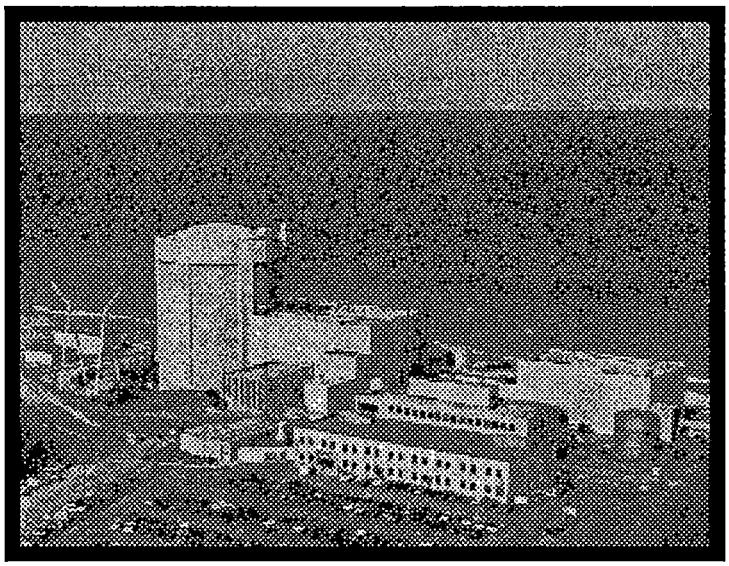
Report of SQUG Assessment at Palisades Nuclear Plant for the Resolution of USI A-46

PALISADES



NUCLEAR PLANT

May 19, 1995

Table of Contents

SECTION	TAB
1. TABLE OF CONTENTS	1
2. EXECUTIVE SUMMARY	2
3. SAFE SHUTDOWN EQUIPMENT LIST (SSEL) REPORT	3

1.0 Introduction
2.0 Scope/Method
3.0 Assumptions/Limitations
4.0 Results
5.0 References

4. RELAY EVALUATION REPORT 4

1.0 Introduction
2.0 Scope/Method
3.0 Assumptions/Limitations
4.0 Results
5.0 References
Attachment A Relay Review Safe Shutdown Equipment List
Attachment B Relay List And Seismic Evaluation Tabulation
Attachment C Relay List And Description Of Outlines

5. SEISMIC EVALUATION REPORT 5

2.0 Palisades Nuclear Plant Safe Shutdown Path
3.0 Palisades Nuclear Plant Seismic Design Basis
4.0 Results Of Screening Verification And Walkdown
5.0 Gip Deviations And Commentary On Meeting The Intent Of Caveats
6.0 Results Of The Tanks And Heat Exchanger Review
7.0 Results Of The Cable Tray And Conduit Raceway Review
8.0 Description Of The Equipment Outliers
9.0 Resolution Of The Outliers
10.0 References

6. PERSONNEL RESUMES AND TRAINING DOCUMENTATION 6

1.0 For SSEL Development And Relay Evaluations
2.0 For Seismic Evaluations

7. PIPING AND INSTRUMENT DIAGRAMS (P & ID'S) 7

EXECUTIVE SUMMARY

On February 19, 1987, the NRC issued Generic Letter 87-02, " Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46." This Generic Letter encouraged utilities to participate in a generic program to resolve the seismic verification issues associated with USI A-46. As a result, the Seismic Qualification Utility Group (SQUG) developed the "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment." On May 22, 1992, the NRC Staff issued Generic Letter 87-02 supplement 1, which constituted the NRC staff's review of the GIP and which included Safety Evaluation Report number 2 (SSER-2) on the GIP, revision 2, corrected on February 14,1992.

With letter dated September 21,1992 to the NRC, Consumers Power Co. committed to use the SQUG methodology as documented in the Generic Implementation Procedure (GIP), including the clarification's, interpretations, and exceptions in SSER #2, and the implementation guidance, where "GIP" referred to GIP revision 2, corrected February 14, 1992, to resolve USI A-46 at the Palisades Plant.

The following report entitled "SQUG Assessment at the Palisades Nuclear Plant for the Resolution of USI A-46" dated May 1995 documents, by the use of the "GIP," how the Palisades Plant has resolved USI A-46.

This document is divided into 3 reports as described in part II section 9 of the GIP.

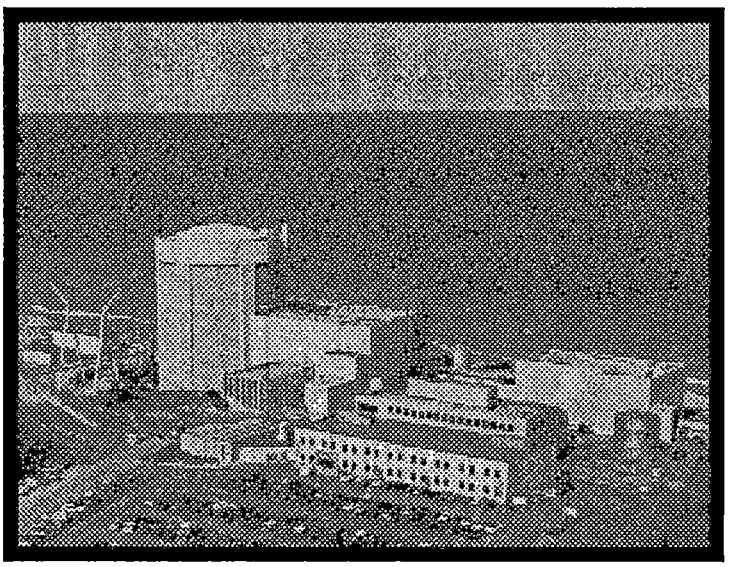
Report 1 [tab 3] SAFE SHUTDOWN EQUIPMENT LIST (SSEL) REPORT.
Report 2 [tab 4] RELAY EVALUATION REPORT.
Report 3 [tab 5] SEISMIC EVALUATION REPORT.

Out of the 514 mechanical and electrical equipment walked-down and evaluated, 64 were identified as outliers. A summary of these, along with their recommended resolutions, is included in Seismic Evaluation Report sections 8 and 9.

The total number of relays evaluated were 1714 with 17 relays identified as outliers. A summary of the relay outliers is included in the Relay Evaluation Report section 4 and attachment C.

USI A-46 EQUIPMENT EVALUATION REPORT

PALISADES



NUCLEAR PLANT

May 19, 1995

CONSUMERS POWER

PALISADES NUCLEAR PLANT

USI A-46 EQUIPMENT EVALUATION REPORT

May 3, 1995

EQUIPMENT EVALUATION REPORT FOR PALISADES NUCLEAR PLANT

Section	Title	Page
1.0	Introduction	1-1
2.0	Scope/Method	2-1
3.0	Assumptions/Limitations	3-1
4.0	Results	4-1
5.0	Deviation from the GIP	5-1
6.0	References	6-1
7.0	Glossary of Acronyms	7-1

Attachments	Title
Attachment A	Safe Shutdown Path for Palisades Figures
Attachment B	Safe Shutdown Equipment List (SSEL)
Attachment C	Safe Shutdown Notes
Attachment D	Operations Review letter from Steve Oakley

PREFERRED SAFE SHUTDOWN PATH FOR PALISADES

1.0 INTRODUCTION

The SQUG Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Plant Equipment provides guidance for identifying the preferred paths to be used in accomplishing the following safe shutdown functions subsequent to a safe shutdown earthquake (SSE):

Reactor Reactivity Control
Reactor Coolant Pressure Control
Reactor Coolant Inventory Control
Decay Heat Removal

The purpose of this report is to identify the preferred safe shutdown paths for the four safe shutdown functions, identify the auxiliary paths required to support the preferred paths, and identify the corresponding equipment and instrumentation.

2.0 SCOPE / METHOD

Our analysis is bounded by the guidelines stated in the GIP, as applicable. For the purposes of this analysis, safe shutdown is hot shutdown as defined in the Palisades Technical Specifications.

Using the guidelines provided in the GIP, and upon review of the plant specific input such as the Standard Operating Procedures (SOP), Emergency Operating Procedures (EOP), and the Piping & Instrument Drawings (P&ID's). Consumers Power has identified the preferred safe shutdown paths and the associated auxiliary systems which can be used to accomplish the four safe shutdown functions identified in section 1.0. The Operating Department has reviewed the preferred safe shutdown paths and the associated auxiliary.

3.0 ASSUMPTIONS / LIMITATIONS

3.1 GENERAL

3.1.1 Offsite power may not be available for 72 hours following the SSE.

3.1.2 No other extraordinary events are postulated.
(i.e., LOCA, HELB, fire, etc.)

3.1.3 Operator actions which are not addressed with existing procedures will be evaluated for accessibility and time constraints.

3.1.4 The equipment to be identified for seismic evaluation will include:

Active mechanical or electrical equipment which operates or changes state to accomplish a safe shutdown function.

Active equipment in systems which supports the operation of the safe shutdown equipment.

Only instrumentation, which is absolutely necessary to operate, control, and monitor the safe shutdown functions have been identified.

Tanks and heat exchangers used by the safe shutdown equipment or in the safe shutdown path.

3.1.5 All electrically operated components whose relays have not been seismically evaluated are assumed to malfunction or spuriously operate during the seismic event. Only those components whose spurious actuation would affect the ability of the safe shutdown path to perform its intended function are required to be identified.

3.1.6 All systems are maintained operable in accordance with the Technical Specifications.

3.1.7 For this analysis, the following criteria has been used in selecting and analyzing the systems' boundary valves.

3.1.7.1 For normally open valves which must close to perform the boundary function, two valves in series are required. Both valves are taken to be active components.

3.1.7.2 Normally closed valves, which must remain closed to perform the boundary function, are considered passive for the analysis and no seismic review is required. However, for these valves, it is necessary to consider the impact of spurious operation on the success path. Therefore, relay screening will be performed for these valves.

3.1.7.3 It is assumed that relief valves, which serve as boundary valves, will not be challenged during the plant shutdown and therefore will be able to provide an adequate system boundary.

3.1.7.4 In cases where the position of the boundary valve is not important (i.e., the valve can be either opened or closed) neither a seismic review nor a relay review are required. For these cases, the valve will be included in the SSEL and the justification will be identified in the notes column.

4.0 RESULTS

4.1 SHUTDOWN

4.1.1 REACTIVITY CONTROL

System Path

The preferred path for reactivity control is shown on figure 1. The initial method for reactivity control is insertion of the control element assemblies (CRDM's). The CRD's will free fall into the core when the magnetic clutch holding the coils becomes de-energized following a manual or automatic reactor trip. The CRD's are independently capable of making the core subcritical from a power operation condition.

In addition to the reactivity control by the CRD's system, boron injection will be necessary during the 72 hours that the plant is required to remain in a hot shutdown to compensate for the positive reactivity insertion from xenon burn out. Also, a loss of offsite power may cause the main steam system to be isolated from the condenser. This will result in the lifting of the main steam atmospheric dump valves which can be controlled automatically or manually.

Therefore, the preferred reactivity control method is provided by CRD insertion along with boron injection by the Chemical and Volume Control System (CVCS). The CVCS is capable of making the core subcritical from a power operation condition and holding it in the hot shutdown condition. The preferred boron injection flow path is from the concentrated boric acid storage tank T-53A to the concentrated boric acid pump P-56A to the suction of the charging pump P-55B via MO-2140.

Each concentrated boric acid tank T-53A and T-53B has sufficient boron to bring the plant to a cold shutdown per Technical Specification 3.2. Flow from charging pump P-55B is through CV-2111, CV-2113, and CV-2115, which is the normal charging flow into PCS loops 1A and 2A. The Safety Injection Refueling Water (SIRW) tank (T-58) can be used as back up to the concentrated boric acid tank through MO-2160. Control Valves CV-2111, CV-2113, and CV-2115 are all capable of being operated manually. On loss of air or power, all of the control valves fail open, the position which is the required position for charging flow.

Instrumentation

Instrumentation for the preferred path for Reactor Reactivity Control is shown on figure 8. Reactivity is monitored by the neutron flux process variable. The wide range logarithmic channels will be used. These instruments provide indication of reactor power from source range to above 100% full power.

4.1.2 Pressure Control

System Path

The preferred path for pressure control is shown on figure 2. Satisfactory resolution of the pressure control function requires a method to reduce or increase pressure as needed.

Immediately following the seismic event and the reactor trip, the reactor decay heat will be significant. Thus, a method to reduce PCS pressure will be required. The preferred method of initial pressure reduction is provided by operation of the atmospheric dump valves automatically or manually.

PCS pressure can be controlled by injection of cold water from the charging pumps and/or removing heat from the secondary side of the steam generator which in turn lowers PCS temperature.

During the 72 hours that the reactor is required to remain in hot shutdown, it may be necessary to increase PCS pressure to stay within the limits of the pressure/temperature curve. The pressurizer heater may be used to increase PCS pressure. The preferred method is to use backup groups #3 and #4, and proportional group #2. These heaters, with each group rated at 75 kilowatts, receive emergency power.

Instrumentation

Instrumentation for the preferred path for the Reactor Coolant Pressure Control is shown on figure 8. The process variables for required pressure control of PCS are the pressurizer level, pressurizer pressure, and PCS Cold Leg Temperature (Tc).

4.1.3 Inventory Control

System Path

The preferred safe shutdown path for inventory control is shown on figure 1. The purpose of the inventory function is to provide a method to supply water to the PCS while minimizing the PCS losses during the 72 hours the plant is in hot shutdown. The preferred path for inventory make up is provided by the CVCS as described in Section 4.1.1 with the addition of the Safety Injection Refueling Water Tank to provide a source of make up water to the PCS after the Boric Acid Storage Tanks are no longer available or necessary. The charging pumps will initially take suction from the BAST's as defined in Section 4.1.1. After the reactor trips, the charging pumps will be injecting concentrated boric acid solution from the BAST's into the PCS with the letdown path being isolated.

The addition of water into the PCS can be accommodated by the shrinkage in the PCS due to a temperature reduction from normal operating T_{AVG} to hot shutdown T_{AVG}. Hence, a letdown path will not be required. For the duration of the event, to compensate for the large volume lost from seal leak off and other PCS leakage, the suction of the charging pumps must be realigned to the Safety Injection Refueling Water Tank by opening valve MO-2160. If the valve fails to open or is out of service for maintenance activities, an operator would be required to manually open the valve. The injection flow from the Safety Injection Refueling Water Tank will be controlled by cycling the charging pumps as necessary.

Instrumentation

Instrumentation for the preferred path for Reactor Coolant Inventory Control is shown on Figure 8. The process variables for required inventory control are the pressurizer pressure, pressurizer level, and PCS Cold Leg Temperature (Tc).

4.1.4 Decay Heat Removal

System Path

The preferred safe shutdown path for decay heat removal is shown on figure 4. Decay heat will be removed by use of the steam generators. To meet the requirements of decay heat removal, a source of water and a method to remove steam from the steam generators must be available.

Makeup water to the steam generators will be supplied by the AFWS. The preferred path is from the auxiliary feedwater pump through valves CV-0737A, MO-0754, MO-0759 and/or CV-0736A, MO-0748, and MO-0755 to the steam generators. The primary source of water supply for the auxiliary feedwater pumps' suction is the condensate storage tank (T2). The amount of available water in the condensate storage tank is adequate to remove decay heat for 4 hours. Because the condensate storage tank does not contain

enough water to maintain the reactor in the hot shutdown condition for the required 72 hours, makeup water to the auxiliary feedwater system may be necessary. The service water system provides the water necessary to maintain the hot shutdown condition. The event will cause the main steam system to be isolated from the condenser, therefore, the preferred method for removing steam from the steam generators is the atmospheric dump valves. These valves will open to provide over pressurization protection of the steam generators and allow main steam to be released to the atmosphere, thereby removing decay heat from the PCS. The atmospheric dumps are normally, automatically controlled by T_{AVG} controllers. These valves can also be operated manually either from the control room or remotely.

Instrumentation

Instrumentation for the preferred path for Decay Heat Removal is shown on figure 9. The process variables required to verify the PCS decay heat removal are the PCS hot and cold leg temperatures (T_h, T_c), the steam generator level, the steam generator pressure, and the condensate storage tank level.

4.2 Auxiliary Systems

4.2.1 Component Cooling Water (CCW)

CCW was reviewed using the safety required components as the basis for this review for SQUG. CCW is to furnish coolant to containment, which in turn, provides cooling to the PCP seals and the reactor shield cooling system.

Per memo from Byron Jackson dated 09-05-84, loss of CCW to PCP seals will not cause seals to fail per reference 5.1.

CCW furnishes cooling for the shutdown heat exchangers. Since the plant remains in hot shutdown condition during the SQUG conditions, no cooling is required for the heat exchangers.

CCW furnishes cooling for SI and Containment spray pumps, which are not required to operate for the SQUG condition. Thus, the plant remains in a hot shutdown condition.

CCW also supplies cooling for the charging pumps, which are required to provide inventory control for the reactor during the hot shutdown condition. Per DBD 1.04 pg. 25 step B, "The constant speed charging pump, which can accommodate loss of cooling flow, may be run up to 10 hours without cooling water since one pump can cool down while the other pump operates up to 10 hours," Since the plant remains in hot shutdown condition, one charging pump can furnish any makeup coolant needed to the reactor to insure the core stays covered.

Therefore, the CCW system is not needed for SQUG.

4.2.2 Service Water (SW)

The service water system is an auxiliary system to support the operation of the emergency diesel generators and to provide the water required for the auxiliary feedwater system, which provides backup for the condensate storage tank and the cooling requirements for the control room air-conditioning units.

4.2.3 Diesel Generator (DG)

Two redundant diesel generators are available to supply power to safe shutdown components on the loss of offsite power. The auxiliary systems required to support the diesel generators are Starting Air, Lube Oil, Jacket Water, Fuel Oil, Air for Combustion and Cooling, and Diesel Generator Vent Fans.

Each diesel engine has two independent starting air systems, which are capable of independently cranking the diesel engine for 45 seconds, and each has its own completely integral lube oil system requiring no energy source except the diesel generator itself. The diesel generators both have an engine mounted fuel tank which is gravity fed by its own 2500 gallon auxiliary fuel tank. The auxiliary fuel tanks are both supplied from the diesel generator fuel oil storage tank, which has adequate capacity for the continuous operation of one DG in excess of 72 hours per DBD 5.01 Rev. 1.

The air required for cooling of the diesel is introduced to the respective diesel generator room through ventilation fans V-24A, V-24B, V-24C, and V-24D.

4.2.4 Control Room Habitability

The design criteria for the control room air-conditioning is that system failure will not prevent safe shutdown. The main control room air-conditioning system consists of two refrigeration and air handling units. Either unit can be selected for automatic operation if the running unit should fail. During a period of above normal heat load, both units can be placed in operation although this is not expected for an A-46 safe shutdown. The two unit design and its capabilities for connection to emergency power assures that the components in the main control room will not be adversely affected by the loss of either the refrigeration or the air handling unit per DBD 1.06. The control room air-conditioning system is dependent upon service water, which is described in section 4.2.2.

4.2.5 AC and DC Electrical Power Distribution

The safety related 480V components, which includes the 480V MCC's, are redundant and provide power to the necessary safe shutdown equipment. The batteries, chargers, inverters and associated safety related instruments and control busses are also redundant and provide power to the necessary safe shutdown equipment per Palisades P & ID WD-950-1 Rev. AV.

4.2.8 Heat Tracing

Heat tracing was used in certain pipes and components in the CVCS, in the waste disposal system, in the inlet piping to the containment stack radiation monitors, and in a portion of the pipe between the condenser and the condensate storage tank. A review of these systems for impact on safe shutdown equipment was performed. No flow paths required heat tracing. Thus, loss of heat tracing will not impact the capability of the plant to achieve safe shutdown.

5.0 DEVIATION FROM THE GIP

Equipment ID	Commentary
CV-0501, CV-0510	Control valves CV-0501 and CV-0510 are actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. These control valves do not meet the single active failure criterion per GIP Section 3.2.6. We are taking an exception to the single active failure requirements in this case based on an SER dated February 28, 1986 on the subject of SINGLE FAILURE ISSUE FOR MAIN STEAM ISOLATION VALVES AND MAIN FEEDWATER VALVES.
CK-FW0701, CK-FW0702	Check valves CK-FW0701 and CK-FW0702 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. The Emergency Operating Procedures 1.0 Step 3.0 #2 & #3 requires stopping the main feed pumps. When the feedwater pumps are stopped the differential pressure will close the check valves. These check valves do not meet the single active failure criterion per GIP Section 3.2.6. We are taking an exception to the single active failure requirements in this case based on an SER dated February 28, 1986 on the subject of SINGLE FAILURE ISSUE FOR MAIN STEAM ISOLATION VALVES AND MAIN FEEDWATER VALVES.

6.0 REFERENCES

6.1 Memo per Byron Jackson, loss of cooling water test on San Onofre and Saint Lucie reactor coolant pump seals, dated 09/05/84

6.2 Palisades Design Basis Document 1.01 Rev. 2 (Component Cooling Water System)

6.3 Palisades Design Basis Document 1.02 Rev. 2 (Service Water System)

6.4 Palisades Design Basis Document 1.04 Rev. 1 (Chemical Volume Control System)

6.5 Palisades Design Basis Document 1.06 Rev. 2 (Control Room HVAC)

6.6 Palisades Design Basis Document 5.01 Rev. 1 (Diesel Generators)

6.7 Palisades Emergency Operating Procedure EOP-1.0 Rev. 4 (Standard Post Trip Actions)

6.8 Palisades Emergency Operating Procedure EOP-7.0 Rev. 6 (Loss of all Feedwater)

6.9 Palisades Emergency Operating Procedure EOP-8.0 Rev. 6 (Loss of Forced Circulation Recovery)

6.10 Palisades Emergency Operating Procedure EOP-9.0 Rev. 6 (Functional Recovery Procedure)

6.11 Palisades Technical Specifications Amendment #162

6.12 Palisades P&ID M-201 Sh 1 Rev. 59 (Primary Coolant System)

6.13 Palisades P&ID M-201 Sh 2 Rev. 36 (Primary Coolant System)

6.14 Palisades P&ID M-202 Sh 1A Rev. 24 (Chemical & Volume Control)

6.15 Palisades P&ID M-202 Sh 1B Rev. 19 (Chemical & Volume Control)

6.16 Palisades P&ID M-203 Sh 1 Rev. 37 (Safety Injection Containment Spray & Shutdown Cooling System)

6.17 Palisades P&ID M-203 Sh 2 Rev. 16 (Safety Injection Containment Spray & Shutdown Cooling System)

6.18 Palisades P&ID M-204 Sh 1 Rev. 61 (Safety Injection Containment Spray & Shutdown Cooling System)

6.19 Palisades P&ID M-204 Sh 1A Rev. 18 (Safety Injection Containment Spray & Shutdown Cooling System)

6.20 Palisades P&ID M-204 Sh-1B Rev. 25 (Safety Injection Containment Spray & Shutdown Cooling System)

6.21 Palisades P&ID M-205 Sh-1 Rev. 58 (Main Steam & Auxiliary Turbine System)

6.22 Palisades P&ID M-205 Sh-2 Rev. 41 (Main Steam & Auxiliary Turbine System)

6.23 Palisades P&ID M-207 Sh-1 Rev. 71 (Feedwater & Condensate System)

6.24 Palisades P&ID M-207 Sh-1A Rev. 34 (Feedwater & Condensate System)

6.25 Palisades P&ID M-207 Sh-1B Rev. 22 (Feedwater & Condensate System)

6.26 Palisades P&ID M-207 Sh-2 Rev. 22 (Feedwater & Condensate System)

6.27 Palisades P&ID M-208 Sh-1A Rev. 25 (Service Water System)

6.28 Palisades P&ID M-208 Sh-1B Rev. 20 (Service Water System)

6.29 Palisades P&ID M-209 Sh-2 Rev. 18 (Component Cooling System)

6.30 Palisades P&ID M-210 Sh-1C Rev. 9 (Radioactive Waste Treatment System Clean)

6.31 Palisades P&ID M-212 Sh-3 Rev. 13 (Instrument Air Walkdown)

6.32 Palisades P&ID M-213 Rev. 58 (Service Water, Screen Structure & Clorinator)

6.33 Palisades P&ID M-214 Sh-1 Rev. 46 (Lube Oil, Fuel Oil, and Diesel Generator Systems)

6.34 Palisades P&ID M-216 Sh-1 Rev. 23 (Fire Protection Systems)

6.35 Palisades P&ID M-216 Sh-2 Rev. 32 (Fire Protection Systems)

6.36 Palisades P&ID M-218 Sh-5 Rev. 16 (Heating Vent & Air Conditioning Misc. Building)

6.37 Palisades P&ID M-218 Sh-6 Rev. 7 (Heating, Ventilation & Air-conditioning Control Room)

6.38 Palisades P&ID M-218 Sh-6A Rev. 4 (Heating, Ventilation & Air-conditioning Control Room)

6.39 Palisades P&ID M-218 Sh-7 Rev. 6 (Heating, Ventilation & Air-conditioning Control Room)

6.40 Palisades P&ID M-219 Sh-1B Rev. 16 (Process Sampling System)

6.41 Palisades P&ID M-220 Sh-1 Rev. 52 (Make-up Domestic Water & Chemical Injection System)

6.42 Palisades P&ID M-220 Sh-2 Rev. 18 (Make-up Domestic Water & Chemical Injection System)

6.43 Palisades P&ID M-221 Sh-2 Rev. 17 (Shield Cooling System)

6.44 Palisades P&ID M-222 Sh-2 Rev. 18 (Spent Fuel Pool Cooling Systems)

6.45 Palisades P&ID M-225 Sh-2 Rev. 18 (High Pressure Operated Valves)

6.46 Palisades P&ID M-226 Sh-1 Rev. 42 (Steam Generator Lowdown Modification)

6.47 Palisades P&ID M-652 Sh-1 Rev. 39 (Primary System Make-up Water, Utility Water, and Oil Waste Systems)

6.48 Palisades P&ID WD-950-1 Rev. AV (480V Motor Control Center Warehouse)

6.49 Palisades P&ID WD-950-11 Rev. 31 (Single Line Meter & Relay Diagram 480V Load Center)

6.50 Palisades P&ID WD-950-11A Rev. 18

6.51 Palisades P&ID WD-950-12 Rev. 41

6.52 Palisades P&ID WD-950-12A Rev. 7

6.53 Palisades P&ID WD-950-12B Rev. 6

6.54 Palisades P&ID WD-950-15 Rev. 22

6.55 Palisades P&ID WD-950-21 Rev. 27

6.56 Palisades P&ID WD-950-21A Rev. 25

6.57 Palisades P&ID WD-950-2A Rev. 2

6.58 Palisades P&ID WD-950-3 Rev. AC

6.59 Palisades P&ID WD-950-4 Rev. 38

7.0 GLOSSARY OF ACRONYMS

AFWS	Auxiliary Feedwater System
BAST	Boric Acid Storage Tank
CRD	Control Rod Drives
CRDM	Control Rod Drive Mechanisms
CVCS	Chemical and Volume Control System
DBA	Design Basis Accident
DBD	Design Basis Document
GIP	Generic Implementation Procedure
HELB	High Energy Line Break
HVAC	Heating, Ventilation & Air Conditioning
LOCA	Loss of Coolant Accident
MCC	Motor Control Center
MO	Motor Operated Valve
MSIV	Main Steam Isolation Valves
PCS	Primary Coolant System
SI	Safety Injection
SIRW	Safety Injection Refueling Water
SIRWT	Safety Injection Refueling Water Tank
SSE	Safe Shutdown Earthquake
SSEL	Safe Shutdown Equipment List
T. S.	Technical Specification
T_{AVG}	Average of T_h and T_c at a particular instant of time
T_c	Cold Leg Temperature
T_h	Hot Leg Temperature
VCT	Volume Control Tank

