

ATTACHMENT 1

USI A-46 SEISMIC EVALUATION REPORT

for

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

January, 1996

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TABLES

lable	
4.2	List of Procedures Used for Safe Shutdown Equipment List Review(page 14)
5.1	Effective Grade for Plant Structures(page 26)
5.2	Equipment Intent but Not Letter of Caveat Summary (page 27)
5.3	Equipment Outlier Description and Resolution Summary(page 28)
5.3.1.5	Air-operated Valves - Alternatives to Air Supply(page 29)
6.2	Tank and Heat Exchanger Outlier Description and Resolution Summary(page 33)
7.3	Raceway Outlier Description and Resolution Summary(page 35)



CONTENTS

Sect	Section		Page
1.	INTR	ODUCTION	1
	1.1	Purpose	1
	1.2	Plant Description	1
	1.3	Background	1
	1.4	Report Organization	2
2.	SAFE	SHUTDOWN EARTHQUAKE	4
	2.1	Seismicity	4
	2.2	Ground Response Spectra	4
	2.3	In-Structure Response Spectra	4
3.	PROJ	ECT TEAM	7
	3.1	Utility Representatives	7
	3.2	Seismic Capability Engineers	7
	3.3	Third-Party Auditors	7
4.	SAFE	SHUTDOWN EQUIPMENT LIST (SSEL)	8
	4.1	Safe Shutdown Path Selection	8
		4.1.1 Safe Shutdown Systems	8
		4.1.2 Supporting Systems	11
	4.2	Operations Department Review of SSEL	12
	4.3	Safe Shutdown Equipment List and Subsets	13
5.	MEC	HANICAL AND ELECTRICAL EQUIPMENT REVIEW	16
	5.1	Summary of Review	16
		5.1.1 Seismic Capacity vs. Demand	16
		5.1.2 Equipment Class Descriptions	17
		5.1.3 Equipment Anchorage	19
		5.1.4 Seismic Interaction	20
	5.2	Instances of Intent but Not Letter of Caveat Met	21
	5.3	Summary of Outliers	21



	6.	TANK	S AND HEA	AT EXCHANGER REVIEW	31
pr.		6.1	Summary	of Review	31
		6.2	Summary	of Outliers	31
	7.	CABL	E AND CON	DUIT RAL _WAY REVIEW	34
		7.1	Summary	of Raceway Review	34
		7.2	Evaluatio	n of Bounding Samples	34
		7.3	Summary	of Outliers	34
	8.	PLAN	FOR ADDE	RESSING UNRESOLVED OUTLIERS	37
	9.		IFICANT OI M THE GIP	R PROGRAMMATIC DEVIATIONS	38
	10.	THIR	D-PARTY A	UDIT	39
	11.	REFE	RENCES		44
		APPE	NDIX 2.2	BVPS-1 Ground Response Spectra	
		APPE	NDIX 2.3	BVPS-1 Amplified Response Spectra (ARS/FRS)	
		APPE	NDIX 3.2	Resumes for Seismic Capability Engineers	
		APPE	NDIX 4.3-1	Composite Safe Shutdown Equipment List (SSEL)	
		APPE	ENDIX 4.3-2	Seismic Review Safe Shutdown Equipment List (SSEL)	
		APPE	CNDIX 4.3-3	Alphabetical Listing of SSEL Components by EIN	
		APPE	ENDIX 5.1	Screening Verification Data Sheets (SVDS)	
		APPE	ENDIX 10.0	Third-Party Audit Reports	



ii

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
011	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	
SQUG	Seismic Qualification Utility Group
SRT	Seismic Review Team
SSE	Safe Shutdown Earthquake
SSEL	Safe Shutdown Equipment List

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 USI	Hot Leg Temperature 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 GL 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 iumped 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
- Analysis of the structural model sur forted on frequency-dependent springs using the program FRIDAY.

The resulting ARS developed from this m. *.odology 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.



Section 4

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 charcoai 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: Roc 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:

- 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
- 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 by fail to on loss of air.

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

Section 5

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.

<u>Class 1 - Motor Control Centers (MCC)</u>: 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.

<u>Class 2 - Low Voltage Switchgear (LVS)</u>: 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.

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

<u>Class 4 - Transformers</u>: 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.

<u>Class 5 - Horizontal Pumps</u>: 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.

<u>Class 6 - Vertical Pumps</u>: 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.



<u>Class 7 - Fluid-operated Valves</u>: 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.

<u>Class 8A - Motor-operated & Solenoid-operated Valves</u>: 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.

<u>Class 8B - Solenoid-operated Valves</u>: 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 same

<u>Class 9 - Fans</u>: 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.

<u>Class 10 - Air Handlers</u>: 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

<u>Class 12 - Air Compressors</u>: 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

<u>Class 14 - Distribution Panels</u>: 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.

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

<u>Class 16 - Battery Chargers & Inverters</u>: 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.

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

<u>Class 18 - Instruments on Racks</u>: 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.

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

<u>Class 20 - Instrumentation & Control Panels and Cabinets</u>: 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 & "35, 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.

<u>Class 21 - Tanks and Heat Exchangers</u>: 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.

<u>Class 0. Other</u>: 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. 33) 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.

Nu nerous 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 lightweight, 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 airhandlers, 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, 1-8Ni, 1-9P and 1-9P1 are outliers due to a lack of SQUGrequired 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 cutliers 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.

Building	Effective Grade
Service Building	713' - 6"
Auxiliary Building	722' - 6"
Reactor Containment	690' - 11"
Diesel Generator Building	735' - 0"
PG Water Pump Building	721' - 6"
Intake Structure	643' - 0"
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 (South of Turbine Bldg)	735' - 0"
	Service Building Auxiliary Building Reactor Containment Diesel Generator Building PG Water Pump Building Intake Structure Safeguards (This designation includes the Safeguards Bldg, the Cable Vaults, Main Steam Valve House, Cable Tunnel)

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

1

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	 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	 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	 Cabinet exceeds the height for the equipment class (91 1/2" vs 90"). Additional height is sheet metal only and judged acceptable Conduits attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement 	
BAT-BKR-3	 Cabinet exceeds the height for the equipment class (91 1/2" vs 90"). Additional height is sheet metal only and judged acceptable. Conduit attached to top of cabinet, by engineering judgment, have sufficient slack to allow for movement. 	
BAT-BKR-4	 Cabinet exceeds the height for the equipment class (91 1/2" vs 90"). Additional height is sheet metal only and judged acceptable. 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	 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	 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	 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-IC	 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	 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	 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	 The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. 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	 The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. 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.		
F1-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.		
F1 CH-150	1. Due to configuration a 1/4" clearance to an adjacent reach red 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	 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-1 W-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	 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	 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. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist. 		
MOV-RW-102A2	 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 Chalm calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist. 		
MOV-RW-102B1			
MOV-RW-102B2	 Actuator to yoke bolts are recessed by about 1 thread. For 3/4" piate with 1/2" diameter bolt the factor of safety=8 (Allis Chalm calculation VER-0027). Therefore the recessed bolts are judged to be acceptable. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist. 		
MOV-RW-102C1	 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. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist. 		
MOV-RW-102C2	 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. The overhead lights are mounted on flexible rods. Falling lights/parts unlikely and no soft targets exist. 		





Equipment ID No. Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule

MOV-RW-106A	 Actuator to yoke bolt is recessed by about 1 thread on 1 bolt. This is considered acceptable by engineering judgment. 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	 Actuator to yoke bolt is recessed by about 1 thread on 1 bolt. This is considered acceptable by engineering judgment. 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	 The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. The glass front is designed to be broken to access the manual CO₂ 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. 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	 The steel break glass role on the panel is judged to be an unitely interaction concern based on a tug test of the rol. The anchorage calculation is not yet complete. The four 3/8" anchors are judged adequate for the panel. The glass front is designed to be broken to access the manual CO₂ 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. The steel break glass rol on the panel is judged to be an unlikely interaction concern based on a tug test of the rol. 					
PCV-GN-108	 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	 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 (E1, 792) 5% damping curve is enveloped by 1.5 x (Bounding Spectrum). Therefore, capacity exceeds the demand for these values of the structure o					
PCV-MS-101B	 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 (E1, 792) 5% damping curve is enveloped by 1.5 x (Bounding Spectrum). Therefore, capacity exceeds the demand for these valves 					
PCV-MS-101C	 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 (E1. 792) 5% damping curve is enveloped by 1.5 x (Bounding Spectrum). Therefore, capacity exceeds the demand for these valve 					
PCV-RW-130A	 Compact pressure regulator in pipeline adjacent to a pipe support will not overstress pipe. 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	 Compact pressure regulator in pipeline adjacent to a pipe support will not overstress pipe. 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-130C	 Compact pressure regulator in pipeline adjacent to a pipe support will not overstress pipe. Pressure regulator valve is similar to pressure relief valves. Subject matter expert G. Hardy indicates regulator valves are in texperience 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	 An overhead fluorescent light will not adversely affect the cabinet (i.e. rugged). 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	 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	 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	 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	 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	 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	 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	 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	 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. The clearance from SOV housing is approximately 1/16" to adjacent PCV-RC-455C valve actuator. They will move in-phase an not interact therefore judged to be acceptable 				







Equipment ID No. Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule

SOV-RC-455C2	 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. 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	 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. 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	 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. 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 diaparagm 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	 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)				



Equipment ID No. Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule

VS-D-40-1C	 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	 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	 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 prese 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	 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. 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	 Anchorage installation adequate per GIP paragraph 4.4.1, pg. 4-36, based upon existence of deadload. 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	 Anchorage instantion adequate per on paragraph 4.4.1, pg. 4.50, oased upon existence of deducted. Overhead light fixtures on flexible support. Falling lights/parts unlikely and no soft targets exist. Pump column support submerged in bay and is not accessible. Support is inspected by the ISI program. 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	 Conduit against motor housing judged to not have an adverse effect on the operation of the pump of the writes in the conduit Overhead light fixtures on flexible support. Falling lights/parts unlikely and no soft targets exist. Pump column support submerged in bay and is not accessible. Support is inspected by the ISI program. Conduit against motor housing judged to not have an adverse effect on the operation of the pump or the wires in the conduit 					







Equipment ID No.	Reason the Intent of the Caveat was met Without Meeting the Specific Wording of the Caveat Rule				
WR-P-1C	 Overhead light fixtures on flexible support. Falling lights/parts unlikely and no soft targets exist. 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)



Equipment ID	<u>Type</u> Status	Location	Outlier Description	Outlier Resolution
480VUS-1-8-N1	Anchorage CLOSED	SRVB EI. 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 EI. 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. 6°5 lbs vs 459 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 EI. 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 EI. 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 <u>Status</u>			
DC-SWBD-2	Anchorage (5)	SRVB EI 713	Anchorage c construction joint to there is anchors,	
DC-SWBD-3	Caveats (1)	SRVB EL 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".	Follower of a state
DC-SWBD-4	Caveats (1)	SRVB EL 713	Cabinet exceeds the dimensions for the equipment class. Height 98" vs 90".	Review seisade qualificance contact 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 EI. 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 ^e hp 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.



Equipment ID	Type Status	Location	Outlier Description 0	Jutlier 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 EI. 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 EI. 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 EI. 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.





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description	Jutlier 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.





Equipment ID	Type Status	Location	Outlier Description	Dutlier Resolution
FT-CH-124	Anchorage CLOSED	SFGB EI. 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 (sheil) 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 EI. 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 EI. 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.	Ferform additional analysis after verification of continuous rebar through the construction joint.





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description	Outlier Resolution
FT-CH-124	Anchorage CLOSED	SFGB EI. 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 EI. 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 EI. 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	SFG3 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 EI. 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 EI. 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 enchors.	Perform additional analysis after verification of continuous rebar through the construction joint.





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 EL735	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 EI. 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 belted 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 EI. 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 EI. 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.

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<u>8</u>







Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description	Dutlier 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 EI. 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 EI. 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 EI. 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 EI. 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.





Equipment ID	Type Status	Location	Outlier Description 0	utlier 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-IA-108	Caveats (4)	RCBX EL 767	Valve is mounted on a 3/4" threaded pipe.	Further analysis required
PCV-IA-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 EI. 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.







Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description Q	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 EI. 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 EI. 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 EI. 735	Panel exceeds the dimensions for the equipment class. Length 72" vs 40".	Review seismic qualification documentation.
PNL-VITBUS-3	Caveats (1)	SRVB EI. 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.



Equipment ID	Type Status	Location	Outlier Description O	utlier 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 : a 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.



- 4

Equipment ID	<u>Type</u> Status	Location	Outlier Description O	utlier Resolution
RK-RAD-MON-7	Caveats (3, 5)	SRVB EI. 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 midd'e. 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 EI. 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 EI. 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.





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 EI. 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 EI. 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.

1





Equipment ID	<u>Type</u> 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-RU 3	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.





Equipment ID	<u>Type</u> <u>Status</u>	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 EI 722	Anchorage analysis not completed for rack that the transformer is mounted.	Complete anchorage analysis for the rack.
TRF-SI-06	Caveats (11)	SFGB EI 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 ZI. 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 EI. 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.
	Careats (9) CLOSED	SRVB EL735	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.



Equipment ID	Type Status	Location	Outlier Description O	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 fou: 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 EI, 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 Dom	SRVP EL 713	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity.
VS-AD-6	Anchorage	SRVE EI. 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



Equipment ID	<u>Type</u> Status	Location	Outlier Description	Dutlier Resolution
VS-AD-7	Anchorage	SRVB EI. 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 Ea thquake 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





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description 0	Putlier 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.





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description 0	Putlier 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	SRVP 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.



Equipment ID Type Status		Location	Outlier Description	Outlier Resolution	
VS-D-22-1A	Cap vs Dem	DGBX EI. 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.	
Sec. 10.	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 EI. 756	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic mounting.	
	Cap vs Dem	DGBX EI. 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 EI. 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 EI. 756	Damper is not in SQUG Earthquake Experience Equipment Class. missing Ancaor 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	



Table

Equipment ID	<u>Type</u> Status	Location	Outlier Description	Dutlier Resolution
VS-D-4-15A	Anchorage	SFGB EI. 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 EI. 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 EI, 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 EI. 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 EI. 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 EI. 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 EI. 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 EI. 768	Damper is not in SQUG Earthquake Experience Equipment Class.	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description Q	Outlier Resolution	
VS-D-40-1A	Caveats (7) Interaction (2)	SRVB EI. 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 EI, 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	





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description Q	Outlier Resolution
VS-D-57B1	Anchorage	INTS EI. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper Seismic mounting.
	Cap vs Dem	INTS EI. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-57B2	Anchorage	INTS EI. 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 EI. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic Capacity
VS-D-57C2	Anchorage	INTS EI. 725	Damper is not in SQUG Earthquake Experience Equipment Class	Perform Engineering Analysis to Evaluate Damper's Seismic mounting.
	Cap vs Dem	INTS EI. 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 EI. 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 EI. 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) AXLB EI. 768 CLOSED		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.	





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description O	utlier 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 EI. 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 $(12^{"} H_2 O vs 15^{"})$ 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 EI. 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 EI. 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 EI. 705	IRS 3% damping curves are above the Bounding Curves.	Perform engineering review of existing pump qualification analysis.
WR-P-1B	Caveats (2)	INTS EI. 705	Overall shaft length exceeds length in database.	Perform engineering review of existing pump qualification analysis and review ISI inspection data.





Equipment ID	<u>Type</u> <u>Status</u>	Location	Outlier Description	Outlier Resolution
WR-P-1B	Cap vs Dem	INTS EI. 705	IRS 3% damping curves are above the Bounding Curves.	Perform engineering review of existing pump qualification analysis.
WR-P-IC	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

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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	O"LIN	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:

<u>QS-TK-1</u> (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 imporary scaffolding will be resolved with its near-term removal (it is seismically evaluated and tied-back).

<u>WT-TK-10</u> (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.

<u>CH-TK-1A & 1B</u> (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.



<u>GN-TK-1A & 1B</u> (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 lcading. The tanks were concluded to be seismically acceptable as-found.

<u>EE-E-1B</u> (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 endbells 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.

<u>EE-TK-3A/B/C/D/E/F</u> and <u>4A/B/C/D/E/F</u> - 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.

 $\underline{CC-E-1A/B/C}$ - 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 EI. 735	Headed studs (CIP anchor) fail GIP anchor criteria	More detailed analysis required.
CC-E-IC	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 EI. 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 EI. 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 EI. 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 EI. 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 EI. 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	<u>Type</u> <u>Status</u>	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.

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

ICL7150C2 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.
ICK91201 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.
ICC9300E 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 EI 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.



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 no part of the Seismic Review Team. The third-party audit report is included in Appendix 10.1 of the 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:

<u>Control Room Ceiling was not specifically addressed in the SEWS</u> - 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.

<u>Uncompleted SEWS</u> - 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.

<u>SEWS Capacity versus Demand not completed</u> - 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.

<u>Rule-of-the-box (ROB) and use of SEWS for subcomponents</u> - 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 waikdown. (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 <u>field</u> sketch of the fan, which does not identify the anchorage type. The SEWS <u>file</u> 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 inpart 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 Cavea: #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 may 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 Cardox 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

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

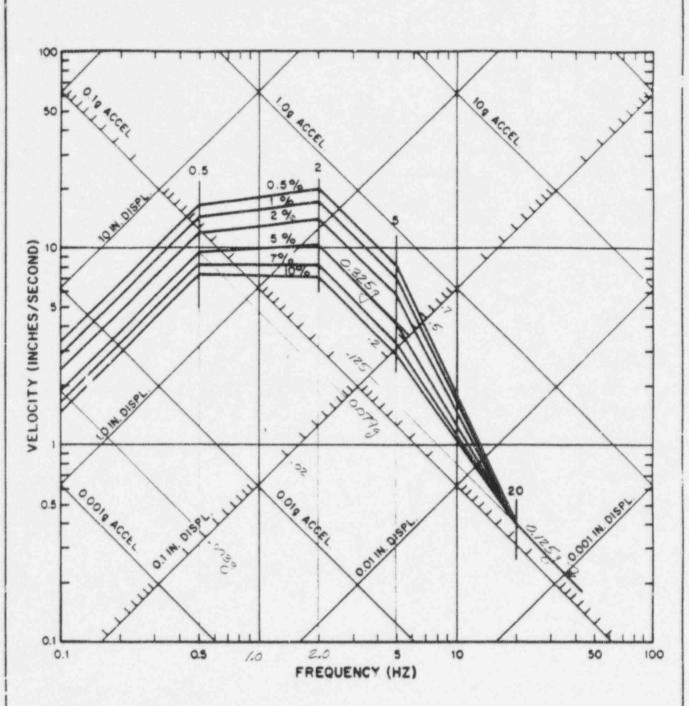
APPENDIX 2.2 BVPS-1 Ground Response Spectra











NOTES

1. SAFE SHUTDOWN EARTHQUAKE: 01 0.1250. 2. FINAL BYPS-1 RESPONSE SPECTRA (SWEC, 1979).

> FIGURE HORIZONTAL RESPONSE SPECTRA BEAVER VALLEY POWER STATION-UNIT 1

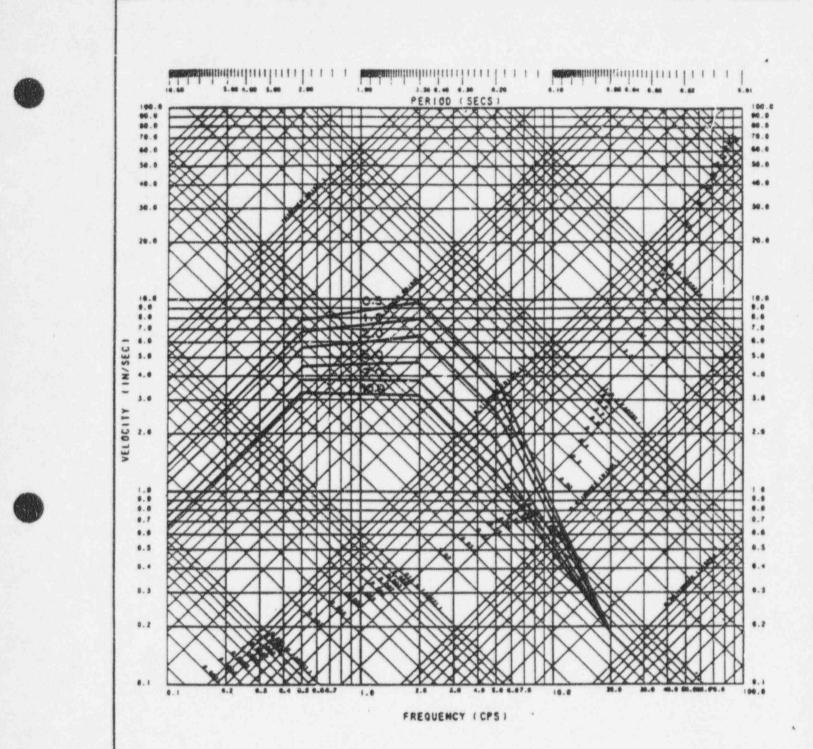


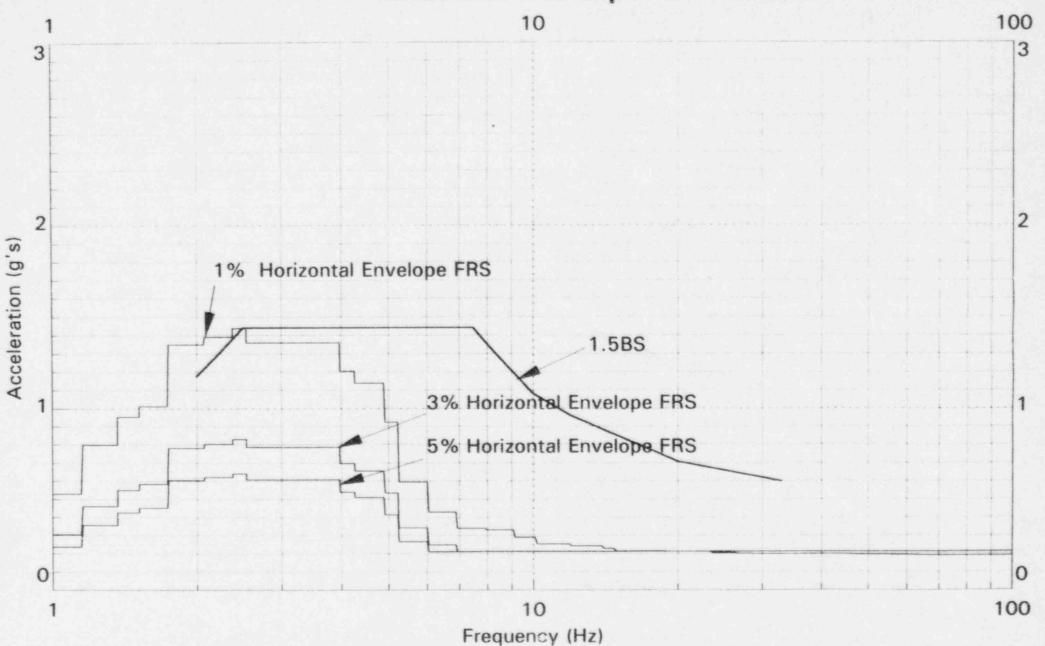
FIGURE RESPONSE SPECTRA 0.066 OBE BEAVER VALLEY POWER STATION-UNIT 1

APPENDIX 2.3 BVPS-1 Amplified Response Spectra (ARS/IRS)

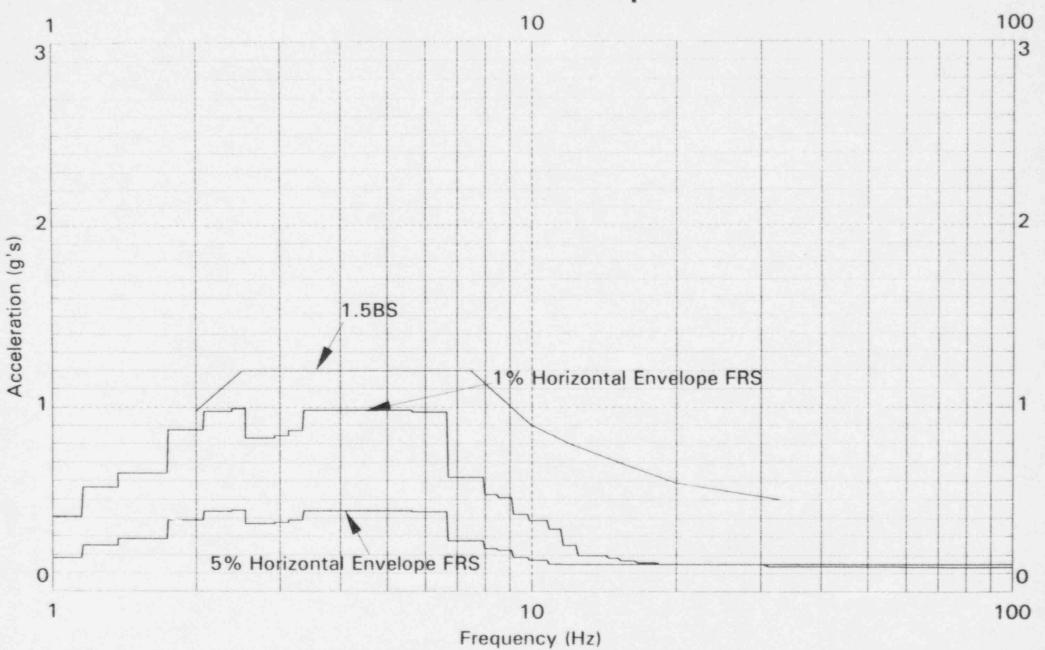




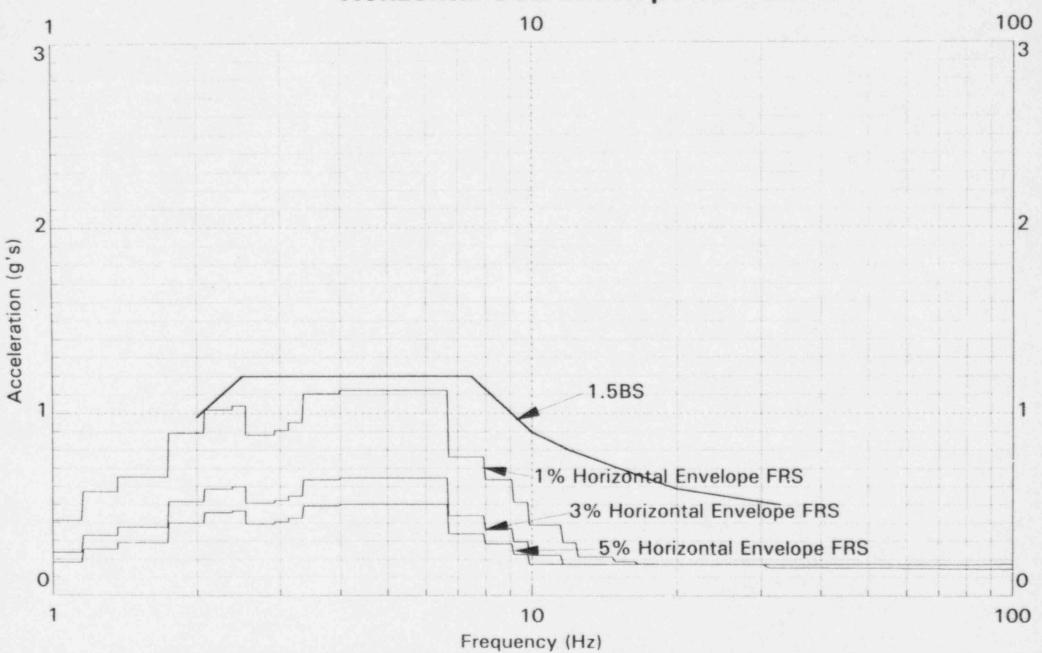
SQUG Review AUXILIARY BUILDING (AXLB) ELEV. 768 & BELOW Horizontal Envelope vs. 1.5BS



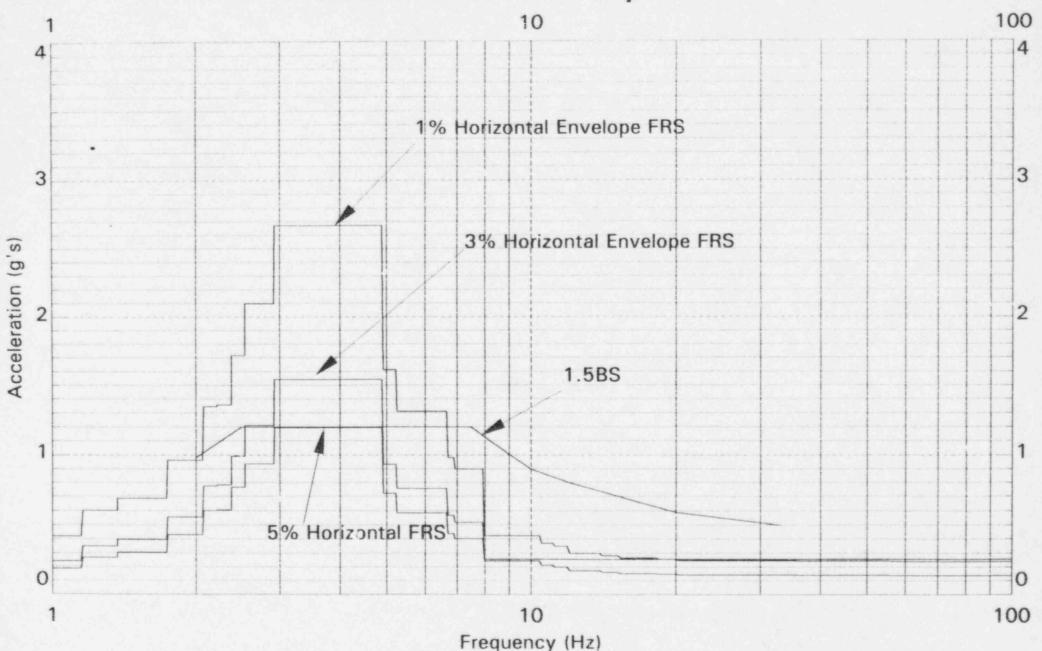
SQUG Review DIESEL GENERATOR BUILDING (DGBX) ELEV. 735 Horizontal SSE Envelope vs. 1.5BS



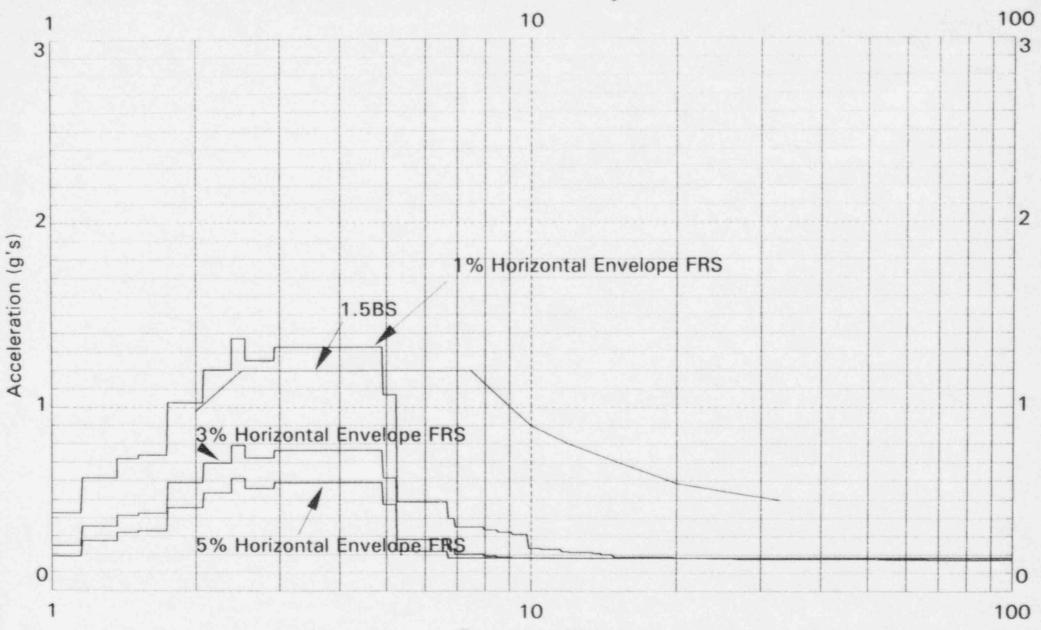
SQUG Review DIESEL GENERATOR BUILDING (DGBX) ELEV. 755 Horizontal SSE Envelope vs. 1.5BS



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

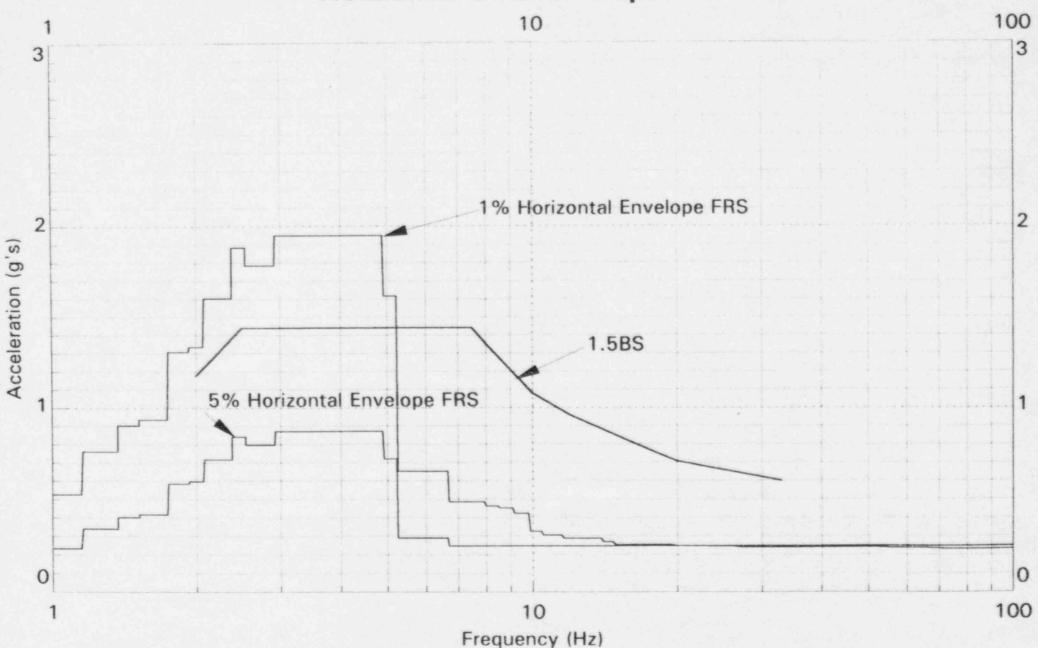


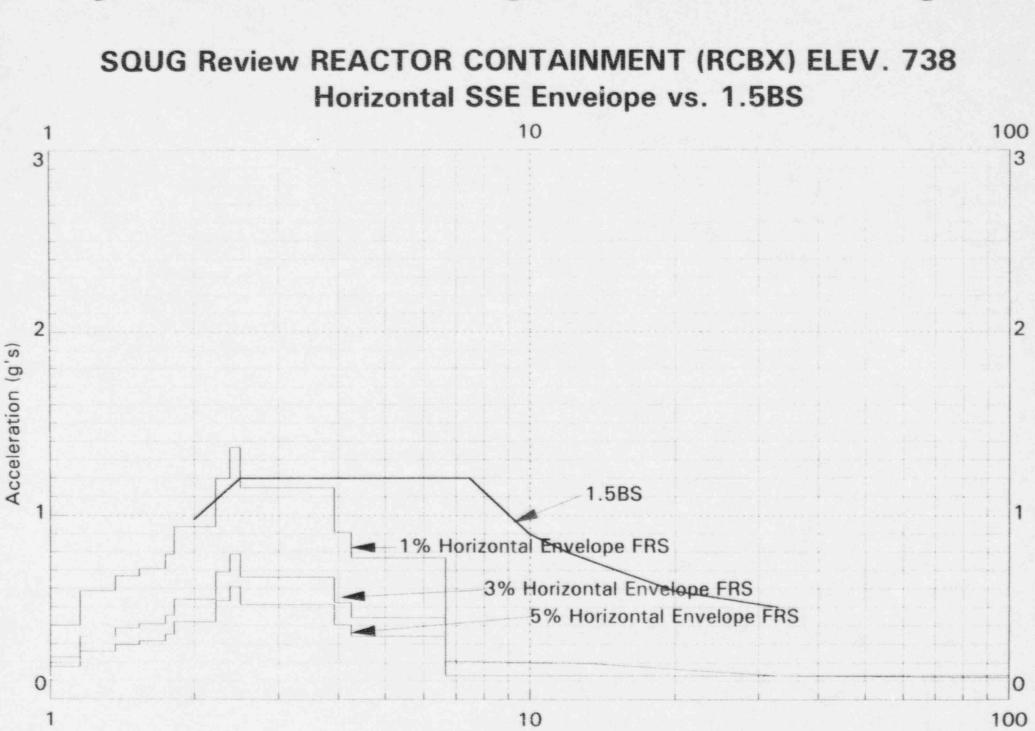
SQUG Review MAIN STEAM/CABLE VAULT (MSCV) ELEV. 753.5 Horizontal SSE Envelope vs. 1.5BS



Frequency (Hz)

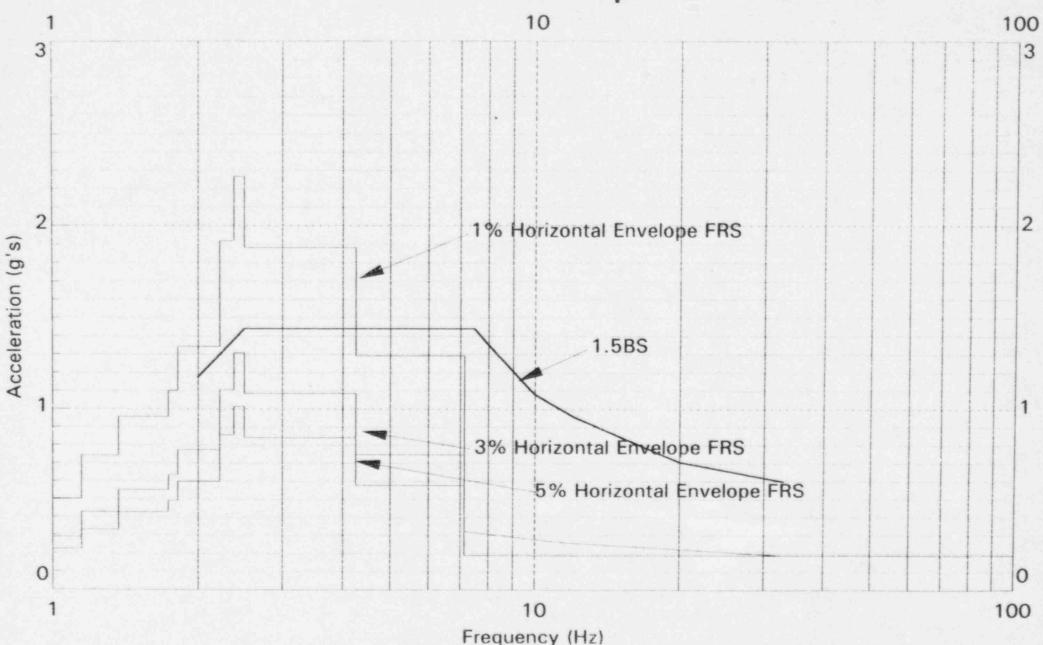
SQUG Review MAIN STEAM/CABLE VAULT (MSCV) EL. 768 Horizontal SSE Envelope vs. 1.5BS



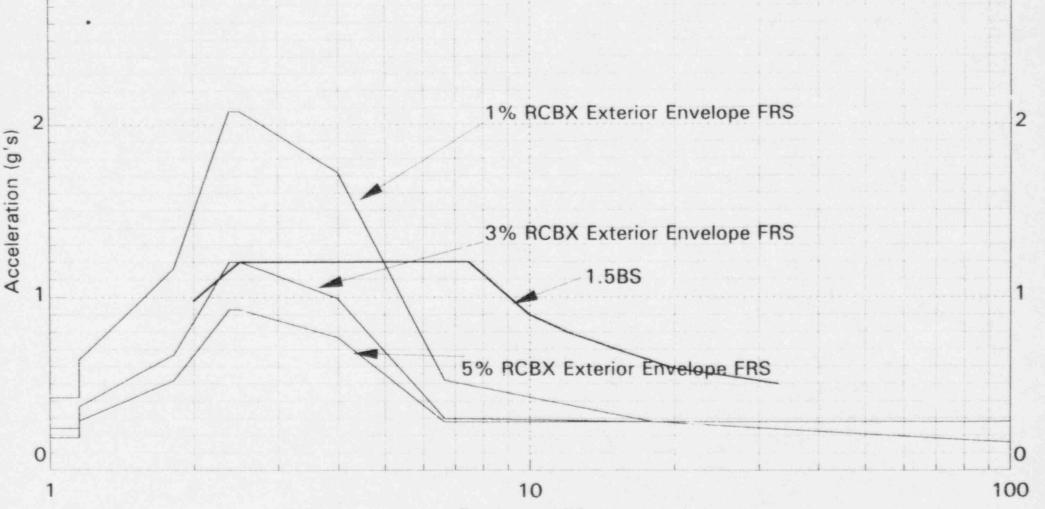


Frequency (Hz)

SQUG Review REACTOR CONTAINMENT (RCBX) ELEV. 767 Horizontal Envelope vs. 1.58S

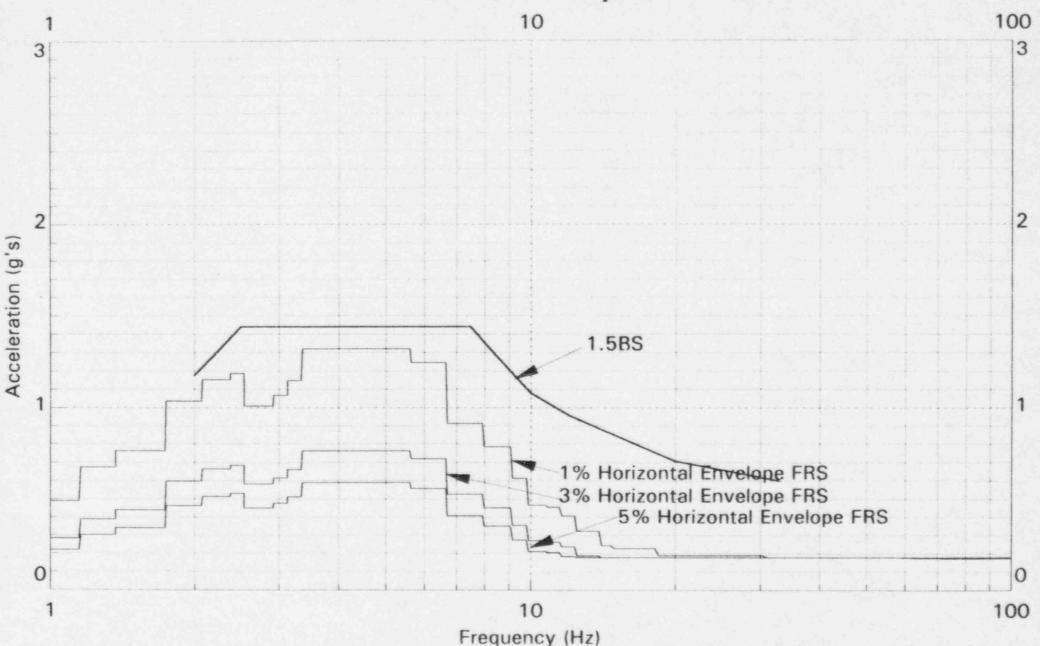


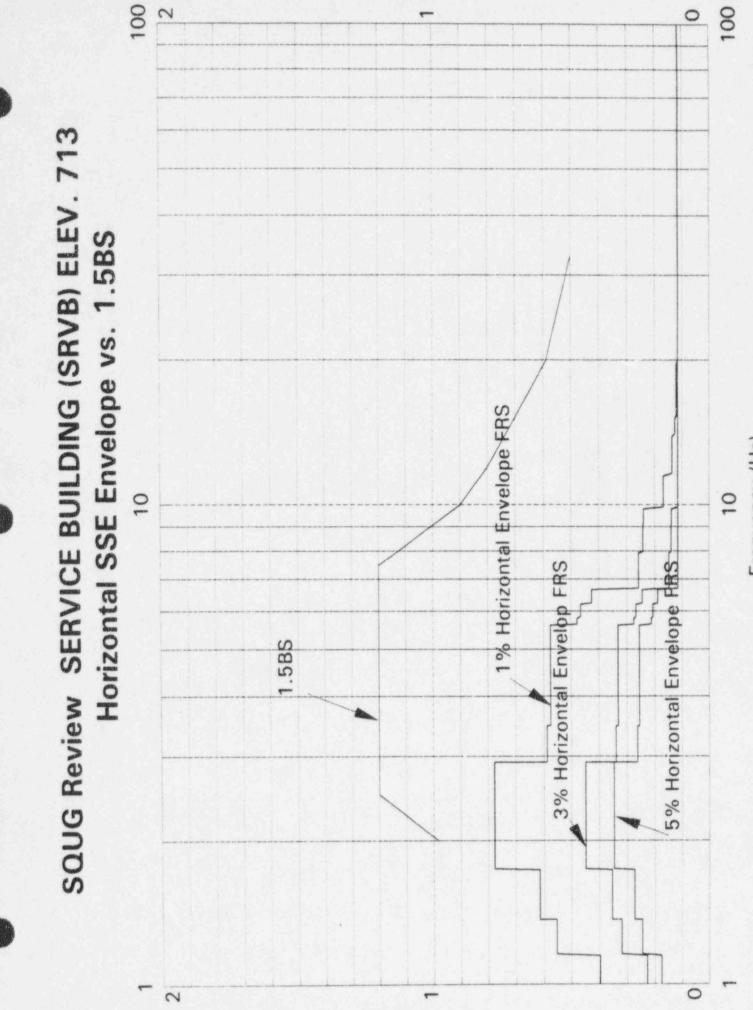
SQUG Review EXTERIOR REACTOR CONTAINMENT (RCBX) EL.792. Horizontal Envelope vs. 1.5BS (FRS are drawn to envelope broadened ARS) 10 10 10 3



Frequency (Hz)

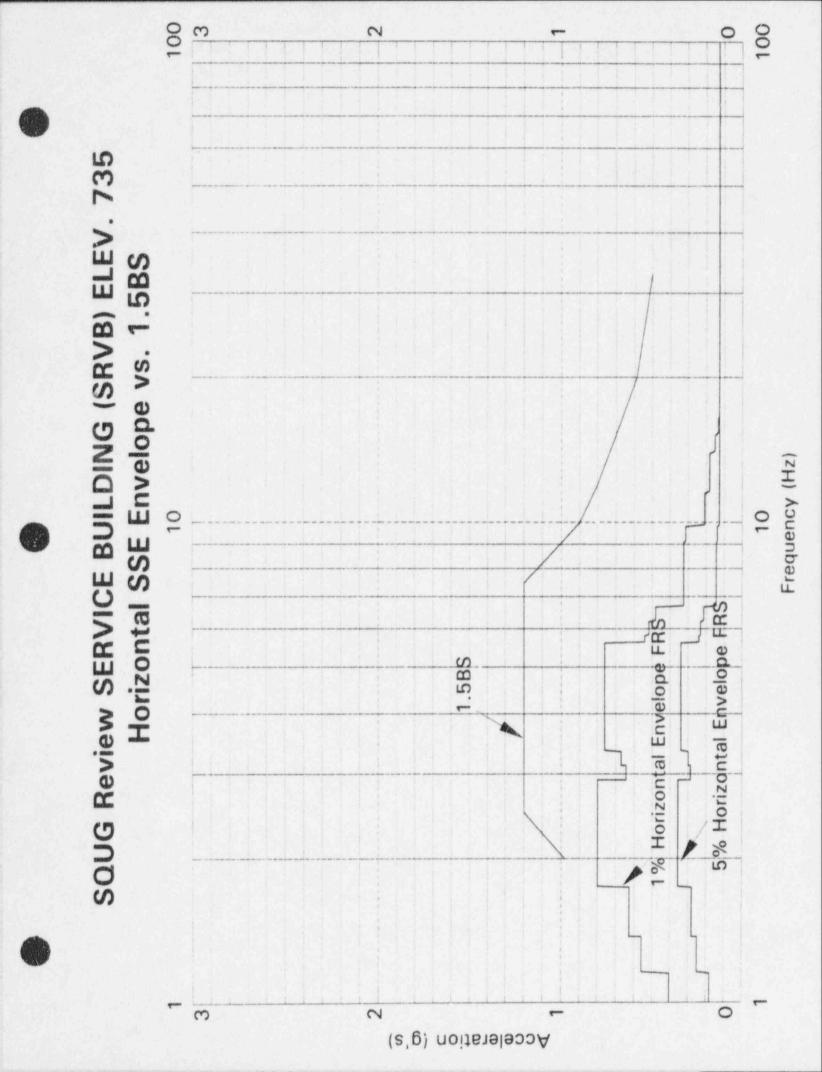
SQUG Review SAFEGAURDS BUILDING (SFGB) EL. 733 Horizontal Envelope vs. 1.5BS





Acceleration (g's)

Frequency (Hz)



APPENDIX 3.2 Resumes for Seismic Capability Engineers

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:

- Duquesne Light Company, Pittsburgh, Pa. Nuclear Engineering Department Senior Engineer 1969 - Present.
- 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 size 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 ϵ s-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.

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:

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Structural Repair of Concrete and Masonry, ASCE 1989 GT-Strudl Course, Georgia Institute of Technology 1988 Protective Coatings Course, KTA-TATOR, Inc 1983 0

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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, 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, stortup 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.

Jeffres P. Shipe

Page No. 1 Report Date/Time: 12-20-95 / 10:24:14

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

LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. 40./Rev	v./Zone	Building	Fle Fly	LOCATION> Rm. or Row/Col.	SORT	NOTES	Normal	Destred	REOD?	DWG. NO. /REV.	REQ'D INTERCOMMECT & SUPPORTING COMPO	NENTS ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	********	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1101		02	52-RTA	DI/REACTOR TRIP BREAKER 'A'	DMG RE-278		SRVB	713	ROD H/G	R	1	CLOSED	OPEN	MO	RE-21TZ	DC-SWBD-1 8K 8-7	A
1102	8	02	52-RTB	01/REACTOR TRIP BREAKER 'B'	DMG RE-278		SRVB	713	ROD M/G	R	1	CLOSED	OPEN	NO	RE-21TZ	DC-SW8D-2 BK 8-7	٨
1201A	A	18	LT-05-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-66		YARD	735	AT RWST	SR		ON	ON	YES	RE-22ET	VITAL BUS 3	à
12018		20	LI-QS-100A	QS/RWST LEVEL INDICATOR	VT1 1.12-25/9	92	SRYB	735	CONT RH VB-C	SR		ON	ON	YES	RE-22ET	VITAL BUS 3	A
12024	8	18	L1-Q5-1008	QS/RWST LEVEL TRANSMITTER	RK-508F, RP-66 4-674	8,1506.2	YARD	735	AT RWST	S R		54	ON	YES	RE-22ET	VITAL BUS 4	а
12028	8	20	LI-QS-1008	QS/RWST LEVEL INDICATOR	VTI 1.12-25/9	92	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22ET	VITAL BUS 4	A
1203A	A	18	L1-Q5-100C	QS/RWST LEVEL TRAMSMITTER	RK-508F, RP-61 4-674	8,1506.2	YARD	735	AT RWST	5 8		ON	ON	YES	RE-22EV	VITAL BUS 1	A
12038	A	20	L1-QS-100C	QS/RWST LEVEL INDICATOR			SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22EV	VITAL BUS 1	A
12044	8	18	LT-QS-1000	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-68		YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
12048	8	20	LR-QS-100	QS/RWST LEVEL RECORDER			SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22EV	VITAL BUS 2	۸
1205A	A	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	150 6.24-268	\$ 3875	AXLB	722	COL 10-1/4 & J	SR		ON	ON	YES	RE-22L	VITAL BUS 2	۸
12058	A	20	F1-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VTI 1.12-75		SRVB	735	CONT RM BB-A	SR		ON	ON	YES	RE-22L	VITAL BUS 2	٨
1206	N/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	150 6.24-268		AXLB	722	BLENDER	s	2	OPEN	CLOSED	YES	RE-22L	VITBUS II/III BK	A
12050	H/A	088	SOV-CH-122	CH/(FCV-1CH-122) SOLENDID	RK-3A		AXLB	722	BLENDER CUB	SR		ENERG	ENERG	YES	RE-21FT	PHL-DC-3 BK 8-23	A
1207	N/A	21	QS-TK-1	QS/RWST	DWG RV-24A		YARD	735	YARD	SR		N/A	N/A	NO	RE-63V	MCC1-E11, E12	٨
1208	A	A80	MOV-CH-1158	CH/RWST-CHARGING PUMP ISOLATION	150 6.24-277		AXLB	722	BLENDER	SR		CLOSED	OPEN	YES	RE-21FR	MCC1-E3 BK J	A
1209	8	ABO	MOV-CH-115C	CH/VCT ISOLATION VALVE	150 6.24-271		AXLB	722	BLENDER	SR		OPEN	CLOSED	YES	RE-21FR	MEC1-E3 BK K	٨
1210	8	08A	MOV-CH-1150	CH/RWST-CHARGING PUMP ISOLATION	150 6.24-277		AXLB	722	BLENDER	S R		CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	٨
1211	8	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	150 6.24-271		AXLB	722	BLENDER	SR		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	SR		RUN	RUN	YES	RE-215N	BUS AE BK E11	A
1213	8	05	CH-P-18	CH/CHARGING PUMP	DWG RN-2A		AXLB	722	CH-P-18 CUBICLE	SR		OFF	OFF	YES	RE-21FN	BUS OF BK F11	A
1214	A/8	05	CH-P-1C	CH/CHARGING PUMP	DWG RM-2A		AXLB	722	CH-P-IC CUBICLE	SR		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)

FLOW FERRIE / ENGINEER Print or Type Name/Title

Print or Type Name/Title

terne (m) Signature

195 Date 12/22/95 Date



Page No. 2 Peport Date/Time: 12-20-95 / 10:24:14



12-20-95 / 10:24:14	14	528	INDEVIDENL	PLANT CONDI	LURPUISTE SAFE SHUTIZON EQUIPPERT LIJI (33EL) 528 INDIVIZIAL PLANT CONPONENTS								
P HARK ND.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT F hr . E hv .		2081			ST	POWER REQUI			REG. ISSUE
(4)	(4) (5)	(9)	(1)	(8)	(6)	(10)	(10) (11)	(12)	(13)	(14)	(15)	(16)	(17)
MDY-CH-289	CH/CHARGING HEADER ISOLATION	150 6.24-268	SFGB	122	PENT A	œ		OPEN	OPEN	¥	RE-21FS	MCC1-E5 8K 88	*
MOV-CH-310	CH/CHARGING HEADER ISDIATION	150 6.24-253	RCBX	693	49-3 RAD AT 350	æ		OPEN	OPEN		RE-21FS	NECT-E6 BK AX	
MDV-CH-275A	CH/CH-P-IA MINIFLOW ISOLATION	156 6.24-265	AXLB	722	CH-P-IA CUBICLE	œ		OPEN	OPEN	R	8412-38	MCC1-E3 BK H	*
MDY-CH-2758	CA/CH-P-18 MINIFLOW ISOLATION	ISO 6.24-265	AXLE	122	CH-P-18 CUBICLE	~		OPEN.	OPEN		RE-21FR	MCCI-E3 BK P	*
MDV-CH-275C	CH/CH-P-IC NINIFLOW ISOLATION	150 6.24-265	AXLB	122	CH-P-IC CUBICLE	ex		OPEN	UPEN	£	RE-21FR	NCLI-E3 BK Q	*
MDV-CH-373	CH/CHARGING PLAD RECIRC ISOLATION ISO 6.24-256	150 6.24-256	AXLB	222	BLENDER	œ		OPEN	OPEN	¥	RE-21F8	MCC1-E4 8K Q	*
. CH-E-1	CH/SEAL MATER HEAT EXCHANGER	150 6.24-256 RM-2A RP-10C	AXLB	122	LETDOWN CUBICLE S	5		N/A	N/N	¥	N/A	N/A	
MDV-51-867A	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	122	BLENDER	œ		CLOSED	CLOSED	¥	RE-21XT	NUCCI-ES BK N	*
MDV-51-8678	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	122	BLENDER	æ		CLOSED	CLOSED	-	RE-21XT	MCC1-EE BK N	*
FCV-CH-160	CH/CHARGING FILL HEADER FLOW CONTROL VALVE	150 5.24-273	SFCB	722	PENT A	œ	16	CLOSED	CLOSED	¥	RE-22P	VETAL BUS 2	
NDV-CH-308A	CH/RCP-IA SEAL WATER CONTAINNENT 150 6.24-267 1504.0110N VALVE	150 6.24-267	SFGB	122	PENT A	œ		OPEN	OPEN		RE-21FS	NCCI-E3 BK AE	*

CORA A DR.A

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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) $\mathbb{R} \in \mathcal{E}_{S,UE} / \mathcal{E}_{S,UE}$ Emsinters of Systems or Operations Engineers) for it or type Name/file $\mathbb{R}_{S,UE}$ is 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) for the best of our knowledge and belief. Correct and accurate. (One or more signatures of Systems or Operations Engineers) for the best of our knowledge and belief. Correct and accurate. (One or more signatures of Systems or Operations Engineers) for the best of our knowledge and belief.

