX	MCC1-E8 BK T	A
5129	N/A	21	EE-E-1A	EE/DIESEL GEN COOLING HT EXCH	ISO 6.24-159, RM-10A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5130	N/A	21	EE-E-1B	EE/DIESEL GEN COOLING HT EXCH	ISO 6.24-160, RM-10A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5301	A	17	EE-EG-1	EE/#1 DIESEL GENERATOR	DWG RM-10A	DGBX	735	DIESEL GEN #1	S	R	OFF	ON	YES	N/A	N/A	A
5302	B	17	EE-EG-2	EE/#2 DIESEL GENERATOR	DWG RM-10A	DGBX	735	DIESEL GEN #2	S	R	OFF	ON	YES	N/A	N/A	A
5303	A	05	EE-P-1A	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #2	S	R	OFF	ON	YES	RE-21BX	MCC1-E7 BK Q	A
5304	A	05	EE-P-1B	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #2	S	R	OFF	ON	YES	RE-21BX	MCC1-E7 BK R	A
5305	B	05	EE-P-1C	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #1	S	R	OFF	ON	YES	RE-21BX	MCC1-E8 BK Q	A
5306	B	05	EE-P-1D	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #1	S	R	OFF	ON	YES	RE-21BX	MCC1-E8 BK R	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SOR?	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5307	A	21	EE-TK-1A	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	72?	YARD	S		N/A	N/A	NO	N/A	N/A	A
5308	B	21	EE-TK-1B	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	724	YARD	S		N/A	N/A	NO	N/A	N/A	A
5309	A	21	EE-TK-2A	EE/EDG FUEL OIL DAY TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5310	B	21	EE-TK-2B	EE/EDG FUEL OIL DAY TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5311	A	21	EE-TK-3A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5312	A	21	EE-TK-3B	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5313	A	21	EE-TK-3C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5314	A	21	EE-TK-3D	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5315	A	21	EE-TK-3E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5316	A	21	EE-TK-3F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5317	B	21	EE-TK-4A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5318	B	21	EE-TK-4B	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5319	B	21	EE-TK-4C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5320	B	21	EE-TK-4D	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5321	B	21	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5322	B	21	EE-TK-4F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
1205	N/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	ISO 6.24-268	AXLB	722	BLENDER	S	2	OPEN	CLOSED	YES	RE-22L	VITBUS II/III BK	A
4107C	A	07	FCV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	ISO 6.24-774	SFGB	735	AUX FEED PUMP	S	R	CLOSED	OPEN	YES	RE-21HD	PNL-DC-3 BK 8-53	A
4108C	B	07	FCV-FW-103B	FW/3B AFW PUMP RECIRCULATION VALVE	ISO 6.24-774	SFGB	735	AUX FEED PUMP	S	R	CLOSED	OPEN	YES	RE-21HE	PNL-DC-3 BK 8-53	A
2118	A	07	FCV-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2119	A	07	FCV-RC-455C2	RC/(PCV-RC-455C) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2120	B	07	FCV-RC-455D1	RC/(PCV-RC-455D) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2121	B	07	FCV-RC-455D2	RC/(PCV-RC-455D) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
8133		20	FE-CDL-1A	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM WEST	DWG RM-10A	DGBX	735	DIESEL GEN #1	S	R	CLOSED	CLOSED	NO	RE-21GX	PNL-DC-3 BK 8-3	A
8134		20	FE-CDL-1B	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM EAST	DWG RM-10A	DGBX	735	DIESEL GEN #2	S	R	CLOSED	CLOSED	NO	RE-21GX	PNL-DC-2 BK 8-3	A
1205B	A	20	FI-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VTI 1.12-75	SRVB	735	CONT RM B6-A	S	R	ON	ON	YES	RE-22L	VITAL BUS 2	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
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462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2228B	A	20	FI-CH-124	CH/RCP-1C SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2229B	B	20	FI-CH-127	CH/RCP-1B SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
2230B	A	20	FI-CH-130	CH/RCP-1A SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
3212B	B	20	FI-CH-150	CH/LETDOWN FLOW INDICATION	VTI 1.12-75	SRVB	735	CONT RM BB-A	S R		ON	ON	YES	RE-22J	VITAL BUS 2	A
4103B	A	20	FI-FW-100A	FW/AUX FEED TO SGA INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4104B	B	20	FI-FW-100B	FW/AUX FEED TO SGB INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22DZ	VITAL BUS 4	A
4105B	A	20	FI-FW-100C	FW/AUX FEED TO SGC INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4107D	A	18	FIS-FW-151A	FW/AUX FW PUMP FW-P-3A SUCTION LINE FROM WT-TK-10 FIS	ISO 6.24-3831, 3833	SFGB	722	COLUMN C4	S		ENERG	ENERG	YES	RE-21HD	PNL-DC-3 BK 8-53	A
4108D	B	18	FIS-FW-151B	FW/AUX FW PUMP FW-P-3B SUCTION LINE FROM WT-TK-10 FIS	ISO 6.24-3832	SFGB	722	COLUMN C4	S		ENERG	ENERG	YES	RE-21HE	PNL-DC-3 BK 8-53	A
4118	N/A	20	FR-MS-478	FW/RC-E-1A LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S R		ON	ON	YES	RE-22Z	VITAL BUS 2	A
4119	N/A	20	FR-MS-488	FW/RC-E-1B LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S R		ON	ON	YES	RE-22AA	VITAL BUS 2	A
4120	N/A	20	FR-MS-498	FW/RC-E-1C LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A
1205A	A	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	ISO 6.24-268 & 3875	AXLB	722	COL 10-1/4 & J	S R		ON	ON	YES	RE-22L	VITAL BUS 2	A
2228A	A	18	FT-CH-124	CH/RCP-1C SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3952, RK-3E	SFGB	722	PENT A	S R		ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2229A	B	18	FT-CH-127	CH/RCP-1B SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3953, RK-3E	SFGB	722	PENT A	S R		ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
2230A	A	18	FT-CH-130	CH/RCP-1A SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3630, RK-3E	SFGB	722	PENT A	S R		ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
3212A	B	18	FT-CH-150	CH/LETDOWN FLOW TRANSMITTER	VTI 7.050-0010	AXLB	722	COL 11-1/2 & G	S R		ON	ON	YES	RE-22J,DWG RK-3A	VITAL BUS 2	A
4103A	A	18	FT-FW-100A	FW/AUX FEED TO SGA TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4104A	B	18	FT-FW-100B	FW/AUX FEED TO SGB TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 4	A
4105A	A	18	FT-FW-100C	FW/AUX FEED TO SGC TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4107	A	05	FW-P-3A	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	VTI 2.40-11,12	SFGB	735	AUX FEED PUMP	S R		OFF	ON	YES	RC-21C,M,RE-21H E,RM-18,6.24-64	BUS AE BK E16	A
4108	B	05	FW-P-3B	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	VTI 2.40-11,12	SFGB	735	AUX FEED PUMP	S R		OFF	ON	YES	RC-21C,M,RE-21H E,RM-18,6.24-64	BUS DF BK F16	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. ST. Normal	OP. ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2132	N/A	21	GN-TK-1A	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
2133	N/A	21	GN-TK-1B	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
1229	B	07	HCV-CH-186	CH/RCP SEAL SUPPLY, HAND CONT	VTI-07.86-7	AXLB	722	BLENDER ROOM	S R		THROT	OPEN	NO	RE-22G	VITAL BUS 2	A
1233	A	07	HCV-CH-389	CH/EXCESS LETDOWN DRAIN DIVERT VALVE	VTI-07.88-9	RCBX	707	EXC LETD PLATF	S R	7	OPEN	OPEN	NO	RE-21FU	PNL-DC-3 BK 8-18	A
4204	A	07	HCV-MS-104	MS/RESIDUAL HEAT RELEASE	ISO 6.24-6	SFGB	752	MSVH	S R	10	CLOSED	OPEN	YES	RE-22DR	VITBUS 1 BK 1-7	A
5335	A	16	INV-VITBUS-1	UPS/VITAL BUS #1 INVERTER	DWG RE-27B	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-111	MCC1-E9	A
5336	B	16	INV-VITBUS-2	UPS/VITAL BUS #2 INVERTER	DWG RE-27B	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-111	MCC1-E10	A
5337	A	16	INV-VITBUS-3	UPS/VITAL BUS #3 INVERTER	DWG RE-27B	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-111	MCC1-E9	A
5338	B	16	INV-VITBUS-4	UPS/VITAL BUS #4 INVERTER	DWG RE-27B	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-196	MCC1-E10	A
3204	A	07	LCV-CH-460A	CH/LETDOWN ISOLATION VALVE	ISO 6.24-242	RCBX	718	A CUBICLE	S R	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-18	A
3205	B	07	LCV-CH-460B	CH/LETDOWN ISOLATION VALVE	ISO 6.24-242	RCBX	718	A CUBICLE	S R	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-18	A
4121B	A	20	LI-FW-474	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A
4122B	B	20	LI-FW-475	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 2	A
4123B	A	20	LI-FW-476	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Z	VITAL BUS 3	A
4124B	A	20	LI-FW-484	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22X	VITAL BUS 1	A
4125B	B	20	LI-FW-485	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22X	VITAL BUS 2	A
4126B	A	20	LI-FW-486	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22AA	VITAL BUS 3	A
4127B	A	20	LI-FW-494	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Y	VITAL BUS 1	A
4128B	B	20	LI-FW-495	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Y	VITAL BUS 2	A
4129B	A	20	LI-FW-496	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A
1201B	A	20	LI-QS-100A	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
1202B	B	20	LI-QS-100B	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
1203B	A	20	LI-QS-100C	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3124B	A	20	LI-RC-459A	RC/PZR LEVEL INDICATOR	VTI 7.70-0002, RK-3A	SRVB	735	CONT RM BB-B	S R		ON	ON	YES	RE-22BH	VITAL BUS 1	A
3125B	B	20	LI-RC-460	RC/PZR LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM BB-B	S R		ON	ON	YES	RE-22BJ	VITAL BUS 2	A
3126B	A	20	LI-RC-461	RC/PZR LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM BB-B	S R		ON	ON	YES	RE-22BK	VITAL BUS 3	A
4101B	A	20	LI-WT-104A1	WT/WT-TK-10 LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4102B	B	20	LI-WT-104A2	WT/WT-TK-10 LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
1204B	B	20	LR-QS-100	QS/RWST LEVEL RECORDER	VTI 7.70-0005	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
4121A	A	18	LT-FW-474	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3394, RK-1B	RCBX	718	ANNULUS COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A
4122A	B	18	LT-FW-475	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3394, RK-1B	RCBX	718	ANNULUS COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 2	A
4123A	A	18	LT-FW-476	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3885, RK-1B	RCBX	718	ANNULUS COL 15	S R		ON	ON	YES	RE-22Z	VITAL BUS 3	A
4124A	A	18	LT-FW-484	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3361, RK-1A, 1F	RCBX	738	ANNULUS COL 9	S R		ON	ON	YES	RE-22X	VITAL BUS 1	A
4125A	B	18	LT-FW-485	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3363, RK-1A, 1F	RCBX	738	ANNULUS COL 9	S R		ON	ON	YES	RE-22X	VITAL BUS 2	A
4126A	A	18	LT-FW-486	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3362, RK-1A, 1F	RCBX	718	ANNULUS COL 9	S R		ON	ON	YES	RE-22AA	VITAL BUS 3	A
4127A	A	18	LT-FW-494	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	DWG RK-1B, RK-6D	RCBX	718	ANNULUS COL 5	S R		ON	ON	YES	RE-22Y	VITAL BUS 1	A
4128A	B	18	LT-FW-495	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3364, RK-1B, 1F	RCBX	718	ANNULUS COL 5	S R		ON	ON	YES	RE-22Y	VITAL BUS 2	A
4129A	A	18	LT-FW-496	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3885, RK-1B	RCBX	718	ANNULUS COL 4	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A
1201A	A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
1202A	B	18	LT-QS-100B	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
1203A	A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A
1204A	B	18	LT-QS-100D	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
3124A	A	18	LT-RC-459	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S R		ON	ON	YES	RE-22BH	VITAL BUS 1	A
3125A	B	18	LT-RC-460	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S R		ON	ON	YES	RE-22BJ	VITAL BUS 2	A
3126A	A	18	LT-RC-461	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S R		ON	ON	YES	RE-22BK	VITAL BUS 3	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4101A	A	18	LT-WT-104A1	WT/WT-TK-10 LEVEL TRANSMITTER	ISO 6.24-4016	YARD	735	AT DWST	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4102A	B	18	LT-WT-104A2	WT/WT-TK-10 LEVEL TRANSMITTER	ISO 6.24-4017	YARD	735	AT DWST	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
8118	B	01	MCC-1-14	37/480V MCC FED FROM 480V SUBSTA 1-4 BUS1H BKR4H7	RE-38C, 48D	AXLB	735	SOUTH OF LWFL1B	S		ON	ON	YES	N/A	N/A	A
8018	A	01	MCC-1-E1	EE/480V MOTOR CONTROL CENTER	DWG RE-53A, 37M, 21DB	INTS	705	A CUBICLE	S R		ON	ON	YES	RE-21DB	480V 8N BK 7	A
8027	B	01	MCC-1-E10	EE/480V MOTOR CONTROL CENTER	DWG RE-27B, 38C	SRVB	713	DF SWGR	S R		ON	ON	YES	RE-21DC	480V 9P BK 11	A
8028	A	01	MCC-1-E11	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	W CAB.E VAULT	S R		ON	ON	YES	RE-21DC	480V 9P1 BK 21	A
8029	B	01	MCC-1-E12	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	E CABLE VAULT	S R		ON	ON	YES	RE-21DC	480V 8N BK 15	A
8030	A	01	MCC-1-E13	EE/480V MOTOR CONTROL CENTER	DWG RE-38Q, 42G	SFGB	756	MF, ROOM	S R		ON	ON	YES	RE-21DC	480V 9P BK 15	A
8031	B	01	MCC-1-E14	EE/480V MOTOR CONTROL CENTER	DWG RE-42K	SFGB	735	E CABLE VAULT	S R		ON	ON	YES	N/A	480V BUS 1P	A
8019	B	01	MCC-1-E2	EE/480V MOTOR CONTROL CENTER	DWG RE-53A, 37M, 21DB	INTS	705	B CUBICLE	S R		ON	ON	YES	RE-21DB	480V 9P BK 8	A
8020	A	01	MCC-1-E3	EE/480V MOTOR CONTROL CENTER	DWG RE-21DB, RE-38C, 48C	AXLB	735	COL 8-7/8	S R		ON	ON	YES	RE-21DB	480V 8N BK 8	A
8021	B	01	MCC-1-E4	EE/480V MOTOR CONTROL CENTER	DWG RE-21DB, RE-38C, 48C	AXLB	735	COL 8-7/8	S R		ON	ON	YES	RE-21DB	480V 9P BK 9	A
8022	A	01	MCC-1-E5	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	W CABLE VAULT	S R		ON	ON	YES	RE-21DB	480V 8N BK 6	A
8023	B	01	MCC-1-E6	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	E CABLE VAULT	S R		ON	ON	YES	RE-21DB	480V 9P BK 4	A
8024	A	01	MCC-1-E7	EE/480V MOTOR CONTROL CENTER	DWG RE-58A, RE-21DC	DGBX	735	DIESEL GEN #1	S R		ON	ON	YES	RE-21DC	480V 8N BK 14	A
8025	B	01	MCC-1-E8	EE/480V MOTOR CONTROL CENTER	DWG RE-58A, RE-21DC	DGBX	735	DIESEL GEN #2	S R		ON	ON	YES	RE-21DC	480V 9P BK 7	A
8026	A	01	MCC-1-E9	EE/480V MOTOR CONTROL CENTER	DWG RE-27B, 38C	SRVB	713	AE SWGR	S R		ON	ON	YES	RE-21DC	480V 8N BK 11	A
1208	A	08A	MOV-CH-115B	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E3 BK J	A
1209	B	08A	MOV-CH-115C	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E3 BK K	A
1210	B	08A	MOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	A
1211	B	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E4 BK K	A
1248	B	08A	MOV-CH-350	CH/EMERGENCY BORATION ISOLATION	VTI-6.48-5	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FS	MCC1-E4 BK S	A
3209	A	08A	MOV-CH-378	CH/RCP SEAL LEAKOFF ISOLATION	ISO 6.24-380	RCBX	718	PENT #19	S R	8	OPEN	CLOSED	YES	RE-21FR	MCC1-E5 BK BA	A
3210	B	08A	MOV-CH-381	CH/RCP SEAL LEAKOFF ISOLATION	ISO 6.24-255	SFGB	722	PENT A	S R	8	OPEN	CLOSED	YES	RE-21FR	MCC1-E6 BK AW	A
4109	B	08A	MOV-FW-151A	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK A6	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4110	A	08A	MOV-FW-151B	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 EX A6	A
4111	B	08A	MOV-FW-151C	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK AH	A
4112	A	08A	MOV-FW-151D	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK AH	A
4113	B	08A	MOV-FW-151E	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK AJ	A
4114	A	08A	MOV-FW-151F	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK AJ	A
4214	B	08A	MOV-MS-105	MS/AFW TURBINE STEAM SUPPLY ISOLATION	6.48-95,96	SFGB	735	MSVH	S R		OPEN	CLOSED	YES	RE-21HY, ISO 6.24-625	MCC1-E6 BK BA	A
2104	A	08A	MOV-RC-535	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E5 BK BE	A
2106	B	08A	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BC	A
2108	A	08A	MOV-RC-537	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BD	A
5104	B	08A	MOV-RW-102A1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK D	A
5105	A	08A	MOV-RW-102A2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK G	A
5106	B	08A	MOV-RW-102B1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK D	A
5107	A	08A	MOV-RW-102B2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK G	A
5108	B	08A	MOV-RW-102C1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK H	A
5109	A	08A	MOV-RW-102C2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK H	A
4116	A	08A	MOV-RW-103A	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-128	MCC1-E3 BK B	A
4117	B	08A	MOV-RW-103B	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-128	MCC1-E4 BK B	A
5119	B	08A	MOV-RW-106A	RW/CCR HT EXCH ISOLATION	6.48-51,52	AXLB	722	EAST CENTRAL	S R	18	OPEN	CLOSED	YES	RE-21LA,6.24-68	MCC1-E4 BK P	A
5121	A	08A	MOV-RW-113A	RW/DIESEL GEN COOLING ISO	ISO 6.24-159	DGBX	735	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E3 BK H	A
5122	A	08A	MOV-RW-113B	RW/DIESEL GEN COOLING ISO	ISO 6.24-160	DGBX	735	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E7 BK J	A
5123	B	08A	MOV-RW-113C	RW/DIESEL GEN COOLING ISO	ISO 6.24-159	DGBX	735	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK H	A
5124	B	08A	MOV-RW-113D1	RW/DIESEL GEN COOLING ISO	ISO 6.24-160	DGBX	735	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK J	A
5125	A	08A	MOV-RW-114A	RW/CCR HT EXCH ISOLATION	ISO 6.24-68	AXLB	722	EAST CENTRAL	S R	18	OPEN	CLOSED	YES	RE-21LA	MCC1-E5 BK D	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8016	A	20	NM-NI-31A	02/SOURCE RANGE PREAMPLIFIER	VTI 1,20-052	SFGB	735	W CABLE VAULT	S		N/A	N/A	N/A	N/A	N/A	A
8017	B	20	NM-NI-32A	02/SOURCE RANGE PREAMPLIFIER	VTI 1.20-772	SFGB	735	E CABLE VAULT	S		N/A	N/A	N/A	N/A	N/A	A
8135		20	PCC-FE-1A	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-10A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	N/A	N/A	N/A	A
8136		20	PCC-FE-1B	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-10A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	N/A	N/A	N/A	A
2128	N/A	07	PCV-GN-108	SI/(PCV-RC-455D) NITROGEN PRESSURE CONTROL	DWG RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2129	N/A	07	PCV-GN-109	SI/(PCV-RC-455C) NITROGEN PRESSURE CONTROL	DWG RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2130	N/A	07	PCV-IA-108	IA/(PCV-RC-455D) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	S		OPEN	OPEN	NO	N/A	N/A	A
2131	N/A	07	PCV-IA-109	IA/(PCV-RC-455C) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	S		OPEN	OPEN	NO	N/A	N/A	A
4205	A	07	PCV-MS-101A	MS/A LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4206	B	07	PCV-MS-101B	MS/B LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4207	B	07	PCV-MS-101C	MS/C LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
2105	A	07	PCV-RC-455C	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-2 BK 8-35	A
2109	A	07	PCV-RC-455D	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
2107	B	07	PCV-RC-456	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
5110	A	07	PCV-RW-130A	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3345	INTS	705	A CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3345	N/A	A
5111	B	07	PCV-RW-130B	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3346	INTS	705	B CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3346	N/A	A
5112	A/B	07	PCV-RW-130C	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3347	INTS	705	C CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3347	N/A	A
21108	A	20	PI-RC-402A	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BM	VITAL BUS 3	A
21118	B	20	PI-RC-403	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BM	VITAL BUS 2	A
8034	A	14	PNL-AC-BUS-1E	3B/VITAL BUS DIST PANEL 1E	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8035	B	14	PNL-AC-BUS-1F	3B/VITAL BUS DIST PANEL 1F	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8036	A	14	PNL-AC-E1	3B/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8037	B	14	PNL-AC-E2	3B/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT Building	Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8038	A	14	PNL-AC-E3	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8039	B	14	PNL-AC-E4	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8117	A/B	20	PNL-AMSAC	45B/ANTICIP TRANS W/O SLRAM MITIGATING SYS ACTUAT CIRCT	RE-27C	SRVB	713	PROC RACK	S		ON	ON	YES	8700-1.20-1174 THRU 1177	N/A	A
8040	A	20	PNL-BLDG-SER-A	VS/PLANT VENTILATION CONTROL PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8041	B	20	PNL-BLDG-SER-B	VS/PLANT VENTILATION CONTROL PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8042	B	14	PNL-DC-2	39/125 VOLT DC POWER DISTRIBUTION PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	NO	N/A	N/A	A
8043	A	14	PNL-DC-3	39/125 VOLT DC POWER DISTRIBUTION PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	NO	N/A	N/A	A
8044	A	20	PNL-DG-SEQ-1	36/DG AUTOMATIC SEQUENCE RELAY PANEL 1	DWG RE-27B, 25R	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8045	B	20	PNL-DG-SEQ-2	36/DG AUTOMATIC SEQUENCE RELAY PANEL 2	DWG RE-27B, 25R	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8046	A	20	PNL-DGEA-1	36/DG EXCITATION AUX RELAY PANEL 1	DWG RE-58A	DGBX	735	DIESEL GEN #1	S		ON	ON	YES	N/A	N/A	A
8047	B	20	PNL-DGEA-2	36/DG EXCITATION AUX RELAY PANEL 2	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
5323	A	20	PNL-DIGEN-1	EE/DIESEL GENERATOR #1 CONTROL PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #1	S		ON	ON	YES	N/A	N/A	A
5324	B	20	PNL-DIGEN-2	EE/DIESEL GENERATOR #2 CONTROL PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
8125	A	18	PNL-MS-101A	MS/INSTRUMENT RACK FOR SOV-MS-101A AND SOV-MS-101A4	RKBA	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8126	B	18	PNL-MS-101B	MS/INSTRUMENT RACK FOR SOV-MS-101B AND SOV-MS-101B4	RK-8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8127	B	18	PNL-MS-101C	MS/INSTRUMENT RACK FOR SOV-MS-101C AND SOV-MS-101C4	RK-8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8115	A	20	PNL-PAS-RA	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRVB	713	RELAY ROOM	S		ON	ON	YES	N/A	N/A	A
8116	B	20	PNL-PAS-RB	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRVB	713	RELAY ROOM	S		ON	ON	YES	N/A	N/A	A
8048	A	14	PNL-PR-HTR-A	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JR, 42K	SFGB	735	W CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8049	B	14	PNL-PR-HTR-B	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JR, 42K	SFGB	735	E CABLE VAULT	S		ON	ON	YES	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8050	A	14	PNL-PR-HTR-D	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JS, 42K	SFGB	735	W CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8051	B	14	PNL-PR-HTR-E	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JS, 42K	SFGB	735	E CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8052	A	20	PNL-REL-19	36/DG #1 PROTECTION RELAY PANEL	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8053	A/B	20	PNL-REL-21	36/UNDERFREQUENCY RELAY PANEL REACTOR COOLANT PUMPS	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8054	B	20	PNL-REL-22	36/DG #2 PROTECTION RELAY PANEL	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8055	A	20	PNL-REL-31	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8056	B	20	PNL-REL-32	38/AUX RELAY PANEL	DWG RE-21EA, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8057	A	20	PNL-REL-33	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8058	B	20	PNL-REL-34	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8059	A	20	PNL-REL-35	38/RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8060	B	20	PNL-REL-36	38/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8061	A	20	PNL-REL-37	38/RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8062	B	20	PNL-REL-38	38/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8108	A	20	PNL-REL-40	36/RELAY PANEL 40	RE-27C, 25H	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8109	B	20	PNL-REL-41	36/RELAY PANEL 41	RE-27C, 25H	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8063	B	20	PNL-REL-DG1	36/DG ISOLATION RELAY PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