CONSUMERS POWER

PALISADES NUCLEAR PLANT

ATTACHMENT A

SAFE SHUTDOWN PATH FOR PALISADES FIGURES

(11 Pages)

FIGURE 1 : SAFE SHUTDOWN PATH FOR PALISADES

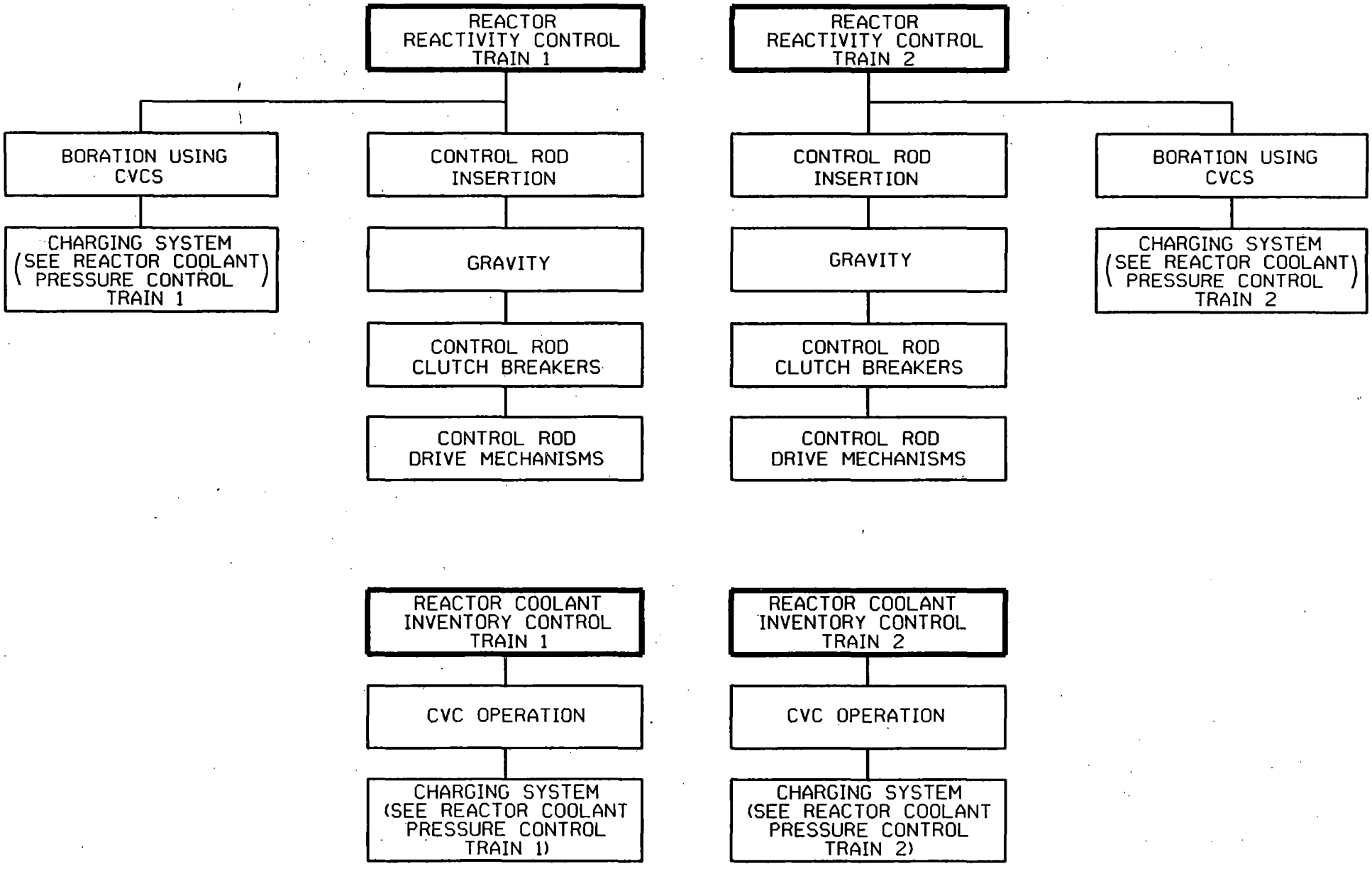


FIGURE 2 : SAFE SHUTDOWN PATH FOR PALISADES

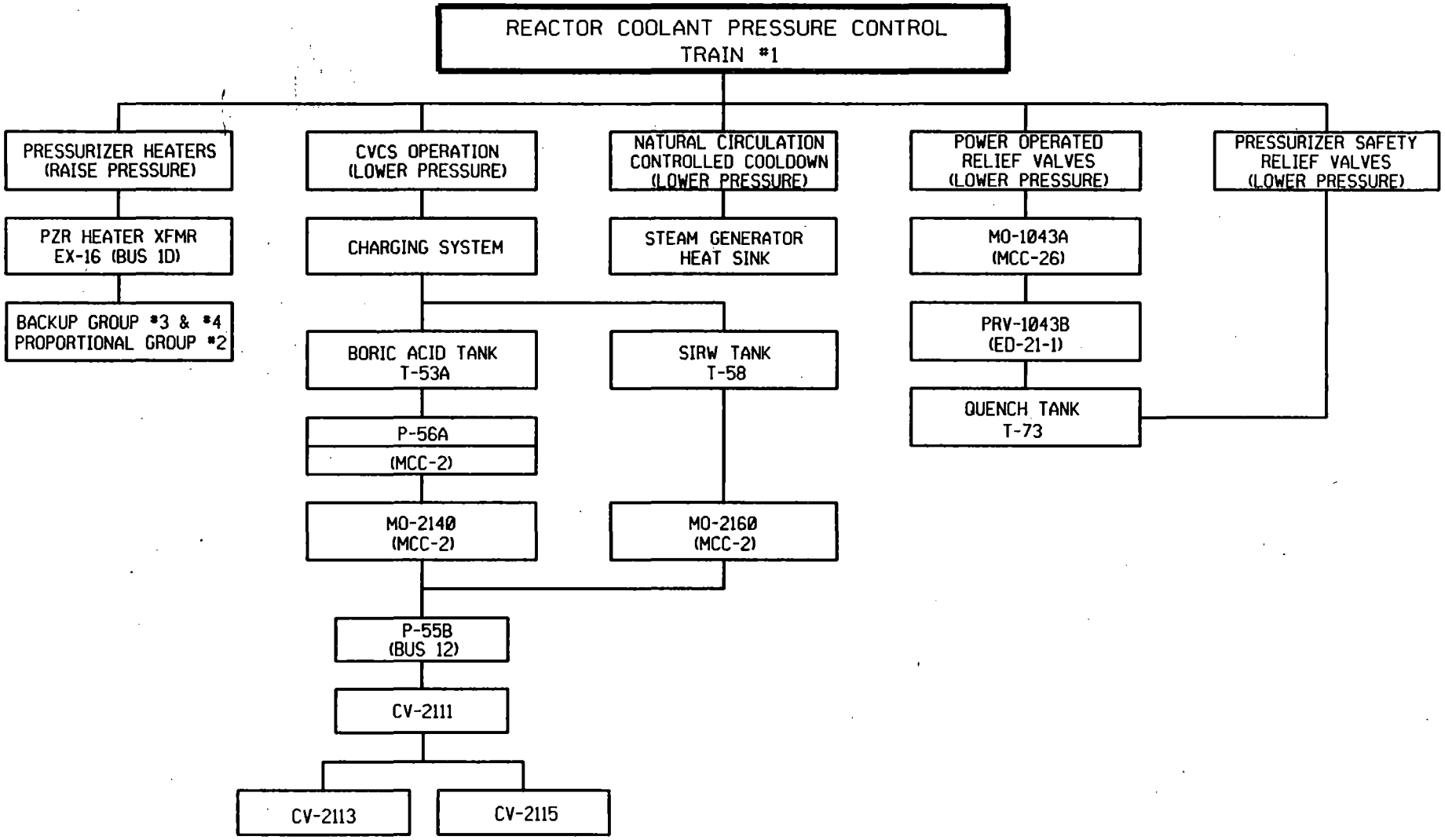


FIGURE 3 : SAFE SHUTDOWN PATH FOR PALISADES

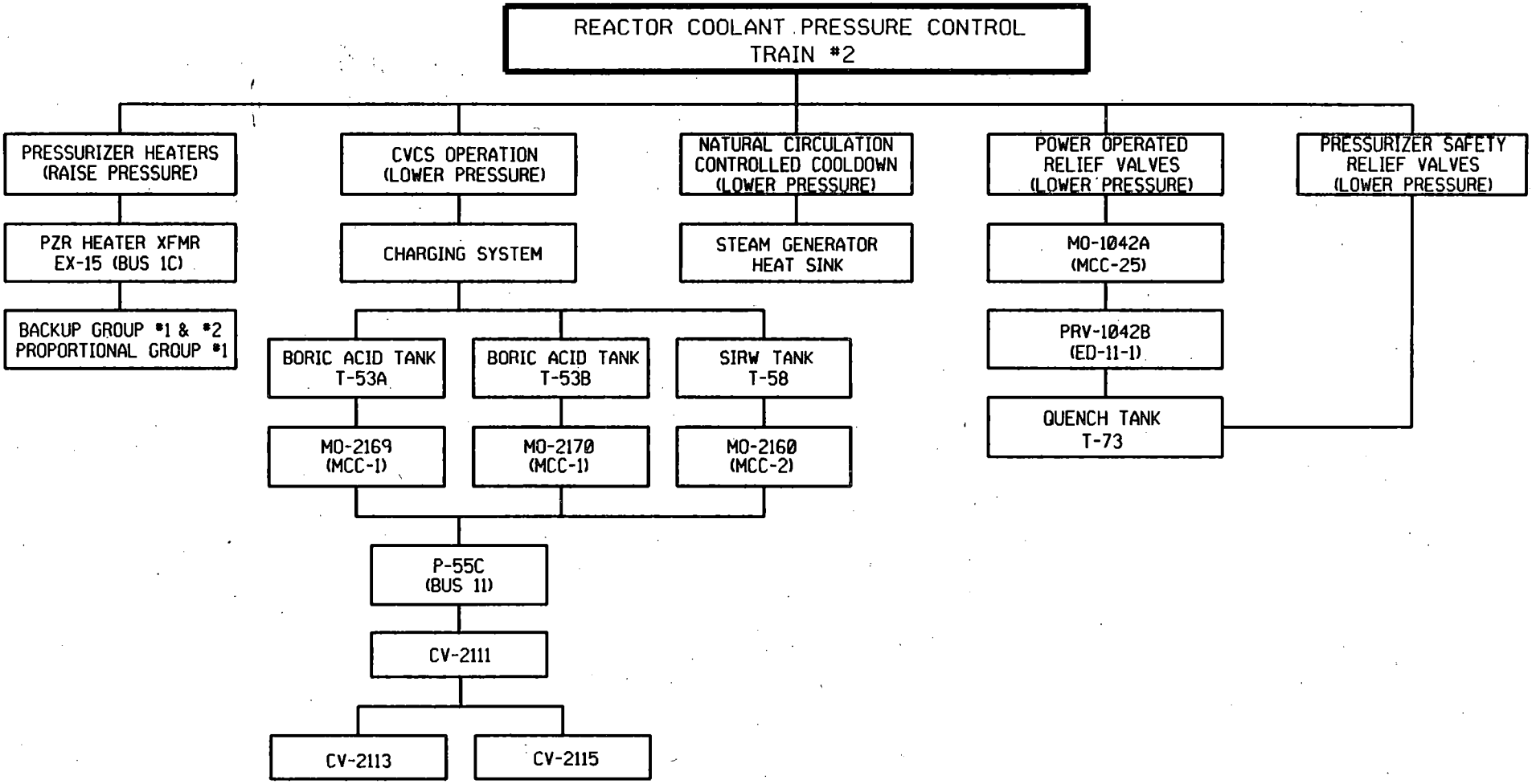


FIGURE 4 : SAFE SHUTDOWN PATH FOR PALISADES

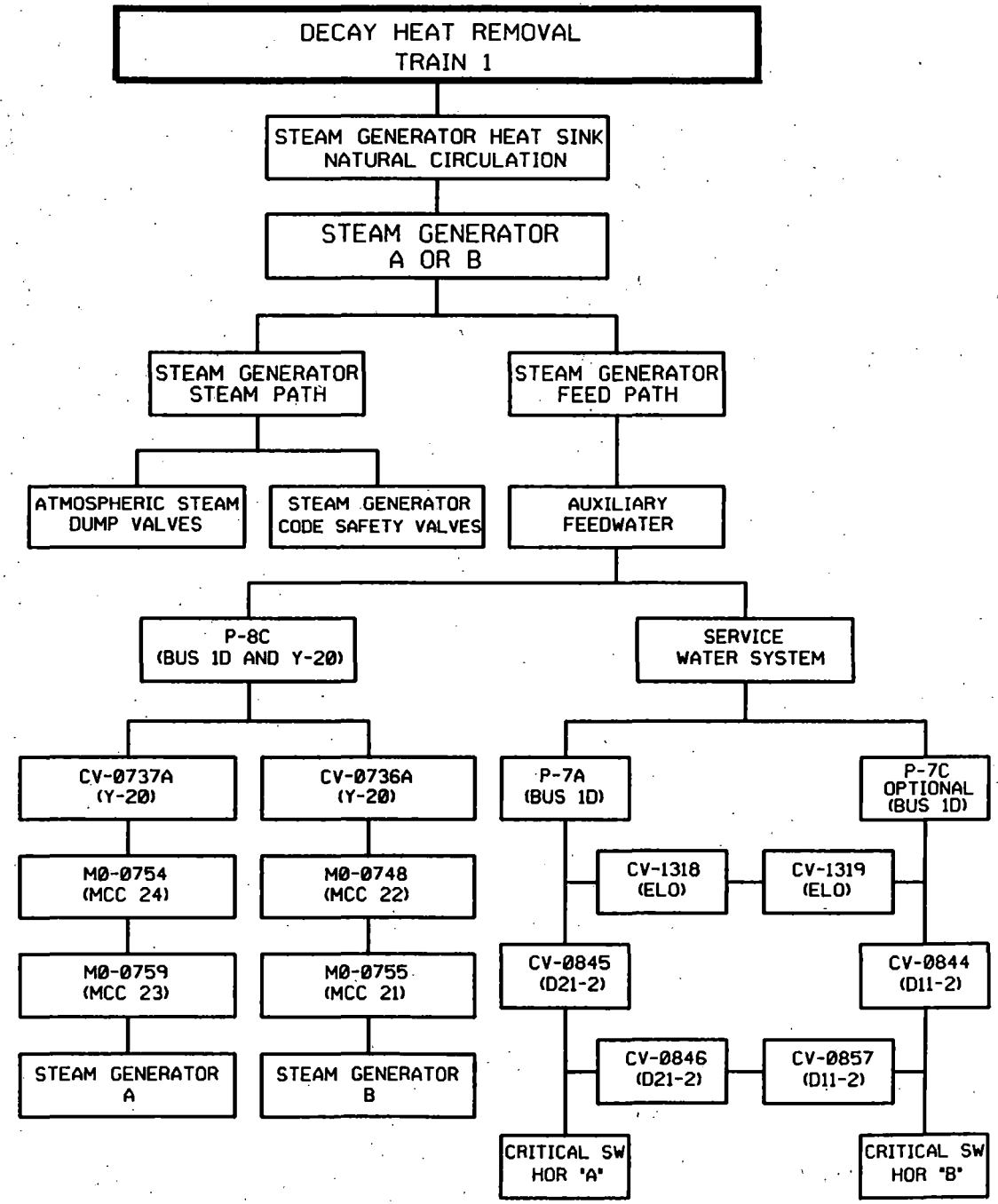


FIGURE 5 : SAFE SHUTDOWN PATH FOR PALISADES

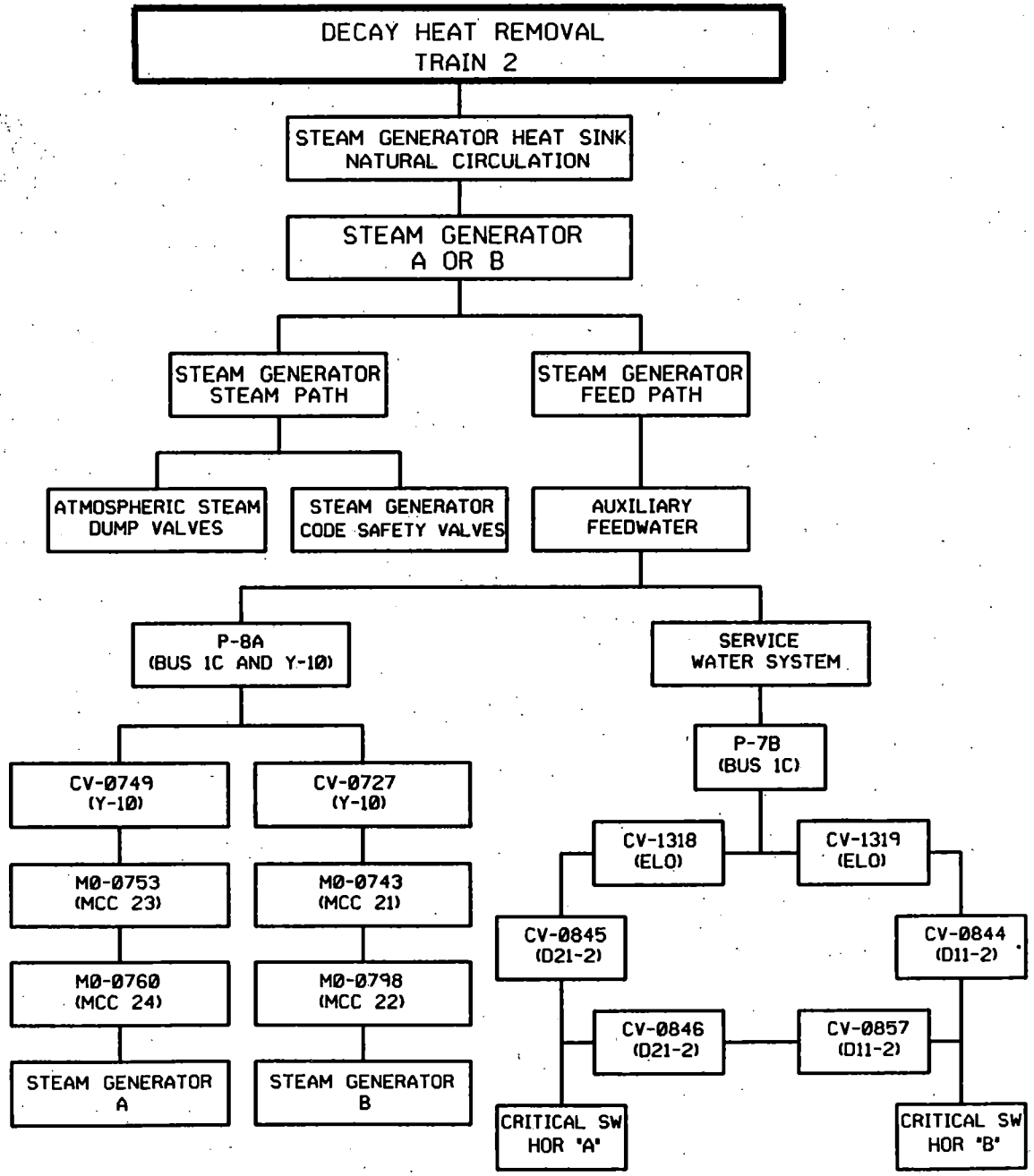


FIGURE 6 : SAFE SHUTDOWN PATH FOR PALISADES

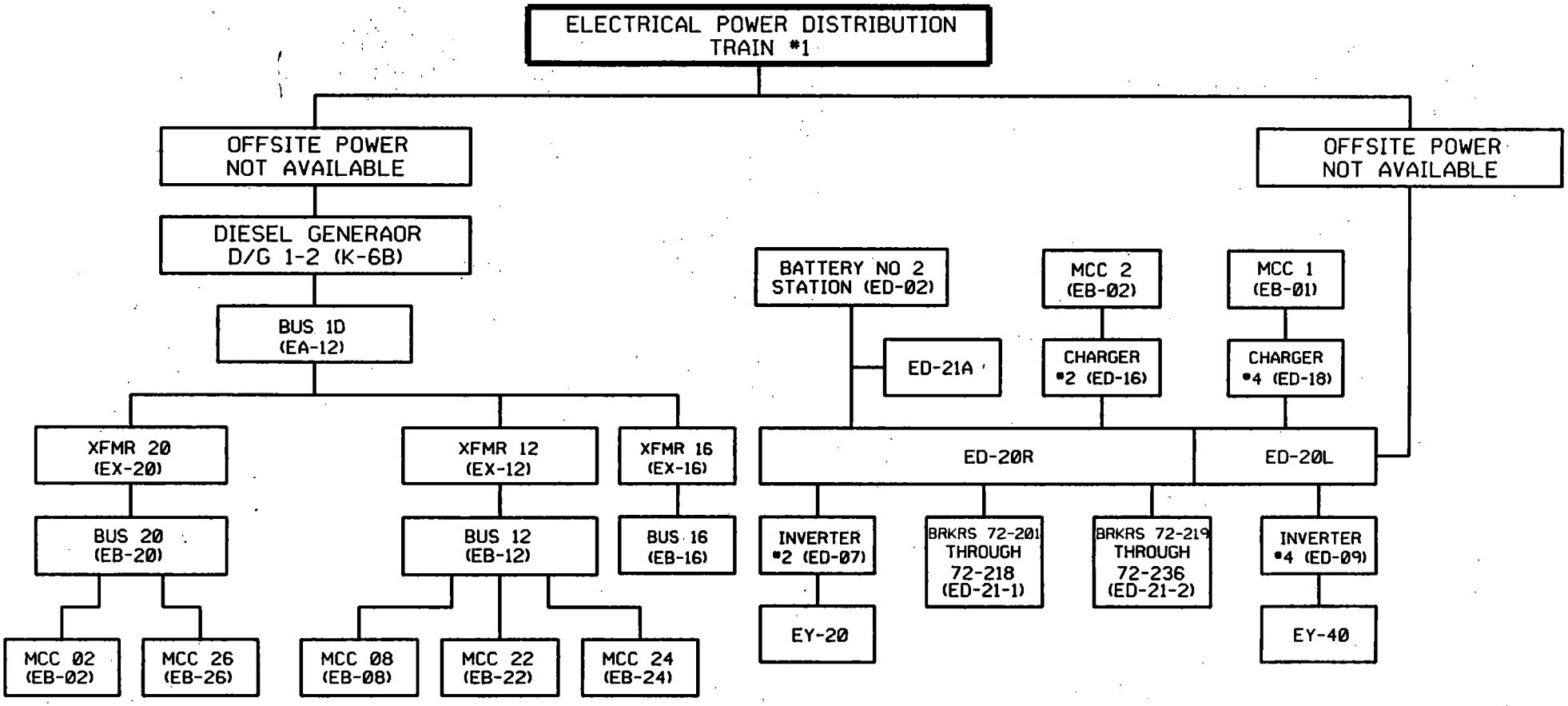


FIGURE 7 : SAFE SHUTDOWN PATH FOR PALISADES

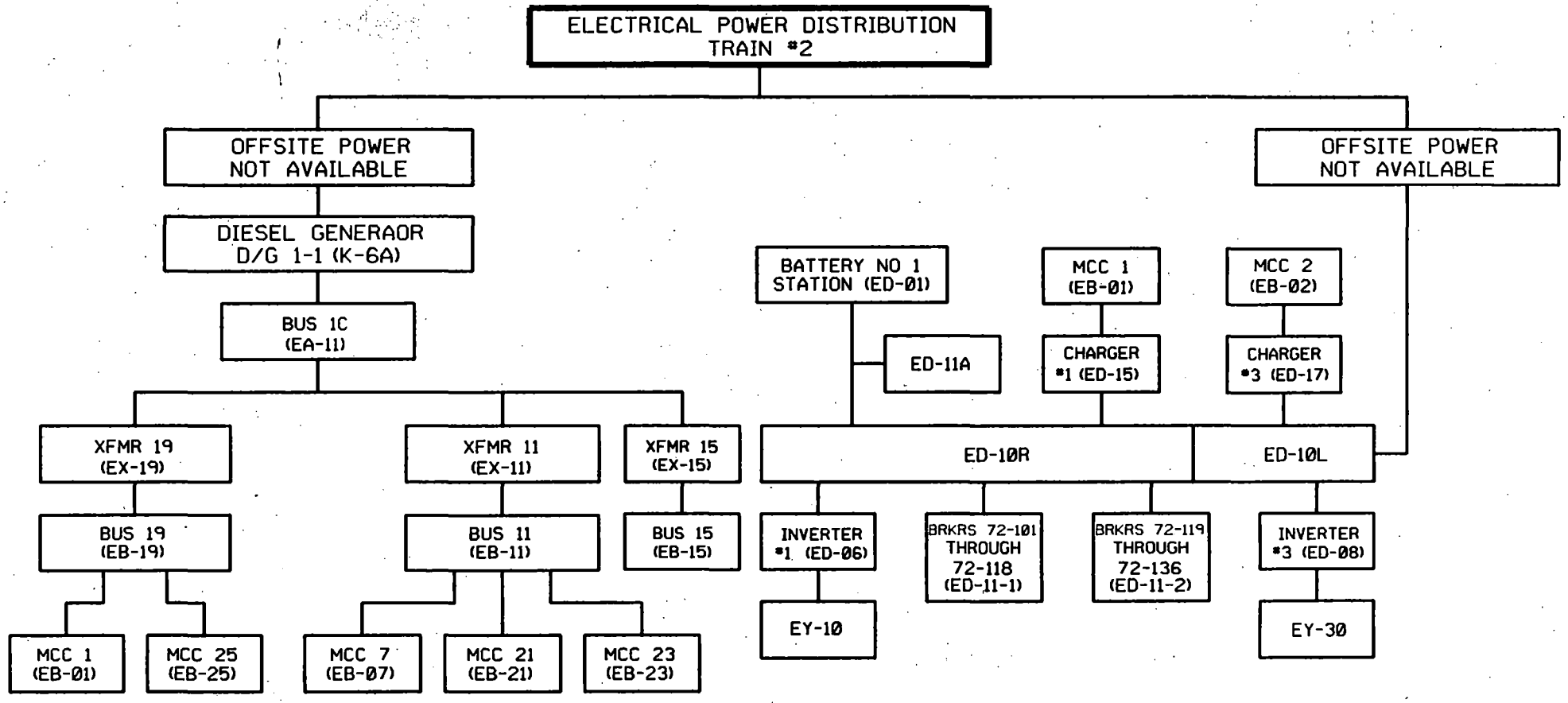


FIGURE 8 : SAFE SHUTDOWN PATH FOR PALISADES

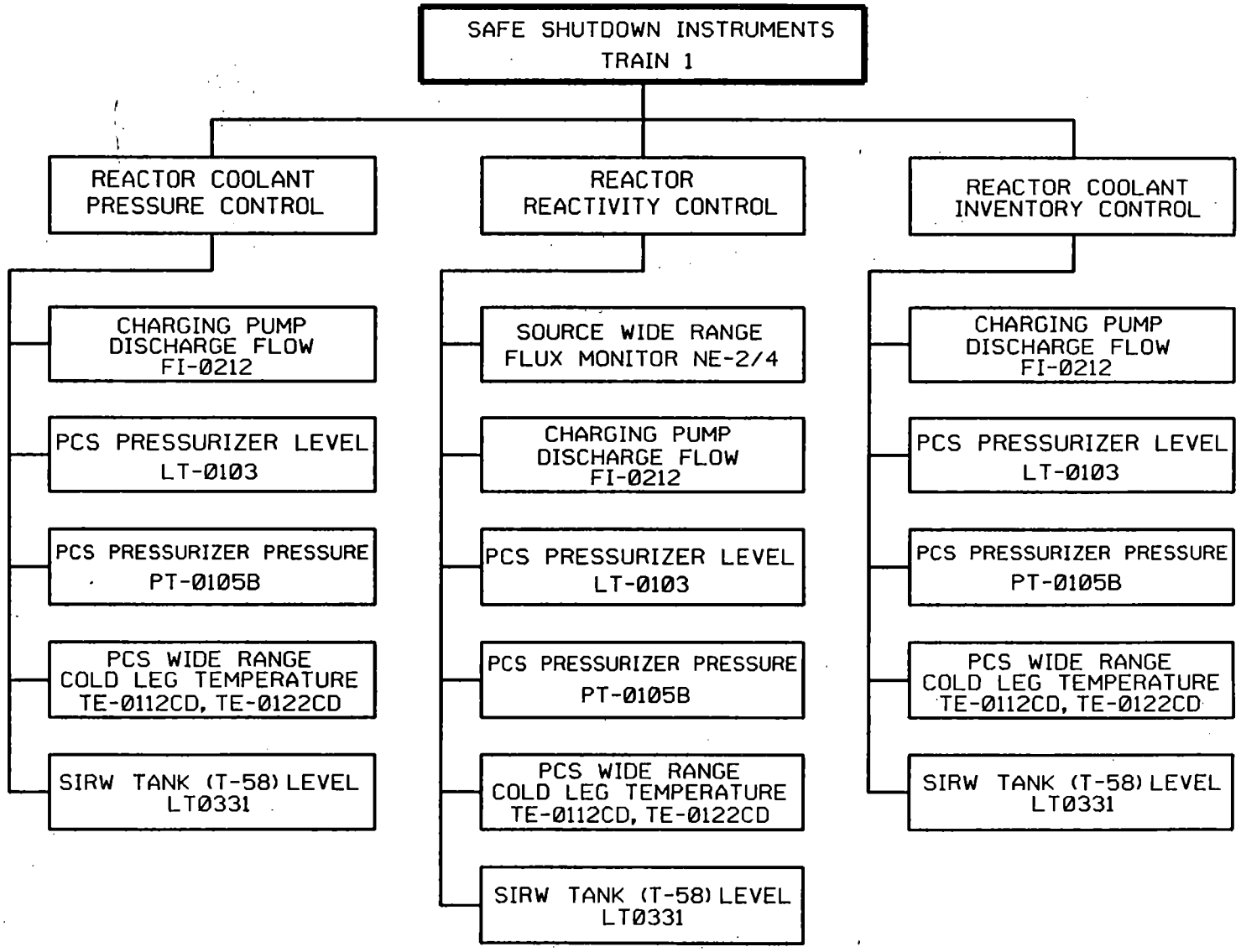


FIGURE 9 : SAFE SHUTDOWN PATH FOR PALISADES

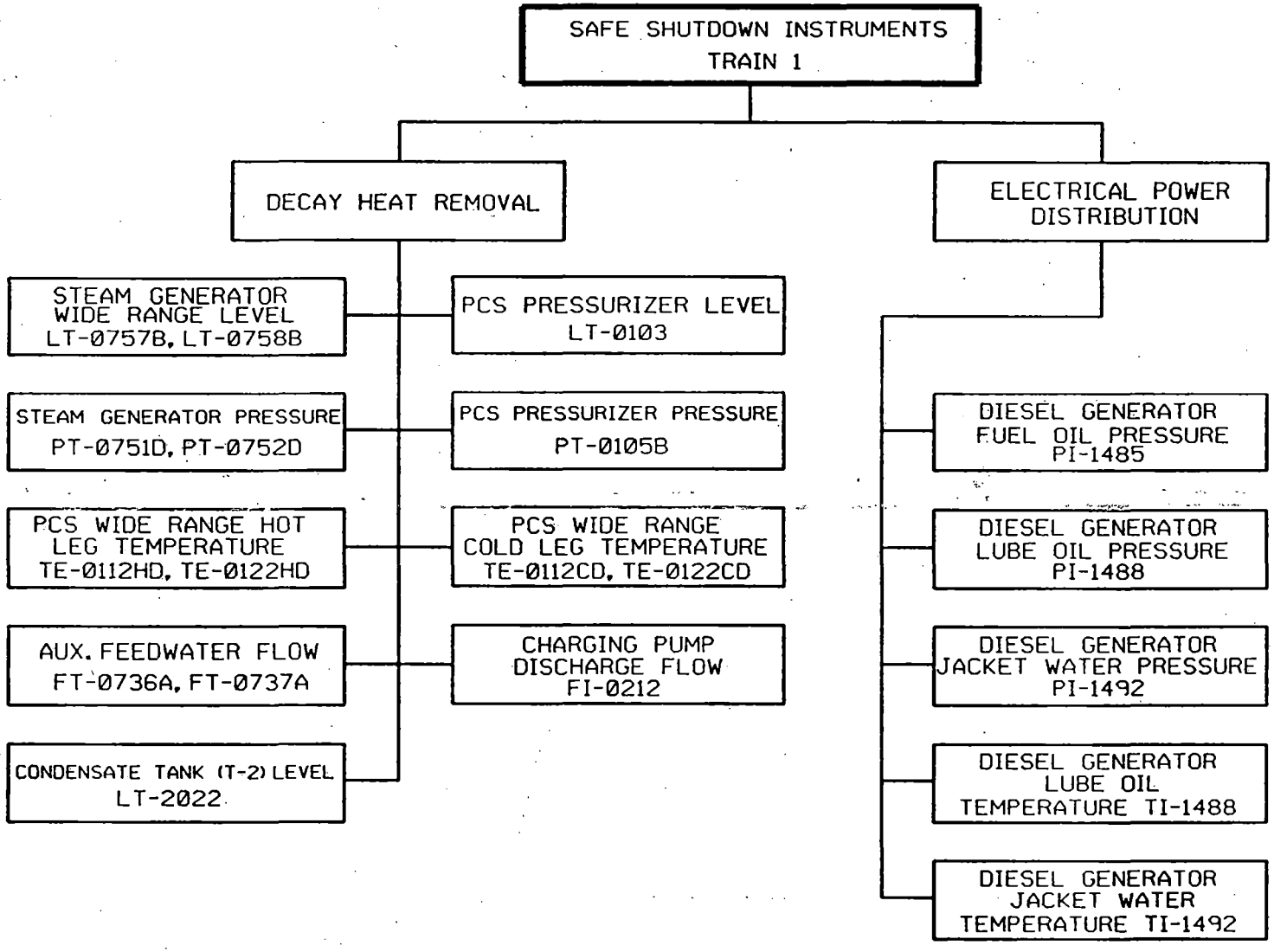


FIGURE 10 : SAFE SHUTDOWN PATH FOR PALISADES

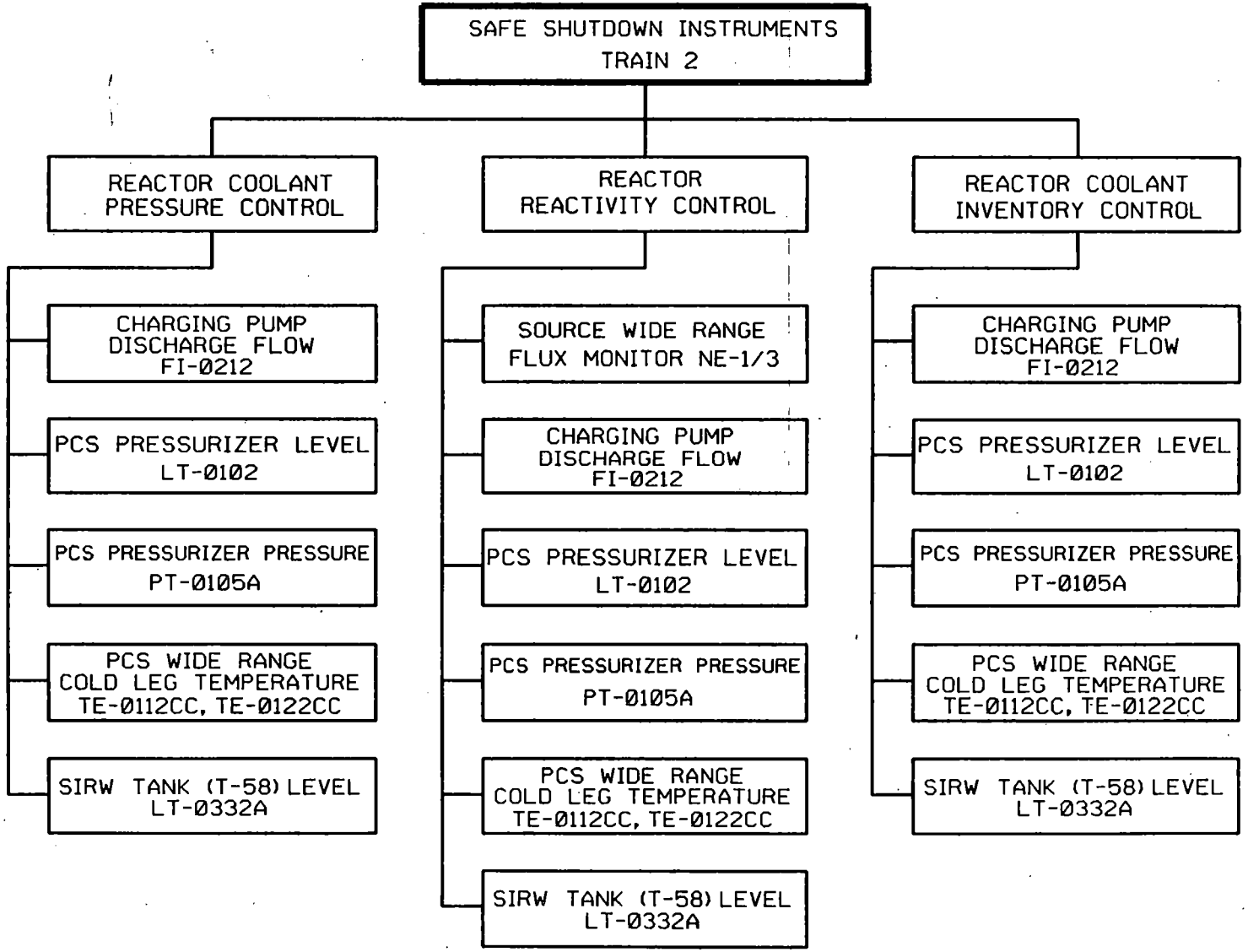
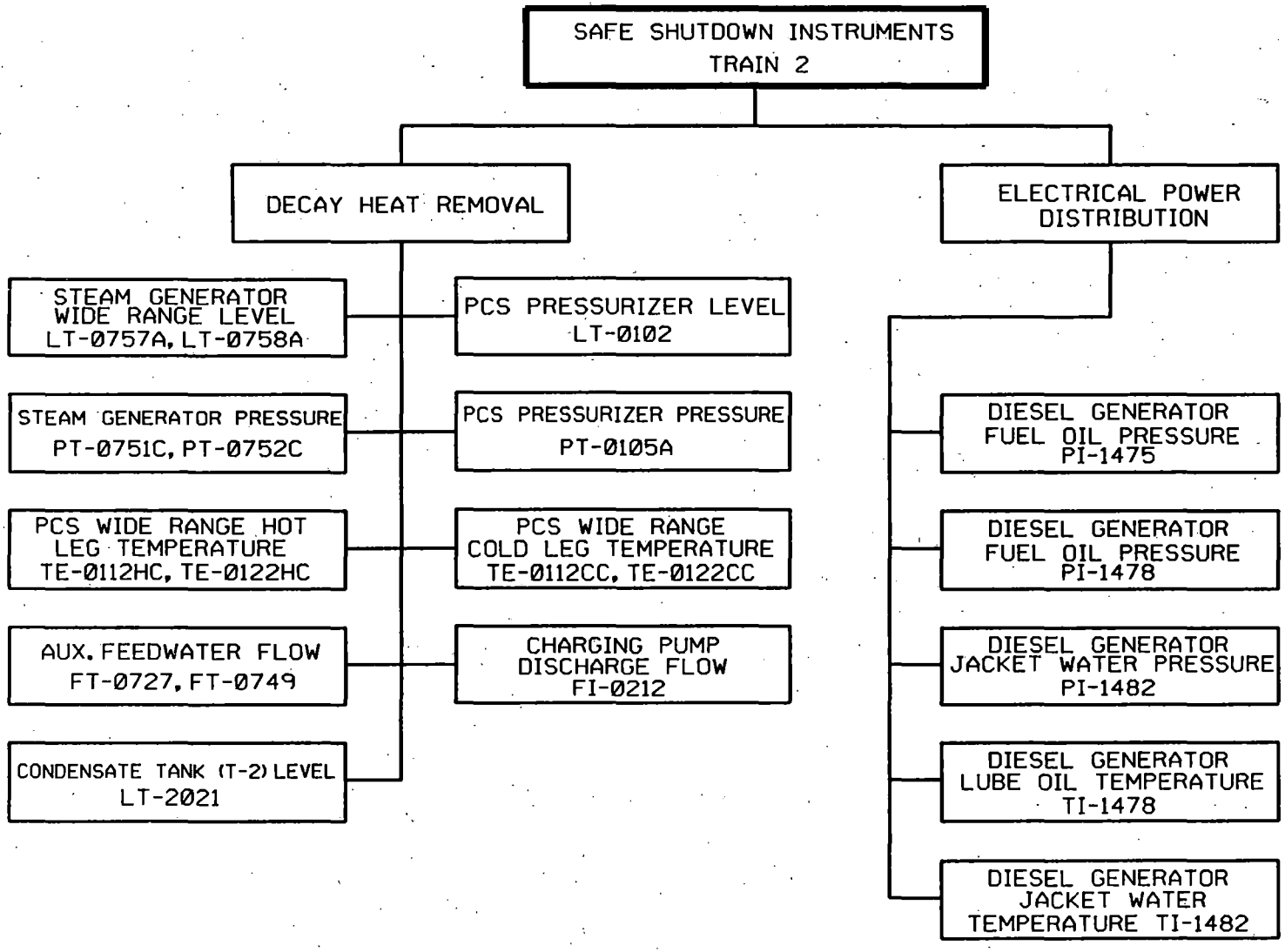


FIGURE 11 : SAFE SHUTDOWN PATH FOR PALISADES



CONSUMERS POWER

PALISADES NUCLEAR PLANT

ATTACHMENT B

SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

(37 Pages)

SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
1	RRC	1	1	42-1/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
2	RRC	2	1	42-1/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
3	RRC	1	1	42-2/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
4	RRC	2	1	42-2/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
5	DHR	1	0	ACCUM-0779	CV-0779 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
6	DHR	2	0	ACCUM-0779	CV-0779 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
7	DHR	1	0	ACCUM-0780	CV-0780 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
8	DHR	2	0	ACCUM-0780	CV-0780 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
9	DHR	1	0	ACCUM-0781	CV-0781 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
10	DHR	2	0	ACCUM-0781	CV-0781 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
11	DHR	1	0	ACCUM-0782	CV-0782 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
12	DHR	2	0	ACCUM-0782	CV-0782 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
13	DHR	1	0	ACCUM-MSIV1	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
14	DHR	2	0	ACCUM-MSIV1	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
15	DHR	1	0	ACCUM-MSIV2	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
16	DHR	2	0	ACCUM-MSIV2	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
17	EPD	2	0	ASM-1A	AIR STARTING MOTOR	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
18	EPD	2	0	ASM-1B	AIR STARTING MOTOR	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
19	EPD	1	0	ASM-2A	AIR STARTING MOTOR	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	N/A
20	EPD	1	0	ASM-2B	AIR STARTING MOTOR	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	N/A
21	HVAC	2	10	BD-1	HVAC BALANCING DAMP.	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
22	HVAC	1	10	BD-10	CONTROL RM. BALANCING DAMP.	M-218-6	AB	625	325	S	N/A	OPEN	OPEN	NO	N/A	N/A
23	HVAC	2	10	BD-10	CONTROL RM. BALANCING DAMP.	M-218-6	AB	625	325	S	N/A	OPEN	OPEN	NO	N/A	N/A
24	HVAC	1	10	BD-2	HVAC BALANCING DAMPER	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
25	HVAC	2	10	BD-5	HVAC BALANCING DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
26	HVAC	1	10	BD-6	HVAC BALANCING DAMPER	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
27	HVAC	2	10	BD-7	HVAC BALANCING DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
28	HVAC	1	10	BD-8	HVAC BALANCING DAMPER	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
29	HVAC	1	10	CD-41	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
30	HVAC	2	10	CD-41	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
31	HVAC	1	10	CD-42	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
32	HVAC	2	10	CD-42	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
33	HVAC	1	10	CD-43	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
34	HVAC	2	10	CD-43	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
35	HVAC	1	10	CD-44	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
36	HVAC	2	10	CD-44	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
37	HVAC	1	10	CD-45	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
38	HVAC	2	10	CD-45	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
39	HVAC	1	10	CD-46	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
40	HVAC	2	10	CD-46	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
41	HVAC	1	10	CD-47	V-26B FIRE DAMPER	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
42	HVAC	2	10	CD-47	V-26B FIRE DAMPER	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
43	HVAC	1	10	CD-48	V-26A FIRE DAMPER	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
44	HVAC	2	10	CD-48	V-26A FIRE DAMPER	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
45	HVAC	2	10	CD-49	V-95 FIRE DAMPER RETURN	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
46	HVAC	1	10	CD-50	V-95 FIRE DAMPER RETURN	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
47	HVAC	2	10	CD-50	V-95 FIRE DAMPER RETURN	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
48	HVAC	1	10	CD-51	V-96 FIRE DAMPER RETURN	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
49	HVAC	1	10	CD-52	V-96 FIRE DAMPER RETURN	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
50	HVAC	2	10	CD-52	V-96 FIRE DAMPER RETURN	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
51	RCPC	1	7	CK-CVC2112	LOOP 1A RELIEF CHK.	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
52	RCPC	2	7	CK-CVC2112	LOOP 1A RELIEF CHK.	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
53	RCPC	1	R	CK-ES3102	T-82A CHECK	M-203-1	RB	607	237	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