PNL-DC-3 BK 8-18

RE-215U

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CH/EXCESS LETDOWN DRAIN DIVERT VALVE

HCV-CH-369

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CERTIFICATION:

MCLI-19 BK AK

RE-21F5

-

OPEN

OPEN.

¢1

FLOOR SE

692

RCBX

ISO 6.13-221

CH/RCP 18 #1 SEAL LEAKOFF ISOLATION

BEDE-HJ-ACH

084

*

1231

MCCI-17 BK AQ VITAL BUS 2

RE-21FS

RE-226

-윷

OPEN OPEN

THROT

S B

OPEN

FLOOR SE

150 6.13-220

MCC1-18 BK AK

RE-21FS

-

OPEN

OPEN

EX.

FLOOR SE

593

RCBX

150 6.13-222

CK/RCP IC #1 SEAL LEAKOFF ISOLATION

MOV-CH-303C

100

80

1232

MCCI-E3 BK AN

RE-21FS

9

OPEN

OPEN

PENT A

722

SFG8

150 5.24-267

CH/RCP-IC SEAL WATER CONTAINNENT ISOLATION VALVE

MDV-CH-308C

18

*

1221

1980

*

1225

10

1224

MOV-CH-3088

18

-

1226

MDV-CH-370

689

460

1228

HCV-CH-186

10

1229 1230

MCC1-E3 BX AF

RE-21F5

율

OPEN

H3d0

=

PENT A

722

SFGB

150 6.24-267

CM/RCP-IB SEAL WATER CONTAINHENT ISOLATION VALVE

NCCI-14 BK AC

RE-21FS

2

OPEN

OPEN

BLENDER ROOM BLENDER ROOM

322 722 692

AXLB AXLB RCBX

150 6.24-267

VT1-07.86-7

CH/RCP SEAL SUPPLY, HAND CONT CK/SEAL INJ HEADER ISOLATION

CH/RCP 14 #1 SEAL LEAKOFF ISOLATION

MDV-CH-303A

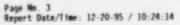
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BEAVER VALLEY POWER STATION UNIT 1 COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Fir Elv.	LOCATION	SORT N	OTES	Normal	Destred	REOD?	DWG. NO. /REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
1234		08A	HOV-SI-869A	SI/HHSI RCL HOT LEG ISOLATION VALVE	150 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	NO	RE-21KK	HCC1-ES BK AR	*
1235	8	084	MDY-51-8698	SI/HHSI RCL HOT LEG ISOLATION VALVE	150 6.24-368	SFG8	722	PENT C	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E6 BK BJ	٨
1236	A	084	MOV-SI-836	SI/HHSI RCL COLD LEG ISOLATION VALVE	150 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	HO	RE-21KK	MCC1-E5 BK AB	*
1237	*	OBA	MOV-51-863A	SI/IA LHSI TO CHG PUMPS SUPPLY VALVE	150 6.24-115	SFGB	735	N	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-ES 9K U	٨
1238	8	08A	MDV-51-8638	SI/18 LHSI TO CHG PUMPS SUPPLY VALVE	150 6.24-114	SFG8	735	w	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E6 BK U	A
1239	8	088	TV-SS-106D	SS/18 RCS HOTLEG RV SIDE OF LOOP STOP SAMPLE ISOLATION	ISO 6.24-3402, RP-18A	RCBX	738	8 RCP CUBICLE	SR		CLOSED	OPEN	YES	RE-21XS	PN-AC-10 BK10-20	*
1240	A	088	TV-SS-105A1	RC/HOTLEG SAMPLE HDR INSIDE CMMT ISOL TRIP VALVE	150 6.24-3402, RP-18A	RCBX	718	PENT	SR		OPEN	OPEN	YES	RE-21XH	PNL-DC-3 BK 8-59	A
1241	8	068	TV-SS-105A2	RC/HOTLEG SAMPLE HDR OUTSIDE CMMT ISOL TRIP VALVE	VTI 7.067-0133,0261	SFGB	722	PENT A	SR		OPEN	OPEN	YES	RE-21XJ, 150 6.24-3401,3754, RP-18A	PML-DC-2 8K 8-59	A
1244	N/A	21	CH-TK-1A	CH/BORIC ACID TANK		AXLB	752	BA TANK CUB	\$		N/A	N/A	MO	N/A	N/A	A
1245	N/A	21	CH-TK-18	CH/BORIC ACID TANK		AXLB	752	BA TANK CUB	5		N/A	N/A	NO	N/A	K/A	A
1246	A .	05	CH-P-2A	CH/BORIC ACID TRANSFER PUMP		AXLB	752	BA PUMP CUB	SR		OFF	CN	YES	RE-21FQ	MCC1-E11 BK B	
1247	8	05	CH-P-28	CH/BORIC ACID TRANSFER PUMP		AXLB	752	BA PUMP CUB	SR		OFF	ON	YES	RE-21FQ	MCC1-E12 BK B	A
1248	8	08A	MDV-CH-350	CH/ENERGENCY BORATION ISOLATION	VT1-6.48-5	AXLB	722	BLENDER	SR		CLOSED	OPEN	YES	RE-21FS	MCC1-E4 BK S	A
2101	N/A	07	RV-RC-551A	RC/PRESSURIZER RELIEF SAFETY VALVE	150 6.24-350	RCBX	767	PZR CUBICLE	s		CLOSED	CLOSED	MO	N/A	N/A	A
2102	H/A	07	RV-RC-5518	RC/PRESSURIZER RELIEF SAFETY VALVE	150 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	150 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	150 6.24-350	RCBX	768	PZR CUBICLE	SR		OPEN	CLOSED	YES	RE-21JQ	MCC1-E5 BK BE	٨
2105	A	07	PCV-RC-455C	RC/PRESSURIZER PORV	150 6.24-349	RCBX	767	PZR CUBICLE	SR 2	0	CLOSED	OPEN	YES	RE-21JT	DC-PNL-2 8K 8-35	A
2106	8	OBA	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	150 6.24-350	RCBX	768	PZR CUBICLE	<u>8</u> 2		OPEN	CLOSED	YES	RE-21.30	MCC1-E6 BK BC	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 TERRIE / ENGINEER Print or Type Name/Title

J. SA / ENGINEER-Print or Type Name/Title

10 Signature

27/95 Date 121 122/05 Date

Page No. 4 Report Date/Time: 12-20-95 / 10:24:14

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

LINE ND.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPHENT DESCRIPTION	Dwg. No./Rev./Zone	Ruilding	Fir Fly	LOCATION> Rm. or Row/Col.	SORT	NOTES	Normal	Destred	REDD?	DMG. NO./REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENT:	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2107	8	07	PCV-RC-456	RC/PRESSURIZER PORV	150 6.24-349	RCBX	767	PZR CUBICLE	SR	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
2108	A	06A	MOV-RC-537	RC/PRESSURIZER PORV ISOLATION	150 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BD	
2109		07	PCV-RC-455D	RC/PRESSURIZER PORV	150 6.24-349	RCBX	767	PZR CUBICLE	SR	20	CLOSED	OPEN	YES	RE-213T	DC-PHL-3 BK 8-34	
2110A	A	18	PT-RC-402	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-18	RCBX	717	ANNAULUS COL 4-5	SR		ON	ON	YES	RE-228M	VITAL BUS 3	A
21108		20	P1-RC-402A	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RH VB-A	SR		ON	ON	YES	RE-228M	VITAL BUS 3	
21114		18	PT-RC-403	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-18, RK-1F	RCBX	701	A CUBICLE	SR		0N	ON	YES	RE-228M	VITAL BUS 2	A
21.18		20	P1-RC-403	RCS/WIDE RANGE PRESSURE INDICATOR		SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-228M	VITAL BUS 2	A
2118		07	FCV-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	150 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	2		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-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	A
2120	8	07	FCV-RC-45501	RC/(PCV-RC-455D) FLOW METERING	150 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	100	N/A	N/A	A
2121	8	07	FCV-RC-455D2	RC/(PCV-RC-455D) FLOW METERING	150 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	ND	N/A	N/A	A
2122	8	088	SOV-RC-455C1	S1/(PCV-RC-455C) SOLENOID	ISO 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	SR		CLOSED	OPEN	YES	RE-21J7	PHL-DC-2 BK 8-35	A
2123	8	088	SOV-RC-455C2	SI(PCV-RC-455C) SOLENDID	150 6.24-3786,RX-1D	RCBX	767	PRZR CUBICLE	SR		CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2124	A	085	SOV-RC-455D1	S1/(PCV-RC-455D) SGLENOID	ISO 6.24-3786,RK-10	RCBX	767	PRZR CUBICLE	SR		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2125		068	SOV-RE-45502	SI(PCV-RC-455D) SOLENOID	150 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	۸
2126	A	088	SOV-RC-456-1	RC/(PCV-RC-456) GOLENDID	RK-1D	RCBX	76?	PRZR CUBICLE	SR		CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 8K 8-34	A
2127	A	068	SOV-RC-456-2	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	SR		CLOSED	OPEN	YES	RE-21JT	PHL-DC-3 BK 8-34	A
2128	H/A	07	PCY-GN-108	SI/(PCV-RC-455D) NITROGEN PRESSURE Control	DWG RK-1D	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	*
2129	N/A	07	PCV-GN-109	SI/(PCV-RC-455C) NITROGEN PRESSURE CONTROL	DMG RK-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	٨
2130	N/A	07	PCV-1A-108	IA/(PCV-RC-455D) INST AIR PRESSURE CONTROL	DMG RK-1D	REBX	767	CRANE WALL	2		OPEN	OPEN	NO	N/A	N/A	A
2131	N/A	07	PCV-1A-109	IA/(PCV-RC-455C) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	S		OPEN	OPEN	MD	N/A	N/A	A

CERTIFICATION

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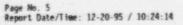
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12/27/95 Date 12 22 95 Date





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

LINE NO.	TRAIN	EQUIP	MARK ND.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Fir.Elv.	LOCATION> Rs. or Row/Ecl.	SORT	NOTES	Normal	Desired	REQD?	DMG. NO./REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(11)			(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	H/A	21	GN-TK-18	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	s		N/A	N/A	MO	N/A	N/A	A
2201A	A	18	LT-QS-100A	QS/RUST LEVEL TRANSMITTER	RK-5D, RP-58	YARD	735	AT RWST	SR		ON	ON	YES	RE-22ET	VITAL BUS 3	A
22018	A	20	L1-05-100A	QS/RWST LEVEL INDICATOR	VT1 1.12-25/92	SRAB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22ET	VITAL BUS 3	A
2202A	8	18	LT-QS-1008	QS/RWST LEVEL TRANSMITTER	RK-508F, RP-68, 1506.2 4-674	YARD	735	AT RWST	SR		ON	ON	YES	RE-22ET	VITAL BUS 4	*
22028	8	20	B001-20-11	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22ET	VITAL BUS 4	A
2203A	A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	RK-508F,RP-68,1506.2 4-674	YARD	735	AT RWST	SR		ON	ON	YES	RE-22EV	VITAL BUS 1	A
22038	A	20	L1-QS-100C	QS/RWST LEVEL INDICATOR		SRVB	735	CONT RH VB-A	SR		ON	ON	YES	RE-22EV	VITAL BUS 1	٨
2204A	8	18	LT-05-1000	QS/RWST LEVEL TRANSMETTER	RK-5D, RP-68	YARD	735	AT RWST	SR		ON	ON	YES	RE-22EV	VITAL BUS 2	A
22048	8	20	LR-QS-100	QS/RWST LEVEL RECORDER		SRVB	735	CONT RH VB-A	SR		ON	ON	YES	RE-22EV	VITAL BUS 2	A
2205A	8	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	150 6.24-268 & 3875	AXLB	722	COL 10-1/4 & J	SR		ON	ON	YES	RE-221	WITAL BUS 2	٨
22058	8	20	F1-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VT1 1.12-75	SPVB	735	CONT RM BB-A	SR		ON	ON	YES	RE-221	VITAL BUS 2	A
2206	£/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	150 6.24-268	AXLB	722	BLENDER	s	2	OPEN	CLOSED	YES	RE-22L	VITBUS II/III BK	A
22060	N/A	088	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	RK-3A	AXLB	722	BLENDER CUB	SR		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	NC	RE-63V	HCC1-E11, E12	
2208		08A	MOY-CH-1158	CH/RWST-CHARGING PUMP ISOLATION	150 6.24-277	AXLB	722	BLENDER	SR		CLOSED	OPEN	YES	RE-21FR	MCC1-E3 BK J	
2209	8	08A	HOV-CH-115C	CH/VET ISOLATION VALVE	150 6.24-271	AXLB	722	BLENDER	SR		OPEN	CLOSED	YES	RE-21FR	MCC1-E3 BK K	
2210	8	08A	MOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	159 6.24-277	AXLB	722	BLENDER	SR		CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	A
2211	8	OBA	MOV-CH-115E	CH/VET ISOLATION VALVE	150 6.24-271	AXLB	722	BLENDER	SR		OPEN	CLOSED	YES	RE-21FR	MCC1-E4 BK K	A
2212	\$	05	CH-P-1A	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-1A CUBICLE	SR		RUN	RUN	YES	RE-21FN	BUS AE BK E11	A
2213	8	05	CH-P-18	CH/CHARGING PUMP	DWG RH-2A	AXLB	722	CH-P-18 CUBICLE	SR		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-IC CUBICLE	SR		OFF	OFF	YES	RE-21FP	BUS AE/DF BK E15	

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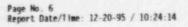
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BEAVER VALLEY POWER STATION UNIT 1 COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPHENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION> Rm. or Row/Col.	SORT	NOTES	Hermal	Destred	REOD?	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2215		ABO	MDV-CH-289	CH/CHARGING HEADER ISOLATION	150 6.24-268	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-ES BK BB	A
2216	8	08A	MOV-CH-310	CH/CHARGING HEADER ISOLATION	150 6.24-253	RCBX	693	49-3 RAD AZ 350	R		OPEN	OPEN	ND	RE-21FS	NCC1-E6 BK AX	A
2217	A	08A	MOV-CH-275A	CH/CH-P-1A MINIFLOW ISOLATION	150 6.24-265	AXLB	722	CH-P-IA CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK H	A
2218	A	OBA	MOV-CH-2758	CH/CH-P-18 MINIFLOW ISOLATION	150 6.24-265	AXLB	722	CH-P-18 CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK P	A
2219	٨	ABG	MOV-CH-275C	CH/CH-P-IC MINIFLOW ISOLATION	150 6.24-265	AXLB	722	CH-P-IC CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK Q	A
2220	8	ABO	HOV-CH-373	CH/CHARGING PUMP RECIRC ISOLATION	150 6.24-255	AXLB	722	BLENDER	R		OPEN	OPEN	NO	RE-21FR	MCc1-E4 BK Q	
2221	N/A	21 .	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	150 6.24-256 RN-2A RP-10C	AXLB	722	LETDOWN CUBICLE	s	4	N/A	N/A	ND	N/A	N/A	A
2222	A	08A	MOV-SI-867A	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	722	BLENDER	R		CLOSED	OPEN	YES	RE-21XT	MEC1-E5 BK W	A
2223	8	CBA	HOV-51-8678	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	722	BLENDER	R		CLOSED	OPEN	YES	RE-21XT	MCC1-E6 BK W	
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	8	21	PZR-HTR-B	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JR	480¥ 8U5 1P1 8K	A
2226	A	21	PZR-HTR-D	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS IN BK N	A
2227	8	21	PZR-HTR-E	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS 1P BK P	A
2228A		18	FT-CH-124	CH/RCP-IC SEAL INJECTION FASH TRANSMITTER	150 5.24-3952, RK-38	SFGB	722	PENT A	SR		ON	ORI	YES	RE-22G	PRI-PROC 20 VB3	A
22288		20	FI-CH-124	CH/RCP-IC SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2229A	B	18	FT-CH-127	CH/RCP-18 SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3953, RK-38	SFG8	722	PENT A	8 Z		ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
22298	8	20	F1-CH-127	CH/RCP-18 SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRAB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22G	PR1-PROC 9 VB2	A
2230A	A	18	FT-CH-130	CH/RCP-1A SEAL INJECTION FLOW TRANSMITTER	150 6.24-3630, RK-38	SFGB	722	PENT A	S R		ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
22308	A	20	FI-CH-130	CH/RCP-IA SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRAB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
3101A	A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-68	YARD	735	AT RWST	SR		UN	ON	YES	RE-22ET	VITAL BUS 3	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

Ron Signature

12/27/95 Date

Print or Type Name/Title

12/22/95 Date



BEAVER VALLEY POMER STATION UNIT 1 COMPOSITE SAFE SHUTDOWJ EQUIPMENT LIST (SSEL) 528 INDIVIDIAL PLANT COMPONENTS

REG. ISSUE	(17)	*	*	*	*	¥	¥	*	*	×	*	¥	×	*	*	×	*	*	¥	*	*	*	×
REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	(16)	VITAL BUS 3	VITAL BUS 4	VITAL BUS 4	VITAL BUS 1	VITAL BUS 1	VITAL BUS 2	VITAL BUS 2	VITAL BUS 2	VITAL BUS 2	VITBUS II/III BK	PNR-DC-3	MCC1-E11, E12	NCCI-E3 BK J	MCC1-E3 BK K	MCC1-E4 BK J	MCC1-E4 BK K	BUS AE BK SH	BUS DF BK F11	BUS/AE/DF BK EIS	MCCI-ES BK BB	MCCI-E6 BK AX	H X8 CJ-CJ BK H
ST> PONER SUPPORTING SYS. Desired REQD? DMC. ND./REV.		RE-22ET	RE-22ET	25-2261	RE-22EV	RE-22EV	RE-22EV	RE-22EV	RE-221	RE-221	RE-22L	1112-38	RE-63V	RE-21F8	RE-21FR	RE-21FR	RE-21FR	RE-21FN	RE-21FN	RE-21FP	RE ZIFS	RE-21FS	RE-21FR
POWER REQUI		YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	-	YES	YES	S 3Å	YES	YES	YES	YES		R	
t>	(13)	M	N	N	R	N				N	CLOSED	ENERG	N/A	OPEN	CLOSED	NEAD	CLOSED	RUN	OFF	OFF	NEON	NEN	NHO
Norsal D	(12)			0	0	0	0	0	2			ENERG E		CLOSED 0	OPEN C	CLOSED 0							
ES Nor		8	NO	10	80	NO	NO	NO	NO.	80	N3dO	EN	N/A	CLIC	6	CLIC	OPEN	RUN	0FF	OFF	OPEN	OPEN	OPEN
104 1	(III) (~	~	œ	~		~	~	œ	~	2			~	~			~	~	æ	~		~
> 01. 50%	(10)	S R	5	s	S	SR	5	SR	3 5	SR	s	SP	SR	S R	SR	S R	S	UE S B	LE S B			350 9	310
	(6)	CONT RM VS-C	AT RNST	CONT RM VB-C	AT RUST	CONT RN VB-A	AT RWST	CONT RM VB-A	COL 10-1/4 8	CONT RM 88-A	BLENDER	BLENDER CUB	VARD	BLENDER	BLENDER	BLENDER	BLENDER	CH-P-IA CURICLE S	CH-P-IB CUBICLE S	CH-P-IC CURICLE S	PENT A	49-3 RAD AZ 350	CH-P-IA CUBICLE
-	(8)	SEL	135	SEL	SEI	135 SEL	135	735	122	135	122	722	382	722	722	722	722	722	122	722	122	869	222
Building	(1)	SRVB	YARD	SRVB	GRAY	SRVB	VARD	SRVB	AXLB	SRVB	AXLB	AXLB	VARD	AXLE	AXLB	AXLB	AXLB	AXLB	AXLB	AXLB	SFGB	RCBX	AXLB
Dwg. No./Rev./Zone	(9)	VII 1.12-25/92	RK-SD&F, RP-68, I SO6. 2 YARD 4-674	VII 1.12-25/92	RK-5586F, RP-68, 1506. 2 YARD 4-674		RK-50, RP-58		ISO 6.24-268 & 3875	VTI 1.12-75	150 6.24-268	RK-3A	DMG RV-24A	150 6.24-277	150 6.24-271	150 6.24-277	150 6.24-271	DHG RM-2A	DMG RM-2A	DMS RH-2A	150 6.24-268	150 6.24-253	150 6.24-265
SYSTEM/EGUIPMENT DESCRIPTION	<pre>in</pre>	QS/RWST LEVEL INDICATOR	QS/RMST LEVEL TRANSMITTER	QS/RWST LEVEL INDICATOR	QS/RMST LEVEL TRANSMITTER	QS/RUST LEVEL INDICATOR	QS/RWST LEVEL TRANSMETTER	BS/RWST LEVEL RFCORDER	CH/CHARGING HEADER FLOW TRANSMITTER	CH/CHARGING HEADER FLOW INDICATOR VII 1.12-75	CH/CHARGING FLOW CONTROL VALVE	CH/(FCV-ICH-122) SOLENDID	QS/RWST	CH/RWST-CHARGING PLAND ISOLATION	CH/VCT ISOLATION VALVE	CH/RMST-CHARGING PLOOP ISOLATION	CH/VCT ISOLATION VALVE	CH/CHARGING PLARP	CH/CHARGING PLAD	CH/CHARGING PLAP	CH/CHARCING HEADER ISOLATION	CH/CHARGING HEADER ISOLATION	CH/CH-P-IA MINIFLOW ISOLATION
HARK ND.	(\$)	k001-20-11	11-45-1008	11-05-1008	11-05-1000	11-05-1000	11-05-1000	LR-QS-100	FT-CH-122	F1-CH-122A	FCV-CH-122	SOV-CH-122	Q5-1K-1	MOV-CH-1158	NOV-CH-115C	MOV-CH-1150	MDV-CH-115E	CH-P-1A	CH-P-18	CH-P-IC	MDV-CH-289	OTE-HJ-AON	MDY-CH-275A
EQUIP TRAIN CLASS	(2) (3)	50	18	32	18	20	18	20	18	20	10	880	21	880	WWW WWW	88	084	65	65	98	084	084	N80
TRAIN	(2)	*	-	60	*	*	-	-	80	50	N/A	N/A	N/A	*	-	-	-	*	-	A/8	*	-	۲
UNE CINE	(1)	31018	3102A	31028	AEOIE	31038	31044	31048	3105A	31058	3106	31060	3107	3108	3109	3110	3111	3112	3113	3114	3115	3116	3117

CERTIFICATION:

The information identifying the equipment required to bring the plant to a safe shutdown condition on this Safe Shutdown Equipment List (SSEI) is, to the best of our knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers) $R = R R IE / \epsilon R R IE / k$

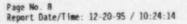
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Page No. 7 Report Date/Time: 12-20-95 / 10:24:14



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

L I NI	TOAT	EQUIP N CLASS	MADY NO	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. Ho./Rev./Zone	Building	Flr Fly	LOCATION> Rm. or Row/Col.	SORT	NOTES	Normal	Bestred	REOD?	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
3118	A	ABO	MOV-CH-2758	CH/CH-P-18 MINIFLOW ISOLATION	150 6.24-265	AXLB	722	CH-P-18 CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK P	٨
3119	A	OBA	MDV-CH-275C	CH/CH-P-IC MINIFLON ISOLATION	150 6.24-265	AXLB	722	CH-P-IC CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK Q	A
3120	8	ABO	HOV-CH-373	CH/CHARGING PUMP RECIRC ISOLATION	150 6.24-256	AXLB	722	BLENDER	R		OPEN	OPEN	NO	RE-21FR	MCC1-E4 BK Q	
3121	N/A	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	150 6.24-256 RM-2A RP-10C	AXLB	722	LEYDOWN CUBICLE	s	4	N/A	N/A	NO	N/A	N/A	*
3122	A	084	MOV-S1-867A	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E5 BK W	A
3123	8	084	MOV-S1-8678	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-15 BK W	4
3124/		18	LT-RC-459	RC/PZR LEVEL TRANSMITTER	150 6.24-3396, RK-14	RCBX	718	OUTSIDE PZR CUB	SR		ON	ON	YES	RE-22BH	VITAL BUS 1	A
3124	A	20	L1-RC-459A	RC/PZR LEVEL INDICATOR	VTI 7.70-0002, RK-34	SRVB	735	CONT RM BB-B	SR		ON	ON	YES	RE-22BH	VITAL BUS 1	A
3125	. 8	18	LT-RC-460	RC/PZR LEVEL TRANSMITTER	150 6.24-3396, RK-14	RCBX	718	OUTSIDE PZR CUB	SR		ON	ON	YES	RE-228J	VITAL BUS 2	A
31256	8	20	L1-RC-460	RC/PZR LEVEL INDICATOR	VTI 7.79-0002	SRAB	735	CONT RH 88-8	SR		ON	ON	YES	RE-22BJ	VITAL BUS 2	A
3126	A	18	LT-RC-461	RC/PZR LEVEL TRANSMETTER	150 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	SR		ON	ON	YES	RE-228K	VITAL BUS 3	
3126	8 A	20	LI-RC-461	RC/PZR LEVEL INDICATOR	VTI 7.70-0002	SRAB	735	CONT RM BB B	S R		ON	ON	YES	RE-228K	VITAL BUS 3	A
3127	A	08A	MOV-SI-863A	SI/IA LHSI TO CHG PUMPS SUPPLY VALVE	150 6.24-115	SFGB	735	1M	R		CLOSED	CLOSED	ND	RE-21KK	MCC1-E4	A
3128	8	ABO	MDY-S1-863B	SI/18 LHSI TO CHG PUMPS SUPPLY VALVE	150 6.24-114	SFGB	735	NE	R		CLOSED	CLOSED	HO	RE-21KK	MCC1-E5	*
3129	A	07	HCA-CH-388	CH/EXCESS LETDOWN DRAIN DIVERT VALVE	VT1-07.88-9	RCBX	707	EXC LETD PLATF	SR	7	OPEN	OPEN	ND	RE-21FU	PNL-DC-3 BK 8-18	A
3130	8	ABO	MOV-CH-370	CH/SEAL INJ HEADER ISOLATION	150 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	VT1-07.86-7	AXLS	722	BLENDER ROOM	SR		THROT	OPEN	NO	RE-22G	VITAL BUS 2	A
3132	A .	18	FT-CH-124	CH/RCP-IC SEAL INJECTION FLOW TRANSMITTER	150 6.24-3952, RK-3E	SFG8	722	PENT A	SR		ON	ON	YES	RE-22G	PRI-PROC 20	A
3132	A	20	F1-FH-124	CH/RCP-IC SEAL INJECTION FLOW INDICATOR	WT1 1.12-22, 23	SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
3133	B	18	FT-CH-127	CH/RCP-3B SEAL INJECTION FLOW TRANSMITTER	150 6.24-3953, RK-3E	SECB	722	PENT A	SR		ON	ON	YES	RE-22G	PRI-PROC 9	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 terre Signature

12/27/95 Date 12/20/55 Date

Print or Type Name/Title



Page No. 9 Report Date/Time: 12-20-95 / 10:24:14

SEAVER VALLEY PONER STATION UNIT 1 COMPOSITE SAFE SNUTDONN EQUIPMENT LIST (SSEL) 528 INDJVIDUAL PLANT COMPONENTS

EQUIP CATION SYSTEM/EQUIPHENT Dwg. No./Rev./Zone Building Fir.Etv. Rm. or Row/Coll. SGAT CLASS NARK ND. DESCRIPTION Dwg. No./Rev./Zone Building Fir.Etv. Rm. or Row/Coll. SGAT	SYSTEM/EQUIPHENT DAG. No./Rev./Zone Building Fir.Etv. Rm. or Row/Coll. SGAT NARK ND. DESCRIPTION DAG. No./Rev./Zone Building Fir.Etv. Rm. or Row/Coll. SCAT	SYSTEM/EQUIPHENT Dwg. No./Rev./Zone Building Fir.Etv. Rm. or Row/Coll. SGHT DESCRIPTION Description Description Date: 201 010 010 010 010 010 010 010 010 010	SYSTEM/EQUIPHENT Dwg. No. /Rev. /Zone Building Fir. Elv. Rm. or Row/Coll. SONT	me Building F.Tr. Etv. Rm. or Row/Col. Start	EQUIPMENT LOCATION	LOCATION SCHT	LOCATION> Rm. or Row/Col. SCHT	THOS	LON C	<pre>< 00. NOTES Normal </pre>	Destred	PONLR REGET	DMG. NO. /REV.	. REQ'D INTERCOMMECTIONS REG. 8 SUPPORTING COMPONENTS ISSUE 1151	IS REG.
(0) (1) (0) (1) (0) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2	FI-CH-127 CH/REP-18 SEAL FALON FLOW VIT 1.12-22, 23 SRVB 735 COMT RN VB-A	CH/REE-18 SEAL RALECTION FLOW VII 1.12-22, 23 SRVB 735 COMT RN VB-A	VII 1.12-22, 23 SRVB 735 COMT RM VB-A	SRVB 735 CONT RN VB-A	735 CONT RN VB-A	CONT RN VB-A				-		YES	RE-226	281 - PROC 9 VB2	*
A 18 FT-CH-130 CH/RCP-LA SEAL INJECTION FLOW 150 6.24-3630, RK-3E SFGB 722 PENT A	FI-CH-130 CH/RCP-IA SEAL INJECTION FLOW 150 6.24-3630, RK-3E SFGB 722	INDICATOR CH/RCP-IA SEAL INJECTION FLOW ISO 6.24-3630, RK-3E SFGB 722	150 6.24-3630, RK-3E SFGB 722	122	122		PENT A		S R	N	8	53Å	RE - 22G	9 3094-18d	*
A 20 FI-CH-130 CH/RCP-1A SEAL INJECTION FLOW VTI 1.12-22, 23 SRVB 735 CONT RN VB-A INDICATOR	FI-CH-130 CH/RCP-1A SEAL INJECTION FLOW VII 1.12-22, 23 SRVB 735 INDICATOR	CH/RCP-1A SEAL INJECTION FLOW VII 1.12-22, 23 SRVB 735 INDICATOR	VII 1.12-22, 23 SRVB 735	SE1 8492	352		CONT RH VB-A		S R	æ	đ	YES	RE - 22G	PRI-PROC 6 VB1	*
DBA MOV-RC-535 RC/PRESSURIZER PORV ISOLATION ISO 6.24-350 RCBX 768 PZR CURICLE	MOV-RC-535 RC/PRESSURIZER PORV ISOLATION ISO 6.24-350 RCBX 768	RC/PRESSURIZER PORV ISOLATION ISO 6.24-350 RCBX 768	150 6.24-350 RCBX 768	RCBX 768	768		PZR CURICLE		S R	N3d0	CLOSED	YES	RE-21JQ	NCC1-ES BK BE	*
08A MOV-AC-536 RC/PRESSURIZER PORV ISOLATION ISO 6.24-350 RCBX 768 PZR CUBICLE	MOV-RC-536 RC/PRESSIRFIZER PORV ISOLATION ISO 6.24-350 RCBX 768	RC/PRESSURIZER PORY ISOLATION ISO 6.24-350 RCBX 768	150 6.24-350 RCBX 768	RCBX 768	768		PZR CUBICLE		2 10	OPEN	CLOSED	YES	AL-21.JQ	MCC1-E6 BK BC	*
08A MOV-RC-537 RC/PRESSURIZER PORV ISOLATION ISO 6.24-350 RCBX 768 PZR CUBICLE	MOV-RC-537 RC/PRESSURIZER PORV ISOLATION ISO 6.24-350 RCBX 768	RC/PRESSURIZER PORV ISOLATION 150 6.24-350 RCBX 768	150 6.24-350 RCBX 768	RCBX 768	768		PZR CUBICI	-	ак 49	OPEN	CLOSED	AES	RE-21JQ	MCC1-E6 8K 8D	*
07 LCV-CH-460A CH/LETDOWN ISOLATION VALVE ISO 6.24-242 RCBX 718 A CUBICLE	LCV-CH-460A CH/LETDOWN ISOLATION VALVE ISO 6.24-242 RCBX 718	CH/LETDOWN ISOLATION VALVE ISO 6.24-242 RCBX 718	ISO 5.24-242 RCBX 718	RCBX 718	718		A CUBICLE		5 8 6	OPEN	CLOSED	YES	8E-21FU	PNL-DC-3 BK 8-18	*
07 LCV-CH-46GR CH/LETDOWN ISOLATION VALVE ISO 6.24-242 RCBX 718 A CUBICLE	LCV-CH-4608 CH/LETDOWN ISOLATION VALVE ISO 6.24-242 RCBX 718	CH/LETDOWN ISOLATION VALVE ISO 6.24-242 RCBX 718	150 6.24-242 RCBX 718	RCBX 718	718		A CUBICL		5 8 6	N3d0	CLOSED	YES	RE-21FU	PNE-DC-3 BK 8-18	*
07 TV-CH-200M CH/LETROWN ORTFICE CNNT ISOLATION 07.082-0006/8,07.086 RCBX 718 LETROWN CUBICLE S -0002	TV-CH-200M CH/LETDOWN ORTFICE CNNT 150LAT26N 07.082-0006/8,07.086 RCBX 738 -0002	CH/LETROWN ORIFICE CNMT ISOLATION 07.082-0006/8,07.086 RCBX 718 -0002	738	738	738		LETDOWN	CUBICLE	5	N340	CLOSED	YES	RE-21FU	PNL-DC-3 SK 8-20	*
A 088 SOV-CH-200A CH/(TV-ICH 200A) SOLENDID VTI 06.041-5, 6 RCBX 718 R1F TK AREA	50V-CH-200A CH/(TV-ICH 200A) SOLENDID VEI 06.041-5, 6 RCBX 718	CH/(TV-ICH 200M) SOLEMDID VTI 05.041-5, 6 RCBX 718	VTI 06.041-5, 6 RCBX 718	RCBX 718	718		RLF TK	AREA	S R	ENERG	DEENERG ND		RE-21FU	PNI -DC-3 BK 8-20	*
089 SOV-CH-200A1 CH/(TV-JCH-200A) SOLENDID VTI 06.061-3, 8 RCBX 718 RLF TK AREA	50V-CH-200MI CH/(TV-ICH-200M) SOLENDID VTI 06.041-3, 8 RCBX 718	CH/(TV-ICH-200M) SOLEMDID VII 06.041-3, 8 RCBX 718	VTI 06.041-3, 8 RCBX 718	RCBX 718	718		RLF TK	AREA	S R	ENERG	DEENERG NO	æ	RE-21FU	PHL-DC-3 BK 8-1	*
07 TV-CH-2008 CH/LETDOWN ORTFICE CNMT ISOLATION 07.092-0006/8,07.096 RCBX 719 LETDOWN -0002	TV-CH-2008 CH/LETDOWN ORTFICE CMMT 150LATION 07.082-0006/8,07.086 REBX 719 -0002	CH/LETDOWN ORIFICE CWAT ISOLATION 07.082-0006/8,07.086 RCBX 718 -0002	07.082-0006/8,07.085 RCBN 719 -0002	718	718		LETDOWN	LETDOWN CUBICLE S	s	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	*
A 085 50V-CH-2006 CH/(TV-ICH-2006) SOLENDED "TI 06.041-5, 6 RCBX 718 RLF TK AREA	50V-CH-2008 CH/(TV-ICH-2008) SOLENDID 'TI 06.041-5, 6 RCBX 718	CH/(TV-ICH-2006) SOLEMDID VTI 06.041-5, 6 RCBX 718	VII 06.041-5, 6 RCBX 718	RC6X 718	718		RLF TK	AREA	SR	ENERG	DEENERG NO	-	RE-21FU	PNL-DC-3 BK 8-20	×
088 SOV-CH-20081 CH/(TV-ICH-2008) SOLENDID VII 06.041-3, 8 RCBX 718 RLF TK AREA	SOV-CH-20081 CH/(TV-ICH-2008) SOLENDID VII 06.041-3, 8 RCBN 718	CH/(TV-ICH-2008) SOLENDID VII 06.041-3, 8 RCBN 718	VII 06.041-3, 8 RCBX 718	RCBX 716	716		RLF TK	AREA	S R	ENERG	DEENERG ND	-	RE-21FU	PNL-DC-3 BK 8-1	*
A 07 TY-CH-200C CH/LETODAN ORIFICE CANT ISOLATION 07.062-0006/8.07.096 RCBX 718 LETDON -0002	TV-CH-200C CH/LETROWN ON FLCE CNNT ISOLATION 07.002-0006/8.07.006 RCBX 718	CH/LETDOWN ORIFICE CNNT ISOLATION 07.082-0006/8.07.086 RCBX 718 -0002	718	718	718		LETDOM	LETDOWN CUBICLE S	s	OPEN.	CLOSED	YES	8E-21FU	PNI-DC-3 BK 8-20	<
A 088 SOV-CH-200C CH/(TV-ICH-200C) SOLENDID VTI 06.041-5, 6 RCBX 718 RLF TK AREA	50V-CH-200C CH/(TV-ICH-200C) SOLENDID VII 06.041-5, 6 RCBX 718	CH/(ITV-ICH-200C) SOLENDID VII 06.041-5, 6 RCBX 718	VTI 06.041-5, 6 RCBX 718	6 RCBX 718	718		RLF TK	AREA	S R	ENERG	DEENERG NO	-	RE-21FU	PML-DC-3 RK 8-20	*
088 SOV-CH-200C1 CH/(TV-ICH-200C) SOLENDID VII 06.041-3, 8 RCBX 718 RLF TK AREA	CH/(TV-IEH-200C) SOLEMOID VII 06.041-3, 8 RCBX 718	CH/(TV-IEH-200C) SOLEMOID VII 06.041-3, 8 RCBX 718	VTI 06.041-3, 8 RC8X 718	RCBX 716	718		RLF TK	AREA	5 8	ENERG	DEENERG ND		RE-21FU	PNL-DC-3 BK 8-1	*
08A MDV-CH-378 CH/RCP SEAL LEAKOFF ISOLATION ISO 6.24-380 RCBX 718 PENT #19	MDV-CH-378 CH/RCP SEAL LEAKOFF ISOLATION ISO 6.24-380 RCBX 718	CH/RCP SEAL LEAKOFF ISOLATION ISO 6.24-380 RCBX 718	150 6.24-380 RCBX 718	RCBX 718	718		DENT AT		5 8 8	0PEN	CLOSED	YES	RE-21FR	MCC1-ES BK BA	¥
08A MOV-CH-381 CH/RCP SEAL LEAKOFF ISOLATION ISO 6.24-255 SFGB 722 PENT A	MOV-CH-381 CH/RCP SEAL LEAKOFF ISOLATION ISO 6.24-255 55GB 722	CH/RCP SEAL LEAKOFF ISOLATION ISO 6.24-255 SFGB 722	150 6.24-255 55G8 722	SFG8 722	722		PEWT A		588	OPEN	CLOSED	YES	RE-21FR	NCC1-E6 BK AN	¥

CERTIFICATION:

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FNL-AC-EI BK 13

CLOSED CLOSED NO RE-21FS

EXC LETD PLATF R

101

RCBX

CH/EXCESS LETDOWN HX FLOW CONT 150 6.24-1613

MOV-CH-137

084

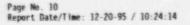
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Print or Type Name/Title

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

LINE ND.		EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.		SORT		Normal	Destred	REQD?	DWG. NO./REV.	& SUPP		S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(11)	(12)	(13)	(14)	(15)		(16)	(17)
3212A	8	18	FY-CH-150	CH/LETDOWN FLOW TRANSMITTER	VT1 7.050-0010	AXLB	722	COL 11-1/2 & G	S R		ON	ON	YES	RE-22J,DMG RK-3A	VITAL	BUS 2	A
32128	8	20	F1-CH-150	CH/LETDOWN FLOW INDICATION	VTI 1.12-75	SRVB	735	CONT RM BB-A	SR		ON	UN	YES	RE-22J	VITAL	BUS 2	
3216	N/A	07	RV-CH-382A	CH/SEAL RTRN HOR RELIEF VALVE	150 6.24-1548	RCBX	718	ANNALUS COL 5	s		CLOSED	CLOSED	NO	N/A	N/A		A
3217	A	67	1A-22-108	SS/PZR LIQUID SPACE SAMPLE ISOLATION	150 151-2821A, 3680, RP-18 A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	NO	RE-21KR	PNL-AC	-10 BK 7	A
3238	*	07	TV-SS-110	SS/PZR VAPOR SPACE SAMPLE ISOLATION	DNG RM-32A, RP-18A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	ND	RE-21KR	PNL-AC	-10 BK 7	A
3219	A	08A	MOV-RH-700	RH/RHR INLET ISOLATION	150 6.24-3197	RCBX	692	W OF SI ACC 1A	R		CLOSED	CLOSED	NO	RE-21JW	MCC1-E	5 BK P	
3320	A	08A	MOV-RH-720A	RH/RHR RETURN ISOLATION	150 6.24-3189	RCBX	692	W OF SI ACC 18	R		CLOSED	CLOSED	NO	RE-21JW	MCC1-E	5 BK Q	A
3321	8	ABG	MOV-RH-7208	RH/RHR RETURN ISOLATION	150 6.24-3191	RCBX	692	W OF ST ACC 1C	R		CLOSED	CLOSED	NO	RE-21JV	MCC1-E	6 BK Q	A
4101A	A	18	LT-WT-104A1	WT/WT-TK-10 LEVEL TRANSMITTER	150 6.24-4016	YARU	735	YARD	SR		ON	ON	YES	RE-22FG	VITAL	BUS 2	٨
4101B	A	20	LI-WT-194A1	WT/WT-TK-10 LEVEL INDICATOR		SRAB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22FG	VITAL	8US 2	A
4102A	8	18	LT-WT-104A2	WT/WT-TK-10 LEVEL TRANSMITTER	150 6.24-4017	YARD	735	YARD	SR		ON	ON	YES	RE-22FG	VITAL	BUS 2	A
41028	8	20	L1-WT-104A2	WT/WT-TK-10 LEVEL INDICATOR		SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22FG	VITAL	BUS 2	A
4103A	A	18	FT-FH-100A	FW/AUX FEED TO SGA TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	SR		ON	ON	YES	RE-22DZ	VITAL	8US 1	A
41038	٨	20	F1-FW-100A	FW/AUX FEED TO SGA INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22DZ	VITAL	BUS 1	A
4104A	8	18	FT-FW-1008	FW/AUX FEED TO SGB TRANSMITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	SR		ON	ON	YES	RE-22DZ	VITAL	BUS 4	
41048	8	20	FI-FW-1008	FW/AUX FEED TO SGB INDIC	VTI 1.12-25	SRAB	735	CONT RN VB-C	SR		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	SR		ON	ON	YES	RE-22DZ	VITAL	BUS 1	٨
41058	A	20	F1-FW-100C	FW/AUX FEED TO SGC INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON ·	YES	RE-2202	INTIN	8US 1	A
4106	N/A	21	WT-TK-10	WT/DEMIN WATER STORAGE TANK	DWG RV-34A,RP-6C	VARD	735	YARD	2		N/A	N/A	NC		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	SR		OFF	04	YES	RC-21C, M, RE-21H E, RM-18, 6.24-64	BUS AE	BK E16	A
41070	A	07	FCV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	150 6.24-774	SFGB	735	AFW ROOM	SR		CLOSED	OPEN	YES	RE-21HD	PNL-DC	-3 8K 8-53	A

CERTIFICATION:

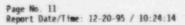
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FERRIE / ENGINEER Print or Type Name/Title

Kon Forme Signature

27/95 12 Date Date

TSA. / ENGINEER Print or Type Name/Title



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

LIN	T	RAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.		SORT		Normal	Desired	REQD?		8 SUP	PORTI	ING COMPONENTS	S ISSUE
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(11)			(14)	(15)	*****		(16)	(17)
4107	D A		18	FIS-FW-151A	FW/AUX FW PUMP FW-P-3A SUCTION LINE .ROM WT-TK-10 FIS	150 6.24-3831, 3833	SFGB	122	AFW ROOM	5		ENERG	ENERG	YES	RE-21HD	PNL-C	K-3 P	IK 8-53	
4100	8		05	FW-P-38	FM/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,G.24-64		IF BK	F16	A
410	IC 8		07	FCV-FW-1038	FW/38 AFW PUMP RECIRCULATION VALVE	150 6.24-774	SFGB	735	AFW ROOM	SR		CLOSED	OPEN	YES	RE-21HE	PNL-	K-3 P	IK 8-53	A
4100	10 B		18	F15-FW-1518	FW/AUX FW PUMP FW-P-38 SUCTION LINE FROM WT-TK-10 FIS	ISO 6.24-3832	SFGB	722	AFW ROOM	s		ENERG	ENERG	YES	RE-21HE	PNL-D	K-3 8	IK 8-53	A
410	E A	/8	088	DV-FP-12	FP/AUX FEED WATER PUMP DELUGE VLV	RB-160	SFGB	722	ME	R		CLOSED	CLOSED	NO	10.1-474	PNL-D	K-4		A
410	8		GBA*	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	HCC1-	E6 B	(A6	A
4110	A (08A	MOY-FW-1518	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-	ES BR	A6	٨
411	8	1	08A	MOV-FW-1510	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-65	NEC1-	E6 Br	AH	٨
411	. A	1	08A	MOV-FW-1510	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF ,6.24-65	HEC1	ES BR	(AH	A
411	8	É la	CBA	MOV-FW-151E	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	VES	RE-21HF,6.24-65	HCC3	E6 BR	(AJ	A
411	A	(ABO	NOV-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	HCC1-	E5 88	(AJ	A
411	5 N	1/A	ASO	MOV-FW-160	FW/FW-P-4 DISCHARGE ISOLATION VALVE	150 6.24-383	TRBB	693	BASEMENT & PUMP	R		CLOSED	CLOSED	NO	RE-21HF	MCC1-	43 BK	3.3.	A
411	5 A	5	A80	MOV-RW-103A	RE/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COF K	SR		CLOSED	OPEN	YES	RE-21LA,6.24-12 8	MCC1-	E3 BK	. 8	A
411	8	1	ABD	MOV-RW-1038	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	SR		CLOSED	OPEN	YES	RE-21LA,6.24-12 8	HCC1-	E4 BK	8	A
411	B N	i/A	20	FR-MS-478	FW/RC-E-1A LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RH BB-C	SR		ON	ON	YES	RE-222	VITAL	BUS	2	A
411	9 N	6/A	20	FR-MS-488	FW/RC-E-18 LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM B8-C	SR		ON	ON	YES	RE-22AA	VITAL	BUS	2	A
412	N	A/A	20	FR-MS-498	FW/RC-E-IC LEVEL RECORDER	VTI 1.12-25	SRYB	735	CONT RM BB-C	SR		ON	ON	YES	RE-22AB	VITAL	BUS	3	
412	IA A	5	18	LT-FW-474	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3394, RK-18	RCBX	718	ANNELLUS COL 16	S R		ON	ON	YES	RE-22W	VITAL	BUS	1	٨
412	IB A	÷ .	20	L1-FW-474	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RH VB-C	S R		ON	ON	YES	RE-22W	PITAL	BUS	1	A

CERTIFICATION:

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R FEGRIE/ ENGINEER Print or Type Name/Title

tion terre Signature

J Shine / ENGINEER Print or Type Name/Title

9. Date 199 Date



Page No. 12 Report Date/Time: 12-20-95 / 10:24:14

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

LINE ND.	TRAIN	EQUIP	MARK ND.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg.	No./Rev./Zone	Building	Flr.Elv.	LOCATION	SORT	NOTES	Normal	Des red	REOD?	SUPPORTING SYS. DMG. NO./REV.	& SUPPO	RTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)	(11)	(12)		(14)	(15)		(16)	(17)
4122A	8	18	LT-FW-475	FW/RC-E-1A NARRON RANGE LEVEL TRANSMITTER	150 6	.24-3394, RK-18	RCBX	718	ANNALUS COL 16	SR		ON	ON	YES	RE-22W	VITAL B	US 2	A
11228	8	20	LI-FW-475	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1	12-25	SRVB	735	CONT RN VB-C	SR		ON	ON	YES	RE-22W	VITAL B	US 2	*
4123A	A	18	LT-FW-476	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	150 6	.24-3885, RK-18	RCBX	718	ANNAULUS COL 15	SR		ON	ON	YES	RE-22Z	VITAL B	85 3	A
41238	A	20	L1-FW-476	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1	. 12-25	SRVB	,735	CONT RN VB-C	SR		ON	ON	YES	RE-22Z	VITAL B	US 3	A
41246		18	LT-FW-484	FW/RC-E-18 NARROW RANGE LEVEL TRANSMITTER	150 6 RK-1A	.24-3361, , 1F	RCBX	738	ANNALUS COL 9	SR		ON	ON	YES	RE-22X	VITAL B	US 1	A
 41248	A	20	L1-FW-484	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VT1 1	. 12-25	SRAB	735	CONT RM VB-C	SR		ON	ON	VES	RE-22X	VITAL B	US 1	A
¢125A	8	18	LT-FW-485	FW/RC-E-IB NARROW RANGE LEVEL TRANSMITTER	150 6 RK-1A	.24-3363, , 1F	RCBX	738	AMMALUS COL 9	SR		ON	ON	YES	RE-22X	VITAL B	US 2	A
41258	8	20	LI-FW-485	FW/RC-E-IB NARROW RANGE LEVEL INDICATOR	VTI 1	. 12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22X	VITAL B	US 2	A
4126A	٨	18	LT-FM-486	FW/RC-E-IB NARRON RANGE LEVEL TRANSMITTER	150 6 RK-1A		RCBX	718	ANNALLUS COL 9	SR		ON	ON	YES	RE-22AA	VITAL B	<i>I</i> 53	A
41268	A	20	L1-FW-486	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1	. 12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22AA	VITAL B	<i>IS</i> 3	A
4127A	A	18	LT-FW-494	FW/RC-E-IC NARROW RANGE LEVEL TRANSMITTER	DWG RI	K-18, RK-6D	RCBX	718	AMARILUS COL 5	SR		ON	ON	YES	RE-22¥	VITAL B	US 1	A
4)278	A	20	LI-FW-494	FW/RE-E-IC NARROW RANGE LEVEL INDICATOR	VTI 1	12-25	SRVB	735	CONT RN VB-C	SR		ON	ON	YES	RE-22Y	VITAL BI	US 1	A
4128A	8	18	LT-FW-495	FW/RC-E-IC NARROW RANGE LEVEL TRANSMITTER	150 6 RK-18	24-3364, 1F	RCBX	718	ANNAULUS COL 5	SR		ON	ON	VES	RE-22Y	VITAL BI	US 2	٨
41288	8	20	L1-FW-495	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	VTI 1	. 12-25	SRVB	735	CONT RM VB-C	\$ R		ON	ON	YES	RE-22¥	VITAL BI	K 2	A
4129A	A	18	LT-FW-496	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	150 6	24-3885, RK-18	RCBX	718	ANNULUS COL 4	S R		ON	ON	YES	RE-22A8	VITAL BI	<i>I</i> S 3	A

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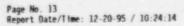
R FERRIE / ENGINEER Print or Type Name/Title

Ferre Signature

12/27/95 Date

T Shin / ENCINEER Print or Type Name/Title

12/22/95 Date



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

LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Durg	No./Rev./Zone	Ruilding	Flr Flv	Rm.	or Row/Col.	SORT	NOTES	Normal	Destred	REOD?	SUPPORTING SYS. DWG. ND./REV.	8 SUPPO	RTING COMPONENTS	S 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-IC NARROW RANGE LEVEL INDICATOR	VTI I	1.12-25	SRAB	735	CONT	RM VB-C	SR		ON	ON	YES	RE-22AB	VITAL B	US 3	A
4201A	A	19	TR8-RC-413	RC/LOOP IA HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7	1.41-33	RCBX	718	EL 7	32	SR	19	ON	ON	YES	RE-228N	VITAL B	US 1	٨
42018	8	19	TRB-RC-410	RC/LOOP 1A COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7	7.41-33	RCBX	718	EL 7	32	SR	19	ON	ON	YES	RE-228P	VITAL B	US 2	٨
4202A	A	19	TRB-RC-423	RC/LOOP 18 HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7	41-33	RCBX	718	EL 7	32	SR	19	ON	ON	YES	RE-22BN	VITAL B	US 1	*
42028	8	19	TRB-RC-420	RC/LOOP IB COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7	.41-33	RCBX	718	EL 7	32	SR	19	ON	ON	YES	RE-228P	VITAL 8	US 2	A
4203A		19	TR8-RC-433	RC/LOOP IC HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7	1.41-33	RCBX	718	EL 7	32	SR	19	ON	ON	YES	RE-22BN	VITAL 8	US 1	A
42038	8	19	TR8-RC-430	RC/LOOP IC COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI I	.41-33	RCBX	718	EL 7	32	SR	19	ON	ON	YES	RE-228P	VITAL B	US 2	٨
4203C	8	20	TR-RC-410	RC/REACTOR COOLANT COLD LEG 3 PEN RECORDER			SRAB	735	CONT	RM VB-A	R		ON	ON	YES	RE-228P	VITAL B	US 2	A
42030	A	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER			SRAB	735	CONT	RM VB	R		ON	ON	YES	RE-228N	VITAL B	US 1	A
4204	A	07	HCV-MS-104	MS/RESIDUAL HEAT RELEASE	150 6	5.24-6	SFGB	752	MSVH		SR	10	CLOSED	OPEN	YES	RE-22DR	VITBUS	1 BK 1-7	A
4205	A	07	PCV-MS-101A	MS/A LOOP ATH STEAN DUMP	150 6	5.24-6	SFGB	752	MSVH	1997	s	10	CLOSED	OPEN	YES	RE-21JD	VITAL B	US 2	A
42050	A	088	SOV-MS-101A	MS/(PCY-INS-101A) CONTROL SOLENDID	RK-8/		SFGB	751	HSVH	6135-5	SR		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-	3 BK 8-14	A
4205D	A	088	SOV-MS-101A4	MS/(PCV-IMS-101A) CONTROL SOLENDID	RK-8/	uiter i	SFGB	751	MSVH	i de la composición d	S R		DEENERG	DEENERG	ND	RE-21JD	PNL-DC-	3 BK 8-23	A
4205E	A	18	PS-MS-101A	MS/ATMOSPHERE STEAM DUMP S.G. 1A	150 €	5.24-2	SFGB	768	MSVH	6 C (s		ENERG	ENERG	YES	RE-21JD	PNL-DC-	3 BK 8-14	A
4206	8	07	PCV-MS-1018	MS/B LOOP ATH STEAM DUMP	150 6	5.24-6	SEGB	751	MSVH	10.00	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL B	US 2	A
42060	8	088	SOV-MS-1018	MS/(PCV-IMS-1018) CONTROL SOLENDID	RK-8/	in der	SFGB	751	MSVH		S R		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-	2 BK 8-14	A
42060	8	088	SOV-MS-10184	MS/(PCV-1MS-1018) CONTROL SOLENOID	RK-8/	(SEGB	751	MSVH	60.ST	SR		DEENERG	DEENERG	NO	RE-21JD	PNL-DC-	2 BK 8-23	A
4206E	8	18	PS-MS-1018	MS/ATMOSPHERE STEAM DUMP S.G. 18	150 6	5.24-2	SFGB	768	MSVH		s		SNERG	ENERG	YES	E-21JD	PNL-DC-	2 BK 8-14	A
4207	8	07	PCV-MS-101C	MS/C LOOP ATH STEAM DUMP	150 6	5.24-6	SFG8	752	MSVH		5	10	CLOSED	TOEN	YES	RE-21JD	VITAL B	US 2	٨