8064	A	20	PNL-SHUTDN-A	01/EMERGENCY SHUTDOWN PANEL	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8065	B	20	PNL-SHUTDN-B	01/EMERGENCY SHUTDOWN PANEL	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8129	A	18	PNL-SI-02	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8131	B	18	PNL-SI-06	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8066	A	14	PNL-VITBUS-1	38/VITAL BUS DIST PANEL 1	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8067	B	14	PNL-VITBUS-2	38/VITAL BUS DIST PANEL 2	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8068	A	14	PNL-VITBUS-3	38/VIBAL BUS DIST PANEL 3	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8069	B	14	PNL-VITBUS-4	38/VITAL BUS DIST PANEL 4	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
4205E	A	18	PS-MS-101A	MS/ATMOSPHERE STEAM DUMP S.G. 1A	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-3 BK 8-14	A
4206E	B	18	PS-MS-101B	MS/ATMOSPHERE STEAM DUMP S.G. 1B	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-2 BK 8-14	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4207E	B	18	PS-MS-101C	MS/ATMOSPHERE STEAM DUMP S.G. 1C	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-2 TK 8-14	A
2110A	A	18	PT-RC-402	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-1B	RCBX	717	ANNULUS COL 4-5	S	R	ON	ON	YES	RE-22BM	VITAL BUS 3	A
2111A	B	18	PT-RC-403	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-1B, RK-1F	RCBX	692	A CUBICLE	S	R	ON	ON	YES	RE-22BM	VITAL BUS 2	A
8121	A/B	18	QS-RACK-1	QS/RACK FOR RWST HEAT TRACE (EAST SIDE OF RWST)	DWG 1.81-52 SH 3	YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8122	A/B	18	QS-RACK-2	QS/RACK FOR RWST HEAT TRACE (NE SIDE OF RWST)	DWG 1.81-52 SH 2	YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8123	A/B	18	QS-RACK-3	QS/RACK FOR RWST HEAT TRACE (SOUTH SIDE OF RWST)		YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8124	A/B	18	QS-RACK-4	QS/RACK FOR RWST HEAT TRACE (SE SIDE OF RWST)		YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
1207	N/A	21	QS-TK-1	QS/REFUELING WATER STORAGE TANK	DWG RV-24A	YARD	735	YARD	S	R	N/A	N/A	NO	RE-63V	HCC1-E11, E12	A
8070	A/B	02	REAC-TR-SWGR	01/REACTOR TRIP SWITCHGEAR	DWG RE-27B	SRVB	713	ROD M/G ROOM	S		N/A	N/A	N/A	N/A	N/A	A
8071	A	20	RK-AUX-RELA	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8072	B	20	RK-AUX-RELB	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8073	A	20	RK-AUX-RPTST-A	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8074	B	20	RK-AUX-RPTST-B	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8075	A	20	RK-NUC-INS-1	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8076	B	20	RK-NUC-INS-2	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8077	A	20	RK-PRI-PROC-1	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8080	B	20	RK-PRI-PROC-10	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8082	B	20	RK-PRI-PROC-11	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8081	B	20	RK-PRI-PROC-12	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8083	B	20	RK-PRI-PROC-13	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8084	A	20	RK-PRI-PROC-14	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8085	A	20	RK-PRI-PROC-15	04/PLANT PROCESS INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8086	A	20	RK-PRI-PROC-16	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8087	A	20	RK-PRI-PROC-17	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8088	A	20	RK-PRI-PROC-18	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8078	A	20	RK-PRI-PROC-2	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8089	B	20	RK-PRI-PROC-25	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8090	B	20	RK-PRI-PROC-26	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8079	A	20	RK-PRI-PROC-3	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8091	B	20	RK-PRI-PROC-30	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8092	B	20	RK-PRI-PROC-31	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8093	A	20	RK-PRI-PROC-34	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8094	A	20	RK-PRI-PROC-35	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8128	A/B	20	RK-RAD-MON-7	RM/RADIATION MONITOR RACK #7	DWG RE-27A	SRVB	735	CONTROL ROOM	S		ON	ON	YES	N/A	VITAL BUS 1, 2	A
8095	A	20	RK-REAC-PROT-A	01/REACTOR PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8096	B	20	RK-REAC-PROT-B	01/REACTOR PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8097	A	20	RK-REC-P-TST-A	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8098	B	20	RK-REC-P-TST-B	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8099	A	20	RK-SEC-PROC-A	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8100	B	20	RK-SEC-PROC-B	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8101	A	20	RK-SEC-PROC-C	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8102	B	20	RK-SEC-PROC-D	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8102A	A	20	RK-VS-AC-1A	44A/CONTROL ROOM TEMP CONTROL AIR COMPRESSOR RACK	RE-47H, 25HN	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
8102B	B	20	RK-VS-AC-1B	44A/CONTROL ROOM AIR HANDLING UNIT SUPPLY FANS RACK	RE-47H, 25HN	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
8102C	A/B	20	RK-VS-E567	VS/CONTROL ROOM HEATERS VS-E-5, 6 & 7 RACK	RE-47H	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
8102D	A/B	20	RK-VS-E8-12	VS/RACK FOR VS-E-8-1 & 8-2	RE-47H	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
3216	N/A	07	RV-CH-382A	CH/SEAL RTRN HDR RELIEF VALVE	ISO 6.24-1548	RCBX	718	ANNULUS COL 5	S		CLOSED	CLOSED	NO	N/A	N/A	A
5311C	A	07	RV-EE-201A	EE/3A AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5312C	A	07	RV-EE-201B	EE/3B AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5313C	A	07	RV-EE-201C	EE/3C AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5314C	A	07	RV-EE-202A	EE/3D AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5315C	A	07	RV-EE-202B	EE/3E AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5316C	A	07	RV-EE-202C	EE/3F AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5317C	B	07	RV-EE-203A	EE/4A AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5318C	B	07	RV-EE-203B	EE/4B AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5319C	B	07	RV-EE-203C	EE/4C AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5320C	B	07	RV-EE-204A	EE/4D AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5321C	B	07	RV-EE-204B	EE/4E AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5322C	B	07	RV-EE-204C	EE/4F AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
2101	N/A	07	RV-RC-551A	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
2102	N/A	07	RV-RC-551B	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
2103	N/A	07	RV-RC-551C	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
1206C	N/A	08B	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	RX-3A	AXLB	722	BLENDER CUB	S	R	ENERG	ENERG	YES	RE-21FT	PNL-DC-3 BK 8-23	A
3206C	A	08B	SOV-CH-200A	CH/(TV-1CH-200A) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S	R	ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3206D	A	08B	SOV-CH-200A1	CH/(TV-1CH-200A) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S	R	ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A
3207C	A	08B	SOV-CH-200B	CH/(TV-1CH-200B) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S	R	ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3207D	A	08B	SOV-CH-200B1	CH/(TV-1CH-200B) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S	R	ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3208C	A	088	SOV-CH-200C	CH/(TV-1CH-200C) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3208D	A	088	SOV-CH-200C1	CH/(TV-1CH-200C) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A
4205C	A	088	SOV-MS-101A	MS/(PCV-1MS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-3 BK 8-14	A
4205D	A	088	SOV-MS-101A4	MS/(PCV-1MS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-3 BK 8-23	A
4206C	B	088	SOV-MS-101B	MS/(PCV-1MS-101B) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-14	A
4206D	B	088	SOV-MS-101B4	MS/(PCV-1MS-101B) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-23	A
4207C	B	088	SOV-MS-101C	MS/(PCV-1MS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-14	A
4207D	B	088	SOV-MS-101C4	MS/(PCV-1MS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-23	A
4211C	A	088	SOV-MS-112A1	MS/(TV-1MS-101A) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-6	A
4211D	B	088	SOV-MS-112A2	MS/(TV-1MS-101A) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-6	A
4212C	A	088	SOV-MS-112B1	MS/(TV-1MS-101B) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
4212D	B	088	SOV-MS-112B2	MS/(TV-1MS-101B) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
4213C	A	088	SOV-MS-112C1	MS/(TV-1MS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-22	A
4213D	B	088	SOV-MS-112C2	MS/(TV-1MS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-22	A
2122	B	088	SOV-RC-455C1	SI/(PCV-RC-455C) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2123	B	088	SOV-RC-455C2	SI(PCV-RC-455C) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2124	A	088	SOV-RC-455D1	SI/(PCV-RC-455D) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2125	A	088	SOV-RC-455D2	SI(PCV-RC-455D) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2126	A	088	SOV-RC-456-1	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2127	A	088	SOV-RC-456-2	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
5339	A	20	SSW-VITBUS-1	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-27B, 21EB, 38D	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-181	MCC1-E13	A
5340	B	20	SSW-VITBUS-2	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 38D	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-181	MCC1-E14	A
5341	A	20	SSW-VITBUS-3	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-27B, 21EB, 38D	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-181	MCC1-E13	A
5342	B	20	SSW-VITBUS-4	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 38D	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-181	MCC1-E14	A
8303	A	03	SW-1-8N1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-27B	SRVB	713	AE SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8104	B	03	SW-1-9P1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-27B	SRVB	713	DF SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A
8119	A	20	TB-348A	VS/TERM BOX W/RELAY LOC NR TB-348	DWG RE-25AW	AXLB	768	COL G1/8&11-1/2	S		ON	ON	YES	RE-21MS	PNL-AC-E1	A
8120	B	20	TB-349A	VS/TERM BOX W/RELAY LOC NR TB-349	DWG RE-25AW	AXLB	768	COL G1/8&11-1/2	S		ON	ON	YES	RE-21MS	PNL-AC-E2	A
4203C	B	20	TR-RC-410	RC/REACTOR COOLANT COLD LEG 3 PEN RECORDER		SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4203D	A	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER		SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22BN	VITAL BUS 1	A
8105	A	04	TRANS-1-8-N1	37/480V AUX EMERG BUS 1N1	DWG RE-27B	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
5333	A	04	TRANS-1-8N	37/480V EMERG BUS 1N TRANS-1-8N	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	4KV BUS AE	A
8106	B	04	TRANS-1-9-P1	37/480V AUX EMERG BUS 1P1	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
5334	B	04	TRANS-1-9P	37/480V EMERG BUS 1P TRANS-1-9P	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	4KV BUS DF	A
4201B	B	19	TRB-RC-410	RC/LOOP 1A COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	A CUBICLE	S	R 19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4201A	A	19	TRB-RC-413	RC/LOOP 1A HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	A CUBICLE	S	R 19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
4202B	B	19	TRB-RC-420	RC/LOOP 1B COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	B CUBICLE	S	R 19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4202A	A	19	TRB-RC-423	RC/LOOP 1B HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	B CUBICLE	S	R 19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
4203B	B	19	TRB-RC-430	RC/LOOP 1C COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	C CUBICLE	S	R 19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4203A	A	19	TRB-RC-433	RC/LOOP 1C HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	C CUBICLE	S	R 19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
8130	A	04	TRF-SI-02	45/SAFETY INJECTION HEAT TRACE PNL-SI-02	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8132	B	04	TRF-SI-06	45/SAFETY INJECTION HEAT TRACE PNL-SI-06	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
5201C	A	18	TS-HV-55A	VS/TEMP SWITCH FOR VS-F-55A	DWG RB-17G	SRVB	713	AE SWGR	S		ENERG	ENERG	YES	RE-21MZ		A
5202C	B	18	TS-HV-55B	VS/TEMP SWITCH FOR VS-F-55B	DWG RB-17G	SRVB	713	AE SWGR	S		ENERG	ENERG	YES	RE-21MZ		A
3206	A	07	TV-CH-200A	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/B,07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
3207	A	07	TV-CH-200B	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/B,07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	SQRT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3208	A	07	TV-CH-200C	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/8.07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
4211	A/B	07	TV-MS-101A	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) 8-6	A
4212	A/B	07	TV-MS-101B	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) 8-6	A
4213	A/B	07	TV-MS-101C	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) 8-6	A
4215	A	07	TV-MS-111A	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
4216	A	07	TV-MS 111B	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
4217	A	07	TV-MS-111C	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
1240	A	08B	TV-SS-105A1	RC/HOTLEG SAMPLE HDR INSIDE CNMT ISOL TRIP VALVE	ISO 6.24-3402, RP-18A	RCBX	718	PENT	S R		OPEN	OPEN	YES	RE-21XH	PNL-DC-3 BK 8-59	A
1241	B	08B	TV-SS-105A2	RC/HOTLEG SAMPLE HDR OUTSIDE CNMT ISOL TRIP VALVE	VTI 7.067-0133,0261	SFGB	722	PENT A	S R		OPEN	OPEN	YES	RE-21XJ, ISO 6.24-3401,3754, RP-18A	PNL-DC-2 BK 8-59	A
1239	B	08B	TV-SS-106D	SS/1B RCS HOTLEG RV SIDE OF LOOP STOP SAMPLE ISOLATION	ISO 6.24-3402, RP-18A	RCBX	738	B RCP CUBICLE	S R		CLOSED	OPEN	YES	RE-21XS	PN AC-10 BK10 20	A
8107	A/B	20	VERTBD	01/MAIN INSTRUMENTATION DISPLAY PANEL	DWG RE-27A, 38A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
5235	A	10	VS-AC-1A	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MK	480V BUS 1N BK N	A
5236	B	10	VS-AC-1B	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MK	480V BUS 1P BK P	A
5242	A/B	0	VS-AD-10	VS/VS-F-40B DISCHARGE DAMPER	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5252	A/B	0	VS-AD-3	VS/VS-AC-1A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5253	A/B	0	VS-AD-4	VS/VS-AC-1B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5254	A/B	0	VS-AD-5	VS/VS-AC-1A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5255	A/B	0	VS-AD-6	VS/VS-AC-1B DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5239	A/B	0	VS-AD-7	VS/VS-F-40A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5240	A/B	0	VS-AD-8	VS/VS-F-40B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5241	A/B	0	VS-AD-9	VS/VS-F-40A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5256	A/B	0	VS-AFD-1	VS/ZONE 5 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5265	A/B	0	VS-AFD-10	VS/ZONE 5 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5266	A/B	0	VS-AFD-11	VS/ZONE 4 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5267	A/B	0	VS-AFD-12	VS/ZONE 1 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5268	A/B	0	VS-AFD-13	VS/ZONE 2 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5269	A/B	0	VS-AFD-14	VS/ZONE 3 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5270	A/B	0	VS-AFD-15	VS/ZONE 5 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5257	A/B	0	VS-AFD-2	VS/ZONE 4 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5258	A/B	0	VS-AFD-3	VS/ZONE 1 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5259	A/B	0	VS-AFD-4	VS/ZONE 2 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5260	A/B	0	VS-AFD-5	VS/ZONE 3 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5261	A/B	0	VS-AFD-6	VS/ZONE 3 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5262	A/B	0	VS-AFD-7	VS/ZONE 2 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5263	A/B	0	VS-AFD-8	VS/ZONE 1 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5264	A/B	0	VS-AFD-9	VS/ZONE 4 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5271	A	12	VS-C-1A	VS/TEMP CONT AIR COMP	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		OFF	ON	YES	RE-21MS	AC-PNL-E3 BK 5	A
5273	A	10	VS-C-1A1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		N/A	N/A	N/A	RE-21MS	AC-PNL-E3 BK 5	A
5272	B	12	VS-C-1B	VS/TEMP CONT AIR COMP	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		OFF	ON	YES	RE-21MS	AC-PNL-E4 BK 5	A
5274	B	10	VS-C-1B1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		N/A	N/A	N/A	RE-21MS	AC-PNL-E4 BK 5	A
5205	A	0	VS-D-16A	VS/EMERG SWITCHGEAR EXHAUST DAMPER	DWG RB-17L	SRVB	725	CABLE MEZZ	S R		OPEN	OPEN	NO	RE-21MZ	MCC1-E9 BK AF	A
5206	B	0	VS-D-16B	VS/EMERG SWITCHGEAR EXHAUST DAMPER	DWG RB-17L	SRVB	725	CABLE MEZZ	S R		CLOSED	OPEN	YES	RE-21MZ	MCC1-E10 BK AC	A
5327	A	0	VS-D-22-1A	VS/DG BLDG EXHAUST DAMPER	VTI 10.1-1073,RB-27A	DGBX	756	DG#1 ROOF	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5328	B	0	VS-D-22-1B	VS/DG BLDG EXHAUST DAMPER	VTI 10.1-1073,RB-27A	DGBX	756	DG#2 ROOF	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5329	A	0	VS-D-22-2A	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5330	B	0	VS-D-22-2B	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5331	A	0	VS-D-22-2C	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5332	B	0	VS-D-22-2D	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5224	A	0	VS-D-4-12A	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	RB-5L&5P SECT 24-24	SFGB	735	VS-AC-7 RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E3 BK 7	A
5225	B	0	VS-D-4-12B	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	RB-5L&5P SECT 24-24	SFGB	735	VS-AC-7 RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	A
5226	A	0	VS-D-4-15A	VS/AUX FEED PUMP RM EXHAUST DAMPER	RB-5L&5P SECT 24-24	SFGB	735	AUX FD PUMP RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E1 BK 7	A
5227	B	0	VS-D-4-15B	VS/AUX FEED PUMP RM EXHAUST DAMPER	RB-5L&5P SECT 24-24	SFGB	735	AUX FD PUMP RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	A
5214	A	0	VS-D-4-7A	VS/LEAK COLL EXHAUST FAN 4A SUCTION ISOLATION DAMPER	RB-8G (G 1/2-11)	AXLB	768	AT FAN	S R		CLOSED	OPEN	YES	RE-21MS	N/A	A
5215	B	0	VS-D-4-7B	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	RB-8G (G 1/2-11)	AXLB	768	NORTH WALL	S		CLOSED	OPEN	NO	RE-21MS	N/A	A
5216	A	0	VS-D-4-8A	VS/LEAK COLL EXHAUST FAN 4B SUCTION ISOLATION DAMPER	RB-8G (G 1/2-12)	AXLB	768	AT FAN	S R		CLOSED	OPEN	YES	RE-21MS	N/A	A
5217	B	0	VS-D-4-8B	VS/LEAK COLL EXHAUST FAN 4B DISCHARGE BACKFLOW DAMPER	RB-8G (G 1/2-12)	AXLB	768	NORTH WALL	S		CLOSED	OPEN	NO	RE-21MS	N/A	A
5243	A/B	08A	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK U	A
5244	A/B	08A	VS-D-40-1B	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK J	A
5245	A/B	08A	VS-D-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK V	A
5246	A/B	08A	VS-D-40-1D	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK K	A
5247	A/B	0	VS-D-40-1F	VS/MIN OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5248	A/B	0	VS-D-40-1G	VS/MAX OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5249	A/B	0	VS-D-40-1H	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5250	A/B	0	VS-D-40-1K	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5251	A/B	0	VS-D-40-1M	VS/VS-F-40A & B EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5101D	A	0	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK B	A
5101E	A	0	VS-D-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	Rd-2E RB-26A & C	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK B	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5102D	B	0	VS-D-57B1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E2 BK B	A
5102E	B	0	VS-D-57B2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E2 BK B	A
5103D	A/B	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 BK E	A
5103E	A/B	0	VS-D-57C2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 BK E	A
5277	A	10	VS-E-14A	VS/RIVER WATER COOLING COILS	VTI 10.1-45	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
5278	B	10	VS-E-14B	VS/RIVER WATER COOLING COILS	VTI 10.1-45	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
5203	A	09	VS-F-16A	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	ON	ON	YES	RE-21MZ	MCC1-E9 BK AF	A
5204	B	09	VS-F-16B	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK AC	A
5325	A	09	VS-F-22A	VS/DG BLDG EXHAUST FAN	RB-27A, VTI 10.1-242	DGBX	756	DG#1 ROOF	S R		OFF	ON	YES	RE-21MP	MCC1-E7 BK E	A
5326	B	09	VS-F-22B	VS/DG BLDG EXHAUST FAN	RB-27A, VTI 10.1-242	DGBX	756	DG#2 ROOF	S R		OFF	ON	YES	RE-21MP	MCC1-E8 BK E	A
5237	A	09	VS-F-40A	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E9 BK C	A
5238	B	09	VS-F-40B	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E10 BK C	A
5222	A	09	VS-F-4A	VS/LEAK COLLECTION EXHAUST FAN	DWG RM-2B, VTI 10.001-153	AXLB	768	NE CORNER	S R		ON	ON	YES	RE-21MS	480V BUS IN BK5	A
5223	B	09	VS-F-4B	VS/LEAK COLLECTION EXHAUST FAN	DWG RM-2B, VTI 10.001-153	AXLB	768	NE CORNER	S R		OFF	ON	YES	RE-21MS	480V BUS 1P BK6	A
5201	A	09	VS-F-55A	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E9 BK P	A
5202	B	09	VS-F-55B	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK X	A
5101C	A	09	VS-F-57A	VS/INTAKE STRUCTURE CUBICLE #1 SUPPLY FAN	RB-2E	INTS	705	A CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E1 BK B	A
5102C	B	09	VS-F-57B	VS/INTAKE STRUCTURE CUBICLE #2 SUPPLY FAN	RB-2E	INTS	705	B CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E2 BK B	A
5103C	A/B	09	VS-F-57C	VS/INTAKE STRUCTURE CUBICLE #3 SUPPLY FAN	RB-2E	INTS	705	C CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E1/2 BK E	A
5101	A	06	WR-P-1A	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	A CUBICLE	S R		ON	ON	YES	RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1AE BK E10	A