54	RCPC	2	R	CK-ES3102	T-82A CHECK	M-203-1	RB	607	237	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
55	RCPC	1	R	CK-ES3117	T-82B CHECK	M-203-1	RB	607	237	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
56	RCPC	2	R	CK-ES3117	T-82B CHECK	M-203-1	RB	607	237	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
57	RCPC	1	R	CK-ES3132	T-82C CHECK	M-203-1	RB	607	236	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
58	RCPC	2	R	CK-ES3132	T-82C CHECK	M-203-1	RB	607	236	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
59	RCPC	1	R	CK-ES3147	T-82D CHECK	M-203-1	RB	607	236	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
60	RCPC	2	R	CK-ES3147	T-82D CHECK	M-203-1	RB	607	236	N/A	10	CLOSED	CLOSED	NO	N/A	N/A
61	RCPC	1	R	CK-ES3402	IODINE REMOVAL T-103 DISCHARGE	M-204-1B	AB	640	811	N/A	13	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
62	RCPC	2	R	CK-ES3402	IODINE REMOVAL T-103 DISCHARGE	M-204-1B	AB	640	811	N/A	13	CLOSED	CLOSED	NO	N/A	N/A
63	RCPC	1	R	CK-ES3403	IODINE REMOVAL T-103 DISCHARGE	M-204-1B	AB	640	811	N/A	13	CLOSED	CLOSED	NO	N/A	N/A
64	RCPC	2	R	CK-ES3403	IODINE REMOVAL T-103 DISCHARGE	M-204-1B	AB	640	811	N/A	13	CLOSED	CLOSED	NO	N/A	N/A
65	RCPC	1	R	CK-ES3406	IODINE REMOVAL T-103 CHECK	M-204-1B	AB	570	005	N/A	13	CLOSED	CLOSED	NO	N/A	N/A
66	RCPC	2	R	CK-ES3406	IODINE REMOVAL T-103 CHECK	M-204-1B	AB	570	005	N/A	13	CLOSED	CLOSED	NO	N/A	N/A
67	RCPC	1	R	CK-ES3407	IODINE REMOVAL T-103 CHECK	M-204-1B	AB	570	005	N/A	13	CLOSED	CLOSED	NO	N/A	N/A
68	RCPC	2	R	CK-ES3407	IODINE REMOVAL T-103 CHECK	M-204-1B	AB	570	005	N/A	13	CLOSED	CLOSED	NO	N/A	N/A
69	DHR	1	R	CK-FW0701	S/G E-50B CHECK	M-207-1A	AB	590	123	N/A	21	OPEN	CLOSED	NO	N/A	N/A
70	DHR	2	R	CK-FW0701	S/G E-50B CHECK	M-207-1A	AB	590	123	N/A	21	OPEN	CLOSED	NO	N/A	N/A
71	DHR	1	R	CK-FW0702	S/G E-50A CHECK	M-207-1A	AB	590	123	N/A	21	OPEN	CLOSED	NO	N/A	N/A
72	DHR	2	R	CK-FW0702	S/G E-50A CHECK	M-207-1A	AB	590	123	N/A	21	OPEN	CLOSED	NO	N/A	N/A
73	RRC	1	0	CRD1-41	CONTROL ROD DRIVE MECHANISMS	M1-Q-1198	RB	649	145	R	7	ON	OFF	NO	E-212 SH.1	EC-06
74	RRC	2	0	CRD1-41	CONTROL ROD DRIVE MECHANISMS	M1-Q-1198	RB	649	145	R	7	ON	OFF	NO	E-212 SH.1	EC-06
75	DHR	1	7	CV-0501	MAIN STEAM ISOLATION E-50B	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0502;SV-0514
76	DHR	2	7	CV-0501	MAIN STEAM ISOLATION E-50B	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0505B;SV-0507B
77	DHR	1	7	CV-0510	MAIN STEAM ISOLATION E-50A	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0508;SV-0513
78	DHR	2	7	CV-0510	MAIN STEAM ISOLATION E-50A	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0505A;SV-0507A
79	DHR	2	7	CV-0727	E-50B FLOW FROM P-8A & P-8B	M-207-2	AB	590	123	S	19	CLOSED	OP/CL	YES	E-79 SH.3A&B	I/P-0727
80	DHR	1	7	CV-0736A	E-50B FLOW CONTROL	M-207-2	AB	570	005	S	19	CLOSED	OPEN	NO	N/A	I/P-0736A
81	DHR	1	7	CV-0737A	E-50A FLOW CONTROL	M-207-2	AB	570	005	S	19	CLOSED	OPEN	NO	N/A	I/P-0737A
82	DHR	2	7	CV-0749	E-50A FROM P-8A&P-8B	M-207-2	AB	590	123	S	19	CLOSED	OP/CL	YES	E-79 SH.3A,3B	I/P-0749
83	DHR	1	7	CV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	SV-0767;OPERATOR ACTION
84	DHR	2	7	CV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	SV-0767;OPERATOR ACTION
85	DHR	1	7	CV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	SV-0768;OPERATOR ACTION
86	DHR	2	7	CV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	SV-0768;OPERATOR ACTION
87	DHR	2	7	CV-0779	S/G E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0779A;SV-0779B;SV-0779C

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	D. E. Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
88	DHR	1	7	CV-0780	STEAM GEN E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0780A;SV-0780B;SV-0780C
89	DHR	2	7	CV-0781	STEAM GEN E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0781A;SV-0781B;SV-0781C
90	DHR	1	7	CV-0782	S/G E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0782A;SV-0782B;SV-0782C
91	DHR	1	7	CV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
92	DHR	2	7	CV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
93	DHR	1	7	CV-0822	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
94	DHR	2	7	CV-0822	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
95	DHR	1	7	CV-0823	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/A	N/A
96	DHR	2	7	CV-0823	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/A	N/A
97	DHR	1	7	CV-0826	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/A	N/A
98	DHR	2	7	CV-0826	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/A	N/A
99	DHR	1	7	CV-0847	AIR COOLERS SWS SUPPLY	M-208-1B	AB	607	238	S	25	OPEN	CLOSED	NO	N/A	SV-0847;OPERATOR ACTION
100	DHR	2	7	CV-0847	AIR COOLERS SWS SUPPLY	M-208-1B	AB	607	238	S	25	OPEN	CLOSED	YES	E-219 SH.1,2	SV-0847;OPERATOR ACTION
101	DHR	1	7	CV-0884	K-6A SERVICE WATER	M-208-1A	AB	590	116	S	19	CLOSED	OPEN	NO	N/A	SV-0884A;SV-0884B
102	DHR	2	7	CV-0884	K-6A SERVICE WATER	M-208-1A	AB	590	116	S	19	CLOSED	OPEN	NO	N/A	SV-0884A;SV-0884B
103	DHR	1	7	CV-0885	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S	19	CLOSED	OPEN	NO	N/A	SV-0885A;SV-0885B
104	DHR	2	7	CV-0885	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S	19	CLOSED	OPEN	NO	N/A	SV-0885A;SV-0885B
105	DHR	1	7	CV-0951	COOLING SWS RETURN	M-209-2	AB	570	005	N/A	38	CLOSED	CLOSED	NO	N/A	SV-0951
106	DHR	2	7	CV-0951	COOLING SWS RETURN	M-209-2	AB	570	005	N/A	38	CLOSED	CLOSED	NO	N/A	SV-0951
107	DHR	1	7	CV-1359	NON CRITICAL S.W. ISOLATION	M-213	TB	590	136	S	26	OPEN	CLOSED	NO	N/A	SV-1359;OPERATOR ACTION
108	DHR	2	7	CV-1359	NON CRITICAL S.W. ISOLATION	M-213	TB	590	136	S	26	OPEN	CLOSED	NO	N/A	SV-1359;OPERATOR ACTION
109	DHR	2	7	CV-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	S	17	OPEN	OP/CL	NO	N/A	I/P-1655;OPERATOR ACTION
110	DHR	1	7	CV-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	S	17	OPEN	OP/CL	NO	N/A	I/P-1656;OPERATOR