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<u>R FERRIE</u> / ENGINEER Print or Type Name/Title

-Ron Terre Signature

Print or Type Name/Title



Page No. 14 Report Date/Time: 12-20-95 / 10:24:14



BEAVER VALLEY PONER STATION UNIT 1 COMPOSITE SAFE SWITDOMN EQUIPMENT LEST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

REG.	(11)	_	2	_	-	_			_	_	_	_	_	_	-	_	-			_
REQ'ED INTERCOMMENTIONS REG. & SUPPORTING COMPONENTS ISSUE			3	*								-	1		2	2				
RCONNI NC CO	(16)	PHI -DC -2 BK 8-14	PNL-DC-2 BK 8-23	PHL-DC-2 BK 8-14	*	N	68	9-8 (DC-PNL-3 BK 8-6	DC-FNL-3 BK 8-6	PML-DC-3(2) 8-6	DC-PNI-3 BK 8-21	DC-PNL-3 BK 8-21	PNL-DC-3(2) 8-6	DC-PNI-3 BK 8-22	DC-PHI-3 BK 8-22	B	8-8-8	K-8-8	K-8-8
PORT	-	C-2 8	C-2 8	£ -2 B	E6 BK	E6 BK	E6 BK	C-3(2	(-3 B	L-3 8	C-3(2	1-3 8	L-3 8	C-3(2	1-38	1-3 8	E6 BK	C-3 8	C-3 8	C-3 8
8 SUP		PHIL-DH	PNI-D	PNI -D	NCC1-E6 BK	NCC1-E6 BK	MCC1-E6 BK	PNL-DC-3(2) 8-	DC-PN	DC-FN	PNI -D	DC-PN	DC - PN	PNIL-DI	DC-PN	DC-PN	MCC1-E6 BK	PNL-DC-3 8K-8-1	PML-DC-3 BK-8-	PNL-DC-3 8K-8-8
SUPPORTING SYS. DHG. ND./REV.																	ISO			
SUPPORTING SYS DHG. NO./REV.	(15)	130	130	OCL	XHE	XHE	XHL	XHI	XHI	XHI	XHE	XHL	XHE	XHE	XHI	XHI	RE-21HY, 6.24-625	AHL	AHE	AHI
		RE-21.30	RE-2130	8E-21JD	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-21HX	RE-2	RE-21HY	RE-21HY	RE-21HY
> POMER		ON 9	011 9	YES	£		9	YES	YES	YES	YES	VES	YES	YES	YES	YES	YES	9	9	¥
ST> Destred	(13)	DEENERG DEENERG ND	DEENERG DEENERG NO	ENERG	CLOSED	CLOSED	CLOSED	CLOSED	ENERG	ENERG	CLOSED	ENERG	ENERG	CLOSED	ENERG	ENERG	CLOSED	CLOSED	CLOSED	CLOSED
Normal		NERG 1	NERG (CLOSED	CLOSED	CLOSED		DEENERG ENERG	DEENERG ENERG		DEENERG ENERG	DEENERG ENERG		DEENERG ENERG	DEENERG ENERG				
		DEE	DEE	ENERG	CLO	CLO	CLO	OPEN	DEE	DEE	N3dO	DEE	DEE	N3d0	DEE	DEE	N3d0	OPEN	N3dO	OPEN
SORT NOTES								6			o			6						
2081		S R	S R	5	œ	œ	æ	SR	5.8	SR	5 8	SR	SR	SR	# S #	Ø 5 8	SR	5 8	SR	S R
RE. OF ROW/Col.									PUMP	difild		dente	PUMP		QUEN SPRAY PUMP	QUEN SPRAY PUMP				
Re. or Re	(6)	z	æ	=	æ	æ	æ	z	AUX FEED PUMP	AUX FEED PLAND	æ	AUX FEED PUND	AUX FEED PUMP	æ	N SPR	N SPR	3	æ	æ	æ
_		HASH	HASH	HASH	HASM	HASH	HASH	HASH	AUD	AUD	HASH	AUN	AUD	HASH	OUE	QUE	MASM	HASH	HASH	HASH
EQUIPMENT Flr.Elv.	(8)	_	_		~	~	~	~	5	~	~	~	5	2	5	5				
1.1.1		151	751	768	752	752	752	752	135	135	752	135	735	752	135	735	135	768	768	768
Ruilding	(2)	SFCB	SFGB	SFCB	SFGB	SFGB	SFGB	SFG8	SFGB	SFGB	SFGB	SFG8	SFGB	SFGB	89	3568	SFGB	SFGB	SFG8	SFGB
		15	S	5	15	15	15	5	S	S	S	S	S	55		-	5	12	15	15
Dwg. No./Rev./Zone																		1576	1576	36
No. /8	(9)			2-52	24-2	24-2	24-2	2-12			24-2			24-2			2,96			24-15
NT Dwg. No./Rev.	N 8 0 0 0 0 0	KK-84	KK-84	150 6.24	150 6.24	150 6.24	150 6.24	150 6.24	RK-BA	RK-BA	150 6.24	8%-8A	RK-BA	150 6.24	RK-84	RK-8A	6.48-95,96	150 6.24	150 6.24	150 6.24-1576
		MS/(PCV-IMS-101C) CONTROL SOLENDID RK-BA	MS/(PCV-IMS-101C) CONTROL SOLENOID RK-8A						2	0					2	Ē.				
	解析	SOLE	SOLE	MS/ATMOSPHERE STEAM DRMP 5.6. IC	MS/MAIN STEAN TRIP [TV-MS-101A] BYPASS VALVE	MS/MAIN STEAM TRIP [TV-MS-1018] BVPASS VALVE	MS/MAIN STEAM TRIP [TV-MS-101C] BYPASS VALVE		IL VE	ILVE		ILVE	ILVE		IN	IL VE	ATA	MS/MATH STM PRE-MRTRN BRAIN ISOL VALVE	MS/MAIN STM PRE-MRTRN DRAIN ISOL VALVE	MS/MAIN STM PRE-MRTRN DRAIN : SOL VALVE
SYSTEM/EQUIPMENT DESCRIPTION	0 8 8 8	WEROS	WTRON	DUM	SM-AL	SH-AL	IV-NI	HON	MS/(TV-IMS-101A) PILOT VALVE	MS/(TV-IMS-101A) FILOT VALVE	ION	MS/(TV-INS-1018) PILOT VALVE	MS/(TV-1MS-1018) PILOT VALVE	ION	MS/(TV-IMS-101C) PIEOT VALVE	MS/(TV-IMS-101C) PILOT VALVE	MS/AFW TURBINE STEAM SUPPLY ISOLATION	100 N2	IN DRI	100 NJ
RIPTI	(2)	C) C0	C) CO	TEAH	418	816	418	HS/MAIN STEAM ISOLATION	Hd ()	Itd ()	MS/MAIN STEAM ISOLATION	114 (1	IId (I	HS/MAIN STEAM ISOLATION	IId (Hd (STEAD	-NR TS	-NR TS	-NRTIS
VSTEN		101-2	5-101	ERE S	VE VE	NE NE	EAN T	ENH	-1014	-1014	EAM 1	-1018	-1018	ENH	-101C	-1010	BINE	M PRE	M PRE	M PRE
S	现的资格保持和增加资格	CV-IN	CV-IH	HUSOM	IN ST	MS/MAIN STEA	MS/MAIN STEAU BYPASS VALVE	IS NI	SHE-A	SHI - A	EN ST	A-INS	V-IHS	IS NI	SHI-A	SMI-A	MS/AFW TUR	IN SI	IN ST	IS NI
	1	MS/(P	MS/(P	MS/AT	MS/MAIN STEAU BYPASS VALVE	MS/MA BVPAS	MS/WA BYPAS	MS/MA	WS/(1	MS/(T	WS/MA	MS/(T	1)/SM	MS/MM	1)/SM	NS/(I	MS/AF ISOUA	MS/MAI VALVE	MS/MAI	MS/MAI VALVE
NARK ND.	(4)	1010	10104	OIC	VIOI	1018	1010	OIA	11241	112A2	018	11281	11282	OIC	11201	11202	105	IIA	118	311
N.	(*)	SOV-MS-101C	SOV-MS-101C4	PS-MS-101C	NOV-NS-101A	BIOI-SM-AGM	NOV-MS-101C	TV-MS-101A	50V-MS-112A1	SOV-MS-112A2	TV-MS-1018	SOV-MS-11281	SOV-MS-11282	TV-MS-101C	SOV-MS-112C1	SOV-MS-112C2	SOL-SH-VOM	TV-NS-111A	BIII-SM-AI	TV-MS-111C
		0668 50	068 50		064 14	08A M	08A M	07 1/	C88 5(068 5(07 1/	088 S(068 5(068 5(088 5(08V M	11 10	07 11	07 11
EQUIP TRAIN CLASS	(1) (2) (3)		8	18	8	8		A/8 0)			A/8 0			A/8 07						
WE IS		70 8	8 00	NE 8	8	80	8		IC A	42110 8		IZC A	42120 8		4213C A	42130 8	8	IS A	16 A	¥ []
LINE NO.	(1)	4207C	42070	4207E	4208	4209	4210	4211	4211C	421	4212	4212C	421	4213	421	423	4214	4215	4216	4213

CERTIFICATION:

The information identifying the equipment required to bring the plant to a safe shutdown condition on this Safe Shutdown Equipment List (SSEI) is, to the best of our knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers) $\int_{0}^{1} F_{r} R_{R} it$ / EWGINER For Force and accurate. (One or more signatures of Systems or Operations Engineers) $\int_{0}^{1} F_{r} R_{R} it$ / EWGINER Force and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers) $\int_{0}^{1} F_{r} R_{R} it$ / EWGINER Force Signatures of Systems or Operations Engineers) Find or Type Name/Title

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Page No. 15 Report Date/Time: 12-20-95 / 10:24:14

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

LINE NO.	TRAIN	EQUIP	MARK NO.		Dwg. No./Rev./Zone	Building	Flr.Elv.		SORT NOT	ES Normal	Destred	REQD?		& SUPPO	RTING COMPONENT	IS ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10) (1		(13)	(14)	(15)	5255221	(16)	(17)
5101	٨	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 1A	BK E10	٨
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-23MW	HCC1-E	BK B	A
51010	A	0	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	725	A CUBICLE	SR	CLOSED	OPEN	YES	RE-21MM	MCC1-EI	BK B	A
5101E	A	0	VS-D-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E R8-26A & C	INTS	725	A CUBICLE	S R	CLOSED	OPEN	YES	RE-21MW	MCC1-EI	BK B	
5102	8	06	WR-P-18	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 10	8K F10	A
51020	8	09	VS-F-578	VS/INTAKE STRUCTURE CUBICLE #2 SUPPLY FAN	RB-2E	INTS	725	B CUBICLE	SR	ON	ON	YES	RE-23MM	MCC1-E2	BK B	A
5102D	8	0	VS-D-5781	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	725	B CUBICLE	S R	CLOSED	OPEN	VES	RE-21MW	MCC1-E2	BK P	A
5102E	8	0	VS-D-5782	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	725	B CIBICLE	SR	CLOSED	OPEN	YES	RE-23MM	MCC1-E2	8K B	A
5103	A/8	06	WR-P-1C	RW/RIVER WATER PUMP	2.42-14,16,?3	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
51030	A/B	09	VS-F-57C	VS/INTAKE STRUCTURE CUBICLE #3 SUPPLY FAN	RB-2E	INTS	725	C CUBICLE	SR	ON	ON	YES	RE-21MM	MCC1-E1	/2 BK E	٨
5103C	A/B	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	725	C CUBICLE	SR	CLOSED	OPEN	YES	RE-21HW	MCC1-E1	/2 8K E	A
5103E	A/B	0	VS-D-57C2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	725	C CUBICLE	SR	CLOSED	OPEN	YES	RE-21146	MCC1-E1	/2 BK E	A
5104	8	08A	NOV-RW-102A1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	SR	CLOSED	OPEN	YES	RE-21KZ, 150 6.24-801, RP-4L	MCC1-E1	BK D	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)

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Date 12/22/95

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Date

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Page No. 16 Report Date/Time: 12-20-95 / 10:24:14

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

LINE ND.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT Description	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION	SORT N	OTES	Normal	Des Ired	REOD?	DNG. NO. /REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENT	TS ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5105	A	OBA	MOY-RW-102A2	RW/PUMP DISCHARGE ISC	6.48-22,23	INTS	705	A CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, ISO 6.24-801, RP-4L	MCC1-E1 BK G	A
5106	8	08A	MDV-RW-10281	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	8 CUBICLE	SR		CLOSED	OPEN	YES	RE-21K2, ISO 6.24-801, RP-4L	MCC1-E2 BK D	A
5107	A	08A	MOV-RW-10282	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, ISO 6.24-801, RP-4L	MEC1-E2 BK G	٨
5108	8	08A	MGV-RW-102C1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, 150 6.24-801, RP-4L	MCC1-E2 BK H	A
5109	A	08A _	MOV-RW-102C2	RU/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	SR		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	150 6.24-3345	INTS	705	A CUBICLE	\$		CLOSED	OPEN	NO	150 6.24-3345	N/A	٨
5111	8	07	PCV-RW-1308	RW/SEAL WATER PCV FOR RW PUMP	150 6.24-3346	INTS	705	B CUBICLE	s		CLOSED	OPEN	NO	150 6.24-3346	N/A	A
5112	A/B	07	PCV-RW-130C	RW/SEAL WATER PCV FOR RW PUMP	150 6.24-3347	INTS	705	C CUBICLE	s		CLOSED	OPEN	ND	150 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-78	CH/CHARGING PUMP HEAT EXCH	VT1 2.32-18	AXLB	722	CH-P-18 CUB	\$		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	
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	150 6.24-68,RM-2A	N/A	A
5117	N/A	21	81-3-30	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	s		N/A	N/A	NO	150 6.24-68,RM-2A	N/A	A
5118	N/A	21	01-3-33	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-75 A,B	AXLB	735	N/A	\$		N/A	N/A	NO	150 6.24-58,RM-2A	N/A	A
5119	8	08A	MOV-RW-106A	RW/CCR HT EXCH ISOLATION	6.48-51,52	AXLB	722	N/A	SR 1	8	OPEN	CLOSED	YES	RE-21LA, 6.24-68	MCC1-E4 BK P	A
5120	B	08A	MOV-RW-1068	RW/CCR HT EXCH ISOLATION	150 6.24-68	AXLB	722	N/A	R		OPEN	OPEN	NO	RE-21LA	MCC1-E4 BK D	A
5121	٨	08A	MOV-RW-113A	RW/DIESEL GEN COOLING ISO	150 6.24-159	PG PUMP	722	PG PUMP	SR		CLOSED	OPEN	YES	RE-21LA	MCC1-E3 BK H	A
5122	A	08A	MOV-RW-1138	RW/DIESEL GEN COOLING ISO	150 6.24-160	PG PUMP	722	PG PUMP	SR		CLOSED	OPEN	YES	RE-21LA	MCC1-E7 BK J	٨
5123	8	08A	MOV-RW-113C	RW/DIESEL GEN COOLING ISO	150 6.24-159	PG PUMP	722	PG PUMP	SR		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK H	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)

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Page No. 17 Report Date/Time: 12-20-95 / 10:24:14

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

LINE ND.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION> Rm. or Row/Ecl.	SORT	NOTES	Normal	Desired	REQD?	DWG. ND./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5124	8	ABO	MOV-RW-11301	RW/DIESEL GEN COOLING ISO	150 6.24-160	DGBX	735	DIESEL GEN #2	SR		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK J	A
5125		08A	MOV-RW-114A	RW/CCR HT EXCH ISOLATION	150 6.24-68	AXLB	722	N/A	SR	18	OPEN	CLOSED	YES	RE-21LA	MCC1-E5 BK D	A
5126	A	ABO	HOV-RW-1148	RW CCR HT EXCH ISOLATION	150 6.24-68	AXLB	122	N/A	R		OPEN	OPEN	NO	RE-21LA	MCC1-E3 BK AC	A
5127	A	084	NOV-RW-116	RW/STRAINER ISOLATION	150 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E3 BK AD	
5128	8	08A	MOV-RW-117	RW/STRAINER ISOLATION	150 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E3 BK G	A
5129	N/A	21	EE-E-IA	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	٨
5130	N/A	21	EE-E-18	EE/DIESEL GEN COOLING HT EXCH	150 6.24-160, RM-10A	DGBX	735	DIESEL GEN #2	s		N/A	N/A	NO	N/A	N/A	A
5131	A	08A	NOV-RW-116A	RW/AUX RW PUMP SUPPLY TO A RW HDR Reactor plant	150 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E7 BK Y	٨
5132	8	03A	MOV-RW-1168	RM/AUX RW PUMP SUPPLY TO B RW HDR REACTOR PLANT	150 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E8 BK Z	٨
5133	A	OBA	MOV-RW-103A	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	SR		CLOSED	OPEN	YES	RE-21LA,6.24-12 8	MCC1-E3 BK B	A
51330	A/8	088	DV-FP-9	FP/LOWER CHARCOAL VENT FILTER DELUGE VALVE	RB-16C	STOR	735	LUNCH ROOM	R		CLOSED	CLOSED	ND	RE-21GV	PNL-DC-4	A
5134	8	OBA	MOV-RW-1036	RY/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	SR		CLOSED	OPEN	YES	RE-211A,6.24-12 8	HCC1-E4 BK B	A
5135	A	ABC	MOV-RW-103C	RW/'B' HOR RW FLOW TO RECIRC SPRAY	150 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21LA	MCC1-E3 BK C	A
5136	8	08A	MUV-RW-103D	RW/'B' HOR RW FLOW TO RECIRC SPRAY	150 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	DMG RB-17G	SRVB	713	SW EMERG SWGR	\$		ENERG	ENERG	YES	RE-21MZ		A
5202	8	09	VS-F-558	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG R8-17L	SRVB	725	CABLE MEZZ	SR	12	OFF	ON	YES	RE-21MZ	NCC1-E10 BK X	A
5202C	8	18	TS-HV-558	VS/TEMP SWITCH FOR VS-F-55B	DWG RB-17G	SRV8	713	SW EMERG SWGR	s		ENERG	ENERG ·	YES	RE-23MZ		A
5203	A	09	VS-F-16A	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	SR	12	ON	ON	YES	RE-21MZ	MCC1-E9 BK AF	A
5204	8	09	VS-F-168	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	SR	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	NCC1-E9 BK AF	A

CERTIFICATION:

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P' WER WALLEY POWER STATION UNIT 1 COMPOSITE SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP	N	urk ND.	SYSTEM/EQUIPHENT Description	Durg. No	Day ITana	Ruilding	Fle Fly	LOCATION> Re. or Row/Col.	SORT	NOTES	Normal	Besired	REGD?	SUPPORTING SYS. DNG. ND./REV.	& SUPPO	RTING COMPONENT	IS ISSUE
(1)	(2)	(3)		(4)	**********************************	CREEPER	(5)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)		(16)	(17)
5206	8	0	VS-D-16	8	VS/EMERG SWITCHGEAR EXHAUST DAMPER	DWG R8-1	71.	SRVB	725	CABLE MEZZ	SR		CLOSED	OPEN	YES	RE-21MZ	MCC1-EI	O BK AC	A
5207	A	08A	VS-D-4	14	VS/MAIN FILTER BANK UPSTREAM BYPASS ISOLATION DAMPER	8700-RB- 1/2)	8H (L 1/2-10	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	NO	RE-21MS	MCC1-E	BK V	A
5208	8	OBA	VS-D-4	18	VS/MAIN FILTER BANK UPSTREAN BYPASS ISOLATION DAMPER	8700-R8- 1/2)	8H (L 1/2-10	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	90	RE-21MS	MCC1-E	I BK V	A
5209		OBA	VS-D-4	-2A	VS/MAIN FILTER BANK LEAK COLLECTION TRAIN B IN ISOL DAM	8700-R8- 1/2-10)	8H (K	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MS	PNL-AC	E1 BK 3	A
5210	8	OBA	VS-D-4	-28	VS/MAIN FILTER BANK LEAK COLLECTION TRAIN A IN ISOL DAM	8700-88-	8H (K-10)	AXLB	758	BY FILTER BANK	R		CLOSED	CLOSED	NO	RE-21MS	PNL-AC	E2 BK Z	*
5211	8	08A	VS-D-4	-38	VS/CHG PUMP CUBICLE NORH EXHAUST DAMPER	8700-RB- 1/2)84-	88 (J-10	AXLB	722	BLENDER CUBICLE	R		CLOSED	CLOSED	NO	RE-21MT	MCC1-E	BK W	A
5212	A	08A	VS-D-4	-qA	VS/CHG PUMP CUBICLE EMER EXHAUST DAMPER	8700-RB- 3/8)	8H (K 1/2-9	AXLB	768	BY BATCH TANK	R		OPEN	OPEN	NO	RE-21MS	PNL-AC	E1 BK 3	A
5213	8	08A	VS-D-4	-48	VS/CHG PUMP CUBILCE EMER EXHAUST DAMPER	8700-RB- 3/8)	8H (K1/2-9	AXLB	768	BY BATCH TANK	R		OPEN	OPEN	NO	RE-21MS	PNL-AC	E2 BK 2	٨
5214		0	VS-D-4	-7A	VS/LEAK COLL EXHAUST FAN AA SUCTION ISOLATION DAMPER	8700-R8- 1/2-11)	86 (6	AXLB	768	AT FAN	S R		CLOSED	OPEN	YES	RE-21MS	N/A		٨
5215	8	0	VS-D-4	-78	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	8700-RB- 1/2-11)	86 (6	AXLB	768	NORTH WALL	s		CLOSED	OPEN	NO	RE-21MS	N/A		٨
5216	A	0	VS-D-4	-8A	VS/LEAK COLL EXHAUST FAN 48 SUCTION ISOLATION DAMPER	8700-RB- 1/2-12)	86 (6	AXLB	768	AT FAN	S R		CLOSED	OPEN	YES	RE-21MS	N/A		A
5217	8	0	VS-D-4	-88	VS/LEAK COLL EXHAUST FAN 48 DISCHARGE BACKFLOW DAMPER	8700-RB- 1/2-12)	86 (6	AXLB	768	NORTH MALL	S		CLOSED	OPEN	NO	RE-21MS	N/A		A
5218	A/B	08A	VS-D-4	-9A	VS/MAIN FILTER BANK [IVS-FL-4,5,6] IN DAMPER	8700-RB- 1/4)	8H (K-10	AXLB	768	BY FILTER BANK	R		OPEN	OPEN	YES	RE-21MS	PNL-AC	11 aK 1	A
5219	A/B	08A	VS-D-4	-98	VS/MAIN FILTER BANK [1VS-FL-4,5;6] OUT DAMPER	8700-R8- 7/8)	8H (K-10	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-R8- 17-17	8J SECT	AXLB	768	BY FILTER BANK	R		CLOSED	CLOSED	YES	RE-21MS	PNL-AC	1) BK 1	A
5221	A/B	08A	VS-D-4	-108	VS/MAIN FILTER BANK [1VS-FL-7,8:9] OUT DAMPER	8700-RB- 17-17	BJ SECT	AXEB	768	BY FILTER BANK	R		CLOSED	CLOSED	YES	RE-21MS	PNL-AC	11 BK 1	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)

REBRIE / ENGINEER Print or Type Name/Title

T. Share / ENGINEER Print or Type Name/Title

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12/27/95 Date 12/27/95 Date



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

Page No. 19 Report Date/Time: 12-20-95 / 10:24:14

REG. ISSUE	(37)	-					*	*							æ		
REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	(ję)	480V BUS IN BKS	480V BUS IP BK6	PNL-AC-E1 BK 7	PNL-AC-E2 BX 6	PNL-AC-E1 BK 7	PNL-AC-E2 BK 6	PNL-AC-11 BK 5	PNL-AC-7 BK 16	PNL-AC-8 BK 45	DC-PNL-4 BK 19	PNL-DC-4	DC-PNI-4 BK 19	DC-PNI-4 BK 19	DC-PNI-4 BK 19	480V BUS IN BK N	480V BUS IP BK P
SUPPO	(15)	RE-21MS	RE-21MS	RE-21MT	RE-21MT	RE-21MT	RE-23MT	RE-21MH	RE-21MA	RE-21MA	RE-21MT	RE-23GW	RE-21MT	RE-21MT	RE-21MT	RE-23MK	RE-21MK
PONER KEQ07	(14)	YES	YES	YES	YES	YES	YES	9		¥		¥	9		QN	YES	YES
ST> POMER Destred REQU?	(13)	æ	8	OPEN	NBAD	NBGN	OPEN	CLOSED	CLOSED	TOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	N	×
	(12)	140	0FF 0	CLOSED 0	CLOSED 0	CLOSED 0	CLOSED 0	CLOSED C	CLOSED C	CLOSED CLOSED	CLOSED C	CLOSED C	CLOSED C	CLOSED C	CLOSED C	NO	ON NO
	(11)	0	0	0	0	0	3	0	3	5	J	3	0	3	2	0	0
SORT NC	(IO) (S R	8 5	S R	e s	a s	SR	es:	œ	œ	œ	œ	œ	œ	æ	s a	8 5
RE. or Row/Col. SORT NOTES	(6)	NE CORNER	NE CORNER	VS-AC-7 RH	NS-AC-7 RM	AUX FD PUMP RM	AUX FD PUMP RH	OVERHEAD	BY FILTER BANK	ABOVE EXH FANS	M FILTER BANK	LUNCH ROOM	M FILTER BANK	M FILTER BANK	M FILTER BANK	CR VENT	CR VENT
EQUEPMENT F.Ir. E.Iv.	(8)	168	768	335	135	135	332	768	768	768	780	382	780	768	768	713	113
Building	(7)	AXLB	AXLB	SFGB	SFG8	SFG8	SFGB	AXLB	AXLS	AXLB	AXLB	STOR	AXLB	AXLB	AXLE	SRVB	SRVB
Dwg. No./Rev./Zone	(5)	DMG RM-28, VTI 10.001-153		8700-R8-51&5P SECT 24-24	3700-RB-5L&5P SECT 24-24		8700-88-5185P SECT 24-24	8700-88-8H (K-10 1/4)	8700-R8-86 (67/8-10 1/4)	8700-R8-86 (SECT Y-Y)	DMG RM-28, VII 10.1-216	R8-16C	DNG RM-28, VTI 10.1-216	DMG RM-29, VTI 10.1-216	DMG RM-28, VTI 10.1-216	DMG R8-17J, R8-17K	DMC R8-17J, R8-17K
SYSTEN/EQUIPMENT DESCRIPTION	са посталализативние (5)	VS/LEAK COLLECTION EXHAUST FAM	VS/LEAK COLLECTION EXHAUST FAN	VS/QUENCH SPRAY PUBAP RN OUTSIDE AIR IN ISOLATION DANDER	VS/QUENCH SPRAY PEAP RM OUTSIDE AIR IN ISOLATION DANDER	VS/AUX FEED PURP RM EXHAUST DAMPER 8700-88-5145P SECT 24-24	VS/AUX FEED PUND RM EXHAUST DANDER 8700-R8-51.85P SEET 24-24	VS/COMME PURGE & EXHAUST TO MAIN I FILTER BANK DAMPER	VS/AUX BLDG A SYSTEM MAIN FILTER I BANK IN DANDER	VS/AUX BLDG B SYSTEM MAIN FILTER BANK IN DAMPER	VS/URPER FILTER BANK DRAIN VALVE	FP/UPPER CHARCOAL VENT FILTER DELUCE VALVE	VS/URDER FILTER BANK DRAIN VALVE	VS/LOWER FILTER BANK DRAIN VALVE	LOWER FILTER BANK DRAFN VALVE	VS/CONTROL ROOM A/C UNIT	VS/CONTROL ROOM A/C UNIT
NARK ND.	**************************************	NS-F-4A	45-F-48	NS-D-4-12A	VS-D-4-128	NS-D-4-15A	VS-D-4-158	VS-0-5-2	NS-D-7-2A	VS-D-7-4A	14602-SA-AOS	04-FP-8	50V-VS-209A2	19602-SA-A05	500-V5-20982	VS-AC-1A	VS-AC-18
EQUIP TRAIN CLASS	(3)	60	8	0	0	0	0	084	084	084	880	880	088	890	088	10	10
TRAIN	(2)	*	85	*		*	e 2	*	*	60	80	A/8	æ	eo	60	×	80
LINE .	(1)	5222	\$223	5224	\$225	5226	5227	5228	5229	5230	5231	5231C	5232	5223	5234	\$235	\$236

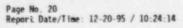
CERTIFICATION:

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 + E.R.R.E / EMGINER Regiments

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

LINE NO.		EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION		Building	Fir Elv.	Rs. or Row/Col.	SORT	NOTES	Normal	Desired	REQD?	DNG. NO. /REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENT	IS ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			(12)		(14)	(15)	(16)	(17)
5237	A	09	VS-F-40A	VS/CONTROL ROOM RETURN AIR FAN	DWG R8-17J, R8-17K	SRVB	713	CR VENT	SR		ON	014	YES	RE-21MJ	MCC1-E9 BK C	A .
5238	8	09	VS-F-408	VS/CONTROL ROOM RETURN AIR FAN	DWG R8-173, R8-17K	SRVB	713	CR VENT	SR		ON	ON	YES	RE-21MJ	MCC1-E10 BK C	Α.
5239	A/8	0	VS-AD-7	VS/VS-F-40A SUCTION DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E9 BK C	A
5240	A/8	0	VS-AD-8	VS/VS-F-408 SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	
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/8	0	VS-AD-10	VS/VS-F-408 DISCHARGE DAMPER	DWG R8-17J, R8-17K	SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	٨
5243	A/B	08A	VS-0-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRAB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,R8-2D,1 7J,17K	MCC1-E9 BK U	A
5244	A/B	08A	VS-D-40-18	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	SR		OPEN	OPEN	NO	RE-21ML,R8-2D,1 7J,17K	MCC1-E10 BK J	A
5245	A/B	OBA	VS-B-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	VT1 10.1-326,327,328,329	SRAB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21ML,RB-20,1 7J,17K	MCC1-E9 BK V	A
5246	A/8	08A	VS-D-40-1D	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVE	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21ML,RB-2D, 3 7J,17K	MCC1-E10 BK K	A
5247	A/B	07	VS-0-40 1F	VS/MIN OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRAB	713	CR VENT	SR	13	OPEN	OPEN	NO	RB-20,17J,17K	N/A	A
5248	A/8	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-20,17J,17K	N/A	A
5249	A/B	07	VS-D-40-1H	VS/AIR RECIRC DAMPER	VT1 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-20, 17J, 17K	N/A	A
5250	A/B	07	VS-D-40-1K	VS/AIR RECIRC DAMPER	VT1 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/8	07	VS-0-40-1M	VS/VS-F-40A & B EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRAB	713	CR VENT	SR	13	OPEN	OPEN	NO	RB-20,17J,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	
5253	A/B	G	VS-AD-4	VS/VS-AC-18 SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	٨
5254	A/B	0	VS-AD-5	VS/VS-AC-1A DISCHARGE DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	NC	RE-21MJ	N/A	A
5255	A/B	0	VS-AD-6	VS/VS-AC-18 DISCHARGE DAMPER		SRAB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE 21MJ	N/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

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Page No. 20 Report Date/Time: 12-20-95 / 10:24:14



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

ND.		EQUIP TRAIN CLASS		SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	EQUIPMENT Flr.Elv.	LOCATION> Rm. or Row/Ect. SORT NOTES	1905		00. Normal			SUPPORTING SYS. DMG. NO./REV.	REQ'D INTERCONNECTIONS I & SUPPORTING COMPONENTS	NECTIONS DEPONENTS	REG. ISSUE
(I)	(2)	(2) (3)	(4)	(5)	(9)	(1)	(8)	(6)	(10)	(11)	(12)	(13)	(14)	(15)	(16)		(11)
5237	*	8	N04-3-5A	VS/CONTROL ROOM RETURN AIR FAN	DMG R8-17J, R8-17K	BAXS	713	CR VENT	s a		N	N	YES	RE-21MJ	MCC1-E9 BK C		*
\$238	-	8	VS-F-408	VS/CONTROL ROOM RETERN AIR FAN	DMG R8-17.J, R8-17K	SRVB	713	CR VENT	2.8		N	NO	YES	RE-21MJ	MCCI-EIO BK C		*
5239	A/8	0	1-OV-SA	VS/VS-F-40A SUCTION DAMPER		SRVB	713	CR VENT	SR	13	OP EN	OPEN	-	DE-21MJ	MCC1-E9 BK C		*
5240	A/B	0	NS-AD-8	VS/VS-F-408 SUCTION DAMPER		SRVB	713	CR VENT	85	13	OPEN	OPEN	GN .	RE-21MJ	MCCI-EIO BK C		×
5241	A/B	0	6-OV-SA	VS/VS-F-49A DISCHARGE DUADER		SRVB	713	CR VENT	s a	13	NEN	OPEN	9	RE-21MJ	MCC1-E9 BK C		*
5242	A/8	0	NS-AD-10	VS/VS-F-408 DISCHARGE DAMPER	DNG R8-17J, R8-17K	SRVB	713	CR VENT	s a	13	OPEN	OPEN	ON	RE-21MJ	NCC1-ETO BK C		*
5243	A/8	8 08N	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	113	CR VENT	8		OPEN	OPEN	÷	RE-21ML,R8-20,1 MCCI-E9 73,17K	MCCI-E9 BK U		*
5244	A/8	8 084	VS-D-40-18	VS/CONTROL ROOM AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	113	CR VENT	a s		OPEN	OPEN	9	RE-21ML,R8-20,1 MCC1-E10 73,17K	MCC1-E10 BK J		*
5245	A/8	8 084	VS-0-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SAVE	113	CR VENT	2 8	13	NEW	OPEN		RE-21ML, R8-20, 1 MCC1-E9 73, 17K	MCC1-E9 8K V		×
5246	8/¥	8 08W	01-04-0-SA	VS/CONTROL RM AIR EXHAUST DAMEDER	VTI 10.1-326,327,328,329	SRVB	113	CR VENT	04 57	13	OPEN	OPEN	94	RE-21ML,R8-20,1 MCC1-E10 7.1,17K	NCCI-EIO BK K		*
5247	A/B	8 07	VS-D-40 1F	VS/MIN OUTSIDE AIR INTAKE DAMPER	VTI 10.1-326,327,328,329	SRVB	113	CR VENT	8	13	OPEN	NB-00	9	R8-20, 17J, 17K	N/A		*
5248	A/8	8 07	VS-D-40-16	VS/MAX OUTSIDE AIR INTAKE DAMPER	VII 10.1-326,327,328,329	SRVB	713	CR VENT	8	13	OPEN	OPEN	9	XE-20,17J,17K	N/N		*
5249	A/B	8 07	HE-04-0-SA	VS/AIR RECIRC DAMPER	VT! 10.1-326,327,328,329	SRVB	113	CR VENT	S R	В	OPEN	OPEN	9	R8-20,17J,17K	N/A		
5250	A/B	01	VS-0-40-1K	VS/AIR RECIRC DAMPER	VII 10.1-326,327,328,329	SAAS	713	CR VENT	SR	13	NEN	OPEN	¥	R8-20, 17J, 17K	K/A		
5251	A/B	8 07	MI-09-0-SA	VS/VS-F-40A & B EXHAUST DAMPER	VT! 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	2	R8-20, 17.J, 17K	N/A		
5252	A/8	0	E-OA-2V	VS/VS-AC-IA SUCTION DAMPER		SRVB	713	CR VENT	2 8	13	OPEN	OPEN	01	RE-21MJ	N/A		
\$253	A/B	8 0	P-OA-2V	VS/VS-AC-38 SUCTION DAMPER		SRVB	113	CR VENT	S R	13	OPEN	OPEN	ON	RE-21MJ	N/A		×
5254	A/8	0	VS-AD-5	VS/VS-AC-1A DISCHARGE DAMPER		SRVB	713	CR VENT	2 B	13	NEN	OPEN		CM12-38	N/A		
5255	A/8	8	9-0V-SA	VS/VS-AC-IB DISCHARGE DAMPER		SRVB	113	CR VENT	85	13	OPEN	OPEN	QN	E 21MJ	N/A		

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Page No. 22 Report Date/Time: 12-20-95 / 10:24:14

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

LINE ND.	TRAIN	EQUIP	And Mark and	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Rullding	Flr Flu	LOCATION> Rm. or Row/Col.	SORT N	SALO	Normal	Destred	REOD?	DHG. HO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENT	IS ISSUE
(1)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	A	12	EE-C-2A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN 01	SR		ON	ON	YES	RE-218X	MCC1-E8 BK N	A
5300E	8	12	EE-C-18	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN #2	SR		ON	ON	YES	RE-218X	MCC1-E7 BK T	A
5300F	8	12	EE-C-28	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RM-10A	DGBX	735	DIESEL GEN #2	SR		ON	ON	YES	RE-21BX	MCC1-E8 BK T	A
5301	A	17	EE-EG-1	EE/#1 DIESEL GENERATOR	DWG RM-10A	DG8X	735	DIESEL GEN #1	SR		OFF	ON	YES	N/A	N/A	A
5302	8	17	EE-EG-2	EE/#2 DIESEL GENERATOR	DNG RM-10A	DGBX	735	DIESEL GEN 82	SR		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	SR		OFF	ON	YES	RE-21BX	MCC1-E7 BK Q	
5304	A	05	EE-P-18	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #2	SR		OFF	ON	YES	RE-21BX	MCC1-E7 BK R	A
5305	8	05	EE-P-IC	EE/FUEL OIL TRANSFER PUMP	DWG RM-10A	DGBX	735	DIESEL GEN #1	S R		OFF	ON	YES	RE-21BX	MCCI-E8 BK Q	A
5306	8	05	EE-P-1D	EE/FUEL OIL TRANSFER PUMP	DMG RM-10A	DGBX	735	DIESEL GEN #1	SR		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	\$		N/A	N/A	NO	N/A	N/A	A
5308	8	21	EE-TK-18	EE/EDG FUEL OIL STORAGE TANK	DMG 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	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	s		N/A	N/A	NO	N/A	N/A	A
5310	8	21	EE-TK-28	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 11	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	٨
5312	A	21	EE-TK-38	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	s		N/A	N/A	NO	N/A	N/A	A
53120	A	07	RV-EE-2018	EE/38 AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	S		N/A	N/A	NO	N/A	N/A	٨
5313	A	21	EE-TK-3C	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	s		N/A	N/A	NO	N/A	N/A	A
53130	A	07	RV-EE-2010	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	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	\$		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	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	s		N/A	N/A	NO	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)

RERRIE / ENGINEER

Ron torre Signature

The / ENGINEER Print or Type Name/Title

2/27/95 Date 12/2/95 Date



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

Page No. 21 Report Date/Time: 12-29-95 / 10:24:16

REG.	(11)	*	*	*	*	*	*	*	*	*	×	*	*	*	*	*	*	×	*	*		*	*
& SURPPORTING CONDONENTS ISSUE	(16)	AC-PNL-E3 BK 4	-E3 BK 4	-E3 BK 4	E3 BK 4	AC-PHI-E3 BK 4	E3 8K 4	E3 5K 4	E3 BK 4	E3 BK 4	-E3 BK 4	F 3 BK 4	E3 BK 4	F3 BK 4	E3 BK 4	F3 BK 4	-E3 BK 5	E4 BX 5	E3 BK 5	E4 8K 5			P BK N
	. 1999	AC-PNI	AC-PNL-E3 BK	AC-PNL-E3 BK	AC-PNE-E3 BK	AC-PNI	AC-PNL-E3 BK	AC-PNL-E3 BK	AC-PNI-E3 BK	AC-PNIL-E3 BK	AC-PNL-E3 BK	AC-PNL-E3 BK	AC-PNL-E3 BK	AC-PHL-E3 BK	AC-PNL-E3 BK	AC-PNI-E3 BK	AC-PNL-E3 BK	AC-PNE-E4 BK	AC-PNL-E3	AC-PNL-E4 BK	N/A	N/A	NCCI-E7 BK
SUPPO	(15)	RE-21MM	RE-21MM	RE-23MH	RE-21MM	RE-21MM	RE-21HM	RE-21MM	RE-21MM	RE-21MH	RE-21MM	RE-21MM	RE-21MM	RE-23HM	RE-21NH	RE-21444	RE-21MS	RE-21MS	RE-21MS	RE-21MS	N/A	N/A	RE-216X
	(14)	QN	-	09	9		-	¥	QN	QN	98	QN	R	-	GN	SR.	YES	YES	N/A	N/A	N/A	N/A	YES
ST> Destred	(13)	OPEN	OPEN	N3d0	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	NEN	OPEN	NEN	OPEN	NEN	OPEN			N/A	N/A	N/A	N/A	
																	8	8	x	×	R	N	NO
) (12)	OPEN	OP EN	OPEN	OFF	OFF	N/N	N/A	N/A	N/A	N												
	(11)	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13							
	(10)	s a	SR	S R	S R	S R	S R	S R	SR	SR	5 8	s a	SR	SR	SR	SR	S R	S R	8 5	SR	5	5	SR
LOCATION	(6)	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	DIESEL GEN #1														
EQUIPMENT FIF.EIV.	(8)	713	713	713	113	713	713	713	713	113	713	713	713	713	713	713	213	713	113	E11	713	113	582
Building	(1)	SRVB	BAAS	SRVB	SRVE	SRVB	BARS	SRVB	SRVB	BABS	SRVB	SRVB	SRVB	SAVB	SEVE	SRVB	SAVE	SRVB	SAVB	SRVB	BAAS	SRVB	DCBX
Dwg. No./Rev./Zone	(9)																			VII 10.1-300	VTI 10.1-45	VTI 10.1-45	VTI 2.19-13, RM-10A
SYSTEM/EQUIPHENT DESCRIPTION	14 раппискинаниевскиевский полника (5)	VS/ZMME S SUPPLY FIRE DAMPER	VS/ZOHE & SUPPLY FIRE DAMPER	VS/ZONE I SUPPLY FIRE DAMPER	VS/ZOME 2 SUPPLY FIRE DAMPER	VS/ZONE 3 SUPPLY FIRE DANFER	VS/ZONE 3 BYPASS FIRE DAMPER	VS/ZONE 2 BYPASS FIRE DAMPER	VS/ZONE I BYPASS FIRE DAMPER	VS/ZONE & BYPASS FIRE DAMPER	VS/ZONE 5 BYPASS FIRE DANDER	VS/ZONE & RETURN FIRE DANDER	VS/ZONE I RETURN FIRE DAMPER	VS/ZOME 2 RETURN FIRE DAMPER	VS/ZONE 3 RETURN FIRE DANDER	VS/ZONE 5 RETURN FIRE DAMPER	VS/TEMP CONT AIR COMP	VS/TEMP CONT AIR COMP	VS/TEBSP CONT AIR COMP RECIEVER TK AIR DRYER	VS/TEMP CONT AIR COMP RECIEVER TK VTI 10.1- AIR DRYER	VS/RIVER WATER COOLING COILS	VS/RIVER WATER COOLING COILS	EE/DIESEL GENERATOR START AIR COMPRESSOR
NARK ND.	(§)	VS-AFD-1	VS-AFD-2	VS-AFD-3	VS-AFD-4	VS-AF0-5	9-Q-V-SA	VS-AFD-7	VS-AFD-8	6-03A-24	NS-AFD-10	VS-AFD-11	VS-AFD-12	VS-AFD-13	VS-AFD-14	VS-AFD-15	NS-C-1A	8E-J-SA	IN-C-IAI	VS-E-181	VS-E-14A	VS-E-148	EE-C-1A
EQUIP TRAIN CLASS	(3)	0	0	0	0	0	0		0	0	0	0	0	0	0	9	12	12	01	10	10	10	12
TRAIN	(2)	A/8	*	60	*	80	*	80	×														
NO.	E	5256	5257	5258	5259	5260	5261	5262	\$263	5264	5265	5266	5267	5268	5269	5270	5271	5272	5273	5274	5277	5278	53000

CERTIFICATION:

R FERRIE / ENCINEER

1) p2/cs

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Page No. 23 Report Date/Time: 12-20-95 / 10:24:14

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

LINE NO.	TRAIN	EQUIP	HARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. Ho./Rev./Zone	Ruilding	Str Fly	LOCATION> Rm. or Row/Col.	SORT NOTES	Normal	Desired	REOD?	DMG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(9)	(10) (11)	(12)	(13)	(14)	(12)	(16)	(17)
		07	RV-EE-2028	EE/3E AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #1	\$	N/A	N/A	NC	N/A	N/A	A
5316		21	EE-TK-3F	EE/DIESEL ENGINE START AIR TANK	WT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	s	N/A	N/A	NO	N/A	N/A	A
53160		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	*
	8	21	EE-TK-4A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN 82	2	N/A	N/A	NO	N/A	N/A	A
53170		07	RV-EE-203A	EE/4A AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIFCEL GEN 12	s	N/A	N/A	NO	N/A	N/A	A
	8	21	EE-TK-48	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	R/A	
53180		07	RV-EE-2038	EE/48 AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN #2	s	N/A	N/A	NO	N/A	N/A	A
	8	21	EE-TK-4C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN 12	s	N/A	N/A	NO	H/A	N/A	
53190	0.1	07	RV-EE-203C	EE/4C AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN 12	s	N/A	N/A	NO	N/A	N/A	A
	8	21	EE-TK-4D	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN 12	s	N/A	N/A	NO	N/A	N/A	A
53200		07	RV-EE-204A	EE/4D AIR TANK RELIEF	VTI 6.39-109	DGBX	735	DIESEL GEN 12	5	N/A	N/A	NO	N/A	N/A	A
5321		21	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #2	s	N/A	N/A	NO	N/A	N/A	A
53210		07	RW-EE-2048	EE/4E AIR TANK RELIEF	VTI 6.39-109	DCBX	735	DIESEL GEN #2	s	N/A	N/A	NO	N/A	N/A	A
5322		21	EE-TK-4F	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN 12	s	N/A	N/A	NO	N/A	N/A	
53220		07	RV-EE-204C	EE/4F AIR TANK RELIEF	VT1 6.39-109	DGBX	735	DIESEL GEN #2	\$	N/A	N/A	NO	N/A	H/A	A
5323		20	PNL-DIGEN-1	EE/DIESEL GENERATOR #1 CONTROL PANEL	DMG RE-58A	DCBX	735	DIESEL GEN #1	5	ON	ON	YES	N/A	N/A	A
5324	8	20	PNL-DIGEN-2	EE/DIESEL GENERATOR #2 CONTROL PANEL	DNG RE-58A	DGBX	735	DIESEL GEN 92	\$	NG	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	8	09	VS-F-228	VS/DG BLDG EXHAUST FAN		DGBX	755	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	SR	CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	A
5328	в	0	VS-D-22-18	VS/DG BLDG EXHAUST DAMPER	VTI 10.1-1073,BR-274	DGBX	756	DG#2 ROOF	8 Z	CLOSED	OPEN	YES	RE-21MP	PNIAC-E4 BK E4-	A
5329		0	VS-D-22-2A	VS/DG BLDG AIR SUPPLY DAMPER		DGBX	745	DG#1	SR	CLOSED	OPEN	YES	RE-21MP	PNL-AC-E3 BK E3-	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)

<u><u><u>R</u>FERRIE</u> / ENGINEER Print or Type Name/Title</u>

Kon Signatur



Page No. 24 Report Date/Time: 12-20-95 / 10:24:14

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

REG.	(11)	×	*	*	*	×	¥	*	*	×	*	*	*	*	*	×	×	×	×	×	*
REQ'D INTERCONNECTIONS REG. & SUPPORTING CONPONENTS ISSUE																					
ERCONNIC CON	(16)	8K E4	3 8K E3	1 BK E4	¥	*															
NI Q, B		PNL-AC-E4 BK E4	PNL-AC-E3 BK	PNL-AC-E4 BK E4	4KV BUS AE	4KY BUS DF	NCC1-E9	NCCI-EIO	NCC1-E9	NCC1-E10	NCC1-E13	NCCI-E14	MCC1-E13	NCC1-E14	MCC1-E9	MCC1-E10	MCC1-E9	MCC1-E10	N/A	/A	N/A
		2	đ	2	4	4	¥	¥	¥	ž	¥	x	x	x	×	Ŧ	¥	×	Z	N	z
SUPPORTING SYS. DHG. ND./REV.	(15)	RE-21MD	RE-21MP	RE-21MP			111-12-1	111-92.	.24-111	. 24-196	1.24-181	24-181	24-181	1.24-181	12	12	AI	IV	12	12	N
POWER SUP	()				S N/A	S N/A	-	-	-			-	-		S RE-12	S RE-12	S RE-14	S RE-14	S RE-12	S RE-12	S 8E-1V
ST PO Destred RE		N YES	N YES	N YES	YES	VES	YES	VES	YES	YES	YES	YES	YES	YES	YES	YES	VES	YES	· YES	YES	VES
		ED OPEN	ED OPEN	ED OPEN	NO	B	æ	NO	N	N	8	10	8	8	NO	N	NO	NO	CHARGED YES	CHARGED YES	CHARGED YES
S Normal		CLOSED	CLOSED	CLOSED	NO	NO	NO	N	NO	NO	8	N	8	N	NO	M	NO	Ħ	CHAR	CHAR	CHAR
S ION I				~			~		~	~	æ	æ	~	œ	R 14	R 1¢	R 14	R 14			
ol. 508T		SR	SR	S R	5	s	SR	SR	S R	5	5	82 5 6	1 5 8	5	5	S	s	S	5	5	s
LOCATION	(6)				es	CR.	C.C.	3	CR	Ca	EMERG SHCR #1	ENERG SMGR	ENERG SMOR #1	ENERG SUCH #2	CR	es	CR	68	CR	CR	3
	N H H H H	0612	0681	0682	AE SWGR	DF SWGR	AE SWCR	DF SMGR	AE SMGR	DF SWGR	EMERG	ENERG	EMERG	ENERG	AE SMCR	DF SMCR	AE SMCR	DF SWGR	AE SMGR	DF SWCR	AE SWGR
EQUIPMENT F Ir. E Iv.	(2)	745	745	745	713	713	713	113	713	113	713	713	713	713	713	713	713	713	713	713	713
Building	(1)				-																
		DGBX	DC8X	DCBX	SRVB	SRVB	SRVB	SRVB	BANS	BABS	SRVB	SRVB	SRVB	SAVB	BARS	SRVBS	SRVB	SRVB	SRWB	SRVB	SAVB
ev./201											, 21EB,	8, 278,	, 2168,	8, 278,		278		278			
Dwg. No./Rev./Zone	(9)				CMC RE-278	DNG RE-278	DMG RE-278	DMG RE-278	DMG RE-278	DMC RE-278	DMC RE-278, 380	1946 RE-21E8, 1 380	DMG RE-278, 380	DMG RE-21E8, 278, 380	DNG RE-278	DMG RE-IV,	DMG RE-278	DMG RE-IV,	DNG RE-278	DMG RE-278	RE-278
	# 13 4				DNIC	SINO	DMC	DMC	DAVC	DAVC	380	300	200C	DMC	DAKG	DMC	DMC	DMG			AV DAG
	***	PER	PER	PER	1-1-8N	S-1-9					RUMENT	RUMENT	RUMENT	RUMENT					39/125 WOLT DC STATTONARY BATTERY	39/125 WHI DC STATEORARY BATTERY	39/125 VOLT DC STATIONARY BATTERY DWC RE-278
SYSTEM/EQUIPMENT DESCRIPTION	利益 計算計算機 調算	PLY DAM	PLY DAP	AND AID	IN TRAN	IP TRAN					AL INSI	AL INSI	AL INSI	AL INST	18	82	13	84	IT LONAR	IT : OHAR	IT LONAR
STEM/EQ	(5)	ALR SUP	AIR SUP	AIR SUP	RG BUS	RG BUS					KED VIT	KED VII	KED VIT	KED VIT	CHARGER	CHARGER	CHARGER	CHARGER	DC STA	DC STA	DC STA
AS I	(5)	VS/DG BLDG AIR SUPPLY DAMPER	VS/DG BLDG AIR SUPPLY DAMPER	VS/DIG BLDG AIR SUPPLY DAMPER	37/480V EMERG BUS IN TRANS-1-8H	37/480V ENERG BUS IP TRANS-1-9P	1 541/541	UPS/UPS 2	E San/San	1 San	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	UPS/UPS/BACKED VITAL INSTRUMENT BUS STATTC SWITCH	UPS/UPS BACKED VITAL INSTRUMENT BUS STATTC SWITCH	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	39/BATTERY CHARGER 81	39/BAITERY CHARGER \$2	39/BALTERY CHARGER \$3	39/BATTERY CHARGER #4	25 VOLT	25 WOLT	25 4017
	-	AS/DK	AS/DK	VS/DX	37/48	37/48	NS da	NSAN	V/San	san/san	sus sus	NPS/I	NPS/I	SUB SUB	39/8	39/8	39/8	39/8	39/1	39/1	39/1
				0			1-5	2-5	5-3	8-5	1-5	2-5	E-5	¥-5							
MARK NO	(\$)	WS-0-22-28	VS-D-22-2C	VS-0-22-20	TRANS-1-8N	TRANS-1-90	I-SUBTIN-VII	INV-VITBUS-2	E-SUBTTN-VII	INV-VITBUS-4	I-SUBILA-MSS	2-SUBTIA-MSS	E-SUBLIN-MSS	5-SUBTIN-MS2	BAT-CHG-1	BAT-CHG-2	BAT-CHG-3	BAT-CHG-4	8AT-1	8AT-2	8AT-3
EQUIP	(3)	-	-			10	16	16	16	16	20	50	20	50	16	16	16	16	15	IS	15
E		0	0	e	8	0	1000	-	-		0.00	1012		212					-	1000	
EQUIP TRAIN CLASS	(1) (2) (8	A 0	8	A 0	8		80	*	8	*	-	*		*	60	*	60	*	80	*

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 bellef, correct and accurate. (One or more signatures of Systems or Operations Engineers) $\begin{array}{c|c} F \in QR \ F \\ F^{-} & C \\ F$