BEAVER VALLEY POWER STATION UNIT 1
SEISMIC REVIEW
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5102	B	06	WR-P-1B	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	B CUBICLE	S R		OFF	ON	YES	RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1OF BK F10	A
5103	A/B	06	WR-P-1C	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	C CUBICLE	S R		OFF	ON	YES	RE-21KX,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1AE OR 1DF B	A
4106	N/A	21	WT-TK-10	WT/DEMIN WATER STORAGE TANK	DWG RV-34A,RP-6C	YARD	735	YARD	S		N/A	N/A	NO		N/A	A

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APPENDIX 4.3-3

Alphabetical Listing of SSEL Components by EIN

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8001	A	02	480VUS-1-8-N	37/1N 480V SUBSTATION 480VUS-1-8-N	DWG RE-27B, 38B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	4KV BUS AE	A
8002	A	02	480VUS-1-8-N1	37/480 VOLT AC EMERGENCY SWGR	DWG RE-27B	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8003	B	02	480VUS-1-9-P	37/1P 480V SUBSTATION 480VUS-1-9-P	DWG RE-27B, 38B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	4KV BUS DF	A
8004	B	02	480VUS-1-9-P1	37/480 VOLT AC EMERGENCY SWGR	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8005	A	03	4KVS-1AE	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	DWG RE-27B, 21U, 38B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8006	B	03	4KVS-1DF	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	DWG RE-21Z, 27B, 38B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
1101	A	02	52-RTA	01/REACTOR TRIP BREAKER 'A'	DWG RE-27B	SRVB	713	ROD M/G	R	1	CLOSED	OPEN	NO	RE-21TZ	DC-SWBD-1 BK 8-7	A
1102	B	02	52-RTB	01/REACTOR TRIP BREAKER 'B'	DWG RE-27B	SRVB	713	ROD M/G	R	1	CLOSED	OPEN	NO	RE-21TZ	DC-SWBD-2 BK 8-7	A
5347	A	15	BAT-1	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	AE SWGR	S		CHARGED	YES	YES	RE-1Z	N/A	A
5348	B	15	BAT-2	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	DF SWGR	S		CHARGED	YES	YES	RE-1Z	N/A	A
5349	A	15	BAT-3	39/125 VOLT DC STATIONARY BATTERY	DWG RE-27B	SRVB	713	AE SWGR	S		CHARGED	YES	YES	RE-1V	N/A	A
5350	B	15	BAT-4	39/125 VOLT DC STATIONARY BATTERY	DWG RE-21EA, 27B	SRVB	713	DF SWGR	S		CHARGED	YES	YES	RE-1V	N/A	A
8007	A	02	BAT-BKR-1	39/MAIN DC BUS #1 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	AE SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8008	B	02	BAT-BKR-2	39/MAIN DC BUS #2 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	DF SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8009	A	02	BAT-BKR-3	39/MAIN DC BUS #3 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	AE SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
8010	B	02	BAT-BKR-4	39/MAIN DC BUS #4 BATTERY CIRCUIT BREAKER	DWG RE-27B	SRVB	713	DF SWGR	S	R	CLOSED	CLOSED	NO	RE-21DJ	N/A	A
5343	A	16	BAT-CHG-1	39/BATTERY CHARGER #1	DWG RE-27B	SRVB	713	AE SWGR	S	R 14	ON	ON	YES	RE-1Z	MCC1-E9	A
5344	B	16	BAT-CHG-2	39/BATTERY CHARGER #2	DWG RE-1V, 27B	SRVB	713	DF SWGR	S	R 14	ON	ON	YES	RE-1Z	MCC1-E10	A
5345	A	16	BAT-CHG-3	39/BATTERY CHARGER #3	DWG RE-27B	SRVB	713	AE SWGR	S	R 14	ON	ON	YES	RE-1V	MCC1-E9	A
5346	B	16	BAT-CHG-4	39/BATTERY CHARGER #4	DWG RE-1V, 27B	SRVB	713	DF SWGR	S	R 14	ON	ON	YES	RE-1V	MCC1-E10	A
8011	A/B	20	BNCHBD	38/CONTROL ROOM MAIN CONTROL BOARD	DWG RE-27A, 38A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
5116	N/A	21	CC-E-1A	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
5117	N/A	21	CC-E-1B	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5118	N/A	21	CC-E-1C	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	S		N/A	N/A	NO	ISO 6.24-68,RM-2A	N/A	A
1221	N/A	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	ISO 6.24-256 RM-2A RP-10C	AXLB	722	LETDOWN CUBICLE	S	4	N/A	N/A	NO	N/A	N/A	A
5113	N/A	21	CH-E-7A	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1A CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
5114	N/A	21	CH-E-7B	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1B CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
5115	N/A	21	CH-E-7C	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-1C CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
1212	A	09	CH-P-1A	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1A CUBICLE	S	R	RUN	RUN	YES	RE-21FN	BUS AE BK E11	A
2213	B	05	CH-P-1B	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1B CUBICLE	S	R	OFF	OFF	YES	RE-21FN	BUS DF BK F11	A
1214	A/B	05	CH-P-1C	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1C CUBICLE	S	R	OFF	OFF	YES	RE-21FP	BUS AE/DF BK E15	A
1246	A	05	CH-P-2A	CH/BORIC ACID TRANSFER PUMP	VTI 2.32-001	AXLB	752	BA PUMP CUBICLE	S	R	OFF	ON	YES	RE-21FQ	MCC1-E11 BK B	A
1247	B	05	CH-P-2B	CH/BORIC ACID TRANSFER PUMP	VTI 2.32-001	AXLB	752	BA PUMP CUBICLE	S	R	OFF	ON	YES	RE-21FQ	MCC1-E12 BK B	A
1244	N/A	21	CH-TK-1A	CH/BORIC ACID TANK	RM-2B, VTI 3.47-010	AXLB	752	BA TANK CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
1245	N/A	21	CH-TK-1B	CH/BORIC ACID TANK	RM-2B, VTI 3.47-010	AXLB	752	BA TANK CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
8012	A	14	DC-SWBD-1	39/125 VDC SWITCHBOARD NO 1	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8013	B	14	DC-SWBD-2	39/125 VDC SWITCHBOARD NO 2	DWG RE-1V, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8014	A	14	DC-SWBD-3	39/125 VDC SWITCHBOARD NO 3	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8015	B	14	DC-SWBD-4	39/125 VDC SWITCHBOARD NO 4	DWG RE-1V, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
4108E	A/B	088	DV-FP-12	FP/AUX FEED WATER PUMP DELUGE VLV	RB-16C	SFGB	722	NE		R	CLOSED	CLOSED	NO	10.1-474	PNL-DC-4	A
5231C	A/B	089	DV-FP-8	FP/UPPER CHARCOAL VENT FILTER DELUGE VALVE	RB-16C	STOR	735	LUNCH ROOM		R	CLOSED	CLOSED	NO	RE-21GW	PNL-DC-4	A
5133C	A/B	088	DV-FP-9	FP/LOWER CHARCOAL VENT FILTER DELUGE VALVE	RB-16C	STOR	735	LUNCH ROOM		R	CLOSED	CLOSED	NO	RE-21GV	PNL-DC-4	A
5300C	A	12	EE-C-1A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN #1	S	R	ON	ON	YES	RE-21BX	MCC1-E7 BK N	A
5300E	B	12	EE-C-1B	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN #2	S	R	ON	ON	YES	RE-21BX	MCC1-E7 BK T	A
5300D	A	12	EE-C-2A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN #1	S	R	ON	ON	YES	RE-21BX	MCC1-E8 BK N	A
5300F	B	12	EE-C-2B	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN #2	S	R	ON	ON	YES	RE-21BX	MCC1-E8 BK T	A
5129	N/A	21	EE-E-1A	EE/DIESEL GEN COOLING HT EXCH	ISO 6.24-159, RM-10A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5130	N/A	21	EE-E-1B	EE/DIESEL GEN COOLING HT EXCH	ISO 6.24-160, RM-10A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
5301	A	17	EE-EG-1	EE/B1 DIESEL GENERATOR	DWG RM-10A	DGBX	735	DIESEL GEN B1	S R		OFF	ON	YES	N/A	N/A	A
5302	B	17	EE-EG-2	EE/B2 DIESEL GENERATOR	DWG RM-10A	DGBX	735	DIESEL GEN B2	S R		OFF	ON	YES	N/A	N/A	A
5303	A	05	EE-P-1A	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN B2	S R		OFF	ON	YES	RE-21BX	MCC1-E7 BK Q	A
5304	A	05	EE-P-1B	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN B2	S R		OFF	ON	YES	RE-21BX	MCC1-E7 BK R	A
5305	B	05	EE-P-1C	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN B1	S R		OFF	ON	YES	RE-21BX	MCC1-E8 BK Q	A
5306	B	05	EE-P-1D	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN B1	S R		OFF	ON	YES	RE-21BX	MCC1-E8 BK R	A
5307	A	21	EE-TK-1A	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	724	YARD	S		N/A	N/A	NO	N/A	N/A	A
5308	B	21	EE-TK-1B	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	724	YARD	S		N/A	N/A	NO	N/A	N/A	A
5309	A	21	EE-TK-2A	EE/EDG FUEL OIL DAY TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B1	S		N/A	N/A	NO	N/A	N/A	A
5310	B	21	EE-TK-2B	EE/EDG FUEL OIL DAY TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
5311	A	21	EE-TK-3A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B1	S		N/A	N/A	NO	N/A	N/A	A
5312	A	21	EE-TK-3B	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B1	S		N/A	N/A	NO	N/A	N/A	A
5313	A	21	EE-TK-3C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B1	S		N/A	N/A	NO	N/A	N/A	A
5314	A	21	EE-TK-3D	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B1	S		N/A	N/A	NO	N/A	N/A	A
5315	A	21	EE-TK-3E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B1	S		N/A	N/A	NO	N/A	N/A	A
5316	A	21	EE-TK-3F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B1	S		N/A	N/A	NO	N/A	N/A	A
5317	B	21	EE-TK-4A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
5318	B	21	EE-TK-4B	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
5319	B	21	EE-TK-4C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
5320	B	21	EE-TK-4D	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
5321	B	21	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
5322	B	21	EE-TK-4F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN B2	S		N/A	N/A	NO	N/A	N/A	A
1206	N/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	ISO 6.24-268	AXLB	722	BLENDER	S	2	OPEN	CLOSED	YES	RE-22L	VITBUS II/III BK	A
1224	A	07	FCV-CH-160	CH/CHARGING FILL HEADER FLOW CONTROL VALVE	ISO 6.24-273	SFGB	722	PENG A	R	1b	CLOSED	CLOSED	NO	RE-22P	VITAL BUS 2	A
4107C	A	07	FCV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	ISO 6.24-774	SFGB	735	AUX FEED PUMP	S R		CLOSED	OPEN	YES	RE-21HD	PNL-DC-3 BK 8-53	A
4108C	B	07	FCV-FW-103B	FW/3B AFW PUMP RECIRCULATION VALVE	ISO 6.24-774	SFGB	735	AUX FEED PUMP	S R		CLOSED	OPEN	YES	RE-21HE	PNL-DC-3 BK 8-53	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2118	A	07	FCV-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2119	A	07	FCV-RC-455C2	RC/(PCV-RC-455C) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2120	B	07	FCV-RC-455D1	RC/(PCV-RC-455D) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2121	B	07	FCV-RC-455D2	RC/(PCV-RC-455D) FLOW METERING	ISO 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
8133		20	FE-CDL-1A	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM WEST	DWG RM-10A	DGBX	735	DIESEL GEN #1	S	R	CLOSED	CLOSED	NO	RE-21GX	PNL-DC-3 BK 8-3	A
8134		20	FE-CDL-1B	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM EAST	DWG RM-10A	DGBX	735	DIESEL GEN #2	S	R	CLOSED	CLOSED	NO	RE-21GX	PNL-DC-2 BK 8-3	A
1205B	A	20	FI-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VTI 1.12-75	SRVB	735	CONT RM BB-A	S	R	ON	ON	YES	RE-22L	VITAL BUS 2	A
2228B	A	20	FI-CH-124	CH/RCP-1C SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2229B	B	20	FI-CH-127	CH/RCP-1B SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
2230B	A	20	FI-CH-130	CH/RCP-1A SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	S	R	ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
3212B	B	20	FI-CH-150	CH/LETDOWN FLOW INDICATION	VTI 1.12-75	SRVB	735	CONT RM BB-A	S	R	ON	ON	YES	RE-22J	VITAL BUS 2	A
4103B	A	20	FI-FW-100A	FW/AUX FEED TO SGA INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S	R	ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4104B	B	20	FI-FW-100B	FW/AUX FEED TO SGB INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S	R	ON	ON	YES	RE-22DZ	VITAL BUS 4	A
4105B	A	20	FI-FW-100C	FW/AUX FEED TO SGC INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S	R	ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4107D	A	18	FIS-FW-151A	FW/AUX FW PUMP FW-P-3A SUCTION LINE FROM WT-TK-10 FIS	ISO 6.24-3831, 3833	SFGB	722	COLUMN C4	S		ENERG	ENERG	YES	RE-21HD	PNL-DC-3 BK 8-53	A
4108D	B	18	FIS-FW-151B	FW/AUX FW PUMP FW-P-3B SUCTION LINE FROM WT-TK-10 FIS	ISO 6.24-3832	SFGB	722	COLUMN C4	S		ENERG	ENERG	YES	RE-21HE	PNL-DC-3 BK 8-53	A
4118	N/A	20	FR-MS-478	FW/RC-E-1A LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S	R	ON	ON	YES	RE-22Z	VITAL BUS 2	A
4119	N/A	20	FR-MS-488	FW/RC-E-1B LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S	R	ON	ON	YES	RE-22AA	VITAL BUS 2	A
4120	N/A	20	FR-MS-498	FW/RC-E-1C LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB-C	S	R	ON	ON	YES	RE-22AB	VITAL BUS 3	A
1205A	A	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	ISO 6.24-268 & 3875	AXLB	722	COL 10-1/4 & J	S	R	ON	ON	YES	RE-22L	VITAL BUS 2	A
2228A	A	18	FT-CH-124	CH/RCP-1C SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3952, RK-3E	SFGB	722	PENT A	S	R	ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2229A	B	18	FT-CH-127	CH/RCP-1B SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3953, RK-3E	SFGB	722	PENT A	S	R	ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. ST. Normal	OP. ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2230A	A	18	FT-CH-130	CH/RCP-1A SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3630, RK-3E	SFGB	722	PENT A	S R		ON	ON	YES	RE-22G	PRI-PROC G VB1	A
3212A	B	18	FT-CH-150	CH/LETDOWN FLOW TRANSMITTER	VTI 7.050-0010	AXLB	722	COL 11-1/2 & G	S R		ON	ON	YES	RE-22J,DWG RK-3A	VITAL BUS 2	A
4103A	A	18	FT FW-100A	FW/AUX FEED TO SGA TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4104A	B	18	FT-FW-100B	FW/AUX FEED TO SGB TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 4	A
4105A	A	18	FT-FW-100C	FW/AUX FEED TO SGC TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	S R		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
4107	A	05	FW-P-3A	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	VTI 2.40-11,12	SFGB	735	AUX FEED PUMP	S R		OFF	ON	YES	RC-21C,M,RE-21H E,RM-18,6.24-64	BUS AE BK E16	A
4108	B	05	FW-P-3B	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	VTI 2.40-11,12	SFGB	735	AUX FEED PUMP	S R		OFF	ON	YES	RC-21C,M,RE-21H E,RM-18,6.24-64	BUS DF BK F16	A
2132	N/A	21	GN-TK-1A	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
2133	N/A	21	GN-TK-1B	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	S		N/A	N/A	NO	N/A	N/A	A
1229	B	07	HCV-CH-186	CH/RCP SEAL SUPPLY, HAND CONT	VTI-07.86-7	AXLB	722	BLENDER ROOM	S R		THROT	OPEN	NO	RE-22G	VITAL BUS 2	A
1233	A	07	HCV-CH-389	CH/EXCESS LETDOWN DRAIN DIVERT VALVE	VTI-07.88-9	RCBX	707	EXC LETD PLATF	S R	7	OPEN	OPEN	NO	RE-21FU	PNL-DC-3 BK 8-18	A
4204	A	07	HCV-MS-104	MS/RESIDUAL HEAT RELEASE	ISO 6.24-6	SFGB	752	MSVH	S R	10	CLOSED	OPEN	YES	RE-22DR	VITBUS 1 BK 1-7	A
5335	A	16	INV-VITBUS-1	UPS/VITAL BUS #1 INVERTER	DWG RE-27B	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-111	MCC1-E9	A
5336	B	16	INV-VITBUS-2	UPS/VITAL BUS #2 INVERTER	DWG RE-27B	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-111	MCC1-E10	A
5337	A	16	INV-VITBUS-3	UPS/VITAL BUS #3 INVERTER	DWG RE-27B	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-111	MCC1-E9	A
5338	B	16	INV-VITBUS-4	UPS/VITAL BUS #4 INVERTER	DWG RE-27B	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-196	MCC1-E10	A
3204	A	07	LCV-CH-460A	CH/LETDOWN ISOLATION VALVE	ISO 6.24-242	RCBX	718	A CUBICLE	S R	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-18	A
3205	B	07	LCV-CH-460B	CH/LETDOWN ISOLATION VALVE	ISO 6.24-242	RCBX	718	A CUBICLE	S R	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-18	A
4121B	A	20	LI-FW-474	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A
4122B	B	20	LI-FW-475	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 2	A
4123B	A	20	LI-FW-476	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Z	VITAL BUS 3	A
4124B	A	20	LI-FW-484	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22X	VITAL BUS 1	A
4125B	B	20	LI-FW-485	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22X	VITAL BUS 2	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4126B	A	20	LI-FW-486	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22AA	VITAL BUS 3	A
4127B	A	20	LI-FW-494	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Y	VITAL BUS 1	A
4128B	B	20	LI-FW-495	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22Y	VITAL BUS 2	A
4129B	A	20	LI-FW-496	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A
1201B	A	20	LI-QS-100A	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
1202B	B	20	LI-QS-100B	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
1203B	A	20	LI-QS-100C	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A
3124B	A	20	LI-RC-459A	RC/PZR LEVEL INDICATOR	VTI 7.70-0002, RK-3A	SRVB	735	CONT RM BB-B	S R		ON	ON	YES	RE-22BH	VITAL BUS 1	A
3125B	B	20	LI-RC-460	RC/PZR LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM BB-B	S R		ON	ON	YES	RE-22BJ	VITAL BUS 2	A
3126B	A	20	LI-RC-461	RC/PZR LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM BB-B	S R		ON	ON	YES	RE-22BK	VITAL BUS 3	A
4101B	A	20	LI-WT-104A1	WT/WT-TK-10 LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4102B	B	20	LI-WT-104A2	WT/WT-TK-10 LEVEL INDICATOR	VTI 7.70-0002	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
1204B	B	20	LR-QS-100	QS/RWST LEVEL RECORDER	VTI 7.70-0005	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
4121A	A	18	LT-FW-474	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3394, RK-1B	RCBX	718	ANNULUS COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A
4122A	B	18	LT-FW-475	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3394, RK-1B	RCBX	718	ANNULUS COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 2	A
4123A	A	18	LT-FW-476	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3885, RK-1B	RCBX	718	ANNULUS COL 15	S R		ON	ON	YES	RE-22Z	VITAL BUS 3	A
4124A	A	18	LT-FW-484	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3361, RK-1A, 1F	RCBX	738	ANNULUS COL 9	S R		ON	ON	YES	RE-22X	VITAL BUS 1	A
4125A	B	18	LT-FW-485	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3363 RK-1A, 1F	RCBX	738	ANNULUS COL 9	S R		ON	ON	YES	RE-22X	VITAL BUS 2	A
4126A	A	18	LT-FW-486	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3362, RK-1A, 1F	RCBX	718	ANNULUS COL 9	S R		ON	ON	YES	RE-22AA	VITAL BUS 3	A
4127A	A	18	LT-FW-494	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	DWG RK-1B, RK-6D	RCBX	718	ANNULUS COL 5	S R		ON	ON	YES	RE-22Y	VITAL BUS 1	A
4128A	B	18	LT-FW-495	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3364, RK-1B, 1F	RCBX	718	ANNULUS COL 5	S R		ON	ON	YES	RE-22Y	VITAL BUS 2	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4129A	A	18	LT-FW-496	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3885, RK-1B	RCBX	718	ANNULUS COL 4	S R		ON	ON	YES	RE-22AB	VITAL BUS 3	A
1201A	A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
1202A	B	18	LT-QS-100B	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
1203A	A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-6B,ISO6.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	A
1204A	B	18	LT-QS-100D	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-6B	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
3124A	A	18	LT-RC-459	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S R		ON	ON	YES	RE-22BH	VITAL BUS 1	A
3125A	B	18	LT-RC-460	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S R		ON	ON	YES	RE-22BJ	VITAL BUS 2	A
3126A	A	18	LT-RC-461	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	S R		ON	ON	YES	RE-22BK	VITAL BUS 3	A
4101A	A	18	LT-WT-104A1	WT/WT-TK-10 LEVEL TRANSMITTER	ISO 6.24-4016	YARD	735	AT DWST	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
4102A	B	18	LT-WT-104A2	WT/WT-TK-10 LEVEL TRANSMITTER	ISO 6.24-4017	YARD	735	AT DWST	S R		ON	ON	YES	RE-22FG	VITAL BUS 2	A
8118	B	01	MCC-1-14	37/480V MCC FED FROM 480V SUBSTA 1-4 BUS1H BKR4H7	RE-38C, 48D	AXLB	735	SOUTH OF LWFL1B	S		ON	ON	YES	N/A	N/A	A
8018	A	01	MCC-1-E1	EE/480V MOTOR CONTROL CENTER	DWG RE-53A, 37M, 21DB	INTS	705	A CUBICLE	S R		ON	ON	YES	RE-21DB	480V 8N BK 7	A
8027	B	01	MCC-1-E10	EE/480V MOTOR CONTROL CENTER	DWG RE-27B, 38C	SRVB	713	DF SWGR	S R		ON	ON	YES	RE-21DC	480V 9P BK 11	A
8028	A	01	MCC-1-E11	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	W CABLE VAULT	S R		ON	ON	YES	RE-21DC	480V 9P1 BK 21	A
8029	B	01	MCC-1-E12	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	E CABLE VAULT	S R		ON	ON	YES	RE-21DC	480V 8N BK 15	A
8030	A	01	MCC-1-E13	EE/480V MOTOR CONTROL CENTER	DWG RE-38Q, 42G	SFGB	756	MCC ROOM	S R		ON	ON	YES	RE-21DC	480V 9P BK 15	A
8031	B	01	MCC-1-E14	EE/480V MOTOR CONTROL CENTER	DWG RE-42K	SFGB	735	E CABLE VAULT	S R		ON	ON	YES	N/A	480V BUS 1P	A
8019	B	01	MCC-1-E2	EE/480V MOTOR CONTROL CENTER	DWG RE-53A, 37M, 21DB	INTS	705	B CUBICLE	S R		ON	ON	YES	RE-21DB	480V 9P BK 8	A
8020	A	01	MCC-1-E3	EE/480V MOTOR CONTROL CENTER	DWG RE-21DB, RE-38C, 48C	AXLB	735	COL 8-7/8	S R		ON	ON	YES	RE-21DB	480V 8N BK 8	A
8021	B	01	MCC-1-E4	EE/480V MOTOR CONTROL CENTER	DWG RE-21DB, RE-38C, 48C	AXLB	735	COL 8-7/8	S R		ON	ON	YES	RE-21DB	480V 9P BK 9	A
8022	A	01	MCC-1-E5	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	W CABLE VAULT	S R		ON	ON	YES	RE-21DB	480V 8N BK 6	A
8023	B	01	MCC-1-E6	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	E CABLE VAULT	S R		ON	ON	YES	RE-21DB	480V 9P BK 14	A
8024	A	01	MCC-1-E7	EE/480V MOTOR CONTROL CENTER	DWG RE-58A, RE-21DC	DGBX	735	DIESEL GEN #1	S R		ON	ON	YES	RE-21DC	480V 8N BK 14	A
8025	B	01	MCC-1-E8	EE/480V MOTOR CONTROL CENTER	DWG RE-58A, RE-21DC	DGBX	735	DIESEL GEN #2	S R		ON	ON	YES	RE-21DC	480V 9P BK 7	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. / Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS # SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8026	A	01	MCC-1-E9	EE/480V MOTOR CONTROL CENTER	DWG RE-27B, 38C	SRVB	713	AE SWGR	S R		ON	ON	YES	RE-21DC	480V 8" BK 11	A
1208	A	08A	MOV-CH-115B	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E3 BK J	A
1209	B	08A	MOV-CH-115C	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E3 BK K	A
1210	B	08A	MOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	ISO 6.24-277	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	A
1211	B	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	ISO 6.24-271	AXLB	722	BLENDER	S R		OPEN	CLOSED	YES	RE-21FR	MCC1-E4 BK K	A
3211	A	08A	MOV-CH-137	CH/EXCESS LETDOWN HX FLOW CONT	ISO 6.24-1613	RCBX	707	EXC LETD PLATF	R		CLOSED	CLOSED	NO	RE-21FS	PNL-AC-E1 BK 13	A
1217	A	08A	MOV-CH-275A	CH/CH-P-1A MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1A CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK H	A
1218	A	08A	MOV-CH-275B	CH/CH-P-1B MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1B CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK P	A
1219	A	08A	MOV-CH-275C	CH/CH-P-1C MINIFLOW ISOLATION	ISO 6.24-265	AXLB	722	CH-P-1C CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK Q	A
1215	A	08A	MOV-CH-289	CH/CHARGING HEADER ISOLATION	ISO 6.24-268	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E5 BK BB	A
1230	A	08A	MOV-CH-303A	CH/RCP 1A #1 SEAL LEAKOFF ISOLATION	ISO 6.13-220	RCBX	692	FLOOR SE	R		OPEN	OPEN	NO	RE-21FS	MCC1-17 BK AQ	A
1231	A	08A	MOV-CH-303B	CH/RCP 1B #1 SEAL LEAKOFF ISOLATION	ISO 6.13-221	RCBX	692	FLOOR SE	R		OPEN	OPEN	NO	RE-21FS	MCC1-19 BK AK	A
1232	B	08A	MOV-CH-303C	CH/RCP 1C #1 SEAL LEAKOFF ISOLATION	ISO 6.13-222	RCBX	692	FLOOR SE	R		OPEN	OPEN	NO	RE-21FS	MCC1-18 BK AK	A
1225	A	08A	MOV-CH-308A	CH/RCP-1A SEAL WATER CONTAINMENT ISOLATION VALVE	ISO 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E3 BK AE	A
1226	A	08A	MOV-CH-308B	CH/RCP-1B SEAL WATER CONTAINMENT ISOLATION VALVE	ISO 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E3 BK AF	A
1227	A	08A	MOV-CH-308C	CH/RCP-1C SEAL WATER CONTAINMENT ISOLATION VALVE	ISO 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E3 BK AN	A
1216	B	08A	MOV-CH-310	CH/CHARGING HEADER ISOLATION	ISO 6.24-253	RCBX	693	49-3 RAD AZ 350	R		OPEN	OPEN	NO	RE-21FS	MCC1-E6 BK AX	A
1248	B	08A	MOV-CH-350	CH/EMERGENCY BORATION ISOLATION	VTI-6.48-5	AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FS	MCC1-E4 BK S	A
1228	B	08A	MOV-CH-370	CH/SEAL INJ HEADER ISOLATION	ISO 6.24-267	AXLB	722	BLENDER ROOM	R		OPEN	OPEN	NO	RE-21FS	MCC1-14 BK AC	A
1220	B	08A	MOV-CH-373	CH/CHARGING PUMP RECIRC ISOLATION	ISO 6.24-256	AXLB	722	BLENDER	R		OPEN	OPEN	NO	RE-21FR	MCC1-E4 BK Q	A
3209	A	08A	MOV-CH-378	CH/RCP SEAL LEAKOFF ISOLATION	ISO 6.24-380	RCBX	718	PENT 819	S R	8	OPEN	CLOSED	YES	RE-21FR	MCC1-E5 BK BA	A
3210	B	08A	MOV-CH-381	CH/RCP SEAL LEAKOFF ISOLATION	ISO 6.24-255	SFGB	722	PENT A	S R	8	OPEN	CLOSED	YES	RE-21FR	MCC1-E6 BK AW	A
4109	B	08A	MOV-FW-151A	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK A6	A
4110	A	08A	MOV-FW-151B	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK A6	A
4111	B	08A	MOV-FW-151C	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK AH	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4112	A	08A	MOV-FW-151D	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK AH	A
4113	B	08A	MOV-FW-151E	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK AJ	A
4114	A	08A	MOV-FW-151F	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	S R	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 BK AJ	A
4115	N/A	08A	MOV-FW-160	FW/FW-P-4 DISCHARGE ISOLATION VALVE	ISO 6.24-383	TRBB	693	BASEMENT @ PUMP	R		CLOSED	CLOSED	NO	RE-21HF	MCC1-43 BK 3J	A
4208	B	08A	MOV-MS-101A	MS/MAIN STEAM TRIP [TV-MS-101A] BYPASS VALVE	ISO 6.24-2	SFGB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK BM	A
4209	B	08A	MOV-MS-101B	MS/MAIN STEAM TRIP [TV-MS-101B] BYPASS VALVE	ISO 6.24-2	SFGB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK BN	A
4210	B	08A	MOV-MS-101C	MS/MAIN STEAM TRIP [TV-MS-101C] BYPASS VALVE	ISO 6.24-2	SFGB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK BP	A
4214	B	08A	MOV-MS-105	MS/AFW TURBINE STEAM SUPPLY ISOLATION	6.48-95,96	SFGB	735	MSVH	S R		OPEN	CLOSED	YES	RE-21HY, ISO 6.24-625	MCC1-E6 BK BA	A
2104	A	08A	MOV-RC-535	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E5 BK BE	A
2106	B	08A	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BC	A
2108	A	08A	MOV-RC-537	RC/PRESSURIZER PORV ISOLATION	ISO 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BD	A
3219	A	08A	MOV-RH-700	RH/RHR INLET ISOLATION	ISO 6.24-3197	RCBX	692	W OF SI ACC 1A	R		CLOSED	CLOSED	NO	RE-21JV	MCC1-E5 BK P	A
3320	A	08A	MOV-RH-720A	RH/RHR RETURN ISOLATION	ISO 6.24-3189	RCBX	692	W OF SI ACC 1B	R		CLOSED	CLOSED	NO	RE-21JV	MCC1-E5 BK Q	A
3321	B	08A	MOV-RH-720B	RH/RHR RETURN ISOLATION	ISO 6.24-3191	RCBX	692	W OF SI ACC 1C	R		CLOSED	CLOSED	NO	RE-21JV	MCC1-E6 BK Q	A
5104	B	08A	MOV-RW-102A1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK D	A
5105	A	08A	MOV-RW-102A2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK G	A
5106	B	08A	MOV-RW-102B1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK D	A
5107	A	08A	MOV-RW-102B2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK G	A
5108	B	08A	MOV-RW-102C1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E2 BK H	A
5109	A	08A	MOV-RW-102C2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,ISO 6.24-801, RP-4L	MCC1-E1 BK H	A
4116	A	08A	MOV-RW-103A	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-12 8	MCC1-E3 BK B	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4117	B	08A	MOV-RW-103B	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	S R		CLOSED	OPEN	YES	RE-21LA,6.24-12 8	MCC1-E4 BK B	A
5135	A	08A	MOV-RW-103C	RW/'B' HDR RW FLOW TO RECIRC SPRAY	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21LA	MCC1-E3 BK C	A
5136	B	08A	MOV-RW-103D	RW/'B' HDR RW FLOW TO RECIRC SPRAY	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21LA	MCC1-E4 BK C	A
5119	B	08A	MOV-RW-106A	RW/CCR HT EXCH ISOLATION	6.48-51,52	AXLB	722	EAST CENTRAL	S R	18	OPEN	CLOSED	YES	RE-21LA,6.24-68	MCC1-E4 BK P	A
5120	B	08A	MOV-RW-106B	RW/CCR HT EXCH ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		OPEN	OPEN	NO	RE-21LA	MCC1-E4 BK D	A
5121	A	08A	MOV-RW-113A	RW/DIESEL GEN COOLING ISO	ISO 6.24-159	DGBX	735	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E3 BK H	A
5122	A	08A	MOV-RW-113B	RW/DIESEL GEN COOLING ISO	ISO 6.24-160	DGBX	735	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E7 BK J	A
5123	B	08A	MOV-RW-113C	RW/DIESEL GEN COOLING ISO	ISO 6.24-159	DGBX	735	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK H	A
5124	B	08A	MOV-RW-113D1	RW/DIESEL GEN COOLING ISO	ISO 6.24-160	DGBX	735	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK J	A
5125	A	08A	MOV-RW-114A	RW/CCR HT EXCH ISOLATION	ISO 6.24-68	AXLB	722	EAST CENTRAL	S R	18	OPEN	CLOSED	YES	RE-21LA	MCC1-E5 BK D	A
5126	A	08A	MOV-RW-114B	RW CCR HT EXCH ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		OPEN	OPEN	NO	RE-21LA	MCC1-E3 BK AC	A
5127	A	08A	MOV-RW-116	RW/STRAINER ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E3 BK AD	A
5131	A	08A	MOV-RW-116A	RW/AUX RW PUMP SUPPLY TO A RW HDR REACTOR PLANT	ISO 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E7 BK Y	A
5132	B	08A	MOV-RW-116B	RW/AUX RW PUMP SUPPLY TO B RW HDR REACTOR PLANT	ISO 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E8 BK Z	A
5128	B	08A	MOV-RW-117	RW/STRAINER ISOLATION	ISO 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E3 BK G	A
1236	A	08A	MOV-SI-836	SI/HHSI RCL COLD LEG ISOLATION VALVE	ISO 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5 BK AB	A
1237	A	08A	MOV-SI-863A	SI/1A LHSI TO CHG PUMPS SUPPLY VALVE	ISO 6.24-115	SFGB	735	NW	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5 BK U	A
1238	B	08A	MOV-SI-863B	SI/1B LHSI TO CHG PUMPS SUPPLY VALVE	ISO 6.24-114	SFGB	735	NW	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E6 BK U	A
1222	A	08A	MOV-SI-867A	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E5 BK W	A
1223	B	08A	MOV-SI-867B	SI/BIT ISOLATION VALVE	ISO 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E6 BK W	A
1234	A	08A	MOV-SI-869A	SI/HHSI RCL HOT LEG ISOLATION VALVE	ISO 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5 BK AR	A
1235	B	08A	MOV-SI-869B	SI/HHSI RCL HOT LEG ISOLATION VALVE	ISO 6.24-348	SFGB	722	PENT C	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E6 BK BJ	A
8016	A	20	NM-NI-31A	02/SOURCE RANGE PREAMPLIFIER	VTI 1,20-052	SFGB	735	W CABLE VAULT	S		N/A	N/A	N/A	N/A	N/A	A
8017	B	20	NM-NI-32A	02/SOURCE RANGE PREAMPLIFIER	VTI 1.20-772	SFGB	735	E CABLE VAULT	S		N/A	N/A	N/A	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION Rm. or Row/Col.	SORT	NOTES	OP. Normal	ST. Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8135		20	PCC-FE-1A	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-10A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	N/A	N/A	N/A	A
8136		20	PCC-FE-1B	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-10A	DGBX	735	DIESEL GEN #2	S		N/A	N/A	N/A	N/A	N/A	A
2128	N/A	07	PCV-GN-108	SI/(PCV-RC-455D) NITROGEN PRESSURE CONTROL	DWG RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2129	N/A	07	PCV-GN-109	SI/(PCV-RC-455C) NITROGEN PRESSURE CONTROL	DWG RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	A
2130	N/A	07	PCV-IA-108	IA/(PCV-RC-455D) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	S		OPEN	OPEN	NO	N/A	N/A	A
2131	N/A	07	PCV-IA-109	IA/(PCV-RC-455C) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	S		OPEN	OPEN	NO	N/A	N/A	A
4205	A	07	PCV-MS-101A	MS/A LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4206	B	07	PCV-MS-101B	MS/B LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4207	B	07	PCV-MS-101C	MS/C LOOP ATM STEAM DUMP	ISO 6.24-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
2105	A	07	PCV-RC-455C	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-2 BK 8-35	A
2109	A	07	PCV-RC-455D	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
2107	B	07	PCV-RC-456	RC/PRESSURIZER PORV	ISO 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
5110	A	07	PCV-RW-130A	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3345	INTS	705	A CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3345	N/A	A
5111	B	07	PCV-RW-130B	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3346	INTS	705	B CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3346	N/A	A
5112	A/B	07	PCV-RW-130C	RW/SEAL WATER PCV FOR RW PUMP	ISO 6.24-3347	INTS	705	C CUBICLE	S		CLOSED	OPEN	NO	ISO 6.24-3347	N/A	A
21108	A	20	PI-RC-402A	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BM	VITAL BUS 3	A
21118	B	20	PI-RC-403	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BM	VITAL BUS 2	A
8034	A	14	PNL-AC-BUS-1E	38/VITAL BUS DIST PANEL 1E	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8035	B	14	PNL-AC-BUS-1F	38/VITAL BUS DIST PANEL 1F	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8036	A	14	PNL-AC-E1	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8037	B	14	PNL-AC-E2	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8038	A	14	PNL-AC-E3	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8039	B	14	PNL-AC-E4	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8117	A/B	20	PNL-AMSAC	45B/ANTICIP TRANS W/O SCRAM MITIGATING SYS ACTUAT CIRCT	RE-27C	SRVB	713	PROC RACK	S		ON	ON	YES	8700-1.20-1174 THRU 1177	N/A	A
8040	A	20	PNL-BLDG-SER-A	VS/PLANT VENTILATION CONTROL PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8041	B	20	PNL-BLDG-SER-B	VS/PLANT VENTILATION CONTROL PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8042	B	14	PNL-DC-2	39/125 VOLT DC POWER DISTRIBUTION PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	NO	N/A	N/A	A
8043	A	14	PNL-DC-3	39/125 VOLT DC POWER DISTRIBUTION PANEL	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	NO	N/A	N/A	A
8044	A	20	PNL-DG-SEQ-1	36/DG AUTOMATIC SEQUENCE RELAY PANEL 1	DWG RE-27B, 25R	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8045	B	20	PNL-DG-SEQ-2	36/DG AUTOMATIC SEQUENCE RELAY PANEL 2	DWG RE-27B, 25R	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8046	A	20	PNL-DGEA-1	36/DG EXCITATION AUX RELAY PANEL 1	DWG RE-58A	DGBX	735	DIESEL GEN #1	S		ON	ON	YES	N/A	N/A	A
8047	B	20	PNL-DGEA-2	36/DG EXCITATION AUX RELAY PANEL 2	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
5323	A	20	PNL-DIGEN-1	EE/DIESEL GENERATOR #1 CONTROL PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #1	S		ON	ON	YES	N/A	N/A	A
5324	B	20	PNL-DIGEN-2	EE/DIESEL GENERATOR #2 CONTROL PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
8125	A	18	PNL-MS-101A	MS/INSTRUMENT RACK FOR SOV-MS-101A AND SOV-MS-101A4	RK8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8126	B	18	PNL-MS-101B	MS/INSTRUMENT RACK FOR SOV-MS-101B AND SOV-MS-101B4	RK-8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8127	B	18	PNL-MS-101C	MS/INSTRUMENT RACK FOR SOV-MS-101C AND SOV-MS-101C4	RK-8A	SFGB	751	MSVH	S		N/A	N/A	N/A	N/A	N/A	A
8115	A	20	PNL-PAS-RA	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRVB	713	RELAY ROOM	S		ON	ON	YES	N/A	N/A	A
8116	B	20	PNL-PAS-RB	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRVB	713	RELAY ROOM	S		ON	ON	YES	N/A	N/A	A
8048	A	14	PNL-PR-HTR-A	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JR, 42K	SFGB	735	W CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8049	B	14	PNL-PR-HTR-B	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JR, 42K	SFGB	735	E CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8050	A	14	PNL-PR-HTR-D	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JS, 42K	SFGB	735	W CABLE VAULT	S		ON	ON	YES	N/A	N/A	A
8051	B	14	PNL-PR-HTR-E	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JS, 42K	SFGB	735	E CABLE VAULT	S		ON	ON	YES	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8052	A	20	PNL-REL-19	36/DG #1 PROTECTION RELAY PANEL	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8053	A/B	20	PNL-REL-21	36/UNDERFREQUENCY RELAY PANEL REACTOR COOLANT PUMPS	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8054	B	20	PNL-REL-22	36/DG #2 PROTECTION RELAY PANEL	DWG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
8055	A	20	PNL-REL-31	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8056	B	20	PNL-REL-32	38/AUX RELAY PANEL	DWG RE-21EA, 27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8057	A	20	PNL-REL-33	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8058	B	20	PNL-REL-34	38/AUX RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8059	A	20	PNL-REL-35	38/RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8060	B	20	PNL-REL-36	38/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8061	A	20	PNL-REL-37	38/RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	N/A	A
8062	B	20	PNL-REL-38	38/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
8108	A	20	PNL-REL-40	36/RELAY PANEL 40	RE-27C, 25H	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8109	B	20	PNL-REL-41	36/RELAY PANEL 41	RE-27C, 25H	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8063	B	20	PNL-REL-DGI	36/DG ISOLATION RELAY PANEL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	A
8064	A	20	PNL-SHUTDN-A	01/EMERGENCY SHUTDOWN PANEL	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8065	B	20	PNL-SHUTDN-B	01/EMERGENCY SHUTDOWN PANEL	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8129	A	18	PNL-SI-02	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8131	B	18	PNL-SI-06	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8066	A	14	PNL-VITBUS-1	38/VITAL BUS DIST PANEL 1	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8067	B	14	PNL-VITBUS-2	38/VITAL BUS DIST PANEL 2	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8068	A	14	PNL-VITBUS-3	38/VIBAL BUS DIST PANEL 3	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
8069	B	14	PNL-VITBUS-4	38/VITAL BUS DIST PANEL 4	DWG RE-27A	SRVB	735	CONTROL	S		ON	ON	YES	N/A	N/A	A
4205E	A	18	PS-MS-101A	MS/ATMOSPHERE STEAM DUMP S.G. 1A	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-3 BK 8-14	A
4206E	B	18	PS-MS-101B	MS/ATMOSPHERE STEAM DUMP S.G. 1B	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-2 BK 8-14	A
4207E	B	18	PS-MS-101C	MS/ATMOSPHERE STEAM DUMP S.G. 1C	ISO 6.24-2	SFGB	768	MSVH	S		ENERG	ENERG	YES	RE-21JD	PNL-DC-2 BK 8-14	A
2110A	A	18	PT-RC-402	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-1B	RCBX	717	ANNULUS COL 4-5	S R		ON	ON	YES	RE-22BM	VITAL BUS 3	A
2111A	B	18	PT-RC-403	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-1B, RK-1F	RCBX	692	A CUBICLE	S R		ON	ON	YES	RE-22BM	VITAL BUS 2	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- EQUIPMENT Building	Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2224	A	21	PZR-HTR-A	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JR	480V BUS 1^1 BK N12	A
2225	B	21	PZR-HTR-B	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JR	480V BUS 1P1 BK	A
2226	A	21	PZR-HTR-D	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS 1N BK N	A
2227	B	21	PZR-HTR-E	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS 1P BK P	A
8121	A/B	18	QS-RACK-1	QS/RACK FOR RWST HEAT TRACE (EAST SIDE OF RWST)	DWG 1.81-52 SH 3	YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8122	A/B	18	QS-RACK-2	QS/RACK FOR RWST HEAT TRACE (NE SIDE OF RWST)	DWG 1.81-52 SH 2	YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8123	A/B	18	QS-RACK-3	QS/RACK FOR RWST HEAT TRACE (SOUTH SIDE OF RWST)		YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
8124	A/B	18	QS-RACK-4	QS/RACK FOR RWST HEAT TRACE (SE SIDE OF RWST)		YARD	735	YARD	S		N/A	N/A	NO	N/A	N/A	A
1207	N/A	21	QS-TK-1	QS/REFUELING WATER STORAGE TANK	DWG RV-24A	YARD	735	YARD	S R		N/A	N/A	NO	RE-63V	MCC1-E11, E12	A
8070	A/B	02	REAC-TR-SWGR	01/REACTOR TRIP SWITCHGEAR	DWG RE-27B	SRVB	713	ROD M/G ROOM	S		N/A	N/A	N/A	N/A	N/A	A
8071	A	20	RK-AUX-RELA	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8072	B	20	RK-AUX-RELB	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8073	A	20	RK-AUX-RPTST-A	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8074	B	20	RK-AUX-RPTST-B	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8075	A	20	RK-NUC-INS-1	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8076	B	20	RK-NUC-INS-2	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
8077	A	20	RK-PRI-PROC-1	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8080	B	20	RK-PRI-PROC-10	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8082	B	20	RK-PRI-PROC-11	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8081	B	20	RK-PRI-PROC-12	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8083	B	20	RK-PRI-PROC-13	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A