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	D E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
																ACTION
111	RCPC	1	7	CV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S	35	OPEN	CLOSED	NO	N/A	SV-2003
112	RCPC	2	7	CV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S	35	OPEN	CLOSED	NO	N/A	SV-2003
113	HVAC	1	10	D-10	V-96 RECIRC. DAMPER	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
114	HVAC	1	10	D-11	V-96 DISC. DAMPER	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
115	HVAC	2	10	D-11	V-96 DISC. DAMPER	M-218-6	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
116	HVAC	1	10	D-12	V-26B DISC. DAMPER	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
117	HVAC	1	10	D-13	V-26B RECIRC. DAMP.	M-218-6A	AB	625	300A	S	N/A	CLOSED	OPEN	NO	N/A	N/A
118	HVAC	1	10	D-14	V-26B OUTSIDE AIR DAMP.	M-218-6A	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
119	HVAC	1	10	D-16	V-94 DAMPER	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
120	HVAC	2	10	D-16	V-94 DAMPER	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
121	HVAC	2	10	D-2	V-95 MODULATING DAMP.	M-218-6	AB	625	300	S	N/A	OPEN	CLOSED	NO	N/A	N/A
122	HVAC	2	10	D-20	V-26A MODULATING DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
123	HVAC	1	10	D-21	V-26B MODULATING DAMP.	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
124	DGV	1	10	D-22	DG 1-2 RM EXHAUST DAMPER	M-218-5	AB	590	116B	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
125	DGV	2	10	D-23	DG 1-1 RM EXHAUST DAMPER	M-218-5	AB	590	116	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
126	DGV	1	10	D-24	DG 1-2 RM INLET DAMPER	M-218-5	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
127	DGV	2	10	D-25	DG 1-1 RM INLET DAMPER	M-218-5	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
128	DGV	2	10	D-26	V-24A GRAVITY DAMPER	M-218-5	AB	590	116	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
129	DGV	2	10	D-27	V-24B GRAVITY DAMPER	M-218-5	AB	590	116	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
130	DGV	1	10	D-28	V-24C GRAVITY DAMPER	M-218-5	AB	590	116B	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
131	DGV	1	10	D-29	V-24D GRAVITY DAMPER	M-218-5	AB	590	116B	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
132	HVAC	2	10	D-3	V-95 RECIRC. DAMP.	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
133	HVAC	1	10	D-4	V-95 DISC. DAMPER	M-218-6	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
134	HVAC	2	10	D-4	V-95 DISC. DAMPER	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
135	HVAC	2	10	D-5	V-26A DISC. DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
136	HVAC	2	10	D-6	V-26A RECIRC. DAMP.	M-218-6A	AB	625	300	S	N/A	CLOSED	OPEN	NO	N/A	N/A
137	HVAC	2	10	D-7	V-26A OUTSIDE AIR DAMP.	M-218-6A	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
138	HVAC	1	10	D-9	V-96 MODULATING DAMP.	M-218-6	AB	625	300A	S	N/A	OPEN	CLOSED	NO	N/A	N/A
139	EPD	2	21	E-22A	JACKET WATER COOLER	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
140	EPD	1	21	E-22B	JACKET WATER COOLER	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
141	EPD	2	21	E-31A	K-6A LUBE OIL COOLER	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
142	EPD	1	21	E-31B	K-6B LUBE OIL COOLER	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	MECHANICAL ACTION
143	EPD	2	21	E-32A	ENGINE AFTER COOLER	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
144	EPD	1	21	E-32B	ENGINE AFTER COOLER	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
145	DHR	1	21	E-54A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
146	DHR	2	21	E-54A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
147	DHR	1	21	E-54B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
148	DHR	2	21	E-54B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
149	RCPC	1	21	E-56	REGENERATIVE HEAT EXCHANGER	M-202-1B	RB	607	236	S	N/A	N/A	N/A	NO	N/A	N/A
150	RCPC	2	21	E-56	REGENERATIVE HEAT EXCHANGER	M-202-1B	RB	607	236	S	N/A	N/A	N/A	NO	N/A	N/A
151	RCPC	1	21	E-60A	EAST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
152	RCPC	2	21	E-60A	EAST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
153	RCPC	1	21	E-60B	WEST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
154	RCPC	2	21	E-60B	WEST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
155	RCPC	1	18	E/P-0338	T-82D PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
156	RCPC	2	18	E/P-0338	T-82D PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
157	RCPC	1	18	E/P-0342	T-82A PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
158	RCPC	2	18	E/P-0342	T-82A PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
159	RCPC	1	18	E/P-0346	T-82B PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
160	RCPC	2	18	E/P-0346	T-82B PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
161	RCPC	1	18	E/P-0347	T-82C PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
162	RCPC	2	18	E/P-0347	T-82C PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
163	DHR	1	18	E/P-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
164	DHR	2	18	E/P-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
165	DHR	1	18	E/P-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
166	DHR	2	18	E/P-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
167	DHR	1	18	E/P-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
168	DHR	2	18	E/P-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
169	DHR	1	18	E/P-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
170	DHR	2	18	E/P-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
171	RCPC	1	18	E/P-2153	CONCENTRATION BORIC ACID MAKE-UP	M-202-1A	AB	590	107A	R	3	ON	ON	NO	E-234 SH.1	EC-12;EC-02

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	D. E. Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
172	RCPC	2	18	E/P-2153	CONC BORIC ACID MAKE-UP	M-202-1A	AB	590	107A	R	3	ON	ON	NO	E-234 SH.1	EC-12;EC-02
173	EPD	1	3	EA-11	2400 VOLT BUS 1C	E1-1	AB	590	116A	S/R	N/A	ON	OFF	NO	E-3 SH.1	K-6A
174	EPD	2	3	EA-11	2400 VOLT BUS 1C	E1-1	AB	590	116A	S/R	N/A	ON	ON	YES	E-3 SH.1	ED-11A;K-6A
175	EPD	1	3	EA-12	2400 VOLT BUS 1D	E1-1	AB	607	223	S/R	N/A	ON	ON	YES	E-3 SH.1	ED-21A;K-6B
176	EPD	2	3	EA-12	2400 VOLT BUS 1D	E1-1	AB	607	223	S/R	N/A	ON	OFF	NO	E-3 SH.1	K-6B
177	EPD	2	3	EA-13	2400 V BUS 1-E	E1-1	TB	590	133	S/R	N/A	ON	OFF	NO	E-3 SH.1	EX-15
178	EPD	2	1	EB-01	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.1	EB-19
179	EPD	1	1	EB-02	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.1	EB-20
180	EPD	2	1	EB-07	480 V MOTOR CONTROL CENTER	E1-1	AB	590	121	S/R	N/A	ON	ON	YES	E-5 SH.4	EB-11
181	EPD	1	1	EB-08	480 V MOTOR CONTROL CENTER	E1-1	AB	590	121	S/R	N/A	ON	ON	YES	E-5 SH.4	EB-12
182	EPD	2	2	EB-11	480 VOLT LOAD CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	ED-11;EX-11
183	EPD	1	2	EB-12	480 VOLT LOAD CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	ED-21;EX-12
184	EPD	2	2	EB-15	480 VOLT LOAD CENTER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EX-15
185	EPD	1	2	EB-16	480 VOLT LOAD CENTER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EX-16
186	EPD	2	2	EB-19	480 VOLT LOAD CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	ED-11;EX-19
187	EPD	1	2	EB-20	480 VOLT LOAD CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	ED-21;EX-20
188	EPD	2	1	EB-21	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-11
189	EPD	1	1	EB-22	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	223	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-12
190	EPD	2	1	EB-23	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-11
191	EPD	1	1	EB-24	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-12
192	EPD	2	1	EB-25	480 VOLT MOTOR CONTROL CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-5 SH.5C	EB-19
193	EPD	1	1	EB-26	480 VOLT MOTOR CONTROL CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-5 SH.5C	EB-20
194	EPD	1	20	EC-01	TURBINE GENERATOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
195	EPD	2	20	EC-01	TURBINE GENERATOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
196	EPD	1	20	EC-02	PRIMARY PROCESS & REACTOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
197	EPD	2	20	EC-02	PRIM. PROCESS & REACTOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
198	EPD	1	20	EC-03	CONTAINMENT ISOL. & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
199	EPD	2	20	EC-03	CONTAINMENT ISOL. & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
200	EPD	1	20	EC-04	RELAY & STATION AUXILARY CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
201	EPD	2	20	EC-04	RELAY & STATION AUXILARY CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
202	EPD	1	20	EC-06	REACTOR PROTECTIVE SYSTEM CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
203	EPD	2	20	EC-06	REACTOR PROTECTIVE SYSTEM CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
204	EPD	1	20	EC-08	SERV. WATER & COMP COOLING CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
205	EPD	2	20	EC-08	SERV. WTR. & COMP. COOLING CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
206	EPD	1	20	EC-11	RADIATION TURBINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
207	EPD	2	20	EC-11	RADIATION, TURBINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
208	EPD	1	20	EC-11A	POST ACCIDENT CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
209	EPD	2	20	EC-11A	POST ACCIDENT CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
210	EPD	1	20	EC-12	PRIMARY PROCESS & INSTRUMENTATION	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
211	EPD	2	20	EC-12	PRIMARY PROCESS & INSTRUMENTATION	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
212	EPD	1	20	EC-126	CIRC. WATER & IODINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
213	EPD	2	20	EC-126	CIRC. WATER & IODINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
214	EPD	1	20	EC-13	DBA SHUTDOWN & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
215	EPD	2	20	EC-13	DBA SHUTDOWN & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
216	EPD	1	20	EC-150	AUX. HOT SHUTDOWN PANEL	E-363-1	AB	607	250	S	9	N/A	N/A	NO	N/A	N/A
217	EPD	2	20	EC-150	AUX. HOT SHUTDOWN PANEL	E-363-1	AB	607	250	S	9	N/A	N/A	NO	N/A	N/A
218	EPD	1	20	EC-168	POST ACCIDENT SAMPLE MONITORING	E-380-2	AB	607	214	S	9	N/A	N/A	NO	N/A	N/A
219	EPD	2	20	EC-168	POST ACCIDENT SAMPLE MONITORING	E-380-2	AB	607	214	S	9	N/A	N/A	NO	N/A	N/A
220	EPD	1	20	EC-180	E-50A ISOLATION SOLENOIDS	E-363-1	TB	607	247	S	9	N/A	N/A	NO	N/A	N/A
221	EPD	2	20	EC-180	E-50A ISOLATION SOLENOIDS	E-363-1	TB	607	247	S	9	N/A	N/A	NO	N/A	N/A
222	EPD	1	20	EC-181	E-50B ISOLATION SOLENOIDS	E-363-1	AB	625	328	S	9	N/A	N/A	NO	N/A	N/A
223	EPD	2	20	EC-181	E-50B ISOLATION SOLENOIDS	E-363-1	AB	625	328	S	9	N/A	N/A	NO	N/A	N/A
224	EPD	1	20	EC-182	ATMOSPHERIC STEAM DUMP PANEL	E-364	AB	625	338R	S	9	N/A	N/A	NO	N/A	N/A
225	EPD	2	20	EC-182	ATMOSPHERIC STEAM DUMP PANEL	E-364	AB	625	338R	S	9	N/A	N/A	NO	N/A	N/A
226	EPD	2	20	EC-186A	CONTROL ROOM HVAC CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
227	EPD	1	20	EC-186B	CONTROL ROOM HVAC CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
228	EPD	1	20	EC-187	AUX. FEEDWATER CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
229	EPD	2	20	EC-187	AUX FEEDWATER CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
230	EPD	2	20	EC-188A	DAMPER CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
231	EPD	1	20	EC-188B	DAMPER CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
232	EPD	1	20	EC-189A	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
233	EPD	2	20	EC-189A	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus		5/3/95	Dale E. Engle		5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
234	EPD	1	20	EC-189B	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
235	EPD	2	20	EC-189B	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
236	EPD	2	20	EC-22	DG-1/1 CONTROL PANEL	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
237	EPD	1	20	EC-26	DG-1/2 CONTROL PANEL	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
238	EPD	1	20	EC-32	NSSS SAMPLE HOOD	E-380-2	AB	607	228	S	9	N/A	N/A	NO	N/A	N/A
239	EPD	2	20	EC-32	NSSS SAMPLE PANEL	E-380-2	AB	607	228	S	9	N/A	N/A	NO	N/A	N/A
240	EPD	1	20	EC-33	REDUNDANT SAFETY INJECTION CONTROL	E-356	AB	590	121	S	9	N/A	N/A	NO	N/A	N/A
241	EPD	2	20	EC-33	REDUNDANT SAFETY INJECTION CONTROL	E-356	AB	590	121	S	9	N/A	N/A	NO	N/A	N/A
242	EPD	2	15	ED-01	MAIN STATION BATTERIES	E1-1	AB	607	225A	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-11A;ED-15;EJL-258
243	EPD	1	15	ED-02	MAIN STATION BATTERIES	E1-1	AB	607	225	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-16;ED-21A;EJL-259
244	EPD	2	16	ED-06	AC INVERTER #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
245	EPD	1	16	ED-07	AC INVERTER #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
246	EPD	2	16	ED-08	AC INVERTER #3	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
247	EPD	1	16	ED-09	AC INVERTER #4	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
248	EPD	2	14	ED-10	125 V DC BUS	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-01;ED-13;EJL-423
249	EPD	2	14	ED-11	125 V DC DISTRIBUTION PANEL	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
250	EPD	2	14	ED-11A	125 V DC DISTRIBUTION PANEL	E1-1	AB	590	116A	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-01
251	EPD	2	20	ED-13	METERING SECTION DC BUSS	E-359-1A	AB	607	224	S/R	N/A	ON	ON	YES	E-8-1	ED-10
252	EPD	2	16	ED-15	DC CHARGER #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	EB-01
253	EPD	1	16	ED-16	DC CHARGER #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	EB-02
254	EPD	2-OP	16	ED-17	DC CHARGER #3	E1-1	AB	607	224	S/R	N/A	ON	ON/OFF	YES	E-8 SH.1	EB-02
255	EPD	1-OP	16	ED-18	DC CHARGER #4	E1-1	AB	607	224	S/R	N/A	ON	ON/OFF	YES	E-8 SH.1	EB-01
256	EPD	1	14	ED-20	125 V DC BUS	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-02;ED-23;EJL-422
257	EPD	1	14	ED-21	125 V DC DISTRIBUTION PANEL	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
258	EPD	1	14	ED-21A	125 V DC DISTRIBUTION PANEL	E1-1	AB	590	116B	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-02
259	EPD	1	20	ED-23	METERING SECTION DC BUS	E-359-1A	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-20
260	EPD	2	20	EG-20	DG-1/1 GAUGE PANEL	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
261	EPD	2	20	EG-21	DG-1/1 STARTER BOX	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
262	EPD	1	20	EG-30	DG-1/2 GAUGE PANEL	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
263	EPD	1	20	EG-31	DG-1/2 STARTER BOX	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
264	RCPC	2	0	EH-0501A-F	PROPORTIONAL HEATERS #1	M-201-2	RB	607	800	R	7	ON/OFF	ON/OFF	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
265	RCPC	2	0	EH-0502A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
266	RCPC	2	0	EH-0503A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
267	RCPC	2	0	EH-0504A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
268	RCPC	2	0	EH-0505A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
269	RCPC	2	0	EH-0506A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
270	RCPC	2	0	EH-0507A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
271	RCPC	2	0	EH-0508A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
272	RCPC	2	0	EH-0509A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
273	RCPC	2	0	EH-0510A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
274	RCPC	1	0	EH-0601A-F	PROPORTIONAL HEATERS GROUP 2	M-201-2	RB	607	800	R	7	ON/OFF	ON/OFF	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
275	RCPC	1	0	EH-0602A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
276	RCPC	1	0	EH-0603A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
277	RCPC	1	0	EH-0604A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
278	RCPC	1	0	EH-0605A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
279	RCPC	1	0	EH-0606A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
280	RCPC	1	0	EH-0607A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
281	RCPC	1	0	EH-0608A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
282	RCPC	1	0	EH-0609A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
283	RCPC	1	0	EH-0610A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
284	EPD	1	20	EJ-1002	CONTROL ROOM HVAC CONTROLS	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
285	EPD	2	20	EJ-1003	CONTROL ROOM HVAC CONTROLS	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
286	EPD	1	20	EJ-1005	AUX. FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
287	EPD	2	20	EJ-1005	AUX FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
288	EPD	1	20	EJ-1006	AUX. FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
289	EPD	2	20	EJ-1006	AUX FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
290	EPD	2	20	EJ-1051	AUX FEEDWATER CONTROLS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
291	EPD	1	20	EJ-1052	AUX. FEEDWATER RELAY CONTROLS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
292	EPD	1	20	EJ-1088	VC-10 CONTROLS	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
293	EPD	2	20	EJ-1089	VC-11 CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
294	EPD	1	20	EJ-1092	CONTROL ROOM HVAC VC-10 CONTROLS	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
295	EPD	2	20	EJ-1093	CONTROL ROOM HVAC VC-11 CONTROLS	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
296	EPD	1	20	EJ-1126	VC-10 RELAY PANEL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
297	EPD	2	20	EJ-1127	VC-11 RELAY PANEL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
298	EPD	2	20	EJ-1143	MO-0753 DISCONNECT 8/2327	E-362	AB	590	123	S	9	N/A	N/A	NO	N/A	N/A
299	EPD	2	20	EJ-1144	MO-0760 DISCONNECT 8/2427	E-362	AB	590	123	S	9	N/A	N/A	NO	N/A	N/A
300	EPD	1	20	EJ-214	T-40 DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/A	N/A
301	EPD	2	20	EJ-214	T-40 DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/A	N/A
302	EPD	1	20	EJ-245	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	147	S	9	N/A	N/A	NO	N/A	N/A
303	EPD	2	20	EJ-245	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	147	S	9	N/A	N/A	NO	N/A	N/A
304	EPD	1	20	EJ-246	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	146	S	9	N/A	N/A	NO	N/A	N/A
305	EPD	2	20	EJ-246	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	146	S	9	N/A	N/A	NO	N/A	N/A
306	EPD	1	20	EJ-43	DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
307	EPD	2	20	EJ-43	DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/A	N/A
308	EPD	1	20	EJ-44	DIESEL FUEL TRANSFER	E-367	TB	590	124	S	9	N/A	N/A	NO	N/A	N/A
309	EPD	2	20	EJ-44	DIESEL OIL TRANSFER	E-367	TB	590	124	S	9	N/A	N/A	NO	N/A	N/A
310	EPD	1	20	EJ-540	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
311	EPD	2	20	EJ-540	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
312	EPD	1	20	EJ-541	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
313	EPD	2	20	EJ-541	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
314	EPD	2	20	EJ-593	P-55B&C TRANSFER SWITCH	E-356	AB	590	104B	S	9	N/A	N/A	NO	N/A	N/A
315	EPD	1	20	EJ-594	P-55 B&C TRANSFER SWITCH	E-356	AB	590	104A	S	9	N/A	N/A	NO	N/A	N/A
316	EPD	2	20	EJ-594	P-55B&C TRANSFER SWITCH	E-356	AB	590	104A	S	9	N/A	N/A	NO	N/A	N/A
317	EPD	1	20	EJ-79	DIESEL FUEL DAY TANKS	E-381	TB	590	707	S	9	N/A	N/A	NO	N/A	N/A
318	EPD	2	20	EJ-79	DIESEL FUEL DAY TANKS	E-831	TB	590	707	S	9	N/A	N/A	NO	N/A	N/A
319	EPD	1	20	EJ-9400	BUS 1-C UNDER VOLTAGE RELAYS	E-359-12	AB	590	116A	S	9	N/A	N/A	NO	N/A	N/A
320	EPD	2	20	EJ-9400	BUS 1-C UNDERVOLTAGE RELAYS	E-359-12	AB	590	116A	S	9	N/A	N/A	NO	N/A	N/A
321	EPD	1	20	EJ-9401	BUS 1-D UNDER VOLTAGE RELAYS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
322	EPD	2	20	EJ-9401	BUS 1-D UNDERVOLTAGE RELAYS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
323	EPD	1	20	EJL-256	P-55B TRANSFER SWITCH	E-356	AB	590	104A	S	9	N/A	N/A	NO	N/A	N/A
324	EPD	2	20	EJL-257	P-55C TRANSFER SWITCH	E-356	AB	590	104B	S	9	N/A	N/A	NO	N/A	N/A
325	EPD	2	20	EJL-258	ED-01 FUSE BOX	E-359-2	AB	607	225A	S	9	N/A	N/A	NO	N/A	N/A
326	EPD	1	20	EJL-259	ED-02 FUSE BOX	E-359-2	AB	607	225	S	9	N/A	N/A	NO	N/A	N/A
327	EPD	2	20	EJL-263	AUX FEEDWATER CONTROLS	E-362	AB	590	123	S	9	N/A	N/A	NO	N/A	N/A
328	EPD	2	20	EJL-264	AUX FEEDWATER CONTROLS	E-362	AB	590	123	S	9	N/A	N/A	NO	N/A	N/A
329	EPD	1	20	EJL-422	72-02 BREAKER BOX	E-359-2	AB	607	225	S	9	N/A	N/A	NO	N/A	N/A
330	EPD	2	20	EJL-423	72-01 BREAKER BOX	E-359-2	AB	607	225A	S	9	N/A	N/A	NO	N/A	N/A
331	EPD	2	9	EMG-0501	CRANKCASE EXHAUST	M-214-1	AB	590	116	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-22;EG-20;EG-21;EX-67
332	EPD	2	9	EMG-0502	CRANKCASE EXHAUST	M-214-1	AB	590	116	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-22;EG-20;EG-21;EX-67
333	EPD	1	9	EMG-0503	CRANKCASE EXHAUST	M-214-1	AB	590	116B	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-26;EG-30;EG-31;EX-66
334	EPD	1	9	EMG-0504	CRANKCASE EXHAUST	M-214-1	AB	590	116B	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-26;EG-30;EG-31;EX-

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
																66
335	RCPC	2	1	EU-1	SCR CONTROLLER-HEATERS	M-201-2	RB	590	143	S/R	N/A	ON/OFF	ON/OFF	YES	E-254 SH.1	EB-15;EX-15;EC-02
336	RCPC	1	1	EU-2	SCR CONTROLLER-HEATERS	M-201-2	RB	590	143	S/R	N/A	ON/OFF	ON/OFF	YES	E-253 SH.1	EB-16;EX-16;EC-02
337	EPD	2	4	EX-11	2400/480 VOLT TRANSFORMER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-11
338	EPD	1	4	EX-12	2400/480 VOLT TRANSFORMER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-12
339	EPD	2	4	EX-15	2400/480 VOLT TRANSFORMER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-3-1; E-4-1	EA-11;EA-13
340	EPD	1	4	EX-16	2400/480 VOLT TRANSFORMER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-12
341	EPD	2	4	EX-19	2400/480 VOLT TRANSFORMER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	EA-11
342	EPD	1	4	EX-20	2400/480 VOLT TRANSFORMER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	EA-12
343	RRC	2	4	EX-63	CONTROL ROD CLUTCH TRANSFORMER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
344	RRC	1	4	EX-64	CONTROL ROD CLUTCH TRANSFORMER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
345	EPD	1	4	EX-66	DG-1/2 EXHAUSTER TRANSFORMER	E1-1	AB	590	116B	S/R	N/A	OFF	ON	YES	VM-12-18(2)	K-6B
346	EPD	2	4	EX-67	DG-1/1 EXHAUSTER TRANSFORMER	E1-1	AB	590	116	S/R	N/A	OFF	ON	YES	VM-12-18(2)	K-6A
347	EPD	2	14	EY-10	120 V AC PANEL #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-06
348	EPD	1	14	EY-20	120 V AC PANEL #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-07
349	EPD	2	14	EY-30	120 V AC PANEL #3	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-08
350	EPD	1	14	EY-40	120 V AC PANEL #4	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-09
351	RCPC	1	18	FI-0212	CHARGING PUMP LOCAL FLOW IND.	M-202-1B	AB	590	106	S	34	ON	ON	NO	N/A	OPERATOR ACTION
352	RCPC	2	18	FI-0212	CHARGING PUMP LOCAL FLOW IND.	M-202-1B	AB	590	106	S	34	ON	ON	NO	N/A	OPERATOR ACTION
353	DHR	2	18	FT-0727	P-8A/B FLOW TRANSMITTER	M-207-2	AB	590	123	S/R	N/A	N/A	N/A	YES	E-79 SH.3,3A&B	EJ-1051;EY-10
354	DHR	1	18	FT-0736A	E-50B STEAM FLOW TRANS.	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-79 SH.3E,F,G	EJ-1052;EY-20
355	DHR	1	18	FT-0737A	E-50A STEAM FLOW TRANS.	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-79 SH.3E,F,G	EJ-1052;EY-20
356	DHR	2	18	FT-0749	P-8A/B FLOW TRANSMITTER	M-207-2	AB	590	123	S/R	N/A	N/A	N/A	YES	E-79 SH.3,3A,3B	EJ-1051;EY-10
357	DHR	2	18	I/P-0727	E-50B FLOW CONTROL	M-207-2	AB	590	123	S/R	N/A	ON	ON/OFF	YES	E-79 SH.3 A&B	EC-01;EC-33;EJ-1005;EJ-1051;EJL-
358	DHR	1	18	I/P-0736	E-50B FLOW CONTROL BYPASS	M-207-2	AB	570	005	R	3	OFF	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-10
359	DHR	1	18	I/P-0736A	E-50B FLOW CONTROL	M-207-2	AB	570	005	S/R	N/A	ON	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-10
360	DHR	1	18	I/P-0737	E-50A FLOW CONTROL BYPASS	M-207-2	AB	570	005	R	3	OFF	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-10