-

N/A

YES RE-JV

CHARGED VES

5

DF SWGR

713

39/125 VOLT DC STATTOMARY BATTERY DWG RE-21EA, 278 SRVB

BAT-4

15

5350 8

R FERRIE / ENCINEER

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

Page No. 25 Report Date/Time: 12-20-95 / 10:24:14

S REG.	(11)	¥	*	*	×	×	*	*	¥	×	۷	×	¥	×	*	×	¥	¥	*	
REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	(16)	AKV BUS AE	M/A	AKV BUS OF	N/A	N/N	R/A	N/N	N/A	N/N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	480V BN BK 7	
SUPPORTING SYS. DMG. ND./REV.	(15)	8/N	4/A	4/A	4/A	K/A	H/A	RE-210J	RE-210J	RE-210.J	RE-21DJ	N/A	V/A	U/A	NA.	NA N	VA	V/A	RE-2106	
POWER	(14)	YES	YES	YES	YES	YES	AES I	£	2		2	N/A	YES	YES A	YES A	YES 1	N/A A	R/A P	YES R	
ST> Destred	(13)	10	NO	N	N	M	10	CLOSED	CLOSED	CLOSED	CLOSED	N/A	N	*	×	W	N/A	N/A	×	
	(12)	3	NO	*	×	×	NO	CLOSED	CLOSED	CLOSED	CLOSED (N/A	NO	NO	NO	NO	N/A B	N/A	046	
	(11) (01)			-	0			~	æ	α	S.R. C	*	0	0	0	0	2	*	œ	
EDCATION KIN OF ROW/COL. SORT NOTES) (6)	AE SWCR S	NORMAL SWGR S	DF SWGR S	DF SWCR S	EMERG SWCR #1 S	EMERG SMGR 82 5	EMERG SMGR #1 S	EMERG SWGR #2 S	EMERG SWCR #1 S	EMERG SMGR #2 S	CONTROL S	AE SWCR S	DF SMCR S	AE SWGR S	DF SWCR S	N CABLE VAULT S	E CABLE VAULT S	A CURICLE S	
	(8)	713 AE	713 NOS	713 DF	713 DF	713 EM	713 640	713 EH	713 ENE	713 EME	713 646	735 COM	3A EIT	713 DF	713 AE	713 04	735 N C	735 E C	705 A C	
1 2	(1)	SRVB 7	SAVB 7	SRVB 7	SRVB 7	SRVB 7		SRVB 7	SRVB 7	SRVB 7	SRUB 7	SRUB 7	SRWB 7	SRVB 7	SRVB 7	SRVB 7	SFGB 7	SFGB 7	2 SINE	
one		388	DHG RE-278 S	368	DNC RE-278 SHO	DMG RE-278, 210, 388 5	CMC AE-21Z, 278, 368 SAVB					384	DMG RE-278 S	DMG RE-IV, 278 S	DMG RE-278 5	DMG RE-1V, 278 5	2	2	RE-53A, 37M,	
SYSTEM/EQUIPMENT DESCRIPTION	(5)	37/IN 460V SUBSTATION 480VUS-1-8-N DMC RE-278,	37/480 WOLT AC ENERGENCY SNGR DW	37/1P 480Y SUBSTATION 480MUS-1-9-P DMC RE-278,	37/480 VOLT AC ENERGENCY SUGR DAN	36/4150 VOLT ENERGENCY PONER DN	36/4150 VOLT EMERGENEY PONER DNN SWITCHCEAR	39/MAIN DC BUS &1 BATTERY CIRCUIT DWG RE-278 BREAKER	39/MAIN DC BUS #2 BATTERY CIRCUIT DWG RE-278 BREAKER	39/MAIN DC BUS 63 BATTERY CIRCUIT DWC RE-278 BREAKER	39/MAIN DC BUS NA BAITERY CIRCUIT DMG RE-278 BREAKER	38/CONTROL ROOM MAIN CONTROL BOARD DHG RE-27A,	39/DC BUS 1 DWC	39/DC BUS 2 DW	AND E SUB DO/PE	34/0E \$ \$18 30/6E	02/SOURCE RANGE PREAMPLIFIER	02/SOURCE RANGE PREAMPLIFIER	EE/480V NOTOR CONTROL CENTER DNC 1 2108	
KURK ND.	(4)	480VUS-1-8-N	18-8-1-SUN085	4-6-1-SUM084	480WJS-1-9-P1	AKVS-IAE	4KVS-10F	BAT-9KR-1	BAT-BKR-2	8AT-8KR-3	BAT-BKR-4	BNCHBD	DC-SWBD-1	DC-SMBD-2	DC-5k8D-3	DC - SMBD - 4	NH-NI -31A	NM-NE-32A	NCC-1-E1	
EQUIP TRAIN CLASS	(2)	05	20	05	20	60	63	05	05	05	05	20	14	14	14	14	20	50	10	
	(2)	*	*	-	-	*	80	*	-	*	æ	A/8	*	80	*		*	-	*	
NO.	(1)	1008	2005	\$003	8004	8008	8006	8007	8008	8008	8010	8011	8012	8013	8014	8015	8016	\$108	8018	

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) RERRIE / EMGINEER ROWLED 12/27/95 Print or Type Hame/Title Date

R FERRIE / ENCINEER Print or Type Name/Title

Print or Type Name/Title

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Page No. 26 Report Date/Thee: 12-20-95 / 10:24:14

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

ISSUE	(11)								_					Ū,				j,		÷	
SINGHES I	-	•	•	•	*	*	*	*	*	*	*	*	*	*	*	*	×	*	*	~	
A SUPPORTING CONDUCTIONS AND	(16)	480V BN BK B	480V 9P BK 9	480V 8N BK 5	480V 9P BK 14	480V BN BK 14	480V 9P BK 7	480Y 8N BK 11	480V 9P BK 11	480V 9P1 BK 21	480V BN BK 15	480V 9P BK 15	4804 BUS 1P	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
. VAR MI MUTANC	(15)	RE-2108	RE-2108	86-2108	RE-2108	RE-210C	RE-21DC	RE-210C	RE-210C	RE-21DC	RE-210C	RE-210C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
REQUE		YES	YES	YES	YES	YES	YES	YES	YES	VES											
Destred	(13)	8	M	NO	N	NO	NO	N	æ	Z	8	18	ON	NO							
Normal	(12)	8	18	N	N	N	N	NO	NO	NO	NO	NO	N	NO	N	×	N	N	NO	NO	NO
SORT NOTES													Ē.		į.	Ē.		5		3	5
	(10)	s a	8	SR	S R	SR	S R	S R	S R	S R	s s	5 8	SR	5	5	5	5	5	5		5
Ra. or Row/Col.	(6)	COL 8-7/8	COL 8-7/8	W CABLE VAILT	E CABLE VAULT	DIESEL GEN #1	DIESEL GEN #2	AE SMGR	DF SWGR	W CABLE VAURT	E CABLE VAULT	NCC ROOM	E CABLE VAULT	RELAY	RELAY	AE SWGR	DF SWGR	AE SWGR	DF SMGR	CONTROL	CONTROL
FIL EN.	(8)	735	335	735	735	135	735	EIL	217	135	735	756	735	113	713	713	713	713	713	335	335
Building	(1)	AXLB	AXLB	SFGB	SFGB	DGBX	DGBX	SRVB	SRWB	SFGB	SFG8	SFGB	SFG8	SRVR	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB
ev./Zone		, RE-38C,	, RE-38C,	#ZK	42K	RE-210C 068X	RE-210C DGBX	380	380	42K	¥2¥	426									
Dwg. No./Rev./Zone	(9)	DMG RE-2100, RE-30C, 40C	DMC RE-2108, RE-38C, 48C	DMG RE-38C,	DMG RE-38C,	DNG RE-58A,	DHC RE-58A,	DMS RE-278,	DMC RE-278,		DHL AE-38C,	DMG RE-38Q,	DMG RE-42K	DMG RE-27C	DMG RE-27C	DMG RE-278	DMG RE-278	DMC RE-278	DMG RE-278	DAKS RE-27A	DMG RE-27A
SYSTEM/EQUIPMENT DESCRIPTION	(2)	EE/480W MDTOR CONTROL CENTER	EE/480V NDTOR CONTROL CENTER	EE/460V MDTOR CONTROL CENTER	EE/480V NDTOR CONTROL CENTER	EE/480V NDTOR CONTROL CENTER	EE/480V MDTOR CONTROL CENTER	EE/480V NDTOR CONTROL CENTER	EE/480V MDTOR CONTROL CENTER	EE/480V NDTOR CONTROL CENTER	EE/480V NDTOR CONTROL CENTER	EE/480V NDTOR CONTROL CENTER	EE/480V MDTOR CONTROL CENTER	38/VITAL BUS DIST PANEL IE	38/VITAL BUS DIST PANEL IF	38/120 VOLT AC POWER DISTRIBUTION PANEL	38/120 VOLT AC PONER DISTRIBUTION DMC RE-278 PANEL	38/120 VOLT AC POWER DISTRIBUTION DWC RE-278 PAMEL	38/120 VOLT AC POWER DISTRIBUTION DWG RE-278 PAWEL	VS/PLANT VENTILATION CONTROL PANEL DWG RE-27A	VS/PLANT VENTILATION CONTROL PANEL DWG RE-27A
	\$08888888888888	NCC-1-E3	MCC-1-E4	NCC-1-E5	MCC-1-E6	13-1-33M	MCC-1-E8	MCC-1-E9	MCC-1-E10	MCC-1-E11	MCC-1-E12	MCC-1-E13	MCC-1-E14	PNL-AC-BUS-IE	PNL-AC-BUS-IF	PNIAC-EI	PNL-AC-E2	PNIAC -E3	PNL-AC-E4	PHL-BLDG-SER-A	PNL-BLDG-SER-B
TRAIN CLASS	(2) (3)	10	10	10	10	10	• 10	10	10	10	10	10	10	14	14	2	14	14	14	20	20
	(2)	*	-	*	-	*	60	*	650	*	-	*	-	*	60	*	80	*	60	*	60
NO.	(1)	8020	8023	8022	8023	8024	\$208	8026	8027	8028	8029	8030	8031	8034	8035	8036	8037	8038	8039	8040	8041

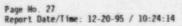
CERTIFICATION:

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 accourate. (One or more signatures of Systems or Operations Engineers)

R. F. E. R. R. E. E. K. INEER R. F. E. W. C. Signature Frint or Type Name/Title Frint or Type Name/Title

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12/27/95 12 batt



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

L I NE ND		EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION		Building	Flr.Elv.		SORT		Normal	Destred	REQD?	DWG. NO./REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENT	S ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(9)		(11)			(14)	(15)	(16)	(17)
8042	8	14	PNL-DC-2	39/125 WOLT DC POWER DISTRIBUTION PANEL	DMG RE-27A	SRAB	735	CONTROL	s		ON	ON	NO	N/A	N/A	A
8043	A	14	PNL-DC-3	39/125 WOLT DC POWER DISTRIBUTION PANEL	DWG RE-27A	SRAB	735	CONTROL	\$		ON	ON	NO	N/A	N/A	A
8044	A	20	PML-DG-SEQ-1	36/RELAY PANEL	DWG RE-278, 25R	SRVB	713	AE SMGR	S		ON	ON	YES	N/A	N/A	٨
8045	8	20	PNL-DG-SEQ-2	36/RELAY PANEL	DWG RE-278, 25R	SRAB	713	DF SMGR	s		ON	ON	YES	N/A	N/A	A
8046		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	8	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	*	14	PNL-PR-HTR-A	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JR, 42K	SFGB	735	W CABLE VAULT	S		091	ON	YES	N/A	N/A	A
8049	B	14	PNL-PR-HTR-R	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	Α.	14	PNL-PR-HTR-D	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DWG RE-21JS, 42K	SECS	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	1%6 RE-27C	SRVB	713	RELAY	s		ON	ON	YES	N/A	N/A	À
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	8	20	PNL-REL-22	36/RELAY PANEL	DWG RE-27C	SRAB	713	RELAY	s		ON	ON	YES	N/A	N/A	A
8055	۸	20	PNL-REL-31	38/AUX RELAY PANEL	DWG RE-278	SRAB	713	AE SWGR	s		ON	ON	YES	H/A	N/A	A
8056	8	20	PNL-REL-32	38/AUX RELAY PANEL	DWG RE-21EA, 278	BVRZ	713	DF SWGR	s		ON	ON	YES	N/A	N/A	A
8057	A	20	PNL-REL-33	38/AUX RELAY PANEL	DWG RE-278	SRVB	713	AE SWGR	s		ON	ON	¥."S	N/A	N/A	
8058	B	20	PNL-REL-34	38/RELAY PANEL	DWG RE-278	SRVB	713	DF SWGR	s		ON	ON	YES	N/A	N/A	A
8059	A	20	PNL-REL-35	38/RELAY PANEL	DWG RE-278	SRVB	713	AE SWGR	5		ON	OH	VES	21A	N/A	A
80	٦	20	PML-REL-36	38/RELAY PANEL	DWG RE-278	SRVB	713	DF SWGR	S		ON	ON	YES	N/A	N/A	٨
8ú0.	A	20	PHL-REL-37	38/RELAY PANEL	DWG RE-278	SRVB	713	AE SWGR	2		ON	ON	YES	R/A	N/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 Print or Type Name/Title

Hon ferre Signature

Page No. 28 Report Date/Time: 12-20-95 / 10:24:14

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

LINI NO.	TRAIL	EQUIP N CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION		Building	Fir.Elv.		SORT M	OTES	Normal	Desired	REQD?	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(3)	(10)		(12)		(14)	(15)	(16)	(17)
8062	8	20	PHL-REL-38	38/RELAY PANEL	DWG RE-278	SRVB	713	DF SWGR	\$		ON	ON	YES	N/A	N/A	A
8063	8	20	PNL-REL-DGI	36/RELAY PANEL	DWG RE-SBA	DGBX	735	DIESEL GEN #2	s		ON	ON	YES	N/A	N/A	
8064	A	20	PNL-SHUTON-A	01/EMERGENCY SHUTDOWN PANEL	DHG RE-27C	SRVB	713	PROC RACK	2		N/A	N/A	N/A	N/A	N/A	A
8065	8	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
8966	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
8967	8	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	PHL-VITBUS-3	38/VIBAL BUS DIST PANEL 3	DWG RE-27A	SRVB	735	CONTROL	s		ON	ON	YES	N/A	N/A	
8069	8	14	PNL-VITEUS-4	38/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-278	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	DMG RE-27C	SRAB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A	A
8072	8	20	RK-AUX-RELB	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	\$		N/A	N/A	N/A	N/A	N/A	A
8073	A	20	RK-AUX-RPTST-A	01/REACTOR PROTECTION TEST RACK	DNG RE7C	SRVB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A	A
8074	8	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	*	20	RK-NUC-INS-1	02/EXCORE MACLEAR INSTRUMENTATION RACK	DNG RE-27A	SRAB	735	CONTROL	2		N/A	N/A	N/A	N/A	N/A	
8076	8	20	RK-MAC-INS-2	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRAB	735	CONTROL	5		N/A	N/A	N/A	N/A	N/A	A
8077	*	20	RK-PRI-PROC-1	G4/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	٨
8078	A	20	RK-PRI-PROC-2	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	S		N/A	N/A	H/A	N/A	N/A	٨
8079	A	20	RK-PRI-PROC-3	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C, RC-8A, 88	SRAB	713	PROL RACK	5		N/A	N/A	N/A	N/A	N/A	A
8080	8	20	RK-PR1-PROC-10	94/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRAB	713	PROC RACK	\$		N/A	N/A	N/A	N/A	N/A	A

CERTIFICATION:

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B FERRIE / ENGINEER Print or Type Name/Title

J. Jack / ENGINEER Print or Type Name/Title

Kon terre Signature dry

7/95 Date 12 \$ 2/51 Date



Page No. 29 Report Date/Time: 12-20-95 / 10:24:14

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

LINE NO.	TRATE	EQUIP	MARK M			SYSTEM/EQUIPMENT DESCRIPTION	Dwg.	No./Rev./Zone	Building	Fir.Elv.	Rm.	or Row/Col.	SORT	NOTES	Normal	Destred	REQD?	DNG. NO./R	EV. G	Q'D INTERCONDECTIONS SUPPORTING COMPONENT	S ISSUE
(1)	(2)	and the second s	(4)	COSSERSE CO		(5)		(6)	(7)	(8)		(9)			(12)		(14)	(15)		(16)	(17)
8081	8	20	RK-PR1-PROC	-12 04	I/PLAN	I INSTRUMENT/PROCESS RACK	DNG R 88	E-27C, RC-8A,	SRVB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N/	A	A
8082	8	20	RK-PR1-PROK	-11 04	I/PLAN	INSTRUMENT/PROCESS RACK	DWG R 88	E-27C, RC-8A,	SRAB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N/	A	A
8083	8	20	RK-PRI-PROC	-13 04	I/PLAN	INSTRUMENT/PROCESS RACK	DWG R 8B	E-27C, RC-8A,	SRVB	713	PROC	RACK	S		'V/A	N/A	N/A	N/A	N/	A	A
8084	٨	20	RK-PR1-PROC		I/PLANT NEK	INSTRUMENT/PROTECTION	DWG R 88	E-27C, RC-BA,	SRAB	713	PROC	RACK	S		N/A	N/A	N/A	N/A	N/	*	A
8085	A	20	RK-PRI-PROK			PROCESS INT/PROTECTION RACK	DWG R 88	E-27C, RC-8A,	SRAB	713	PROC	RACK	\$		N/A	N/A	N/A	N/A	N/	*	٨
8086	٨	20	RK-PRI-PROC		I/PLANI ICK	INSTRUMENT/PROTECTION	DWG R 88	E-27C, RC-BA,	SRVB	713	PROC	RACK	S		N/A	N/A	N/A	N/A	N//	A	A
8087	۸	20	RK-PRI-PROC		I/PLANI ICK	INSTRUMENT/PROTECTION	DNG R 88	E-27C, RC-8A,	SRAB	713	PROC	RACK	s		H/A	N/A	N/A	N/A	N//	•	٨
8088	A	20	RK-PR1-PROC		I/PLANI ICK	INSTRUMENT/PROTECTION	DNG R 88	E-27C, RC-8A,	SRVB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N//	•	A
8089	B	20	RK-PRI-PROC	-25 04	PLAN	INSTRUMENT/PROCESS RACK	DWG R 88	E-27C, RC-8A,	SRVB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N/1	• 1. S.	A
8090	8	20	RK-PRI-PROC	-26 04	/PLANT	INSTRUMENT/PROCESS RACK	DMG R 88	E-27C, RC-8A,	SRAB	713	PROC	RACK	\$		N/A	N/A	N/A	N/A	N/J	•	
8091	8	20	RK-PRI-PROK		I/PLANT ICK	INSTRUMENT/PROTECTION	DNG R	E-27C	SRVB	713	PROC	RACK	S		N/A	N/A	N/A	N/A	N//	κ	A
8092	8	20	RK-PRI-PROK		I/PLANT ICK	INSTRUMENT/PROTECTION	DWG R	E-27C	SRVB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N//	•	A
8093	٨	20	RK-PRI-PROC		I/PLANT ICK	INSTRUMENT/PROTECTION	DWG R	E-27C	SRVB	713	PROC	RACK	\$		N/A	N/A	N/A	N/A	N//	۰	A
8094	A	20	RK-PR1-PROG		I/PLANT NCK	INSTRUMENT/PROTECTION	DWG R	E-27C	SRVB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N//		A
8095	A	20	RK-REAC-PRO	0 A-10	REACT	OR PROTECTION RACK	OWG R	E-27C	SRVB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N/3		A
8096	B	20	RK-REAC-PRO	01-8 01	REACT	OR PROTECTION RACK	DWG R	E-27C	SRVB	713	PROC	RACK	s		N/A	N/A	N/A	N/A	N//		A

CERTIFICATION

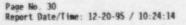
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R FERRIE / ENGINEER Print or Type Name/Title

Kon terre Signature this

Print or Type Name/Title

83



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

LINE NO.		EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Fir.Elv.	LOCATION	SORT I	NOTES	Nermal	Desired	REOD?	DHG. NO. /REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			(12)		(14)	(15)	(16)	(17)
8097	A	20	RK-REC-P-TST-A	O1/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRAB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A	A
8098	8	20	RK-REC-P-TST-8	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	s		N/A	R/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, BL	SRVB	713	PROC RACK	8		N/A	N/A	N/A	N/A	N/A	A
8100	B	20	RK-SEC-PROC-B	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C, RC-88, 8L	SRVB	713	PROC RACK	\$		N/A	R/A	N/A	N/A	N/A	A
8101	٨	20	RK-SEC-PROC-C	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-88, 8L	SRVB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	A
8102	8	20	RK-SEC-PROC-D	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-88, 8L	SRAB	713	PROC RACK	\$		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		SRAB	713	AC EQUIP ROOM	\$		N/A	N/A	N/A	N/A	N/A	A
81028	B	20	RK-VS-AC-18	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
81020	A/8	20	RK-VS-E567	VS/CONTROL ROOM HEATERS VS-E-5, 6 & 7		SRAB	713	AC EQUIP ROOM	S		N/A	N/A	N/A	N/A	N/A	۸
81020	A/8	20	RK-VS-E8-12	VS/RACK FOR VS-E-8-1 & 8-2		SRAB	713	AC EQUIP ROON	s		N/A	N/A	N/A	N/A	N/A	A
8103		03	SM-1-8N1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-278	SRVB	713	AE SWGR	\$		CLOSED	CLOSED	N/A	N/A	R/A	٨
8104	8	03	SW-1-9P1	36/480 VOLT AC TRFM DISCONECT SWITCH	DMG RE-278	SRVB	713	DF SWGR	s		CLOSED	CLOSED	N/A	N/A	H/A	A
8105	A	04	TRANS-1-8-N1	37/480V AUX EMERG BUS 1N1	DWG RE-278	SRAB	713	NORMAL SWGR	s		ON	CN	YES	N/A	N/A	A
8106	8	04	TRANS-1-9-P1	37/480V AUX EMERG BUS 1P1	ENG RE-278	SRAB	713	DF SWGR	s		ON	ON	YES	N/A	N/A	
8107	A/8	20	VERTBD	01/MAIN INSTRUMENTATION DISPLAY PANEL	DMG RE-27A, 38A	SRVB	735	CONTROL	2		N/A	N/A	N/A	N/A	N/A	A
8108	A	20	PNL-REL-40	36/RELAY PANEL 40	RE-27C, 25H	SRAB	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	SRAB	713	MORMAL SUGR	\$		ON	ON	YES	K/A	N/A	
8115	A	20	PNL-PAS-RA	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRAB	735	RELAY ROOM	S		ON	ON	YES	N/A	N/A	A

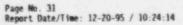
CERTIFICATION:

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

Kon terre Signature





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

LINE NO.		EQUIP	HARK NO.	SYSTEM/EQUIPMENT DESCRIPTION		Building	Fir.Elv.		SORT	NOTES	Normal	Desired	REQD?	DNG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENT	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)				(14)	(15)	(16)	(17)
8116	8	20	PNL-PAS-RB	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	RE-42A	SRVB	735	RELAY ROOM	5		ON	ON	YES	N/A	4/A	A
8117	A/B	20	PNL-AMSAC	458/ANTICIP TRANS W/O SCRAM MITIGATING SYS ACTUAT CIRCT	RE-27C	SRAB	713	PROCESS RACK RM	15		ON	ON	YES	8700-1.20-1174 THRU 1177	N/A	A
8118	8	01	MCC-1-14	37/480V MCC FED FROM 480V SUBSTA 1-4 BUS1H BKR4H7	RE-38C, 48D	AXLB	735	SOUTH OF LWFL18	s		ON	ON	YES	N/A	N/A	A
8119	٨	20	18-348A	VS/TERN BOX W/RELAY LOC NR TB-348	DWG RE-25AW	AXLB	768	COL G1/88111/2	s		ON	ON	YES	RE-21MS	PHL-AC-E1	A
8120	8	20	18-349A	VS/TERM BOX M/RELAY LOC NR TB-349	DWG RE-25AM	AXLB	768	COL G1/88111/2	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	\$		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	۸
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	RKBA	SFGB	751	MSNH	2		N/A	N/A	N/A	N/A	N/A	A
8126	8	18	PNIMS-1018	MS/INSTRUMENT RACK FOR SOV-MS-1018 AND SOV-MS-10184	RK-8A	SFGB	751	MSVH	2		N/A	N/A	N/A	N/A	N/A	A
8127	8	18	PNL-MS-101C	MS/INSTRUMENT RACK FOR SOV-MS-101C AND SOV-MS-101C4	RK-8A	SFGB	751	MSAH	2		N/A	N/A	N/A	N/A	N/A	A
8128	A/8	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-51-02	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	2		ENERG	ENERG	YES	RE-63H	HCC1-E11 BK T	A
8130		04	TRF-S1-02	45/SAFETY INJECTION HEAT TRACE PNL-SI-02	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	s		ENERG	ENERG	VES	RE-63H	MCC1-E1! BK T	A
8131	8	18	PNL-S1-06	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	2		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8132	8	04	TRF-S1-06	45/SAFETY INJECTION HEAT TRACE PNL-SI-06	DWG RE-63AQ	SFG8	722	PIPE TUNNEL	s		ENERG	ENERG	YES	RE-63H	HCC1-E11 BK T	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 J. Sh. 2. / ENGINEER Print or Type Name/Title

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Page No. 32 Report Date/Time: 32-20-95 / 10:24:14



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

IONS REG. MENTS ISSUE	(11)	*	*	*	*
Chag. No./Rev./Zone Building Fir.Eiv. Rm. or Row/Col. SORT NDIES Normal Desired REQP? DNG. ND./REV. & SUPPORTING CONDENTIONS REG.		PNI-CC-3 BK 8-3	PNL-DC-2 BK S-3	N/A	N/A
SUPPORTING SYS. THE. NO./REV.	(12)	RE-21GX	RE-21GX	N/A N/A	N/N
REQUI	(14)		9	N/A	N/A
ST> Desired	(13) (14)	CLOSED CLOSED NO	CLOSED CLOSED ND	N/A	N/A
Norsal	(10) (11) (12)	CLOSED	CLOSED	N/A	N/N
NOTES	(III)				
20061	(10)	2 8	S R	5	5
LOCATION	(5)	DGBX MEST	DGBX EAST	DGBX WEST	DGBX EAST
EQUIPMENT F Ir.E Iv.	(8)	135	135	335	252
Building	(1)	DC8X	DCBX	14200	DGBX
Dwg. No./Rev./Zone	(9)	DHG RM-10A	DHG RH-IOA	DMG RM-10A	DMC RM-10A
SYSTEM/EQUIPMENT DESCRIPTION	(5)	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM NEST	FP/CO2 SYSTEM \$1 PML FOR THE DIESEL GEN ROOM EAST	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1
NARK IND.	(*)	20 FE-COL-IA	20 FE-CDL-18	20 PCC-FE-1A	20 PCC-FE-18
EQUIP TRAIN CLASS	(1) (2) (3)	92	20	20	20
LINE NO. T	(1)	8133	MEIS	8135	8136

CERTIFICATION:

R FERRIE / ENCINEER

Frint or Type Name/Title

Signature dra

12/27/95 Date 1432K1

SSEL FOOTNOTES (Column 11)

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

12/20/95

GENERAL :

- A. Number series are assigned as follows ("Function" field designators underlined):
 - 1000 Reactivity Control; 1100 Rods & 1200 Boration
 - 2000 RCS Pressure Control; 2100 Decrease & 2200 Increase
 - 3000 RCS Inventory Control; 3100 CVCS & 3200 Leakoffs
 - 4000 RCS Heat Removal; 4100 Aux Feed & 4200 Steam Dump 5000 - Support Systems; 5100 River Water (<u>S1</u>), 5200 HVAC (<u>S2</u>) & 5300 (and up) Electrical (<u>S3</u>)
 - 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)



AFFENDIX 4.3-2 Seismic Review Safe Shutdown Equipment List (SSEL)













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REQ'O INTERCOMMECTIONS & SUPPORTING COMPONENTS	(9																							
	(36)	AKY BUS AF	N/A	AKV BUS DF	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A/A	N/A	N/A	MCC1-E9	MCC1-E10	NCC1-E9	MCC1-E10	N/N	N/A	N/A	N/A	N/A
SUPPORTING SYS.	(15)	N/A	H/A	(A	.W	×	N/N	21-38	86-12	RE-1V	8E-1V	RE-2103	C012-38	RE-210J	RE-21DJ	21-38	RE-12	RE-1V	RE-JV	N/N	150 6. 24-58, RH-2A	150 6. 24-68, RM-2A	150 6.24-68,RH-2A	N/A
	(14)	YES N	VES N	S N	2	N														- 12	2 4	2.9	51 9	×
	(13) (1			N VES	VES	N VES	NES	ES YES	SS YES	S YES	SS VES	CLOSED NO	CLOSED NO	CLOSED NO	CLOSED NO	A YES	A YES	H YES	I YES	A 24/A	CN N/K	CH N		N N
		NO	10	0M	GN	NO.	01	CHARGED YES	CHARGED YES	CHARGED YES	CHARGED YES					CM	NO	NO	NO	N/A	8	N/A	N/A	N/A
	(12)	160	CMI	N	CNI	NO.	8	CHAR	CHAR	CHAR	CHAR	CLOSED	C1 05EB	CLOSED	CLOSED	NO	NO	8	NO	N/A	N/A	N/A	N/A	N/A
T NOT	(11)															14	14	14	14					-
SOR	(10)	-	5	un.	\$	-	5	-	5	5	51	SR	S R	er.	S	5	5 8	5 8	SR	~	s	5	5	S
LOCATION	(6)	AE SHOR	NORMAL SWGR	DF SWGA	DF SWGR	AE SWGR	DF SWGR	AE SWGR	DF SWGR	AE SWGR	DF SWGR	AE SWGR	DF SWCR	AE SWGR	DF SWCR	AE SWGR	DF SWGR	AE SWGR	OF SWGR	CONTROL	N/A	N/A	N/N	LETDOMN CUBICLE S
	(8)	713 1	113	713 6	713 [113	713 0	713	13 0	713 A	713 0	4 512	0 EI1	V 812	713 0	713 A	713 0	A EI1	713 0	735 0	N SEL	135 #	735 #	722 1
100	(1)	BARS	SRVB	SRVB	SAVE	SRVB	SRVB	SRVB	SRVB	SRVB	SRYB	BANS	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB 7	SRVB				AXL8
Bug. No./Rev./Zone	(9)	DMG RE-278, 368	TMC RE-278		BMG RE-278	DMC RE-278, 21U, 388	DMC RE-212, 278, 388	DMG RE-278	DMC RE-278	DNG RE-278	DMC 25-21EA, 278	DWG RE-278	DMG RE-278	DMG RE-278	DNG RE-278	DMG RE-278	DMC RE-IV, 278	C-45 RE-278	DMC RE-IV, 278		4.11-10,RC-24K,RV-76 AXL8 A,B	4.11-10,RC-24K,RV-76 AXL8 A,B	4.11-10.RC-24K,RV-76 AXL8 A.8	150 6. 24-256 RMN
SYSTEM/EQUIPMENT DESCRIPTION	(5)	37/1H 480V SUBSTATION 480VUS-1-8-N DMG RE-278,	37/480 VOLT AC EMERCEMCY SWCR	37/1P 4804 SUBSIATION 480405-1-9-P DWG RE-278, 368	37/480 VOLT AC EMERCEMEY SWGR	36/4360 YOLT EMERGENCY POWER SWITCHGEAR	36/4150 VOLT EMERCENCY POWER SWITCHGEAR	39/125 VOLT DC STATIONARY BATTERY	39/125 VOLT DC STATIONARY BATTERY	39/125 VOLT DC STATFONMARY BATTERY	39/125 VOLT DC STATIONARY BATTERY	39/MAIN DC BUS #1 BATTERY CIRCUIT BREAKER	39/MAIN DC 8US #2 BATTERY CIRCUIT BREAKER	39/MAIN DC BUS #3 BATTERY CIRCUIT BREAKER	39/MAIN DC BUS 44 BAITERY CIRCUIT BREAKER	39/BATTERY CHARCER #1	39/BATTERY CHARGER #2	39/BATTERY CHARGER #3	39/BATTERY CHARGER 84	38/CONTROL ROOM MAIN CONTROL BOARD DNG RE-27A, 38A	CC/CCR HFAT EXCH	EC/CCR HEAT EXCH	CC/CCR HEAT EXCH	CH/SEAL MATER HEAT EXCHANCER
. ON XEAN	(4)	480W/5-1-8-W	480MUS-1-8-NI	4-6-1-SUV084	19-9-1-21M084	4K VS - IAE	4K VS - 1DF	8A7-3	8A1-2	8AT-3	BAT-4	8AI-8KR-1	8AT-8KR-2	BAT-6KR-3	BAT-BKR-4	BAT-CHC-1	8AT-CHG-2	BAT-CHC-3	BAT-CHG-4	BNCHBD	CC-E-IA	CC-E-18	31-3-33	CH-E-1
TRAIN CLASS		20	20	20	20	63	ε.	15	15	15	- 51	05	05	25	20	16	16	16	36	20	21	21	21	21
TRAIN	(2)	*	*	80		*		*	-	*	-	*	80	*	662	*		*	-	¥.8	N/A	N/N	R/A	N/A
NO.	(1)	1008	8002	8003	8004	\$008	8006	5347	5348	5349	\$350	8007	8008	8008	8010	EBES	5344	5345	5346	8011	5116	21112	5118	1221
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BEAVER VALLEY PONER STATION UNET 1 SETSMIC REVEN SAFE SHOTDOMN EQUIPMENT LIST (SSEL) 462 INDIVIDUAL PLANT COMPONENTS 51. --> POMER SUPPORTING SYS. REQ'D INTERCOMMECTIONS REG. Desired REGD? DMG. ND./REV. & SUPPORTING COMPONENTS ISSUE (11) BUS AE/DF BK E15 16) MCC1-C31 BK B BUS AE BK E11 BUS DF BK FIL MCE1-E12 BK 8 BK N 22 MCC1-E7 BK R -MCCI-EB BK T MCC1-E7 BK Q ACC1-E8 8K Q MCC'-EB BK R MEC1-E7 BK MCC1-E8 BK 13-133W N/A N/A N/A 4/A W/A 4/4 N/A N/A W/W N/A (15) RE-23FQ RE-21FN RE-21FH RE-218X RE-218X RE-21FP RE-21F0 RE-238X RE-218X RE-218X RE-218X RE-218X RE-218X N/A H/A N/A (14) SEV. KES ES I YES YES FES . ÆS. VES YES YES YES YES 23A YES YES YES YES YES VES ş 8 8 ÷ s ş 9 (13) N/A N/A N/A RUM OFF OFF N/A N/A N/A N/A NO 30 240 書 西 N 30 書 -N 30 舌 害 害 害 종 善 LOCATION ------ c-- OF. Re. or Row/Col. SORT NOTES Normal (12) N/A W/W A/A RUAL R OFF OFF N/A N/A N/A N/A OFF 110 OFF OFF 140 N 酒 3 西 -苦 * 8 110 110 044 (11) **NABBRC** (10) 24 2 2 85 20 10 S R 2 5 --2 2 CH-P-IA CUBICLE 5 R CH-P-18 CUBICLE S R CH-P-IC COBICLE S R BA PUMP CUBICLE S R BA PUND CUBICLE S R -50 4 10 CH-F-IB CUBICLE S CH-P-IC CUBICLE S BA TANK CUBICLE S CH-P-IA CUBICLE BA TANK CUBICLE \$2 DIESEL GEN #1 DIESEL GEN #1 DIESEL GEN 12 DIESEL GEN 01 DIESEL GEN 82 DIESEL GEN 12 DIESEL GEN #2 DIESEL GEN BI DIESEL GEN BI DIESEL GEN B1 DIESEL GEN #2 DIESEL GEN (6) DF SWGR AE SWGR AE SWGR DF SWGR EQUIPMENT F hr . E hv . (8) 222 722 322 122 722 122 152 152 152 113 713 113 735 735 135 135 735 135 135 335 135 135 152 713 135 735 Building (1) AXLB AXLB AXLB AXLB AXLR AXLB AXLB AXLB AXLB AXLB SRVB SRVB SRVB SRVB DGBX DGBX DCBX CGBX ISO 6.24-159, RM-10A DGBX DGBX DCBX **MGBX** DGBX DCBX DCBX RM-10A DGBY RM-28, VTI 3.47-010 No./Rev./Zone RM-28, VTI 3.47-010 ATI 2.19-13, RM-10A VII 2.19-13, RM-10A VTI 2.19-10, RM-10A VTI 2.19-10, RM-10A DHG RE-1V, 278 DMG RE-IV, 278 150 6.24-160, VTI 2.32-001 VII 2.32-001 (9) VTI 2.32-18 VTI 2.32-18 VTI 2.32-18 DHG RE-278 DMG RM-104 DNG RE-278 DAIG RH-10A DMG RN-10A DHG RM-JOA DMG RM-10A MIG RH-10A DHG RM-2A DNG RM-2A DWG RM-2A Greg EE/DIESEL GENERATOR START AIR COMPRESSOR EE/DIESEL GENERATOR START AIR COMPRESSOR EE/DIESEL CEN COOLING HT EXCH EE/DIESEL CFM COOLING HT EXCH EE/DIESEL GENERATOR START AIR EE/DIESEL GENERATOR START AIR 39/125 VDC SWITCHBOARD NO 2 39/125 VDC SWITCHBOARD NO 3 CH/CHARGING PURP HEAT EXCH CH/BORIC ACID TRANSFER PUMP CH/CHARGING PUND HEAT EXCH CH/CHARGING PLAD HEAT EXCH CH/BORIC ACID TRANSFER PUM -39/125 VDC SWITCHBOARD NO SYSTEM/EQUEPMENT DESCRIPTION TRANSFER PUMP EE/FUEL OIL TRANSFER PUMP TRANSFER PLAS EE/FUEL OIL TRANSFER PUMP 39/125 VDC SWITCHBOARD EE/82 DIFSEL GENERATOR EE/#1 DIESEL GENERATOR (2) CH/BORIC ACID TANK CH/BORIC ACID TANK CH/CHARGING PUMP CH/CHARGING PUMP CH/CHARGING PUMP LEVEUEL OIL EE/FUEL OIL COMPRESSOR COMPRESSOR MARK ND (4) DC - SWBD - 1 DC-5WBD-2 DC - 5480-3 DC - SW80 4 CH-TK-IA CH-TK-18 EE-E-1A 81-3-33 5-53-33 37-3-H3 CH-P-1C EE-C-28 EE-P-IA £E-P-18 11-4-33 01-4-33 CH-E-7A EE-C-IA EE-C-2A 1-93-33 CH-E-78 CH-P-2A CH-P-28 EE-C-18 CH-P-1A CH-P-18 EQUIP -----(3) 2 2 2 21 5 2 11 1 5 8 18 10 2 2 12 -23 2 23 58 8 62 50 23 2 8 TRAIN (2) N/A N/A N/A 8/8 N/A R/A N/A N/A * --* 80 --* -* 80 * * 80 -= -53000 53000 5300E 5300F Ng E E108 8014 \$108 5129 5130 5301 2019 5303 5304 SOES 5113 1212 2213 1214 1246 1247 1244 245 3012 5306 5114 5115

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Page No. 2 Report Date/Time: 12-21-95 / 12:44:59

Page No. 3 Report Date/Time: 12-21-95 / 12:44:59

BEAVER VALLEY POWER STATION UNIT 3 SEISHIC REVIEW SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 462 INDIVIDUAL PLANT COMPONENTS

LINE	TRAIN	EQUIP I CLASS	MARK NO.	SYSTEM/EQUIPMENT Description	Dwg. No./Rev./Zone	Building	Fir Elv.	LOCATION Rm. or Rew/Col	SORT	NOTES	Normal	Destred	REOD?	DWG. ND. /REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENT	S ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5307		21	EE-TK-1A	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	72%	YARD	\$		N/A	N/A	NO	N/A	N/A	A
5308	8	21	EE-TK-18	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	VT1 2.19-15,RP-65A	DGRX	735	DIESEL GEN #1	s		N/A	N/A	NO	N/A	N/A	٨
53:0	8	21	EE-TK-28	EE/EDG FUEL OIL DAY TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #2	\$		N/A	N/A	NO	H/A	N/A	A
5311		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	٨
5313	A	21	EE-1K-3C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	S		N/A	N/A	HO	N/A	N/A	A
5314	٨	21	EE TK-30	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	5		N/A	N/A	ND	N/A	N/A	Α
5315	A	21	EE-1K-3E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGRX	735	DIESEL GEN #1	s		N/A	N/A	NO	N/A	N/A	A
5316	٨	21	EE-TK-3F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	S		H/A	N/A	NO	N/A	H/A	Α :
5317	8	21	EE-TK-4A	EE/DIFSEL ENGINE START AIR TANK	VT1 2.19-15,RP-65A	DG8X	735	DIESEL GEN 12	S		N/A	N/A	NO	N/A	N/A	A
5318	8	21	EE-1K-48	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN 82	s		N/A	N/A	NO	R/A	N/A	A
5319	8	21	EE-TK-4C	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15,RP-65A	DGBX	735	DIESEL GEN 82	s		N/A	N/A	NO	N/A	N/A	A
5320	8	21	EE-1K-40	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #2	s		N/A	N/A	NO	N/A	N/A	A
5321	8	21	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DCBX	735	DIESEL GEN #2	2		N/A	N/A	NO	N/A	N/A	A
5322	5	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	150 6.24-268	AXLB	722	BLENDER	s	2	OPEN	CLOSED	YES	RE-22L	VITBUS 11/111 BK	٨
41070	A	07	FCV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	150 6.24-774	SEGB	735	AUX FEED PUNP	SR		CLOSED	OPEN	YES	RE-21HD	PNL-DC-3 BK 8-53	
41080	8	07	FT-7-FW-1038	FW/38 AFW PUMP RECIRCULATION VALVE	150 6.24-774	SFGB	735	AUX FEED PUMP	SR		CLOSED	OPEN	YES	RE-21HE	PNL-DC-3 BK 8-53	A
2118		07	FCV-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	150 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	
2119		07	FCV-RC-455C2	RC/(PCV-RC-455C) FLOW HETERING	ISO 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	A
2120	8	07	FCV-RC-455D1	RC/(PCV-RC-455D) FLOW METERING	150 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	MO	N/A	N/A	A
2121	8	07	FCV-RC-455D2	RC/(PCV-RC-455D) FLOW METERING	150 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	A
8133		20	FE-CDL-1A	FP/CO2 SYSTEM 01 PNL FOR THE Diesel gen room west	DNG RM-10A	DCBX	735	DIESEL GEN #1	S R		CLOSED	CLOSED	NO	RE-21GX	PHL-DC-3 BK 8-3	A
8134		20	FE-CDL-18	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM EAST	DWG RM-10A	DGBX	735	DIESEL GEN #2	S R		CLOSED	CLOSED	ND	RE-21GX	PNL-DC-2 BK 8-3	*
12058		20	F1-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VTI 1.12-75	SRVB	735	CONT RM 86-A	S R		ON	ON	YES	RE-22L	VITAL BUS 2	A

Page No. 4 Report Date/Time: 12-21-95 / 12:44:59

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

LINE NO.	TRATE	EQUIP	MARE NO	SYSTEM/EQUIPMENT Description	Dwg. No./Rev./Zone	Building	Elr Elv	LOCATION> Rm. or Row/Col.	SORT NOTE:	Normal	Destred	REGD?	SUPPORTING SYS. DWG. NO./REV.	& SUPPORTING	G COMPONENTS	S ISSUE
(1)	(2)	in the second second	(4)	(5)	(6)	(7)	(8)	(9)	(10) (11	(12)	(13)	(14)	(15)	(16	5)	(17)
22288	A	20	F1-CH-124	CH/RCP-1C SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	5 R	ON	OM	YES	RE-22G	PR1-PROC 20	V83	A
22298	8	20	FT-CH-127	CH/REP-18 SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVR	735	CONT RM VB-A		ON	ON	YES	RE-22G	PRI-PROC 9	V82	A.
22308	A	20	F1-CH-130	CH/RCP-IA SEAL INJECTION FLOW INDICATOR	VTI 1.12-22, 23	SRVB	735	CONT RM VB-A	SR	ON	ON	YES	RE-22G	PRI-PROC 6	VS1	A
32128	8	20	F1-CH-150	CH/LETDOWN FLOW INDICATION	VTI 1.12-75	SRVB	735	CONT RM BB-A	SR	ON	ON	YES	RE-22J	VITAL BUS 2		A
41038		20	FI-FW-100A	FW/AUX FEED TO SGA INDIC	VTI 1.12-25	SRVB	735	CONT RH VB-C	SR	ON	ON	YES	RE -2202	VITAL BUS 1		٨
41048	8	20	F1-FN-1008	FW/AUX FEED TO SGB INDIC	VT1 1.12-25	SRVB	735	CONI RM V8-C	SR	ON	ON	YES	RE-2202	VITAL BUS 4		٨
41058	A	20	F1-FW-100C	FW/AUX FEED TO SGE INDIC	VT1 1.12-25	SRVB	735	CONT RM VB-C	SR	ON	ON	YES	RE-2202	VITAL BUS 1		A
41070	A	18	F15-FW-151A	FW/AUX FW PUMP FW-P-3A SUETION LINE FROM WI-TK-10 FIS	150 6.24-3831, 3833	SECB	722	COLUMN C4	5	ENERG	ENERG	YES	RE-21HD	PNL-DC-3 BK	8-53	A
41080	8	18	F15-FW-1518	FW/AUX FW PUMP FW-P-38 SUCTION LINE FROM WI-TK-10 FIS	150 6.24-3832	SEGB	722	COLUMN C4	S	ENERG	ENERG	YES	RE-21HE	PNL-DE 3 BK	8 53	A
4118	N/A	20	FR-HS-478	FW/RC-E-1A LEVEL RECORDER	VTI 1.12-25	SRVB	735	CONT RM BB C	S R	ON	ON	YES	RE-222	VITAL BUS 2		A
4119	N/A	20	FR-MS-488	FW/RC-E-18 LEVEL RECORDER	VT1 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	VT1 1.12-25	SRVB	735	CONT RH 88-C	S R	ON	ON	YES	RF-22AB	VITAL BUS 3		A
1205A	٨	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	150 6.24-268 8 3875	AXLB	722	COL 10-1/4 & J	SR	ON	ON	YES	RE-22L	VITAL BUS 2		A
2228A	A	18	FT-CH-124	CH/RCP-1C SEAL INJECTION FLOW TRANSMITTER	150 6.24-3952, RK-3E	SFGB	722	PENT A	SR	ON	ON	YES	RE-22G	PRI-PROC 20	V83	٨
22294	8	18	FT-CH-127	CH/RCP-18 SEAL INJECTION FLOW TRANSMITTER	150 6.24-3953, RK-3E	SFGB	122	PENT A	S R	ON	ON	YES	RE-22G	PRI-PROC 9	VB2	٨
2230A	A	18	FT-CH-130	CH/RCP-1A SEAL INJECTION FLOW TRANSMITTER	150 6.24-3630, RK-3E	SFGB	722	PENT A	SR	ON	ON	YES	RE-22G	PRI-PROC 6	¥81	A
3212A	8	18	FT-CH-150	CH/LETDOWN FLOW TRANSMITTER	VT1 7.050-0010	AXLB	722	COL 11-1/2 & G	SR	ON	ON	YES	RE-22J, DWG RK-3A	VITAL BUS 2		A
41034		18	FT-FN-100A	FW/AUX FEED TO SGA TRANSMITTER	RK-8A, 150 6.24-65	SFGB	735	AUX FEED PUMP	SR	ON	ON	YES	RE-2202	VITAL BUS 1		A
4104A	8	18	FT-FW-1008	FW/AUX FEED TO SGB TRANSMETTER	RK-8A, 150 6.24-65	SFGB	735	AUX FEED PUMP	SR	ON	ON	YES	RE-2202	VITAL BUS 4		A
4105A		18	FT-FW-100C	FW/AUX FEED TO SGC TRANSHITTER	RK-8A, 150 6.24-65	SFCB	735	AUX FEED PUNP	SR	ON	ON	YES	RE-2202	VITAL BUS 1		A
4107	A	05	FW-P-3A	FW/MOTOR DRIVEN AUX FEEDMATER PUMP	VTI 2.40-11,12	SFGB	735	AUX FEED PUNP	S R	OFF	CM	YES	RC-21C,M,RE-21H E,RM-38,6.24-64		16	*
4108	8	05	FW-P-38	FW/NOTOR DRIVEN AUX FEEDWATER PUMP	VT1 2.40-11,12	SFG8	735	AUX FEED PUMP	S R	OFF	ON	YES	RC-21C, N, RE-21H E, RM-18, 6.24-64		16	A

Page No. 5 Report Date/Time: 12-21-95 / 12:44:59

BEAVER VALLEY PONER STATION UNIT 1 SEISHIC REVIEW SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 462 INDIVIDUAL PLANT COMPGRENTS

LINE NO.		EQUIP	MARK NO.	SYSTEM/EQUIPMENT Description		Building	Fir.Elv.		SORT		Normal	Desired	REGD?	DNG. HO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)		12)	(4)	(5)	(6)	(7)	(8)	(9)		(11)	(12)	(13)	(14)	(15)	(16)	(17)
2132	N/A	21	GR TY-1A	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	s		N/A	N/A	NO	N/A	N/A	
2133	N/A	21	GN-1K-18	GN/NETROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	\$		N/A	N/A	NO	H/A	N/A	A
1229	В	07	HCV-CH-186	CH/RCP SEAL SUPPLY, HAND CONT	VT1-07.86-7	AXLB	722	BLENDER ROOM	SR		THROT	OPEN	NO	RE-226	VITAL BUS 2	A
1233	A	07	HCV-CH-389	CH/EXCESS LETDOWN DRAIN DIVERT VALVE	VTI-07.88-9	RCBX	797	EXC LETD PLATF	SR	7	OPEN	OPEN	NO	RE-21FU	PNL-DC-3 BK 8-18	٨
4204	٨	07	HCV-MS-104	MS/RESIDUAL HEAT RELEASE	150 6.24 6	SFG8 -	752	HVZM	SR	10	CLOSED	OPEN	YES	RE-220R	VITBUS 1 BK 1-7	A
5335	٨	16	INV-VITBUS-1	UPS/VITAL BUS #1 INVERTER	DWG RE-278	SRVB	713	AE SWGR	SR		ON	ON	YES	1.24-111	MCC1-E9	۸
5336	8	16	INV-VITBUS-2	UPS/VITAL BUS \$2 INVERTER	DWG RE-278	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-278	SRVB	713	AE SWGR	SR		ON	ON	YES	1.24-111	MCC1-E9	A
5338	8	16	INV-VITBUS-4	UPS/VITAL BUS #4 INVERTER	DWG RE-278	SRVB	713	DF SWGR	SR		011	ON	YES	1.24-196	MCC1-E10	A
3204	٨	07	LCV-CH-460A	CH/LETDOWN ISOLATION VALVE	150 6.24-242	RCBX	718	A CUBICLE	SR	6	OPEN	CLOSED	YES	RE-21FU	PHIL-DC-3 BK 8-18	A
3205	8	07	LCV CH 4608	CH/LETDOWN ISOLATION VALVE	150 6.24-242	RCBX	718	A CUBICLE	SR	6	OPEN	CLOSED	YES	RE-21FU	PHL-DC-3 BK 8-18	Α.
41218	A	20	L1-FW-474	FW/RC-E-IA NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON .	ON	YES	RE-22W	VITAL BUS 1	٨
41228	8	20	L1 FW-475	FW/RE-E-1A NARROW RANGE LEVEL INDICATOR	VTE 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 2	٨
4123B	A	20	L1-FW-476	FW/RC-E-IA NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	S R		ON	CW	YES	RE-222	VITAL BUS 3	A
4124B	A	20	L1-FW-484	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM V8-C	SR		ON	ON	YES	RE-22X	WITAL BUS 1	٨
4125B	8	20	L1-FW-485	FW/RC-E-18 NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM V8-C	SR		ON	ON	YES	RE-22X	VITAL BUS 2	*
41268	A	20	LI-FW-486	FW/RC-E-18 NARRON FANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22AA	VITAL BUS 3	A
41278	A	20	L1-FW-494	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		(Ni	ON	YES	RE-22Y	VITAL BUS 1	*
41288	8	20	L1-FW-495	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRAB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22Y	VITAL BUS 2	A
41298	٨	20	L1-FW-496	FW/RC-E-1C NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22AB	VITAL BUS 3	*
12018	٨	20	L1-QS-10GA	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRAB	735	CONT RH VB-C	SR		ON	ON	YES	RE-22ET	VITAL BUS 3	A
12028	B	20	L1-Q5-1908	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRVB	735	CONT RN VB-C	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
12038		20	L1-QS-100C	QS/RWST LEVEL INDICATOR	VTI 1.12-25/92	SRAB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22EV	VITAL BUS 1	A