BEAVER VALLEY POWER STATION UNIT 1
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SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DN.	NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)		(16)	(17)
8084	A	20	RK-PRI-PROC-14	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8085	A	20	RK-PRI-PROC-15	04/PLANT PROCESS INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8086	A	20	RK-PRI-PROC-16	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8087	A	20	RK-PRI-PROC-17	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8088	A	20	RK-PRI-PROC-18	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8078	A	20	RK-PRI-PROC-2	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8089	B	20	RK-PRI-PROC-25	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8090	B	20	RK-PRI-PROC-26	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8079	A	20	RK-PRI-PROC-3	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8091	B	20	RK-PRI-PROC-30	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8092	B	20	RK-PRI-PROC-31	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8093	A	20	RK-PRI-PROC-34	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8094	A	20	RK-PRI-PROC-35	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8128	A/B	20	RK-RAD-MON-7	RM/RADIATION MONITOR RACK #7	DWG RE-27A	SRVB	735	CONTROL ROOM	S		ON	ON	YES	N/A		VITAL BUS 1, 2	A
8095	A	20	RK-REAC-PROT-A	01/REACTOR PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8096	B	20	RK-REAC-PROT-B	01/REACTOR PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8097	A	20	RK-REC-P-TST-A	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8098	B	20	RK-REC-P-TST-B	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8099	A	20	RK-SEC-PROC-A	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A
8100	B	20	RK-SEC-PROC-B	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8B, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A		N/A	A