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
361	DHR	1	18	I/P-0737A	E-50A FLOW CONTROL	M-207-2	AB	570	005	S/R	N/A	ON	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-10
362	DHR	2	18	I/P-0749	E-50A FLOW CONTROL	M-207-2	AB	590	123	S/R	N/A	ON	ON/OFF	YES	E-79 SH.3 A&B	EC-01;EC-33;EJ-1005;EJ-1051;EJL-
363	DHR	1	18	I/P-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	OFF	OFF	NO	E-270 SH.9	EC-189A
364	DHR	2	18	I/P-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	OFF	OFF	NO	E-270 SH.9	EC-189A
365	DHR	1	18	I/P-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	OFF	OFF	NO	E-270 SH.9	EC-189B
366	DHR	2	18	I/P-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	OFF	OFF	NO	E-270 SH.9	EC-189B
367	HVAC	2	18	I/P-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S/R	N/A	ON	OFF	NO	E-270 SH.5	EC-11A;EC-188A
368	HVAC	1	18	I/P-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S/R	N/A	ON	OFF	NO	E-270 SH.5	EC-11A;EC-188B
369	DHR	2	17	K-6A	DIESEL GENERATOR 1-1	M-208-1A	AB	590	116	S/R	N/A	OFF	ON	YES	E-140;M-12	EC-22;ED-01;ED-11A;K-6A
370	DHR	1	17	K-6B	DIESEL GENERATOR 1-2	M-208-1A	AB	590	116B	S/R	N/A	OFF	ON	YES	E-140; M-12	EC-26;ED-02;ED-21A;K-6B
371	EPD	2	18	LC-1482	JACKET WATER LEVEL CONTROL	M-214-1	AB	590	116	S	N/A	CLOSED	OP/CL	NO	N/A	MECHANICAL ACTION
372	EPD	1	18	LC-1492	JACKET WATER LEVEL CONTROL	M-214-1	AB	590	116B	S	N/A	CLOSED	OP/CL	NO	N/A	MECHANICAL ACTION
373	RCPC	1	18	LE-0101A	REACTOR VESSEL LEVEL DETECTOR	M-201-1	RB	625	810	N/A	6,7	N/A	N/A	NO	N/A	N/A
374	RCPC	2	18	LE-0101A	REACTOR VESSEL LEVEL DETECTOR	M-201-1	RB	625	810	N/A	6,7	N/A	N/A	NO	N/A	N/A
375	RCPC	1	18	LE-0101B	REACTOR VESSEL LEVEL DETECTOR	M-201-1	RB	625	810	N/A	6,7	N/A	N/A	NO	N/A	N/A
376	RCPC	2	18	LE-0101B	REACTOR VESSEL LEVEL DETECTOR	M-201-1	RB	625	810	N/A	6,7	N/A	N/A	NO	N/A	N/A
377	RCPC	1	18	LS-0327	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
378	RCPC	2	18	LS-0327	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
379	RCPC	1	18	LS-0328	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
380	RCPC	2	18	LS-0328	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
381	RCPC	1	18	LS-0329	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
382	RCPC	2	18	LS-0329	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
383	RCPC	1	18	LS-0330	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
384	RCPC	2	18	LS-0330	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
385	EPD	2	18	LS-1417	DG-1/1 CONTROL LEVEL	M-214-1	AB	590	146	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-21;EJ-246
386	EPD	2	18	LS-1418	DG-1/1 CONTROL LEVEL	M-214-1	AB	590	146	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-21;EJ-246
387	EPD	1	18	LS-1452	DG-1/2 CONTROL LEVEL	M-214-1	AB	590	147	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-31;EJ-245

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
388	EPD	1	18	LS-1453	DG-1/2 CONTROL LEVEL	M-214-1	AB	590	147	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-31;EJ-245
389	EPD	2	18	LS-1470	DG-1/1 SUMP STOP FILL LEVEL	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-97	EG-21
390	EPD	1	18	LS-1471	DG-1/2 SUMP STOP FILL LEVEL	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-104	EG-31
391	EPD	2	18	LS-1472	DG-1/1 SUMP START FILL LEVEL	M-214-1	AB	590	116	S/R	N/A	OPEN	OP/CL	YES	E-140; M-12-97	EG-21
392	EPD	1	18	LS-1473	DG-1/2 SUMP START FILL LEVEL	M-214-1	AB	590	116B	S/R	N/A	OPEN	OP/CL	YES	E-140; M-12-104	EG-31
393	RCPC	2	18	LT-0102	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-82 SH.5	EY-10;EC-12
394	RCPC	1	18	LT-0103	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-82 SH.3	EY-20;EC-12
395	RCPC	1	18	LT-0331	SIRW TANK LOW LEVEL TRANSMITTER	M-204-1B	AB	649	808	S/R	N/A	N/A	N/A	YES	E-87 SH.1	EY-20;EC-13
396	RCPC	2	18	LT-0332A	SIRW TANK LOW LEVEL TRANSMITTER	M-204-1B	AB	649	808	S/R	N/A	N/A	N/A	YES	E-87 SH.1A	EY-10;EC-13
397	DHR	2	18	LT-0757A	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2	EC-11;EC-12;EY-10
398	DHR	1	18	LT-0757B	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2	EC-11;EC-12;EY-20
399	DHR	2	18	LT-0758A	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2A	EC-11;EC-12;EY-10
400	DHR	1	18	LT-0758B	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2A	EC-11;EC-12;EY-20
401	DHR	2	18	LT-2021	T-2 LEVEL TRANSMITTER	M-220-1	TB	590	OUTSIDE	S/R	N/A	N/A	N/A	YES	E-87 SH.6	EC-13;EY-30
402	DHR	1	18	LT-2022	T-2 LEVEL TRANSMITTER	M-220-1	TB	590	OUTSIDE	S/R	N/A	N/A	N/A	YES	E-87 SH.6	EC-13;EY-20
403	DHR	1	8	MO-0501	E-50B MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01
404	DHR	2	8	MO-0501	E-50B MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01
405	DHR	1	8	MO-0510	E-50A MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01
406	DHR	2	8	MO-0510	E-50A MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01
407	DHR	2	8	MO-0743	E-50B ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005
408	DHR	1	8	MO-0748	E-50B ISOLATION	M-207-2	AB	570	005	S/R	N/A	OPEN	OP/CL	YES	E-1179 SH.1,2	EB-22;EC-11;EC-187;EJ-1005
409	DHR	2	8	MO-0753	E-50A ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005;EJ-1143
410	DHR	1	8	MO-0754	E-50A ISOLATION	M-207-2	AB	570	005	S/R	N/A	OPEN	OP/CL	YES	E-1174 SH.1,2	EB-24;EC-11;EC-187;EJ-1005
411	DHR	1	8	MO-0755	E-50B ISOLATION	M-207-2	AB	570	005	R	3	OPEN	OPEN	NO	E-1179 SH.1,2	EC-11;EC-187;EJ-1006
412	DHR	1	8	MO-0759	E-50A ISOLATION	M-207-2	AB	570	005	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1006
413	DHR	2	8	MO-0760	E-50A ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005;EJ-1144
414	DHR	2	8	MO-0798	E-50B ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don F Knottnerus	D. F. Knottnerus	5/3/95	Dale E. Engle	Dale E. Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
415	RCPC	1	8	MO-1042A	POWER RELIEF ISOL.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-242 SH.4	EC-02;EB-25
416	RCPC	2	8	MO-1042A	POWER RELIEF ISOL.	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-242 SH.4	EB-25;EC-02
417	RCPC	1	8	MO-1043A	POWER RELIEF ISOL.	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-242 SH.4	EB-26;EC-02
418	RCPC	2	8	MO-1043A	POWER RELIEF ISOL.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-242 SH.4	EC-02
419	RCPC	1	8	MO-2087	VOL. CONTROL TANK ISOL.	M-202-1A	AB	590	100	S/R	12	OPEN	CLOSED	NO	E-242 SH.1	EC-33;EC-02;EC-13;EC-12;OPERATOR
420	RCPC	2	8	MO-2087	VOL. CONTROL TANK ISOL.	M-202-1A	AB	590	100	S/R	12	OPEN	CLOSED	YES	E-242 SH.1	EB-01;EC-33;EC-02;EC-13;EC-12
421	RCPC	1	8	MO-2140	BORIC ACID PUMP FEED ISOL.	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EJ-9401;EC-04;EC-12;EB-02;EC-02;
422	RCPC	2	8	MO-2140	BORIC ACID PUMP FEED ISO	M-202-1A	AB	590	107	R	3	CLOSED	CLOSED	NO	E-241	EJ-9401;EC-04;EC-12;EC-02;EC-13;
423	RCPC	1	8	MO-2160	SIRW TO CHARGING PUMP	M-202-1A	AB	590	107	S/R	12	CLOSED	OP/CL	YES	E-242 SH.1	EB-02;EC-33;EC-02;EC-13;EC-12
424	RCPC	2	8	MO-2160	SIRW TO CHARGING PUMPS ISOLATION	M-202-1A	AB	590	107	S/R	12	CLOSED	OP/CL	NO	E-242 SH.1	EC-33;EC-02;EC-13;EC-12;OPERATOR
425	RCPC	1	8	MO-2169	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	R	3	CLOSED	CLOSED	NO	E-241	EC-12;EC-04;EB-01;EC-02;EC-13;EC
426	RCPC	2	8	MO-2169	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EC-02;EC-13;EC-33;EJ-9400;EB-01;
427	RCPC	2	8	MO-2170	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EC-02;EC-13;EC-33;EJ-9400;EB-01;
428	RCPC	1	8	MO-3015	SHUTDOWN COOLING FROM LOOP 2	M-204-1	RB	607	236	R	3	CLOSED	CLOSED	NO	E-242 SH.3	EC-02;EC-33
429	RCPC	2	8	MO-3015	SHUTDOWN COOLING FROM LOOP 2	M-204-1	RB	607	236	R	3	CLOSED	CLOSED	NO	E-242 SH.3	EC-02;EC-33
430	RCPC	1	8	MO-3072	CHARGING TO SI ISOL.	M-204-1A	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-242 SH.2	EC-03
431	RCPC	2	8	MO-3072	CHARGING TO SI ISOL.	M-204-1A	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-242 SH.2	EC-03
432	RCPC	1	8	MO-3082	HPSI HOT LEG INJECT. MODE	M-203-2	RB	590	143	R	3	CLOSED	CLOSED	NO	E-244 SH.5A,6	EC-03;EC-33
433	RCPC	2	8	MO-3082	HPSI HOT LEG INJECT. MODE	M-203-2	RB	590	143	R	3	CLOSED	CLOSED	NO	E-244 SH.5A,6	EC-03;EC-33
434	RCPC	1	8	MO-3083	HPSI HOT LEG INJ. MODE SELECT VLV.	M-203-2	RB	617	143	R	3	CLOSED	CLOSED	NO	E-244 SH 5A & 6	EC-03, EC-33
435	RCPC	2	8	MO-3083	HPSI HOT LEG INJ. MODE SELECT VLV.	M-203-2	RB	617	143	R	3	CLOSED	CLOSED	NO	E-244 SH 5A & 6	EC-03, EC-33
436	DHR	1	R	MV-CD130	CONDENSATE REJECT OUTLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
437	DHR	2	R	MV-CD130	CONDENSATE REJECT OUTLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
438	DHR	1	R	MV-CD132	HOTWELL MAKEUP INLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
439	DHR	2	R	MV-CD132	HOTWELL MAKEUP INLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
440	DHR	1	R	MV-CD135	HOTWELL MAKEUP INLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
441	DHR	2	R	MV-CD135	HOTWELL MAKEUP INLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
442	DHR	1	R	MV-CD138	HOTWELL MAKEUP INLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
443	DHR	2	R	MV-CD138	HOTWELL MAKEUP INLET	M-207-1B	TB	570	007	N/A	22	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
444	DHR	1	R	MV-CD170	P-11 SUCTION	M-220-1	TB	590	133	N/A	30	OPEN	OPEN	NO	N/A	N/A
445	DHR	2	R	MV-CD170	P-11 SUCTION	M-220-1	TB	590	133	N/A	30	OPEN	OPEN	NO	N/A	N/A
446	DHR	1	R	MV-CD173	E-27 HEAT EXCHANGER OUTLET	M-220-1	TB	590	133	N/A	30	OPEN	OPEN	NO	N/A	N/A
447	DHR	2	R	MV-CD173	E-27 HEAT EXCHANGER OUTLET	M-220-1	TB	590	133	N/A	30	OPEN	OPEN	NO	N/A	N/A
448	EPD	2	R	MV-DE115	T-25A EXTERNAL FILL	M-214-1	TB	590	OUTSIDE	N/A	33	CLOSED	CLOSED	NO	N/A	N/A
449	EPD	1	R	MV-DE116	DG-1/2 T-25B EXTERNAL FILL	M-214-1	TB	590	OUTSIDE	N/A	33	CLOSED	CLOSED	NO	N/A	N/A
450	RCPC	1	R	MV-ES3260	SIRW TANK HEATER OUTLET	M-204-1B	AB	607	238	N/A	32	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
451	RCPC	2	R	MV-ES3260	SIRW TANK HEATER OUTLET	M-204-1B	AB	607	238	N/A	32	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
452	RCPC	1	R	MV-ES3268	P-74 SUCTION	M-204-1B	AB	607	238	N/A	32	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
453	RCPC	2	R	MV-ES3268	P-74 SUCTION	M-204-1B	AB	607	238	N/A	32	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
454	RCPC	1	R	MV-ES3333	CONT. SPRAY SAMPLE SX-3333	M-204-1	AB	570	005	N/A	29	OPEN	OPEN	NO	N/A	N/A
455	RCPC	2	R	MV-ES3333	CONT. SPRAY SAMPLE SX-3333	M-204-1	AB	570	005	N/A	29	OPEN	OPEN	NO	N/A	N/A
456	RCPC	1	R	MV-ES3336	LOW PRES. SFTY INJECTION SX-3336	M-204-1	AB	607	004	N/A	29	OPEN	OPEN	NO	N/A	N/A
457	RCPC	2	R	MV-ES3336	LOW PRES. SFTY INJECTION SX-3336	M-204-1	AB	607	004	N/A	29	OPEN	OPEN	NO	N/A	N/A
458	RCPC	1	R	MV-ES3337	H.P.S.I. SAMPLE POINT	M-204-1A	AB	590	121A	N/A	29	OPEN	OPEN	NO	N/A	N/A
459	RCPC	2	R	MV-ES3337	H.P.S.I. SAMPLE POINT	M-204-1A	AB	590	121A	N/A	29	OPEN	OPEN	NO	N/A	N/A
460	EPD	1	R	MV-FO111	HEATING BOILER ISOLATION	M-214-1	AB	590	116B	N/A	27	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
461	EPD	2	R	MV-FO111	HEATING BOILER ISOLATION	M-214-1	AB	590	116B	N/A	27	OPEN	CLOSED	NO	N/A	OPERATOR ACTION
462	DHR	2	R	MV-FP106	FIRE MAIN ISOLATION	M-216-2	TB	590	136	N/A	23	OPEN	OP/CL	NO	N/A	OPERATOR ACTION
463	DHR	2	R	MV-FP114	FIRE MAIN ISOLATION	M-216-2	TB	590	136	N/A	23	OPEN	OP/CL	NO	N/A	OPERATOR ACTION
464	DHR	2	R	MV-FP130	FIRE SYSTEM CROSSTIE	M-213	TB	590	136	N/A	23	CLOSED	OP/CL	NO	N/A	OPERATOR ACTION
465	DHR	2	R	MV-FP131	FIRE SYSTEM CROSSTIE	M-213	TB	590	136	N/A	23	CLOSED	OP/CL	NO	N/A	OPERATOR ACTION
466	DHR	2	R	MV-FP173	INSIDE LOOP ISOLATION	M-216-2	TB	590	136	N/A	23	OPEN	OP/CL	NO	N/A	OPERATOR ACTION
467	DHR	1	R	MV-FW0771	P-8A/B SUCTION	M-207-2	TB	570	007	N/A	24	OPEN	OPEN	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
468	DHR	2	R	MV-FW0774	P-8A/B FIRE WATER ISOLATION	M-207-2	TB	570	007	N/A	23	CLOSED	OP/CL	NO	N/A	OPERATOR ACTION
469	DHR	2	R	MV-FW0775	P-8A/B FIRE WATER ISOLATION	M-207-2	TB	570	007	N/A	23	CLOSED	OP/CL	NO	N/A	OPERATOR ACTION
470	DHR	1	R	MV-FW271	P-8A/B SUCTION BYPASS	M-207-2	TB	570	007	N/A	24	OPEN	OPEN	NO	N/A	N/A
471	DHR	2	R	MV-FW296	P-8C SEALWATER RETURN	M-207-2	AB	570	005	N/A	24	OPEN	OPEN	NO	N/A	N/A
472	DHR	1	R	MV-FW750	P-8C ISOLATION	M-207-2	AB	590	123	N/A	23	CLOSED	OP/CL	NO	N/A	OPERATOR ACTION
473	DHR	1	R	MV-FW750A	P-8C ISOLATION	M-207-2	AB	570	005	N/A	23	CLOSED	OP/CL	NO	N/A	OPERATOR ACTION
474	DHR	2	R	MV-FW751	P-8C SUCTION ISOLATION	M-207-2	AB	570	005	N/A	24	OPEN	OPEN	NO	N/A	N/A
475	RCPC	1	R	MV-PC1095A	FLANGE LEAK DETECTOR	M-201-1	RB	590	143	N/A	11	OPEN	OPEN	NO	N/A	N/A
476	RCPC	2	R	MV-PC1095A	FLANGE LEAK DETECTOR	M-201-1	RB	590	143	N/A	11	OPEN	OPEN	NO	N/A	N/A
477	RCPC	1	R	MV-PC1116	FLANGE LEAK DETECTOR	M-201-1	RB	590	143	N/A	11	OPEN	OPEN	NO	N/A	N/A
478	RCPC	2	R	MV-PC1116	FLANGE LEAK DETECTOR	M-201-1	RB	590	143	N/A	11	OPEN	OPEN	NO	N/A	N/A
479	DHR	1	R	MV-SW119	C-2C COOLING WATER INLET	M-208-1A	TB	590	131	N/A	15	OPEN	OPEN	NO	N/A	N/A
480	DHR	2	R	MV-SW119	C-2C COOLING WATER INLET	M-208-1A	TB	590	131	N/A	15	OPEN	OPEN	NO	N/A	N/A
481	DHR	1	R	MV-SW131	DIESEL COOLING OUTLET	M-208-1A	TB	590	125	N/A	14	OPEN	OPEN	NO	N/A	N/A
482	DHR	2	R	MV-SW131	DIESEL COOLING OUTLET	M-208-1A	TB	590	125	N/A	14	OPEN	OPEN	NO	N/A	N/A
483	DHR	1	R	MV-SW132	DIESEL COOLING OUTLET	M-208-1A	TB	590	125	N/A	14	OPEN	OPEN	NO	N/A	N/A
484	DHR	2	R	MV-SW132	DIESEL COOLING OUTLET	M-208-1A	TB	590	125	N/A	14	OPEN	OPEN	NO	N/A	N/A
485	DHR	1	R	MV-SW137	ESR COOLER VHX-27A OUTLET	M-208-1A	AB	570	004	N/A	14	OPEN	OPEN	NO	N/A	N/A
486	DHR	2	R	MV-SW137	ESR COOLER VHX-27A OUTLET	M-208-1A	AB	570	004	N/A	14	OPEN	OPEN	NO	N/A	N/A
487	DHR	1	R	MV-SW138	ESR COOLER VHX-27B OUTLET	M-208-1A	AB	570	005	N/A	14	OPEN	OPEN	NO	N/A	N/A
488	DHR	2	R	MV-SW138	ESR COOLER VHX-27B OUTLET	M-208-1A	AB	570	005	N/A	14	OPEN	OPEN	NO	N/A	N/A
489	DHR	1	R	MV-SW256	C-2A AFTER COOLER E-1BA INLET	M-208-1A	TB	590	131	N/A	15	OPEN	OPEN	NO	N/A	N/A
490	DHR	2	R	MV-SW256	C-2A AFTER COOLER E-1BA INLET	M-208-1A	TB	590	131	N/A	15	OPEN	OPEN	NO	N/A	N/A
491	EPD	1	20	N-61	VENT FAN V-24D STARTER BOX	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
492	EPD	2	20	N-69	VENT FAN V-24B STARTER BOX	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
493	EPD	2	20	N-81	VENT FAN V-24A STARTER BOX	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
494	EPD	1	20	N-93	VENT FAN V-24C STARTER BOX	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
495	DHR	2	0	N2-1	NITROGEN BACKUP STATION 1	M-222-2	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
496	DHR	2	0	N2-1A	NITROGEN BACK-UP STATION 1-A	M-222-2	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
497	RRC	2	18	NE-1/3	SOURCE WIDE RANGE FLUX MONITOR	M1-Q-1200	RB	590	142	R	7	ON	ON	YES	E-61 SH.2,2A	EY-30;EC-06
498	RRC	1	18	NE-2/4	SOURCE WIDE RANGE FLUX MONITOR	M1-Q-1200	RB	590	142	R	7	ON	ON	YES	E-61 SH.2,2A	EY-40;EC-06

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knotheus	Don E Knotheus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
499	EPD	1	5	P-18A	FUEL OIL TRANSFER PUMP	M-214-1	TB	590	136	S/R	N/A	OFF	ON/OFF	YES	E-178 SH.1	EB-08;EG-21;EG-31;EJ-43;EJ-44;EJ
500	EPD	2	5	P-18B	FUEL OIL TRANSFER PUMP	M-214-1	TB	590	136	S/R	N/A	OFF	ON/OFF	YES	E-178 SH.2	EB-01;EJ-43;EJ-44;EJ-79;EJ-214;E
501	EPD	2	0	P-209A	DG-1/1 FUEL OIL BOOSTER PP.	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
502	EPD	1	0	P-209B	FUEL OIL BOOSTER PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
503	EPD	2	0	P-210A	DG-1/1 FUEL OIL PRIMING PP.	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
504	EPD	1	0	P-210B	FUEL OIL PRIMING PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
505	EPD	2	0	P-211A	JACKET WATER PUMP	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
506	EPD	1	0	P-211B	JACKET WATER PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
507	EPD	2	0	P-212A	K-6A LUBE OIL BOOSTER PUMP	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
508	EPD	1	0	P-212B	K-6B LUBE OIL BOOSTER PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
509	RCPC	1	6	P-50A	PRIMARY COOLANT PUMP "A"	M-201-1	RB	607	237	N/A	37	OFF	OFF	NO	N/A	N/A
510	RCPC	2	6	P-50A	PRIMARY COOLANT PUMP "A"	M-201-1	RB	607	237	N/A	37	OFF	OFF	NO	N/A	N/A
511	RCPC	1	6	P-50B	PRIMARY COOLANT PUMP "B"	M-201-1	RB	607	237	N/A	37	OFF	OFF	NO	N/A	N/A
512	RCPC	2	6	P-50B	PRIMARY COOLANT PUMP "B"	M-201-1	RB	607	237	N/A	37	OFF	OFF	NO	N/A	N/A
513	RCPC	1	6	P-50C	PRIMARY COOLANT PUMP "C"	M-201-1	RB	607	236	N/A	37	OFF	OFF	NO	N/A	N/A
514	RCPC	2	6	P-50C	PRIMARY COOLANT PUMP "C"	M-201-1	RB	607	236	N/A	37	OFF	OFF	NO	N/A	N/A
515	RCPC	1	6	P-50D	PRIMARY COOLANT PUMP "D"	M-201-1	RB	607	236	N/A	37	OFF	OFF	NO	N/A	N/A
516	RCPC	2	6	P-50D	PRIMARY COOLANT PUMP "D"	M-201-1	RB	607	236	N/A	37	OFF	OFF	NO	N/A	N/A
517	RCPC	1	5	P-54A	CONTAINMENT SPRAY PUMP	M-204-1A	AB	570	004	S	36	OFF	OFF	NO	N/A	N/A
518	RCPC	2	5	P-54A	CONTAINMENT SPRAY PUMP	M-204-1A	AB	570	004	S	36	OFF	OFF	NO	N/A	N/A
519	RCPC	1	5	P-54B	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
520	RCPC	2	5	P-54B	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
521	RCPC	1	5	P-54C	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
522	RCPC	2	5	P-54C	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
523	RCPC	1	5	P-55B	CHARGING PUMP B	M-202-1B	AB	590	104A	S/R	N/A	OFF	ON/OFF	YES	E-257 SH.1	EJ-594;EJL-256;EB-12;EC-12;EC-13
524	RCPC	2	5	P-55C	CHARGING PUMP C	M-202-1B	AB	590	104B	S/R	N/A	OFF	ON/OFF	YES	E-257 SH.2	EJL-257;EJ-593;EB-11;EC-12;EC-13
525	RCPC	1	5	P-56A	BORIC ACID PUMP	M-202-1A	AB	590	107A	S/R	N/A	OFF	ON/OFF	YES	E-203	EB-02;EC-02;EC-13;EC-

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
526	DHR	1	6	P-7A	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.1	12 EA-12;EC-08;EC-12;EC-13
527	DHR	2	6	P-7B	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.1	EA-11;EC-08;EC-12;EC-13
528	DHR	1-OP	6	P-7C	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.2	EA-12;EC-08;EC-12;EC-13
529	DHR	2	5	P-8A	MOTOR DRIVE AUX FEED PUMP	M-207-2	TB	570	007	S/R	N/A	ON	ON	YES	E-196 SH.1,2,3	EA-11;EC-01;EC-11;EC-13;EC-187;E
530	DHR	1	5	P-8C	MOTOR DRIVEN AUX FEED PUMP	M-207-2	AB	570	005	S/R	N/A	ON	ON	YES	E-196 SH.8	EA-12;EC-01;EC-11;EC-13;EC-187;E
531	EPD	2	0	P-905A	K-6A PRE-LUBE OIL PRIMING PUMP	M-214-1	AB	590	116	S	N/A	ON	ON/OFF	NO	N/A	MECHANICAL ACTION
532	EPD	1	0	P-905B	K-6B PRE-LUBE OIL PRIMING PUMP	M-214-1	AB	590	116B	S	N/A	ON	ON/OFF	NO	N/A	MECHANICAL ACTION
533	HVAC	2	18	P/P-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S	N/A	ON	OFF	NO	N/A	N/A
534	HVAC	1	18	P/P-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S	N/A	ON	OFF	NO	N/A	N/A
535	RCPC	1	18	PC/0216B	CHARG P P-55B LO-LUBE OIL PRESS SW	M-202-1B	AB	590	104A	R	3	CLOSED	CLOSED	NO	E-257 SH.1	EC-12,EC-13
536	RCPC	2	18	PC/0216C	CHARG P P-55C LO-LUBE OIL PRESS SW	M-202-1B	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-257 SH.1	EC-12,EC-13
537	RCPC	1	18	PC/0218B	P-55B LOW SUCT. PRESS. SWITCH	M-202-1B	AB	590	104A	R	3	CLOSED	CLOSED	NO	E-257 SH.1,2	EC-12;EC-13
538	RCPC	2	18	PC/0218C	LOW SUCTION PRESSURE SWITCH	M-202-1B	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-257 SH.2	EC-12;EC-13
539	EPD	2	18	PI-1475	DG-1/1 FUEL OIL PRESS.	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
540	EPD	2	18	PI-1478	K-6A LUBE OIL PRESSURE INDICATOR	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
541	EPD	2	18	PI-1482	JACKET WATER PRESS. IND.	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
542	EPD	1	18	PI-1485	DG-1/2 FUEL OIL PRESS.	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
543	EPD	1	18	PI-1488	K-6B LUBE OIL PRESSURE INDICATOR	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
544	EPD	1	18	PI-1492	JACKET WATER PRESS. GAUGE	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
545	HVAC	2	0	PO-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S	N/A	OPEN	CLOSED	NO	N/A	N/A
546	HVAC	1	0	PO-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S	N/A	OPEN	CLOSED	NO	N/A	N/A
547	HVAC	2	0	PO-1663	V-95 DAMPER D-3	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
548	HVAC	1	0	PO-1664	V-96 DAMPER D-10	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
549	HVAC	2	0	PO-1711	MODULATING DAMP. D-20	M-218-6A	AB	625	300	S/R	N/A	OPEN	OPEN	NO	E-271 SH.19	EB-25;EJ-1001
550	HVAC	1	0	PO-1712	MODULATING DAMP. D-21	M-218-6A	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	E-271 SH.19	EB-26;EJ-1000