Page No. 6 Report Date/Time: 12-21-95 / 12:44:59

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

LINE NO.	TRAIN	EQUIP	NA	rk ND.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg.	No./Rev./Zone	Building	Flr.Elv.	Rs. c	r Row/Col	SORT	NOTES	Normal	Desired	REOD?	DNG. ND./REV.	REQ'D INTERCONNECTI & SUPPORTING COMPON	INTS ISSUE
(1)	(2)	(3)		(4)	(5)	******	(6)	(7)	(8)		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
31248		20	L1-RC-4	59A	RC/PZR LEVEL INDICATOR	VTI 7.	70-0002, RK-3A	SRVB	735	CONT	RM 88-8	S R		ON	ON	YES	RE-228H	VETAL BUS 1	A
31258	8	20	LI-RC-4	60	RC/PZR LEVEL INDICATOR	VTI 7.	70-0002	SRAB	735	CONT	RM BB-B	SR		ON	ON	YES	RE-228J	VITAL BUS 2	A
31268		20	L1-RC-4	61	RC/PZR LEVEL INDICATOR	VTI 7.	70-0002	SRVB	735	CONT	RM BB-B	SR		ON	ON	YES	RE-228K	VITAL BUS 3	A
41018		20	LI-WT-1	0441	WT/WT-TK-10 LEVEL INDICATOR	VT1 7.	70-0002	SRVB	735	CONT	RM VB-C	SR		ON	ON	YES	RE-22FG	VITAL BUS 2	A
41028	8	20	L1-WT-1	04A2	WT/WT-TK-10 LEVEL INDICATOR	VTI 7.	70-0002	SRAB	735	CONT	RM V8-C	SR		ON	ON	YES	RE-22FG	VITAL BUS 2	A
12048	8	20	LR-QS-1	00	QS/RWST LEVEL RECORDER	VT1 7.	70-0005	SRVB	735	CONT	RM VB-A	SR		ON	ON	YES	RE-22EV	VITAL BUS 2	A
4121A	A	18	LT-FW-4	74	FW/RC-E-IA NARROW RANGE LEVEL TRANSMITTER	150 6.	24-3394, RK-18	RCBX	718	ANNUL	US COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A
4122A	8	18	LT FW 4	75	FW/RE-E-1A MARROW RANGE LEVEL TRANSMITTER	150 6.	24-3394, RK-18	RCEX	718	ANNELL	US COL 16	S R		ON	ON	YES	RE-22W	VITAL BUS 2	A
4123A	٨	18	LT-FW-4	76	FW/RC-E-IA NARROW RANGE LEVEL TRANSMITTER	150 6.	24-3885, RK-18	RCBX	718	ANDRIL	US COL 15	S R		Off	ON	:ES	RE-222	VITAL BUS 3	A
4124A	A	18	LT-FW-4	84	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	150 6. RK-1A,	24-3361, 1F	REBX	738	ANDRUL	US COL 9	SR		ON	ON	YES	RE-22X	VITAL BUS 1	٨
4125A	8	18	LT-FW-4	85	FW/RC-E-18 NARROW RANGE LEVEL TRANSMITTER	150 6. RK-1A,	24-3363, 1F	RCBX	738	ANERIL	US COL 9	S R		ON	ON	YES	RE -22X	VITAL BUS 2	A
4126A	A	18	LT-FW-4	86	FW/RC-E-18 NARROW RANGE LEVEL TRANSMITTER	150 6. RK-1A,	24-3362, 1F	RCBX	718	制造资	. 9	S R		ON	ON	YES	RE-22AA	VITAL BUS 3	A
4127A	A	18	LT-FW-4	194	FW/RC-E-IC NARROW RANGE LEVEL TRANSMITTER	DWG RK	-18, RK-6D	RCBX	718	ANNUL	US COL 5	SR		ON	ON	VES	RE-22Y	VITAL BUS 1	۸
4128A	8	18	LT-FW-4	195	FW/RC-E-1C NARROW RANGE LEVEL TRANSMITTER	150 6. RK-18,	24-3364, 1F	RCBX	718	ANNUL	US COL 5	S R		ON	ON	YES	RE-22Y	VITAL BUS 2	A
4129A	٨	13	LT-FW-4	196	FW/RC-E-IC NARROW RANGE LEVEL TRANSMITTER	150 6.	24-3885, RX-18	RCBX	718	ANIMUL	US COL 4	SR		ON	ON	YES	RE-22AB	VITAL BUS 3	٨
12014	٨	18	LT-QS-1	A00	QS/RWST LEVEL TRANSMITTER	RK-5D,	RP-68	YARD	735	AT RW	TZI	SR		ON	ON	tes	RE-22ET	VITAL BUS 3	٨
1202A	8	18	LT-QS-1	008	QS/RWST LEVEL TRANSMITTER	RK-508 4-674	F,RP-68,1506.2	YARD	735	AT RW	121	S R		ON	ON	YES	RE-22ET	VITAL BUS 4	A
1203A	A	18	LT-QS-1	1000	QS/RWST LEVEL TRANSMITTER	RK-508 4-674	F,RP-68,1506.2	YARD	735	AT RW	121	SR		ON	ON	YES	RE-22EV	VITAL BUS 1	*
1204A	8	18	LT-QS-1	000	QS/RWST LEVEL TRANSMITTER	RK-5D,	RP-68	YARD	735	AT RW	st	S R		ON	ON	YES	RE-22EV	VITAL BUS 2	A
3124A		18	LT-RC-4	159	RC/PZR LEVEL TRANSMITTER	150 6.	24-3396, RK-1A	RCBX	718	OUTSI	DE PZR CUR	B S R		ON	ON	YES	RE-228H	VITAL BUS 1	A
3125A	8	18	LT-RC-	160	RC/PZR LEVEL TRANSMITTER	150 6.	24-3396, RK-1A	RCBX	718	OUTSI	DE PZR CUR	S R		ON	ON	YES	RE-228J	VITAL BUS 2	
3126A	A	18	LT-RC-4	161	RC/PZR LEVEL TRANSMITTER	150 6.	24-3396, RK-1A	REBX	718	00751	DE PZR CUR	SR		ON	ON	YES	RE-228K	VITAL BUS 3	A



BEAVER VALLEY PONER STATION UNIT 1 SETSHIC REVIEW SAFE SHUTDOMN EQUIPMENT LIST (SSEL) 462 INDIVIDUAL PLANT CONFORCENTS

(11) POWER SUPPORTING SYS. REQ'D INTERCOMMECTIONS REG. REGD7 DMG. ND./REV. & SUPPORTING COMPONENTS ISSUE 480V 9P1 BK 21 (16) 9P BK 11 180V 8N BK 15 15 * 480Y 8N BK 14 RE-21HF ,6.24-65 MCC1-E6 BK A6 -BK 8 480V BN BK 11 MCC1-E5 BK BA MCC1-E6 BK AN 0 480V 9P BK 7 480V 8N 8K 8 480V 8N 8K 6 MCCI-E3 BK J MCCI-E3 BK K MCC1-E& BK J MCC1-E4 BK K ACCI-E& BK S VITAL BUS 2 VITAL BUS 2 Ж. 9P 8K 48.0V BUS 3P 130V 9P BK 36 99 8 480V 8N 480V 480V 480V 480V N/A (15) RE-22FG RE-22FG RE-2108 RE-21INC RE-210C RE-210C RE-2108 RE-2108 RE-2108 RE-2106 RE-2108 RE-2100 RE-210C RE-2100 RE-210C RE-21FR RE-21FR RE-21FR RE-21FR RE-23FS RE-21FR RE-21FR N/A N/A (35) YES YES VES YES VES YES ST. --> Destred **HARRON** CL05EB CLOSED (13) CLOSED CLOSED THROT OPEN OPEN OPEN Z NO 30 3 140 書 NO 30 西 100 NO NO BN NO 80 B N Noreal 1111111111 CLOSED CLOSED (12) CL05ED OPEN N3 dO M3-40 OPEN OPEN * NO 8 NO NO NO NO NO 10 NO 80 著 8 N 3 書 N Re. or Row/Col. SORT MOTES (11) 11 (10) 8 a s 8 5 84 S R N S a s 5 8 a s 5 8 S R S R S R 2 2 a s e s ex S 8 as 8 5 84 S R S R s SOUTH OF LUFLIB W CAF E VAULT C' &LE VAULT DIESEL GEN 81 DIESEL GEN #2 delld # CABLE VAULT CABLE VAULT CABLE VAULT (6) COL 8-7/8 A CUBICLE CUBICLE COL 8-7/8 Nr. ROOM NUX FEED 1 SING SWGP PENT #19 AT DWST BLENDER BLENDER AE SWGR BLENDER BLENDER BLENDER PENT A AT 50 141 EQUIPMENT Flr.Elv. (8) SEL SEL 135 705 313 135 SE 56 135 135 135 05 735 135 735 735 713 122 122 722 718 322 722 122 735 But I ding (1) YARD YARD AXLB SRVB SFGB SFGB SFGB SFGB AXLB AXLB SFGB AXLB AXLB AXL8 AXLB AXLB INTS SINI SFGB DGRX DGBX SRVB RCRX 894S SFGB RE-210C RE-210C No./Rev./Zone DWG RE-2108, RE-38C, 48C RE-38C 6.48-55,7.65-34,44 37H. 3714 380 42K 42K \$26 42K DMC RE-38C, 42K 385 50 5.24-4016 150 6.24-4017 50 6.24-380 DWG RE-53A, 2108 RE-2108. 150 6.24-277 150 6.24-277 150 6.24-271 50 6.24-255 150 6.24-271 (9) 480 ONG RE-38C. ONG RE-53A. DWG RE-278, ONG RE 380, DHG RE-38C, DWG RE-58A. DWG RE-58A, DNG RE-278. DNG RE-38C. DWG RE-42K VI1-6.48-5 RE-38C. Owo. 2108 DMC 48C 37/480V MCC FED FROM 480V SUBSTA CH/RWST-CHARGING PUMP ISOLATION CH/RWST-CHARGENG PUMP ISOLATION CH/EMERGENICY BORATION ISOLATION FW/AUX FEED FLOW CONTROL VALVE WI /WT -3K - 10 LEVEL TRANSMITTER CH/RCP SEAL LEAKOFF ISOLATION WI/WI-TK-10 LEVEL TRANSMITTER CH/RCP SEAL LEAKOFF ISOLATION CENTER CENTER CENTER EE/480V MOTOR CONTROL CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER CENTER EE/480V MOTOR CONTROL CENTER EE/480V MOTOR CONTROL CENTER SYSTEM/EQUIPMENT DESCRIPTION CH/VCT ISOLATION VALVE CH/VCT ISOLATION VALVE EE/480V MOTOR CONTROL EE/480V MOTOR CONTROL EE/480V MOTOR CONTROL EE/480V MOTOR CONTROL LONING ROLON NOIOR CONTROL EONTROL CONTROL CONTROL CONTROL CONTROL CONTROL (2) 1-4 BUSIH BKR4H7 EE/480V MOTOR EE/480V MOTOR FE/480V MOTOR EE/480V MOTOR EE/480V M0TOR EE/480V MOTOR ON YEAM MOV-CH-1150 LT-WT-104A2 MOV-CH-1158 HOV-CH-115C MOV-CH-115E MOV-FW-151A (*) LT-WT-104A1 MOV-CH-350 MOV-CH-378 MDV-CH-381 MCC-1-E10 MCC-1-E13 HCC-1-E11 HCC-1-E12 HCC-1-E14 NCC-1-E9 MCC-1-14 HCC-1-E1 NCC-1-52 MCC-1-E3 HCC-1-E4 HCC-1-E5 MCC-1-E6 MCC-1-E7 MCC-1-E8 EQUIP (3) **G8A** 084 (GBA 084 084 684 084 180 -8 10 10 10 10 EO 10 10 10 01 01 10 01 10 10 10 TRAIN (12230 (2) --60 -----60 10 -60 -4 00 100 -00 4102A 4101A N N 10 8023 1209 8019 1210 3209 3210 4109 8118 8018 8027 8028 8029 0108 8031 8020 8022 8024 3025 8026 1208 1211 1248 8021



Page No. 7 Report Date/11me: 12-21-95 / 12:44:59

Page No. 8 Report Date/Time: 12-21-95 / 12:44:59

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

LINE NO.	TRAIN	EQUIP	MARK NO	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION	SORT	NOTES	Normal	Desired	REOD?	DWG. NO./REV.	REQ'D INTERCONNEC & SUPPORTING COMP	OWENTS IS	SUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(11)		(13)	(14)	(15)	(16)	(1	(7)
4110	A	OBA	MOV-FW-1518	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SEGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E5 FX A6	A	
4111	8	08A	MOV-FW-1510	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-65	NCC1-E6 BK AH	A	
4112	A	08A	HOV-FW-1510	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF, J. 24-65	MCC1-E5 BK AH	A	
4113	8	08A	HOV-FW-151E	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF, 6.24-65	MEC1-E6 BK AJ	A	
4114	A	08A	HOV-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-ES BK AJ	A	
4214	8	ORA	HOV MS-105	MS/AFW TURBINE STEAM SUPPLY ISOLATION	6.48-95,96	SECB	735	MZAH	SR		OPEN	CLOSED	YES	RE-21HY, 150 6.24-625	MCC1-E6 BK BA	A	
2104	A	OBA	MOV-RE-535	RC/PRESSURIZER PORV ISOLATION	150 6.24-350	RCBX	768	PZR CUBICLE	S R		OPEN	CLOSED	YES	RE-21JQ	MCC1-ES BK BE	A	
2106	8	08A	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	150 6.24-350	RCBX	768	PZR CUBICLE	SR		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BC	A	
2108	A	08A	MOV-RC 537	RE/PRESSURIZER PORV ISOLATION	150 6.24-350	REBX	768	PZR CUBICLE	SR		OPEN	CLOSED	YES	RE-21.JQ	MCC1-E6 BK BD	A	
5104	8	084 -	MOV RW 102A1	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21KZ,1S0 6.24-801, RP-4L	MCC1-E1 BK D	٨	
5105	A	08A	MOV RW 102A2	RW/PUMP DISCHARGE ISD	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	٨	
5106	B	08A	MOV RW 10281	RW/PUMP DISCHARGE 150	6.48-22,23	ZTMI	705	B CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ,150 6.24-801, RP-4L	MCC1-E2 BK D	A	
5107	A	ABO	MOV-RW-10282	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, ISO 6.24-801, RP-4L	MCC1-E2 BK G	A	
5108	8	088	MOV-RW-102C1	RW/PUMP DISCHARGE ISO	5.48-22,23	INTS	705	C CUBICLE	SR		CLOSED	OPEN		RE-21KZ,1SO 6.24-801, RP-4L	MCC1-E2 BK H	٨	
5109	A	08A	MOV-RW-102C2	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	C CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ,150 6.24-801, RP-4L	MCC1-E1 BK H	٨	
4116	A	08A	MOV-RW-103A	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	SR		CLOSED	OPEN	YES	RE-21LA,6.24-12 8	MCC1-E3 BK B	٨	
4117	8	A8 0	MOV-RW-1038	RW/'A'HEADER RW FLOW TO RECIRC SPRAY	6.48-32,33	AXLB	722	COL K	SR		CLOSED	OPEN	YES	RE-21LA,6.24-12 8	MCC1-E4 BK B	٨	
5119	8	08A	MOV-RW-106A	RW/CCR HT EXCH ISOLATION	6.48-51,52	AXLB	722	EAST CENTRAL	SR	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	150 6.24-159	DGBX	735	DIESEL GEN 11	SR		CLOSED	OPEN	YES	RE-21LA	NCC1-E3 BK H	A	
5122		A80	MOV-RW-1138	RW/DIESEL GEN COOLING ISO	150 6.24-160	DGBX	735	DIESEL GEN #1	SR		CLOSED	OPEN	YES	RE-21LA	HCC1-E7 BK J	A	
5123	8	ABO	MDV-RW-113C	RW/DIESEL GEN COOLING ISO	150 6.24-159	DGBX	735	DIESEL GEN #2	SR		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK H	A	
5124	8	06A	MOV-RW-11301	RW/DIESEL GEN COOLING ISO	150 6.24-160	DGBX	735	DIESEL GEN #2	SR		CLOSED	OPEN	YES	RE-21LA	NEC1-E8 BK J	A	
5125	A	06A	MOV-RW-114A	RW/CCR HT EXCH ISOLATION	iS0 6.24-68	AXLB	722	EAST CENTRAL	SR	18	OPEN	CLOSED	YES	RE-21LA	MCC1-ES BK D	A	

Page No. 9 Report Date/Time: 12-21-95 / 12:44:59

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

	LINE NO.	TRAIN	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION		Building	Flr.Elv.		SORT		Normal	Desired	REQD?	DHG. NO. /REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	S ISSUE
	(1)	(2)	and the second second	(4)	(5)	(6)	(7)	(8)	(9)		(11)			(14)	(15)	(16)	(1?)
8	016	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
80	017	8	20	HM 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
8	135		20	PCC-FE-1A	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-10A	DG8X	735	DIESEL GEN #1	\$		N/A	N/A	N/A	N/A	N/A	A
81	136		20	PCC-FE-18	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	٨
21	128	N/A	07	PCV-GN-108	S1/(PCV-RC-455D) NITROGEN PRESSURE CONTROL	DWG RK-1D	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	٨
21	129	N/A	07	PCV-CN-109	SI/(PCV-RC-455C) NITROGEN PRESSURE CONTROL	DWG RK-10	RCBX	767	PRZR CUBICLE	2		OPEN	OPEN	NO	N/A	N/A	٨
21	130	N/A	07	PCV-1A-108	TA/(PCV-RC-455D) INST ATR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	5		OPEN	OPEN	NO	N/A	N/A	٨
21	131	N/A	07	PCV-1A-109	IA/(PCV-RC-455C) INST AIR PRESSURE CONTROL	DWG RK-1D	RCBX	767	CRANE WALL	2		OPEN	OPEN	NO	N/A	N/A	A
42	205	٨	07	PCV-MS-101A	NS/A LOOP ATH STEAM DUMP	150 6.24-6	SFGB	752	HVZM	s	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
42	206	8	07	PCV-MS-1018	MS/B LOOP ATH STEAM DUMP	150 6.24-6	SFGB	752	MSVH	s	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
42	207	8	07	PCV MS-101C	MS/C LOOP ATM STEAM DUMP	150 6.24-6	SFGB	752	MSAH	s	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
21	105	٨	07	PCV-RC-455C	RC/PRESSURIZER PORV	150 5.24 349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNE-2 BK 8-35	A
21	109	٨	07	PCV-RC-455D	RC/PRESSURIZER PORV	150 6.24-349	RCBX	767	PZR CUBICLE	S R	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 8K 8-34	A
21	107	8	07	PCV-RC-456	RC/PRESSURIZER PORV	150 6.24-349	RCBX	767	PZR CUBICLE	SR	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
51	110	٨	07	PCV-RW-130A	RW/SEAL WATER PEV FOR RW PUMP	150 6.24-3345	INTS	705	A CUBICLE	5		CLOSED	OPEN	NO	150 6.24-3.45	N/A	A
51	111	8	07	PCV-RW-1308	RW/SEAL WATER PEV FOR RW PUMP	150 6.24-3346	INTS	705	B CUBICLE	S		CLOSED	OPEN	NO	150 6.24-3346	N/A	A
51	12	A/B	07	PCV-RW-130C	RW/SEAL WATER PCV FOR RW PUMP	150 6.24-3347	INTS	705	C CUBICLE	s		CLOSED	OPEN	NO	150 6.24-3347	N/A	٨
21	1108	A	20	P1-RC-402A	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.12-23	SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-228M	VITAL BUS 3	A
21	1118	8	20	PI-RC-403	RCS/WIDE RANGE PRESSURE INDICATOR	VT1 1.12-23	SRVB	735	CONT RH VB-A	SR		ON	ON	YES	RE-228M	VITAL BUS 2	A
80	34	A	14	PNL-AC-BUS-IE	38/VITAL BUS DIST PANEL 1E	DWG RE-27C	SRVB	713	RELAY	s		ON	ON	YES	N/A	N/A	A
80	35	8	14	PHL-AC-BUS-IF	38/VITAL BUS DIST PANEL 1F	DWG RE-27C	SRVB	713	RELAY	s		ON	ON	YES	N/A	N/A	
80)36	A	14	PHL-AC-E1	38/120 YOLT AC POWER DISTRIBUTION PANEL	DWG RE-278	SRAB	713	AE SMGR	S		ON	ON	YES	N/A	N/A	A
/80	37	8	14	PNL-AC-E2	38/120 WOLT AC POWER DISTRIBUTION PANEL	DWG RE-278	SRVB	112	DF SWGR	5		ON	ON	YES	N/A	N/A	A

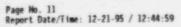


Page No. 10 Report Date/Time: 12-21-95 / 12:44:59



BEAVER VALLEY POWER STATION URIT 1 SETSMIC REVIEN SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 462 INDIVIDUAL PLANT COMPONENTS

REG.	(11)	*	*	*	×	*	*	*	*	*	*	×	*	*	*	*	*	*		*	*
REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	(16)																				
REQ.		N/N	N/A	N/A	N/A	N/A	N/N	N/N	N/A	H/A	N/A	N/A	.:/N	N/A	N/A	N/A	N/A	N/N	N/A	N/A	N/A
SUPPORTING SVS. DNG. NO./REV.	(35)	N/A	N/A	8700-1.20-1174 THRU 1177	N/A	N/A	N/A	8//W	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/N	N/A	N/N
POMER REGD7	(14)	YES	YES	YES	YES	YES	9		YES	YES	YES	YES	YES	YES	N/A	N/A	N/A	YES	YES	YES	YES
ST> P Destred R															N/A N	N - N/N	N/A N				
		8	8	NO	NO	10	180	NO	04	NO	NC	OK	100	NO	×	×	×	*	M	8	M
< 00. S Normal		N	NO	N	NO	NO	NO	NO	88	NO	NO	NO	NO	NO	N/A	N/A	N/A	8	*	8	8
I NOTES																					
2081		5	57	s	5	5	s	S	и	s	5	5	5	s	5	5	s	s	s	5	5
LOCATION> Re. or Row/Col. SORT NOTES		AE SMCR	DF SWGR	PROC RACK	CONTROL	CONTROL	CONTROL	CONTROL	AE SWGR	DF SMGR	DIESEL GEN #1	DIESEL GEN #2	DIESEL GEN NI	DIESER GEN 82	HASH	HAVEN	HASH	RELAY ROOM	RELAY ROOM	W CABLE VAULT	E CABLE VAULT
EQUIPMENT F Tr. E Tv.	(8)	113	113	713	735	135	735	322	113	113	135	135	135	352	751	151	151	713	713	SEL	382
Building	(1)	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SAVB	SRVB	DCBX	BCBX	DCBX	DGBX	SFGB	SFCB	SFGB	SRVB	SRVB	SFGB	SFGB
Dwg. No./Rev./ Tone		DWG RE-278	DNG RE-278	RE -27C	DWG RE-27A	DMG RE-27A	DMG RE-27A	DWG RE-27A	DMG RE-278, 25R	DNG RE-278, 25R	DWG RE-58A	DMG RE-SBA	DNG RE-58A	DMG RE-58A	RKBA	RK -8A	RK-SA	RE-42A	RE-42A	DHG RE-21JR, 42K	DMG 85-21.39, 42K
SYSTEM/EQUIPMENT DESCRIPTION	<pre>xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx</pre>	38/120 VOLT AC POWER DISTRIBUTION PANEL	38/120 WOLT AC POWER DISTRIBUTION PANEL	458/ANTICIP TRANS M/O SCRAM MITICATING SYS ACTUAT CIRCT	VS/PLANT VENTILATION CONTROL PANEL DWS RE	VS/PLANT VENTILATION CONTROL PAHEL DUG RE	39/125 VOLT DC POWER CISTRIBUTION PANEL	39/125 VOLT DE POMER DISTRIBUTION PANEL	36/DG AUTCHMATIC SEQUENCE RELAV PANEL 1	36/DG AUFOMATIC SEQUENCE RELAV PANEL 2	36/DG EXCITATION AUX RELAY PANEL 1 DWG RE	36/DG EXCITATION AUX RELAY PANEL 2 DWG RE	EE/DIESEL CENERATOR N1 CONTROL PANEL	EE/DIESEL GENERATCH #2 CONTROL PANEL	MS/INSTRIMENT RACK FOR SOV-MS-101A RKBA AND SOV-MS-101A4	MS/INSTRUMENT RACK FOR SOV-MS-1018 RK-8A AND SOV-MS-10184	MS/INSTRUMENT RACK FOR SOV-MS-101C RK-8A AND SOV-MS-101C4	36/POST ACCIDENT SAMPLE SVS RELAY RE-42A PANEL	36/POST ACCIDENT SAMPLE SYS RELAK PANEL	RC/PRESSURIZER HEATERS POWER DIST. DMG RE PANEL	RC/PRESSURIZER HEATERS POWER DIST. DMC 85. PANEL
	()	PNL-AC-E3	PHL AC-EA	PHE -AMSAC	PNI -BLDG-SER-A	PNR -BLDG-SER-8	PHL-0C-2	PML-0C-3	PIR -DG -SEQ-1	PHI DG SEQ 2	PHR-DGEA-1	PHE-DGEA-2	PNL-DICEN 1	PNL-DIGEN-2	PNL-MS-101A	PHL-MS-1018	PNL-MS-101C	PNL-PAS-RA	PNL-PAS-RB	PNL-PR-HTR-A	PML PR-HTR-8
EQUIP	(3)	14	14	20	20	20	2	14	20	20	20	20	20	20	8	18	18	20	20	4 7	14
	(2)	*		8/8	*	-	90	*	*	40	-	-	*	e 2	*	æ	80	*	80	*	80
	(1)	8038	6608	8117	8040	8041	8042	8043	8044	8045	8046	8047	1215	\$324	8125	8126	8127	8115	8116	8043	8049
		60	80	60	80	60	80	60	80	60	60	00	5	5	60	60	60	60		60	



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

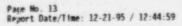
LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUEPMENT Description	Dwg. No./Rev./Zone	Building	Fir Elv.	LOCATION	SORT	NOTES	Normal	Destred	REOD?	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8050	A	14	PNL-PR-HTR-D	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DMG RE-21JS, 42K	SFGB	735	W CABLE WAULT	2		ON	ON	YES	N/A	R/A	A
8051	8	14	PNL-PR-HTR-E	RC/PRESSURIZER HEATERS POWER DIST. PANEL	DNG RE-21JS, 42K	SFGB	735	E CABLE VAULT	5		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	DMG RE-27C	SRVB	713	RELAY	S		ON	014	YES	N/A	N/A	A
8054	8	20	PHL-251-22	36/DG #2 PROTECTION RELAY PANEL	DMG RE-27C	SRVB	713	RELAY	S		ON	ON	YES	N/A	N/A	A
\$955	A	20	PNL-REL-31	38/AUX RELAY PANEL	DWG RE-278	SRVB	713	AE SWGR	s		ON	ON	YES	N/A	N/A	A
8056	8	20	PNL-REL-32	38/AUX RELAY PANEL	DWG RE-ZIEA, 278	SRAB	713	DF SWGR	5		ON	ON	YES	N/A	N/A	A
8057	A	20	PNL-REL-33	38/AUX RELAY PANEL	DWG RE-278	SRAB	713	AE SWGR	5		ON	ON	YES	N/A	N/A	Α
8058	8	20	PHL-REL-34	38/AUX RELAY PANEL	DWG RE-278	SRVB	713	DF SWGR	5		ON	ON	YES	N/A	N/A	A
8059	A	20	PNL-REL-35	38/RELAY PANEL	DWG RE-27B	SRVB	713	AE SWGR	5		ON	ON	YES	N/A	N/A	A
8060	8	20	PNL-REL-36	38/RELAY PANEL	DWG RE-27B	SRVB	713	OF SWGR	s		ON	ON	YES	N/A	N/A	٨
8061	A	20	PNL-REL-37	38/RELAY PANEL	DWG RE-27B	SRAB	713	AE SWGR	\$		ON	ON	YES	N/A	N/A	A
8062	8	20	PNL-REL-38	38/RELAY PANEL	DWG RE-27B	SRVB	713	DF SWGR	s		ON	ON	YES	N/A	N/A	
3108	A	20	PNL-REL-40	36/RELAY FANEL 40	RE-27C, 25H	SRVB	713	NORMAL SWGR	S		ON	ON	YES	N/A	N/A	A
8109	8	20	PHL-REL-41	36/RELAY PANEL 41	RE-27C, 25H	SRVB	713	MORMAL SWGR	s		ON	ON	YES	N/A	N/A	A
8063	8	20	PNL-REL-DGI	36/DG ISOLATION RELAY PAREL	DWG RE-58A	DGBX	735	DIESEL GEN #2	S		ON	ON	YES	N/A	N/A	Α
8064	A	20	PNL-SHUTON-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	В	20	PNL-SHUTDN-8	01/EMERGENCY SHUTDOWN PANEL	DMG RE-27C	SP.VB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	Α
8129	۸	18	PNL-S1-02	45/DISTRIBUTION PANEL	DWG RE-63AQ	SFGB	722	PIPE TURNEL	s		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
8131	8	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	8	14	PHL-VITBUS-2	38/VITAL BUS DIST PANEL 2	DWG RE-27A	SRVB	735	CONTROL	s		ON	ON	YES	N/A	N/A	A
8068		14	PNL-VITBUS-3	38/VIBAL BUS DIST PANEL 3	DWG RE-27A	SRVB	735	CONTROL	\$		ON	ON	YES	N/A	N/A	
8069	8	14	PNL-VITEUS-4	38/VITAL BUS DIST PANEL 4	DMG RE-27A	SRVB	735	CONTROL	\$		ON	ON	YES	N/A	H/A	
4205E	A	18	PS-MS-101A	MS/ATMOSPHERE STEAM DUMP S.G. 1A	150 6.24-2	SFGB	768	HVSVH	\$		ENERG	ENERG	YES	RE-21JD	PNL-DC-3 BK 8-14	
4206E	8	18	PS-MS-1018	HS/ATMOSPHERE STEAM DUMP S.G. 18	150 6.24-2	SFGB	768	HSVH	s		ENERG	ENERG	YES	RE-21.30	PHL-DC-2 BK 8-14	A

Page No. 12 Report Date/Fime: 12-21-95 / 12:44:59

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

1

LINE NO.		EQUIP	HARK NO.	SYSTEM/EQUIPMENT Description		Building	Fir.Elv.		SORT	Normal	Destred	REQD?	DWG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)			(4)	(5)	(6)	(7)	(8)	(9)		(12)		(14)	(15)	(16)	(17)
4207E	8	18	PS-HS-101C	HS/ATHOSPHERE STEAN DUMP S.G. IC	150 6.24-2	SFGB	768	WZAH	s	ENERG	ENERG	YES	RE-21JD	PNL-DC-2 9K 8-14	A
2110A	A	18	PT-RC-402	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-18	RCBX	717	ANNARLUS COL 4-5	SR	ON	ON	YES	RE-228M	VITAL BUS 3	A
2111A	8	18	PT-RC-403	RC/WIDE RANGE RCS PRESSURE TRANS	DWG RK-18, RK-1F	RCBX	692	A CUBICLE	SR	ON	ON	YES	RE-228M	VITAL BUS 2	A
8121	A/8	18	QS-RAEK-1	QS/RACK I RWST HEAT TRACE (EAST SIDE OF RWST)	DWG 1.81-52 SH 3	YARD	735	YARD	S	N/A	Ħ/A	NO	N/A	N/A	A
8122	A/B	18	QS-RAEK-2	QS/RACK FOR RWST HEAT TRACE (NE SIDE OF RWST)	DWG 1.81-52 SH 2	YARD .	735	YARD	5	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	٨
1207	N/A	21	QS-1K-1	QS/REFUELING WATER STORAGE TANK	DWG RV-24A	YARD	735	YARD	SR	N/A	N/A	NO	RE-63V	MCC1-E11, E12	A
8070	A/B	02	REAC - TR - SWGR	01/REACTOR TRIP SWITCHGEAR	DWG RE-278	SRVB	713	ROD H/G ROOM	2	N/A	N/A	N/A	N/A	12/A	٨
8071	٨	20	RK AUX RELA	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROC RACK	S	N/A	N/A	N/A	R/A	N/A	A
8072	8	20	RK-AUX-RELB	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRVB	713	PROE RAEK	S	N/A	N/A	N/A	N/A	N/A	A
8073	۸	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	8	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
8975	A	20	RK-NUE-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	8	20	RK-NUC-INS-2	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRAB	735	CONTROL	S	N/A	N/A	N/A	N/A	N/A	A
8077	٨	20	RK-PRI-PROE-1	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRAB	713	PROC RACK	s	N/A	N/A	N/A	N/A	N/A	A
8080	8	20	RK-PR1-PROC-10	04/PLANT INSTRUMENT/PROTECTION RACK	DNG RE-27C, RC-8A, 88	SRAB	713	PROC RACK	s	N/A	N/A	N/A	N/A	N/A	A
8082	8	20	RK-PRI-PROC-11	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	S	N/A	N/A	N/A	N/A	N/A	A
8081	8	20	RK-PRI-PROC-12	04/PLANT INSTRUMENT/PROCESS RACK	DMG RE-27C, RC-8A, 8B	SRAB	713	PROC RACK	s	N/A	N/A	N/A	N/A	N/A	A
8083	8	20	RK-PRI-PROC-13	04/PLANT INSTRUMENT/PROCESS RACK	DMG RE-27C, RC-8A, 88	SRAB	713	PROC RACK	s	N/A	N/A	N/A	N/A	N/A	A
8084	*	20	RK-PR1-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



LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Reilding	Flr Elv	LOCATION	SORT	NOTES	Normal	Des ired	REOD?	DWG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8085	٨	20	RK-PR1-PROC-15	04/PLANT PROCESS INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRAB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	*
8085	A	20	RK-PR1-PROE-16	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	5		N/A	N/A	N/A	N/A	H/A	٨
8087	A	20	RK-PRI-PROC-17	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	ş		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, 88	SRAB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A	A
8078	٨	20	RK-PR1-PROC-2	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RAEK	5		N/A	N/A	N/A	N/A	N/A	A
8089	8	20	RK-PR1-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	8	20	RK-PR1-PROC-26	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	A
8079	A	20	RK-PRI-PROC-3	04/PEANT INSTRUMENT/PROTECTION RACK	DMG RE-27C, RC-8A, 88	SRAB	713	PROE RACK	2		R/A	N/A	N/A	N/A	N/A	٨
8091	8	20	RK-PR1-PROC-30	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRAB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	*
8092	8	20	RK-PRI-PROC-31	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRAB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8093	A	20	RK-PRJ-PROC-34	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C	SRAB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A	A
8094	A	20	RK-PR1-PROC-35	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8128	A/8	20	RK-RAD HON-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	٨
8096	8	20	RK-REAC-PROT-8	01/REACTOR PROTECTION RACK	DNG RE-27C	SRVB	713	PROC RACK	S		N/A	H/A	N/A	N/A	N/A	A
8097	A	20	RK-REC-P-TST-A	01/REACTOR PROTECTION TEST RACK	DMG RE-27C	SRVB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	A
8098	8	20	RK-REC-P-TST-B	01/REACTOR PROTECTION TEST RACK	DNG RE-27C	SRVB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A	A
8099	٨	20	RK-SEC-PROC-A	04/PLANT INSTRUMENT/PROTECTION RAEK	DWG RE-27C, RC-88, 8L	SRVB	713	PROC RACK	5		N/A	N/A	H/A	N/A	N/A	A
8100	8	20	RK-SEC-PROC-8	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-88, 8L	SRAB	713	PROC RACK	5		N/A	H/A	N/A	N/A	N/A	A
8101	A	20	RK-SEC-PROC-C	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C, RC-88, 8L	SRVB	713	PROC RACK	S		H/A	N/A	N/A	R/A	N/A	A



Page No. 14 Report Date/Time: 12-21-95 / 12:44:59



BEAVER VALLEY POMER STATION UNIT 3 SETSMIC REVEN SAFE SHOTDOWN EQUIPMENT LIST (SSEL) 462 INDIVIDUAL PLANT COMPONENTS

ISSUE	(11)		_																								
POWENTS				-				*	¥	R	A	×	×	×	×	×	*	*	×	*	×	*	*	*	*	*	*
& SUPPORTING COMPONENTS	(16)	N/A	N/A	N/N	N/A	N/A	11/14	N/A	H/A	N/A	N/A	N/A	PML-DC-3 8K 8-23	PNL-DC-3 BK 8-20	PNIDC-3 BK 8-1	PHL-DC-3 BK 8-20	PHE -DE -3 RK 8-1										
DHG. ND. /REV.	(15)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	K/A	N/A	N/A	N/A	RE-21FT	RE-21FU	RE-21FU	RE-21FU	00 31513							
REQUI	(14)	N/N	R/A N	N/A N	N/A N	N/A B	NO N	N 01	0	. 0			N (8	N G	N 0	N (8			N Q	N Q		N Q	YES R	HO N			
Destred	(13)	N/A					CLOSED			A I		×	A 1	A A	A N	×	×	8	×	CLOSED +	CLOSED 1	CLOSED	ENERG	DEENERG 1	DEENERG NO	DEENERG NO	DEFNERC MO
Wormal De	(12) (N/A	N/A	N/A	N/A	CLOSED CL	N/A	N/	N/A	N/A	N/A	CLOSED CL	CLOSED CL	CLOSED CL		-										
	(11) (1	N/N	N/N	N/A	N/A	N/A	CLO	N/A	CLO	CLO	CLO	ENERG	ENERG	ENERG	ENERG	FNFRC.											
SORT N	(10)	5	5	S	5	s	5	5	s	S	s	5	5	s	5	S	s	5	5	5	s	5	8 5	S R	S R	5 8	5 8
RB. OF ROW/Col. SORI NOTES	(6)	PROC RACK	CR VENT	CR VENT	CR VENT	CR VENT	AMMERLUS COL S	DIESEL GEN NI	DIESEL GEN NI	DIESEL GEN #1	DIESEL GEN #1	DIESEL GEN BI	DIESEL GEN NI	DIESEL GEN 12	DIESEL GEN 12	DIESEL GEN #2	DIESEL GEN \$2	DIESEL GEN 12	DIESEL GEN 82	PZR CUBICLE	PZR CUBICLE	P2R CUBICLE	BLENDER CUB	REF TK AREA	RLF TK AREA	RLF TK AREA	RIF TK AREA
Flr.Elv.	(8)	713	113	713	713	713	718	135	135	135	135	135	135	735 1	1 567	135	135	135	135	167	167	167	722	718	718	718	718
Building	(1)	SRVB	SRVB	SAVE	SRVB	SRVB	RCBX	DCBX	DCBX	DG8X	DCBX	068X	DCBX	RCBX	RCBX	RCBX	AXEB	RCBX	RCBX	RCBX	RCBX						
Dwg. No./Rev./Zone		DNG RE-27C, RC-88, 5 8L	RE-47H, 25HH		RE-47H S	RE-47H S	150 6.24-1548 8	VII 6.39-109	VII 6.39-109 E	VII 6.39-109 0	VII 6 39-109 D	VII 6.39-109 D	VTI 6.39-109 D	VII 6.39-109 E	VII 6.39-109 D	VII 6.39-109 D	VTI 6.39-309 D	VTI 6.39-109 D	VII 6.39-109 0				RK-3M	vil 06.041-5, 6 8	VTI 06.041-3, 8 8	VTI 06.041-5, 6 8	VTI 06.041-3.8
DESCRIPTION	(2)	04/PLANT ENSTRUMENT/PROTECTION D RACK	444/CONTROL ROOM TEMP CONTROL AIR R COMPRESSOR RACK	44A/COMPOL ROOM AIR HANDLING UNIT RE-47H, 25HN SUPPLY FANS RACK	VS/CONTROL ROOM HEATERS VS-E-5, 6 R 8.7 RACK	VS/RACK FOR VS-E-8-3 \$ 8-2 R	CH/SEAL RTRN HOR RELIEF VALVE	EE/3A AIR TANK RELIEF VALVE V	EE/38 AIR TANK RELIEF VALVE V	EE/3C AIR TANK RELIEF VALVE V	EE/3D AIR TANK RELIEF VALVE V	EE/3E AIR TANK RELIEF VALVE V	EE/3F AIR TANK RELIEF VALVE V	EE/4A AIR TANK RELIEF VALVE V	EE/48 AIR TANK RELIEF VALVE V	EE/4C AIR TANK RELIEF VALVE V	EE/40 AIR TANK RELIEF VALVE V	EE/dE AIR TANK RELIEF VALVE V	EE/4F AIR TANK RELIEF VALVE V	RC/PRESSURIZER RELIEF SAFETY VALVE ISO 6.24-350	RE/PRESSURIZER RELIEF SAFETY VALVE ISO 6.24-350	RC/PRESSURIZER RELIEF SAFETY VALVE ISO 6.24-350	CH/(FCV-ICH-122) SOLENDID R	CH/(TV-ICH-200A) SOLENDID V	CH/(TV-ICH-200A) SOLENDID V	CH/(TV-ICH-2008) SOLENDID V	CH/(TV-ICH-20CB) SOLEHDID V
NARK ND.	(4)	RK-SEC-PROC-D	RK-VS-AC-JA	RK-VS-AC-18	RK-VS-E567	RK-VS-E8-12	RV-CH-382A	RV-EE-201A	RV-EE-2018	RV-EE-2010	RV-EE-202A	RV-EE-2028	RV-EE-202C	RV EE-203A	RV-EE-2038	RV-EE-203C	RV-EE-204A	RV-EE-2048	RV-EE-204C	RV-RC-551A	RV-RC-5518	RV-RC-551C	SOV-CH-122	50V-CH-200A	50V-CH-200A1	SOV -CH-2008	SOV-CH-20081
TRAIN CLASS		50	20	20	20	20	01	01	07	10	10	10	07	10	16	07	10	01	07	01	10	01	088	688	880	880	068
TRAIN		80	*	80	A/8	A/B	N/A	×	×	<	*	*	×	40	80	60	80	-	80	N/N	N/A	N/A	N/A	*	*	*	*
	(3)	8102	8102A	81028	8102C	81020	3216	SBIIC	53126	SHE	53146	33150	53166	31165	53180	36165	5320C	532 HC	53226	2101	2102	2103	12060	32066	32060	32070	3207D

Page Ho. 15 Report Date/Time: 12-21-95 / 12:44:59

BEAVER VALLEY POWER STATION UNIT 1 SEISMIC REVIEW SAFE SHUTDOWN EQUIPM".AT LIST (SSEL) 462 IND1"IDUAL PL/NT COMPONENTS

LINE NO.	TRAIN	EQUIP	HARK NO.	SYSTEN/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION> Rm. or Row/Col.	SORT NOT	ES Norma	Destre	REGD?	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENT:	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10) (1	1) (12)	(13)	(14)	(15)	(16)	(17)
3208C	٨	068	SOV-CH-200C	CH/(TV-1CH-200C) SOLENOID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	SR	ENERG	DEENER	NO NO	RE-21FU	PNL-DC-3 *K 8-20	*
32080		088	SOV-CH-200C1	CH/(TV-ICH-200C) SOLENDID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	SR	ENERG	DEENER	NO I	RE-21FU	PNL-DC-3 8K 8-1	
4205C	A	088	SOV MS-101A	MS/(PCV-IMS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	SR	DEENER	G DEENER	NO I	RE-21JD	PNL-DC-3 8K 8-14	A
42050	A	880	SOV-MS-101A4	MS/(PCV-3MS-101A) CONTROL SOLENDID	RK-8A	SFGB	751	MSAH	SR	DEENER	G DEENER	NO NO	RE-21JD	PNL-9C-3 8K 8-23	Α
42060	B	088	SOV-MS-1018	MS/(PCV-IMS-1018) CONTROL SOLENOID	RK-BA	SFGB	751	MSVH	S R	DEENER	G DEENER	5 NO	RE-21JD	PNL-DC-2 BK 8-14	A
42060	8	088	SOV MS 10184	MS/(PCV-IMS-1018) CONTROL SOLEMOID	RK-8A	SFGB	751	MSVH	SR	DEENER	G DEENER	NO	RE-21JD	PNL-DC-2 BK 8-23	
42070	8	088	SON-W2-101C	MS/(PCY-1HS-101C) CONTROL SOLENOID	RK-BA	SFGB	751	MSVH	SR	DEENER	G DEENER	NO NO	RE-21JD	PNL-DC-2 BK 8-14	A
42070	8	088	SOV-MS-101C4	MS/(PEV-IMS-101C) CONTROL SOLEHOID	RK-8A	SFGB	751	MSVH	S R	DEENER	G DEENER	NO NO	RE-21JD	PML-DC-2 BK 8-23	A
42110	A	088	SOV-MS-112A1	MS/(TV-IMS-101A) PILOT VALVE	RK-BA	SECB	735	AUX FEED PUMP	8 Z	DEENER	G ENERG	YES	RE-21HX	DC-PHL-3 BK 8 6	A
42110	8	088	SOV MS-112A2	MS/(TV-1MS-101A) PILOT VALVE	RK-8A	SEGB	735	AUX FEED PUMP	S R	DEENER	G ENERG	YES	RE-21HX	DC-PHL-3 BK 8-6	A
42120	A	088	SOV HS 11281	MS/(TV-IMS-1018) PILOT VALVE	RK-8A	SEGB	735	AUX FEED PUMP	SR	DEENER	G ENERG	YES	RE-21HX	DC-PNL-3 8K 8-21	٨
42120	8	088	SOV-MS-11282	MS/(TV-IMS-1018) PILOT VALVE	RK-8A	SECB	735	AUX FEED PUMP	SR	DEENER	G ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
42130	A	088	SOV-MS-112C1	MS/(TV-IMS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	SR	DEENER	G ENERG	YES	RE-21HX	DC-PNL-3 BX 8-22	A
42130	8	088	SOV-MS-112C2	MS/(TV-IMS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	SR	DEENER	G ENERG	YES	RE-21HX	DC -PNE -3 8K 8-22	A
2122	8	088	SOV RC 455C1	SI/(PCV-RC-455C) SOLENOID	150 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSED	OPEN	YES	RE-21JT	PNL-DC-2 BK 8-35	A
2123	B	880	SOV-RC-455C2	SI(PCV-RC-455C) SOLENOID	150 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	S1/(PCV-RC-455D) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2125	A	088	SOV-RC-455D2	S1(PCV-RC-455D) SOLENOID	150 6 24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSED	CPEN	YE5	RE-21JT	PNL-DC-3 BK 8-34	A
2126	A	088	SOV-RC-456-1	RC/(PCV-RC-455) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSED	OPEN	YES	RE-21JT	PNL-DC-3 8K 8-34	
2127	٨	880	SOV-RC-456-2	RC/(PCV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	SR	ELOSED	OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
5339	٨	20	SSM-VITBUS-1	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-27B, 21EB, 38D	SRAB	713	AE SWGR	SR	ON	ON	YES	1.24-181	MCC1-E13	A
5340	8	20	SSW-VITBUS-2	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 278, 38D	SRVB	713	DF SWGR	SR	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-278, 21E8, 38D	SRVB	713	AE SWGR	SR	ON	ON	YES	1.24-181	MCC1-E13	*
5342	8	20	SSW-VITBUS-4	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 36D	SRVB	713	DF SHGR	SR	ON	OH	YES	1.24-181	MCC1-E14	A
8203	A	03	SW-1-8N1	36/480 WOLT AC TREM DISCONECT SWITCH	DWG RE-27B	SRVB	713	AE SWGR	2	CLOSED	CLOSED	N/A	N/A	N/A	٨



Page Ho. 16 Report Date/Time: 12-21-95 / 12:44:59

16

BEAVER VALLEY POWER STATION UNIT 1 SEISMIC REVIEW SAFE SHATDOWN EQUIPMENT LIST (SSEL) 462 IND. VIDUAL PLANT COMPONENTS

	LINE HD.	TRAIN	EQUIP	MARK NO.	SYSTEN/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION> Re. or Row/Col.	SORT	NOTES	Normal	Desired	REQD?	DNG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
	(1)			(4)	(5)	(6)	(7)	(8)	(9)			(12)	(13)		(15)	(16)	(17)
8	104	8	03	SW-1-991	36/480 VOLT AC TREM DISCONECT SWITCH	DWG RE-27B	SRV8	713	DF SWGR	5		CLOSED	CLOSED	N/A	N/A	N/A	A
8	119		20	TB-348A	VS/TERN BOX W/RELAY LOC NR T8-348	DWG RE-25AW	AXLB	768	COL G1/8811-1/2	s		ON	ON	YES	RE-21MS	PHL-AC-E1	A
8	120	8	20	18-349A	VS/TERM BOX W/RELAY LOC NR TB-349	DWG RE-25AW	AXLB	768	COL G1/8811-1/2	s		ON	ON	YES	RE-21MS	PNL-AC-E2	٨
4	2030	8	20	TR-RC-410	RE/REACTOR CODLANT EOLD LEG 3 PEN RECORDER		SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-228P	VITAL BUS 2	A
4	2030	٨	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER		SRVB	735	CONT RM VB-A	SR		0N	ON	YES	RE-228N	VITAL BUS 1	A
8	105	A	04	TRANS-1-8-N1	37/480V AUX EMERG BUS INI	DWG RE-278	SRVB	713	NORMAL SWGR	s		ON	ON	VES	N/A	N/A	A
5	333	٨	04	TRANS-1-8N	37/480V EMERG BUS IN TRANS-1-8N	DWG RE-278	SRVB	713	AE SWGR	S		ON	ON	YES	N/A	4KV BUS AE	A
8	106	8	04	TRANS-1-9-P1	37/480V AUX EMERG BUS 1P1	DWG RE-278	SRVB	713	DF SWGR	s		ON	ON	YES	H/A	N/A	A
5	334	8	04	TRANS-1-9P	37/480V EMERG BUS 1P TRANS-1-9P	DWG RE-27B	SRV8	713	OF SWGR	S		ON	ON	YES	N/A	4KV BUS DF	A
4	2016	8	19	TRB-RE-410	RC/LOOP IA COLD LEG RESISTANCE TEMPERATURE DETECTOR	VT1 7.41-33	RCBX	718	A CUBICLE	SR	19	ON	ON	YES	RE-228P	VITAL BUS 2	A
4	1201A	٨	19	TR8-RC-413	RC/LOOP 1A HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	A EUBICLE	SR	19	ON	ON	YES	RE-228N	VITAL BUS 1	٨
4	2028	8	19	TRB-RC-420	RC/LOOP 18 COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	B CUBICLE	SR	19	ON	ON	YES	RE-22BP	VITAL BUS 2	A
4	202A	A	19	TRB-RC-423	RC/LOOP 18 HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	B CUBICLE	SR	19	ON	ON	YES	RE-228N	VITAL BUS 1	A
4	12038	8	19	TRB-F."-430	RC/LOOP IC COLD LEG RESISTANCE TEMPERATURE DETECTOR	WTH 7.41-33	RCBX	718	C CUBICLE	S R	19	ON	ON	YES	RE-228P	VITAL BUS 2	A
4	203/	A	19	TRB-RC-433	RC/LOOP IC NOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	C CUBICLE	S R	19	ON	ON	YES	RE-228N	VITAL BUS 1	A
ŧ	8130	A .	04	TRF-51-02	45/SAFETY INJECTION HEAT TRACE PNL-S1-02	DWG RE-63AQ	SFGB	722	PIPE TURNEL	2		ENERG	ENERG	YES	RE-63N	MCC1-E11 BK T	A
8	3132	8	04	TRF-S1-06	45/SAFETY INJECTION HEAT TRACE PNL-S1-06	DNG RE-63AQ	SFGB	722	PIPE TUNNEL	\$		ENERG	ENERG	YES	RE-63H	MCC1-E11 BK T	A
5	52010	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
	52020	8	18	TS-HV-558	VS/TEMP SWITCH FOR VS-F-55B	DWG RB-17G	SRVB	713	AE SWGR	s		ENERG	ENERG	YES	RE-21MZ		
1	3206		07	TV-CH-200A	CH/LETDOWN ORTFICE 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
3	3207	A	07	TV-CH-2008	CH/LETDOWN ORIFICE CNNT 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

Page No. 17 Report Date/Time: 12-21-95 / 12:44:59

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

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LINE NO.	TRAIN	EQUIP	HARK NO.	SYSTEM/EQUIPMENT Description	Dwg. No./Rev./Zone	Building	Flr Fly.	LOCATION Rm. or Row/Col.	SORT	NOTES	Hormal	Destred	REOD?	DMG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S 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 -6002	RCBX	718	LETDOWN CUBICLE	s		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-20	*
4211	A/B	07	TV-MS-101A	HS/MAIN STEAN ISOLATION	150 6.24-2	SFGB	752	HVZM	SR	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) 8-6	A
4212	A/B	07	TV-MS-1018	HS/MAIN STEAN ISOLATION	150 6.24-2	SFGB	752	MSVH	SR	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) 8-6	
4213	A/8	07	TV-MS-101C	MS/MAIN STEAM ISOLATION	150 6.24-2	SFGB	752	MSVH	S R	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) 8-6	A
4215	٨	07	TV-195-111A	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	150 6.24-1576	SFG8	768	HVZM	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 BK-8-8	A
4216	A	07	14-MS 1118	MS/MAIN STH PRE-NRTRN DRAIN ISOL VALVE	150 6.24-1576	SFGB	768	MZAH	SR		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 8K-8-8	A
4217	٨	07	TV-MS-111C	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	150 6.24-1576	SFGB	768	MZAH	SR		OPEN	CLOSED	NO	RE-21HY	PHL DC-3 BK-8-8	A
1240	A	088	14201-22-¥	RC/HOTLEG SAMPLE HOR INSIDE CHMT ISOL TRIP VALVE	150 6.24-3402, RP-18A	RCBX	718	PENI	SR		OPEN	OPEN	YES	RE-21XH	PNL -DC - 3 BK 8-59	A
1241	6	088	TV-SS-105A2	RC/HOTLEG SAMPLE HDR OUTSIDE CNMT ISOL TRIP VALVE	V11 7.067-0133,0261	SFGB	722	PENI A	SR		OPEN	OPEN	YES	RE-21XJ, ISO 6.24-3401,3754, RP-18A	Phil DC-2 BK 8-59	A
1239	8	088	TA-22-100D	SS/18 RCS NOTLEG RV SIDE OF LOOP STOP SAMPLE ISOLATION	150 6.24-3402, RP-18A	RCBX	738	B RCP CUBICLE	SR		CLOSED	OPEN	YES	RE-21XS	PN AC-10 BK10 20	A
8107	A/8	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	*
5235	٨	10	VS-AC-1A	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	SR		ON	ON	YES	RE-21MK	480V BUS IN BK N	A
5236	8	10	VS-AC-18	VS/CONTROL ROOM A/C UNIT	DWG RB-17J, RB-17K	SRVB	713	CR VENT	SR		ON	ON	YES	RE-21MK	480V BUS 1P BK P	A
5242	A/8	0	01-0A-2V	VS/VS-F-408 DISCHARGE DAMPER	DWG R8-17J, R8-17K	SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5252	A/8	0	E-DA-2V	VS/VS-AC-1A SUCTION DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5253	A/B	0	VS-AD-4	VS/VS-AC-IB SUCTION DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5254	A/B	0	VS-AD-5	VS/VS-AC-IA DISCHARGE DAMPER		SRAB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5255	A/8	0	VS-AD-6	VS/VS-AC-18 DESCHARGE DAMPER		SRVB	713	CR VENT	SR	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	SR	13	OPEN	OPEN	NO	RE-21MJ	HCC1-E9 BK C	A
5240	A/8	0	8-DA-2V	VS/VS-F-408 SUCTION DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5241	A/8	0	VS-AD-9	VS/VS-F-40A DISCHARGE DAMPER		SRVB	713	CR VENT	SR	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	SR	13	OPEN	OPEN	NO	RE-21MH	AC-PHL-E3 BK 4	A
5265	A/B	0	VS-AFD-10	VS/ZONE 5 BYPASS FIRE DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	ND	RE-21MM	AC-PNE-E3 BK 4	



Page Mo. 18 Report Bate/Time: 12-21-95 / 12:44:59



Page Mo. 19 Report Date/Time: 12-21-95 / 12:44:59

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

LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEN/EQUIPMENT Description	Dwg. No./Rev./Zone	Building	Fir.Elv.	LOCATION	SORT	MOTES	Normal	Destred	REOD?	DNG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	ISSUE
(1)		(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-SL&SP SECT 24-24	SFGB	735	VS-AC-7 RM	SR		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E3 BK 7	A
5225	8	0	VS-D-4-128	VS/QUENCH SPRAY PUMP RM OUTSIDE AIR IN ISOLATION DAMPER	RB-SL&SP SECT 24-24	SFG8	735	VS-AC-7 RM	SR		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	*
5226		0	VS-D-4-15A	VS/AUX FEED PUMP RM EXHAUST DAMPER	RB-5L&SP SECT 24-24	SFGB	735	AUX FD PUMP RM	SR		CLOSED	OPEN	YES	RE-23MT	PNL-AC-E1 BK 7	A
5227	8	0	VS-D-4-158	VS/AUX FEED PUNP RM EXHAUST DAMPER	RB-SL&SP SECT 24-24	SFGB	735	AUX FD PUMP RM	S R		CLOSED	OPEN	YES	RE-21MT	PNL-AC-E2 BK 6	٨
5214	٨	0	VS-D 4-7A	VS/LEAK COLL EXHAUST FAN 4A SUCTION ISOLATION DAMPER	RS-8G (G 1/2-11)	AXLB	768	AT FAN	S R		CLOSED	OPEN	YES	RE-21MS	N/A	A
5215	8	0	VS-0-4-78	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	R8-8G (G 1/2-11)	AXLB	768	NORTH WALL	s		CLOSED	OPEN	NO	RE-21MS	N/A	۸
5216	A	0	VS-D-4-8A	VS/LEAK COLL EXHAUST FAN 48 SUETION ISOLATION DAMPER	RB-8G (G 1/2-12)	AXLB	768	AT FAN	S R		CLOSED	OPEN	VES	RE-21HS	N/A	A
5217	B	0	VS-D-4-88	VS/LEAK COLL EXHAUST FAN 48 DISCHARGE BACKFLON DAMPER	RB-8G (G 1/2-12)	AXLB	768	NORTH WALL	s		CLOSED	OPEN	NO	RE-21MS	N/A	٨
5243	A/B	08A	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	VT1 10.1-326,327,328,329	SRAB	713	CR VENT	SR		OPEN	OPEN	NO	RE-21ML,R8-20,1 7J,17K	MCC1-E9 BK U	۸
5246	A/B	08A	VS-D-40-18	VS/EONTROL ROOM AIR INTAKE DAMPER	VT1 10.1-326,327,328,329	SRAB	713	CR VENT	S R		OPEN	OPEN	NO	RE-21ML,RB-20,1 73,17K	HCC1-E10 BK J	*
5245	A/8	08A	VS-D-40-1C	VS/EONTROL RM AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21ML,RB-2D,1 7J,17K	MCC1-E9 8K V	A
5246	A/B	084	VS-D-40-10	VS/CONTROL RN AIR EXHAUST DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21ML,RB-20,1 7J,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	SRVS	713	CR VENT	S R	13	OPEN	OPEN	NO	R8-20,17J,17K	R/A	A
5248	A/8	0	VS-D-40-16	VS/MAX OUTSIDE AIR INTAKE DAMPER	VT1 10.1-326,327,328,329	SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RB-20,17J,17K	N/A	*
5249	A/B	0	VS-D-40-1H	VS/AIR RECIRC DAMPER	VT1 10.1-326,327,328,329	SRVB	713	CR VENT	SR	13	OPEN	OPEN	MO	RB-2D,17J,17K	N/A	A
5250	A/8	0	VS-D-40-1K	VS/AIR RECIRC DAMPER	VTI 10.1-326,327,328,329	SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RB-20,17J,17K	N/A	*
5251	A/B	0	VS-D-40-1M	VS/VS-F-40A & 8 EXHAUST DAMPER	VT1 10.1-326,327,328,329	SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RB-20,17J,17K	N/A	A
51010	A	0	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-ZE RB-26A & C	INTS	705	A CUBICLE	SR		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK B	٨
5101€	A	0	VS-0-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RH-2E RB-26A & C	INTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MM	MCC1-E1 BK B	A