BEAVER VALLEY POWER STATION UNIT 1
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SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8101	A	20	RK-SEC-PROC-C	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-88, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8102	B	20	RK-SEC-PROC-D	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-88, 8L	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8102A	A	20	RK-VS-AC-1A	44A/CONTROL ROOM TEMP CONTROL AIR COMPRESSOR RACK	RE-47H, 25HH	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
8102B	B	20	RK-VS-AC-1B	44A/CONTROL ROOM AIR HANDLING UNIT SUPPLY FANS RACK	RE-47H, 25HH	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
8102C	A/B	20	RK-VS-E567	VS/CONTROL ROOM HEATERS VS-E-5, 6 & 7 RACK	RE-47H	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
8102D	A/B	20	RK-VS-E8-12	VS/RACK FOR VS-E-8-1 & 8-2	RE-47H	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
3216	N/A	07	RV-CH-382A	CH/SEAL RTRN HDR RELIEF VALVE	ISO 6.24-1548	RCBX	718	ANNULUS COL 5	S		CLOSED	CLOSED	NO	N/A	N/A	A
5311C	A	07	RV-EE-201A	EE/3A AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5312C	A	07	RV-EE-201B	EE/3B AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5313C	A	07	RV-EE-201C	EE/3C AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5314C	A	07	RV-EE-202A	EE/3D AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5315C	A	07	RV-EE-202B	EE/3E AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5316C	A	07	RV-EE-202C	EE/3F AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	A
5317C	B	07	RV-EE-203A	EE/4A AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5318C	B	07	RV-EE-203B	EE/4B AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5319C	B	07	RV-EE-203C	EE/4C AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5320C	B	07	RV-EE-204A	EE/4D AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5321C	B	07	RV-EE-204B	EE/4E AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
5322C	B	07	RV-EE-204C	EE/4F AIR TANK RELIEF VALVE	VTI 6.39-109	DGBX	735	DIESEL GEN #2	S		N/A	N/A	NO	N/A	N/A	A
2101	N/A	07	RV-RC-551A	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
2102	N/A	07	RV-RC-551B	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
2103	N/A	07	RV-RC-551C	RC/PRESSURIZER RELIEF SAFETY VALVE	ISO 6.24-350	RCBX	767	PZR CUBICLE	S		CLOSED	CLOSED	NO	N/A	N/A	A
1206C	N/A	088	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	RK-3A	AXLB	722	BLENDER CUB	S	R	ENERG	ENERG	YES	RE-21FT	PNL-DC-3 BK 8-23	A
3206C	A	088	SOV-CH-200A	CH/(TV-1CH-200A) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S	R	ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3206D	A	088	SOV-CH-200A1	CH/(TV-1CH-200A) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S	R	ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT Building	Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3207C	A	088	SOV-CH-200B	CH/(TV-1CH-200B) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3207D	A	088	SOV-CH-200B1	CH/(TV-1CH-200B) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A
3208C	A	088	SOV-CH-200C	CH/(TV-1CH-200C) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-20	A
3208D	A	088	SOV-CH-200C1	CH/(TV-1CH-200C) SOLENOID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	S R		ENERG	DEENERG	NO	RE-21FU	PNL-DC-3 BK 8-1	A
4205C	A	088	SOV-MS-101A	MS/(PCV-1MS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-3 BK 8-14	A
4205D	A	088	SOV-MS-101A4	MS/(PCV-1MS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-3 BK 8-23	A
4206C	B	088	SOV-MS-101B	MS/(PCV-1MS-101B) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-14	A
4206D	B	088	SOV-MS-101B4	MS/(PCV-1MS-101B) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-23	A
4207C	B	088	SOV-MS-101C	MS/(PCV-1MS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-14	A
4207D	B	088	SOV-MS-101C4	MS/(PCV-1MS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-2 BK 8-23	A
4211C	A	088	SOV-MS-112A1	MS/(TV-1MS-101A) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-6	A
4211D	B	088	SOV-MS-112A2	MS/(TV-1MS-101A) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-6	A
4212C	A	088	SOV-MS-112B1	MS/(TV-1MS-101B) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
4212D	B	088	SOV-MS-112B2	MS/(TV-1MS-101B) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
4213C	A	088	SOV-MS-112C1	MS/(TV-1MS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-22	A
4213D	B	088	SOV-MS-112C2	MS/(TV-1MS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	S R		DEENERG	ENERG	YES	RE-21HX	DC-PNL-3 BK 8-22	A
2122	B	088	SOV-RC-455C1	SI/(PCV-RC-455C) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2123	B	088	SOV-RC-455C2	SI(PCV-RC-455C) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2124	A	088	SOV-RC-455D1	SI/(PCV-RC-455D) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2125	A	088	SOV-RC-455D2	SI(PCV-RC-455D) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2126	A	088	SOV-RC-456-1	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2127	A	088	SOV-RC-456-2	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	S R		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
5231	B	088	SOV-VS-209A1	VS/UPPER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	780	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A
5232	B	088	SOV-VS-209A2	VS/UPPER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	780	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A
5233	B	088	SOV-VS-209B1	VS/LOWER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	768	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A
5234	B	088	SOV-VS-209B2	LOWER FILTER BANK DRAIN VALVE	DWG RM-2B, VTI 10.1-216	AXLB	768	M FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MT	DC-PNL-4 BK 19	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5339	A	20	SSW-VITBUS-1	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-27B, 21EB, 38D	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-181	MCC1-E13	A
5340	B	20	SSW-VITBUS-2	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 38D	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-181	MCC1-E14	A
5341	A	20	SSW-VITBUS-3	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-27B, 21EB, 38D	SRVB	713	AE SWGR	S R		ON	ON	YES	1.24-181	MCC1-E13	A
5342	B	20	SSW-VITBUS-4	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 38D	SRVB	713	DF SWGR	S R		ON	ON	YES	1.24-181	MCC1-E14	A
8103	A	03	SW-1-8N1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-27B	SRVB	713	AE SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A
8104	B	03	SW-1-9P1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-27B	SRVB	713	DF SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A
8119	A	20	TB-348A	VS/TERM BOX W/RELAY LOC NR TB-348	DWG RE-25AW	AXLB	768	COL G1/8&11-1/2	S		ON	ON	YES	RE-21MS	PNL-AC-E1	A
8120	B	20	TB-349A	VS/TERM BOX W/RELAY LOC NR TB-349	DWG RE-25AW	AXLB	768	COL G1/8&11-1/2	S		ON	ON	YES	RE-21MS	PNL-AC-E2	A
4203C	B	20	TR-RC-410	RC/REACTOR COOLANT COLD LEG 3 PEN RECORDER		SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BP	VITAL BUS 2	A
4203D	A	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER		SRVB	735	CONT RM VB-A	S R		ON	ON	YES	RE-22BN	VITAL BUS 1	A
8105	A	04	TRANS-1-8-N1	37/480V AUX EMERG BUS 1N1	DWG RE-27B	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
5333	A	04	TRANS-1-8N	37/480V EMERG BUS IN TRANS-1-8N	DWG RE-27B	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	4KV BUS AE	A
8106	B	04	TRANS-1-9-P1	37/480V AUX EMERG BUS 1P1	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	A
5334	B	04	TRANS-1-9P	37/480V EMERG BUS 1P TRANS-1-9P	DWG RE-27B	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	4KV BUS DF	A
4201B	B	19	TRB-RC-410	RC/LOOP 1A COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	A CUBICLE	S R	19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4201A	A	19	TRB-RC-413	RC/LOOP 1A HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	A CUBICLE	S R	19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
4202B	B	19	TRB-RC-420	RC/LOOP 1B COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	B CUBICLE	S R	19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4202A	A	19	TRB-RC-423	RC/LOOP 1B HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	B CUBICLE	S R	19	ON	ON	YES	RE-22BN	VITAL BUS 1	A
4203B	B	19	TRB-RC-430	RC/LOOP 1C COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	C CUBICLE	S R	19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4203A	A	19	TRB-RC-433	RC/LOOP 1C HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	C CUBICLE	S R	19	ON	ON	YES	RE-22BN	VITAL BUS 1	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8130	A	04	TRF-SI-02	45/SAFETY INJECTION HEAT TRACE PNL-SI-02	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8132	B	04	TRF-SI-06	45/SAFETY INJECTION HEAT TRACE PNL-SI-06	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	S		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
5201C	A	18	TS-HV-55A	VS/TEMP SWITCH FOR VS-F-55A	DWG RB-17G	SRVB	713	AE SWGR	S		ENERG	ENERG	YES	RE-21MZ		A
5202C	B	18	TS-HV-55B	VS/TEMP SWITCH FOR VS-F-55B	DWG RB-17G	SRVB	713	AE SWGR	S		ENERG	ENERG	YES	RE-21MZ		A
3206	A	07	TV-CH-200A	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/8,07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
3207	A	07	TV-CH-200B	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/8,07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
3208	A	07	TV-CH-200C	CH/LETDOWN ORIFICE CNMT ISOLATION	07.082-0006/8.07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	A
4211	A/B	07	TV-MS-101A	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) B-6	A
4212	A/B	07	TV-MS-101B	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) B-6	A
4213	A/B	07	TV-MS-101C	MS/MAIN STEAM ISOLATION	ISO 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) B-6	A
4215	A	07	TV-MS-111A	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
4216	A	07	TV-MS-111B	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
4217	A	07	TV-MS-111C	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	ISO 6.24-1576	SFGB	768	MSVH	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
1240	A	08B	TV-SS-105A1	RC/HOTLEG SAMPLE HDR INSIDE CNMT ISOL TRIP VALVE	ISO 6.24-3402, RP-18A	RCBX	718	PENT	S R		OPEN	OPEN	YES	RE-21XH	PNL-DC-3 BK 8-59	A
1241	B	08B	TV-SS-105A2	RC/HOTLEG SAMPLE HDR OUTSIDE CNMT ISOL TRIP VALVE	VTI 7.067-0133,0261	SFGB	722	PENT A	S R		OPEN	OPEN	YES	RE-21XJ, ISO 6.24-3401,3754, RP-18A	PNL-DC-2 BK 8-59	A
1239	B	08B	TV-SS-106D	SS/1B RCS HOTLEG RV SIDE OF LOOP STOP SAMPLE ISOLATION	ISO 6.24-3402, RP-18A	RCBX	738	B RCP CUBICLE	S R		CLOSED	OPEN	YES	RE-21XS	PN-AC-10 BK10-20	A
3217	A	07	TV-SS-108	SS/PZR LIQUID SPACE SAMPLE ISOLATION	ISO ISI-2821A,3680,RP-18 A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	NO	RE-21KR	PNL-AC-10 BK 7	A
3218	A	07	TV-SS-110	SS/PZR VAPOR SPACE SAMPLE ISOLATION	DWG RM-32A, RP-18A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	NO	RE-21KR	PNL-AC-10 BK 7	A
8107	A/B	20	VERTBD	01/MAIN INSTRUMENTATION DISPLAY PANEL	DWG RE-27A, 38A	SRVB	735	CONTROL	S		N/A	N/A	N/A	N/A	N/A	A
5235	A	10	VS-AC-1A	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MK	480V BUS 1N BK N	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5236	B	10	VS-AC-1B	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MK	480V BUS 1? BK P	A
5242	A/B	0	VS-AD-10	VS/VS-F-40B DISCHARGE DAMPER	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5252	A/B	0	VS-AD-3	VS/VS-AC-1A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5253	A/B	0	VS-AD-4	VS/VS-AC-1B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5254	A/B	0	VS-AD-5	VS/VS-AC-1A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5255	A/B	0	VS-AD-6	VS/VS-AC-1B DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5239	A/B	0	VS-AD-7	VS/VS-F-40A SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5240	A/B	0	VS-AD-8	VS/VS-F-40B SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5241	A/B	0	VS-AD-9	VS/VS-F-40A DISCHARGE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5256	A/B	0	VS-AFD-1	VS/ZONE 5 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5265	A/B	0	VS-AFD-10	VS/ZONE 5 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5266	A/B	0	VS-AFD-11	VS/ZONE 4 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5267	A/B	0	VS-AFD-12	VS/ZONE 1 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5268	A/B	0	VS-AFD-13	VS/ZONE 2 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5269	A/B	0	VS-AFD-14	VS/ZONE 3 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5270	A/B	0	VS-AFD-15	VS/ZONE 5 RETURN FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5257	A/B	0	VS-AFD-2	VS/ZONE 4 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5258	A/B	0	VS-AFD-3	VS/ZONE 1 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5259	A/B	0	VS-AFD-4	VS/ZONE 2 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5260	A/B	0	VS-AFD-5	VS/ZONE 3 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5261	A/B	0	VS-AFD-6	VS/ZONE 3 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5262	A/B	0	VS-AFD-7	VS/ZONE 2 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5263	A/B	0	VS-AFD-8	VS/ZONE 1 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5264	A/B	0	VS-AFD-9	VS/ZONE 4 BYPASS FIRE DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BK 4	A
5271	A	12	VS-C-1A	VS/TEMP CONT AIR COMP	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		OFF	ON	YES	RE-21MS	AC-PNL-E3 BK 5	A
5273	A	10	VS-C-1A1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		N/A	N/A	N/A	RE-21MS	AC-PNL-E3 BK 5	A
5272	B	12	VS-C-1B	VS/TEMP CONT AIR COMP	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		OFF	ON	YES	RE-21MS	AC-PNL-E4 BK 5	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT Building	Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5274	B	10	VS-C-181	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	VTI 10.1-281, 300	SRVB	713	CR VENT	S R		N/A	N/A	N/A	RE-21MS	AC-PNL-E4 BK 5	A
5205	A	0	VS-D-16A	VS/EMERG SWITCHGEAR EXHAUST DAMPER	DWG RB-17L	SRVB	725	CABLE MEZZ	S R		OPEN	OPEN	NO	RE-21MZ	MCC1-E9 BK AF	A
5206	B	0	VS-D-16B	VS/EMERG SWITCHGEAR EXHAUST DAMPER	DWG RB-17L	SRVB	725	CABLE MEZZ	S R		CLOSED	OPEN	YES	RE-21MZ	MCC1-E10 BK AC	A
5327	A	0	VS-D-22-1A	VS/DG BLDG EXHAUST DAMPER	VTI 10.1-1073,RB-27A	DGBX	756	DG#1 ROOF	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5328	B	0	VS-D-22-1B	VS/DG BLDG EXHAUST DAMPER	VTI 10.1-1073,RB-27A	DGBX	756	DG#2 ROOF	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5329	A	0	VS-D-22-2A	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5330	B	0	VS-D-22-2B	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5331	A	0	VS-D-22-2C	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #1	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5332	B	0	VS-D-22-2D	VS/DG BLDG AIR SUPPLY DAMPER	RB-27A, VTI 10.1-1074	DGBX	745	DIESEL GEN #2	S R		CLOSED	OPEN	YES	RE-21MP	PNL-AC-E4 BK E4-	A
5220	A/B	08A	VS-D-4-10A	VS/MAIN FILTER BANK [1VS-FL-7,8,9] IN DAMPER	RB-8J SECT 17-17	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	YES	RE-21MS	PNL-AC-11 BK 1	A
5221	A/B	08A	VS-D-4-10B	VS/MAIN FILTER BANK [1VS-FL-7,8,9] OUT DAMPER	RB-8J SECT 17-17	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	YES	RE-21MS	PNL-AC-11 BK 1	A
5224	A	0	VS-D-4-12A	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	RB-5L&5P SECT 24-24	SFGB	735	VS-AC-7 RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E1 BK 7	A
5225	B	0	VS-D-4-12B	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	RB-5L&5P SECT 24-24	SFGB	735	VS-AC-7 RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	A
5226	A	0	VS-D-4-15A	VS/AUX FEED PUMP RM EXHAUST DAMPER	RB-5L&5P SECT 24-24	SFGB	735	AUX FD PUMP RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E1 BK 7	A
5227	B	0	VS-D-4-15B	VS/AUX FEED PUMP RM EXHAUST DAMPER	RB-5L&5P SECT 24-24	SFGB	735	AUX FD PUMP RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	A
5207	A	08A	VS-D-4-1A	VS/MAIN FILTER BANK UPSTREAM BYPASS ISOLATION DAMPER	RB-8H (L 1/2-10 1/2)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	NO	RE-21MS	MCC1-E3 BK V	A
5208	B	08A	VS-D-4-1B	VS/MAIN FILTER BANK UPSTREAM BYPASS ISOLATION DAMPER	RB-8H (L 1/2-10 1/2)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	NO	RE-21MS	MCC1-E4 BK V	A
5209	A	08A	VS-D-4-2A	VS/MAIN FILTER BANK LEAK COLLECTION TRAIN B IN ISOL DA.	RB-8H (K 1/2-10)	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MS	PNL-AC-E1 BK 3	A
5210	B	08A	VS-D-4-2B	VS/MAIN FILTER BANK LEAK COLLECTION TRAIN A IN ISOL DAM	RB-8H (K-10)	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MS	PNL-AC-E2 BK 2	A
5211	B	08A	VS-D-4-3B	VS/CHG PUMP CUBICLE NORM EXHAUST DAMPER	RB-8B (J-10 1/2)&4-4	AXLB	722	BLENDER CUBICLE	R		CLOSED	CLOSED	NO	RE-21MT	MCC1-E4 BK W	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5212	A	08A	VS-D-4-4A	VS/CHG PUMP CUBICLE EMER EXHAUST DAMPER	RB-8H (K 1/2-9 3/8)	AXLB	768	BY BATCH TANK	R		OPEN	OPEN	NO	RE-21MS	PNL-AC-E1 BK 3	A
5213	B	08A	VS-D-4-4B	VS/CHG PUMP CUBILCE EMER EXHAUST DAMPER	RB-8H (K1/2-9 3/8)	AXLB	768	BY BATCH TANK	R		OPEN	OPEN	NO	RE-21MS	PNL-AC-E2 BK 2	A
5214	A	0	VS-D-4-7A	VS/LEAK COLL EXHAUST FAN 4A SUCTION ISOLATION DAMPER	RB-8G (G 1/2-11)	AXLB	768	AT FAN	S	R	CLOSED	OPEN	YES	RE-21MS	N/A	A
5215	B	0	VS-D-4-7B	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	RB-8G (G 1/2-11)	AXLB	768	NORTH WALL	S		CLOSED	OPEN	NO	RE-21MS	N/A	A
5216	A	0*	VS-D-4-8A	VS/LEAK COLL EXHAUST FAN 4B SUCTION ISOLATION DAMPER	RB-8G (G 1/2-12)	AXLB	768	AT FAN	S	R	CLOSED	OPEN	YES	RE-21MS	N/A	A
5217	B	0	VS-D-4-8B	VS/LEAK COLL EXHAUST FAN 4B DISCHARGE BACKFLOW DAMPER	RB-8G (G 1/2-12)	AXLB	768	NORTH WALL	S		CLOSED	OPEN	NO	RE-21MS	N/A	A
5218	A/B	08A	VS-D-4-9A	VS/MAIN FILTER BANK [1VS-FL-4,5,6] IN DAMPER	RB-8H (K-10 1/4)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	YES	RE-21MS	PNL-AC-11 BK 1	A
5219	A/B	08A	VS-D-4-9B	VS/MAIN FILTER BANK [1VS-FL-4,5,6] OUT DAMPER	RB-8H (K-10 7/8)	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	YES	RE-21MS	PNL-AC-11 BK 1	A
5243	A/B	08A	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK U	A
5244	A/B	08A	VS-D-40-1B	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK J	A
5245	A/B	08A	VS-D-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R 13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E9 BK V	A
5246	A/B	08A	VS-D-40-1D	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R 13	OPEN	OPEN	NO	RE-21ML,RB-2D,17J,17K	MCC1-E10 BK K	A
5247	A/B	0	VS-D-40-1F	VS/MIN OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R 13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5248	A/B	0	VS-D-40-1G	VS/MAX OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R 13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5249	A/B	0	VS-D-40-1H	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R 13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5250	A/B	0	VS-D-40-1K	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R 13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5251	A/B	0	VS-D-40-1M	VS/VS-F-40A & B EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	S	R 13	OPEN	OPEN	NO	RB-2D,17J,17K	N/A	A
5228	A	08A	VS-D-5-2	VS/CNMT PURGE & EXHAUST TO MAIN FILTER BANK DAMPER	RB-8H (K-10 1/4)	AXLB	768	OVERHEAD	R		CLOSED	CLOSED	NO	RE-21MH	PNL-AC-11 BK 5	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<--------- EQUIPMENT LOCATION -----> Building	Flr.Elv.	Rm. or Row/Col.	SORT	NOTES	<-- OP. ST. --> Normal	Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5101D	A	0	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK 9	A
5101E	A	0	VS-D-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK B	A
5102D	B	0	VS-D-57B1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E2 BK B	A
5102E	B	0	VS-D-57B2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	B CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E2 BK B	A
5103D	A/B	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 BK E	A
5103E	A/B	0	VS-D-57C2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	C CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 BK E	A
5229	A	08A	VS-D-7-2A	VS/AUX BLDG A SYSTEM MAIN FILTER BANK IN DAMPER	RB-8G (G7/8-1G 1/4)	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MA	PNL-AC-7 BK 16	A
5230	B	08A	VS-D-7-4A	VS/AUX BLDG B SYSTEM MAIN FILTER BANK IN DAMPER	RB-8G (SECT Y-Y)	AXLB	768	ABOVE EXH FANS	R		CLOSED	CLOSED	NO	RE-21MA	PNL-AC-8 BK 45	A
5277	A	10	VS-E-14A	VS/RIVER WATER COOLING COILS	VTI 10.1-45	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
5278	B	10	VS-E-14B	VS/RIVER WATER COOLING COILS	VTI 10.1-45	SRVB	713	CR VENT	S		N/A	N/A	N/A	N/A	N/A	A
5203	A	09	VS-F-16A	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	ON	ON	YES	RE-21MZ	MCC1-E9 BK AF	A
5204	B	09	VS-F-16B	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK AC	A
5325	A	09	VS-F-22A	VS/DG BLDG EXHAUST FAN	RB-27A, VTI 10.1-242	DGBX	756	DG#1 ROOF	S R		OFF	ON	YES	RE-21MP	MCC1-E7 BK E	A
5326	B	09	VS-F-22B	VS/DG BLDG EXHAUST FAN	RB-27A, VTI 10.1-242	DGBX	756	DG#2 ROOF	S R		OFF	ON	YES	RE-21MP	MCC1-E8 BK E	A
5237	A	09	VS-F-40A	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E9 BK C	A
5238	B	09	VS-F-40B	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MJ	MCC1-E10 BK C	A
5222	A	09	VS-F-4A	VS/LEAK COLLECTION EXHAUST FAN	DWG RM-2B, VTI 10.001-153	AXLB	768	NE CORNER	S R		ON	ON	YES	RE-21MS	480V BUS 1N BK5	A
5223	B	09	VS-F-4B	VS/LEAK COLLECTION EXHAUST FAN	DWG RM-2B, VTI 10.001-153	AXLB	768	NE CORNER	S R		OFF	ON	YES	RE-21MS	480V BUS 1P BK6	A
5201	A	09	VS-F-55A	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E9 BK P	A
5202	B	09	VS-F-55B	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK X	A
5101C	A	09	VS-F-57A	VS/INTAKE STRUCTURE CUBICLE #1 SUPPLY FAN	RB-2E	INTS	705	A CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E1 BK B	A
5102C	B	09	VS-F-57B	VS/INTAKE STRUCTURE CUBICLE #2 SUPPLY FAN	RB-2E	INTS	705	B CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E2 BK B	A

BEAVER VALLEY POWER STATION UNIT 1
COMPOSITE BY EQUIPMENT ID
SAFE SHUTDOWN EQUIPMENT LIST (SSEL)
528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	<---------- EQUIPMENT Building	Flr.Elv.	LOCATION -----> Rm. or Row/Col.	SORT	NOTES	<-- OP. Normal	ST. --> Desired	POWER REQD?	SUPPORTING SYS. DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	REG. ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5103C	A/B	09	VS-F-57C	VS/INTAKE STRUCTURE CUBICLE 03 SUPPLY FAN	RB-2E	INTS	705	C CUBICLE	S R		ON	ON	YES	RE-21MW	MCC1-E1/2 BK E	A
5101	A	06	WR-P-1A	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	A CUBICLE	S R		ON	ON	YES	RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1AE BK E10	A
5102	B	06	WR-P-1B	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	B CUBICLE	S R		OFF	ON	YES	RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1DF BK F10	A
5103	A/B	06	WR-P-1C	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	C CUBICLE	S R		OFF	ON	YES	RE-21KX,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 1AE OR 1DF B	A
4106	N/A	21	WT-TK-10	WT/DEMIN WATER STORAGE TANK	DWG RV-34A,RP-6C	YARD	735	YARD	S		N/A	N/A	NO		N/A	A

APPENDIX 5.1
Screening Verification Data Sheets (SVDS)

All of the information contained on the following Screening Verification Data Sheets (SVDS), dated 12-22-95, is to the best of our knowledge and belief, correct and accurate. "All information" includes each entry and conclusion (whether verified to be seismically adequate or not).

Approved: (Signatures apply to the components for which individuals served as a member of the SRT which reviewed them; one of which was always a registered engineer)

Paul V. Davis — Dec. 22nd, 1995 — Date

William Hwang — 12/22/95 — Date

Carmen V. Mancuso — 12-22-95 — Date

Patrick G. Pauvlinch — 12/22/95 — Date

Glenn S. Ritz — 12-22-95 — Date

G. Thomas Westbrook — 12-22-95 — Date

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8001	02	480VUS-1-8-N	37/1N 480V SUBSTATION 480VUS-1-8-N	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8002	02	480VUS-1-8-N1	37/480 VOLT AC EMERGENCY SWGR	SRVB	713	NORMAL SWGR	713	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
8003	02	480VUS-1-9-P	37/1P 480V SUBSTATION 480VUS-1-9-P	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8004	02	480VUS-1-9-P1	37/480 VOLT AC EMERGENCY SWGR	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8005	03	4KVS-1AE	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8006	03	4KVS-1DF	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5347	15	BAT-1	39/125 VOLT DC STATIONARY BATTERY	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5348	15	BAT-2	39/125 VOLT DC STATIONARY BATTERY	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5349	15	BAT-3	39/125 VOLT DC STATIONARY BATTERY	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5350	15	BAT-4	39/125 VOLT DC STATIONARY BATTERY	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8007	02	BAT-BKR-1	39/MAIN DC BUS #1 BATTERY CIRCUIT BREAKER	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8008	02	BAT-BKR-2	39/MAIN DC BUS #2 BATTERY CIRCUIT BREAKER	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8009	02	BAT-BKR-3	39/MAIN DC BUS #3 BATTERY CIRCUIT BREAKER	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8010	02	BAT-BKR-4	39/MAIN DC BUS #4 BATTERY CIRCUIT BREAKER	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	NO	NO	YES
5343	16	BAT-CHG-1	39/BATTERY CHARGER #1	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
5344	16	BAT-CHG-2	39/BATTERY CHARGER #2	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	NO	YES	NO	YES
5345	16	BAT-CHG-3	39/BATTERY CHARGER #3	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
5346	16	BAT-CHG-4	39/BATTERY CHARGER #4	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8011	20	BNCHPD	38/CONTROL ROOM MAIN CONTROL BOARD	SRVB	735	CONTROL	735	YES	ABS	CRS	YES	YES	YES	NO	NO	YES
5116	21	CC-E-1A	CC/CCR HEAT EXCH	AXLB	735	N/A	752	N/A	GIP	GIP	N/A	N/A	NO	YES	NO	YES
5117	21	CC-E-1B	CC/CCR HEAT EXCH	AXLB	735	N/A	752	N/A	GIP	GIP	N/A	N/A	NO	YES	NO	YES
5118	21	CC-E-1C	CC/CCR HEAT EXCH	AXLB	735	N/A	752	N/A	GIP	GIP	N/A	N/A	NO	YES	NO	YES
1221	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	AXLB	722	LETDOWN CUBICLE	731	YES	GIP	GIP	YES	N/A	YES	YES	YES	NO
5113	21	CH-E-7A	CH/CHARGING PUMP HEAT EXCH	AXLB	722	CH-P-1A CUBICLE	722	YES	GIP	GIP	YES	N/A	YES	YES	YES	NO
5114	21	CH-E-7B	CH/CHARGING PUMP HEAT EXCH	AXLB	722	CH-P-1B CUBICLE	722	YES	GIP	GIP	YES	N/A	YES	YES	YES	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5115	21	CH-E-7C	CH/CHARGING PUMP HEAT EXCH	AXLB	722	CH-P-1C CUBICLE	722	YES	GIP	GIP	YES	N/A	YES	YES	YES	NO
1212	05	CH-P-1A	CH/CHARGING PUMP	AXLB	722	CH-P-1A CUBICLE	722	YES	ABS	CRS	YES	YES	YES	YES	ES	NO
2213	05	CH-P-1B	CH/CHARGING PUMP	AXLB	722	CH-P-1B CUBICLE	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
1214	05	CH-P-1C	CH/CHARGING PUMP	AXLB	722	CH-P-1C CUBICLE	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
1246	05	CH-P-2A	CH/BORIC ACID TRANSFER PUMP	AXLB	752	BA PUMP CUBICLE	752	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
1247	05	CH-P-2B	CH/BORIC ACID TRANSFER PUMP	AXLB	752	BA PUMP CUBICLE	752	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
1244	21	CH-TK-1A	CH/BORIC ACID TANK	AXLB	752	BA TANK CUBICLE	752	YES	GIP	GIP	N/A	N/A	NO	NO	NO	NO
1245	21	CH-TK-1B	CH/BORIC ACID TANK	AXLB	752	BA TANK CUBICLE	752	YES	GIP	GIP	N/A	N/A	NO	NO	NO	NO
8012	14	DC-SWBD-1	39/125 VDC SWITCHBOARD NO 1	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8013	14	DC-SWBD-2	39/125 VDC SWITCHBOARD NO 2	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	NO	YES	NO	NO
8014	14	DC-SWBD-3	39/125 VDC SWITCHBOARD NO 3	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8015	14	DC-SWBD-4	39/125 VDC SWITCHBOARD NO 4	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5300C	12	EE-C-1A	EE/DIESEL GENERATOR START AIR COMPRESSOR	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5300E	12	EE-C-1B	EE/DIESEL GENERATOR START AIR COMPRESSOR	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5300D	12	EE-C-2A	EE/DIESEL GENERATOR START AIR COMPRESSOR	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5300F	12	EE-C-2B	EE/DIESEL GENERATOR START AIR COMPRESSOR	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5129	21	EE-E-1A	EE/DIESEL GEN COOLING HT EXCH	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	YES	YES	YES	YES	YES	NO
5130	21	EE-E-1B	EE/DIESEL GEN COOLING HT EXCH	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	NO	YES	YES	NO	NO
5301	17	EE-EG-1	EE/#1 DIESEL GENERATOR	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
5302	17	EE-EG-2	EE/#2 DIESEL GENERATOR	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
5303	05	EE-P-1A	EE/FUEL OIL TRANSFER PUMP	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5304	05	EE-P-1B	EE/FUEL OIL TRANSFER PUMP	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5305	05	EE-P-1C	EE/FUEL OIL TRANSFER PUMP	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5306	05	EE-P-1D	EE/FUEL OIL TRANSFER PUMP	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5307	21	EE-TK-1A	EE/EDG FUEL OIL STORAGE TANK	YARD	724	YARD	724	YES	GIP	GIP	N/A	N/A	YES	N/A	NO	YES
5308	21	EE-TK-1B	EE/EDG FUEL OIL STORAGE TANK	YARD	724	YARD	724	YES	GIP	GIP	N/A	N/A	YES	N/A	NO	YES