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knuttnerus	Don E Knuttnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
551	HVAC	2	0	PO-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S	N/A	CLOSED	OPEN	NO	N/A	N/A
552	HVAC	1	0	PO-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S	N/A	CLOSED	OPEN	NO	N/A	N/A
553	HVAC	2	0	PO-1745	OUTSIDE AIR DAMP. D-7	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-25;EC-186A;EJ-1001
554	HVAC	1	0	PO-1746	OUTSIDE AIR DAMP. D-14	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-26;EC-186B;EJ-1000
555	HVAC	1	0	PO-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
556	HVAC	2	0	PO-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
557	DGV	1	0	PO-1834	DAMPER D24	M-218-5	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
558	DGV	2	0	PO-1843	DAMPER D25	M-218-5	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
559	DHR	2	18	POC-0727	E-50B FLOW CONTROL BYPASS	M-207-2	AB	590	123	S	19	ON	ON/OFF	NO	N/A	I/P-0727
560	DHR	1	18	POC-0736A	E-50B FLOW CONTROL	M-207-2	AB	570	005	S	19	ON	ON/OFF	NO	N/A	I/P-0736A
561	DHR	1	18	POC-0737A	E-50A FLOW CONTROL	M-207-2	AB	570	005	S	19	ON	ON/OFF	NO	N/A	I/P-0737A
562	DHR	2	18	POC-0749	E-50A FLOW CONTROL BYPASS	M-207-2	AB	590	123	S	19	ON	ON/OFF	NO	N/A	I/P-0749
563	HVAC	2	18	POS-1711	MODULATING DAMP. D-20	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	E-271-3,4,5	EB-25;EC-11A;EC-186A;EJ-1001
564	HVAC	1	18	POS-1712	MODULATING DAMP. D-21	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	E-271 SH.3,4,5	EB-26;EC-11A;EC-186B;EJ-1000
565	HVAC	2	18	POS-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S/R	N/A	OPEN	CLOSED	YES	E-271-3,4,5	EB-25;EC-11A;EC-186A;EJ-1001
566	HVAC	1	18	POS-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S/R	N/A	OPEN	CLOSED	YES	E-271 SH.3,4,5	EB-26;EC-11A;EC-186B;EJ-1000
567	HVAC	2	18	POS-1745	OUTSIDE AIR DAMP. D-7	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-25;EC-186A;EJ-1001
568	HVAC	1	18	POS-1746	OUTSIDE AIR DAMP. D-14	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-26;EC-186B;EJ-1000
569	HVAC	1	18	POS-1758	D-94 DAMPER D-16	M-218-6	AB	625	300B	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.12	EC-186B;EJ-1000
570	RCPC	1	8	PRV-1042B	POWER OPERATION RELIEF	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.1	EC-02;EC-12
571	RCPC	2	8	PRV-1042B	POWER OPERATED RELIEF	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-256 SH.1	ED-11;EC-02;EC-12
572	RCPC	1	8	PRV-1043B	POWER OPERATED RELIEF	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-256 SH.1A	ED-21;EC-02;EC-12
573	RCPC	2	8	PRV-1043B	POWER OPERATED RELIEF	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.1A	EC-02;EC-12
574	RCPC	1	8	PRV-1067	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
575	RCPC	2	8	PRV-1067	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
576	RCPC	1	8	PRV-1068	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
577	RCPC	2	8	PRV-1068	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
578	RCPC	1	8	PRV-1069	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
579	RCPC	2	8	PRV-1069	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
580	RCPC	1	8	PRV-1070	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
581	RCPC	2	8	PRV-1070	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
582	RCPC	1	8	PRV-1072	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
583	RCPC	2	8	PRV-1072	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
584	DHR	1	18	PS-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0779A
585	DHR	2	18	PS-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-11;SV-0779A
586	DHR	1	18	PS-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-21;SV-0780A
587	DHR	2	18	PS-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0780A
588	DHR	1	18	PS-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0781A
589	DHR	2	18	PS-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-11;SV-0781A
590	DHR	1	18	PS-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-21;SV-0782A
591	DHR	2	18	PS-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0782A
592	EPD	2	18	PS-1476	K-6A LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116	S/R	N/A	OPEN	OPEN	NO	M-12(1)	K-6A
593	EPD	1	18	PS-1486	K-6B LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116B	S/R	N/A	OPEN	OPEN	NO	M-12 SH.105(1)	K-6B
594	EPD	2	18	PS-1496	K-6A LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116	S/R	N/A	OPEN	OPEN	NO	N/A	N/A
595	EPD	1	18	PS-1497	K-6B LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116B	S/R	N/A	OPEN	OPEN	NO	M-12 SH.105(1)	K-6B
596	HVAC	2	18	PS-1675	VC-11 SUCTION PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
597	HVAC	1	18	PS-1676	VC-10 SUCTION PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
598	HVAC	2	18	PS-1677	VC-11 DISC. PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
599	HVAC	1	18	PS-1678	VC-10 DISC. PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
600	HVAC	2	18	PS-1687	VC-11 COMPRESSOR OIL PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
601	HVAC	1	18	PS-1688	VC-10 COMPRESSOR OIL PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
602	HVAC	2	18	PS-1699	VC-11 PUMP DOWN	M-218-7	AB	625	300	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1089;EJ-1127
603	HVAC	1	18	PS-1700	VC-10 PUMP DOWN CYCLE	M-218-7	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1088;EJ-1126
604	RCPC	2	18	PT-0105A	PRESSURIZER WIDE RANGE PRESS.	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-84 SH.6	EY-30;EC-12
605	RCPC	1	18	PT-0105B	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-84 SH.6A	EY-40;EC-12
606	DHR	2	18	PT-0741A	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
607	DHR	2	18	PT-0741B	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
608	DHR	2	18	PT-0741DD	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
609	DHR	2	18	PT-0751C	E50A LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-30
610	DHR	1	18	PT-0751D	E50A LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-40
611	DHR	2	18	PT-0752C	E-50B LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-30
612	DHR	1	18	PT-0752D	E-50B LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-40
613	DHR	1	18	PT-0762A	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
614	DHR	1	18	PT-0762B	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
615	DHR	1	18	PT-0762C	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
616	DHR	1	18	PT-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	N/A	N/A	NO	E-270 SH.9	EC-189A
617	DHR	2	18	PT-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	N/A	N/A	NO	E-270 SH.9	EC-189A
618	DHR	1	18	PT-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	N/A	N/A	NO	E-270 SH.9	EC-189B
619	DHR	2	18	PT-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	N/A	N/A	NO	E-270 SH.9	EC-189B
620	RCPC	1	7	RV-0401	SHUTDOWN COOLING RELIEF	M-204-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
621	RCPC	2	7	RV-0401	SHUTDOWN COOLING RELIEF	M-204-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
622	RCPC	1	7	RV-0402	SHUTD COOL. HX E-60A TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
623	RCPC	2	7	RV-0402	SHUTD COOL. HX E-60A TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
624	RCPC	1	7	RV-0403	SHUTD COOL. HX E-60B TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
625	RCPC	2	7	RV-0403	SHUTD COOL. HX E-60B TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
626	DHR	1	7	RV-0701	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
627	DHR	2	7	RV-0701	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
628	DHR	1	7	RV-0702	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
629	DHR	2	7	RV-0702	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
630	DHR	1	7	RV-0703	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
631	DHR	2	7	RV-0703	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
632	DHR	1	7	RV-0704	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
633	DHR	2	7	RV-0704	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
634	DHR	1	7	RV-0705	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
635	DHR	2	7	RV-0705	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
636	DHR	1	7	RV-0706	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
637	DHR	2	7	RV-0706	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
638	DHR	1	7	RV-0707	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
639	DHR	2	7	RV-0707	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
640	DHR	1	7	RV-0708	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
641	DHR	2	7	RV-0708	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
642	DHR	1	7	RV-0709	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
643	DHR	2	7	RV-0709	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
644	DHR	1	7	RV-0710	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
645	DHR	2	7	RV-0710	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
646	DHR	1	7	RV-0711	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
647	DHR	2	7	RV-0711	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
648	DHR	1	7	RV-0712	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
649	DHR	2	7	RV-0712	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
650	DHR	1	7	RV-0713	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
651	DHR	2	7	RV-0713	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
652	DHR	1	7	RV-0714	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
653	DHR	2	7	RV-0714	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
654	DHR	1	7	RV-0715	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
655	DHR	2	7	RV-0715	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
656	DHR	1	7	RV-0716	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
657	DHR	2	7	RV-0716	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
658	DHR	1	7	RV-0717	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
659	DHR	2	7	RV-0717	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
660	DHR	1	7	RV-0718	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
661	DHR	2	7	RV-0718	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
662	DHR	1	7	RV-0719	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
663	DHR	2	7	RV-0719	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knotnerus	Don E Knotnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
664	DHR	1	7	RV-0720	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
665	DHR	2	7	RV-0720	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
666	DHR	1	7	RV-0721	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
667	DHR	2	7	RV-0721	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
668	DHR	1	7	RV-0722	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
669	DHR	2	7	RV-0722	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
670	DHR	1	7	RV-0723	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
671	DHR	2	7	RV-0723	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
672	DHR	1	7	RV-0724	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
673	DHR	2	7	RV-0724	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
674	DHR	2	7	RV-0783	P-8A/B DISCHARGE RELIEF	M-207-2	TB	570	007	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
675	RCPC	1	7	RV-1039	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
676	RCPC	2	7	RV-1039	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
677	RCPC	1	7	RV-1040	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
678	RCPC	2	7	RV-1040	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
679	RCPC	1	7	RV-1041	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
680	RCPC	2	7	RV-1041	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
681	EPD	2	7	RV-1475	FUEL OIL PRIMING LINE RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
682	EPD	2	7	RV-1476	DG-1/1 FUEL OIL RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
683	EPD	2	7	RV-1478	K-6A LUBE OIL RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
684	EPD	2	7	RV-1479	T-31A RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
685	EPD	2	7	RV-1480	T-31B RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
686	EPD	1	7	RV-1485	DG-1/2 FUEL PRIMING RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
687	EPD	1	7	RV-1486	DG-1/2 FUEL OIL RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
688	EPD	1	7	RV-1488	K-6B LUBE OIL RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
689	EPD	1	7	RV-1489	T-31C RELIEF VALVE	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
690	EPD	1	7	RV-1490	T-31D RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
691	HVAC	1	7	RV-1685	VC-11 SAFETY RELIEF	M-218-7	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
692	HVAC	2	7	RV-1685	VC-11 SAFETY RELIEF	M-218-7	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
693	HVAC	1	7	RV-1686	VC-10 SAFETY RELIEF	M-218-7	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
694	HVAC	2	7	RV-1686	VC-10 SAFETY RELIEF	M-218-7	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knotnerus	Don E Knotnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
695	RCPC	1	7	RV-2006	E-58 INLET RELIEF	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
696	RCPC	2	7	RV-2006	E-58 INLET RELIEF	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
697	RCPC	1	7	RV-2090	P-55A SUCTION RELIEF	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
698	RCPC	2	7	RV-2090	CHARG. P. P-55A SUCTION RELIEF VLV	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
699	RCPC	1	7	RV-2092	P-55A DISC. SAFETY RELIEF	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
700	RCPC	2	7	RV-2092	CHARG. P. P-55A DISC SAFETY RELIEF	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
701	RCPC	1	7	RV-2096	P-55B SUCTION REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
702	RCPC	2	7	RV-2096	P-55B SUCTION REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
703	RCPC	1	7	RV-2098	P-55B DISC. REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
704	RCPC	2	7	RV-2098	P-55B DISC. REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
705	RCPC	1	7	RV-2102	P-55C SUCTION RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
706	RCPC	2	7	RV-2102	P-55C SUCTION RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
707	RCPC	1	7	RV-2104	P-55C DISCHARGE RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
708	RCPC	2	7	RV-2104	P-55C DISCHARGE RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
709	RCPC	2	7	RV-2230	BORIC ACID TANK RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
710	RCPC	1	7	RV-2231	BORIC ACID TANK RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
711	RCPC	2	7	RV-2231	BORIC ACID TANK RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
712	RCPC	1	7	RV-2232	BORIC ACID DISC. RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
713	RCPC	2	7	RV-2233	P-56B RECIRC RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
714	RCPC	2	7	RV-2234	BORIC ACID RECIRC. RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
715	RCPC	1	7	RV-2235	BORIC ACID RECIRC. RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
716	RCPC	1	7	RV-2236	BORIC ACID PREFILTER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
717	RCPC	2	7	RV-2236	BORIC ACID PREFILTER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
718	RCPC	1	7	RV-2237	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
719	RCPC	2	7	RV-2237	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
720	RCPC	1	7	RV-2238	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
721	RCPC	2	7	RV-2238	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
722	RCPC	1	7	RV-2239	BLEADER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
723	RCPC	2	7	RV-2239	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
724	RCPC	1	7	RV-2255	T-54 SUCTION RELIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
725	RCPC	2	7	RV-2255	T-54 SUCTION RELIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E. KNOTTNERUS	Don E. Knottnerus	5/3/95	Dale E. Engle	Dale E. Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
726	DHR	2	7	RV-2273	N2 STA. 1 PRESS. RELIEF	M-222-2	AB	590	123	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
727	DHR	2	7	RV-2280	STATION 1-A PRESS. RELIEF	M-222-2	AB	590	123	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
728	RCPC	1	7	RV-3161	DRAIN TO QUENCH TANK	M-203-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
729	RCPC	2	7	RV-3161	DRAIN TO QUENCH TANK	M-203-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
730	RCPC	1	7	RV-3162	LOW PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
731	RCPC	2	7	RV-3162	LOW PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
732	RCPC	1	7	RV-3164	SHUTDOWN COOLING RELIEF	M-204-1	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
733	RCPC	2	7	RV-3164	SHUTDOWN COOLING RELIEF	M-204-1	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
734	RCPC	1	7	RV-3165	HIGH PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
735	RCPC	2	7	RV-3165	HIGH PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
736	RCPC	1	7	RV-3264	SAFETY INJECT. RELIEF	M-203-2	RB	590	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
737	RCPC	2	7	RV-3264	SAFETY INJECT. RELIEF	M-203-2	RB	590	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
738	RCPC	1	7	RV-3266	H.P. PUMPS DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
739	RCPC	2	7	RV-3266	H.P. PUMPS DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
740	RCPC	1	7	RV-3267	P-66A DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
741	RCPC	2	7	RV-3267	P-66A DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
742	EPD	1	7	RV-PUMP	K-6B LUBE OIL BOOSTER PUMP RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
743	EPD	2	7	RV-PUMP	K-6A LUBE OIL BOOSTER PUMP RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
744	DHR	1	P	ST-0522B	STEAM SUPPLY DRAIN TRAP	M-205-2	TB	590	134	N/A	18	OPEN	OPEN	NO	N/A	N/A
745	DHR	2	P	ST-0522B	STEAM SUPPLY DRAIN TRAP	M-205-2	TB	590	134	N/A	18	OPEN	OPEN	NO	N/A	N/A
746	DHR	1	P	ST-0789	CV-0779 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
747	DHR	2	P	ST-0789	CV-0779 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
748	DHR	1	P	ST-0790	CV-0780 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
749	DHR	2	P	ST-0790	CV-0780 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
750	DHR	1	P	ST-0791	CV-0781 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
751	DHR	2	P	ST-0791	CV-0781 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
752	DHR	1	P	ST-0792	CV-0782 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
753	DHR	2	P	ST-0792	CV-0782 TRAP	M-207-1	AB	607	238	N/A	18	OPEN	OPEN	NO	N/A	N/A
754	RCPC	1	8	SV-0148	QUENCH TANK DRAIN	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
755	RCPC	2	8	SV-0148	QUENCH TANK DRAIN	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
756	RCPC	1	8	SV-0150	QUENCH TANK NITRO ISOL.	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knothnerus	Don E Knothnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
757	RCPC	2	8	SV-0150	QUENCH TANK NITRO ISOL.	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
758	RCPC	1	8	SV-0152	QUENCH TANK VENT	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
759	RCPC	2	8	SV-0152	QUENCH TANK VENT	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
760	RCPC	1	8	SV-0155	QUENCH TANK SPRAY	M-201-2	AB	607	150	R	3	VENT	VENT	NO	E-235 SH.2	EC-02;EJ-541
761	RCPC	2	8	SV-0155	QUENCH TANK SPRAY	M-201-2	AB	602	150	R	3	VENT	VENT	NO	E-235 SH.2	EC-02;EJ-541
762	RCPC	1	8	SV-0338	T-82D PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
763	RCPC	2	8	SV-0338	T-82D PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
764	RCPC	1	8	SV-0342	T-82A PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
765	RCPC	2	8	SV-0342	T-82A PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
766	RCPC	1	8	SV-0346	T-82B PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
767	RCPC	2	8	SV-0346	T-82B PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
768	RCPC	1	8	SV-0347	T-82C PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
769	RCPC	2	8	SV-0347	T-82C PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
770	DHR	1	8	SV-0502	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
771	DHR	2	8	SV-0502	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181
772	DHR	1	8	SV-0505A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
773	DHR	2	8	SV-0505A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
774	DHR	1	8	SV-0505B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
775	DHR	2	8	SV-0505B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
776	DHR	1	8	SV-0507A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
777	DHR	2	8	SV-0507A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
778	DHR	1	8	SV-0507B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
779	DHR	2	8	SV-0507B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
780	DHR	1	8	SV-0508	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
781	DHR	2	8	SV-0508	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E. Knottnerus	Don E. Knottnerus	5/3/95	Dale E. Engle	Dale E. Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
782	DHR	1	8	SV-0513	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
783	DHR	2	8	SV-0513	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181
784	DHR	1	8	SV-0514	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
785	DHR	2	8	SV-0514	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181
786	DHR	1	8	SV-0522A	STEAM SUPPLY FROM E-50B	M-205-2	AB	607	238	R	3	VENT	VENT	NO	E-238 SH.4	EC-01
787	DHR	2	8	SV-0522A	STEAM SUPPLY FROM E-50B	M-205-2	AB	607	238	R	3	VENT	VENT	NO	E-238 SH.4	EC-01
788	DHR	1	8	SV-0522B	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	VENT	VENT	NO	E-238 SH.4A	EC-01;EJ-1005
789	DHR	2	8	SV-0522B	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	VENT	VENT	NO	E-238 SH.4A	EC-01;EJ-1005
790	DHR	1	8	SV-0522C	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	AIR	AIR	NO	E-238 SH.12	EC-150
791	DHR	2	8	SV-0522C	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	AIR	AIR	NO	E-238 SH.12	EC-150
792	DHR	1	8	SV-0738	S/G E-50B RECIRCULATION	M-226-1	AB	607	238	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-541
793	DHR	2	8	SV-0738	S/G E-50B RECIRCULATION	M-226-1	AB	607	238	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-541
794	DHR	1	8	SV-0739	S/G E-50A RECIRCULATION	M-226-1	AB	590	123	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-540
795	DHR	2	8	SV-0739	S/G E-50A RECIRCULATION	M-226-1	AB	590	123	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-540
796	DHR	1	8	SV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
797	DHR	2	8	SV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
798	DHR	1	8	SV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
799	DHR	2	8	SV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
800	DHR	1	8	SV-0779A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0779
801	DHR	2	8	SV-0779A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-11;PS-0779
802	DHR	1	8	SV-0779B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
803	DHR	2	8	SV-0779B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
804	DHR	1	8	SV-0779C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
805	DHR	2	8	SV-0779C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
806	DHR	1	8	SV-0780A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-21;PS-0780
807	DHR	2	8	SV-0780A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0780
808	DHR	1	8	SV-0780B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTHERUS		5/3/95	Dale E. Engle		5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
																-21
809	DHR	2	8	SV-0780B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
810	DHR	1	8	SV-0780C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED -21
811	DHR	2	8	SV-0780C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
812	DHR	1	8	SV-0781A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0781
813	DHR	2	8	SV-0781A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-11;PS-0781
814	DHR	1	8	SV-0781B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH1A,2	EC-04;EC-12;EC-182
815	DHR	2	8	SV-0781B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED -11
816	DHR	1	8	SV-0781C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	E-238 SH1A,2	EC-04;EC-12;EC-182
817	DHR	2	8	SV-0781C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED -11
818	DHR	1	8	SV-0782A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-21;PS-0782
819	DHR	2	8	SV-0782A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0782
820	DHR	1	8	SV-0782B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A2	EC-04;EC-12;EC-182;ED -21
821	DHR	2	8	SV-0782B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
822	DHR	1	8	SV-0782C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	M-238 SH.1A,2	EC-04;EC-12;EC-182;ED -21
823	DHR	2	8	SV-0782C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	M-238 SH.1A,2	EC-04;EC-12;EC-182
824	DHR	1	8	SV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S/R	N/A	AIR	VENT	NO	E-219 SH.1	EC-08;EC-13
825	DHR	2	8	SV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S/R	N/A	AIR	VENT	NO	E-219 SH.1	EC-08;EC-13
826	DHR	1	8	SV-0823A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	CLOSED	OP/CL	NO	N/A	N/A
827	DHR	2	8	SV-0823A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	CLOSED	OP/CL	NO	N/A	N/A
828	DHR	1	8	SV-0823B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/A	N/A
829	DHR	2	8	SV-0823B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/A	N/A
830	DHR	1	8	SV-0826A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	CLOSED	OP/CL	NO	N/A	N/A
831	DHR	2	8	SV-0826A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	CLOSED	OP/CL	NO	N/A	N/A
832	DHR	1	8	SV-0826B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/A	N/A
833	DHR	2	8	SV-0826B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	N/A	14	OPEN	OP/CL	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
834	DHR	1	8	SV-0844	HEADER "B" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
835	DHR	2	8	SV-0844	HEADER "B" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
836	DHR	1	8	SV-0845	HEADER "A" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
837	DHR	2	8	SV-0845	HEADER "A" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
838	DHR	1	8	SV-0846	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
839	DHR	2	8	SV-0846	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
840	DHR	1	8	SV-0847	AIR COOLER SWS SUPPLY	M-208-1B	AB	607	238	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08;EC-33
841	DHR	2	8	SV-0847	AIR COOLER SWS SUPPLY	M-208-1B	AB	607	238	S/R	N/A	VENT	AIR	YES	E-219 SH.1,2	EC-08;EC-33;ED-11
842	DHR	1	8	SV-0857	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
843	DHR	2	8	SV-0857	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
844	DHR	1	8	SV-0876	D/G 1-2 VC-10 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
845	DHR	2	8	SV-0876	D/G 1-2 VC-10 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
846	DHR	1	8	SV-0877	D/G 1-1 VC-11 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
847	DHR	2	8	SV-0877	D/G 1-1 VC-11 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
848	DHR	1	8	SV-0879	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
849	DHR	2	8	SV-0879	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
850	DHR	1	8	SV-0880	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
851	DHR	2	8	SV-0880	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
852	DHR	1	8	SV-0884A	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
853	DHR	2	8	SV-0884A	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
854	DHR	1	8	SV-0884B	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
855	DHR	2	8	SV-0884B	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
856	DHR	1	8	SV-0885A	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
857	DHR	2	8	SV-0885A	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
858	DHR	1	8	SV-0885B	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
859	DHR	2	8	SV-0885B	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
860	DHR	1	8	SV-0951	COOLING SWS RETURN	M-209-2	AB	570	005	R	3	VENT	VENT	NO	E-239 SH.1,3	EC-08;EC-33
861	DHR	2	8	SV-0951	COOLING SWS RETURN	M-209-2	AB	570	005	R	3	VENT	VENT	NO	E-239 SH.1,3	EC-08;EC-33
862	DHR	1	8	SV-1318	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08
863	DHR	2	8	SV-1318	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08
864	DHR	1	8	SV-1319	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
865	DHR	2	8	SV-1319	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08
866	DHR	1	8	SV-1359	SERVICE WATER ISOLATION	M-213	TB	590	136	S/R	N/A	AIR	VENT	NO	E-219 SH.1,3	EC-08;EC-12;EC-13
867	DHR	2	8	SV-1359	SERVICE WATER ISOLATION	M-213	TB	590	136	S/R	N/A	AIR	VENT	NO	E-219 SH.1,3	EC-08;EC-12;EC-13
868	DHR	1	8	SV-1414	DISCHARGE TO P-9B DAY TANK	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-178 SH.3	EJ-43
869	DHR	2	8	SV-1414	DISCHARGE TO P-9B DAY TANK	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-178 SH.3	EJ-43
870	EPD	1	8	SV-1415	DG-1/1 TO T-25A INLET	M-214-1	AB	590	116	R	3	CLOSED	CLOSED	NO	E-140; E-178-4	EG-21;EJ-246
871	EPD	2	8	SV-1415	DG-1/1 TO T-25A INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; E-178-4	EB-01;EG-21;EJ-246
872	EPD	1	8	SV-1452	DG-1/2 TO T-25B INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; E-178-4	EB-02;EG-31;EJ-245
873	EPD	2	8	SV-1452	DG-1/2 TO T-25B INLET	M-214-1	AB	590	116B	R	3	CLOSED	CLOSED	NO	E-140; E-178-4	EG-31;EJ-245
874	EPD	2	8	SV-1470	DC-1/1 TO DAY INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-97	EB-01;EG-21
875	EPD	1	8	SV-1471	DG-1/2 FUEL OIL INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-104	EB-02;EG-31
876	EPD	2	8	SV-1479	STARTING AIR MOTOR INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.98	ED-11A;EG-20
877	EPD	2	8	SV-1480	STARTING AIR MOTOR INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.98	ED-11A;EG-20
878	EPD	1	8	SV-1489	STARTING AIR MOTOR INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.105	ED-21A;EG-30
879	EPD	1	8	SV-1490	STARTING AIR MOTOR INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.105	ED-21A;EG-30
880	HVAC	2	8	SV-1651	VDX-95 BLOCK	M-218-7	AB	625	300	R	3	OPEN	OPEN	NO	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093
881	HVAC	1	8	SV-1652	VDX-96 BLOCK	M-218-7	AB	625	300A	R	3	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092
882	HVAC	2	8	SV-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S/R	N/A	AIR	VENT	NO	E-270 SH.4,4A	EC-11A;EC-186A;EJ-1001
883	HVAC	1	8	SV-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S/R	N/A	AIR	VENT	NO	E-270 SH.4,4A	EC-11A;EC-186B;EJ-1000
884	HVAC	2	8	SV-1663	V-95 DAMPER D-3	M-218-6	AB	625	300	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186A;EJ-1001
885	HVAC	1	8	SV-1664	V-96 DAMPER D-10	M-218-6	AB	625	300A	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186B;EJ-1000
886	HVAC	2	8	SV-1675A	VC-11 CONDENSING UNIT	M-218-7	AB	625	300	S/R	N/A	CLOSED	OP/CL	YES	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093;EY-10
887	HVAC	2	8	SV-1675B	VC-11 CONDENSING UNIT	M-218-7	AB	625	300	S/R	N/A	CLOSED	OP/CL	YES	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093;EY-10