Page No. 20 Report Date/Time: 12-21-95 / 12:44:59

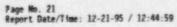
BEAVER VALLEY POWER STATION UNIT 1 SEISMIC REVIEW SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 462 INDIVIDUAL PLANT COMPONENTS

LINE MO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT Description	Dwg.	Ho./Rev./Zone	Building	Flr.Elv.	LOCATION	SORT	NOTES	Norsal	Destred	REQD?	DHG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)		(3)	(4)	(5)		(6)	(7)	(8)	(9)			(12)		(14)	(15)	(16)	(17)
51020	8	0	VS-D-5781	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E	RB-26A & C	INTS	705	8 CUBICLE	S R		CLOSED	OPEN	YES	RE-21MM	MCC1-E2 DK B	A
5102E	8	0	VS-D-5782	VS/INTAKE STRUCTURE RECTR ATR DAMPER	RB-2E	R8-25A & C	INTS	705	B CUBICLE	S R		CLC: 7D	OPEN	YES	RE-21MW	MCC1-E2 BK B	A .
51030	A/8	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E	R8-26A & C	INTS	705	C CUBICLE	SR		CLOSED	OPEN	YES	RE-21HW	MCC1-E1/2 BK E	A
5103E	A/8	0	VS-D-57C2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	R8-2E	RB-26A & C	INTS	705	C CUBICLE	SR		CLOSED	OPER	YES	RE-21MM	MCC1-E1/2 BK E	A
5277	λ.	10	VS-E-14A	VS/RIVER WATER COOLING COILS	VTI 10	9.1-45	SRVB	713	CR VENT	s		N/A	N/A	N/A	N/A	N/A	A
5278	8	10	VS-E-148	VS/RIVER WATER COOLING COILS	VT1 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 RE	1-171	SRVB	725	CABLE MEZZ	SR	12	ON	ON	YES	RE-21MZ	MCC1-E9 BK AF	A
5204	6	09	VS-F-168	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RE	1 171	SRVB	725	CABLE MEZZ	S R	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK AC	A
5325	A	09	¥5-F-22A	VS/DG BLDG EXHAUST FAN	RB-27	, VTI 10.1-242	DGBX	756	DG#1 ROOF	SR		OFF	011	YES	RE-21MP	MCC1-E7 BK E	٨
5326	8	09	VS-F-228	VS/DG BLDG EXHAUST FAN	RB-271	, VII 10.1-242	DGBX	756	DG#2 ROOF	SR		OFF	ON	YES	RE-21MP	MECI-E8 BK E	A
5237	A	09	VS-F-40A	VS/CONTROL ROOM RETURN AIR FAN	DWG RE	-17J, RB-17K	SRVB	713	CR VENT	SR		ON	ON	YES	RE-21MJ	MCC1-E9 BK C	A
5238	8	09	VS-F-408	VS/CONTROL ROCH RETURN AIR FAN	DWG RE	I-17J, RB-17K	SRVB	713	CR VENT	SR		ON	ON	YES	RE-21MJ	MCC1-E10 BK C	A
5222	A	09	VS-F-4A	VS/LEAK COLLECTION EXHAUST FAN	DWG RH 10.001	-28, VTI -153	AXLB	768	NE CORNER	SR		ON	ON	YES	RE-21MS	480V BUS IN BK5	A
5223	8	09	VS-F-48	VS/LEAK COLLECTION EXHAUST FAN	DWG RH 10.001	1-28, VII 1-153	AXLB	768	NE CORNER	SR		OFF	ON	YES	RE-21MS	480V BUS 1P BK6	A
5201	٨	09	VS-F-55A	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RE	I-17L	SRVB	725	CABLE MEZZ	SR	12	OFF	ON	YES	RE-21MZ	MCC1-E9 BK P	A
5202	8	09	VS-F-558	VS/EMERG SWITCHGEAR SUPPLY FAN	DWG RE	1-171	SRVB	725	CABLE MEZZ	SR	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK X	
51010	A	09	¥S-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	8	09	VS-F-578	VS/INTAKE STRUCTURE CUBICLE #2 SUPPLY FAN	RB-2E		INTS	705	B CUBICLE	SR		ON	ON	YES	RE-21MW	NCC1-E2 BK B	A
51030	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	*	06	WR-P-1A	RW/RIVER WATER PUMP	2.42-1	14,16,23	INTS	705	A CUBICLE	S R		ON	ON	AE2	RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-6K, 4L	BUS THE BK E10	A

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

LINE NO.	TRAIN	EQUIP	HARK ND.	SYSTEN/EQUIPMENT Description	Dwg. No./Rev./Zone	Building		LOCATION> Rm. or Row/Col.							REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5102	8	06	WR-P-18	RW/RIVER WATER PUMP	2.42-14,16,23	INTS	705	8 CUBICLE	SR		OFF	ON		RE-21KW,RC-32E, 32J,ISO 6.24-801, RP-4K, 4L	BUS 10F BK F10	*
5103	A/8	06	WR-P-10	RW/RIVER WATER PLMP	2.42-14,16,23	ZTMI	705	C CUBICLE	S R		OFF	ON		RE-21KX,RC-32E, 32J,ISO 6.24-801, RP-4K, GL	BUS TAE OR TOF 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 4.3-3 Alphabetical Listing of SSEL Components by EIN

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BEAVER VALLEY POMER STATION UNIT 1 COMPOSITE BY EQUIPMENT ID SAFE SHUTDOMN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS				
	BEAVER VALLEY POWER STATION UNIT 1	COMPOSITE BY EQUIPMENT ID	SAFE SHEFTDOMM EQUIPMENT LIST (SSEL)	528 INDIVIDUAL PLANT CONFONENTS

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REG.	(11)	*		*	~	-					_	_												
								t	-										-	-				-
REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	(16)	AKY BUS AF	N/A	AKV BUS DF	N/A	N/A	N/A	DC-SWBD-1 BK 8-7	DC-SWBD-2 BK 8-7	N/A	N/A	N/A	N/A	N/A	N/N	N/A	N/A	63-133M	NCC1-E10	MCC1-E9	NCC1-E10	N/A	N/N	N/A
SUPPORTING SVS. DMG. ND./REV.	(15)	/A	/4	/A	(A	a.	N/A	RE-2112	RE-2112	21-38	KE-12	RE-1V	RE-JV	RE-210J	RE-210.J	RE-210J	RE-210.J	21-38	86-12	AI-38	KE-JV	N/A	150 6.24-68,RM-2A	150 6.24-68, 8N-2A
	(14)	KES N	VES H	YES N	VES N	VES N	VES N			YES RI	YES RI	YES RI	YES RI					YES RI	VES RI	VES RI	YES RI	W/A H	5 9	
		¥	A	k	A	×	×	ON N	W.	A	A	A	A	ED NO	ED NO	ED NO	SED NO	¥	3A	YE	YE	1. Mar	×	S.
		8	NO	8	8	8	N	OPEN	N340 (CHARGED YES	D VES	CHARGED YES	CHARGED YES	CLOSED	CLOSED	CLOSED	CLOSED	8	3	8	8	W/A	N/N	N/A
	(12)	æ	-	×	N	8	N	CLOSED	CLOSED	CHARGE	CHARGED VES	CHARGE	CHARGE	CLOSED	CLOSED	CLOSED	CLOSED	8	N	-	-	N/A	N/N	K/A
NOTES	(II)								2									14	14	14	14			
1805	(10)	5	s	5	s	5	~	-	æ	5	s	5	s	8	ex S	04 50	2 K	S R 1	SR	5 8	2 2	5	~	5
«/Col.			25																					
LOCATION> Rs. or Row/Col.	(6)	AE SWGR	NORMAL SMCR	DF SWGR	DF SWGR	AE SWGR	DF SWGR	ROD M/G	R00 M/G	AE SWGR	DF SWGR	AE SWGR	DF SWGR	AE SWGR	DF SWGR	AE SWGR	DF SWGR	AE SWGR	DF SMGR	AE SWGR	DF SMGR	CONTROL	M/A	K/A
EQUIPMENT F Ir . E Iv.	(8)	713	713	113	713	113	E17	713	713	713	213	713	113	٤١٢	113	£17	113	713	713	713	113	735	135	135
6	(1)	SAVE	SRVB	SRVB	SRVB	SRVB	SRVIB	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SRVB	SAVB	SAVE	SRVB	SRVB	SRVB	SAVE		
v./Zone	(9)	278, 368		278, 368	278	DMG RE-278, 210, 388	DMG RE-212, 278, 388	278	278	275			DHG RE-21EA, 278			812							RC-24K, RV-76 AXLB	RC-24K, RV-76 AXLB
Beg. H	化化化合物 化化合物化合物	A DAG RE-	DMG RE-278	P DNG RE-	DWG RE-278	DMG RE-	DMG RE-	ENG RE-278	DMG RE-278	DNG RE-278	DNG RE-278	DMG RE-278		DHG RE-278	DMG RE-278	DAKS RE-	DWG RE-	DMG RE-278	DHG RE-IV, 278	DNC RE-278	DMG RE-IV, 278	D DNG RE-	4.11-10, A.8	4.11-10, A,B
	医静脉 化化化化化	ON RECYCLS-1-8-	GENEY SNGR	04 490VUS-1-9-	GENEY SMGR	MCY POWER	NEY PONER	AKER 'A'	AKER '8'	LONARY BAITERY	ICHURY BAITERY	IOWARY BATTERY	IOMARY BATTERY	ATTERY CIRCUIT	ATTERY CIRCUIT	ATTERY CIRCUIT	ATTERY CIRCULT	10	82	8		N CONTROL BOAR		
SYSTEN/EQUITMENT DESCRIPTION	(5)	37/3H 480V SUBSTATION 480MUS-1-8-N DNG RE-278.	37/489 YOUT AC ENERGENCY SWGR	37/1P 480Y SUBSTATION 490VUS-1-9-P DWG RE-278,	37/480 YOLT AC ENERGENEY SWCR	36/4160 VOLT EMERGENCY POWER SWITCHGEAR	36/4160 WOLT EMERGENCY POMER Sw11CHGEAR	01/REACTOR TKIP BREAKER 'A'	01/REACTOR TRIP BREAKER '8'	39/125 VOLT DC STATTOWARY BATTERY	39/325 VOLT DC STATICHURY BATTERY	39/125 VOLT DC STATIONARY BATTERY	39/125 VOLT DC STATTOMARY BATTERY	39/MAIN DC BUS #1 BATTERY CIRCUIT BREAKER	39/MAIN DC 805 \$2 BATTERY CIRCUIT BREAKER	39/MAIN DC BUS 83 BATTERY CIRCUIT DMC RE- BREAKER	39/MAIN DC BUS 44 BATTERY CIRCUIT DMC RE-278 BREAKER	39/BATTERY CHARGER #1	39/BATTERY CHARGER \$2	39/BATTERY CHARGER \$3	39/BATTERY CHARGER 84	36/CONTROL ROOM MAIN CONTROL BOARD DNG RE-27A, 38A	CC/CCR HEAT EXCH	CC/CCR HEAT EXCH
NARK ND.	(\$)	480MIS-1-8-N	480WIS-1-8-NJ	480WIS-1-9-P	480WIS-1-9-P1	AKVS-IAE	4KVS-10F	52-87A	52-818	8AT - 1	8AT-2	8AT-3	BAT-4	BAT-8KR-3	BAT-BKR-2	BAT-8KR~3	BAT-BKR-4	BAT-CHG-1	BAT-CHG-2	BAT-CHG-3	BAT-CHG-4	BNCHBD	CC-E-IA	81-3-33
	(3)	02	02	05	62	63	6	05	02	15	15	15	15	20	20	05	05	16	16	16	36	20	21	21
TRAIN	(2)	*	×	80	-	*	60	*	-	*		*		*	80	*		*	60	*	80	A/B	N/A	N/A
NI NI	(1)	6001	8002	8003	\$004	8005	8006	1101	1102	5347	5348	5349	5350	8007	8008	8008	8010	5343	5344	5345	5346	8011	5116	5117
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Page No. 2 Report Date/Time: 12-21-95 / 11:22:44

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

LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTER/EQUIPMENT Description		Building	Fir.Elv.		SORT		Normal	Desired	REOD?	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)		(3)	(4)	(5)	(6)	(7)	(8)	(9)			(22)	(13)		(15)	(16)	(17)
5118	R/A	21	CC-E-1C	CC/CCR HEAT EXCH	4.11-10,RC-24K,RV-76 A,B	AXLB	735	N/A	s		H/A	R/A	ND	150 6.24-68,RM-2A	N/A	A
1221	N/A	21	CH-E-1	CH/SEAL WATER HEAT EXCHANGER	150 6.24-256 RH-2A RP-10C	AXLB	722	LETDOWN CUBICLE	5	4	H/A	N/A	NO	N/A	N/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	MD	N/A	R/A	A
5114	R/A	21	CH-E-78	CH/CHARGING PUMP HEAT EXCH	VTI 2.32-18	AXLB	722	CH-P-18 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-IC CUBICLE	s		N/A	N/A	NO	N/A	N/A	٨
1212	A	09	CH-P-1A	CH/CHARGING PUNP	DNG RM-2A	AXLB	722	CH-P-IA CUBICLE	SR		RUN	RUN	YES	RE-21FN	BUS AE BK E11	A
2213	8	05	CH-P-18	CH/CHARGING PUMP	UNG RH-2A	AXLB	722	CH-P-18 CUBICLE	SR		OFF	OFF	YES	RE-21FN	BUS OF BK F11	A
1214	A/8	05	CH-P-1C	CH/CHARGING PUMP	DWG RM-2A	AXLB	722	CH-P-IC 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	SR		OFF	ON	YES	RE-21FQ	MCC1-E11 BK B	A
1247	8	05	CH-P-28	CH/BORIC ACID TRANSFER PUNP	VTI 2.32-001	AXLB	752	BA PUMP CUBICLE	SR		OFF	ON	YES	RE-21FQ	MCC1-E12 BK 8	A
1244	N/A	21	CH-TK-1A	CH/BORIC ACID TANK	RM-28, VT1 3.47-010	AXLB	752	BA TANK CUBICLE	2		N/A	N/A	NO	N/A	N/A	A
1245	N/A	21	CH-TK-18	CH/BORIC ACID TANK	RM-28, WT1 3.47-010	AXLB	752	BA TANK CUBICLE	s		N/A	N/A	NO	N/A	N/A	A
8012	A	14	DC-SW80-1	39/125 VDC SWITCHBOARD NO 1	DWG RE-278	SRVB	713	AE SWGR	s		ON	ON	YES	N/A	N/A	A
8013	8	14	DC-SWBD-2	39/125 VDC SWITCHBOARD HD 2	DWG RE-1V, 278	SRVB	713	DF SWGR	s		ON	ON	YES	N/A	i2/A	۸
8014	A	14	DC - SWBD-3	39/125 VDC SWITCHBOARD HO 3	DNG RE-27B	SRVB	713	AE SWGR	s		ON	ON	YES	N/A	N/A	A
8015	8	14	DC-SWBD-4	39/125 VDC SWITCHBOARD NO 4	DWG RE-1V, 278	SRVB	713	DF SWGR	s		ON	ON	YES	N/A	N/A	
4108E	A/B	088	DV-FP-12	FP/AUX FEED WATER PUMP DELIGE VLV	RB-16C	SFGB	722	NE	R		CLOSED	CLOSED	NO	10.1-474	PNL-DC-4	
52310	A/8	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	*
51330	A/8	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
\$300C	A	12	EE-C-1A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN 01	SR		ON	ON	YES	RE-218X	HCC1-E7 BK N	A
5300E	8	12	EE-C-18	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-13, RM-10A	DGBX	735	DIESEL GEN 82	SR		ON	ON	YES	RE-218X	MCC1-E7 BK T	A
53000	A	12	EE-C-2A	EE/DIESEL GENERATOR START AIR COMPRESSOR	VT1 2.19-10, RM-10A	DGBX	735	DIESEL GEN 01	S R		ON	ON	YES	RE-218X	MCC1-E8 BK N	٨
5300F	8	12	EE-C-28	EE/DIESEL GENERATOR START AIR COMPRESSOR	VTI 2.19-10, RH-10A	DGBX	735	DIESEL GEN 82	S R		014	ON	YES	RE-218X	MCC1-EB BK T	*
5129	N/A	21	EE-E-1A	EE/DIESEL GEN COOLING HT EXCH	ISO 6.24-159, RH-10A	DGBX	735	DIESEL GEN 01	s		N/A	N/A	NO	N/A	N/A	A

Page No. 3 Report Date/Time: 12-21-95 / 11:22:44

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

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LINE NO.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION	SORT	NOTES	Normal	Desired	REQD7	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(11)			(14)	(15)	(16)	(17)
5130	N/A	21	EE-E-18	EE/DIESEL GEN COOLING HT EXCH	150 6.24-160, RM-10A	DGBX	735	DIESEL GEN 82	s		N/A	N/A	NO	N/A	K/A	Α
5301		17	EE-EG-1	EE/#1 DIESEL GENERATOR	DWG RM-10A	DGBX	735	DIESEL GEN #1	SR		OFF	ON	YES	N/A	N/A	A
5302	8	17	EE-EG-2	EE/#2 DIESEL GENERATOR	DWG RH-10A	DCBX	735	DIESEL GEN 12	SR		OFF	ON	YES	N/A	K/A	A
5303	A	05	EE-P-1A	EE/FUEL OIL TRANSFER PUMP	DMG RM-10A	DGBX	735	DIESEL GEN #2	S R		OFF	ON	YES	RE-218X	MCC1-E7 BK Q	A
5304	A	05	EE-P-18	EE/FUEL OIL TRANSFER PLAP	DWG RM-10A	DGBX	735	DIESEL GEN #2	S R		OFF	ON	YES	RE-218X	NCC1-E7 BK R	
5305	B	05	EE-P-IC	EE/FUEL OIL TRANSFER PUMP	DWG RN-10A	DGBX	735	DIESEL GEN #1	SR		OFF	ON	YES	RE-218X	MCC1-E8 8K Q	A
5306	8	05	EE-P-10	EE/FUEL OIL TRANSFER FRAP	DWG RH-10A	DGBX	735	DIESEL GEN NI	SR		OFF	ON	YES	RE-218X	MCC1-E8 BK R	A
5307	A	21	EE-TK-1A	EE/EDG FUEL OIL STORAGE TANK	DNG RP-65A	YARD	724	YARD	5		N/A	N/A	NO	N/A	N/A	Α
5308	8	21	EE-1K-18	EE/EDG FUEL OIL STORAGE TANK	DWG RP-65A	YARD	724	YARD	S		N/A	N/A	NO	N/A	N/A	A
5309	٨	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	٨
5310	8	21	EE-TK-28	EE/EDG FUEL OIL DAY TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN 12	s		N/A	N/A	NO	N/A	N/A	A
5311	A	21	EE-TK-3A	EE/DIESEL ENGINE START AIR TANK	¥TI 2.19-15,RP-65A	DGBX	735	DIESEL GEN #1	s		N/A	N/A	NO	N/A	N/A	A
5312	٨	21	EE - TK - 38	EE/DIESEL ENGINE START AIR TANK	171 2.19-15,RP-65A	DGBX	735	DIESEL GEN 11	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 - 1K - 3D	EE/DIESEL ENGINE START AIR TANK	VTI 2.'9-15, RP-65A	DGBX	735	DIESEL GEN 81	s		N/A	N/A	NO	N/A	N/A	A
5315	A	21	EE-TK-3E	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN #1	s		N/A	N/A	NO	N/A	N/A	A
5316	٨	21	EE-TK-3F	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN 81	s		N/A	N/A	NO	N/A	N/A	A
5317	8	21	EE-TK-4A	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15,RP-65A	DGBX	735	DIESEL GEN 12	s		N/A	N/A	NO	N/A	N/A	A
5318	8	?1	EE-TK-48	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN #2	s		N/A	H/A	NO	N/A	N/A	A
5319	8	21	EE-TK-4C	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN 82	s		N/A	N/A	NO	N/A	N/A	A
5320	8	21	EE-TK-4D	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN 12	s		N/A	N/A	NO	N/A	N/A	A
5321	8	21	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	VTI 2.19-15, RP-65A	DGBX	735	DIESEL GEN 12	\$		N/A	H/A	CM	N/A	N/A	A
5322	8	21	EE-TK-4F	EE/DIESEL ENGINE START AIR TANK	VT1 2.19-15, RP-65A	DGBX	735	DIESEL GEN 82	s		N/A	R/A	HO	N/A	N/A	A
1206	N/A	07	FCV-CH-122	CH/CHARGING FLOW CONTROL VALVE	150 6.24-268	AXLB	722	BLENDER	s	2	OPEN	CLOSED	YES	RE-22L	VITBUS 11/111 BK	A
1224	A	07	FCV-CH-160	CH/CHARGING FILL HEADER FLON CONTROL VALVE	150 6.24-273	SFG8	722	PENI A	R	16	CLOSED	CLOSED	NO	RE-22P	VITAL BUS 2	A
4107C	A	07	FCV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	150 6.24-774	SFGB	735	AUX FEED PUMP	SR		CLOSED	OPEN	YES	RE-21HD	PML-DC-3 BK 8-53	A
41080	8	07	FCV-FW-1038	FW/38 AFW PUMP RECIRCULATION VALVE	150 6.24-774	SFGB	735	AUX FEED PUMP	S R		CLOSED	OPEN	YES	RE-21HE	PNL-DC-3 8K 8-53	A

Page No. 4 Report Date/71me: 12-21-95 / 11:22:44

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

LINE ND.	TRAIN	EQUIP	HARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Ruilding	Flr Flv	LOCATION> Rm. or Row/Col.	SORT NO	OTES	Normal	Destred	REOD?	DNG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2118		07	FCY-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	150 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	N/A	N/A	Â
2119	A	07	FCV-RC-455C2	RC/(PCV-RC-455C) FLOW METERING	150 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	٨
2120	8	07	FCV-RC-455D1	RE/(PCV-RC-455D) FLOW METERING	ISO 6.24-3786, RK-10	RCBX	767	PRZR CUBICLE	S		OPEN	OPEN	NO	1./A	N/A	A
2121	8	07	FEV-RC-45502	RC/(PCV-RC-455D) FLOW METERING	150 6.24-3786, RK-1D	RCBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	A
8133		20	FE-COL-1A	FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM WEST	DWG RH-10A	DGBX ,	735	DIESEL GEN #1	SR		CLOSED	CLOSED	NO	RE-21GX	PNL-DC-3 8K 8-3	A
8134		20	FE-COL-18	FP/ED2 SYSTEM BI 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	*
1205B	A	20	F1-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	VT1 1.12-75	SRVB	735	CONT RH BB-A	SR		ON	ON	YES	RE-22L	VITAL BUS 2	A
22288	٨	20	FI-CH-124	CH/RCP-IC SEAL INJECTION FLOW INDICATOR	V11 1.12-22, 23	SRVB	735	CONT RM V8-A	SR		ON	ON	YES	RE-226	PRI-PROC 20 VB3	A
22298	8	20	F1-CH-127	CH/RCP-18 SEAL INJECTION FLOW INDICATOR	VII 1.12-22, 23	SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22G	PRI-PROC 9 VB2	A
22308	A	20	F1-CH-130	CH/RCP-1A SEAL INJECTION FLOW INDICATOR	VT1 1.12-22, 23	SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
32128	8	20	FI-CH-150	CH/LETDOWN FLOW INDICATION	VTI 1.12-75	SRVB	735	CONT RH BB-A	S R		ON	ON	YES	RE-22J	VITAL BUS 2	٨
41038	A	20	FI-FW-100A	FW/AUX FEED TO SGA INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22DZ	VITAL BUS 1	A
41048	8	20	F1-FW-1008	FW/AUX FEED TO SGB INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-2202	VITAL BUS 4	A
41058	٨	20	F1-FW-100C	FW/AUX FEED TO SGC INDIC	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-220Z	VITAL BUS 1	A
4107D	A	18	F15-FW-151A	FW/AUX FW PUMP FW-P-3A SUCTION LINE FROM WT-TK-10 FIS	150 6.24-3831, 3833	SFG8	722	COLUMN C4	s		ENERG	ENERG	YES	RE-21HD	PNL-DC-3 BK 8-53	A
4108D	8	18	FIS-FW-1518	FW/AUX FW PUMP FU-P-38 SUCTION LINE FROM WT-TK-10 FIS	150 6.24-3832	SFGB	722	COLUMN C4 ·	s		ENERG	EMERG	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	SPVB	735	CONT RM BB-C	SR		ON	ON	YES	RE-22Z	VITAL BUS 2	A
4119	N/A	20	FR-MS-488	FW/RC-E-18 LEVEL RECORDER	VTI 1.12-25	SRV8	735	CONT RH 88-C	SR		ON	ON	YES	RE-22AA	VITAL BUS 2	A
4120	N/A	20	FR-MS-498	FW/RC-E-1C LEVEL RECORDER	VII 1.12-25	SRVB	735	CONT RM B8-C	SR		ON	ON	YES	RE-22AB	VITAL BUS 3	A
1205A	A	18	FT-CH-122	CH/CHARGING HEADER FLOW TRANSMITTER	150 6.24 268 \$ 3875	AXLB	722	COL 10-1/4 & J	SR		ON	ON	YES	RE-221	VITAL BUS 2	A
2228A	٨	18	FT-CH-124	CH/RCP-IC SEAL INJECTION FLOW TRANSMITTER	ISO 6.24-3952, RK-3E	SFGB	722	PENT A	SR		ON	ON	YES	RE-22G	PRI-PROC 20 VB3	A
2229A	8	18	FT-CH-127	CH/RCP-18 SEAL INJECTION FLOW TRANSMITTER	150 6.24-3953, RK-3E	SFGB	722	PENT A	SR		ON	ON	YES	RE-22G	PRI-PROC 9 VB2	*

Page No. 5 Report Date/Time: 12-21-95 / 11:22:44

BEAVER VALLEY POWER STATION UNIT I COMPOSITE BY EQUIPMENT ID SAFE SHUTDOWN EQUIPMENT LIST (SSEL) S2B INDIVIDUAL PLANT COMPONENTS

LINE NO.	TRAIN	EQUIP	MARK ND.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zons	Ruilding	Flr Fly	LOCATION	SORT	NOTES	Normal	Destred	REOD?	DHG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENT	S ISSUE
(1)	(2)		(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	150 6.24-3630, RK-3E	SFGB	722	PENT A	S R		ON	ON	YES	RE-22G	PRI-PROC 6 VB1	A
3212A	8	18	FT-CH-150	CH/LETDOWN: FLOW TRANSMITTER	VT1 7.050-0010	AXL8	722	COL 11-1/2 & G	SR		ON	ON	YES	RE-22J, DNG RK-3A	VITAL BUS 2	A
4103A		18	FT FW-100A	FW/AUX FEED TO SGA TRANSHITTER	RK-8A, 150 6.24-65	SFGB	735	AUX FEED PUMP	SR		ON	ON	YES	RE-2202	VITAL BUS 1	A
4104A	9	18	FT-FW-1008	FW/AUX FEED TO SGB TRANSMITTER	RK-8A, 150 6.24-65	SFGB	735	AUX FEED PUMP	SR		ON	ON	YES	RE-22DZ	VITAL BUS 4	A
4105A		18	FT-FN-100C	FW/AUX FEED TO SGC TRANSHITTER	RK-8A, ISO 6.24-65	SFGB	735	AUX FEED PUMP	SR		ON	ON	YES	RE-22 ¹⁰ 2	VITAL BUS 1	٨
4107	A	05	FW-P-3A	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	VTI 2.40-11,12	SECB	735	AUX FEED PUMP	SR		OFF	ON	YES	RC-21C, M, RE-21H E, RM-18, 6.24-64		A
4108	8	05	FW-P-38	FW/HOTOR DRIVEN AUX FEEDWATER PUMP	VT1 2.40-11,12	SEGB	735	AUX FEED PUMP	S R		OFF	ON	YES	RC-21C, M, RE-21H E, RM-18, 6.24-64		*
2132	N/A	21	CN-TK-1A	GN/NITROGEN HEADER ACCUMULATOR		RCBX	767	PRZR CUBICLE	s		N/A	N/A	NO	N/A	N/A	A
2133	K/A	21	GH-1K-18	GN/NETROGEN HEADER ACCUMULATOR		REBX	767	PRZR CUBICLE	s		N/A	N/A	NO	N/A	N/A	A
1229	8	07	HCV-CH-186	CH/RCP SEAL SUPPLY, HAND CONT	VT1-07.86-7	AXLB	722	BLENDER ROOM	S R		THROT	OPEN	NO	RE-22G	VITAL BUS 2	A
1233		07	HCV-CH-389	CH/EXCESS LETDOWN DRAIN DIVERT VALVE	VT1-07.88-9	RCBX	707	EXC LETD PLATE	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	150 6.24-6	SFGB	752	MSVH	SR	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-278	SRVB	713	AE SWGR	SR		ON	OH	YES	1.24-111	HCC1-E9	A
5336	8	16	INV-VITBUS-2	UPS/VITAL BUS \$2 INVERTER	DWG RE-278	SRVB	713	DF SWGR	SR		ON	ON	YES	1.24-111	MCC1-E10	
5337		16	INV-VITEUS-3	UPS/VITAL BUS 03 INVERTER	DWG RE-278	SRVB	713	AE SWGR	SR		ON	ON	YES	1.24-111	MCC1-E9	A
5338	8	16	INV-VITBUS-4	UPS/VITAL BUS 04 INVERTER	DWG RE-278	SRVB	713	DF SWGR	SR		ON	04	YES	1.24-196	HCC1-E10	
3204		07	LCV-CH-460A	CH/LETDOWN ISOLATION VALVE	150 6.24-242	RCBX	718	A CUBICLE	SR	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 8K 8-18	A
3205	B	07	LCV-CH-4608	CH/LETDOWN ISOLATION VALVE	150 6.24-242	RCBX	718	A CUBICLE	3 R	6	OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 BK 8-18	A
41218	A _	20	L1-FW-474	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRAB	735	CONT RN VB-C	S R		ON	ON	YES	RE-22W	VITAL BUS 1	A
41228	8	20	LI-FW-475	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	¥TI 1.12-25	SRAB	735	CONT RM VB-C	₹ R		ON	ON	YES	RE-22W	VITAL BUS 2	
41238	A	20	L1-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-222	VITAL BUS 3	A
41248		20	L1-FW-484	FW/RC-E-38 NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22X	VITAL BUS 1	A
41258	8	20	L1-FW-485	FW/RC-E-18 NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR		ON	ON	YES	RE-22X	VITAL BUS 2	A

Page No. 6 Report Date/Time: 12-21-95 / 11:22:44

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

LINE NO.	TRAIN	EQUIP	HARK NO.	SYSTEM/EQUITMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Ele Elv	LOCATION> Rm. or Row/Col.	SORT HOT	FS Normal	Destred	RE007	DMG MO /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)		(3)	(4)	DESCRIPTION (5)	(6)	(7)	(8)	(9)	(10) (1	11) (12)	(13)	(14)	(15)	(16)	(17)
41268			L1-FW-485	FW/RC-E-18 NARROW RANGE LEVEL INDICATOR	VT1 1.12-25	SRVB	735	CONT RM VB-C	S R	ON	ON	YES	RE-22AA	VITAL BUS 3	A
41278	A	20	LI-FW-494	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR	ON	ON	YES	RE-22Y	WITAL BUS 1	A
41288	8	20	LI-FW-495	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR	ON	ON	YES	RE-22¥	VITAL BUS 2	A
41298	A	20	LI-7W-496	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	VTI 1.12-25	SRVB	735	CONT RM VB-C	SR	ON	ON	YES	RE-22AB	VITAL BUS 3	٨
12018	A	20	L1-Q5-100A	QS/RWST LEVEL INDICATOR	VT1 1.12-25/92	SRVB	735	CONT RM VB-C	SR	ON	ON	YES	RE-22ET	VITAL BUS 3	A
12028	8	20	LI-QS-1008	QS/RWST LEVEL INDICATOR	VT1 1.12-25/92	SRVB	735	CONT RM VB-C	SR	ON	ON	YES	RE-22ET	VITAL BUS 4	A
12038	A	20	L1-Q5-100C	QS/RWST LEVEL INDICATOR	VT1 1.12-25/92	SRVB	735	CONT RM VB-A	SR	ON	ON	YES	RE-22EV	VITAL BUS 1	A
31248	٨	20	L1-RC-459A	RC/PZR LEVEL INDICATOR	VII 7.70-0002, RK-34	SRVB	735	CONT RM BB-B	SR	ON	ON	YES	RE-22BH	VITAL BUS 1	A
31258	8	20	L1-RC-460	RC/PZR LEVEL INDICATOR	V11 7.70-0002	SRVB	735	CONT RM BB-8	SR	ON	ON	YES	RE 228J	VITAL BUS 2	A
31268	A	20	L1-RC-461	RC/PZR LEVEL INDICATOR	VT1 7.70-0002	SRVB	735	CONT RH B8-B	SR	ON	ON	YES	RE-228K	VITAL BUS 3	A
41018	A	20	L1-WT-104A1	WT/WT-TK-10 LEVEL INDICATOR	V11 7.70-0002	SRVB	735	CONT RM VB-C	SR	ON	ON	YES	RE-22FG	VITAL BUS 2	A
4102B	8	20	L1-WT-104A2	WT/WT-TK-10 LEVEL INDICATOR	VT1 7.70-0002	SRVB	735	CONT RM V8-C	SR	ON	ON	YES	RE-22FG	VITAL BUS 2	A
12048		20	LR-05-100	OS/RWST LEVEL RECORDER	VT1 7.70-0005	SRVB	735	CONT RM VB-A	SR	ON	ON	YES	RE-22EV	VITAL BUS 2	A
4121A		18	LT-FW-474	FW/RC-E-1A NARROW RANGE LEVEL TRANSMITTER	150 6.24-3394, RK-18	B RCBX	718	ANNAULUS COL 16	S R	ON	ON	YES	RE-22W	VITAL BUS 1	A
4122A	B	18	LT-FW-475	FW/RC-E-IA NARROW RANGE LEVEL TRANSMITTER	150 6.24-3394, RK-11	B RCBX	718	ANNULUS COL 16	S R	ON	ON	YES	RE-22W	V!TAL BUS 2	A
4123A	A	18	LT-FW-476	FW/RC-E-IA NARROW RANGE LEVEL TRANSMITTER	ISO 6.24-3885, RX-10	B RCBX	718	ANNULUS COL 15	SR	ON	ON	YES	RE-222	VITAL BUS 3	A
4124A	A	18	LT-FW-484	FW/RC-E-10 NARROW RANGE LEVEL TRANSMITTER	150 6.24-3361, RK-1A, 1F	RCBX	738	ANNAULUS COL 9	SR	ON	ON	YES	RE-22X	VITAL BUS 1	A
4125A	8	18	LT-FW-485	FW/RC-E-1B NARROW RANGE LEVEL TRANSMITTER	150 6.24-3363 RK-1A, 15	RCBX	738	ANDRULUS COL 9	SR	ON	ON	YES	RE-22X	VITAL BUS 2	Å
4126A	A	18	LT-FW-486	FW/RC-E-18 NARROY RANGE LEVEL TRANSMITTER	150 6.24-336.", RK-1A, 1F	RCBX	718	ANNULUS COL 9	SR	ON	ON	YES	RE-22AA	VITAL BUS 3	A
4127A	A	18	LT-FW-494	FW/RC-E-IC NARROW RANGE LEVEL TRANSMITTER	DWG RK-18, RK-5D	PCBX	718	ANERILUS COL 5	SR	ON	ON	YES	RE-22Y	VITAL BUS 1	A
4128A	8	18	LT-FW-495	FW/RC-E-3C MARROW RANGE LEVEL TRANSMITTER	150 6.24-3364, RK-1B, 1F	RCBX	718	ANNULUS COL 5	SR	ON	ON	YES	RE-22Y	VITAL BUS 2	A

Page No. 7 Report Date/Time: 12-21-95 / 11:22:44

BSAVER VALLEY POWER STATION UNIT B COMPOSITE BY EQUIPMENT ID SAFE SHUTDOWN EQUIPMENT LIST (SSEL) S28 INDIVIDUAL PLANT COMPONENTS

2

			EQUIP	HARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Beilding	Fir.Elv.	LOCATION	SORT	NOTES	Hormal	Destred	REOD?	DWG NO /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	31221 2
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			(12)		(14)	(15)	(16)	(17)
4]	29A	٨	18	LT-FW-496	FW/RC-E-IC NARROW RANGE LEVEL TRANSMITTER	150 6.24-3885, RK-18	RCBX	718	ANNALUS COL 4	S R		ON	ON	YES	RE-22AB	VITAL BUS ?	A
12	ALO	A	18	LT-QS-100A	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-68	YARD	735	AT RWST	S R		ON	ON	YES	RE-22ET	VITAL BUS 3	A
12	02A	8	18	LT-QS-1008	QS/RWST LEVEL TRANSMITTER	RK-5DAF,RP-68,1506.2 4-674	YARD	735	AT RWST	SR		ON	ON	ŕES	RE-22ET	VITAL BUS 4	
12	AEO	A	18	L1-02-100C	QS/RWST LEVEL TRANSMITTER	RK-5D&F,RP-68,1506.2 4-674	YARD	735	AT RWST	S R		ON	ON	YES	RE-22EV	VITAL BUS 1	
12	044	B	18	LT-QS-1000	QS/RWST LEVEL TRANSMITTER	RK-5D, RP-68	YARD	735	AT RWST	SR		ON	ON	YES	RE-22EV	VITAL BUS 2	A
31	24A	A	18	LT-RC-459	RC/PZR LEVEL TRANSMITTER	ISO 6.24-3396, RK-14	RCBX	718	OUTSIDE PZR CUB	SR		ON	ON	YES	RE-228H	VITAL BUS 1	A
31	ZSA	8	18	LT-RC-460	RC/PZR LEVEL TRANSMETTER	ISO 6.24-3396, RK-14	RCBX	718	OUTSIDE PZR CUB	G R		ON	ON	YES	RE-228J	VITAL BUS 2	A
31	26A	A	18	LT-RC-461	RC/PZR LEVEL TRANSMITTER	150 6.24-3396, RK-1A	RCBX	718	OUTSIDE PZR CUB	SR		ON	ON	YES	RE-228K	VITAL BUS 3	A
41	AIO	A	18	LT-WT-104A1	WT/WT-TK-10 LEVEL TRANSMITTER	150 6.24 4016	YARD	735	AT DWST	s R		ON	ON	YES	RE-22FG	VITAL BUS 2	٨
41	02A	8	18	LT-WT-104A2	WT/WT-TK-10 LEVEL TRANSMITTER	150 6.24-4017	YARD	735	AT DWST	SR		ON	ON	YES	RE-22FG	VITAL BUS 2	A
81	18	8	01	MCC-1-14	37/480V MCC FED FROM 480V SUBSTA 1-4 BUS1H 8KR4H7	RE-38C, 480	AXLB	735	SOUTH OF LWFL18	5		ON	ON	YES	N/A	N/A	A
80	18	A	01	MCC-1-E1	EE/480V MOTOR CONTROL CENTER	DWG RE-53A, 37M, 21D8	INTS	705	A CUBICLE	SR		ON	ON	YES	RE-2108	480V 8N BK 7	A
80	27	8	01	MCC-1-E10	EE/480V MOTOR CONTROL CENTER	DWG RE-278, 38C	SRAB	713	DF SWGR	S R		ON	ON	YES	RE-210C	480V 9P BK 11	
80	28		01	HCC-1-E11	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	W CABLE VAULT	SR		ON	ON	YES	RE-21DC	480V 9P1 BK 21	A
80	29	6	01	MCC-1-E12	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	E CABLE VAULT	5 0		ON	ON	YES	RE-210C	480V 8N 8K 15	A
80	30	A	01	HCC-1-E13	EE/480V MOTOR CONTROL CENTER	DWG RE-380, 426	SFGB	756	HCC ROOM	SR		ON	ON	YES	RE-210C	480V 9P BK 15	
80	31	8	01	MCC-1-E14	EE/480V MOTOR CONTROL CENTER	DWG RE-42K	SFGB	735	E CABLE VAULT	SR		ON	ON	YES	N/A	480V BUS 1P	A
80	19	8	01	HCC-1-E2	EE/480V MOTOR CONTROL CENTER	DNG RE-53A, 37N, 2108	INTS	705	B CUBICLE	SR		ON	ON	YES	RE-2108	480V 9P BK 8	A
80	20	A	01	MCC-1-E3	EE/380V MOTOR CONTROL CENTER	DWG RE-2108, RE-38C, 48C	AXLB	735	COL 8-7/8	SR		ON	ON	YES	RE-2108	480V BN BK 8	A
80	21	8	01	MCC-1-E4	EE/480V MOTOR CONTROL CENTER	DWG RE-2100, RE-38C, 48C	AXLB	735	COL 8-7/8	S R		ON	ON	YES	RE-2108	480V 99 BK 9	A
80	22	A	01	MCC-1-E5	EE/480V MOTOR CONTROL CENTER	DWG RE-38C, 42K	SFGB	735	W CABLE VAULT	SR		ON	ON	YES	RE-2108	480V 8N BK 6	
80	23	8	01	NCC-1-E6	EE 10 NOV MOTOR CONTROL CENTER	DNG RE-38C, 42K	SFG8	735	E CABLE VAULT	SR		ON	ON	YES	RE-2108	480V 9P BK 14	A
80	24	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-2100	480V SN BK 14	
80	25	8	01	MCC-1-E8	EE/480V MOTOR CONTROL CENTER	DWG RE-58A, RE-21DC	DGBX	735	DIESEL GEN #2	SR		ON	ON	YES	RE-21DC	480V 9P 8K 7	A

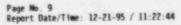
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Page No. 8 Report Date/Time: 12-21-95 / 11:22:44

BEAVER VALLEY POWER STATION UNIT 2 COMPOSITE BY EQUIPMENT ID SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

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LINE NO.	TRAIN	EQUIP	MARK NO	SYSTEM/EQUIPMENT Description	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION> Rm. () Rew/Col.	SORT	NOTES	Hormal	Desired	REOD?	DMG. NO./REV.	REQ'D INTERCONNECTIONS # SUPPORTING COMPONENT	S ISSUE
(1)	(2)		(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-278, 38C	SRVB	713	AE SWGR	SR		ON	ON	YES	RE-21DC	4804 8º 8K 11	Α
1208	A	08A	MOV-CH-1158	CH/RWST-CHARGING PUMP ISOLATION	150 6.24-277	AXLB	722	BLENDER	SR		CLOSED	OPEN	YES	RE-21*R	MCC1-E3 BK J	A
1209	8	GBA	MOV-CH-115C	CH/VCT ISOLATION VALVE	150 6.24-271	AXLB	7z2	BLENDER	SR		OPEN	CLOSED	YES	RE-21FR	MCC1-E3 BK K	A
1210	в	08A	HOV-CH-115D	CH/RWST-CHARGING PUMP ISOLATION	150 6.24-277	AXLB	722	BLENDER	SR		CLOSED	OPEN	YES	RE-21FR	MCC1-E4 BK J	A
1211	8	08A	MOV-CH-115E	CH/VCT ISOLATION VALVE	150 6.24-271	AXLB	722	BLENDER	SR		OPEN	CLOSED	YES	RE-21FR	MCC1-E4 BK K	A
3211		08A	MOV-CH-137	CH/EXCESS LETDOWN HX FLOW CONT	150 6.24-1613	RCBX	707	EXC LETD PLATE	R		CLOSED	CLOSED	ND	RE-21FS	PNL-AC-E1 BK 13	A
1217	A	08A	MOV-CH-275A	CH/CH-P-1A MINIFLOW ISOLATION	150 6.24-265	AXLB	722	CH-P-1A CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC'-E3 BK H	A
1218	A	08A	MOV-CH-2758	CH/CH-P-18 MINIFLOW ISOLATION	150 6.24-265	AXLB	722	CH-P-18 CUBICLE	R		OPEN	OPEN	10	RE-21FR	MCC1-E3 BK P	A
1219		08A	HOV-CH-275C	CH/CH-P-IC MINIFLOW ISOLATION	150 6.24-265	AXLB	722	CH-P-1C CUBICLE	R		OPEN	OPEN	NO	RE-21FR	MCC1-E3 BK Q	A
1215	A	088	MOV-CH-289	CH/CHARGING HEADER ISOLATION	150 6.24-268	SEGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MEC1-E5 BK BB	A
1230	A	08A	HOV-CH-303A	CH/REP 1A #1 SEAL LEAKOFF ISOLATION	150 6.13-220	RCBX	692	FLOOR SE	R		OPEN	OPEN	NO	RE-21FS	MEC1-17 BK AQ	A
1231	٨	OBA	MOV-CH-3038	CH/RCP 18 #1 SCAL LEAKOFF ISOLATION	150 6.13-221	RCBX	692	FLOOR SE	R		OPEN	OPEN	NO	RE-21FS	HCC1-19 BK AK	A
1232	B	08A	MOA-CH-303C	CH/RCP IC BI SEAL LEAKOFF ISOLATION	150 6.13-222	RCBX	692	FLOOR SE	R		OPEN	OPEN	NO	RE-21FS	MCCI-18 BK AK	A
1225	A	08A	MOV-CH-308A	CH/RCP-1A SEAL WATER CONTAINMENT ISOLATION VALVE	150 6.24-267	SECB	722	PENT A	R		OPEN	OPEN	NO	RE-21F5	MCC1-E3 BK AE	٨
1226	A	JBA	MOV-CH-3088	CH/RCP-18 SEAL WATER CONTAINMENT ISOLATION VALVE	150 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NO	RE-21FS	MCC1-E3 BK AF	٨
127/	A	08A	MOV-CH-308C	CH/RCP-IC SEAL WATER CONTAINMENT ISOLATION VALVE	150 6.24-267	SFGB	722	PENT A	R		OPEN	OPEN	NG	RE-21FS	MCC1-E3 BK AN	٨
1216	8	A80	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	8	08A	HOV-CH-350	CH/EMERGENCY BORATION ISOLATION	VT1-6.48-5	AXLB	722	BLENDER	SR		CLOSED	OPEN	YES	RE-21FS	MCC1-E4 BK S	
1228	8	08A	MOV-CH-370	CH/SEAL INJ HEADER ISOLATION	150 6.24-267	AXLB	722	BLENDER ROOM	R		OPEN	OPEN	MD	RE-21FS	MEC1-14 BK AC	A
1220	8	08A	MOV-CH-373	CH/CHARGING PUMP RECIRC ISOLATION	150 6.24-256	AXLB	722	BLENDER	R		OPEN	OPEN	ND	RE-21FR	MCC1-E4 8K Q	A
3209	A	ABO	MOV-CH-378	CH/RCP SEAL LEAKOFF ISOLATION	150 6.24-380	RCBX	718	PENT #19	SR	8	OPEN	CLOSED	YES	RE-21FR	NCC1-ES BK BA	٨
3210	8	08A	MOV-CH-381	CH/RCP SEAL LEAKOFF ISOLATION	150 6.24-255	SFGB	722	PENT A	S R	8	OPEN	CLOSED	YES	RE-21FR	NEC1-E6 BK AN	A
4109	8	08A	HOV-FW-151A	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCC1-E6 BK A6	A
4110	A	084	MOV-FW-1518	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFG8	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF .6.24-65	MCC1-E5 BK A6	A
4111	8	084	MOV-FW-151C	FW/AUX FEED FLOW CONTROL MALVE	6.48-55,7.65-34,44	SECB	735	AUX FEED PUNP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-65	MEC1-E6 BK AH	Α



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

LINE NO.	TRAIN	EQUIP	MARK ND.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Ruilding	Flr Fly	LOCATION> Rm. or Row/Col.	SORT	NOTES	Normal	Destred	REOD?	SUPPORTING SYS. DWG. NO./REV.	& SUPPORTING I	COMPONENTS	ISSU	E
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	1.00	(17)	
4112	A	08A	NOV-FN-1510	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFGB	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HE,6.24-65	MCC1-E5 BK AH		A	
4113	8	084	NOV-FW-151E	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.35-34,44	SFGB	735	AUX FEED PUNP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-65	MCCI-E6 BK AJ		A	
4114	A	OSA	MOV-FW-151F	FW/AUX FEED FLOW CONTROL VALVE	6.48-55,7.65-34,44	SFG8	735	AUX FEED PUMP	SR	17	OPEN	THROT	YES	RE-21HF,6.24-55	MCC1-E5 BK AJ		A	
4115	N/A	08A	MOV-FW-150	FW/FW-P-4 DISCHARGE ISOLATION VALVE	150 6.24-383	TRBS	693	BASEMENT & PUMP	R		CLOSED	CLOSED	NG	RE-21HF	MCC1-43 BK 3J		A	
4208	8	08A	NOV-NS-101A	NS/NAIN STEAN TRIP [TV-MS-101A] BY NSS VALVE	150 6.24-2	SFGB	752	MSAH	R		CLOSED	CLOSED	NO	RE-71HX	MCC1-E6 BK BM		*	
4209	8	08A	MOV-MS-1018	NS/MAIN STEAM TRIP [TV-MS-1018] BYPASS VALVE	150 6.24-2	SECB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK BN		*	
4210	8	08A	MOV-MS-101C	NS/MAIN STEAM TRIP [TV-NS-101C] BYPASS VALVE	150 6.24-2	SECB	752	MSVH	R		CLOSED	CLOSED	NO	RE-21HX	MCC1-E6 BK 8P		A	
4214	B	08A	MOV-MS-105	NS/AFW TURBINE STEAM SUPPLY ISOLATION	6.48-95,96	SECB	735	MSVH	SR		OPEN	CLOSED	YES	RE-21HY, ISO 6.24-625	HEC1-E6 BK BA		A	
2104	٨	A86	HOV-RC-535	RC/PRESSURIZER PORV ISOLATION	150 6.24-350	RCBX	768	PZR CUBICLE	SR		OPEN	CLOSED	YES	RE-21JQ	MCC1-ES BK BE		A	
2106	8	08A	MOV-RC-536	RC/PRESSURIZER PORV ISOLATION	150 6.24-350	RCBX	768	PZR CUBICLE	SR		OPEN	CLOSED	YES	RE-21JQ	MCC1-E6 BK BC		A	
2108	A	ABO	HOV-RC-537	RC/PRESSURIZER PORV ISOLATION	150 6.24-350	RCBX	768	PZR CUBICLE	SR		OPEN	CLOSED	YES	RE-21JQ	NCC1-E6 BK BD		A	
3219	A	084	MOV-RH-700	RH/RHR INLET ISOLATION	150 6.24-3197	RCBX	692	W OF SI ACC 1A	R		CLOSED	CLOSED	NO	RE-21JV	NCC1-ES BK P		A	
3320	A	08A	HOV-RH-720A	RH/RHR RETURN ISOLATION	150 6.24-3189	RCBX	692	W OF 51 ACC 18	R		CLOSED	CLOSED	HO	RE-21JV	NEC1-ES BK Q		٨	
3321	в	GBA	MOV-RH-7208	RH/RHR RETURN ISOLATION	150 6.24-3191	RCBX	692	W OF SI ACC 1C	R		CLOSED	CLOSED	NO	RE-21JV	HCC1-E6 BK Q		A	
5104	8	A8 0	MOV-RW-302A1	RW/PUMP DESCHARGE ISO	6.48-22,23	INTS	705	A CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, ISO 6.24-801, RP-40	MCC1-E1 BK D		٨	
5105	A	08A	MOV-RW-102A2	RW/PUMP DISCHARGE ISO	6.48-22,23	ENTS	705	A CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, ISO 6.24-801, RP-41	MCC1-E1 BK G			
5106	8	084	MOV-RW-10281	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	B CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, ISO 6.24-801, RP-40	NCC1-E2 BK D		A	
5107	A	08A	MOV-RW-10282	RW/PUMP DISCHARGE ISO	6.48-22,23	INTS	705	8 CUBICLE	SR		CLOSED	OPEN	YES	RE-21KZ, ISO 6.24-801, RP-4	MCC1-E2 BK G		A	
5108	8	08A	MDV-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-4	HCC1-E2 BK H		*	
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-40	NCC1-E1 BK H		A	
4116		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	P NEC1-E3 BK B		A	