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5309	21	EE-TK-2A	EE/EDG FUEL OIL DAY TANK	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	YES	N/A	YES	NO	NO	NO
5310	21	EE-TK-2B	EE/EDG FUEL OIL DAY TANK	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	N/A	YES	YES	YES	NO
5311	21	EE-TK-3A	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	N/A	N/A	NO	YES	NO	NO
5312	21	EE-TK-3B	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	N/A	N/A	NO	YES	NO	NO
5313	21	EE-TK-3C	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	N/A	N/A	NO	YES	NO	NO
5314	21	EE-TK-3D	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	N/A	N/A	NO	YES	NO	NO
5315	21	EE-TK-3E	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	N/A	N/A	NO	YES	NO	NO
5316	21	EE-TK-3F	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #1	735	YES	GIP	GIP	N/A	N/A	NO	YES	NO	NO
5317	21	EE-TK-4A	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NO	NO
5318	21	EE-TK-4B	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NO	NO
5319	21	EE-TK-4C	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NO	NO
5320	21	EE-TK-4D	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NO	NO
5321	21	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NO	NO
5322	21	EE-TK-4F	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NO	NO
1206	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	AXLB	722	BLENDER	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4107C	07	FCV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4108C	07	FCV-FW-103B	FW/3B AFW PUMP RECIRCULATION VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
2118	07	FCV-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	RCBX	767	PRZR CUBICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
2119	07	FCV-RC-455C2	RC/(PCV-RC-455C) FLOW METERING	RCBX	767	PRZR CUBICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
2120	07	FCV-RC-455D1	RC/(PCV-RC-455D) FLOW METERING	RCBX	767	PRZR CUBICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
2121	07	FCV-RC-455D2	RC/(PCV-RC-455D) FLOW METERING	RCBX	767	PRZR CUBICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
8133	20	FE-CDL-1A	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM WEST	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8134	20	FE-CDL-1B	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM EAST	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
1205B	20	FI-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	SRVB	735	CONT RM BB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
2228B	20	FI-CH-124	CH/RCP-1C SEAL INJECTION FLOW INDICATOR	SRVB	735	CONT RM VB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
2229B	20	FI-CH-127	CH/RCP-1B SEAL INJECTION FLOW INDICATOR	SRVB	735	CONT RM VB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2230B	20	FI-CH-130	CH/RCP-1A SEAL INJECTION FLOW INDICATOR	SRVB	735	CONT RM VB-A	735	TES	ABS	CRS	YES	YES	YES	YES	YES	YES
3212B	20	FI-CH-150	CH/LETDOWN FLOW INDICATION	SRVB	735	CONT RM BB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4103B	20	FI-FW-100A	FW/AUX FEED TO SGA INDIC	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4104B	20	FI-FW-100B	FW/AUX FEED TO SGB INDIC	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4105B	20	FI-FW-100C	FW/AUX FEED TO SGC INDIC	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4107D	18	FIS-FW-151A	FW/AUX FW PUMP FW-P-3A SUCTION LINE FROM WT-TK-10 FIS	SFGB	722	COLUMN C4	727	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4108D	18	FIS-FW-151B	FW/AUX FW PUMP FW-P-3B SUCTION LINE FROM WT-TK-10 FIS	SFGB	722	COLUMN C4	727	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4118	20	FR-MS-478	FW/RC-E-1A LEVEL RECORDER	SRVB	735	CONT RM BB-C	735	YES	ABS	CRS	NO	NO	YES	NO	NO	YES
4119	20	FR-MS-488	FW/RC-E-1B LEVEL RECORDER	SRVB	735	CONT RM BB-C	735	YES	ABS	CRS	NO	NO	YES	NO	NO	YES
4120	20	FR-MS-498	FW/RC-E-1C LEVEL RECORDER	SRVB	735	CONT RM BB-C	735	YES	ABS	CRS	NO	NO	YES	NO	NO	YES
1205A	16	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	AXLB	722	COL 10-1/4 & J	722	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
2228A	18	FT-CH-124	CH/RCP-1C SEAL INJECTION FLOW TRANSMITTER	SFGB	722	PENT A	727	YES	ABS	CRS	YES	NO	NO	YES	NO	NO
2229A	18	FT-CH-127	CH/RCP-1B SEAL INJECTION FLOW TRANSMITTER	SFGB	722	PENT A	727	YES	ABS	CRS	YES	NO	NO	YES	NO	NO
2230A	18	FT-CH-130	CH/RCP-1A SEAL INJECTION FLOW TRANSMITTER	SFGB	722	PENT A	727	YES	ABS	CRS	YES	NO	NO	YES	NO	NO
3212A	18	FT-CH-150	CH/LETDOWN FLOW TRANSMITTER	AXLB	722	COL 11-1/2 & G	722	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4103A	18	FT-FW-100A	FW/AUX FEED TO SGA TRANSMITTER	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4104A	18	FT-FW-100B	FW/AUX FEED TO SGB TRANSMITTER	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4105A	18	FT-FW-100C	FW/AUX FEED TO SGC TRANSMITTER	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4107	05	FW-P-3A	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	NO	NO	YES	NO	NO
4108	05	FW-P-3B	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	NO	NO	YES	NO	NO
2132	21	GN-TK-1A	GN/NITROGEN HEADER ACCUMULATOR	RCBX	767	PRZR CUBICLE	767	NO	GIP	GIP	N/A	N/A	NO	NO	NO	NO
2133	21	GN-TK-1B	GN/NITROGEN HEADER ACCUMULATOR	RCBX	767	PRZR CUBICLE	767	NO	GIP	GIP	N/A	N/A	NO	NO	NO	NO
1229	07	HCV-CH-186	CH/RCP SEAL SUPPLY, [illegible]NT	AXLB	722	BLENDER ROOM	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
1233	07	HCV-CH-389	CH/EXCESS LETDOWN DRA[illegible]RT VALVE	RCBX	707	EXC LETD PLATF	707	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4204	07	HCV-MS-104	MS/RESIDUAL HEAT RELEASE	SFGB	752	MSVH	752	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
5335	16	INV-VITBUS-1	UPS/VITAL BUS #1 INVERTER	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5336	16	INV-VITBUS-2	UPS/VITAL BUS #2 INVERTER	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5337	16	INV-VITBUS-3	UPS/VITAL BUS #3 INVERTER	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
5338	16	INV-VITBUS-4	UPS/VITAL BUS #4 INVERTER	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	NO	YES	NO	YES
3204	07	LCV-CH-460A	CH/LETDOWN ISOLATION VALVE	RCBX	718	A CUBICLE	721+	YES	ABS	CRS	YES	YES	N/A	NO	NO	NO
3205	07	LCV-CH-460B	CH/LETDOWN ISOLATION VALVE	RCBX	718	A CUBICLE	721+	YES	ABS	CRS	YES	YES	N/A	NO	NO	NO
4121B	20	LI-FW-474	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4122B	20	LI-FW-475	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4123B	20	LI-FW-476	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4124B	20	LI-FW-484	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4125B	20	LI-FW-485	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4126B	20	LI-FW-486	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4127B	20	LI-FW-494	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4128B	20	LI-FW-495	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4129B	20	LI-FW-496	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
1201B	20	LI-QS-100A	QS/RWST LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
1202B	20	LI-QS-100B	QS/RWST LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
1203B	20	LI-QS-100C	QS/RWST LEVEL INDICATOR	SRVB	735	CONT RM VB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
3124B	20	LI-RC-459A	RC/PZR LEVEL INDICATOR	SRVB	735	CONT RM BB-B	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
3125B	20	LI-RC-460	RC/PZR LEVEL INDICATOR	SRVB	735	CONT RM BB-B	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
3126B	20	LI-RC-461	RC/PZR LEVEL INDICATOR	SRVB	735	CONT RM BB-B	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4101B	20	LI-WT-104A1	WT/WT-TK-10 LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
4102B	20	LI-WT-104A2	WT/WT-TK-10 LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ----> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1204B	20	LR-QS-100	QS/RWST LEVEL RECORDER	SRV6	735	CONT RM VB-A	735	YES	ABS	CRS	NO	NO	NO	YES	NO	YES
4121A	18	LT-FW-474	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 16	722	YES	ABS	CRS	YES	YES	YES	YES	ES	MO
4122A	18	LT-FW-475	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 16	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4123A	18	LT-FW-476	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 15	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4124A	18	LT-FW-484	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	RCBX	738	ANNULUS COL 9	740	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
4125A	18	LT-FW-485	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	RCBX	738	ANNULUS COL 9	738	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
4126A	18	LT-FW-486	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 9	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4127A	18	LT-FW-494	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 5	718	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
4128A	18	LT-FW-495	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 5	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
4129A	18	LT-FW-496	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 4	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
1201A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	YARD	735	AT RWST	737	YES	BS	GRS	YES	YES	N/A	NO	NO	NO
1202A	18	LT-QS-100B	QS/RWST LEVEL TRANSMITTER	YARD	735	AT RWST	737	YES	BS	GRS	YES	YES	N/A	NO	NO	NO
1203A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	YARD	735	AT RWST	737	YES	BS	GRS	YES	YES	N/A	NO	NO	NO
1204A	18	LT-QS-100D	QS/RWST LEVEL TRANSMITTER	YARD	735	AT RWST	737	YES	B.	GRS	YES	YES	N/A	NO	NO	NO
3124A	18	LT-RC-459	RC/PZR LEVEL TRANSMITTER	RCBX	718	OUTSIDE PZR CUB	718	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
3125A	18	LT-RC-460	RC/PZR LEVEL TRANSMITTER	RCBX	718	OUTSIDE PZR CUB	718	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
3126A	18	LT-RC-461	RC/PZR LEVEL TRANSMITTER	RCBX	718	OUTSIDE PZR CUB	718	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
4101A	18	LT-WT-104A1	WT/WT-TK-10 LEVEL TRANSMITTER	YARD	735	AT DWST	735	YES	BS	GRS	YES	YES	YES	YES	YES	NO
4102A	18	LT-WT-104A2	WT/WT-TK-10 LEVEL TRANSMITTER	YARD	735	AT DWST	735	YES	BS	GRS	YES	YES	YES	YES	YES	NO
8118	01	MCC-1-14	37/480V MCC FED FROM 480V SUBSTA 1-4 BUS1H BKR4H7	AXLB	735	SOUTH OF LWFL1B	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8018	01	MCC-1-E1	EE/480V MOTOR CONTROL CENTER	INTS	705	A CUBICLE	705	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
8027	01	MCC-1-E10	EE/480V MOTOR CONTROL CENTER	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8028	01	MCC-1-E11	EE/480V MOTOR CONTROL CENTER	SFGB	735	W CABLE VAULT	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE #	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- EQUIPMENT LOCATION ---> Building	Flr.Elv.	Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8029	01	MCC-1-E12	EE/480V MOTOR CONTROL CENTER	SFGB	735	E CABLE VAULT	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8030	01	MCC-1-E13	EE/480V MOTOR CONTROL CENTER	SFGB	756	MCC ROOM	756	YES	ABS	CRS	YES	YES	YES	YES	ES	YES
8031	01	MCC-1-E14	EE/480V MOTOR CONTROL CENTER	SFGB	735	E CABLE VAULT	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8019	01	MCC-1-E2	EE/480V MOTOR CONTROL CENTER	INTS	705	B CUBICLE	705	NO	ABS	CRS	YES	YES	YES	YES	YES	YES
8020	01	MCC-1-E3	EE/480V MOTOR CONTROL CENTER	AXLB	735	COL B-7/8	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8021	01	MCC-1-E4	EE/480V MOTOR CONTROL CENTER	AXLB	735	COL B-7/8	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8022	01	MCC-1-E5	EE/480V MOTOR CONTROL CENTER	SFGB	735	W CABLE VAULT	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8023	01	MCC-1-E6	EE/480V MOTOR CONTROL CENTER	SFGB	735	E CABLE VAULT	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8024	01	MCC-1-E7	EE/480V MOTOR CONTROL CENTER	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	NO	YES	NO	NO
8025	01	MCC-1-E8	EE/480V MOTOR CONTROL CENTER	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8026	01	MCC-1-E9	EE/480V MOTOR CONTROL CENTER	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	NO	NO	NO
1208	08A	MOV-CH-115B	CH/RWST-CHARGING PUMP ISOLATION	AXLB	722	BLENDER	724	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
1209	08A	MOV-CH-115C	CH/VCT ISOLATION VALVE	AXLB	722	BLENDER	737	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
1210	08A	MOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	AXLB	722	BLENDER	724	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
1211	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	AXLB	722	BLENDER	737	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
1248	08A	MOV-CH-350	CH/EMERGENCY BORATION ISOLATION	AXLB	722	BLENDER	722	YES	ABS	CRS	YES	NO	N/A	NO	NO	NO
3209	08A	MOV-CH-378	CH/RCP SEAL LEAKOFF ISOLATION	RCBX	718	PENT #19	731	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
3210	08A	MOV-CH-381	CH/RCP SEAL LEAKOFF ISOLATION	SFGB	722	PENT A	722	YES	ABS	CRS	YES	NO	N/A	NO	NO	NO
4109	08A	MOV-FW-151A	FW/AUX FEED FLOW CONTROL VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4110	08A	MOV-FW-151B	FW/AUX FEED FLOW CONTROL VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4111	08A	MOV-FW-151C	FW/AUX FEED FLOW CONTROL VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4112	08A	MOV-FW-151D	FW/AUX FEED FLOW CONTROL VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4113	08A	MOV-FW-151E	FW/AUX FEED FLOW CONTROL VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4114	08A	MOV-FW-151F	FW/AUX FEED FLOW CONTROL VALVE	SFGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4214	08A	MOV-MS-105	MS/AFW TURBINE STEAM SUPPLY ISOLATION	SFGB	735	MSVH	751	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
2104	08A	MOV-RC-535	RC/PRESSURIZER PORV ISOLATION	RCBX	768	PZR CUBICLE	784	NO	ABS	CRS	YES	YES	N/A	YES	YES	NO
2106	08A	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	RCBX	768	PZR CUBICLE	784	NO	ABS	CRS	YES	YES	N/A	YES	YES	NO
2108	08A	MOV-RC-537	RC/PRESSURIZER PORV ISOLATION	RCBX	768	PZR CUBICLE	784	NO	ABS	CRS	YES	YES	N/A	NO	NO	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5104	08A	MOV-RW-102A1	RW/PUMP DISCHARGE ISO	INTS	705	A CUBICLE	705	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5105	08A	MOV-RW-102A2	RW/PUMP DISCHARGE ISO	INTS	705	A CUBICLE	705	NO	ABS	CRS	YES	YES	N/A	YES	ES	YES
5106	08A	MOV-RW-102B1	RW/PUMP DISCHARGE ISO	INTS	705	B CUBICLE	705	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5107	08A	MOV-RW-102B2	RW/PUMP DISCHARGE ISO	INTS	705	B CUBICLE	705	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5108	08A	MOV-RW-102C1	RW/PUMP DISCHARGE ISO	INTS	705	C CUBICLE	705	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5109	08A	MOV-RW-102C2	RW/PUMP DISCHARGE ISO	INTS	705	C CUBICLE	705	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
4116	08A	MOV-RW-103A	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	AXLB	722	COL K	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4117	08A	MOV-RW-103B	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	AXLB	722	COL K	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
5119	08A	MOV-RW-106A	RW/CCR HT EXCH ISOLATION	AXLB	722	EAST CENTRAL	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
5121	08A	MOV-RW-113A	RW/DIESEL GEN COOLING ISO	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
5122	08A	MOV-RW-113B	RW/DIESEL GEN COOLING ISO	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
5123	08A	MOV-RW-113C	RW/DIESEL GEN COOLING ISO	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
5124	08A	MOV-RW-113D1	RW/DIESEL GEN COOLING ISO	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
5125	08A	MOV-RW-114A	RW/CCR HT EXCH ISOLATION	AXLB	722	EAST CENTRAL	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
8016	20	NM-NI-31A	02/SOURCE RANGE PREAMPLIFIER	SFGB	735	W CABLE VAULT	740	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8017	20	NM-NI-32A	02/SOURCE RANGE PREAMPLIFIER	SFGB	735	E CABLE VAULT	740	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8135	20	PCC-FE-1A	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8136	20	PCC-FE-1B	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
2128	07	PCV-GN-108	SI/(PCV-RC-455D) NITROGEN PRESSURE CONTROL	RCBX	767	PRZR CUBICLE	767	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2129	07	PCV-GN-109	SI/(PCV-RC-455C) NITROGEN PRESSURE CONTROL	RCBX	767	PRZR CUBICLE	773	NO	ABS	CRS	YES	YES	N/A	YES	YES	NO
2130	07	PCV-IA-108	IA/(PCV-RC-455D) INST AIR PRESSURE CONTROL	RCBX	767	CRANE WALL	773	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
2131	07	PCV-IA-109	IA/(PCV-RC-455C) INST AIR PRESSURE CONTROL	RCBX	767	CRANE WALL	773	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
4205	07	PCV-MS-101A	MS/A LOOP ATM STEAM DUMP	SFGB	752	MSVH	778	N/A	ABS	CRS	YES	YES	N/A	YES	NO	YES
4206	07	PCV-MS-101B	MS/B LOOP ATM STEAM DUMP	SFGB	752	MSVH	778	N/A	ABS	CRS	YES	YES	N/A	YES	NO	YES

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
4207	07	PCV-MS-101C	MS/C LOOP ATM STEAM DUMP	SFGB	752	MSVH	778	N/A	ABS	CRS	YES	YES	N/A	YES	NO	YES
2105	07	PCV-RC-455C	RC/PRESSURIZER PORV	RCBX	767	PZR CUBICLE	784	NO	ABS	CRS	YES	NO	N/A	YES	N/	NO
2109	07	PCV-RC-455D	RC/PRESSURIZER PORV	RCBX	767	PZR CUBICLE	767+	NO	ABS	CRS	YES	NO	N/A	NO	NO	NO
2107	07	PCV-RC-456	RC/PRESSURIZER PORV	RCBX	767	PZR CUBICLE	767+	NO	ABS	CRS	YES	NO	N/A	NO	NO	NO
5110	07	PCV-RW-130A	RW/SEAL WATER PCV FOR RW PUMP	INTS	705	A CUBICLE	643	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5111	07	PCV-RW-130B	RW/SEAL WATER PCV FOR RW PUMP	INTS	705	B CUBICLE	643	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5112	07	PCV-RW-130C	RW/SEAL WATER PCV FOR RW PUMP	INTS	705	C CUBICLE	643	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2110B	20	PI-RC-402A	RCS/WIDE RANGE PRESSURE INDICATOR	SRVB	735	CONT RM VB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
2111B	20	PI-RC-403	RCS/WIDE RANGE PRESSURE INDICATOR	SRVB	735	CONT RM VB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8034	14	PNL-AC-BUS-1E	38/VITAL BUS DIST PANEL 1E	SRVB	713	RELAY	719	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8035	14	PNL-AC-BUS-1F	38/VITAL BUS DIST PANEL 1F	SRVB	713	RELAY	719	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8036	14	PNL-AC-E1	38/120 VOLT AC POWER DISTRIBUTION PANEL	SRVB	713	AE SWGR	717	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8037	14	PNL-AC-E2	38/120 VOLT AC POWER DISTRIBUTION PANEL	SRVB	713	DF SWGR	717	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8038	14	PNL-AC-E3	38/120 VOLT AC POWER DISTRIBUTION PANEL	SRVB	713	AE SWGR	717	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8039	14	PNL-AC-E4	38/120 VOLT AC POWER DISTRIBUTION PANEL	SRVB	713	DF SWGR	717	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8117	20	PNL-AMSAC	45B/ANTICIP TRANS W/O SCRAM MITIGATING SYS ACTUAT CIRCT	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8040	20	PNL-BLDG-SER-A	VS/PLANT VENTILATION CONTROL PANEL	SRVB	735	CONTROL	735	YES	ABS	CRS	YES	YES	NO	NO	NO	NO
8041	20	PNL-BLDG-SER-B	VS/PLANT VENTILATION CONTROL PANEL	SRVB	735	CONTROL	735	YES	ABS	CRS	YES	YES	NO	NO	NO	NO
8042	14	PNL-DC-2	39/125 VOLT DC POWER DISTRIBUTION PANEL	SRVB	735	CONTROL	738	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8043	14	PNL-DC-3	39/125 VOLT DC POWER DISTRIBUTION PANEL	SRVB	735	CONTROL	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8044	20	PNL-DG-SEQ-1	36/DG AUTOMATIC SEQUENCE RELAY PANEL 1	SRVB	713	AE SWGR	718	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8045	20	PNL-DG-SEQ-2	36/DG AUTOMATIC SEQUENCE RELAY PANEL 2	SRVB	713	DF SWGR	718	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8046	20	PNL-DGEA-1	36/DG EXCITATION AUX RELAY PANEL 1	DGBX	735	DIESEL GEN #1	740	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8047	20	PNL-DGEA-2	36/DG EXCITATION AUX RELAY PANEL 2	DGBX	735	DIESEL GEN #2	742	YES	ABS	CRS	YES	YES	YES	YES	YES	NO