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	D E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
888	HVAC	1	8	SV-1676A	VC-10 CONDENSING UNIT	M-218-7	AB	625	300A	S/R	N/A	CLOSED	OP/CL	YES	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092;EY-20
889	HVAC	1	8	SV-1676B	VC-10 CONDENSING UNIT	M-218-7	AB	625	300A	S/R	N/A	CLOSED	OP/CL	YES	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092;EY-20
890	HVAC	2	8	SV-1697	VC-11 HOT GAS BYPASS	M-218-7	AB	625	300	R	3	OPEN	OPEN	NO	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093
891	HVAC	1	8	SV-1698	VC-10 HOT GAS BYPASS	M-218-7	AB	625	300A	R	3	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092
892	HVAC	2	8	SV-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S/R	N/A	AIR	VENT	NO	E-271-5	EC-186A;EJ-1001
893	HVAC	1	8	SV-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S/R	N/A	AIR	VENT	NO	E-271 SH.5	EC-186B;EJ-1000
894	HVAC	1	8	SV-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186B;EJ-1000
895	HVAC	2	8	SV-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186A;EJ-1001
896	DGV	1	8	SV-1834	DAMPER D24	M-218-5	AB	590	116B	N/A	16	VENT	VENT	NO	E-280 SH.1	DISCONNECTED
897	DGV	2	8	SV-1843	DAMPER D25	M-218-5	AB	590	116	N/A	16	VENT	VENT	NO	E-280 SH.1	DISCONNECTED
898	RCPC	1	8	SV-1901	VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
899	RCPC	2	8	SV-1901	VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
900	RCPC	1	8	SV-1902	LIQUID PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
901	RCPC	2	8	SV-1902	LIQUID PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
902	RCPC	1	8	SV-1903	HOT LEG SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
903	RCPC	2	8	SV-1903	HOT LEG SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
904	RCPC	1	8	SV-1904	QUENCH TANK VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
905	RCPC	2	8	SV-1904	QUENCH TANK VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
906	RCPC	1	8	SV-2002A	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
907	RCPC	2	8	SV-2002A	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
908	RCPC	1	8	SV-2002B	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
909	RCPC	2	8	SV-2002B	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
910	RCPC	1	8	SV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S/R	N/A	AIR	VENT	NO	E-236 SH.1	EC-02;EC-12
911	RCPC	2	8	SV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S/R	N/A	AIR	VENT	NO	E-236 SH.1	EC-02;EC-12
912	RCPC	1	8	SV-2004	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
913	RCPC	2	8	SV-2004	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12
914	RCPC	1	8	SV-2005	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12
915	RCPC	2	8	SV-2005	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12
916	RCPC	1	8	SV-2111	CHARGING LINE STOP	M-202-1B	AB	590	107A	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
917	RCPC	2	8	SV-2111	CHARGING LINE STOP VALVE	M-202-1B	AB	590	104A	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
918	RCPC	1	8	SV-2113	LOOP 1A STOP	M-202-1B	AB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
919	RCPC	2	8	SV-2113	LOOP 1-A STOP VALVE	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
920	RCPC	1	8	SV-2115	LOOP 2A STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
921	RCPC	2	8	SV-2115	LOOP 2A STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
922	RCPC	1	8	SV-2117	PRESS. AUX. SPRAY	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
923	RCPC	2	8	SV-2117	PRESS. AUX. SPRAY	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
924	RCPC	1	8	SV-2153	INLET VALVE TO BLENDER	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234 SH.1	EC-02;EC-12
925	RCPC	2	8	SV-2153	INLET VALVE TO BLENDER	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234 SH.1	EC-12;EC-02
926	RCPC	1	8	SV-2155	BORIC ACID BLENDER OUTLET	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234	EC-02;EC-13;EC-12
927	RCPC	2	8	SV-2155	BORIC ACID BLENDER OUTLET	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234	EC-02;EC-13;EC-12
928	RCPC	1	8	SV-3029A	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33
929	RCPC	2	8	SV-3029A	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33
930	RCPC	1	8	SV-3029B	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
931	RCPC	2	8	SV-3029B	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
932	RCPC	1	8	SV-3030A	SUMP ISOL.	M-204-1A	AB	570	005	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33
933	RCPC	2	8	SV-3030A	SUMP ISOL.	M-204-1A	AB	570	005	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33
934	RCPC	1	8	SV-3030B	SUMP ISOL.	M-204-1A	AB	570	005	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
935	RCPC	2	8	SV-3030B	SUMP ISOL.	M-204-1A	AB	570	005	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
936	RCPC	1	8	SV-3084	HPSI HOT LEG INJECTION	M-201-1	RB	607	237	R	3	VENT	VENT	NO	E-245 SH.4	EC-13
937	RCPC	2	8	SV-3084	HPSI HOT LEG INJECTION	M-201-1	RB	607	237	R	3	VENT	VENT	NO	E-245 SH.4	EC-13
938	DHR	1	8	SV-5353	T-40 DIESEL OIL TRANSFER	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-789 SH.2	EJ-214
939	DHR	2	8	SV-5353	T-40 DIESEL OIL TRANSFER	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-789 SH.2	EJ-214
940	EPD	1	21	T-10	DIESEL OIL STORAGE TANK	M-214-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/A	N/A
941	EPD	2	21	T-10	DIESEL OIL STORAGE TANK	M-214-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/A	N/A
942	RCPC	1	0	T-105A	P-55A SUCTION STABILIZER	M-202-1B	AB	590	104	S	N/A	OPEN	OPEN	NO	N/A	N/A
943	RCPC	2	0	T-105A	CHARG. P. P-55A SUCTION STABILIZER	M-202-1B	AB	593	104	S	N/A	OPEN	OPEN	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
944	RCPC	1	0	T-105B	P-55B SUCTION STABILIZER	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
945	RCPC	2	0	T-105B	P-55B SUCTION STABILIZER	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
946	RCPC	1	0	T-105C	P-55C SUCTION STABILIZER	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
947	RCPC	2	0	T-105C	P-55C SUCTION STABLIZER	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
948	RCPC	1	0	T-106A	P-55A DISC. ACCUMULATOR	M-202-1B	AB	590	104	S	N/A	OPEN	OPEN	NO	N/A	N/A
949	RCPC	2	0	T-106A	CHARG. P. P-55A DISCH ACCUMULATOR	M-202-1B	AB	593	104	S	N/A	OPEN	OPEN	NO	N/A	N/A
950	RCPC	1	0	T-106B	P-55B DISC. ACCUM.	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
951	RCPC	2	0	T-106B	P-55B DISC. ACCUM.	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
952	RCPC	1	0	T-106C	P-55C DISCHARGE ACCUMULATOR	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
953	RCPC	2	0	T-106C	P-55C DISCHARGE ACCUMULATIOR	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
954	EPD	2	21	T-13A	JACKET WATER SURGE TANK	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
955	EPD	1	21	T-13B	JACKET WATER SURGE TANK	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
956	DHR	1	21	T-2	CONDENSATE STORAGE TANK	M-220-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/A	N/A
957	DHR	2	21	T-2	CONDENSATE STORAGE TANK	M-220-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/A	N/A
958	EPD	2	21	T-25A	DG-1/1 DAY TANK	M-214-1	AB	590	146	S	N/A	N/A	N/A	NO	N/A	N/A
959	EPD	1	21	T-25B	DG-1/2 DAY TANK	M-214-1	AB	590	147	S	N/A	N/A	N/A	NO	N/A	N/A
960	EPD	2	21	T-31A	AIR STARTING TANK	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
961	EPD	2	21	T-31B	AIR STARTING TANK	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
962	EPD	1	21	T-31C	AIR STARTING TANK	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
963	EPD	1	21	T-31D	AIR STARTING TANK	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
964	RCPC	1	21	T-53A	BORIC ACID TANK	M-202-1A	AB	590	107	S	N/A	N/A	N/A	NO	N/A	N/A
965	RCPC	2	21	T-53A	BORIC ACID TANK	M-202-1A	AB	590	107	S	N/A	N/A	N/A	NO	N/A	N/A
966	RCPC	2	21	T-53B	BORIC ACID TANK	M-202-1A	AB	590	107	S	N/A	N/A	N/A	NO	N/A	N/A
967	RCPC	1	21	T-58	SIRW TANK	M-204-1B	AB	649	808	S	N/A	N/A	N/A	NO	N/A	N/A
968	RCPC	2	21	T-58	SIRW TANK	M-204-1B	AB	649	808	S	N/A	N/A	N/A	NO	N/A	N/A
969	RCPC	1	21	T-73	QUENCH TANK	M-201-2	RB	625	335	S	N/A	N/A	N/A	NO	N/A	N/A
970	RCPC	2	21	T-73	QUENCH TANK	M-201-2	RB	625	335	S	N/A	N/A	N/A	NO	N/A	N/A
971	RCPC	2	19	TE-0112CC	CHANNEL C COLD LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
972	RCPC	1	19	TE-0112CD	CHANNEL D COLD LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
973	RCPC	2	19	TE-0112HC	CHANNEL C HOT LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
974	RCPC	1	19	TE-0112HD	CHANNEL D HOT LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knuttinerus		5/3/95	Dale E. Engle		5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
975	RCPC	2	19	TE-0122CC	CHANNEL C COLD LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
976	RCPC	1	19	TE-0122CD	CHANNEL D COLD LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
977	RCPC	2	19	TE-0122HC	CHANNEL C HOT LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
978	RCPC	1	19	TE-0122HD	CHANNEL D HOT LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
979	EPD	2	18	TI-1478	K-6A LUBE OIL TEMP. IND	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
980	EPD	2	18	TI-1482	JACKET WATER TEMP. IND.	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
981	EPD	1	18	TI-1488	K-6B LUBE OIL TEMPERATURE IND.	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
982	EPD	1	18	TI-1492	JACKET WATER TEMP.	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
983	HVAC	2	18	TS-1653	VC-11 OIL TEMP. SWITCH	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
984	HVAC	1	18	TS-1654	VC-10 OIL TEMP. SWITCH	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
985	DGV	1	18	TS-1820	V-24D TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
986	DGV	1	18	TS-1821	V-24C TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
987	DGV	1	18	TS-1822	V-24C TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
988	DGV	1	18	TS-1823	V-24D TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
989	DGV	2	18	TS-1827	V-24A TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
990	DGV	2	18	TS-1828	V-24A TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
991	DGV	2	18	TS-1843	V-24B TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
992	DGV	2	18	TS-1844	V-24B TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
993	DGV	2	9	V-24A	DG 1-1 VENT FAN	M-218-5	AB	590	116	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-25;N81
994	DGV	2	9	V-24B	DG 1-1 VENT FAN	M-218-5	AB	590	116	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-25;N69
995	DGV	1	9	V-24C	DG 1-2 VENT FAN	M-218-5	AB	590	116B	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-24;N93
996	DGV	1	9	V-24D	DG 1-2 VENT FAN	M-218-5	AB	590	116B	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-24;N61
997	HVAC	2	9	V-26A	AIR FILTER UNIT FAN	M-218-6A	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-271 SH.3,4	EB-25;EC-11A;EC-186A;EJ-1001
998	HVAC	1	9	V-26B	AIR FILTER VENT FAN	M-218-6A	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-271 SH.3,4	EB-26;EC-11A;EC-186B;EJ-1000
999	HVAC	2	9	V-95	CONTROL ROOM VENT. FAN	M-218-6	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.2,2A	EB-25;EC-11A;EC-186A;EC-188A;EJ-
1000	HVAC	1	9	V-96	CONTROL ROOM VENT. FAN	M-218-6	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.2,2A	EB-26;EC-11A;EC-186B;EC-188B;EJ-
1001	DHR	1	11	VC-10	CONTROL ROOM CONDENSING UNIT	M-208-1B	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.6,7	EB-26;EC-11A;EC-

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	D. E. Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
1002	DHR	2	11	VC-11	CONTROL ROOM CONDENSING UNIT	M-208-1B	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.6,7	186B;EJ-1000;EJ-EB-25;EC-11A;EC-186A;EJ-1001;EJ-
1003	HVAC	2	10	VDX-95	V-95 COOLING COIL	M-218-6	AB	625	300	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1001;EJ-1089;EJ-1093
1004	HVAC	1	10	VDX-96	V-96 COOLING COIL	M-218-6,7	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

CONSUMERS POWER

PALISADES NUCLEAR PLANT

ATTACHMENT C

SAFE SHUTDOWN NOTES

(9 Pages)

SAFE SHUTDOWN NOTES

The notes contained in this appendix are to be used with the "notes" field (column 11) of the Safe Shutdown Equipment List. All justifications are taken from the GIP Revision 2, corrected 2/14/92.

1. This valve is a manually controlled valve and does not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6.

2. This item is in the system flow path, however this item does not need to function nor will its position, whether it be open or closed, adversely affect the safe operation of the system during or following a seismic event. This equipment is passive and does not need to be evaluated for seismic adequacy or relay functionality per GIP Section 3, Item 3.1.2 #6 and #7.

3. This equipment could operate but does not need to operate and which, upon loss of power, will fail in the desired position or state. This type of equipment is defined as passive and a relay evaluation is required per GIP Section 3, Item 3.1.2 #6 and #7.

4. This valve is a check valve and does not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6.

5. This equipment does not perform an active function nor will relay chatter affect Safe Shutdown. This equipment is passive and does not need to be evaluated for seismic adequacy or relay functionality per GIP Section 3, Item 3.1.2 #6 and #7.

6. This equipment does not need to operate to provide actuation or information that will affect a Safe Shutdown function. Upon loss of power the equipment will fail in the desired position or state. This type of equipment is defined as passive and does not need to be evaluated for seismic adequacy or relay functionality per GIP Section 3, Item 3.1.2 #6 and #7.

7. This equipment is in the Nuclear Steam Supply System and components mounted on or within this equipment such as the Reactor Pressure Vessel, Reactor Fuel Assemblies, Reactor Coolant Pumps, Steam Generators, Pressurizer and Reactor Coolant Piping need not be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6.

8. On loss of instrument air the assumption is made that the Atmospheric Steam Dump Valves will operate at least once. This is due to quick opening and air trapped in the line and accumulator. Reference Palisades Nuclear Plant Special Test Procedure T-207.

9. This equipment contains active or passive electrical equipment which supports the operation of identified Safe Shutdown equipment. This equipment needs to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #5.

10. Check valves CK-ES3102, CK-ES3117, CK-ES3132 and CK-ES3147 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. During this event the plant will be placed in a hot shutdown condition and therefore the Primary Coolant System Pressure will be at approximately 2000 PSI and the Safety Injection Tank Pressure will be at approximately 210 PSI. A gas or liquid cannot enter into the Primary Coolant system with this pressure differential at this isolation boundary. Therefore, the check valves would be satisfactory as isolation boundaries.

11. Manual valves MV-PC1116 and MV-PC1095A do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. The valves are for seal leakoff and are not part of the Primary Coolant System Pressure Boundary and therefore no operator action would be required for closure at this isolation boundary.

12. Motor Operated Valves MO-2087 and MO-2160 could require the use of the manual handwheel for operation. The single active failure criterion per GIP Section 3.2.6 offers the option for the use of the handwheel on the motor operator. During this event emergency boration will have been initiated to establish necessary shutdown margin. A minimum amount of boration (corresponding to ~9% of a concentrated Boric Acid Tank) is necessary. At 40 GPM it would take [(~9% x 55 GAL/%)/40 GAL/MIN] = ~13 Minutes of boration. Emergency Operating Procedure 9.0 RC-2 Step 17 would have the operators realign the charging pump suction source to the SIRW tank once shutdown margin was met. Emergency Operating Procedure 9.0 Rev.6 IC-1 Step 5 would have the operators realign suction to the SIRW tank preferably within 30 minutes of boration initiation. This action to realign Charging Pump suction source is accomplished by a control room operator. Therefore, the use of the manual handwheel for MO-2160 for Train 2 operation for suction to the SIRW Tank would be acceptable. Also, the use of the manual handwheel for closure of MO-2087 which is in series with check valve CK-CVC2088 is an acceptable means for the single active failure criterion for isolation boundaries.

13. Check valves CK-ES3402, CK-ES3403, CK-ES3406 and CK-ES3407 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. During this event the plant will be placed in a hot shutdown condition and therefore there is no flow through the Safety Injection or Spray System and there are no pumps rated to pump against this head at this isolation boundary. Therefore, the check valves would be satisfactory as isolation boundaries.

14. Manual valves MV-SW131, MV-SW132, MV-SW137, MV-SW138 and Control Valves CV-0823(SV-0823A & SV-0823B) and CV-0826(SV-0826A & SV-0826B)do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. These valves are on the return side of the service water system. As such the component position or failure does not affect the operation of the service water supply system. Therefore, no operator action would be required for closure as an isolation boundary.

15. Manual valves MV-SW119 and MV-SW256 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. These valves are for cooling flow to the plant air compressors which are not required. Any piping system or component failure downstream of the inlet isolation valves could result in diversion of critical service water flow. This quantity of diversion is judged to be insignificant due to the small piping size of 1 inch. Therefore operator action is judged not to be necessary.

16. Solenoid valves SV-1834 and SV-1843 are electrically disconnected at EJ-266 and EJ-267. Therefore no review is required.

17. Control valves CV-1655 and CV-1656 are actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. These control valves have manual handwheels that allow positioning of the control valves to allow condenser / compressor operation. An analyses performed to determine control room temperature following a loss of service water and a station blackout concluded:

    A. Control room temperature following a loss of service water would reach 110 degrees Fahrenheit (upper habitability limits) in 13 hours and 20 minutes. Reference Design Basis Document DBD 1.06 Section 3.2.10.

    B. Control room temperature following a station blackout would remain below 120 degrees Fahrenheit for 4 hours. Reference Design Basis Document DBD 1.06 Section 3.2.10.

The maximum conservative time to reestablish condenser cooling would be 13 hours and 20 minutes. If started, the control room HVAC chiller will trip on low suction pressure in response to the cooling water control valve failing open. The operators have adequate time to diagnose control valve response to loss of instrument air. Emergency Operating Procedure 9.0 MVAA Continuing Actions step 3 directs actions taken to meet acceptance criteria of MVAA-1 (ie= instrument air pressure > 85 PSIG).Manually controlling the condenser/compressor suction pressure using the manual handwheels is estimated to require the services of 1 auxiliary operator for a period of 30 minutes. Further attention may be required after initial restarting, but it is assumed that by this time (> 13 hours) a dedicated attendant would be available. Therefore, operator action for CV-1655 and CV-1656 would be acceptable.

18. Steam Traps ST-0522B, ST-0789, ST-0790, ST-0791 and ST-0792 do not perform an active function and are passive and do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. A steam trap will not pass steam due to its design. Therefore steam traps would be acceptable as isolation boundaries.

19. This is mechanical equipment which is actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7.

20. Control valves CV-0501 and CV-0510 are actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. These control valves do not meet the single active failure criterion per GIP Section 3.2.6. We are taking an exception to the single active failure requirements in this case based on an SER dated February 28, 1986 on the subject of SINGLE FAILURE ISSUE FOR MAIN STEAM ISOLATION VALVES AND MAIN FEEDWATER VALVES.

21. Check valves CK-FW0701 and CK-FW0702 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. The Emergency Operating Procedures 1.0 Step 3.0 #2 & #3 requires stopping the main feed pumps. When the feedwater pumps are stopped the differential pressure will close the check valves. These check valves do not meet the single active failure criterion per GIP Section 3.2.6. We are taking an exception to the single active failure requirements in this case based on an SER dated February 28, 1986 on the subject of SINGLE FAILURE ISSUE FOR MAIN STEAM ISOLATION VALVES AND MAIN FEEDWATER VALVES.

22. Manual valves MV-CD130, MV-CD132, MV-CD135 and MV-CD138 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. Although it would be prudent to isolate the condensate storage tank with these valves and Emergency Operating Procedure 9.0 MR Continuing Actions directs valve closure, the inevitability is that Lake Michigan water via the service water system will be used for steam generator feedwater. The Condensate Storage Tank Level Indicator will provide indications of inventory loss and it would refer you to use Emergency Operating Procedures, Off Normal Procedures and Standard Operating Procedure 12 Section 7.5 for alternate makeup options. These valves will eventually be closed by Emergency Operating Procedures and the time frame is not critical since alternate methods will be ultimately utilized. Therefore, operator actions would be acceptable for these manual valves as isolation boundaries.

23. Manual valves MV-FP130, MV-FP131, MV-FP106, MV-FP173, MV-FP114, MV-FW750, MV-FW750A, MV-FW0775 AND MV-FW0774 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. Operation of these valves are required to align Service Water to the Auxiliary Feedwater Pumps for each train. Service Water would not be required for a few hours until the Condensate Storage Tank is empty. The Emergency Operating Procedure 9.0, success path HR-2 steps will align the service water and fire water systems to provide an alternate feedwater source for the Auxiliary Feedwater Pumps. The fire water system header isolation valves MV-FP106, MV-FP114 and MV-FP173 would only require closing if inadequate header pressure existed. In that case operator response to the low pressure condition would be to isolate unnecessary components as needed to restore pressure. Therefore, operator actions would be acceptable for these manual valves.

24. Manual valves MV-FW271, MV-FW0771, MV-FW296 and MV-FW751 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. These valves would make no difference whether they are opened or closed during the service water line up. Any excess flow would fill up the Condensate Storage Tank. Therefore, no operator action would be required.

25. Control valve CV-0847 is actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. This control valve could require the use of the manual handwheel for operation. The single active failure criterion per GIP Section 3.2.6 offers the option for the use of the handwheel on the control valve. If the control valve requires closing because service water system pressure is low, then the subsequent actions of Off Normal Procedure 6.1 directs isolation of the break. The use of the manual handwheel for Train 1 operation would be acceptable for this control valve as a isolation boundary.

26. Control valve CV-1359 is actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. This control valve could require the use of the manual handwheel for operation. The single active failure criterion per GIP Section 3.2.6 offers the option for the use of the handwheel on the control valve. Emergency Operating Procedure 9.0 Success Path MVAW-1,2 and Off Normal Procedure 6.1 direct the operator to close CV-1359. Therefore, the use of the manual handwheel would be acceptable for this control valve as a isolation boundary.

27. Manual valve MV-FO111 does not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. Operator action would be required to close this valve. Standard Operating Procedure SOP-22 provides guidance of transferring fuel oil which would indirectly require operator action if fuel oil is being diverted to non-essential loads. Therefore, operator action would be acceptable for this manual valve.

28. Dampers CD-47, CD-48, CD-50 and CD-52 are used when placing the control room vent system in the recirculation mode. There is no reason that the open or closed position of these dampers will effect the over all availability of this system to perform its design function. Therefore, no operator action would be required for closure of these dampers as isolation boundaries.

29. Manual valves MV-ES3333, MV-ES3336 and MV-ES3337 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. These valves are sample isolation valves for Containment Spray, HPSI and LPSI system. For this event, the pumps are not in service so there would be no pressure on the sample lines. Even if there was pressure on the main lines the sample system has a very small flow compared to total flow, so it would not matter whether the sample system is in service. Therefore operator action is judged not to be necessary to provide an isolation boundary.

30. Manual valves MV-CD170 and MV-CD173 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. These valves are in the condensate storage tank heat exchanger line up. There are qualified level indicators in the control room which would alert operations of falling level in the condensate storage tank. Per Emergency Operating Procedure 9.0 Rev.6 HR-3 the preferred feed to the auxiliary feedwater pumps is the condensate storage tank and then the service water. Operations would have plenty of time to align service water to the auxiliary feedwater pump. The only way service water could be lost through these valves would be by the auxiliary feedwater pump mini-flow system pumping back to the condensate storage tank. Mini-flow is a very small flow of total pump flow, therefore in the event of leakage from these lines it would not effect overall operation of the auxiliary feedwater pump. As the condensate storage tank level gets lower the driving head of leakage is decreasing. Therefore, operator action is judged not to be necessary to provide an isolation boundary.

31. Control valves CV-0767 and CV-0768 are actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. These control valves could require the use of the manual handwheel for operation. The single active failure criterion per GIP Section 3.2.6 offers the option for the use of the handwheel on the control valve. Emergency Operating Procedure HR-2 directs operators to close these valves if there is a problem in maintaining Steam Generator Water Level. Therefore, the use of the manual handwheel would be acceptable for these control valves as isolation boundaries.

32. Manual valves MV-ES3260 and MV-ES3268 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. Operator action would be required to close these valves. Information such as level indication for the Safety Injection and Refueling Water Tank T-58 and the Auxiliary Operator Training Program do exist to give operations guidance to properly diagnose and isolate the valves. Therefore, operator action would be acceptable for these manual valves.

33. Manual valves MV-DE115 and MV-DE116 do not need to be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. Operator action would be required to open these valves to add fuel oil directly into the Diesel Generator Day Tanks if required. Technical Specification 3.7 states that a connection is available outside the Diesel Rooms to pump fuel oil directly into the day tanks from an oil tanker truck. The 16,000 gallons in the storage tank in addition to the day tank will provide a diesel operation under required loading conditions for a minimum period of seven days. It is considered incredible not to be able to secure fuel oil from one of several sources within a radius of 70 miles in less than three days under the worst weather conditions. Therefore, operator action is judged not to be necessary based on an adequate supply of fuel on hand.

34. Local gauges FI-0212, PI-1475, PI-1485, PI-1478, PI-1488, PI-1482, PI-1492, TI-1478, TI-1488, TI-1482 and TI-1492 would require operator action to read the gauges. FI-0212 charging flow is locally read in response to a loss of remote indication. This response is normal operator training and no procedure steps are necessary. Diesel Generator/Fuel Oil related gauges are locally read in response to Emergency Operating Procedure 9.0 MVAE-2 and Standard Operating Procedure SOP-22. Therefore, local gauges would be acceptable for indication.

35. Control valve CV-2003 is actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. The single active failure criterion per GIP Section 3.2.6 offers the option for the use of the handwheel on the control valve. The use of the manual handwheel for closure of CV-2003 is an acceptable means for the single active failure criterion for isolation boundaries. Operations would need a procedure revision to include manual operation of this valve and until this is complete this item is an outlier.