Page No. 10 Report Date/Time: 12-21-95 / 11:22:44

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

LINE NO.		EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION		Building	Flr.Elv.		SORT		Normal	Destred	REQD?	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)			(12)	(13)		(15)	(16)	(17)
4117	8	OBA	MOV-RW-1038	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 8	A
5135	A	084	MOV-R%-103C	RW/'8' HOR RW FLOW TO RECIRC SPRAY	150 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21LA	NCC1-E3 BK C	A
5136	8	08A	MOV-RW-1030	RW/'B' HOR RW FLOW TO RECIRC SPRAY	150 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21LA	MCC1-E4 BK C	R
5119	B	08A	MOV-RW-106A	RW/CCR HT EXCH ISOLATION	6.48-51,52	AXLB	722	EAST CENTRAL	SR	18	OPEN	CLOSED	YES	RE-21LA,6.24-68	MCC1-E4 BK P	A
5120	8	08A	MOV-RW-1068	RW/CCR HT EXCH ISOLATION	150 6.24-68	AXLB	722	N/A	R		OPEN	OPEN	HO	RE-21LA	MCC1-E4 BK D	Α
5121		08A	MOV-RW-113A	RW/DIESEL GEN COOLING ISO	150 6.24-159	DGBX	735	DIESEL GEN #1	SR		CLOSED	OPEN	YES	RE-21LA	MCC1-E3 BK H	Α
5122	A	08A	MOV-RW-1138	RW/DIESEL GEN COOLING ISO	150 6.24-160	DGBX	735	DIESEL GEN #1	SR		CLOSED	OPEN	YES	RE-21LA	MCC1-E7 BK J	A
5123	8	08A	MOV-RW-113C	RW/DIESEL GEN COOLING ISO	150 6.24-159	DGBX	735	DIESEL GEN 12	SR		CLOSED	OPEN	YES	RE-21LA	MEC1-E8 BK H	A
5124	8	08A	MOV-RW-113D1	RW/DIESEL GEN COOLING ISO	150 6.24-160	DC8X	735	DIESEL GEN 12	S R		CLOSED	OPEN	YES	RE-21LA	MCC1-E8 BK J	۸
5125		A80	MOV-RW-114A	RW/CCR HT EXCH ISOLATION	150 6.24-68	AXLB	722	EAST CENTRAL	SR	18	OPEN	CLOSED	YES	RE-21LA	MCC1-ES BK D	Α
5126	A	08A	MOV-RW-1148	RW CCR HT EXCH ISOLATION	150 6 24-68	AXLB	722	N/A	R		OPEN	OPEN	NO	RE-23LA	MCC1-E3 BK AC	Α
5127	A	08A	HOV-RW-116	RW/STRAINER ISOLATION	150 6.24-68	AXLB	722	H/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	150 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E7 BK Y	A
5132	8	68A	MOV-RW-1168	RW/AUX RW P'WP SUPPLY TO B RW HOR REACTOR PLANT	150 6.24-521	YARD	730	RW VALVE PIT	R		CLOSED	CLOSED	NO	RE-21KZ	HCC1-E8 BK Z	A
5128	8	08A	MOV-RW-117	RW/STRAINER ISOLATION	150 6.24-68	AXLB	722	N/A	R		CLOSED	CLOSED	NO	RE-21KZ	MCC1-E3 BK G	A
1236	A	08A	MOY-21-836	ST/HHST RCL COLD LEG ISOLATION VALVE	150 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E5 BK AB	A
1237	*	08A	MOV-51-863A	SI/3A LHST TO CHG PUMPS SUPPLY VALVE	150 6.24-115	SFGB	735	N	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-ES BK U	A
1238	8	08A	MOV-SI-8638	ST/18 LHST TO CHG PUMPS SUPPLY VALVE	150 6.24-114	SFGB	735	N	R		CLOSED	CLOSED	NO	RE-21KK	MCC1-E6 8K U	A
1222	A	08A	MOV-SI-867A	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E5 BK W	
1223	8	084	MOV-S1-8678	SI/BIT ISOLATION VALVE	150 6.24-272	AXLB	722	BLENDER	R		CLOSED	CLOSED	NO	RE-21XT	MCC1-E6 BK W	A
1234	A	08A	MOV-51-869A	SI/HHSI RCL HOT LEG ISOLATION VALVE	150 6.24-275	SFGB	722	PENT A	R		CLOSED	CLOSED	MO	RE-21KK	MCC1-E5 BK AR	A
1235	8	08A	MOV-51-8698	SI/HHSI "CL HOT LEG ISOLATION VALVE	150 6.24-368	SFGB	722	PENT C	R		CLOSED	CLOSED	MO	RE-21KK	MCC1-E6 BK BJ	A
8016	A	20	NM-NI-31A	02/SOURCE RANGE PREAMPLIFIER	VT1 1,20-052	SFGB	735	W CABLE VAULT	s		N/A	N/A	N/A	N/A	N/A	A
8017	8	20	NH-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

Page No. 11 Report Date/Time: 12-21-95 / 11.22:44

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

LINE ND.	TRAIN	EQUIP	,	WARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. R	to./Rev./Zone	Ruilding	Fir Ely	LOCATION	SORT	NOTES	Normal	Desired	REOD?	OMG. NO. /REV.	REQ'D INTERCOMMECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)		*****	(4)	(5)	2858889	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8135		20	PCC-FI	-1A	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM-	104	DGBX	735	DIESEL GEN 01	S		N/A	N/A	N/A	H/A	N/A	٨
8136		20	PCC-FI	- 18	FP/PILOT CONTROL CABINET FOR MPC-FP-605-1	DWG RM	104	DGBX	735	DIESEL GEN #2	2		N/A	N/A	N/A	N/A	N/A	A
2128	N/A	07	PCV-G	(-108	S1/(PCV-RC-455D) NITROGEN PRESSURE	DWG RK-	10	REBX	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	A
2129	N/A	07	PCV-G	4-109	S1/(PCV-RC-455C) NITROGEN PRESSURE CONTROL	DWG RK-	10	RCBX .	767	PRZR CUBICLE	s		OPEN	OPEN	NO	N/A	N/A	A
2130	N/A	07	PCV-1	4-108	IA/(PCV-RC-455D) INST AIR PRESSURE CONTROL	DWG RK-	10	RCBX	767	CRANE WALL	S		OPEN	OPEN	NO	N/A	N/A	A
2131	N/A	07	PCV-II	-109	1A/(PCV-RC-455E) INST AIR PRESSURE CONTROL	DWG RK	10	RCBX	767	CRANE WALL	s		OPEN	OPEN	NO	N/A	N/A	A
4205	Α	07	PEV H	5-101A	MS/A LOOP ATH STEAH DUMP	150 6.2	4-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4206	8		PCV-M	5-1018	MS/B LOOP ATM STEAN DUMP	150 6.2	94-6	SFGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
4207	в	07	PCV-H	S-101C	MS/C LOOP ATH STEAN DUMP	150 6.2	4-6	SEGB	752	MSVH	S	10	CLOSED	OPEN	YES	RE-21JD	VITAL BUS 2	A
2105	A	07	PCV-R	-4550	RC/PRESSURIZER PORV	150 6.2	4-349	RC3X	767	PZR CUBICLE	SR	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-2 BK 8-35	A
2109	A	07	PEV-RI	-455D	RC/PRESSURIZER PORV	150 6.2	4-349	RCBX	767	PZR CUBICLE	SR	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 3K 8-34	A
2107	в	07	PCV R	-456	RC/PRESSURIZER PORV	150 6.2	4-349	RCBX	767	PZR CUBICLE	SR	20	CLOSED	OPEN	YES	RE-21JT	DC-PNL-3 BK 8-34	A
5110	A	07	PCV-RI	-130A	RW/SEAL WATER PCV FOR RW PUMP	150 6.2	24-3345	INTS	705	A CUBICLE	S		CLOSED	OPEN	NO	150 6.24-3345	N/A	A
5111	8	07	PCV-R	-1308	RW/SEAL WATER PCV FOR RW PUMP	150 6.2	24-3346	INTS	705	B CUBICLE	s		CLOSED	OPEN	NO	ISO 6.24-3346	N/A	A
5112	A/B	07	PCV-R	-130C	RW/SEAL WATER PCV FOR RW PUMP	150 6.2	24-3347	INTS	705	C CUBICLE	5		CLOSED	OPEN	NO	150 6.24-3347	N/A	A
21108	A	20	PI-RE	402A	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.1	12-23	SRVB	735	CONT RM VB-A	SR		ON	ON	YES	RE-22BM	VITAL BUS 3	A
21118	В	20	Pi-RC	403	RCS/WIDE RANGE PRESSURE INDICATOR	VTI 1.1	12-23	SRVB	735	CONT RM VB-A	SR		ON	0N	YES	RE-22BM	VITAL BUS 2	٨
8034	A	14	PNL-A	21-2U8-1	38/VITAL BUS DIST PANEL 1E	DWG RE-	-27C	SRVB	713	RELAY	s		ON	ON	YES	H/A	N/A	
8035	8	14	PHL-A	C-BUS-1F	38/VITAL BUS DIST PANEL 1F	DHG RE-	-27C	SRAB	713	RELAY	s		ON	ON	YES	N/A	N/A	A
8036	A]4	PNL-A	C-E1	38/120 WOLT AC POWER DISTRIBUTION PANEL	DWG RE-	-278	SRVB	713	AE SWGR	s		ON	ON	YES	N/A	N/A	٨
8037	8	14	PNL-A	C-E2	38/120 VOLT AC POWER DISTRIBUTION PANEL	DWG RE	-278	SRAB	713	DF SWGR	s		ON	ON	YES	N/A	N/A	A
8038	A	14	PNL-A	C-E3	38/120 WOLT AC POWER DISTRIBUTION PANEL	DWG RE-	-278	SRAB	713	AE SWGR	s		ON	ON	YES	N/A	N/A	A
8039	B	14	PNL-A	C-E4	38/120 WOLT AC POWER DISTRIBUTION PANEL	DWG RE-	-278	SRVB	713	DF SWGR	\$		ON	ON	YES	N/A	R/A	٨



Page No. 12 Report Date/Time: 12-21-95 / 11:22:44



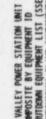
BEAVER VALLEY POMER STATION UNIT 1 COMPOSITE BY EQUIPMENT 10 SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

REG.	(11)																				
	0	×	*	*	*	*	*	*	*	×	×	*	*	*	*	*	*	*	*	*	*
REQ'D INTERCOMMECTIONS & SUPPORTING CONDONENTS	(16)																				
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/N	N/A	N/A	N/A
DEG. NO./REV.	(15)	8700-1.20-1174 1980 1177	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	N/A	N/A	N/A	N/A
REQU	(14)	YES	YES	YES	¥		YES	YES	YES	YES	YES	YES	N/A	N/A	14	YES	YES	YES	YES	YES	YES
Destred REQD?	(13)	8	8	N	N	180	M	N	NO	NO	×	N	N/A	N/A	N/A	10	8	*	8	æ	N
Normal		3	M	NH I	CSN CSN	NO	NO	ON	NO	NO	NO	NO	N/A	N/A	N/A	N	1	N	æ	8	8
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1905	(10)	5	5	s	5	5	5	5	5	s	5	s	5	5	5	5	5	~	5	5	\$
Re. or Row/Cui.	(6)	PROC RACK	CONTROL	CONTROL	CONTROL	CONTROL	AE SWGR	DF SMGR	DIESEL GEN #1	DIESEL GEN #2	DIESEL GEN #1	DIESEL GEN #2	HASH	HAVH	HASH	RELAY ROOM	RELAY ROOM	W CABLE VAULT	E CABLE VAULT	W CABLE VAULT	E CABLE VAILT
FIF.EN. R	(8)	713 P	735 C	735 C	735 C	735 C	A EI1	713 0	735 0	0 SE1	735 D	735 0	751 M	751 #	751 #	713 8	713 8	735 W	735 E	735 ₩	735 E
Building		SRVS 7	SRVB 7	SRVB 7	SRVIS 7	SRVB 7	SRVB 7	SRVB 7	DCBX 7	DGBX 7	DGBX 7	DCBX 7	SFG8 7	SFGB 7	SFG8 7	Save 7	SRVB 7	SFG8 7	SFGB 7	SFGB 7	SFGB 7
Dwg. No./Rev./Zone		RE-27C 5			DMG RE-27A S		DNG RE-278, 25R 5	DMG RE-278, 25R 5			DMG RE-SAA D	DMG RE-58A D					RE -42A 5	JR , 42K	JK, 42K	JS, 42K	JS, 42K
SYSTEM/EQUIPMENT DESCRIPTION	(5)	458/ANTICIP TRANS M/D SCRAM MITICATING SYS ACTUAT CIRCT	VS/PLANT VENTILATION CONTROL PANEL DNG RE-27A	VS/PLANT VENTILATION CONTROL PANEL DWG RE-271	39/125 VOLT DC POWER DISTRIBUTION I PANEL	39/125 VOLT DC POWER DISTRIBUTION BMG RE-27A PANEL	36/DG AUTOMATIC SEQUENCE RELAY PANEL 1	36/DC AUTOMATIC SEQUENCE RELAY PANEL 2	36/DG EXCITATION AUX RELAY PANEL 1 DWG RE-58A	36/DG EXCITATION AUX RELAY PANEL 2 DWG RE-58A	EE/DIESEL GENERATOR BI CONTROL PANEL	EE/DIESEL GENERATON N2 CONTROL PANEL	MS/INSTRUMENT RACK FOR SOV-MS-101A RKBA AND SOV-MS-101A4	MS/INSTRIMENT RACK FOR SOV-MS-1018 RK-8A AND SOV-MS-10184	MS/INSTRUMENT RACK FOR SOV-MS-TOIC RK-BA AND SOV-MS-TOIC4	36/POSY ACCIDENT SAMPLE SYS RELAY RE-42A PANEL	36/POST ACCIDENT SAMPLE SYS RELAV	RC/PRESSURIZER NEATERS POWER DIST. DNG RE-21 PANEL	RC/PRESSIRIZER HEATERS POMER DIST. DMG RE-21 PAMEL	RC/PRESSURIZER HEATERS POMER DIST. DMC RE-21 PANEL	RC/PRESSURIZER HEATERS POWER DIST. DWG RE-21 PAWEL
MARK ND.	(\$)	PHL-ANSAC	PNI - BLDG - SER - A	PNL-BLDG-SER-B	5 30- JNJ	PHL-DC-3	PHI-DG-SEQ-1	PNIDG-SEQ-2	PHI -DGEA-1	PNL-DGEA-2	PNL-DIGEN-1	PNL-DIGEN-2	PHE-MS-101A	BIO1-SM- 1Nd	DILL-NS-101C	PNL - PAS - RA	PNL -PAS-RB	PNL-PR-HTR-A	PML-PR-HTR-8	PNL-PR-HTR-D	PNL-PR-HYR-E
TRAIN CLASS	(3)	20	20	50	14	2.	50	20	20	20	20	20	18	38	18	50	20	14	M	2	14
TRAIN	(2)	A/B	*	80	60	*	×	80	*	80	*	80	<	60	60	<	80	*	-	*	80
	(1)	8117	8040	8041	8042	8043	8044	8045	8046	8047	5323	5324	8125	8126	8127	8115	8116	8048	8049	8050	8051
		-	-	80	-	-	-		80	40		-	-	-	-	-	-	-	-	-	-

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Page No. 13 Report Date/Time: 12-21-95 / 11:22:44



BEAVER VALLEY POMER STATION UNIT 1 COMPOSITE BY EQUIPMENT 1D SAFE SHUTBOAN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

Interpret Transmission Transmissintransmissintraname Transmission <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>																												
Matrix	CK: New	(11)	*	*	**	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Intentional Support Network Support Network Support Network Support	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENT	(36)	N/N	N/N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	MCC1-E11 8K T	MCCI-EII BK T	N/A	M/A	N/A	N/A	PKI-DC-3 BK 8-14	PHL-DC-2 BK 8-14	PNL-DC-2 BX 8-14	VITAL BUS 3
Intentional Support Network Support Network Support Network Support	DHG. NO. /REV.	(15)	U/A	6/A	V.A	U/A	4/A	1.4	8/A	N/N	U/A	U/A	V/A	U/A	U/A	V/A	1/A	1/A	HE9-3	HE9-3	1/A	NA N	V/A	U/A	6-2130	6-2130	E-21JD	E-228M
Interfacional STRUMENTING Description Control Contro Control Control <td></td> <td>(14)</td> <td>ES 1</td> <td></td> <td>ES I</td> <td>(ES</td> <td>ES 1</td> <td>(ES)</td> <td>ES 1</td> <td>1 53</td> <td>ES I</td> <td>ES I</td> <td>ES 1</td> <td>ES I</td> <td>res N</td> <td>ES N</td> <td>V/A N</td> <td>1/A 1</td> <td>(ES R</td> <td></td> <td>ES A</td> <td>ES N</td> <td>ES N</td> <td>ES N</td> <td>ES 8</td> <td>ES R</td> <td>£5 8</td> <td>ES 8</td>		(14)	ES 1		ES I	(ES	ES 1	(ES)	ES 1	1 53	ES I	ES I	ES 1	ES I	res N	ES N	V/A N	1/A 1	(ES R		ES A	ES N	ES N	ES N	ES 8	ES R	£5 8	ES 8
International state in the international state internat in the international state in the international st	sired						ĺ				ĺ			1		ĺ	e v	×	ERG		ĺ		Î	Ĩ	ERG Y	ERC	ERG Y	Ĩ
International and the second of the			8	8	8	8	NO.	30	CM	ON	NO	吾	M	8	NO.	NO	N/N	N/N			NO	NO	N	NO				8
TALINE LIARS MARK INSTRUCTIONE TALINE LIARS TELEVINE CONTROL CO			8	N	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	ON	NO	N/A	N/A	ENE	ENE	NO	NO	8	10	ENE	ENE	ENE	NO
TALINE LOLDE MORTANE STERENETIONE Des. Res.//mov/2me RUMMENDE (2) (3) (4) (3) (3) (4) (3) (4) (3) (3) (4) XAME IN POLICION RELIVE PARIE Des. (3) (3) (3) (3) (4) (2) (4) XAME IN POLICION RELIVE PARIE DES. (3) (3) (3) (3) (4) (2) Modelle PARICION RELIVE PARIE DES. (4) (2) (3) (4) (3) (4) (3) (4) (2) Modelle PARICION RELIVE PARIE DES. (4) (2) (3) (4) (4) (4) (2) Modelle PARICION RELIVE PARIE DES. (4) (2) (4)	TON TS																											
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Text No. SYSTEM/FINEN Deg. Bo. / Rev / Zen Deg. Bo. /	LOCA/ION Rm. or Row/C	(6)	RELAY	RELAY	RELAY	AE SMGR	DF SMGR	AE SWCR	DF SWGR	AE SWGR	DF SNGR	AE SWGR	DF SHGR	NORMAL SWGR	MORMAL SWGR	DIESEL GEN 83	PROC RACK	PROC RACK	PIPE TUMMEL	PIPE TUMMEL	CONTROL	CONTROL	CONTROL	COMTROL	HASH	HASH	HASH	ANNUALUS COL 4
Item Lettics NAK NO. SYSTEM EQUIPMENT Deg. No. / Nov. / Tone (2) (3) (4) (5) (6) (6) A 20 PML-REL-19 Sc/OG R1 PROTECTION RELAY PANEL Deg. No. / Nov. / Tone A 20 PML-REL-11 Sc/OM CR PROTECTION RELAY PANEL Deg. No. / Nov. / Tone A 20 PML-REL-121 Sc/OM CR PROTECTION RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-121 Sc/OM CR PROTECTION RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-131 Sc/OM CR PROTECTION RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-23 Sc/OM CR PROTECTION RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-34 Sc/MUR RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-35 Sc/MUR RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-36 Sc/MUR RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-35 Sc/MUR RELAY PANEL Deg. Rel 2 - 70 A 20 PML-REL-35 Sc/MUR RELAY PANEL	EQUIPMENT F Ir . E Iv.	(8)	113	713	713	713	715	713	713	713	713	713	713	713	713	335	713	713	122	222	SE1	135	581	135	768	768	768	111
TAIN LLAS NAK NO. SYSTEM CENTION Deg. No. / Nov. / Tone (2) (3) (4) (5) (5) (6) A 20 PML-REL-12 SK/GG R1 PROTECTION RELAY PANEL DMG. RE-27C (6) A 20 PML-REL-121 SK/MG R1 PROTECTION RELAY PANEL DMG. RE-27C (6) A 20 PML-REL-121 SK/MG RELAY PANEL DMG. RE-27C (6) A 20 PML-REL-121 SK/MG RELAY PANEL DMG. RE-27C (6) A 20 PML-REL-121 SK/MG RELAY PANEL DMG. RE-27C (6) A 20 PML-REL-121 SK/MG RELAY PANEL DMG. RE-27C (7) A 20 PML-REL-12 SK/MG RELAY PANEL DMG. RE-27C (7) A 20 PML-REL-27 SK/MG RELAY PANEL DMG. RE-27C (7) A 20 PML-REL-26 SK/RELAY PANEL DMG. RE-27C (7) A 20 PML-REL-27 SK/RELAY PANEL DMG. RE-27B (7) <t< td=""><td>Building</td><td>(7)</td><td>RVB</td><td>RVB</td><td>RV8</td><td>RVB</td><td>RVB</td><td>8VB</td><td>8AB</td><td>RVB</td><td>RVB</td><td>BVB</td><td>RVB</td><td>RVB</td><td>8 VB</td><td>CBX</td><td>RVB</td><td>RVB</td><td>FGB</td><td>FCB</td><td>RVB</td><td>8A8</td><td>RVB</td><td>SAS</td><td>FGB</td><td>FGB</td><td>FG8</td><td>CBX</td></t<>	Building	(7)	RVB	RVB	RV8	RVB	RVB	8VB	8AB	RVB	RVB	BVB	RVB	RVB	8 VB	CBX	RVB	RVB	FGB	FCB	RVB	8A8	RVB	SAS	FGB	FGB	FG8	CBX
E FRATIN E.00.17 (2) (3) (4) (2) (3) (4) (2) (3) (4) (2) (3) (4) (2) (3) (4) (2) (3) (4) (2) PNL-REL-19 (4) (3) PNL-REL-21 (4) (4) PNL-REL-31 (4) (5) PNL-REL-32 (4) (4) 20 PNL-REL-31 (5) PNL-REL-32 (4) (5) PNL-REL-32 (4) (6) PNL-REL-32 (4) (6) PNL-REL-32 (4) (7) PNL-REL-32 (4) (7) PNL-REL-32 (4) (7) PNL-REL-32 (4) (7) PNL-REL-32 (4) (8) PNL-REL-32 (4) (7) PNL-REL-32 (4) (8) PNL-REL-32 (4) (8)	1.1	(9)																										
E EQUIP (2) CLASS S (2) (3) 9NL-R (2) (3) 9NL-R (2) (3) 9NL-R (2) (2) PNL-R (3) 20 PNL-R (4) 20 PNL-R (2) 20 PNL-R (3) 20 PNL-R (4) 20 PNL-R (4) 20 PNL-R (4) 20 PNL-R (4) 20 PNL-R (5) 20 PNL-R (6) 20 PNL-R (7) 20 PNL-R (8) 20 PNL-R (8) 16 PNL-S (7) 13 PNL-R (8) 14 PNL-R (8) 13 PNL-R (8) 13 PNL-R (8) 13 PNL-R (8) 18 PNL-R (8) <td< td=""><td>SYSTEM/EQUIPMENT DESCRIPTION</td><td></td><td>36/BG BI PROTECTION RELAY PANEL</td><td>36/UNICERFREQUENCY RELAY PANEL REACTOR COOLANT PUNES</td><td>36/DC \$2 PROTECTION RELAY PANEL</td><td>38/AUX RELAY PANEL</td><td>38/AUX RELAY PANEL</td><td>38/AUX RELAY PANEL</td><td>38/AUX RELAY PANEL</td><td>38/RELAY PANEL</td><td>38/RELAY PANEL</td><td>38/RELAY PANEL</td><td>38/RELAY PANEL</td><td>36/RELAY PANEL 40</td><td>36/RELAY PANEL 41</td><td>36/DG ISOLATION RELAY PANEL</td><td>01/EMERGENCY SHUFDOWN PANEL</td><td>01/EMERGENCY SHUTDOWN PANEL</td><td>45/DISTRIBUTION PANEL</td><td>45/DISTRIBUTION PANEL</td><td>38/VITAL BUS DIST PANEL 1</td><td>38/VITAL BUS DIST PANEL 2</td><td>38/VIBAL BUS DEST PANEL 3</td><td>36/417AL BUS DIST PANEL 4</td><td></td><td>MS/ATMDSPHERE STEAM DAMP S.G. 18</td><td></td><td></td></td<>	SYSTEM/EQUIPMENT DESCRIPTION		36/BG BI PROTECTION RELAY PANEL	36/UNICERFREQUENCY RELAY PANEL REACTOR COOLANT PUNES	36/DC \$2 PROTECTION RELAY PANEL	38/AUX RELAY PANEL	38/AUX RELAY PANEL	38/AUX RELAY PANEL	38/AUX RELAY PANEL	38/RELAY PANEL	38/RELAY PANEL	38/RELAY PANEL	38/RELAY PANEL	36/RELAY PANEL 40	36/RELAY PANEL 41	36/DG ISOLATION RELAY PANEL	01/EMERGENCY SHUFDOWN PANEL	01/EMERGENCY SHUTDOWN PANEL	45/DISTRIBUTION PANEL	45/DISTRIBUTION PANEL	38/VITAL BUS DIST PANEL 1	38/VITAL BUS DIST PANEL 2	38/VIBAL BUS DEST PANEL 3	36/417AL BUS DIST PANEL 4		MS/ATMDSPHERE STEAM DAMP S.G. 18		
		(4)	PHL-REL-19	PNL-REL-21	PHL-REL-22	PNL-REL-31	PML-REL-32	PHL-REL-33	PNL-REL-34	PNL-REL-35	PML-REL-36	PHL-REL-37	PHL-REL-38	PHL-REL-40	18-130-1Nd	PNL-REL-DG1	PNL-SHUTON-A	PNL-SHUTON-B	PNL-51-02	PNL-51-06	PNL-VITBUS-1	PNL-VITBUS-2	PNL-VITBUS-3	PHL-VIIBUS-4	PS-MS-101A	B101-2M-24	PS-MS-101C	PT-RC-402
	EQUIP	(3)	20	20	20	20	20	20	20	20	59	20	20	20	20	20	20	20	18	18	14	14	14	14	13	18	18	18
LINE NO			*	A/8	80	*		*	8	¥	80	×	8	*	80	8	*	8	*	80	*	80	*	60	*	60	80	*
	NO.	(1)	8052	8053	8054	8055	8056	8057	8058	8059	8060	8061	8062	8108	8109	8063	8064	8065	8129	8131	8066	8067	8068	6908	42056	4206E	4207E	2110M

Page No. 14 Report Date/Yime: 12-21-95 / 11:22:44

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

	INE IO.	TRAIN	EQUIP	ALL DAY AND	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Railding	Fle Fly	LOCATION> Rw. or Row/Col.	SORT	NOTES	Normal	Des ired	REOD7	SUPPORTING SYS. DNG. ND./REV.	& SUPPORTE	NG COMPONENTS	S ISSUE
	1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
		A	21	PZR-HTR-A	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JR	480V 8US 1	M1 BK N12	A
		8	21	PZR-HTR-B	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JR	480V BUS 1	P1 BK	A
22	26		21	PZR-HTR-D	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS 1	N BK N	A
27	27	8	21	PZR-HTR-E	RC/PRESSURIZER HEATER		RCBX	739	IN PZR	R		OFF	ON	YES	RE-21JS	480V BUS 1	P BK P	A
81	21	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		
81	22	A/8	18	QS-RACK-2	QS/RACK FOR RWST HEAT TRACE (NE SIDE OF RWST)	DWG 1.81-52 SH 2	YARD	735	YARD	5		N/A	N/A	NO	N/A	N/A		*
8	23	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
8	124	A/8	18	QS-RACK-4	QS/RACK FOR RWST HEAT TRACE (SE SIDE OF RWST)		YARD	735	YARD	5		N/A	N/A	NO	N/A	N/A		٨
1	207	N/A	21	QS-TK-1	QS/REFUELING WATER STORAGE TANK	DWG RV-24A	YARD	735	YARD	SR		N/A	N/A	NO	RE-63V	MCC1-E11,	E12	A
8	070	A/B	02	REAC-TR-SWGR	OL/REACTOR TRIP SWITCHGEAR	DWG RE-278	SRVB	713	ROD M/G ROOM	S		N/A	N/A	N/A	N/A	N/A		A
8	071	A	20	RK-AUX-RELA	01/INSTRUMENT AND CONTROL RELAY RACK	DWG RE-27C	SRAB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A		*
8	072	8	20	RK-AUX-RELB	01/INSTRUMENT AND CONTROL RELAY RACK	DNG RE-27C	SRVB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A		A
8	073	A	20	RX-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
8	074	8	20	RK-AUX-RPTST-B	01/REACTOR PROTECTION TEST RACK	DNG RE-27C	SRVB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A		A
8	075	A	20	RK-NUC-INS-1	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DWG RE-27A	SRAB	735	CONTROL	s		N/A	N/A	N/A	N/A	N/A		A
8	076	8	20	RK-NUC-INS-2	02/EXCORE NUCLEAR INSTRUMENTATION RACK	DNG RE-27A	SRAB	735	CONTROL	5		N/A	N/A	N/A	N/A	N/A		A
8	077	A	20	RK-PR1-PROC-1	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A		A
8	080	8	20	RK-PRI-PROC-10	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	\$		N/A	N/A	N/A	N/A	N/A		A
8	082	8	20	RK-PRI-PROC-11	04/PLANT INSTRUMENT/PROCESS RACK	OWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	S		N/A	N/A	H/A	N/A	H/A		A
8	081	B	20	RK-PR1-PROC-12	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 88	SRAB	713	PROC RACK	s		N/A	N/A	N/A	N/A	N/A		*
8	083	8	20	RK-PRI-PROC-13	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RC-8A, 88	SRV8	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A		A

Page No. 15 Report Date/Time: 12-21-95 / 11:22:44

BEAVER VALLEY POWER STATION UNIT 1 COMPOSITE BY EQUIPMENT ID SAFE SHUTDOWN EQUIPMENT LIST (SSEL) S28 INDIVIDUAL PLANT COMPONENTS

LI		TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT Description	Dwg. No./Rev./Zone	Building	Flr.Elv.	LOCATION Rm. or Row/Col	. SORT	NOTES	Normal	Destred	REOD?	DW. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(]		(2)	(3)	(\$)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
808	4	A	20	RK-PRI-PROC-14	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRAB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	A
808	5	A	20	RK-PRI-PROC-15	04/PLANT PROCESS INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	\$		H/A	N/A	N/A	N/A	N/A	A
808	6	A	20	RK-PR1-PROC-16	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27E, RE-8A, 8B	SRVB	713	PROC RACK	5		N/A	N/A	N/.:	N/A	N/A	A
808	1	A	20	RK-PRI-PROC-17	04/PLANT INSTRUMENT/PROTECTION RACK	DNG RE-27C, RC-8A, 8B	SRVB	713	PROC RACK	\$		N/A	N/A	N/A	H/A	N/A	A
808	8	A	20	RK-PRI-PROC-18	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	A
807	8	A	20	RK-PR1-PROC-2	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	\$		N/A	N/A	N/A	N/A	N/A	٨
808	9 1	8	20	RK-PR1-PROC-25	04/PLANT INSTRUMENT/PROCESS RACK	DMG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	\$		N/A	N/A	N/A	N/A	N/A	A
809	0 1	8	20	RK-PR1-PROC-26	04/PLANT INSTRUMENT/PROCESS RACK	DWG RE-27C, RE-8A, 88	SRAB	713	PROC RACK	S		N/A	N/A	N/A	N/A	H/A	A
807	9	A	20	RK-PR1-PROC-3	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-8A, 88	SRVB	713	PROC RACK	\$		N/A	N/A	N/A	N/A	N/A	٨
809	1	8	20	RK-PR1-PROC-30	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRAB	713	PROC RACK	S		N/A	N/A	N/A	N/A	N/A	٨
809	2 1	в	20	RK-PRI-PROC-31	04/PLANT INSTRUMENT/PROTECTION RACK	DNG RE-27C	28 4 8	713	PROC RACK	2		N/A	N/A	N/A	N/A	N/A	A
809	3	A	20	RK-PR1-PROC-34	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRAB	713	PROE RACK	\$		N/A	N/A	N/A	N/A	N/A	A
809	14	A	20	RK-PR1-PROC-35	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C	SRVB	713	PROC RACK	5		N/A	N/A	N/A	N/A	N/A	A
812	8	A/8	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
809	5	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
809	6	8	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
809	7	A	20	RK-REC-P-TST-A	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	s		N/A	N/A	R/A	N/A	N/A	A
809	8	8	20	RK-REC-P-TST-8	01/REACTOR PROTECTION TEST RACK	DWG RE-27C	SRVB	713	PROC RACK	s		N/A	N/A	N/A	K/A	N/A	A
809	9	A	20	RK-SEC-PROC-A	04/PLANT INSTRUMENT/PROTECTION RACK	DWG RE-27C, RC-88, 8L	SRVB	713	PROC RACK	5		N/A	N/A	N/A	N/A	H/A	A
810	0	8	20	RK-SEC-PROC-	04/PLANT INSTRUMENT/PROTECTION RACK	DMG RE-27C, RC-88, BL	SRAB	713	PROC RACK	5		N/A	N/A	N/A	N/A	H/A	A



Page Mo. 16 Report Date/Time: 12-21-95 / 11:22:44

BEAVER VALLEY POWER STATION UNIT 1 COMPOSITE BY EQUIPMENT 1D SAFE SANTDOMN EQUIPMENT LIST (SSEL) 528 INDIVIOUAL PLANT COMPONENTS

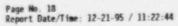
ISSUE	(11)	*	×		*	×	*	*	*	×	*	*	*			*						*			
DAG. ND./REV. & SUPPORTING CONDONENTS ISSUE	(16)																							PHL-DC-3 8K 8-23	PNK-DC-3 BK 8-20
Sup		N/N	N/N	N/N	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	R/A	N/A	N/A	N/A	N/A	R/A	N/A	N/A	NI- INd	PNIL -DI
DANCI, ND. /REV	(15)	H/N	N/A	N/A	N/A	N/A	N/A	N/N	N/A	N/N	N/A	N/A	N/A	N/A	N/N	N/A	N/A	N/A	N/A	(A	N/A	(A	N/A	RE-21FT	RE-21FU
REQD?	(14)	N/A H								×	N	z	z	X	x	x	x	z	×	×	N	×	×		
Destred RE		N/A N/	N/N N/N	N/A N/A	N/A N/A	N/A N/A	N/A N/A	CLOSED NO	N/A NO	A NO	A NO	A NO	A NO	N/A NO	N/A NO	N/A NO	N/A NO	N/A NO	N/A NO	N/A NO	CLOSED NO	CLOSED NO	CLOSED NO	ENERG YES	DEENERG NO
Normal De		H/A N		N/A N	N/A N	N/A N	N/A N	CLOSED CI		A N/A	A N/A	A N/A	A N/A					A N.	N/A N		CLOSED CI	CLOSED CL	CLOSED CL	ENERG EN	ENERG DE
		ж Ж	N/N	N	N	/N	N	C	N/A	N/	N/	N/N	U	CI	C	*	EN								
1305	(10)	5	5	5	2	5	5	s	5	5	5	s	S	5	5	S	s	s	s	s	s	s	5	5 8	S R
Rm. or Row/Cel. SORT NUTES	(6)	PROC RACK	PROC RACK	CR VENT	CR VENT	CR VENT	CR VENT	ANNALUS COL 5	DIESEL GEN 11	DIESEL GEN #1	DIESEL GEN #1	DIESEL GEN NI	DIESEL GEN #1	DIESEL GEN 11	DIESEL GEN 82	DIESEL GEN #2	PZR CUBICLE	PZR CUBICLE	PZR CUBICLE	BLENDER CUB	RLF TK AREA				
FJr.Elv.	(8)	113	EI1	713	713	713	713	718	/35	135	735	135	135	135	135	135	335	235	135	735	167	167	167	122	718
Building	(1)	SANS	aves	SAVB	BANB	SRVB	SRVB	RCBX	DCBX	DCBX	DCBX	DGBY	DGBX	DCBX	DGBX	DGBX	DCBX	DGBX	DCBX	DCBX	RCBX	RCBX	RCBX	AXLB	RCBX
Dwg. No./Rev./Zone		DMG RE-27C, RC-88, 5 8L	DMG RE-27C, RC-88, 5 BL		25HN		RE-47H S	150 6.24-1548 8	VII 6.39-109 D	VII 6.39-109 D	VTI 6.39-109 D	VTI 6.39-109 D	VII 6.39-109 0	VTI 6.39-109 1	VTI 6.39-109 D	VTI 6.39-109 D	VTI 6.39-109 D	VII 6.39-109 8	VII 6.39-109 1	VII 6.39-109 II	350	-350	-350	RK-3A	VII 06.041-5, 6 8
SYSTEM/EQUIPMENT DESCRIPTION	(5)	04/PLANT INSTRUMENT/PROTECTION RACK	04/PLANT INSTRUMENT/PROTECTION RACK	444/CONTROL ROOM TEMP CONTROL AIR RE-47H, 25HH COMPRESSOR RACK	44A/COMPROE ROOM AIR MANDLING UNIT RE-47H, SUPPLY FANS RACK	VS/CONTROL ROOM HEATERS VS-E-5, 6 RE-47H & 7 RACK	VS/RACK FOR VS-E-8-1 & 8-2	CH/SEAL RTRN HDR RELIEF VALVE	EE/3A AIR TANK RELIEF VALVE	EE/38 AIR TANK RELIEF VALVE	EE/3C AIR TANK RELIEF VALVE	EE/3D AIR TANK RELIEF VALVE	EE/3E AIR TANK RELIEF VALVE	EE/3F AIR TANK RELIEF VALVE	EE/44 AIR TANK RELIEF VALVE	EE/48 AIR TANK RELIEF VALVE	EE/4C AIR TANK RELIEF VALVE	EE/4D AIR TANK RELIEF VALVE	EE/GE AIR TANK RELIEF VALVE	EE/4F AIR TANK RELIEF VALVE	RC/PRESSURIZER RELIEF SAFETY VALVE ISO 6.24	RC/PRESSURIZER RELIEF SAFETY VALVE ISO 6.24	RC/PRESSURIZER RELIEF SAFETY VALVE 150 6.24	CH/(FCV-ICH-122) SOLENDID	CH/(TV-ICH-200A) SOLENDID
HARK ND.	(\$)	RK-SEC-PROC-C	RK-SEC-PROC-0	RK-VS-AC-JA	RK-VS-AC-18	RK-VS-E567	RK-VS-E8-12	RV-CH-382A	RV-EE-201A	RV-EE-2018	RV-EE-201C	RV-EE-202A	RV-EE-2028	RV-EE-202C	RV-EE-2034	RV-EE-2038	RV-EE-203C	RV-EE-204A	RV-EE-2048	RV-EE-204C	RV-RC-551A	RV-RC-5518	RV-RC-551C	SOV-CH-122	SOV-CH-200A
	(3)	50	50	20	50	20	20	01	03	10	10	10	10	16	01	10	10	10	10	10	01	01	01	088	880
22	(2)					A/8	A/B	N/A	×	×	¥	*	¥	*	80	80	60		80	60	N/A	N/A	N/A	N/A	*
TRA	-	*	280	*	60	-	-								100.0	-	887					-	-	-	



Page No. 17 Report Date/Time: 12-21-95 / 11:22:44

BEAVER VALLEY POWER STATION UNIT 1 COMPOSITE BY EQUIPMENT ID SAFE SHUTDOWN EQUIPMENT LIST (SSEL) S28 INDIVIDUAL PLANT COMPONENTS

LINE NO.		EQUIP CLASS	HARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Fir.Elv.		SORT NOT	TES Norma	1 Desir	ed REQD7	DWG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENT	S ISSUE
(1)	(2)		(4)	(5)	(6)	(7)	(8)	(9)	(10) (1			(14)	(15)	(16)	(17)
32070	A	088	SOV-CH-2008	CH/(TV-1CH-2008) SOLENDID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	SR	ENERG	DEEME	RG MO	RE-21FU	PNL-DC-3 BY 8-20	A
32070	A	088	SOV-CH-20081	CH/(TV-1CH-2008) SOLEM010	VII 06.041-3, 8	RCBX	718	RLF TK AREA	SR	ENERG	DEENE	RG NO	RE-21FU	PNL-DC-3 8K 8-1	A
32080		088	SUV-CH-200C	CH/(TV-ICH-200C) SOLENDID	VTI 06.041-5, 6	RCBX	718	RLF TK AREA	SR	ENERG	DEENE	RG NO	RE-21FU	PNL-DC-3 8K 8-20	A
32080	A	688	SOV-CH-200C1	CH/(TV-ICH-200C) SOLENDID	VTI 06.041-3, 8	RCBX	718	RLF TK AREA	SR	ENERG	DEENE	RG NO	RE-21FU	PNL-DC-3 8K 8-1	A
4205C	A	088	SOV-MS-101A	MS/(PEV-INS-101A) CONTROL SOLENDID	RK-8A	SFGB	751	MSVH	SR	DEENE	RG DEENE	rg No	RE-21JD	PNL-DC-3 8K 8-14	A
4205D		088	SOV-MS-101A4	MS/(PCV-INS-101A) CONTROL SOLENOID	RK-8A	SFGB	751	HSVH	SR	DEENE	RG DEENE	rg no	RE-21JD	PNL-DC-3 8K 8-23	A
42060	8	086	SOV-MS-1018	MS/(PCV-IMS-1018) CONTROL SOLENGID	RK-8A	SFGB	751	MSVH	SR	DEENE	RG DEENE	RG NO	RE-21JD	PNL-DC-2 8K 8-14	A
4206D	8	088	SOV-MS-10184	MS/(PCV-1MS-1018) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	SR	DEENE	RG DEENE	RG NO	RE-21JD	PML-DC-2 BK 8-23	A
4207C	8	880	SOV-MS-101C	MS/(PEV-IMS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	MSVH	S R	DEENE	RG DEENE	RG NO	RE-21JD	PHL-DC-2 BK 8-14	Α
4207D	B	086	SON-MS-101C4	MS/(PEV-IMS-101C) CONTROL SOLENOID	RK-8A	SFGB	751	HSAH	SR	DEENE	RG DEENE	RG NO	RE-2130	PNL-DC-2 BK 8-23	A
42110	A	088	SOV-MS-112A1	MS/(TV-IMS-101A) PILOT VALVE	RK-BA	SFGB	735	AUX FEED PUMP	S R	DEENE	RG ENERG	YES	RE-21HX	DE-PHL-3 BK 8-6	A
42110	8	088	SOV-MS-112A2	MS/(TV-IMS-101A) PILOT VALVE	RK-BA	SEGB	735	AUX FEED PUMP	SR	DEENE	RG ENERG	YES	RE-21HX	DC-PNL-3 BK 8-6	A
42120	A	088	SOV-MS-11281	MS/(TV-IMS-101B) PILOT VALVE	RK-8A	SFGB	735	AUX FEED PUMP	SR	DEENE	RG ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
4212D	В	088	SOV-MS-11282	MS/(TV-IMS-1018) PILOT VALVE	RK-BA	SFG8	735	AUX FEED PUMP	SR	DEENE	RG ENERG	YES	RE-21HX	DC-PNL-3 BK 8-21	A
42130	A	088	SOV-MS-112C1	MS/(TV-IMS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	SR	DEENE	RG ENERG	YES	RE-21HX	DC-PNL-3 8K 8-22	Α
42130	8	088	SOV-MS-112C2	MS/(TV-IMS-101C) PILOT VALVE	RK-8A	SFGB	735	QUEN SPRAY PUMP	SR	DEENE	RG ENERG	YES	RE-21HX	DC-PNL-3 BK 8-22	A
2122	в	088	SOV-RC-455C1	SI/(PCV-RC-455C) SOLENOID	150 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSE	D OPEN	YES	RE-21JT	PNL-DC-2 8K 8-35	A
2123	8	088	SOV-RC-455C2	SI (PCV-RC-455C) SOLENOID	ISO 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSE	D OPEN	YES	RE-21JT	PNL-DC-2 8K 8-35	A
2124	A	683	SOV-RC-455D1	SI/(PCV-RC-455D) SOLENDID	150 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSE	D OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	A
2125	A	088	SOV-RC-455D2	SI(PCV-RC-455D) SOLENOID	150 6.24-3786,RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSE	D OPEN	YES	RE-21JT	PNL-DC-3 BK 8-34	
2126	A	068	SOV-RC-456-1	RC/(PCV-RC-456) SOLENOID	RK-10	RCBX	767	PRZR CUBICLE	SR	CLOSE	D OPEN	YES	RE-21JT	PNL-D-3 BK 8-34	
2127	٨	880	SOV-RC-456-2	RC/(PEV-RC-456) SOLENOID	RK-1D	RCBX	767	PRZR CUBICLE	SR	CLOSE	D OPEN	YES	RE-21JT	PHL-DC-3 BK 8-34	A
5231	8	088	SOV-VS-209A1	VS/UPPER FILTER BANK DRAIN VALVE	DNG RM-28, VTI 10.1-216	AXLB	780	M FILTER BANK	R	CLOSE	D CLOSE	D MD	RE-21MT	DC-PHL-4 8K 19	A
5232	8	088	S08-A2-A05	VS/UPPER FILTER BANK DRAIN VALVE	DNG RN-28, VTI 10.1-216	AXLB	780	M FILTER BANK	R	CLOSE	D CLOSE	D NO	RE-21MT	DC-PNL-4 BK 19	A
5233	8	980	SOV-VS-20981	VS/LOWER FILTER BANK DRAIN VALVE	DWG RM-28, VTI 10.1-216	AXLE	768	M FILTER BANK	R	CLOSE	D CLOSE	D NO	RE-21MT	DC-PHL-4 BK 19	
5234	8	068	SOV-VS-20982	LOWER FILTER BANK DRAIN VALVE	DMG RM-28, VT1 10.1-216	AXLB	768	M FILTER BANK	R	CLOSE	D CLOSE	D NO	RE-21MT	DC-PNL-4 BK 19	



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

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	INE 0.	TRAIN	EQUIP	MARTIN SHI	SYSTEN/EQUIPMENT Description	Dwg. No./Rev./Zone	Ruilding	Flr Fly	LOCATION> Rm. or Row/Col.	SORT	NOTES	Mormal	Destred	REOD?	DHG. ND. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
	1)	a later of	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(1)
53	39	A	20	SSM-AILARS-1	UPS/UPS RACKED VITAL INSTRUMENT BUS STAVIC SWITCH	DWG RE-278, 21EB, 38D	SRAB	713	AE SWGR	S R		ON	0#	YES	1.24-181	MCC1-E13	A
53	40	8	20	22M-AILBO2-5	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21EB, 27B, 38D	SRVB	713	DF SWGR	SR		ON	ON	YES	1.24-181	MCC1-E14	A
53	41	A	20	SSW-VITBUS-3	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-278, 21EB, 38D	SRVB	713	AE SWGR	SR		ON	ON	YES	1.24-181	HCC1-E13	A
53	42	8	20	SSW-VITBUS-4	UPS/UPS BACKED VITAL INSTRUMENT BUS STATIC SWITCH	DWG RE-21E8, 278, 380	SRAB .	713	DF SWGR	SR		ON	ON	YES	1.24-181	HCC1-E14	A
81	03	A	03	SW-1-8Nî	36/480 VOLT AC TRFM DISCONECT SWITCH	DMG RE-278	SRVB	713	AE SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A
81	04	8	03	SW-1-9P1	36/480 VOLT AC TRFM DISCONECT SWITCH	DWG RE-27B	SRAB	713	DF SWGR	S		CLOSED	CLOSED	N/A	N/A	N/A	A
81	19	٨	20	18-348A	VS/TERM BOX W/RELAY LOC NR TB-348	DWG RE-25AW	AXLB	768	COL G1/8811-1/2	S		ON	OH	YES	RE-21MS	PNL-AC-E1	A
81	20	В	20	TB-349A	VS/TERM BOX W/RELAY LOC NR TB-349	DWG RE-25AW	AXLB	768	COL G1/8811-1/2	s		ON	ON	YES	RE-21MS	PNL-AC-E?	۸
42	030	8	20	TR-RC-410	RE/REACTOR COOLANT COLD LEG 3 PEN RECORDER		SRVB	735	CONT RM V8-A	SR		ON	ON	YES	RE-228P	VITAL BUS 2	A
42	030	A	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER		SRVB	735	CONT RM V8-A	S R		ON	ON	YES	RE-22BN	VITAL BUS 1	A
81	05	A	04	TRANS-1-8-N1	37/480V AUX EMERG BUS INI	DWG RE-27B	SRVB	713	NORMAL SWGR	s		ON	ON	YES	N/A	N/A	A
53	33	٨	04	TRANS-1-8N	37/480V EMERG BUS IN TRANS-1-8N	DWG RE-278	SRAB	713	AE SWGR	s		ON	ON	YES	N/A	4KV BUS AE	A
81	06	8	04	TRANS-1-9-P1	37/480V AUX EMERG BUS 1P1	DWG RE-27B	SRAB	713	OF SWGR	S		ON	ON	YES	N/A	N/A	A
53	34	8	04	TRANS-1-9P	37/480V EMERG BUS 1P TRANS-1-9P	DWG RE-278	SRAB	713	DF SWGR	s		ON	0N	YES	N/A	4KV BUS DF	A
42	018	B	19	TRB-RC-410	RC/LOOP IA COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	A CUBICLE	S R	19	ON	ON	YES	RE-228P	VITAL BUS 2	٨
42	01A	A	19	TRB-RC-413	RC/LOOP IA HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	A CUBICLE	SR	19	ON	ON	YES	RE-22BN	VITAL BUS 1	٨
42	028	8	19	TRB-RC-420	RC/LOOP 18 COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	P CUBICLE	S R	19	ON	ON	YES	RE-228P	VITAL BUS 2	A .
42	02A	A	19	TRB-RC-423	RC/LOOP IB HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	8 CUBICLE	SR	19	ON	ON	YES	RE-228N	VITAL BUS 1	٨
42	038	8	19	TRB-RC-430	RC/LOOP IC COLD LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	C CUBICLE	S R	19	ON	ON	YES	RE-228P	VITAL BUS 2	A
42	AEO	٨	19	TRB-RC-433	RC/LOOP IC HOT LEG RESISTANCE TEMPERATURE DETECTOR	VTI 7.41-33	RCBX	718	C CUBICLE	S R	19	ON	OH	YES	RE-228N	VITAL BUS 1	A

Page No. 19 Report Date/Time: 12-21-95 / 11:22:44

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

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LINE ND.	TRAIN	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Ruilding	Flr Fly	LOCATION> Rm. or Row/Col.	SORT	NOTES	Normal	Desired	REOD?	SUPPORTING SYS. DWG. NO./REV.	& SUPPORTI	NG COMPONENTS	ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
8130	A	04	TRF-51-02	45/SAFETY INJECTION HEAT TRACE PNL-SI-02	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	s		ENERG	ENERG	YES	RE-63H	MCC1-E11 R	κī	A
8132	8	04	TRF-51-06	45/SAFETY INJECTION HEAT TRACE PNL-51-06	DWG RE-63AQ	SFGB	722	PIPE TUNNEL	s		ENERG	ENERG	YES	RE-63H	MCC1-E11 B	K 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	8	18	TS-HV-558	VS/TEMP SWITCH FOR VS-F-558	DWG RB-176	SRAB	713	AE SWGR	s		ENERG	ENERG	VES	RE-21MZ			A
3206	A	67	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 B	K 8-20	A
3207	A	07	TV-CH-2008	CH/LETDOW ORIFICE CNNT ISOLATION	07.082-0006/8,07.086 -0002	RCBX	718	LETDOWN CUBICLE	S		OPEN	CLOSED	YES	RE-21FU	PNL-DC-3 B	K 8-20	A
3208	A	07	ту-сн-2000	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 B	K 8-20	٨
4211	A/B	07	A101-2M-91	MS/MAIN STEAM ISOLATION	150 6.24-2	SFGB	752	MSVH	SR	9	OPEN	CLOSED	VES	RE-21HX	PNL -DC - 3(2) 8-6	A
4212	A/B	07	TV-MS-1018	MS/MAIN STEAM ISOLATION	150 6.24-2	SFG8	752	MSVH	SR	9	OPEN	CLOSED	YES	RE-21HX	PNL-DC-3(2) 8-6	A
4213	A/B	07	TV-MS-101C	MS/MAIN STEAM ISOLATION	150 6.24-2	SFGB	752	MSVH	SR	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	150 6.24-1576	SFGB	768	HASAH	SR		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 B	K-8-8	A
4216	A	07	TV-MS-1118	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	150 6.24-1576	SFGB	768	HVZM	S R		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 8	K-8-8	A
4217	A	07	TV-MS-111C	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	150 6.24-1576	SFGB	768	NSVH	SR		OPEN	CLOSED	NO	RE-21HY	PNL-DC-3 B	K-8-8	A
1240	A	088	TV-SS-105A1	RC/HOTLEG SAMPLE HDR INSIDE CNMT ISOL TRIP VALVE	150 6.24-3402, RP-18A	RCBX	718	PENT	SR		OPEN	OPEN	YES	RE-21XH	PNL-DC-3 B	K 8-59	٨
1241	B	088	TV-SS-105A2	RE/HOTLEG SAMPLE HOR OUTSIDE CNMT ISOL TRIP VALVE	VTI 7.067-0133,0261	SECB	722	PENT A	SR		OPEN	OPEN	YES	RE-21XJ, ISO 6.24-3401,3754, RP-18A	PNL-DC-2 8	K 8-59	A
1239	ß	088	TV-SS-106D	SS/18 RCS HOTLEG RV SIDE OF LOOP STOP SAMPLE ISOLATION	ISO 6.24-3402, RP-18A	RCBX	738	B RCP CUBICLE	SR		CLOSED	OPEN	YES	RE-21XS	PN-AC-10 B	K10-20	A
3217	•	07	TV-SS-108	SS/PZR LIQUID SPACE SAMPLE ISOLATION	150 151-2821A, 3680, RP-18 A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	NO	RE-21KR	PNL-AC-10	BK 7	٨
3218	A	07	TV-55-110	SS/PZR VAPOR SPACE SAMPLE ISOLATION	DNG RM-32A, RP-18A	RCBX	738	PZR CUBICLE	R		CLOSED	CLOSED	NO	RE-21KR	PNL-AC-10	BK 7	A
8107	A/B	20	VERTED	01/MAIN INSTRUMENTATION DISPLAY PANEL	DN: RE-27A, 38A	SRVB	735	CONTROL	s		N/A	N/A	N/A	R/A	N/A		A
5235	Α	10	VS-AC-1A	VS/CONTROL ROOM A/C UNIT	DWG R8-17J, R8-17K	SRVB	713	CR VENT	SR		ON	ON	YES	RE-21MK	480V 8US 1	N BK N	A

Page No. 20 Report Date/Time: 12-21-95 / 11:22:44

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

LINE NO.	TRAIN	EQUIP	MARK ND.	SYSTEM/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Suilding.	Fir.Elv.	LOCATION> Rm. or Row/Col.	SORT	NOTES	Isanok	Desired	REOD?	DWG. NO. /REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5236	8	10	VS-AC-18	VS/CONTROL ROOM A/C UNIT	DWG R8-17J, R8-17K	SRVB	713	CR VENT	S R		ON	ON	YES	RE-21MK	480V BUS 17 BK P	
5242	A/B	0	VS-AD-10	VS/VS-F-408 DISCHARGE DAMPER	DWG R8-17J, R8-17K	SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-23MJ	MEC1-E10 BK C	A
5252	A/8	0	E-DA-3	VS/VS-AC-1A SUCTION DAMPER		SRVS	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	N/A	*
5253	A/8	0	VS-AD-4	VS/VS-AC-18 SUCTION DAMPER		SRVB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5254	A/8	0	Z-GA-2V	VS/VS-AC-1A DISCHARGE DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MJ	N/A	A
5217	A/B	0	VS-AD-6	VS/VS-AC-18 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	٨
5240	A/8	0	8-DA-2V	VS/VS-F-408 SUCTION DAMPER		SRV8	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	MCC1-E10 BK C	A
5241	A/8	0	P-DA-2V	VS/VS-F-40A DISCHARGE DAMPER		SRV8	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MJ	HCC1-E9 BK C	A
5256	A/B	0	VS-AFD-1	VS/ZONE 5 SUPPLY FIRE DAMPER		SRAB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21144	AC-PNL-E3 BK 4	A
5265	A/B	0	VS-AFD-10	VS/ZONE S BYPASS FIRE DAMPER		SRAB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	٨
5266	A/8	0	VS-AFD-11	VS/ZONE 4 RETURN FIRE DAMPER		SRAB	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5267	A/8	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	٨
5269	A/8	0	VS-AFD-14	VS/ZONE 3 RETURN FIRE DAMPER		SRVR	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	٨
5257	A/B	0	VS-AFD-2	VS/ZONE 4 SUPPLY FIRE DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5258	A/8	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		SRYB	713	CR VENT	SR	13	OPEN	OPEN	NO	RE-21MM	AE-PNL-E3 BK 4	A
5260	A/8	0	VS-AFD-5	VS/ZONE 3 SUPPLY FIRE DAMPER		SRV8	713	CR VENT	S R	13	OPEN	OPEN	NO	RE-21MH	AC-PNL-E3 BX 4	A
5261	A/B	0	¥S-AFD-6	VS/ZONE 3 BYPASS FIRE DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEN	HO	RE-21MM	AC-PNL-E3 BK 4	A
5262	A/8	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	SR	13	OPEN	OPEN	NO	RE-21MM	AC-PNL-E3 BK 4	A
5264	A/8	0	VS-AFD-9	VS/ZONE 4 BYPASS FIRE DAMPER		SRVB	713	CR VENT	SR	13	OPEN	OPEH	NO	RE-21MM	AC-PNL-E3 BK 4	A
5271	٨	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	٨	10	VS-C-1A1	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	VTI 10.1-281, 300	SRVE	713	CT VENT	SR		N/A	N/A	N/A	RE-21MS	AC-PNL-E3 BK 5	*
5272	8	12	VS-C-18	VS/TEMP CONT AIR COMP	WTI 10.1-281, 300	SRAB	713	CR VENT	SR		OFF	ON	YES	RE-21MS	AC-PNL-E4 BK 5	