BEAVER VALLEY POWER STATION UNIT 1
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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5323	20	PNL-DIGEN-1	EE/DIESEL GENERATOR #1 CONTROL PANEL	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5324	20	PNL-DIGEN-2	EE/DIESEL GENERATOR #2 CONTROL PANEL	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8125	18	PNL-MS-101A	MS/INSTRUMENT RACK FOR SOV-MS-101A AND SOV-MS-101A4	SFGB	751	MSVH	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8126	18	PNL-MS-101B	MS/INSTRUMENT RACK FOR SOV-MS-101B AND SOV-MS-101B4	SFGB	751	MSVH	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8127	18	PNL-MS-101C	MS/INSTRUMENT RACK FOR SOV-MS-101C AND SOV-MS-101C4	SFGB	751	MSVH	722	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8115	20	PNL-PAS-RA	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	SRVB	713	RELAY ROOM	717	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8116	20	PNL-PAS-RB	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	SRVB	713	RELAY ROOM	717	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8048	14	PNL-PR-HTR-A	RC/PRESSURIZER HEATERS POWER DIST. PANEL	SFGB	735	W CABLE VAULT	740	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8049	14	PNL-PR-HTR-B	RC/PRESSURIZER HEATERS POWER DIST. PANEL	SFGB	735	E CABLE VAULT	740	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8050	14	PNL-PR-HTR-D	RC/PRESSURIZER HEATERS POWER DIST. PANEL	SFGB	735	W CABLE VAULT	740	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8051	14	PNL-PR-HTR-E	RC/PRESSURIZER HEATERS POWER DIST. PANEL	SFGB	735	E CABLE VAULT	740	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8052	20	PNL-REL-19	36/DG #1 PROTECTION RELAY PANEL	SRVB	713	RELAY	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8053	20	PNL-REL-21	36/UNDERFREQUENCY RELAY PANEL REACTOR COOLANT PUMPS	SRVB	713	RELAY	713	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
8054	20	PNL-REL-22	36/DG #2 PROTECTION RELAY PANEL	SRVB	713	RELAY	713	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
8055	20	PNL-REL-31	38/AUX RELAY PANEL	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8056	20	PNL-REL-32	38/AUX RELAY PANEL	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8057	20	PNL-REL-33	38/AUX RELAY PANEL	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8058	20	PNL-REL-34	38/AUX RELAY PANEL	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8059	20	PNL-REL-35	38/RELAY PANEL	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8060	20	PNL-REL-36	38/RELAY PANEL	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8061	20	PNL-REL-37	38/RELAY PANEL	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8062	20	PNL-REL-38	38/RELAY PANEL	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	< Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8108	20	PNL-REL-40	36/RELAY PANEL 40	SRVB	713	NORMAL SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8109	20	PNL-REL-41	36/RELAY PANEL 41	SRVB	713	NORMAL SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8063	20	PNL-REL-DGI	36/DG ISOLATION RELAY PANEL	DGBX	735	DIESEL GEN #2	742	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8064	20	PNL-SHUTDN-A	01/EMERGENCY SHUTDOWN PANEL	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8065	20	PNL-SHUTDN-B	01/EMERGENCY SHUTDOWN PANEL	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8129	18	PNL-SI-02	45/DISTRIBUTION PANEL	SFGB	722	PIPE TUNNEL	722	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8131	18	PNL-SI-06	45/DISTRIBUTION PANEL	SFGB	722	PIPE TUNNEL	722	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8066	14	PNL-VITBUS-1	38/VITAL BUS DIST PANEL 1	SRVB	735	CONTROL	739	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8067	14	PNL-VITBUS-2	38/VITAL BUS DIST PANEL 2	SRVB	735	CONTROL	739	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8068	14	PNL-VITBUS-3	38/VIBAL BUS DIST PANEL 3	SRVB	735	CONTROL	739	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8069	14	PNL-VITBUS-4	38/VITAL BUS DIST PANEL 4	SRVB	735	CONTROL	739	YES	ABS	CRS	YES	[illegible]	YES	YES	NO	NO
4205E	18	PS-MS-101A	MS/ATMOSPHERE STEAM DUMP S.G. 1A	SFGB	768	MSVH	772	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
4206E	18	PS-MS-101B	MS/ATMOSPHERE STEAM DUMP S.G. 1B	SFGB	768	MSVH	772	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
4207E	18	PS-MS-101C	MS/ATMOSPHERE STEAM DUMP S.G. 1C	SFGB	768	MSVH	772	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
2110A	18	PT-RC-402	RC/WIDE RANGE RCS PRESSURE TRANS	RCBX	717	ANNULUS COL 4-5	717	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
2111A	18	PT-RC-403	RC/WIDE RANGE RCS PRESSURE TRANS	RCBX	692	A CUBICLE	701	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8121	18	QS-RACK-1	QS/RACK FOR RWST HEAT TRACE (EAST SIDE OF RWST)	YARD	735	YARD	735	YES	BS	GRS	YES	YES	YES	YES	YES	NO
8122	18	QS-RACK-2	QS/RACK FOR RWST HEAT TRACE (NE SIDE OF RWST)	YARD	735	YARD	735	YES	BS	GRS	YES	NO	YES	YES	NO	NO
8123	18	QS-RACK-3	QS/RACK FOR RWST HEAT TRACE (SOUTH SIDE OF RWST)	YARD	735	YARD	739	YES	BS	GRS	YES	YES	YES	NO	NO	NO
8124	18	QS-RACK-4	QS/RACK FOR RWST HEAT TRACE (SE SIDE OF RWST)	YARD	735	YARD	739	YES	BS	GRS	YES	YES	YES	YES	YES	NO
1207	21	QS-TK-1	QS/REFUELING WATER STORAGE TANK	YARD	735	YARD	735	YES	GIP	GIP	NO	N/A	NO	NO	NO	NO
8070	02	REAC-TR-SWGR	01/REACTOR TRIP SWITCHGEAR	SRVB	713	ROD M/G ROOM	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8071	20	RK-AUX-RELA	01/INSTRUMENT AND CONTROL RELAY RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8072	20	RK-AUX-RELB	01/INSTRUMENT AND CONTROL RELAY RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8073	20	RK-AUX-RPTST-A	01/REACTOR PROTECTION TEST RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO

BEAVER VALLEY POWER STATION UNIT 1
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8074	20	RK-AUX-RPTST-B	01/REACTOR PROTECTION TEST RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8075	20	RK-NUC-INS-1	02/EXCORE NUCLEAR INSTRUMENTATION RACK	SRVB	735	CONTROL	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8076	20	RK-NUC-INS-2	02/EXCORE NUCLEAR INSTRUMENTATION RACK	SRVB	735	CONTROL	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8077	20	RK-PRI-PROC-1	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8080	20	RK-PRI-PROC-10	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8082	20	RK-PRI-PROC-11	04/PLANT INSTRUMENT/PROCESS RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8081	20	RK-PRI-PROC-12	04/PLANT INSTRUMENT/PROCESS RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8083	20	RK-PRI-PROC-13	04/PLANT INSTRUMENT/PROCESS RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8084	20	RK-PRI-PROC-14	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8085	20	RK-PRI-PROC-15	04/PLANT PROCESS INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
8086	20	RK-PRI-PROC-16	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8087	20	RK-PRI-PROC-17	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
8088	20	RK-PRI-PROC-18	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8078	20	RK-PRI-PROC-2	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8089	20	RK-PRI-PROC-25	04/PLANT INSTRUMENT/PROCESS RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8090	20	RK-PRI-PROC-26	04/PLANT INSTRUMENT/PROCESS RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8079	20	RK-PRI-PROC-3	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8091	20	RK-PRI-PROC-30	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8092	20	RK-PRI-PROC-31	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8093	20	RK-PRI-PROC-34	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8094	20	RK-PRI-PROC-35	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8128	20	RK-RAD-MON-7	RM/RADIATION MONITOR RACK #7	SRVB	735	CONTROL ROOM	735	YES	ABS	CRS	YES	NO	YES	NO	NO	NO
8095	20	RK-REAC-PROT-A	01/REACTOR PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8096	20	RK-REAC-PROT-B	01/REACTOR PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8097	20	RK-REC-P-TST-A	01/REACTOR PROTECTION TEST RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8098	20	RK-REC-P-TST-B	01/REACTOR PROTECTION TEST RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8099	20	RK-SEC-PROC-A	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8100	20	*RK-SEC-PROC-B	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8101	20	RK-SEC-PROC-C	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8102	20	RK-SEC-PROC-D	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8102A	20	RK-VS-AC-1A	44A/CONTROL ROOM TEMP CONTROL AIR COMPRESSOR RACK	SRVB	713	CR VENT	718	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8102B	20	RK-VS-AC-1B	44A/CONTROL ROOM AIR HANDLING UNIT SUPPLY FANS RACK	SRVB	713	CR VENT	718	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8102C	20	RK-VS-E567	VS/CONTROL ROOM HEATERS VS-E-5, 6 & 7 RACK	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	YES	NO	NO	YES
8102D	20	RK-VS-E8-12	VS/RACK FOR VS-E-8-1 & 8-2	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	YES	NO	NO	NO
3216	07	RV-CH-382A	CH/SEAL RTRN HDR RELIEF VALVE	RCBX	718	ANNULUS COL 5	719	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
5311C	07	RV-EE-201A	EE/3A AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5312C	07	RV-EE-201B	EE/3B AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5313C	07	RV-EE-201C	EE/3C AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5314C	07	RV-EE-202A	EE/3D AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5315C	07	RV-EE-202B	EE/3E AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5316C	07	RV-EE-202C	EE/3F AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5317C	07	RV-EE-203A	EE/4A AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5318C	07	RV-EE-203B	EE/4B AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5319C	07	RV-EE-203C	EE/4C AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5320C	07	RV-EE-204A	EE/4D AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
5321C	07	RV-EE-204B	EE/4E AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5322C	07	RV-EE-204C	EE/4F AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
2101	07	RV-RC-551A	RC/PRESSURIZER RELIEF SAFETY VALVE	RCBX	767	PZR CUBICLE	768+	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
2102	07	RV-RC-551B	RC/PRESSURIZER RELIEF SAFETY VALVE	RCBX	767	PZR CUBICLE	768+	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
2103	07	RV-RC-551C	RC/PRESSURIZER RELIEF SAFETY VALVE	RCBX	767	PZR CUBICLE	768+	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
1206C	08B	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	AXLB	722	BLENDER CUB	726	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3206C	08B	SOV-CH-200A	CH/(TV-1CH-200A) SOLENOID	RCBX	718	RLF TK AREA	729	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3206D	08B	SOV-CH-200A1	CH/(TV-1CH-200A) SOLENOID	RCBX	718	RLF TK AREA	729	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3207C	08B	SOV-CH-200B	CH/(TV-1CH-200B) SOLENOID	RCBX	718	RLF TK AREA	720	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3207D	08B	SOV-CH-200B1	CH/(TV-1CH-200B) SOLENOID	RCBX	718	RLF TK AREA	720	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3208C	08B	SOV-CH-200C	CH/(TV-1CH-200C) SOLENOID	RCBX	718	RLF TK AREA	724	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3208D	08B	SOV-CH-200C1	CH/(TV-1CH-200C) SOLENOID	RCBX	718	RLF TK AREA	724	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4205C	08B	SOV-MS-101A	MS/(PCV-1MS-101A) CONTROL SOLENOID	SFGB	751	MSVH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4205D	08B	SOV-MS-101A4	MS/(PCV-1MS-101A) CONTROL SOLENOID	SFGB	751	MSVH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4206C	08B	SOV-MS-101B	MS/(PCV-1MS-101B) CONTROL SOLENOID	SFGB	751	MSVH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4206D	08B	SOV-MS-101B4	MS/(PCV-1MS-101B) CONTROL SOLENOID	SFGB	751	MSVH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4207C	08B	SOV-MS-101C	MS/(PCV-1MS-101C) CONTROL SOLENOID	SFGB	751	MSVH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4207D	08B	SOV-MS-101C4	MS/(PCV-1MS-101C) CONTROL SOLENOID	SFGB	751	MSVH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4211C	08B	SOV-MS-112A1	MS/(TV-1MS-101A) PILOT VALVE	SFGB	735	AUX FEED PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4211D	08B	SOV-MS-112A2	MS/(TV-1MS-101A) PILOT VALVE	SFGB	735	AUX FEED PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4212C	08B	SOV-MS-112B1	MS/(TV-1MS-101B) PILOT VALVE	SFGB	735	AUX FEED PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4212D	08B	SOV-MS-112B2	MS/(TV-1MS-101B) PILOT VALVE	SFGB	735	AUX FEED PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4213C	08B	SOV-MS-112C1	MS/(TV-1MS-101C) PILOT VALVE	SFGB	735	QUEN SPRAY PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4213D	08B	SOV-MS-112C2	MS/(TV-1MS-101C) PILOT VALVE	SFGB	735	QUEN SPRAY PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
2122	08B	SOV-RC-455C1	SI/(PCV-RC-455C) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2123	08B	SOV-RC-455C2	SI(PCV-RC-455C) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2124	08B	SOV-RC-455D1	SI/(PCV-RC-455D) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2125	08B	SOV-RC-455D2	SI(PCV-RC-455D) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2126	08B	SOV-RC-456-1	RC/(PCV-RC-456) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2127	08B	SOV-RC-456-2	RC/(PCV-RC-456) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5339	20	SSW-VITBUS-1	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5340	20	SSW-VITBUS-2	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5341	20	SSW-VITBUS-3	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5342	20	SSW-VITBUS-4	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8103	03	SW-1-8N1	36/480 VOLT AC TRFM DISCONECT SWITCH	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
8104	03	SW-1-9P1	36/480 VOLT AC TRFM DISCONECT SWITCH	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES	NO	YES	NO	NO
8119	20	TB-348A	VS/TERM BOX W/RELAY LOC NR TB-348	AXLB	768	COL G1/B&11-1/2	768	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
8120	20	TB-349A	VS/TERM BOX W/RELAY LOC NR TB-349	AXLB	768	COL G1/B&11-1/2	768	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
4203C	20	TR-RC-410	RC/REACTOR COOLANT COLD LEG 3 PEN RECORDER	SRVB	735	CONT RM VB-A	735	YES	ABS	CRS	NO	NO	NO	YES	NO	YES
4203D	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER	SRVB	735	CONT RM VB-A	735	YES	ABS	CRS	NO	NO	NO	YES	NO	YES
8105	04	TRANS-1-8-N1	37/480V AUX EMERG BUS 1N1	SRVB	713	NORMAL SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5333	04	TRANS-1-8N	37/480V EMERG BUS 1N TRANS-1-8N	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8106	04	TRANS-1-9-P1	37/480V AUX EMERG BUS 1P1	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5334	04	TRANS-1-9P	37/480V EMERG BUS 1P TRANS-1-9P	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
4201B	19	TRB-RC-410	RC/LOOP 1A COLD LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	A CUBICLE					YES	YES	N/A	NO	NO	NO
4201A	19	TRB-RC-413	RC/LOOP 1A HOT LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	A CUBICLE					YES	YES	N/A	NO	NO	NO
4202B	19	TRB-RC-420	RC/LOOP 1B COLD LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	B CUBICLE					YES	YES	N/A	NO	NO	NO
4202A	19	TRB-RC-423	RC/LOOP 1B HOT LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	B CUBICLE					YES	YES	N/A	NO	NO	NO
4203B	19	TRB-RC-430	RC/LOOP 1C COLD LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	C CUBICLE					YES	YES	N/A	NO	NO	NO
4203A	19	TRB-RC-433	RC/LOOP 1C HOT LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	C CUBICLE					YES	YES	N/A	NO	NO	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- Building	EQUIPMENT Flr.Elv.	LOCATION ---> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8130	04	TRF-SI-02	45/SAFETY INJECTION HEAT TRACE PNL-SI-02	SFGB	722	PIPE TUNNEL	722	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8132	04	TRF-SI-06	45/SAFETY INJECTION HEAT TRACE PNL-SI-06	SFGB	722	PIPE TUNNEL	722	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
5201C	18	TS-HV-55A	VS/TEMP SWITCH FOR VS-F-55A	SRVB	713	AE SWGR	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5202C	18	TS-HV-55B	VS/TEMP SWITCH FOR VS-F-55B	SRVB	713	AE SWGR	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
3206	07	TV-CH-200A	CH/LETDOWN ORIFICE CNMT ISOLATION	RCBX	718	LETDOWN CUBICLE	728	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
3207	07	TV-CH-200B	CH/LETDOWN ORIFICE CNMT ISOLATION	RCBX	718	LETDOWN CUBICLE	719	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
3208	07	TV-CH-200C	CH/LETDOWN ORIFICE CNMT ISOLATION	RCBX	718	LETDOWN CUBICLE	724	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO
4211	07	TV-MS-101A	MS/MAIN STEAM ISOLATION	SFGB	752	MSVH	771	NO	ABS	CRS	YES	NO	N/A	NO	NO	YES
4212	07	TV-MS-101B	MS/MAIN STEAM ISOLATION	SFGB	752	MSVH	771	NO	ABS	CRS	YES	NO	N/A	YES	NO	NO
4213	07	TV-MS-101C	MS/MAIN STEAM ISOLATION	SFGB	752	MSVH	771	NO	ABS	CRS	YES	NO	N/A	NO	NO	YES
4215	07	TV-MS-111A	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	SFGB	768	MSVH	770	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
4216	07	TV-MS-111B	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	SFGB	768	MSVH	770	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
4217	07	TV-MS-111C	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	SFGB	768	MSVH	770	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
1240	08B	TV-SS-105A1	RC/HOTLEG SAMPLE HDR INSIDE CNMT ISOL TRIP VALVE	RCBX	718	PENT	718	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
1241	08B	TV-SS-105A2	RC/HOTLEG SAMPLE HDR OUTSIDE CNMT ISOL TRIP VALVE	SFGB	722	PENT A	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
1239	08B	TV-SS-106D	SS/1B RCS HOTLEG RV SIDE OF LOOP STOP SAMPLE ISOLATION	RCBX	738	B RCP CUBICLE	738	NO	ABS	CRS	YES	YES	N/A	YES	YES	NO
8107	20	VERTBD	01/MAIN INSTRUMENTATION DISPLAY PANEL	SRVB	735	CONTROL	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5235	10	VS-AC-1A	VS/CONTROL ROOM A/C UNIT	SRVB	713	CR VENT	723	YES	ABS	CRS	YES	NO	NO	NO	NO	NO
5236	10	VS-AC-1B	VS/CONTROL ROOM A/C UNIT	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	YES	NO	NO	NO
5242	0	VS-AD-10	VS/VS-F-40B DISCHARGE DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5252	0	VS-AD-3	VS/VS-AC-1A SUCTION DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5253	0	VS-AD-4	VS/VS-AC-1B SUCTION DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5254	0	VS-AD-5	VS/VS-AC-1A DISCHARGE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5255	0	VS-AD-6	VS/VS-AC-1B DISCHARGE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- Building	EQUIPMENT Flr.Elv.	LOCATION -----> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5239	0	VS-AD-7	VS/VS-F-40A SUCTION DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5240	0	VS-AD-8	VS/VS-F-40B SUCTION DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5241	0	VS-AD-9	VS/VS-F-40A DISCHARGE DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5256	0	VS-AFD-1	VS/ZONE 5 SUPPLY FIRE DAMPER	SRVB	713	CR VENT	733	YES	U	U	U	N/A	U	YES	NO	NO
5265	0	VS-AFD-10	VS/ZONE 5 BYPASS FIRE DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5266	0	VS-AFD-11	VS/ZONE 4 RETURN FIRE DAMPER	SRVB	713	CR VENT	733	YES	U	U	U	N/A	U	YES	NO	NO
5267	0	VS-AFD-12	VS/ZONE 1 RETURN FIRE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5268	0	VS-AFD-13	VS/ZONE 2 RETURN FIRE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5269	0	VS-AFD-14	VS/ZONE 3 RETURN FIRE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5270	0	VS-AFD-15	VS/ZONE 5 RETURN FIRE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5257	0	VS-AFD-2	VS/ZONE 4 SUPPLY FIRE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5258	0	VS-AFD-3	VS/ZONE 1 SUPPLY FIRE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5259	0	VS-AFD-4	VS/ZONE 2 SUPPLY FIRE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO
5260	0	VS-AFD-5	VS/ZONE 3 SUPPLY FIRE DAMPER	SRVB	713	CR VENT	733	YES	U	U	U	N/A	U	NO	NO	NO
5261	0	VS-AFD-6	VS/ZONE 3 BYPASS FIRE DAMPER	SRVB	713	CR VENT	733	YES	U	U	U	N/A	U	YES	NO	NO
5262	0	VS-AFD-7	VS/ZONE 2 BYPASS FIRE DAMPER	SRVB	713	CR VENT	733	YES	U	U	U	N/A	U	YES	NO	NO
5263	0	VS-AFD-8	VS/ZONE 1 BYPASS FIRE DAMPER	SRVB	713	CR VENT	733	YES	U	U	U	N/A	U	YES	NO	NO
5264	0	VS-AFD-9	VS/ZONE 4 BYPASS FIRE DAMPER	SRVB	713	CR VENT	733	YES	U	U	U	N/A	U	YES	NO	NO
5271	12	VS-C-1A	VS/TEMP CONT AIR COMP	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5273	10	VS-C-1A1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	NO	YES	NO	YES
5272	12	VS-C-1B	VS/TEMP CONT AIR COMP	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5274	10	VS-C-1B1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	NO	YES	NO	YES
5205	0	VS-D-16A	VS/EMERG SWITCHGEAR EXHAUST DAMPER	SRVB	725	CABLE MEZZ	725	YES	U	U	U	N/A	U	YES	NO	NO
5206	0	VS-D-16B	VS/EMERG SWITCHGEAR EXHAUST DAMPER	SRVB	725	CABLE MEZZ	725	YES	U	U	U	N/A	U	YES	NO	NO
5327	0	VS-D-22-1A	VS/DG BLDG EXHAUST DAMPER	DGBX	756	DG#1 ROOF	756	YES	U	U	U	N/A	U	YES	NO	NO
5328	0	VS-D-22-1B	VS/DG BLDG EXHAUST DAMPER	DGBX	756	DG#2 ROOF	756	YES	U	U	U	N/A	U	YES	NO	NO
5329	0	VS-D-22-2A	VS/DG BLDG AIR SUPPLY DAMPER	DGBX	745	DIESEL GEN #1	748	YES	U	U	U	N/A	U	YES	NO	NO

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SVDS)
462 INDIVIDUAL PLANT COMPONENTS

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5330	0	VS-D-22-2B	VS/DG BLDG AIR SUPPLY DAMPER	DGBX	745	DIESEL GEN #2	755	YES	U	U	U	N/A	U	YES	NO	NO
5331	0	VS-D-22-2C	VS/DG BLDG AIR SUPPLY DAMPER	DGBX	745	DIESEL GEN #1	748	YES	U	U	U	N/A	U	YES	NO	NO
5332	0	VS-D-22-2D	VS/DG BLDG AIR SUPPLY DAMPER	DGBX	745	DIESEL GEN #2	755	YES	U	U	U	N/A	U	YES	NO	NO
5224	0	VS-D-4-12A	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	SFGB	735	VS-AC-7 RM	750	YES	U	U	U	N/A	U	YES	NO	NO
5225	0	VS-D-4-12B	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	SFGB	735	VS-AC-7 RM	750	YES	U	U	U	N/A	U	YES	NO	NO
5226	0	VS-D-4-15A	VS/AUX FEED PUMP RM EXHAUST DAMPER	SFGB	735	AUX FD PUMP RM	750	YES	U	U	U	N/A	U	YES	NO	NO
5227	0	VS-D-4-15B	VS/AUX FEED PUMP RM EXHAUST DAMPER	SFGB	735	AUX FD PUMP RM	750	YES	U	U	U	N/A	U	YES	NO	NO
5214	0	VS-D-4-7A	VS/LEAK COLL EXHAUST FAN 4A SUCTION ISOLATION DAMPER	AXLB	768	AT FAN	768	NO	U	U	U	N/A	U	YES	NO	NO
5215	0	VS-D-4-7B	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	AXLB	768	NORTH WALL	768	NO	U	U	U	N/A	U	YES	NO	NO
5216	0	VS-D-4-8A	VS/LEAK COLL EXHAUST FAN 4B SUCTION ISOLATION DAMPER	AXLB	768	AT FAN	768	NO	U	U	U	N/A	U	NO	NO	NO
5217	0	VS-D-4-8B	VS/LEAK COLL EXHAUST FAN 4B DISCHARGE BACKFLOW DAMPER	AXLB	768	NORTH WALL	768	NO	U	U	U	N/A	U	YES	NO	NO
5243	08A	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	U	NO	NO	NO
5244	08A	VS-D-40-1B	VS/CONTROL ROOM AIR INTAKE DAMPER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	U	YES	YES	NO
5245	08A	VS-D-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	U	YES	YES	YES
5246	08A	VS-D-40-1D	VS/CONTROL RM AIR EXHAUST DAMPER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	U	YES	YES	YES
5247	0	VS-D-40-1F	VS/MIN OUTSIDE AIR INTAKE DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	YES
5248	0	VS-D-40-1G	VS/MAX OUTSIDE AIR INTAKE DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5249	0	VS-D-40-1H	VS/AIR RECIRC DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5250	0	VS-D-40-1K	VS/AIR RECIRC DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5251	0	VS-D-40-1M	VS/VS-F-40A & B EXHAUST DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
5101D	0	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	INTS	705	A CUBICLE	728	NO	U	U	U	N/A	U	YES	NO	YES
5101E	0	VS-D-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	INTS	705	A CUBICLE	725	NO	U	U	U	N/A	U	YES	NO	NO
5102D	0	VS-D-57B1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	INTS	705	B CUBICLE	728	NO	U	U	U	N/A	U	YES	NO	YES

BEAVER VALLEY POWER STATION UNIT 1
SCREENING VERIFICATION DATA SHEET (SWDS)
462 INDIVIDUAL PLANT COMPONENTS

LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	<--- EQUIPMENT Building	Flr.Elv.	LOCATION ---> Rm. or Row/Col.	Base Elev.	<40'?	Capacity Spectrum	Demand Spectrum	Cap. > Demand?	Caveats OK?	Anchor OK?	Inter-act OK?	Equip OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5102E	0	VS-D-57B2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	INTS	705	B CUBICLE	725	NO	U	U	U	N/A	U	YES	NO	NO
5103D	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	INTS	705	C CUBICLE	728	NO	U	U	U	N/A	U	YES	NO	YES
5103E	0	VS-D-57C2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	INTS	705	C CUBICLE	725	NO	U	U	U	N/A	U	YES	NO	NO
5277	10	VS-E-14A	VS/RIVER WATER COOLING COILS	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	NO	NO	NO	NO
5278	10	VS-E-14B	VS/RIVER WATER COOLING COILS	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	NO	NO	NO	NO
5203	09	VS-F-16A	VS/EMERG SWITCHGEAR EXHAUST FAN	SRVB	725	CABLE MEZZ	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5204	09	VS-F-16B	VS/EMERG SWITCHGEAR EXHAUST FAN	SRVB	725	CABLE MEZZ	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5325	09	VS-F-22A	VS/DG BLDG EXHAUST FAN	DGBX	756	DG#1 ROOF	754	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5326	09	VS-F-22B	VS/DG BLDG EXHAUST FAN	DGBX	756	DG#2 ROOF	754	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5237	09	VS-F-40A	VS/CONTROL ROOM RETURN AIR FAN	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
5238	09	VS-F-40B	VS/CONTROL ROOM RETURN AIR FAN	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
5222	09	VS-F-4A	VS/LEAK COLLECTION EXHAUST FAN	AXLB	768	NE CORNER	768	NO	ABS	CRS	YES	NO	YES	NO	NO	NO
5223	09	VS-F-4B	VS/LEAK COLLECTION EXHAUST FAN	AXLB	768	NE CORNER	768	NO	ABS	CRS	YES	NO	YES	NO	NO	NO
5201	09	VS-F-55A	VS/EMERG SWITCHGEAR SUPPLY FAN	SRVB	725	CABLE MEZZ	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5202	09	VS-F-55B	VS/EMERG SWITCHGEAR SUPPLY FAN	SRVB	725	CABLE MEZZ	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5101C	09	VS-F-57A	VS/INTAKE STRUCTURE CUBICLE #1 SUPPLY FAN	INTS	705	A CUBICLE	723	NO	U	U	U	YES	YES	YES	NO	YES
5102C	09	VS-F-57B	VS/INTAKE STRUCTURE CUBICLE #2 SUPPLY FAN	INTS	705	B CUBICLE	723	NO	U	U	U	YES	YES	YES	NO	YES
5103C	09	VS-F-57C	VS/INTAKE STRUCTURE CUBICLE #3 SUPPLY FAN	INTS	705	C CUBICLE	723	NO	U	U	U	YES	YES	YES	NO	YES
5101	06	WR-P-1A	RW/RIVER WATER PUMP	INTS	705	A CUBICLE	705	NO	ABS	CRS	NO	NO	YES	YES	NO	YES
5102	06	WR-P-1B	RW/RIVER WATER PUMP	INTS	705	B CUBICLE	705	NO	ABS	CRS	NO	NO	YES	YES	NO	YES
5103	06	WR-P-1C	RW/RIVER WATER PUMP	INTS	705	C CUBICLE	705	NO	ABS	CRS	NO	NO	YES	YES	NO	YES
4106	21	WT-TK-10	WT/DEMIN WATER STORAGE TANK	YARD	735	YARD	735	YES	GIP	GIP	NO	N/A	NO	YES	NO	NO

APPENDIX 10.0
Third-Party Audit Reports

November 9, 1995

Glenn Ritz
Principal Engineer
Duquesne Light Company
PO Box 4
Shippingport, PA 15077

52233-O-002

Subject: ***Peer Review Report for the Beaver Valley Unit 1 USI A-46 Program***

Dear Glenn:

Attached is my peer review report for the Beaver Valley Unit 1 USI A-46 program. As we discussed at the time of the review, my recommendation would be to treat this as an interim review and to schedule an additional final peer review sometime early next year. Although the attached review could be argued to meet the minimum requirements for an A-46 peer review, I think the addition of a final peer review would accomplish 2 goals:

1. Allow for the review of several key areas which were not completed at the time of the in-progress peer review.

2. Allow for the peer reviewer to document the DLCO resolution to a number of recommendations and observations documented within the attached letter report.

Thanks for your whole team's assistance during my review. Please feel free to provide me any comments to my review report.

Sincerely,
EQE International, Inc.

Greg Hardy

GREG S. HARDY
SENIOR VICE PRESIDENT

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BEAVER VALLEY UNIT 1 PEER REVIEW

1. EXECUTIVE SUMMARY

The Duquesne Light Company is in the process of resolving their unresolved safety issue A-46 at their Beaver Valley Unit 1 nuclear power plant. They are utilizing the SQUG Generic Implementation Procedure (GIP) as the basis for their resolution. The GIP contains a requirement to perform an independent peer review of the entire A-46 review process. This report documents the in-progress peer review for Beaver Valley Unit 1 plant. This peer review was performed by Greg Hardy of EQE International during an October 17-19, 1995 trip to the Beaver Valley site. Mr. Hardy has over 20 years of experience in the field of dynamics, structural mechanics and stress analysis. He has been the independent peer reviewer for several nuclear plants both for their USI A-46 resolution as well as their seismic IPEEE resolution. He has been a key participant in the development of the SQUG methodology over the past 10 years. This participation includes the following:

- Co-Author of the SQUG Generic Implementation Procedure
- Trainer for SQUG Training Course
- Reviewer for EPRI Margins Course
- Co-Author of EQE "20 Classes of Equipment" Document
- Contributor to NUREG 1407 for IPEEE
- Principal Author of NUREG/CR-5499, Guidance on Relay Chatter Effects

The overall A-46 resolution program by the Duquesne Light Company is judged to be proceeding in accordance with the GIP. There were no gross errors or deficiencies discovered in the sampling review conducted on this peer review. Several areas were identified where the Peer Reviewer recommended additional actions to strengthen or confirm the Seismic Review Team (SRT) conclusions. Since this was an "in-progress" peer review, several key areas were not completed at the time of the review and could not be included within its scope.

2. PURPOSE OF PEER REVIEW

The independent peer review of a plant-specific USI A-46 implementation is intended to provide a senior level review of the overall program. The review is not intended to be a quality assurance type review. The SQUG methodology includes this peer review to provide a higher level of assurance that the judgments implicit to this GIP methodology are being properly applied and to look for gross errors. The peer review is typically conducted on a sampling basis wherein a "vertical slice" of the major elements of the A-46 program are selected for review.

3. SCOPE OF PEER REVIEW

The scope of this peer review encompassed the seismic assessment portions of the USI A-46 program performed by the Seismic Capability Engineers (SCE). A review of the following areas were included within the peer review:

- Qualifications of Seismic Review Team
- Plant Walkdown Reviews
- Project Documentation (SEWS, OSVS, SVDS)
- Seismic Response Utilization
- Identification of Outliers
- Identification of Bad Actor Relays
- Overall Conduct of the A-46 Program

As specified within the SQUG/EPRI methodology documents, the peer review of the SSEL and the relay SSEL are addressed by virtue of the required plant operations department review and concurrence. Thus, the relay and equipment SSEL portions have not been specifically included within this peer review. However, the systems engineer responsible for generating these lists was interviewed as part of this peer review to ensure proper communication and teamwork was established between the systems engineers and the SCE's. The systems engineers were integral SRT members at Duquesne and properly performed their role of helping to define the components and boundaries of these lists to the SCE's.

The following portions of the A-46 program could not be reviewed at the time of this peer review since insufficient numbers had been completed for a proper review:

- Anchorage Calculations
- Tank Calculations
- Load Path Calculations
- Outlier Resolution
- Final Reports

4. PROGRAM STATUS

At the time of the peer review, the walkdown phase of the project was essentially completed. The SSEL had been developed and reviewed by the operations department. The essential relay list was approximately 90% complete, with final editing in-progress. Anchorage, load path and tank calculations were in the initial stages. Outlier resolution and the final reports had yet to be performed.

At the time of the peer review, the program had identified 436 components in the seismic SSEL and 322 components within the relay SSEL. There have been 163 outliers identified on the project.

5. RESULTS OF THE PEER REVIEW

As documented in the attached agenda, the peer review concentrated on a sampling review of key areas identified by the NRC in Generic Letter 88-20 Supplement 5. Additional critical areas were identified by the reviewer based on his experience with earthquake experience, test data and PRA results. The specific results for the sample of components reviewed are documented in the subsections below.

5.1 Response Spectra

The NRC issued a letter defining the DLCO floor response spectra to be "conservative design" at the start of the A-46 program for Beaver Valley. This NRC review and statement forms the basis for my judgment that the design spectra are acceptable and appropriate for this USI A-46 program.

5.2 Tank EE-TK-3B

The diesel air start tank is mounted on a rugged structural steel frame. The SEWS sheet should be amended to note the absence of longitudinal restraint of the tank. Since these SEWS sheets often form a key input to the engineers performing the anchorage evaluation, care should be taken to identify all concerns with the load path and the anchorage on the SEWS form. It should be noted that this frictional restraint in the longitudinal direction was correctly noted on the other identical diesel start tank SEWS forms TK-4A, F and TK-3A, C,D,E,F.

5.3 Diesel Air Start Compressor

Diesel compressor EE-C-1A and 2A have two minor concerns which I would recommend be noted on the SEWS form. There is an emergency light/battery mounted above this compressor which could pose a potential seismic interaction. The battery restraint is missing an attachment screw and will likely fall on the compressor during an earthquake. This particular interaction would probably not affect the safety function of the compressor since it is very rugged, but I recommend that the screw be replaced to alleviate any question on the interaction. The second observation on this component relates to the anchorage of the compressor base into the channel and grout pad. There exists a crack through the grout pat (45°) directly under the anchor bolt. I would recommend this configuration be investigated to ensure that expansion anchors were not utilized into this grout pad.

5.4 Diesel Day Tank

The diesel day tank (EE TK 2A) is well braced and the support system and anchorage look adequate. The SEWS form is appropriately filled out for this component. The only additional observation found during the peer review was another of the emergency lights located above the tank. It could pose a threat to the level transmitter on the top of the tank. The presence of the attachment screw should be verified for this light and documented on the SEWS.

5.5 Diesel Control Panel (PNL-DIGEN-1)

The SEWS sheet was found to be acceptable for this diesel control panel. One load path issue on this panel was discussed with the review team. A potentially significant gap between the panel base and a steel support structure was noted during the walkdown review. The panel could not be opened during the walkdown (due to safety regulations) and, thus, the load path could not be properly evaluated at that time. The SRT subsequently produced photographs taken during their walkdown which verified the presence of welds inside the cabinet that alleviated the reviewers potential concern. In summary, the reviewer concurs with the SRT's findings.

5.6 Fans (IVS-F-40A)

These fans appear to have been anchored with expansion anchors. This fact should be noted on the appropriate SEWS form. Expansion Anchors on rotating/reciprocating equipment is a caveat within the SQUG methodology. These anchors should be reviewed and if they are expansion anchors then they should be evaluated to ensure that they have a large factor of safety and that they are loaded basically in shear.

The SRT should also note the presence of fluorescent lights above the fans and assess whether they pose an interaction concern.

The third comment relating to the evaluation of the fans concerns the note "Equipment was not included within the earthquake experience equipment class". Note 5 on the SEWS stated that the "weight of the fan was 2650 lbs. which is greater that 1000 lbs.". The 20 classes report notes that 1000 lbs. is a typical weight but the SSRAP report establishes the fact that all fan sizes are included within the equipment class. This fan should not be considered an outlier on the basis of this class inclusion caveat.

5.7 Battery Charger (BAT-CHG-2)

The walkdown review of this component revealed the presence of cracks within the areas surrounding the anchor bolts. These cracks were not noted on the SEWS forms which could lead to a problem once the anchorage evaluation is to be performed. Discussions with an SRT member left open the questions as to whether this was floor topping. Follow up on this battery charger is recommended.

5.8 Boric Acid Tank

No problem found with the boric acid tank, the reviewer concurs with the SRT's conclusions.

5.9 Motor Control Centers

Several motor control centers have close proximity to adjacent walls. In general these have been noted on the SEWS form and are awaiting outlier resolution. In many cases conduit coming out of the top of the cabinet may restrict the motion sufficiently to form the basis of an outlier resolution. (Note: the SEWS for MCC-1-E8 did not note the

potential for impact with an adjacent wall.) Justification for the SRT's judging these proximity concerns not to be an issue were stipulated to exist in project records.

5.10 Batteries

The SRT performed the walkdown and SEWS documentation in an appropriate manner. It would be helpful to note the absence of spacers between the batteries where rack connector bars exist. These bars are judged to meet the intent of the caveat but they should be noted on the SEWS.

5.11 Transformers 1-8N

Two errors were noted on my review of the SEWS form for this component. Caveat #4 on top bracing should have been "no". Caveat #10 on anchorage should not have "N/A" circled since the embedded steel needs to be evaluated. It's not clear whether these errors would have had an impact on the adequacy of the evaluation since the anchorage review had not been conducted at the time of the peer review.

5.12 Diesel Generator (DG 1)

The SRT correctly noted that grout is not present under 3 of the 7 anchors on each side of the diesel. I believe that this is the manufacturers standard design and that the bending which will result in the affected bolts will not result in an overall anchorage failure. This will be assessed in the anchorage review.

I would recommend that the cardox fire protection system be evaluated to ensure that its unintended release of cardox in an earthquake would not cause a diesel failure. The SEWS form should note this as a potentially problematic interaction and note the resolution if one is available. The seismic IPEEE program may have already resolved this issue but that could not be confirmed during this in-progress peer review.

5.13 Block Walls

DLCO initiated a programmatic review of all block walls in response to IE Bulletin 80-11. In addition, they looked at cracking in the grout in response to Information Notice 87-67. These reviews should have covered the concerns of all affected block walls to the SSE level earthquake.

During my peer review walkdown, one block wall configuration was noted that merits further review by the SRT. The walls surrounding the filter bank at Auxiliary Building Elevation 758 feet have 3 concrete pilasters with masonry block walls between the pilasters. The pilasters at either end of wall AB 4-2 has been significantly reinforced as a result of an earlier upgrade program. A nearly identical pilaster between walls AB 4-2 and AB 4-5 does not have an upgraded support. The SRT should review this wall and pilaster to verify its seismic adequacy.

5.14 Bad Actor Relays

DLCO identified a number of bad actor relays in the course of the A-46 relay review. The COM 5 relay contained within DLCO switch gear is on the bad actor relay list and was identified as part of the relay SSEL. The SRT proposed to resolve these outlier relays using a capacity base on shake table data and a response generated from a generic amplification factor times the floor response spectra. This particular outlier resolution approach for bad actor relays is the subject of a current review by SQUG. The concern is whether high frequency effects are adequately addressed on both the capacity and response sides of the equations.

5.15 Seismic Review Team Members

The peer review included reviews of summary resumes for 5 DLCO Seismic Capability Engineers and 2 electrical/systems engineers who participated in the SRT as developers of the equipment and relay SSEL's. Two SCE's and one of the electrical/systems engineers participated in meetings as part of the independent peer review. These engineers who participated in the peer review were all well informed, cooperative and conscientious relative to their respective responsibilities for the A-46 resolution program. They demonstrated their knowledge of both the GIP methodology and the Beaver Valley systems, structures and components.

CONCLUSIONS AND RECOMMENDATIONS

1. All activities evaluated by this peer reviewer were performed in accordance with the GIP. No gross errors or deficiencies were discovered in this peer review. The seismic review teams are knowledgeable and meet the requirements for the review.

2. The SEWS forms and associated calculations should be modified to reflect the comments and suggestions contained within this review.

3. Several potential concerns were identified relating to the treatment of several caveats and restrictions during the walkdown. These concerns are identified in section 5 of this report and consist of proper consideration of issues such as floor cracks, expansion anchors on rotating equipment, system interactions and properly filling out answers on the SEWS forms. In general these concerns are not expected to lead to changing the overall conclusions of the SRT, but some due diligence on the part of the project as to possible effects on components outside of the sample considered for this review should be conducted.

4. The SQUG review of acceptable outlier resolutions by bad actor relays should be reviewed "expected in early 1996" for potential impact "if any" to the DLCO A-46 resolution program.

ATTACHMENT A
AGENDA
BEAVER VALLEY USI A-46 PEER REVIEW

I. Review Project Status and History

II. Review Draft Reports

- SSEL, Walkdown, Relay and Seismic Summary Reports

III. Review Documentation

- SEWS, Anchorage Calculations, Outlier Resolutions

IV. In Plant Review of Sample of Equipment

V. Special Focus Items

VI. NRC Items from Generic Letter 88-20 Supplement 5

- Bad Actors Relay
- Masonry Block Walls
- Flat Bottom Tanks
- Inadequate Anchorage / Bracing
- Seismic Interactions
- Building Impact / Pounding

VII. Additional Potential Critical Elements from Past Experience

- Emergency Batteries
- 4160/480 V Transformers
- Diesel Start System Elements
- Control Room Ceiling

GREGORY S. HARDY

PROFESSIONAL HISTORY

EQE International, Inc., Irvine, California, Senior Vice President and Division Director, 1985-present
Structural Mechanics Associates, Inc., Newport Beach, California, Technical Manager, 1980-1985
Engineering Decision Analysis Company, Inc., Irvine, California, Senior Engineer, 1979-1980
Ford Aerospace and Communications Corporation, Newport Beach, California, Staff Engineer, 1977-1979
TRW Systems, Inc., San Bernardino, California, Staff Engineer, 1975

PROFESSIONAL EXPERIENCE

Mr. Hardy has over 19 years experience in the design, analysis and testing of chemical, nuclear and aerospace structures and components. His responsibilities have included probabilistic risk assessments, earthquake experience data-based studies, stress analysis, finite element analysis, seismic margin studies, mass property studies, and shock and vibration environmental testing for hardware qualification.

Seismic Evaluation

Mr. Hardy has been sponsored by the Electric Power Research Institute, the Department of Energy and the Seismic Qualification Utility Group to perform post-earthquake investigations of numerous oil refineries, pumping stations, power plants and industrial facilities. He was a key investigator of earthquake damage effects to equipment following the 1994 Northridge Earthquake and the 1989 Loma Prieta Earthquake. He has performed seismic evaluations on a variety of existing facilities including Shell Oil (piping and tank yards), TRW (aerospace facilities) San Diego Gas and Electric Co. (compressor stations and gas pumping facilities), Southern California Electric Corporation (San Onofre Nuclear Power Plants and SCE substations) as well as for numerous nuclear and conventional power plants.

Mr. Hardy participated in the USNRC sponsored Seismic Safety Margin Research Program (SSMRP). In the SSMRP, he developed criteria for assessing the uncertainties in dynamic response and developed fragility descriptions for equipment as a part of the pilot plant study at Zion.

Mr. Hardy participated in a program to perform a seismic audit of the Lawrence Livermore National Laboratory Plutonium Facility (Building 332). He was responsible for the seismic safety verification of the critical plutonium containment barriers, including glove boxes, ventilation piping, fans and filters.

Mr. Hardy has played a principal role in the probabilistic quantification of indirectly-induced Double Ended Guillotine Break (DEGB) of BWR nuclear plants. The Brunswick nuclear generating station was utilized as a pilot plant as part of the NRC sponsored Load Combination Program. He has developed ultimate capacities of major equipment supports under seismic loads and subsequently evaluated the probability of DEGB.

Mr. Hardy has been involved with the deterministic seismic margin study conducted on the Midland Nuclear Power Plant Category 1 equipment and piping. Adequate seismic margins were shown to exist based on the new response spectra loads developed for the study.

PROFESSIONAL EXPERIENCE (CONTINUED)

Mr. Hardy has directed and/or participated in the capacity evaluations of mechanical and electrical components on over 25 Probabilistic Risk Assessments (PRAs) for nuclear power plants. He has played a major role in both the development of the methodology and in the completion of the equipment fragility studies. These PRA studies have considered the nonlinear behavior of the component, actual damping, mode combination, analysis/test methods, response of the structure and the equipment capacity. The uncertainty and randomness in each of the above quantities are accounted for on a probabilistic basis.

Mr. Hardy has contributed to the development of the earthquake experience data base generated for the Seismic Qualification Utilities Group (SQUG). This seismic experience data is being utilized by the nuclear industry to resolve the seismic issues associated with the NRC's Unresolved Safety Issue A-46. He was responsible for directing the effort to assess the structural and the sy[illegible] effects of electromechanical relays during past earthquakes.

Analysis and Testing

Mr. Hardy has extensive experience with the dynamic analysis of numerous nuclear pow[illegible]lant mechanical and electrical equipment components. Response spectrum analyses have been performed on piping, valves, tanks, heat exchangers, pumps, compressors, switchgear, motor control centers, neutron detectors and diesel generators. He has performed thermal time history analyses using ANSYS on a sodium pressure sensor for the Clinch River Breeder Reactor. He has also performed pressure profile time history analyses of a missile rocker motor case and a relief valve. He has performed finite element analyses using the SAP, NUPIPE, NASTRAN, and STARDYNE.

Mr. Hardy has analyzed the effects of uneven ground settlement on a large, flat-bottomed borated water storage tank at the Midland Nuclear Plant. The analysis utilized laboratory tested material properties of the supporting structures and nonlinear finite element models. He has also conducted nonlinear analyses for the Shell Oil Company of pipeline lowering and fault movement, using the PIPLIN finite element code.

Mr. Hardy was responsible for design of a torsional pendulum moment of inertia measurement system for measuring rocker motors, warheads, guidance sections and other Sidewinder missile components. He designed a static loader frame structure for testing of aerodynamic loadings on the missile airframe.

In the area of environmental testing, Mr. Hardy was responsible for generation of environmental criteria for the AIM-9J and Chaparral Sidewinder missiles. He participated in shock and vibration testing of missile components and conducted static loads test on missile airframes to simulate aerodynamic loading. He conducted burst pressure tests on small pressure vessels and has consulted on a seismic testing program of a helical tube bundle from a nuclear power plant steam generator.

EDUCATION

UNIVERSITY OF CALIFORNIA, Los Angeles: M.S. Mechanics and Structural Engineering, 1976
UNIVERSITY OF REDLANDS, Redlands, California: B.S. Mechanical Engineering, 1975

REGISTRATION

Mechanical Engineer: California

AFFILIATIONS

American Society of Mechanical Engineers
American Nuclear Society

PUBLICATIONS

"Electric Power System Equipment Performance During the Northridge Earthquake." Presented at the *Disaster Preparedness Conference III*, St. Louis, MO., April, 1994

"USI A-46 Outlier Resolution Methodology". Paper presented at the 1993 *ASME Pressure Vessels and Piping Conference*, Denver, CO., July, 1993

With R.W. Cushing and G. Driesen. "Seismic Design Criteria of Fire Protection Systems For DOE Facilities." Presented at the *Third DOE Natural Phenomena Hazards Mitigation Conference* in St. Louis, Missouri, October 1991

With J.J. Johnson, S.J. Eder, T. Monahon, and D. Ketcham. "Seismic Evaluation of Safety Systems at the Savannah River Reactors." Presented at the *Second DOE Natural Phenomena Hazards Mitigation Conference* in Knoxville, Tennessee, October 1989.

With M.J. Griffin and G.E. Bingham. "Seismic Procurement Requirements at the FPR Facility at INEL." Presented at the *Second DOE Natural Phenomena Hazards Mitigation Conference* in Knoxville, Tennessee, October 1989.

With H. W. Johnson, P. D. Baughman and N. G. Horstman. "Use of Experience Data for Replacement and New Equipment." Presented at the *Second Symposium on Current Issues Related to Nuclear Power Plant Structures, Equipment and Piping* in Orlando, Florida, December 1988.

With M. J. Griffin. "The Performance of Relays in Earthquakes: A Summary of Available Data." Presented at the *Ninth International Conference on Structural Mechanics in Reactor Technology* in Lausanne, Switzerland, August 1987

With M.K. Ravindra and P.S. Hashimoto. "Seismic Margins Review of Nuclear Power Plants: Fragility Aspects." Presented at the *Ninth International Conference on Structural Mechanics in Reactor Technology* in Lausanne, Switzerland, August 1987.

With W.H. Tong, M.J. Griffin, and L.C. Han. "Fragility and Hazard Aspects of the Chinshan Seismic PRA."

With P. D. Smith and Y. K. Tang. "Piping Seismic Adequacy Criteria Recommendations." Paper No. 1X-1. Presented at *The First Symposium on Current Issues Related to Nuclear Power Plant Structure, Equipment and Piping*, Raleigh, North Carolina, December 10-12, 1986.

With R. D. Campbell and M. K. Ravindra. "Probability of Failure in BWR Reactor Coolant Piping, Volum 4: Guillotine Break Indirectly Induced by Earthuakes." NUREG/CR-4792, UCID-20914 Vol 4, October 31, 1986. Prepared for the U.S. Nuclear Regulatory Commission.

With M. M. Silver, Y. K. Tang, and P. D. Smith. "Piping Performance During and After Earthquakes." Paper presented at *the 1986 ASME Pressure Vessel and Piping Conference*, Chicago, Illinois.

PUBLICATIONS (CONTINUED)

With R. D. Campbell. "Development of Fragility Descriptions of Equipment of Seismic Risk Assessment of Nuclear Power Plants." Paper presented at *the ASME Pressure Vessel and Piping Conference*, Portland, OR, 1983.

With R. P. Kennedy, R. D. Campbell, and H. Banon. "Subsystem Fragility: Seismic Safety Margins Research Program." U.S. Nuclear Regulatory Commission report NUREG/CR-2405 and Lawrence Livermore National Laboratory report UCRL-15407. February 1982.

With R. D. Campbell. "Development of Probabilistic Seismic Failure Relationships of Nuclear Components for the SSMRP." Paper UCRL-84196 presented at the *Sixth Structural Mechanics in Reactor Technology, SMiRT, Conference*, Paris, France, August 1981.