Page No. 21 Report Date/Time: 12-21-95 / 11:22:44



BEAVER VALLEY POMER STATION UNIT I COMPOSITE BY EQUIPMENT ID SAFE SHUTDOMN EQUIY., WT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

REG. ISSUE	(11)	*	×	*	*	*	*	*	*	×	*	×	×	*	*	*	*	*	*	*	
REQ'D INTERCONNECTIONS & SUPPONITING CONPONENTS					÷	-	-	+	-	-											
ATERCOM	(16)	5 Xi 9	BK AF	BK AC	3 8K E	4 BK E	3 8K E	E4 BK E4	(3 8K (3	64 BK E4	1 8K 1	11 BK 1	1 BK 7	62 BK 6	1 8K 7	[2 BK 6	BK V	BK V	E 38 1	22 BK 2	BK W
REQ'D II	6 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	AC-PHL-E4 PK	MCCI-E9 BK AF	NCCI-EIO BK AC	PHE-AC-E3 BK E3-	PNL-AC-EA BK EA-	PNL-AC-E3 BK E3-	PNL-AC-E4 BK	PNL-AC-E3 BK	PNL-AC-E4 BK	PHL-AC-11 BK	PNL-AC-11 BK	PNL-AC-EI BK	PNL-AC-E2 BK	PNL-AC-EI BK	PNL-AC-E2 BK 6	NCCI-E3	NCC1-E4	PNL-AC-EI BK	PNL-AC-E2 BK	NCC1-E4
	(15)																				
SUPPORTENC SYS. DMC. NO./REV.	(15)	RE-21MS	21.7-38	2HI 2-38	RE-21MP	RE-21HP	RE-21MP	RE -21MD	RE -21MP	RE-21MP	RE-21MS	RE-21HS	RE-21MS	RE-21MI	RE-21HT	RE-21MT	RE-21MS	RE-21MS	RE-21MS	RE-21MS	RE-21MT
	(14)	N/A RE	ND RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	YES RE	NO RE	ND RE	18 ON	ND RE	
	(13) (N HIGH	OPEN Y	OPEN Y	OPEN Y	OPEN Y	OPEN Y	OPEN Y	OPEN Y	CLOSED Y	CLOSED Y	A N340	OPEN	OPEN Y	OPEN Y	OPEN	OPEN N	CLOSED N	CLOSED N	CLOSED ND
	(12) (N/A		CLOSED OP	CLOSED OP	CLOSED OP	CLOSED OP	CLOSED OF	CLOSED OP	CLOSED OP	CLOSED CL	CLOSED CL	CLOSED OF	CLOSED OF	CLOSED OP	CLOSED 09			CLOSED CL	CLOSED CL	CLOSED CI
	(11) (1	N/A	OPEN	CLO	CLO	CLO	CLO	CLO	CLO	CFO	CLO	C10	CIO	CLO	CLO	CLO	H340	OPEN	CLO	CIO	CLO
	(10) (1	S R	S R	5 8	SR	S R	S R	CK CK	8 5	8 5	œ	œ	2 8	S R	S R	S R	œ	œ	æ	*	CK.
/Col.								25	CEN BI	GEN N2	BANK	BANK					BANK	BANK	BANK	BANK	BICLE
LOCATION	(6)	CR VENT	CABLE MEZZ	CABLE MEZZ	DC31 R00F	DC#2 R00F	DIESEL GEN	DIESEL GEN	DIESEL GE	DIESEL GEN	BY FILTER BANK	BY FILTER BANK	VS-AC-7 RH	VS-AC-7 RH	AUX FD PUMP RM	AUX FD PUMP RM	BY FILTER BANK	BY FILTER BANK	BY FILTER BANK	BY FILTER BANK	BLENDER CUBICLE
EQUIPMENT F hr . E hv .	(8)	713	725	725	756	756	745	745	745	745	168	768	735	735	735	735	768	768	768	768	112
						~		~			1						-				
	(1)	SRVB	SRVB	SRVB	A DGBX	A DGBX	DGBX	DCBX	DGBX	DGBX	AXLB	AXLB	SFG8	\$ SFGB	SFGB	SFG8	2) AXLB	2) AXLB	AXLB	AXLB	4 AXLB
/Rev./Zone	enwaren ()	1, 300			VTI 10.1-1073,R8-27A DGBX	VTI 10.1-1073, R8-27A DGBX					11-11	11-11	SECT 24-24	SECT 24-24	SECT 24-24	SECT 24-24	1/2-10 1/2)	1/2-10 1/2)	1/2-10)	-	R8-68 (J-10 1/2)84-4 AX18
		0.1-281	8-171	8-171	0.1-107	01-1-0	A, VTI 1074	R8-27A, VTI 10.1-1074	A, VII 1074	A, VTI 1074	I SECT]	1 133S (R8-8H (K-10)	0I-f) I
Swa	amusance unnusat	VTI 1	R DNG R	R DWG R	I IIA	ATI 1	98-27A, V 19.1-1074	R8-27A, 10.1-10	R8-27A, VT 10.1-1074	R8-27A, VT 10.1-1074	8-98	1 RB-8	R8-5185P	RB-SLASP	R R8-51	R RB-51	RB-8H (L	R3-8H (L	R8-8H (K	88-88	
		EVER TK	T DAMPE	T DAMPE			ER	æ	æ	ER	L-1,8,9	1-7,8;9	TSIDE	TSIDE	T DAMPE	T DAMPE	ž	¥	5	DAM	XHAUST
	*****	RECT	EXHAUS	EXHAUS	DAMPER	DAMPER	LY DAMP	LY DAMP	LY DAHP	LY BAND	I IVS-F	-svi]	P RM OU	P RM OU	EXHAUS	EXHAUS	UPSTRE	UPS FRE	LEAK IN ISOL	LEAK IN ISOL	NOON E
SYSTEM/EQUIPMENT DESCRIPTION	(5)	AIR CO	ICHGEAR	ICHGEAR	CHAUST	CHAUST	IR SUPPI	IR SUPPI	IR SUPPI	IR SUPP	ER BANK	ER BANK	TION DA	TION DA	HE GHI	NS GHIL	FR BANK	ER BANK	ER RANK	ER BANK	CUBICLE
SYS		VS/TEMP CONT AIR COMP RECIEVER TK VTI 10.1-281, 300 AIR DRVER	VS/ENERG SWITCHGEAR EXHAUST DAMPER DNG RB-17L	VS/EMERG SWITCHGEAR EXHAUST DAMPER DWG R8-171	VS/DG BLDG EXHAUST DAMPER	VS/DG BLDG EXHAUST DAMPER	VS/DG BLDG AIR SUPPLY DAMPER	VS/DG BLDG AIR SUPPLY DAMPER	VS/DG BLDG AIR SUPPLY DAMPER	VS/DG BLDG AIR SUPPLY DAMPER	VS/MAIN FILTER BANK [IVS-FL-7,8,9] RB-8J SECT 17-17 IN DAMPER	UVS/MAIN FILTER BANK [IVS-FL-7,8;9] RB-8.3 SEC OUT DAMPER	VS/QUENCH SPRAY PEND RM OUTSIDE AIR IN ESOLATION DAMPER	VS/QUENCH SPRAY PUNNE RM OUTSIDE AIR IN ISOLATION DANDER	VS/AUX FEED PLAD RM EXHAUST DAMPER RB-5L85P	VS/AUX FEED PLOOP RM EXHAUST DAMPER RB-5L85P	VS/MAIN FILTER BANK UPSTREAM BYPASS ISOLATION DAMPER	VS/MAIN FILTER BANK UPSTREAN BYPASS ISOLATION DAMPER	VS/MAIN FILTER RANK LEAK COLLECTION TRAIN B IN ISOL	VS/MAIN FILTER BANK LEAK COLLECTION TRAIN A IN ISOL DAM	VS/CHG PLARP CUBICLE NORM EXHAUST
		VS/TEMP CO AIR DRVER	VS/EM	VS/EM	V5/70G	VS//06	VS/DG	VS/DG	VS/DG	VS/DG	VS/MAIN F	VS/MAIN FI	VS/QU AIR I	VS/QU AIR I	NV/SA	US/AU	VS/MA BYPAS	VS/MA BYPAS	VS/MA COLLE	VS/WA	VS/CHG DAMPER
	(*	80	×	89		0	*	8	×	80	×	80			2	j.	
MARK ND.	(4)	VS-C-181	v5-0-16A	45-D-168	VS-0-22-1A	VS-D-22-18	VS-D-22-2A	vs-0-22-28	vs-0-22-20	VS - D - 22 - 20	VS-D-4-10A	VS-D-4-108	VS-D-4-12A	VS-D-4-128	VS-0-4-15A	VS-D-4-158	VS-D-4-1A	VS-D-4-18	VS-D-4-2A	VS-D-4-28	VS-D-4-38
EQUIP		10 V.	V 0	A 0	A 6	V 0	0	0 V	0 V	0 N	08A V	08A V	0	0	0 V	0 V	08M V	08A V	V 160	08A V	08A V
EQUIP TRAIN CLASS	(1) (2) (3)	80	*	85	×	-	*	85	**	æ	A/8	A/8	×	80	*	80	×	æ	*		
MI .	(1)	5274	5205	5206	5327	5328	5329	2330	2331	2332	5220	5221	5224	5225	5226	5227	5207	5208	5209	5210	5211

Page Mo. 22 Report Date/Time: 12-21-95 / 11:22:44



BEAVER VALLEY PONER STATION UNIT 1 COMPOSITE BY EQUIPMENT 12 SAFE SHUTDOMN EQUIPMENT 1157 (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

. 10	-																		
REG.	(11)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	«	*	*
REQ'D INTERCONNECTIONS & SUPPORTING CONFONENTS	(16)	PNL-AC-E1 NK 3	PNL-AC-E2 BK 2	N/N	N/A	N/A	N/A	PHL-AC-11 BK 1	PML-AC-11 BK 1	MCCI-E9 BK U	MCCI-EIO BK J	NCCI-E9 BK V	WCCI-EIO BK K	N/A	M/A	N/N	N/N	N/A	PNL-NC-11 BK S
SUPPORTING SYS. I DMG. ND. /REV. I	(15)	RE-21MS	RE-21MS	RE-21MS	RE-23MS	RE-21MS	RE-21MS	RE-23MS	RE-21MS	RE-21ML, RB-20, 1 MCC1-E9 7J, 17K	RE-21ML, R8-20, 1 MCC1-E10 7.1, 17K	RE-21ML, R8-20, 1 MCC1-E9 73,17K	RE-21ML,R8-20,1 MCC1-E10 73,17K	R8-20,17J,17K	R8-20,17J,17K	R8-20, 17J, 17K	R8-20,17J,17K	R8-20,17J,17K	RE-21984
NO 200	-									RE- 7J,	RE- 7.1,	RE- 7.J.	RE- 7.J.	88	-88	88	88	88	
> POMER	(14)	9	9	YES	¥	YES	ON	YES	YES	QN	8	R	æ		£	8	9	8	0
Destred		OPEN	OPEN	OPEN	0PEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	N3-40	OPEN	OPEN	OP EN	CLOSE
Normal		NEGO	OPEN	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	N340	OPEN	OPEN	OPEN	N3d0	OPEN	OPEN	OPEN	OPEN	NEW	CLOSED CLOSED NO
SORT NOTES	(11)											13	13	13	13	13	13	8	
		~	œ	S R	5	es S	5	œ	œ	85	s a	S R	S R	28	ex S	2 K	8	S & 13	œ
LOCATION	(6)	BY BATCH TANK	BY BATCH TANK	W	NDRTH WALL	W	NORTH WALL	BY FILTER BANK	BY FILTER BANK	ENT	ENT	ENT	ENT	ENT	ENT	ENT	ENI	ENT	OVERNEAD
		8 Å 8	8 A 8	AT FAN	NORT	AT FAN	1 XON	84 5	BY F	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	CR VENT	OVER
72.1	(8)	768	768	768	768	768	768	768	768	113	713	713	113	113	713	713	713	713	768
Building	(1)	AULB	AXLB	AXLS	AXLB	AXLB	AXLB	AXLB	AXLB	SRVB	SRVR	SRVB	SRVB	SRVB	SRVB	SRVB	BWAR	SAME	AXLB
Dwg. No./Rev./Zone	(9)	RB-8H (K 1/2-9 3/8)	RB-8H (K1/2-9 3/8)	RB-86 (6 1/2-11)	R8-86 (6 1/2-11)	88-86 (6 1/2-12)	88-86 (6 1/2-12)	RB-8H (K-10 1/4)	R8-8H (K-10 7/8)	VTI 10.1-326,327,328,329	VII 10.1-326,327,328,329	VTI 10.1-326,327,328,329	VTI 10.1-326,327,328,329	VTI 10.1-326,327,328,329	VTI 10.1-326,327,328,329	VTI 10.1-326,327,328,329	VII 10. 1-326, 327, 328, 329	VT! 10.1-326,327,328,329	R8-8H (K-10 1/4)
SYSTEM/EQUIPMENT DESCRIPTION	<pre>cs #005#805#885#8888888888858555588688899</pre> (5)	VS/CHS PUMP CUBICLE ENER EXHAUST	VS/CHG PLAND CUBILICE ENER EXHAUST	VS/LEAK COLL EXHAUST FAN 4A SUCTION ISOLATION DANFER	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	VS/LEAK COLL EXHAUST FAN 48 SUCTION ISOLATION DAMPER	VS/LEAK COLL EXHAUST FAN 48 DISCHARGE BACKFLOW DAMPER	VS/MAIN FILTER BANK [IVS-FL-4,5,6] RB-BH IN DANPER	VS/MAIN FILTER BANK [IVS-FL-4,5,6] RB-BH OUT DAMPER	VS/CONTROL ROOM AIR INTAKE DANDER	VS/CONTROL ROOM AIR INTAKE DANDER	VS/CONTROL RM AIR EXHAUST DAMPER	VS/COMTROL RM AIR EXHAUST DAMPER	VS/MIN OUTSIDE AIR INTAKE DANDER	VS/MAX OUTSIDE AIR INTAKE DAMPER	VS/AIR RECIRC DAMPER	VS/AIR RECIRC DAMPER	VS/VS-F-40A & 8 EXHAUST DAMPER	VS/CNMT PLRCE & EXHAUST TO MAIN FILTER BANK DANDER
	(4)	VS-D-4-4A	VS-D-4-48	NS-8-4-7A	45-D-4-78	VS-D-4-8A	48- b- d- SA	46-10-G-SA	NS-D-4-98	VS-D-40-1A	VS-D-40-18	VS-D-40-IC	01-09-0-SA	VS-D-40-1F	VS-D-40-16	HI-09-Q-SA	XI-04-0-SA	WI-09-0-SA	VS-0-5-2
	(3)	100	OBA	0	0	•0	0	064	084	08A	084	084	064	0	0	0	0	0	¥80
	(2)	*	-	*	80	*		A/8	8/8	A/8	A/B	A/8	8/8	8/8	A/B	A/B	88	A/B	*
NO.	Ξ	2125	5213	\$125	5215	5216	5217	5218	5519	5243	5244	5245	5246	5247	5248	5249	\$250	5251	5228

Page No. 23 Report Date/Time: 12-21-95 / 11:22:44

BEAVER VALLEY POWER STATION UNIT 1 COMPOSITE BY EQUIPMENT 10 SAFE SHUTDOWN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

4

LINE ND.	TRAI	EQUIP N CLASS	MACY NO	SYSTEN/EQUIPMENT DESCRIPTION	Dwg. No./Rev./Zone	Building	Flr Elv.	LOCATION	SORT	NOTES	Hormal	Destred	REOD?	DMG. NO./REV.	REQ'D INTERCONNECTIONS & SUPPORTING COMPONENTS	S ISSUE
(1)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
51010	A	0	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	ENTS	705	A CUBICLE	S R		CLOSED	OPEN	YES	RE-21MW	MCC1-E1 BK 9	A
5101E	٨	0	VS-D-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	A CUBICLE	SR		CLOSED	OPEN	YES	RE-21MM	MCC1-E1 BK B	*
51020	8	0	VS-D-5781	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	B CUBICLE	SR		CLOSED	OPEN	YES	RE-21MW	MCC1-E2 BK B	٨
5102E	8	0	VS-D-5782	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	B CUBICLE	SR		CLOSED	OPEN	YES	RE-21MM	MCC1-E2 BK B	٨
5103D	A/B	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	RB-2E RB-26A & C	INTS	705	C CUBICLE	SR		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 8K E	A
5103E	A/B	0	VS-D-57C2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	RB-2E RB-26A & C	INTS	705	C CUBICLE	SR		CLOSED	OPEN	YES	RE-21MW	MCC1-E1/2 BK E	٨
5229	A	08A	VS-D-7-2A	VS/AUX BLOG A SYSTEM MAIN FILTER BANK IN DAMPER	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	RB-8G (SECT Y-Y)	AXLB	768	ABOVE EXH FANS	R		CLOSED	CLOSED	NO	RE-21HA	PNL-AC-8 BK 45	A
5277	Α.	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	в	10	VS-E-148	VS/RIVER WATER COOLING COILS	VTI 10.1-45	SRVB	713	CR VENT	s		N/A	N/A	N/A	N/A	N/A	٨
5203	A	09	VS-F-16A	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	SR	12	ON	ON	YES	RE-21MZ	MCC1-E9 BK AF	A
5204	8	09	VS-F-168	VS/EMERG SWITCHGEAR EXHAUST FAN	DWG RB-17L	SRVB	725	CABLE MEZZ	SR	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	۸
5325	8	09	VS-F-228	VS/DG BLDG EXHAUST FAN	RB-27A, VTI 10.1-242	DGBX	756	DG#2 ROOF	SR		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	SRAB	713	CR VENT	SR		ON	ON	YES	RE-21MJ	MCC1-E9 BK C	
5238	8	09	VS-F-408	VS/CONTROL ROOM RETURN AIR FAN	DWG RB-17J, RB-17K	SRVB	713	CR VENT	SR		ON	ON ·	YES	RE-21MJ	MCC1-E10 BK C	A
5222	A	09	¥S-F-4A	VS/LEAK COLLECTION EXHAUST FAN	DWG RM-28, VTI 10.001-153	AXLB	768	NE CORN'R	SR		ON	ON	YES	RE-23MS	480V BUS IN BK5	٨
5223	8	09	¥S-F-48	VS/LEAK COLLECTION EXHAUST FAN	DMG RH-28, VTI 10.001-153	AXLB	768	NE CORNER	SR		OFF	ON	YES	RE-21MS	480V BUS 1P BK6	A
5201	A	09	VS-F-55A	VS/ENERG SWITCHGEAR SUPPLY FAN	DWG R8-17L	SRAB	725	CABLE MEZZ	SR	12	OFF	ON	YES	RE-21MZ	NCC1-E9 BK P	A
5202	8	09	VS-F-558	VS/ENERG SWETCHGEAR SUPPLY FAN	DWG RE-17L	SRVB	725	CABLE MEZZ	SR	12	OFF	ON	YES	RE-21MZ	MCC1-E10 BK X	A
51010	A	09	45-F-57A	VS/INTAKE STRUCTURE CUBICLE #1 SUPPLY FAN	RB-ZE	INTS	705	A CUBICLE	S R		011	ON	YES	RE-21MW	HCC1-E1 BK B	A
51020	8	09	¥S-F-578	VS/INTAKE STRUCTURE CUBICLE #2 SUPPLY FAN	RB-2E	INTS	705	B CUBICLE	SR		ON	ON	YES	RE-23MW	NEC1-E2 BK B	A

Page No. 24 Report Date/Fime: 12-21-95 / 11:22:44

BEAVER VALLEY POMER STATION UNIT I COMPOSITE BY EQUIPMENT ID SAFE SHUTDOMN EQUIPMENT LIST (SSEL) 528 INDIVIDUAL PLANT COMPONENTS

REG. ISSUE	(11)	*	*	*		*
OP ST> POWER SUPPORTIRE SYS REP'D INTERCOMMECTIONS REG. Normal Desired REQD? DMG. NO./REV. & SUPPORTING COMPONENTS ISSUE	(16)	NCCI-E1/2 EX E	RE-ZIKW,RC-32E, BUS IAE BK E10 324,150 6.24-801, RP-4K, 41	RE-ZIKW.RC.32E, BUS 10F BK F10 321,150 6.24-801, RP-4K, 4L	YES RE-ZIKX,RC-32E, BUS IAE OR 10F 8 32.5,150 6.24-801, RP-4K, 4L	N/A
SUPPORTING SYS. DMG. NO./REV.	(15)	RE-21MM	RE-21KW, RC-32E, 323, I SO 6. 24-801, RP-6K, 4L	RE-21KW.RC-32E, 32J,150 6.24-801, RP-4K, 4L	RE-21KX, RC-37E, 32J, ISO 6. 24-801, RP-4K, 4L	
A REQD?	(14)	YES	YES	YES	YES	QN
ST Bestre	(13)	8	8	æ	8	N/A
Moreal	(12)	M	æ	OFF	91E	N/A
NOTES	(11)					
1905	(10)	S R	88 57	5	a s	5
LOCATION	(6)	C CUBICLE	A CUBICLE	B CUBICLE	C CUBICLE	YARD
Building Flr.Elv.	(8)	705	705	705	705	135
Building	(1)	INTS	INTS	STAL	INTS	YARD
Construction construction construction construction construction building Fir-Eiv. Rev. or Row/Col. SOUT NOTES	(9)	RB-2E	2.42-14, 16, 23	2.42-14,15,23	2.42-14,16,23	DNC RV-34A, RP-6C
SYSTEN/EQUIPMENT DESCRIPTION	(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (15) (15) (16) (17)	VS/INTAKE STRUCTURE CUBICLE 03 1 SUPPLY FAM	RW/RIVER MATER PUMP	RW/RIVER WATER PLAND	RW/RIVER WATER PUMP	WT/DEMIN WATER STORAGE TANK
NARK ND.	(\$)	VS-F-57C	MR-P-1A	06 WR-P-18	WR-P-1C	\$106 N/A 21 WE-TK-10
EGUIP TRAIN CLASS	(2) (3)	5103C A/B 09	5161 A 05	98	5103 A/B 06	21
TRAIN	(2)	A/8	*		A/B	N/N
NO.	(1)	51030	1015	5102	5103	\$106

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)

and Paul V. Davis

William Hwang

Carmen V. Mancuso

Patrick G. Pauvlinch

e-

Glenn S. Ritz

G. Thomas Westbrook

Dize 2220, 1995 Date

22/95

12-22-95 Date

12/22/95 Date

12-22-95 Date

12-22-95 Date



Page No. 1 Report Date/Time: 12-21-95 / 11:28:23

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

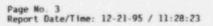
NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Flr.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum		Demand?	OK?	OK?	act OK?	OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		(16)	
8001	02	480VUS-1-8-N	37/1N 480V SUBSTATION 480VUS-1-8-N	SRVB	713	AE SHGR	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8002	02	480VUS-1-8-N1	37/480 VOLT AC EMERGENCY SHGR	SRVB	713	NORMAL SWGR	713	YES	ABS	CRS	YES	YES	NO	YES	°10	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-IAE	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-18	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-IA CUBICLE	722	YES	GIP	GIP	YES	N/A	YES	YES	YES	NO
5114	21	CH-E-78	CH/CHARGENG PUMP HEAT EXCH	AXLB	722	CH-P-18 CUBICLE	722	YES	GIP	GIP	YES	N/A	YES	YES	YES	NO

Page No. 2 Report Date/Time: 12-21-95 / 11:28:23

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

LINE NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT Description	Building	Flr.Elv.	LOCATION> Ra. or Row/Col.	Elev.	<40'?	Spectrum	Demand Spectrum	Demand?	OK?		act OK?	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-IC 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-18	CH/CHARGING PUMP	AXLB	722	CH-P-18 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-18	CH/PORIC ACID TANK	AXLB	752	BA TANK CUBICLE	752	YES	GIP	GIP	N/A	N/A	NO	NO	NO	NO
8012	14	0C-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 - SW8D - 3	39/125 VDC SWITCHBOARD NO 3	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8015	11	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-18	EE/DIESEL GENERATOR START AIR COMPRESSOR	DGBX	735	DIESEL GEN #2	735	AE2	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-28	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-18	EE/FUEL OIL TRANSFER PUMP	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	жо	YES	YES	NO	NO
5305	05	EE-P-IC	EE/FUEL OIL TRANSFER PUMP	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
5306	05	EE-P-10	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 OI. STORAGE TANK	YARD	724	YARD	724	YES	GIP	GIP	N/A	N/A	YES	N/A	NO	YES
5308	21	EE-TK-18	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

NO.		ASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	EQUIPMENT Flr.Elv.	Rs. or	Row/Col.	Elev.		Spectrum		Demand?	OK?	OK?	act OK?	OK?	Notes
(1)		2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)		(17)
5309	21	1	EE-TK-2A	EE/EDG FUEL OIL DAY TANK	DGBX	735	DIESEL	GEN #1	735	YES	GIP	GIP	YES	N/A	YES	HO	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	1.3	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	ÐGBX	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	NG	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-48	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	ŧ	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	E	EE-TK-4E	EE/DIESEL ENGINE START AIR TANK	DGBX	735	DIESEL	GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NC	NO
5322	21	1	E-TK-4F	EE/DIESEL ENGINE START AIR TANK	DCBX	735	DIESEL	GEN #2	735	YES	GIP	GIP	YES	N/A	NO	YES	NO	NO
1206	07	F	CV-CH-122	CH/CHARGING FLOW CONTROL VALVE	AXLB	722	BLENDER		722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4107	C 07	F	CV-FW-103A	FW/3A AFW PUMP RECIRCULATION VALVE	SFGB	735	AUX FEE	D PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4108	C 07	F	FCV-FW-103B	FW/38 AFW PUMP RECIRCULATION VALVE	SFGB	735	AUX FEE	D PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
2118	07	F	CV-RC-455C1	RC/(PCV-RC-455C) FLOW METERING	RCBX	767	PRZR CU	BICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
2119	07	F	CV-RC-455C2	RC/(PCV-RC-455C) FLOW METERING	RCBX	767	PRZR CU	BICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
2120	07	F	CV-RC-455D1	RC/(PCV-RC-455D) FLOW METERING	RCBX	767	PRZR CU	BICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
2121	07	Ŧ	CV-RC-455D2	RC/(PCV-RC-455D) FLOW METERING	RCBX	767	PRZR CU	BICLE	767+	NO	ABS	CRS	YES	NO	N/A	YES	NO	YES
8133	20	F		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	F		FP/CO2 SYSTEM #1 PNL FOR THE DIESEL GEN ROOM EAST	DGBX	735	DIESEL	GEA #2	735	YES	ABS	CRS	YES	NO	YES	YES	но	YES
1205	B 20	F	I-CH-122A	CH/CHARGING HEADER FLOW INDICATOR	SRVB	735	CONT RM	88-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
2228	B 20	f		CH/RCP-IC SEAL INJECTION FLOW INDICATOR	SRVB	735	CONT RM	VB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
2229	B 20	F	1-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

Page No. 4 Report Date/Time: 12-21-95 / 11:28:23

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

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	EQUIP	MARK NO.	SYSTEM/EQUIPMENT Description	Ruilding	Fir Fly	LOCATION> Rm. or Row/Col.	Fley	<40'?	Spectrum	Demand Spectrum	Demand?	OK7	OK?	act OK?	OK?	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
22308	20	F1-CH-130	CH/RCP-1A SEAL INJECTION FLOW INDICATOR	SRVB	735	CONT RH VB-A	735	TES	ABS	CRS	YES	YES	YES	YES	YES	YES
32128	20	F1-CH-150	CH/LETDOWN FLOW INDICATION	SEVB	735	CONT RM BB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
41038	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-1008	FW/AUX FEED TO SCB INDIC	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
41058	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
41070	18	F15-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	F1S-FW-1518	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	SRV8	725	CONT RM BB-C	735	YES	ABS	CRS	NO	NO	YES	NO	NO	YES
4119	20	FR-MS-488	FW/RC-E-IB 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-IC LEVEL RECORDER	SRVB	735	CONT RM BB-C	735	YES	ABS	CRS	NO	NO	YES	NO	NO	YES
1205A	18	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-IC 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-18 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-IA SEAL INJECTION FLOW TRANSMITTER	SFGB	722	PENT A	727	YES	285	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	C 75	YES	YES	YES	YES	YES	NO
4104A	18	FT-FW-1008	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-1GOC	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-38	FW/MOTOR DRIVEN AUX FEEDWATER PUMP	SFG8	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	NC	NO
2133	21	GN-TK-18	GN/NITROGEN HEADER ACCUMULATOR	RCBX	767	PRZR CUBICLE	767	NO	GIP	GIP	N/A	N/A	NO	NO	NO	M 0
1229	07	HCV-CH-186	CH/RCP SEAL SUPPLY, INT	AXLB	722	BLENDER ROOM	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
1233	07	HCV-CH-389	CH/EXCESS LETDOWN DRA	RCBX	707	EXC LETD PLATF	707	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO



Page No. 5 Report Date/Time: 12-21-95 / 11:28:23

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

	NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Fir.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum		Demand?	OK?	OK?	Inter- act OK?	OK?	Notes
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
3	4204	07	HCV-MS-104	MS/RESIDUAL HEAT RELEASE	SFGB	752	MSAH	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	1)	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	SRV8	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
	41218	20	L1-FW-474	FW/RC-E-IA NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES .	YES	YES	YES
	41228	20	L1-FW-475	FW/RC-E-1A NARROW RANGE LEVEL INDICATOR	SRAB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	41238	20	LI-FW-476	FW/RC-E-1A NARROW PANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	41248	20	LI-FW-484	FW/RC-E-18 NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	41258	20	L1-FW-485	FW/RC-E-1B NARROW RANGE LEVEL INDICATOR	SRV8	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	41268	20	LI-FW-486	FW/RC-E-18 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-IC NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RH VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	41288	20	LI-FW-495	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	SRVB	735	CONT RH VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	4129B	20	LI-FW-496	FW/RC-E-IC NARROW RANGE LEVEL INDICATOR	SRAB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	12013	20	L1-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-1008	QS/RWST LEVEL INDICATOR	SRVB	735	CONT RM VB-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	1203B	20	L1-QS-100C	QS/RWST LEVEL INDICATOR	SRVB	735	CONT RM V8-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	3124B	20	L1-RC-459A	RC/PZR LEVEL INDICATOR	SRVB	735	CONT RM BB-B	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	31258	20	L1-RC-460	RC/PZR LEVEL INDICATOR	SRVB	735	CONT RM 88-8	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	3126B	20	L1-RC-461	RC/PZR LEVEL INDICATOR	SRVB	735	CONT RM 88-8	735	YES	ARS	CRS	YES	YES	YES	YES	YES	YES
	41018	20	LI-WT-104A1	WT/WT-TK-10 LEVEL INDICATOR	SRVB	735	CONT RH V8-C	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
	41026	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





Page No. 6 Report Date/Time: 12-21-95 / 11:28:23

NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Flr.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum					Inter- act OK?		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
12048	20	LR-QS-100	QS/RWST LEVEL RECORDER	SRV6	735	CONT RM V8-A	735	YES	ABS	CRS	NO	NO	NO	YES	NO	YES
4121A	18	LT-FW-474	FW/RC-E-IA 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 TRANSMITIER	RCBX	718	ANNULUS COL 15	155	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 HARROW RANGE LEVEL TRANSMITTER	RCBX	718	ANNULUS COL 9	122	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/RE-E-IE 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-IC 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-1008	QS/RWST LEVEL TRANSMITTER	YARD	735	AT RWST	737	YES	85	GRS	YES	YES	N/A	NO	NO	NO
1203A	18	LT-QS-100C	QS/RWST LEVEL TRANSMITTER	YARD	735	AT RWST	737	YES	85	GRS	YES	YES	N/A	NO	NO	NO
1204A	18	LT-QS-1000	QS/RWST LEVEL TRANSMITTER	YARD	735	AT RWST	737	YES	В.	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 CUS	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 TRANSHITTER	YARD	735	AT DWST	735	YES	85	GRS	YES	YES	YES	YES	YES	NO
8118	01	HCC-1-14	37/480V MCC FED FROM 480V SUBSTA 1-4 BUSIH BKR4H7	AXLB	735	SOUTH OF LWFLIB	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	HCC-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



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Page No. 7 Report Date/Time: 12-21-95 / 11:28:23

12	EQUIP	MARK NO.	SYSTEM/EQUIPHENT DESCRIPTION	Building	Fir.Elv.		Elev.		Spectrum	Demand Spectrum	Demand?		OK?	Inter- act OK?		Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	Contraction of the second second	(16)	
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
6030	01	MCC-1-E13	EE/480V MOTOR CONTROL CENTER	SFGB	756	HCC ROOM	755	YES	ABS	CRS	YES	YES	YES	YES	ES	YES
8031	01	MCC-1-E14	EE/480V MOTOR CONTROL CENTER	SEGB	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 8-7/8	735	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8021	01	MCC-1-E4	EE/48GV MOTOR CONTROL CENTER	AXLB	735	-COL 8-7/8	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
8022	01	MCC-1-E5	EE/480V MOTOR CONTROL CENTER	SEGB	735	W CABLE VAULT	735	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8023	01	MCC-1-E6	EE/480V MOTOR CONTROL CENTER	SEGB	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	80	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	A80	MOV-CH-1158	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-1150	CH/RWST-CHARGING PUMP ISOLATION	AXLB	722	BLENDER	724	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
1211	08A	HOV-CH-115E	CH/VET ISOLATION VALVE	AXLB	722	BLENPER	737	YES	ABS	CRS	YES	NO	N/A	YES	NO	MO
1248	08A	MOV - CH - 350	CH/EMERGENCY BORATION ISOLATION	AXLB	722	BLENDER	722	YES	ABS	CRS	YES	NO	N/A	NO	NO	NG
3209	08A	MOV-CH-378	CH/RCP SEAL LEAKOFF ISOLATION	REBX	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	SFG8	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4110	08A	MOV-FW-1518	FW/AUX FEED FLOW CONTROL VALVE	SEGB	735	AUX FEED PUMP	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4111	08A	MOV-FW-151C	FW/#JX FEED FLOW CONTROL VALVE	SEGB	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	SFG3	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	SEGB	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	10	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	MCV-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



Page No. 8 Report Date/Time: 12-21-95 / 11:28:23

NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Flr.Elv.		Elev.		Spectrum	Demand Spectrum	Demand?			Inter- act OK?		Notes
(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 - 10281	RW/PUMP DISCHARGE ISO	INTS	705	B CUBICLE	705	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
5107	08A	MOV-RW-10282	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	HOV-RW-106A	RW/CCR HT EXCH ISOLATION	AXLB	722	EAST CENTRAL	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
5121	68A	MOV-RW-113A	RW/DIESEL GEN COOLING ISO	DGBX	735	DIESEL GEN #1	735	YES	ABS	CHS	YES	YES	N/A	YES	YES	NO
5122	08A	HOV RW 1138	RW/DIESEL GEN COOLING ISO	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
\$123	08A	MOV-RW-113C	RW/DIESEL GEN COOLING 150	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 150	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	11M-NI-31A	02/SOURCE RANGE PREAMPLIFIER	SFGB	735	W CABLE VAULT	740	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8017	20	NM-N1-32A	02/SOURCE RANGE PREAMPLIFIER	SFG8	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	DCBX	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-1A-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-1A-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-1018	NS/B LOOP ATH STEAM DUMP	SFGB	752	MSAH	778	N/A	ABS	CRS	YES	YES	N/A	YES	NO	YES





Page Mo. 9 Report Date/Time: 12-21-95 / 11:28:23

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

14

NO.	EQUIP	MARK NO	SYSTEM/EQUIPMENT DESCRIPTION	Building	Flr.Elv.	LOCATION> Rm. or Row/Col.	Elev.	<40'?	Spectrum	Demand Spectrum	Demand?		Anchor OK?	Inter- act OK?	OK?	Notes
(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 ATH STEAN 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	K /	NO
2109	07	PCV-RC-455D	RC/PRESSURIZER PORV	RCBX	767	PZR CUBICLE	767+	NO	ABS	CRS	YES	NO	N/A	NO	NO	NC
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-1308	RW/SEAL WATER PCV FOR RW PUMP	ETHE	705	B CUBICLE	643	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
\$112	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
21108	20	P1-RC-402A	RCS/WIDE RANGE PRESSURE INDICATOR	SRVB	735	CONT RH VB-A	735	YES	ABS	CRS	YES	YES	YES	YES	YES	YES
2111B	20	P1-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-IE	38/VITAL BUS DIST PANEL IE	SRVB	713	RELAY	719	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8035	14	PNL-AC-BUS-1F	38/VITAL BUS DIST PANEL IF	SRAB	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	AEZ	NO	NG
8038	14	PNL-AC-E3	38/120 VOLT AC POWER DISTRIBUTION PANEL	SRVB	713	AE SWGR	717	YES	ABS	CRS	YES	NG	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	SRAB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8040	20	PNL-BLDG-SER-A	VS/PLANT VENTILATION CONTROL PANEL	SRAB	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



Page No. 10 Report Date/Time: 12-21-95 / 11:28:23

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

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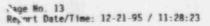
NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Guilding	Flr.Elv.	LOCATION> Rm. or Row/Col.	Elev.	<40'?	Spectrum	Demand Spectrum	Demand?	OK?	OK?	act OK?	OK7	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
5323	20	PNL-DIGEN-1	EE/DIESEL GENERATOR #1 CONTROL PANEL	DGBX	735	DIESEL 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	PUL-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-1018	MS/INSTRUMENT RACK FOR SOV-MS-1018 AND SOV-MS-10184	SEGB	751	MSAH	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	KE 2	ABS	CRS	YES	YES	YES	YES	YES	NO
8115	20	PNL-PAS-RA	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	SRAB	713	RELAY ROOM	717	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8116	20	PHL PAS RB	36/POST ACCIDENT SAMPLE SYS RELAY PANEL	SRVB	713	RELAY ROOM	717	YES	ABS	CRS	YES	YES	YES	YES	YES	10
8048	14	PHL PR-HIR-A	RC/PRESSURIZER HEATERS POWER DIST. PANEL	SECB	735	W CABLE VAULT	740	YES	ABS	CRS	YES	NO	YES	YE -	NO	YES
80.19	14	PNL-PR-HTR-B	RC/PRESSURIZER HEATERS POWER DIST. PANEL	SEGB	735	E CABLE VAULT	740	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8050	14	PRL-PR-HTR-D	RC/PRESSURIZER HEATERS POWER DIST. PANEL	SEGB	735	W CABLE VAULT	740	¥ES	ABS	CRS	YES	NO	YES	YES	NO	YES
8051	14	PHL - 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	PHL REL 19	36/DG #1 PROTECTION RELAY PANEL	SRVB	713	RELAY	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8053	20	PHL-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	PHL-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	PHL-REL-37	38/RELAY PANEL	SRVB	713	AE SWGR	713	YES	ABS	CRS	YES	YES				NO
8062	20	PNL-REL-38	38/RELAY PANEL	SRVB	713	DF SWGR	713	YES	ABS	CRS	YES	YES		1.000	YES	

Page No. 11 Report Date/Time: 12-21-95 / 11:28:23

NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Fir.Elv.	LOCATION> Rm. or Row/Col.	Elev.	<40'?	Spectrum	Demand Spectrum	Demand?	OK?	OK?	act OK?	OK?	Hotes
(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	SRAB	713	MORMAL SWGR	713	YES	ABS	CRS	YES	YES	YES	YES	¥. 5	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-SHUTON-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	SEGB	722	PIPE TUNNEL	722	YES	ABS	CRS	YES	NO	YES	YES	NO	NO
8131	18	PNL-S1-06	45/DISTRIBUTION PANEL	SFG8	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	10%	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	J8/VIBAL BUS DIST PAHEL 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	SRAB	735	CONTROL	739	YES	ABS	CRS	YES	(m)	YES	YES	NO	NO
4205E	18	PS-MS-101A	NS/ATMOSPHERE STEAM DUMP S.G. 1A	SEGB	768	MSVH	772	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
4206E	18	PS-MS-1018	MS/ATMOSPHERE STEAM DUMP S.G. 18	SFGB	768	MSVH	772	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
42078	18	PS MS-101C	MS/ATMOSPHERE STEAM DUMP S.G. IC	SECB	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	NG
8070	02	REAC - TR - SWGR	01/REACTOR TRIP SWITCHGEAR	SRVB	713	ROD M/G ROOM	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NG
8071	20	RK-AUX-RELA	01/INSTRUMENT AND CONTROL RELAY RACK	SRVB	713	PRCC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	MO
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

Page No. 12 Report Date/Time: 12-21-95 / 11:28:23

NO	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Flr.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum		Demand?	OK?	OK?	act OK7	OK?	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
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	¥. S	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	SRAB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NO	110
8082	20	RK-PR1-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 - PR1 - PROE - 13	04/PLANT INSTRUMENT/PROCESS RACK	SRAB	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	AE2	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-PR1-PR0C-25	04/PLANT INSTRUMENT/PROCESS RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	NO	YES	YES	NC	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-PR1-PROC-30	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
8092	20	RK-PR1-PROC-31	04/PLANT INSTRUMENT/PROTECTION RACK	SRVB	713	PROC RACK	713	YES	ABS	CRS	YES	YES	YES	YES	YES	MO
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



LINE NO.	EQUIP CLASS	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Fir.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum		Demand?	OK7	OK?	act OK?	OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		(16)	
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	YL S	NO
8096	20	RK-REAC-PROT-B	01/REACTOR PROTECTION RACK	SRAB	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	SRV8	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-8	04/PLANT INSTRUMENT/PROTECTION RAFK	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	ARS	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 YS-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
53120	07	RV-EE-2018	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-2028	EE/3E AIR TAPE RELIEF VALVE	DGBX	735	DIESEL GEN #1	735	YES	ABS	CRS	YES	NG	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-2038	EE/48 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
53210	07	RV-EE-2048	EE/4E AIR TANK RELIEF VALVE	DGBX	735	DIESEL GEN #2	735	YES	ABS	CRS	YES	NO	N/A	YES	NO	NO





Page No. 14 Report Date/Time: 12-21-95 / 11:28:23

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

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NO.	EQUIP	MARK NO.	SYSTEW/EQUIPMENT Description	Building	Flr.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum			Caveats OK?	OK?	Inter- act OK?	OK?	Notes
(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+	:30	ArS	CRS	YES	NO	N/A	YES	H.	NO
2102	07	RV-RC-551B	RC/PRESSURIZER RELIEF SAFETY VALVE	RCBX	767	PZR CUBICLE	768+	s0	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
12060	088	SOV-CH-122	CH/(FCV-1CH-122) SOLENOID	AXLB	722	BLENDER CUB	726	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3206C	088	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	088	SOV-CH-200A1	CH/(TV-ICH-200A) SOLENOID	RCBX	718	RLF TK AREA	729	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
3207C	088	SOV-CH-200B	CH/(TV-1CH-200B) SOLENOID	RCBX	718	RLF TK AREA	720	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
32070	088	SOV-CH-20081	CH/(TV-1CH-200B) SOLENOID	RCBX	718	RLF TK AREA	720	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
32080	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
32080	088	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-IMS-101A) CONTROL SOLENOID	SEGB	751	MSVK	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
42050	088	SOV-MS-101A4	MS/(PCV-1MS-101A) CONTROL SOLENOID	SFGB	751	MSVH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
4206C	088	SOV-MS-1018	MS/(PCV-IMS-101B) CONTROL SOLENOID	SEGB	751	MZAH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
42060	088	SOV-MS-10184	MS/(PCV-1MS-101B) CONTROL SOLENOID	SFGB	751	MSAH	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
42070	088	SOM-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
42110	088	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
42110	088	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	088	SOV-MS-112B1	MS/(TV-IMS-1018) PILOT VALVE	SFGB	735	AUX FEED PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
42120	088	SOV-MS-11282	MS/(TV-1MS-101B) PILOT VALVE	SFGB	735	AUX FEED PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YES	NO
4213C	088	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
42130	088	SOV-MS-112C2	MS/(TV-IMS-101C) PILOT VALVE	SFGB	735	QUEN SPRAY PUMP	751	YES	ABS	CRS	YES	YES	N/A	YES	YEC	e0
2122	088	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	76?	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2124	088	SOV-RC-455D1	S1/(PCV-RC-455D) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2125	088	SOV-RC-455D2	SI(PCV-RC-455D) SOLENOID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
2126	088	SOV-RC-456-1	RC/(PCV-RC-456) SOLENGID	RCBX	767	PRZR CUBICLE	781	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES

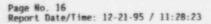




Page No. 15 Report Date/Time: 12-21-95 / 11:28:23

NO.	EQUIP	MARK NO.	SVSTEN/EQUIPMENT DESCRIPTION	Ruilding	Fir Fly	LOCATION> Rm. or Row/Col.	Flev	<40'7	Spectrum	Demand Spectrum	Demand?	OK?	OK7	act OK?	OK?	Notes
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
2127	088	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	YL 5	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	SRAB	713	AE SWGR	713	YES	ABS	CRS	YES	AEZ	NG .	YES	NO	NO
8104	03	SW-1-9P1	36/480 VOLT AC TREM DISCONECT SWITCH	SRAB	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 G1/8\$11-1/2	768	NO	ABS	CRS	YES	YES	YES	YES	123	NO
8120	20	18-349A	VS/TERM BOX W/RELAY LOC NR TB-349	AXLB	768	COL G1/8811-1/2	768	NO	ABS	CRS	YES	YES	YES	YES	YES	NO
4203C	20	TR-RC-410	RC/REACTOR COOLANT COLD LEG 3 PEN RECORDER	SRAB	735	CONT RM VB-A	735	YES	ABS	CRS	NO	NO	NO	YES	NO	YES
42030	20	TR-RC-413	RC/REACTOR COOLANT HOT LEG 3 PEN RECORDER	SRAB	735	CONT RM VB-A	735	YES	ABS	CRS	NO	NO	NO	YES	NO	YES
8105	04	TRAN5-1-8-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 IN 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 IA NOT 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	۴.	N/A	NO	NO	NO
42038	19	TRB-RC-430	RC/LOOP IC COLD LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	C CUBICLE					YES	YES	N/A	NO	NO	NO
4203A	19	TR8-RC-433	RC/LOOP 1C HOT LEG RESISTANCE TEMPERATURE DETECTOR	RCBX	718	C CUBICLE					YES	YES	N/A	NO	NO	NO





NO	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Fir.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum		Demand?	OK?	OK?	Inter- act OK?	OK7	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		(16)	
8130	04	TRF-S1-02	45/SAFETY INJECTION NEAT TRACE PNL-SI-02	SFGB	722	PIPE TUNNEL	722	YES	ABS	CRS	YES	NO	YES	YES	NO	YES
8132	04	TRF-51-06	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
5262C	18	TS-HV-55B	VS/TEMP SWITCH FOR VS-F-558	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	ERS	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	SEGB	752	MSVII	771	NO	ABS	CRS	YES	NO	N/A	NO	NO	YES
4212	07	TV-MS-1018	MS/MAIN STEAM ISOLATION	SEGB	752	MZAH	771	NO	ABS	CRS	YES	NO	N/A	YES	NG	NO
4213	07	TV-MS-101C	MS/MAIN STEAM ISOLATION	SEGB	752	MSVH	771	NO	ABS	CRS	YES	NO	N/A	NO	NO	YES
4215	07	TV-MS-111A	MS/MAIN SIM PRE-NRTRN DRAIN ISOL VALVE	SEGB	768	MSVH	770	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
4216	07	TV-MS-1118	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	SFG8	768	MZNH	770	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
4217	07	TV-MS-111C	MS/MAIN STM PRE-NRTRN DRAIN ISOL VALVE	SEGB	768	MSVH	770	NO	ABS	CRS	YES	YES	N/A	YES	YES	YES
1240	088	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	088	TV-SS-105A2	RC/HOTLEG SAMPLE HDR OUTSIDE CNMT ISOL TRIP VALVE	SECB	722	PENT A	722	YES	ABS	CRS	YES	YES	N/A	YES	YES	YES
1239	088	TV-SS-106D	SS/18 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	NC
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	30	VS-AC-18	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-18 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-18 DISCHARGE DAMPER	SRVB	713	CR VENT		YES	U	U	U	N/A	U	YES	NO	NO

Page No. 17 Report Date/Time: 12-21-95 / 11:28:23

NO.	EQUIP	MARK NO.	SYSTEM/EQUIPHENT DESCRIPTION	Building	Fir.Elv.	LOCATION> Rm. or Row/Col.	Elev.		Spectrum		Demand?	OK?	OK?	act OK?	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-408 SUCTION DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	H.	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	SRV8	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	R/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	SRV8	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	11/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
5230	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	Ð	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 & 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	141-3-24	VS/TEMP CONT AIR COMP RECIEVER TK AIR DRYER	SRAB	713	CR VENT	713	YES	ABS	CRS	YES	YES	NO	YES	NO	YES
5272	12	VS-C-18	VS/TEMP CONT AIR COMP	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5274	10	VS-C-181	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-168	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	HO	NO
5328	0	VS-D-22-19	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	NC

Page No. 18 Report Date/Time: 12-21-95 / 11:28:23

LIN NO.	E EQ	1 400	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Ruilding	Fir Elv.	LOCATION> Rm. or Row/Col.	Elev.	<40'7	Spectrum	Demand Spectrum	Demand?	OK7	OK?	act OK7	OK?	
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
5330	0		VS-D-22-28	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	K.)	NO
5332	0		VS-D-22-20	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-4-128	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
522	0		VS-D-4-158	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-4-78	VS/LEAK COLL EXHAUST FAN 4A DISCHARGE BACKFLOW DAMPER	AXLB	768	NORTH WALL	768	NO	U	U	U	N/A	U	YES	NO	NO
521	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
521	0		VS-D-4-88	VS/LEAK COLL EXHAUST FAN 48 DISCHARGE BACKFLOW DAMPER	AXLB	768	NORTH WALL	768	NO	U	U	U	N/A	U	YES	NO	NO
524	08	8A	VS-D-40-1A	VS/CONTROL ROOM AIR INTAKE DAMPER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	NO	U	NO	NO	NO
524	08	8.8	VS-D-40-18	VS/CONTROL ROOM AIR INTAKE DAMPER	SRVB	713	CR VENT	713	YES	ABS	CRS	rES	YES	U	YES	YES	NO
524	08	8A	VS-D-40-1C	VS/CONTROL RM AIR EXHAUST DAMPER	SRVB	713	CR VENT	713	YES	ABS	CRS	YES	YES	U	YES	YES	YES
524	5 08	8A	VS-D-40-10	VS/CONTROL RM AIR EXHAUST DAMPER	SRVB	713	CR VENT	713	YES	ABS	ERS	YES	YES	U	YES	YES	YES
524	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
524	3 0	63	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
524	0	6.0	VS-D-40-1H	VS/AIR RECIRC DAMPER	SRVB	713	CR VENT	713	YES	U	U	U	N/A	U	YES	NO	NO
525	0	6.04	VS-D-40-1K	VS/AIR RECIRC DAMPER	SRYB	713	CR VENT	713	YES	ข	U	U	N/A	U .	YES	NO	NO
525	0	- 1	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
510	ID 0	9	VS-D-57A1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	INTS	705	A CUBICLE	728	NO	U	U	U	N/A	U	YES	NO	YES
510	IE 0	12	VS-D-57A2	VS/INTAKE STRUCTURE RECIR AIR DAMPER	INTS	705	A CUBICLE	725	NO	U	U	U	N/A	U	YES	NO	NO
510	2D 0	-	VS-D-5781	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	INTS	705	B CUBICLE	728	NO	U	U	U	N/A	U	YES	NO	YES



Page No. 19 Report Date/Time: 12-21-95 / 11:28:23

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

. 1

NO.	EQUIP	MARK NO.	SYSTEM/EQUIPMENT DESCRIPTION	Building	Fir.Elv.	LOCATION> Rm. or Rew/Col.	Elev.		Spectrum		Demand?	OK?	OK?	act OK?		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
5102E	0	VS-D-5782	VS/INTAKE STRUCTURE RECIR AIR DAMFER	INTS	705	B CUBILLE	725	NO	U	U	U	N/A	υ	YES	NO	NO
5103D	0	VS-D-57C1	VS/INTAKE STRUCTURE OUTSIDE AIR DAMPER	INTS	705	C CUBICLS	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-148	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-168	VS/EMERG SWITCHGEAR EXHAUST FAN	SAVB	725	CABLE MEZZ	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5325	09	VS-F-22A	VS/DG BLDG EXHAUST FAN	DCBX	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-408	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	SRV8	725	CABLE MEZZ	725	YES	ABS	CRS	YES	YES	YES	YES	YES	NO
5101C	09	VS-F-57A	VS/INTAKE STRUCTURE CUBICLE #1 SUPPLY FAM	INTS	705	A CUBICLE	723	NO	U	U	U	YES	YES	YES	NO	YES
51020	09	VS-F-578	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-18	RW/RIVER WATER JMP	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 CUSICLE	705	NO	ABS	CRS	NO	NO	YES	YES	NO	YES
4105	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





Engineering Risk • Safety • Design



November 9, 1995

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

52233-O-002 Page 1 of 8

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:

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

. Harly

GREG S. HARDY SENIOR VICE PRESIDENT

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Beaver Valley Unit 1 Peer Review November 9, 1995 52233 - O - 002 Page 2 of 8

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.

Beaver Valley Unit 1 Peer Review November 9, 1995 52233 - O - 002 Page 3 of 8

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 c. Ead Actor Relays
- Overall Cor. uct 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.

Beaver Valley Unit 1 Peer Review November 9, 1995 52233 - O - 002 Page 4 of 8

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.

Beaver Valley Unit 1 Peer Review November 9, 1995 52233 - O - 002 Page 5 of 8

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

Beaver Valley Unit 1 Peer Review November 9, 1995 52233 - O - 002 Page 6 of 8

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.

Beaver Valley Unit 1 Peer Review November 9, 1995 52233 - O - 002 Page 7 of 8

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

- 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.
- 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.
- 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.

Beaver Valley Unit 1 Peer Review November 9, 1995 52233 - O - 002 Page 8 of 8

ATTACHMENT A AGENDA BEAVER VALLEY USI A-46 PEER REVIEW

- 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. (compress or 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.

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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 system effects of electromechanical relays during past earthquakes.

Analysis and Testing

Mr. Hardy has extensive experience with the dynamic analysis of numerous nuclear power plant 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.

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