36. Containment Spray Pumps P-54A, P-54B and P-54C are not required to function in order to achieve Safe Shutdown but are not isolated from a Safe Shutdown System. The equipment should therefore be examined to ensure that the system maintains its seismic integrity. If containment spray pumps P-54A, P-54B and P-54C were to inadvertently start during this event, Emergency Operating Procedure 1.0 would direct the operator to stop the spray pumps if containment pressure was -< 4.0 psig. Emergency Operating Procedure 1.0 is an immediate action required following reactor trip. Therefore, operator action would be acceptable to turn off the containment spray pumps.

37. Primary Coolant Pumps P-50A, P-50B, P-50C and P-50D are in the Nuclear Steam Supply System and need not be evaluated for seismic adequacy per GIP Section 3, Item 3.1.2 #6. If the primary coolant pumps P-50A, P-50B, P-50C and P-50D would continue to run during this event, Off Normal Procedure 6.2 would direct the operator to stop the primary coolant pumps if leakoff temperature or bearing temperature exceeds a specific amount and if component cooling water flow is lost for 10 minutes. Therefore, operator action would be acceptable to turn off the primary coolant pumps.

38. Control valve CV-0951 is actuated by support equipment and a relay evaluation for the support equipment is required per GIP Section 3, Item 3.1.2 #6 and #7. This control valve ties the component cooling water discharge from the engineered safeguards system pump cooling into the service water header. If the component cooling pumps were to inadvertently operate, CV-0951 would be closed to prevent loss of component cooling water inventory.

CONSUMERS POWER

PALISADES NUCLEAR PLANT

ATTACHMENT D

OPERATIONS REVIEW LETTER FROM STEVE OAKLEY

(1 Page)

Date: February 22, 1995

To: Dale E Engle

From: Steve R Oakley SROakley

Subject: Operations review of the Safe Shutdown Equipment List for the SQUG Program

---

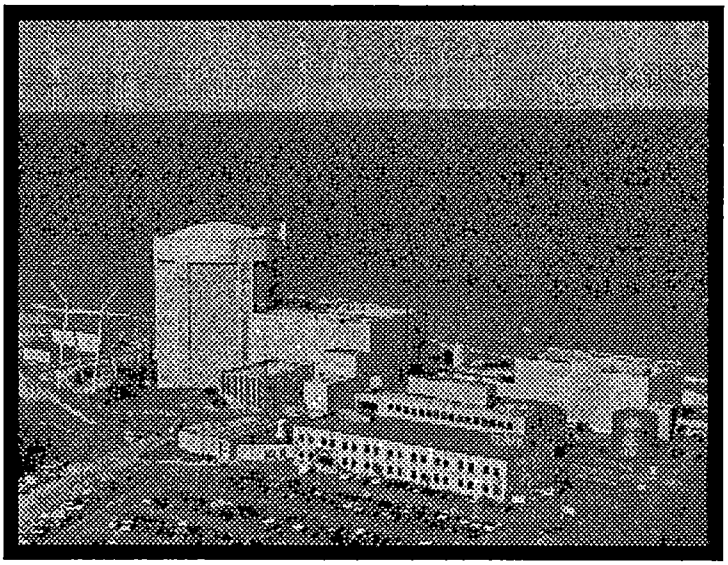
I have reviewed the Safe Shutdown Equipment List (SSEL) developed for SQUG and have found the SSEL correct and acceptable. The purpose of the review by the operations department was to confirm that the SSEL is compatible with approved Normal and Emergency Operating Procedures for hot shutdown of the Palisades Nuclear Power Plant following a seismic event along with the possible loss of off site power for 72 hours.

In addition, for those situations where operator action was taken , a review was completed to assure these actions were correct and possible, included in operator training and that personnel will be available to perform the action when necessary.

In summary the operations department review of the SSEL has been completed and found acceptable as described in the Generic Implementation Procedure Revision 2.

USI A-46 RELAY EVALUATION REPORT

PALISADES



NUCLEAR PLANT

May 19, 1995

CONSUMERS POWER

PALISADES NUCLEAR PLANT

USI A-46 RELAY EVALUATION REPORT

May 3, 1995

RELAY EVALUATION REPORT FOR PALISADES NUCLEAR PLANT

Section	Title	Page
1.0	Introduction	1-1
2.0	Scope/Method	2-1
3.0	Assumptions/Limitations	3-1
4.0	Results	4-1
5.0	References	5-1

Attachments	Title
Attachment A	Palisades Safe Shutdown Equipment List (SSRL)
Attachment B	Palisades Relay List and Seismic Evaluation Tabulation
Attachment C	Listing and Description of Outliers

1.0 INTRODUCTION

Seismic qualification of equipment in operating nuclear plants was identified as a potential safety concern in USNRC Unresolved Safety Issue (USI) A-46, "Seismic Qualification of Equipment in Operating Nuclear Power Plants". The specific NRC plan for demonstrating the seismic adequacy of equipment in operating nuclear plants is presented in NRC Generic Letter 87-02.

As part of the resolution of GL 87-02, it is necessary to perform a relay seismic functionality review. The purpose of this review is to determine if the plant's safe shutdown systems could be adversely affected by relay malfunction in the event of a Safe Shutdown Earthquake (SSE).

Basic technical guidance for this effort was obtained from the Generic Implementation Procedure (GIP) (Reference 5.1) and from the Electric Power Research Institute (EPRI) report EPRI NP-7148-SI (Reference 5.2).

2.0 SCOPE/METHOD

The process begins with obtaining a list of electrically operated USI A-46 components that require relay reviews from the Safe Shutdown Equipment list (SSEL) database. This list must not only include equipment that must change position or start to perform a safe shutdown function, it must also consider equipment whose inadvertent actuation due to contact chatter may compromise a safe shutdown function or provide misleading indications in the Control Room. This list of equipment will be a subset of the SSEL obtained by sorting the database using the "Evaluation Required" field. Components coded S/R and R will be included on the relay review list (SSRL). The subsequent steps are described in the following paragraphs.

Identify and obtain the associated electrical schematics and/or any other applicable drawings that will be required to identify relays associated with the selected electrical component. Review the circuit to identify those portions of the circuit which will affect the operation of the component. In completing the process of identifying associated relays, it may be necessary to review other schematics which contain other relays and contacts which may affect the subject component.

Evaluate the associated relays for each electrically operated component. Identify contacts that are inherently rugged or solid state which are considered not vulnerable to contact chatter. The mechanically actuated limit and torque switches on motor operated valves are not considered seismically vulnerable. Therefore, these contacts were not listed on the relay tabulation sheets. Also identify the normal and required states of the component as indicated on the Relay Review List, and consider the required state of the component for a safe shutdown. Screen those relays whose contact chatter are acceptable; that is, relay chatter does not result in an unacceptable consequence or prevent the affected system from carrying out its required function. Determine, along with Systems Engineers and Plant Operations, if operator action is an acceptable way of screening out the relay, and describe what operator action is to be taken.

For essential relays, identify relay manufacturer, type, model number and determine if the relay contact is normally open or normally closed, while de-energized, and if the relay coil is energized or not, by using the associated electrical schematics. Compare the essential relay's manufacturer, type and model number found with those identified in Appendix E of Document EPRI NP-7148-SL. Determine if there are any Seismically Sensitive Relays ("Bad Actors").

Identify the main and control power supplies and electrical distribution equipment for active electrically operated components so that this equipment can be included on the SSRL. When component relay reviews are complete, identify and highlight electrical distribution equipment on single line diagrams by tracing back from the electrical scheme power source to the preferred power supply.

Using the list of essential relays and associated data, identified in the above described process, engineers will compare the capacity of the relays to the seismic demand.

3.0 ASSUMPTIONS/LIMITATIONS

In accordance with the relay evaluation methodology outlined in the GIP (Ref. 5.1) and in EPRI NP-7148-SL (Ref. 5.2), the following assumptions were made.

1. Relays/contact devices will be exposed to a 30-second earthquake.

2. Relays/contact devices will not be permanently damaged, with the exception of two specific models: the GE IJD (non 1E) and the English Electric YCG, as listed in Appendix E of EPRI NP-7148-SL (Ref. 5.2).

3. "Chatter" is the inadvertent opening or closing of a contact with a sustained output of 2 milliseconds (Ref. 5.2).

4. Relay/contact device failure modes are: a) contact chatter causes inadvertent and undesired equipment actuation, and b) contact chatter causes failure of equipment to actuate as desired.

4.0 RESULTS

A total of 1714 essential relays were identified and are listed in Attachment B.

A total of 1 relay was identified as operator action required and is listed in Attachment C.

A total of 17 relays (8 types) were identified as corrective action required and are listed in Attachment C.

Breaker 152-102 is the alternate feed for the pressurizer heater transformer #15. This alternate feed is accomplished by implementing procedure ONP 2.1 Attachment 1, which requires an operator action to physically remove and relocate links in the rear of breaker cubical 152-102, and open and isolate breaker 152-305 and the associated protective devices(i.e. relay, amp meter) of breaker 152-305. Operator action is required to physically connect the cabling per ONP 2.1 Attachment 1. Note that 152-305, Allis Chalmers type MA-250C, is an outlier. When the pressurizer heater (transformer #15) is fed from 1C bus (A11), the breaker 152-305 shall be isolated. Bus 1E is not seismically qualified at this time.

General Electric, type IJD52A, relays are outliers. The GERS-RLY-PP1.5 requires the IJD relays to have "HIGH-G" letters on the faceplate. A walkdown was unable to verify the "HIGH-G" lettering even though the documentation for the purchase and installation reflects the appropriate requirements.

All essential relays with known make and model and available capacities that were justified with GERS were evaluated. The results of these comparisons are included in Attachment B. Each unique make and model within a particular cabinet is documented.

A listing and description of outliers is provided in Attachment C. Currently, these include the seismically sensitive relays listed in Attachment B, and relays with unknown make and models or with unknown seismic capacities.

5.0 REFERENCES

5.1 "Generic Implementation Procedure (GIP) for Seismic Qualification of Nuclear Plant Equipment", Revision 2, Corrected February 1992.

5.2 EPRI NP-7148-SL, Project 2925-8 Final Report, December, 1990 "Procedure for Evaluating Nuclear Power Plant Relay Seismic Functionality".

CONSUMERS POWER

PALISADES NUCLEAR PLANT

ATTACHMENT A

RELAY REVIEW SAFE SHUTDOWN EQUIPMENT LIST

(17 Pages)

SAFE SHUTDOWN EQUIPMENT LIST (SSRL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
1	RRC	1	1	42-1/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
2	RRC	2	1	42-1/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
3	RRC	1	1	42-2/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
4	RRC	2	1	42-2/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
5	RRC	1	0	CRD1-41	CONTROL ROD DRIVE MECHANISMS	M1-Q-1198	RB	649	145	R	7	ON	OFF	NO	E-212 SH.1	EC-06
6	RRC	2	0	CRD1-41	CONTROL ROD DRIVE MECHANISMS	M1-Q-1198	RB	649	145	R	7	ON	OFF	NO	E-212 SH.1	EC-06
7	RCPC	1	18	E/P-0338	T-82D PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
8	RCPC	2	18	E/P-0338	T-82D PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
9	RCPC	1	18	E/P-0342	T-82A PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
10	RCPC	2	18	E/P-0342	T-82A PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
11	RCPC	1	18	E/P-0346	T-82B PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
12	RCPC	2	18	E/P-0346	T-82B PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
13	RCPC	1	18	E/P-0347	T-82C PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
14	RCPC	2	18	E/P-0347	T-82C PRESS. CONTROL	M-203-1	RB	607	144	R	3	ON	ON	NO	E-85 SH.1	EC-03;EC-12;EC-13
15	DHR	1	18	E/P-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
16	DHR	2	18	E/P-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
17	DHR	1	18	E/P-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
18	DHR	2	18	E/P-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
19	DHR	1	18	E/P-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
20	DHR	2	18	E/P-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
21	DHR	1	18	E/P-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
22	DHR	2	18	E/P-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338	R	3	OFF	OFF	NO	E-76 SH.3	EC-12;EC-33
23	RCPC	1	18	E/P-2153	CONCENTRATION BORIC ACID MAKE-UP	M-202-1A	AB	590	107A	R	3	ON	ON	NO	E-234 SH.1	EC-12;EC-02
24	RCPC	2	18	E/P-2153	CONC BORIC ACID MAKE-UP	M-202-1A	AB	590	107A	R	3	ON	ON	NO	E-234 SH.1	EC-12;EC-02
25	EPD	1	3	EA-11	2400 VOLT BUS 1C	E1-1	AB	590	116A	S/R	N/A	ON	OFF	NO	E-3 SH.1	K-6A
26	EPD	2	3	EA-11	2400 VOLT BUS 1C	E1-1	AB	590	116A	S/R	N/A	ON	ON	YES	E-3 SH.1	ED-11A;K-6A
27	EPD	1	3	EA-12	2400 VOLT BUS 1D	E1-1	AB	607	223	S/R	N/A	ON	ON	YES	E-3 SH.1	ED-21A;K-6B
28	EPD	2	3	EA-12	2400 VOLT BUS 1D	E1-1	AB	607	223	S/R	N/A	ON	OFF	NO	E-3 SH.1	K-6B
29	EPD	2	3	EA-13	2400 V BUS 1-E	E1-1	TB	590	133	S/R	N/A	ON	OFF	NO	E-3 SH.1	EX-15
30	EPD	2	1	EB-01	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.1	EB-19

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
31	EPD	1	1	EB-02	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.1	EB-20
32	EPD	2	1	EB-07	480 V MOTOR CONTROL CENTER	E1-1	AB	590	121	S/R	N/A	ON	ON	YES	E-5 SH.4	EB-11
33	EPD	1	1	EB-08	480 V MOTOR CONTROL CENTER	E1-1	AB	590	121	S/R	N/A	ON	ON	YES	E-5 SH.4	EB-12
34	EPD	2	2	EB-11	480 VOLT LOAD CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	ED-11;EX-11
35	EPD	1	2	EB-12	480 VOLT LOAD CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	ED-21;EX-12
36	EPD	2	2	EB-15	480 VOLT LOAD CENTER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EX-15
37	EPD	1	2	EB-16	480 VOLT LOAD CENTER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EX-16
38	EPD	2	2	EB-19	480 VOLT LOAD CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	ED-11;EX-19
39	EPD	1	2	EB-20	480 VOLT LOAD CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	ED-21;EX-20
40	EPD	2	1	EB-21	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-11
41	EPD	1	1	EB-22	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	223	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-12
42	EPD	2	1	EB-23	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-11
43	EPD	1	1	EB-24	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-12
44	EPD	2	1	EB-25	480 VOLT MOTOR CONTROL CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-5 SH.5C	EB-19
45	EPD	1	1	EB-26	480 VOLT MOTOR CONTROL CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-5 SH.5C	EB-20
46	EPD	2	15	ED-01	MAIN STATION BATTERIES	E1-1	AB	607	225A	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-11A;ED-15;EJL-258
47	EPD	1	15	ED-02	MAIN STATION BATTERIES	E1-1	AB	607	225	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-16;ED-21A;EJL-259
48	EPD	2	16	ED-06	AC INVERTER #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
49	EPD	1	16	ED-07	AC INVERTER #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
50	EPD	2	16	ED-08	AC INVERTER #3	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
51	EPD	1	16	ED-09	AC INVERTER #4	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
52	EPD	2	14	ED-10	125 V DC BUS	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-01;ED-13;EJL-423
53	EPD	2	14	ED-11	125 V DC DISTRIBUTION PANEL	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
54	EPD	2	14	ED-11A	125 V DC DISTRIBUTION PANEL	E1-1	AB	590	116A	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-01
55	EPD	2	20	ED-13	METERING SECTION DC BUSS	E-359-1A	AB	607	224	S/R	N/A	ON	ON	YES	E-8-1	ED-10
56	EPD	2	16	ED-15	DC CHARGER #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	EB-01
57	EPD	1	16	ED-16	DC CHARGER #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	EB-02
58	EPD	2-OP	16	ED-17	DC CHARGER #3	E1-1	AB	607	224	S/R	N/A	ON	ON/OFF	YES	E-8 SH.1	EB-02
59	EPD	1-OP	16	ED-18	DC CHARGER #4	E1-1	AB	607	224	S/R	N/A	ON	ON/OFF	YES	E-8 SH.1	EB-01
60	EPD	1	14	ED-20	125 V DC BUS	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-02;ED-23;EJL-422
61	EPD	1	14	ED-21	125 V DC DISTRIBUTION PANEL	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

SAFE SHUTDOWN EQUIPMENT LIST (SSRL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
62	EPD	1	14	ED-21A	125 V DC DISTRIBUTION PANEL	E1-1	AB	590	116B	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-02
63	EPD	1	20	ED-23	METERING SECTION DC BUS	E-359-1A	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-20
64	RCPC	2	0	EH-0501A-F	PROPORTIONAL HEATERS #1	M-201-2	RB	607	800	R	7	ON/OFF	ON/OFF	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
65	RCPC	2	0	EH-0502A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
66	RCPC	2	0	EH-0503A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
67	RCPC	2	0	EH-0504A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
68	RCPC	2	0	EH-0505A-F	BACK-UP HEATERS GROUP #1	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
69	RCPC	2	0	EH-0506A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
70	RCPC	2	0	EH-0507A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
71	RCPC	2	0	EH-0508A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
72	RCPC	2	0	EH-0509A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
73	RCPC	2	0	EH-0510A-F	BACK-UP HEATERS GROUP #2	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-15;EA-11;EX-15;EC-02
74	RCPC	1	0	EH-0601A-F	PROPORTIONAL HEATERS GROUP 2	M-201-2	RB	607	800	R	7	ON/OFF	ON/OFF	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
75	RCPC	1	0	EH-0602A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
76	RCPC	1	0	EH-0603A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
77	RCPC	1	0	EH-0604A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
78	RCPC	1	0	EH-0605A-F	BACK-UP HEATERS GROUP 3	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
79	RCPC	1	0	EH-0606A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
80	RCPC	1	0	EH-0607A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
81	RCPC	1	0	EH-0608A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
82	RCPC	1	0	EH-0609A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
83	RCPC	1	0	EH-0610A-F	BACK-UP HEATERS GROUP 4	M-201-2	RB	607	800	R	7	ON/OFF	ON	YES	E-254 SH.1,2	EB-16;EA-12;EX-16;EC-02
84	EPD	2	9	EMG-0501	CRANKCASE EXHAUST	M-214-1	AB	590	116	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-22;EG-20;EG-21;EX-67
85	EPD	2	9	EMG-0502	CRANKCASE EXHAUST	M-214-1	AB	590	116	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-22;EG-20;EG-21;EX-67
86	EPD	1	9	EMG-0503	CRANKCASE EXHAUST	M-214-1	AB	590	116B	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-26;EG-30;EG-31;EX-66
87	EPD	1	9	EMG-0504	CRANKCASE EXHAUST	M-214-1	AB	590	116B	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-26;EG-30;EG-31;EX-66
88	RCPC	2	1	EU-1	SCR CONTROLLER-HEATERS	M-201-2	RB	590	143	S/R	N/A	ON/OFF	ON/OFF	YES	E-254 SH.1	EB-15;EX-15;EC-02
89	RCPC	1	1	EU-2	SCR CONTROLLER-HEATERS	M-201-2	RB	590	143	S/R	N/A	ON/OFF	ON/OFF	YES	E-253 SH.1	EB-16;EX-16;EC-02
90	EPD	2	4	EX-11	2400/480 VOLT TRANSFORMER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-11
91	EPD	1	4	EX-12	2400/480 VOLT TRANSFORMER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-12
92	EPD	2	4	EX-15	2400/480 VOLT TRANSFORMER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-3-1; E-4-1	EA-11;EA-13

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E. Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

SAFE SHUTDOWN EQUIPMENT LIST (SSRL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
93	EPD	1	4	EX-16	2400/480 VOLT TRANSFORMER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-12
94	EPD	2	4	EX-19	2400/480 VOLT TRANSFORMER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	EA-11
95	EPD	1	4	EX-20	2400/480 VOLT TRANSFORMER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	EA-12
96	RRC	2	4	EX-63	CONTROL ROD CLUTCH TRANSFORMER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
97	RRC	1	4	EX-64	CONTROL ROD CLUTCH TRANSFORMER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
98	EPD	1	4	EX-66	DG-1/2 EXHAUSTER TRANSFORMER	E1-1	AB	590	116B	S/R	N/A	OFF	ON	YES	VM-12-18(2)	K-6B
99	EPD	2	4	EX-67	DG-1/1 EXHAUSTER TRANSFORMER	E1-1	AB	590	116	S/R	N/A	OFF	ON	YES	VM-12-18(2)	K-6A
100	EPD	2	14	EY-10	120 V AC PANEL #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-06
101	EPD	1	14	EY-20	120 V AC PANEL #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-07
102	EPD	2	14	EY-30	120 V AC PANEL #3	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-08
103	EPD	1	14	EY-40	120 V AC PANEL #4	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-09
104	DHR	2	18	FT-0727	P-8A/B FLOW TRANSMITTER	M-207-2	AB	590	123	S/R	N/A	N/A	N/A	YES	E-79 SH.3,3A&B	EJ-1051;EY-10
105	DHR	1	18	FT-0736A	E-50B STEAM FLOW TRANS.	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-79 SH.3E,F,G	EJ-1052;EY-20
106	DHR	1	18	FT-0737A	E-50A STEAM FLOW TRANS.	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-79 SH.3E,F,G	EJ-1052;EY-20
107	DHR	2	18	FT-0749	P-8A/B FLOW TRANSMITTER	M-207-2	AB	590	123	S/R	N/A	N/A	N/A	YES	E-79 SH.3,3A,3B	EJ-1051;EY-10
108	DHR	2	18	I/P-0727	E-50B FLOW CONTROL	M-207-2	AB	590	123	S/R	N/A	ON	ON/OFF	YES	E-79 SH.3 A&B	EC-01;EC-33;EJ-1005;EJ-1051;EJL-263;EY-10
109	DHR	1	18	I/P-0736	E-50B FLOW CONTROL BYPASS	M-207-2	AB	570	005	R	3	OFF	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-1052
110	DHR	1	18	I/P-0736A	E-50B FLOW CONTROL	M-207-2	AB	570	005	S/R	N/A	ON	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-1052
111	DHR	1	18	I/P-0737	E-50A FLOW CONTROL BYPASS	M-207-2	AB	570	005	R	3	OFF	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-1052
112	DHR	1	18	I/P-0737A	E-50A FLOW CONTROL	M-207-2	AB	570	005	S/R	N/A	ON	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-1052
113	DHR	2	18	I/P-0749	E-50A FLOW CONTROL	M-207-2	AB	590	123	S/R	N/A	ON	ON/OFF	YES	E-79 SH.3 A&B	EC-01;EC-33;EJ-1005;EJ-1051;EJL-264;EY-10
114	DHR	1	18	I/P-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	OFF	OFF	NO	E-270 SH.9	EC-189A
115	DHR	2	18	I/P-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	OFF	OFF	NO	E-270 SH.9	EC-189A
116	DHR	1	18	I/P-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	OFF	OFF	NO	E-270 SH.9	EC-189B
117	DHR	2	18	I/P-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	OFF	OFF	NO	E-270 SH.9	EC-189B

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knotterus	D E Knotterus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
118	HVAC	2	18	I/P-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S/R	N/A	ON	OFF	NO	E-270 SH.5	EC-11A;EC-188A
119	HVAC	1	18	I/P-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S/R	N/A	ON	OFF	NO	E-270 SH.5	EC-11A;EC-188B
120	DHR	2	17	K-6A	DIESEL GENERATOR 1-1	M-208-1A	AB	590	116	S/R	N/A	OFF	ON	YES	E-140;M-12	EC-22;ED-01;ED-11A;K-6A
121	DHR	1	17	K-6B	DIESEL GENERATOR 1-2	M-208-1A	AB	590	116B	S/R	N/A	OFF	ON	YES	E-140; M-12	EC-26;ED-02;ED-21A;K-6B
122	RCPC	1	18	LS-0327	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
123	RCPC	2	18	LS-0327	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
124	RCPC	1	18	LS-0328	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
125	RCPC	2	18	LS-0328	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
126	RCPC	1	18	LS-0329	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
127	RCPC	2	18	LS-0329	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
128	RCPC	1	18	LS-0330	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
129	RCPC	2	18	LS-0330	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
130	EPD	2	18	LS-1417	DG-1/1 CONTROL LEVEL	M-214-1	AB	590	146	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-21;EJ-246
131	EPD	2	18	LS-1418	DG-1/1 CONTROL LEVEL	M-214-1	AB	590	146	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-21;EJ-246
132	EPD	1	18	LS-1452	DG-1/2 CONTROL LEVEL	M-214-1	AB	590	147	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-31;EJ-245
133	EPD	1	18	LS-1453	DG-1/2 CONTROL LEVEL	M-214-1	AB	590	147	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-31;EJ-245
134	EPD	2	18	LS-1470	DG-1/1 SUMP STOP FILL LEVEL	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-97	EG-21
135	EPD	1	18	LS-1471	DG-1/2 SUMP STOP FILL LEVEL	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-104	EG-31
136	EPD	2	18	LS-1472	DG-1/1 SUMP START FILL LEVEL	M-214-1	AB	590	116	S/R	N/A	OPEN	OP/CL	YES	E-140; M-12-97	EG-21
137	EPD	1	18	LS-1473	DG-1/2 SUMP START FILL LEVEL	M-214-1	AB	590	116B	S/R	N/A	OPEN	OP/CL	YES	E-140; M-12-104	EG-31
138	RCPC	2	18	LT-0102	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-82 SH.5	EY-10;EC-12
139	RCPC	1	18	LT-0103	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-82 SH.3	EY-20;EC-12
140	RCPC	1	18	LT-0331	SIRW TANK LOW LEVEL TRANSMITTER	M-204-1B	AB	649	808	S/R	N/A	N/A	N/A	YES	E-87 SH.1	EY-20;EC-13
141	RCPC	2	18	LT-0332A	SIRW TANK LOW LEVEL TRANSMITTER	M-204-1B	AB	649	808	S/R	N/A	N/A	N/A	YES	E-87 SH.1A	EY-10;EC-13
142	DHR	2	18	LT-0757A	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2	EC-11;EC-12;EY-10
143	DHR	1	18	LT-0757B	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2	EC-11;EC-12;EY-20
144	DHR	2	18	LT-0758A	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2A	EC-11;EC-12;EY-10
145	DHR	1	18	LT-0758B	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2A	EC-11;EC-12;EY-20
146	DHR	2	18	LT-2021	T-2 LEVEL TRANSMITTER	M-220-1	TB	590	OUTSIDE	S/R	N/A	N/A	N/A	YES	E-87 SH.6	EC-13;EY-30
147	DHR	1	18	LT-2022	T-2 LEVEL TRANSMITTER	M-220-1	TB	590	OUTSIDE	S/R	N/A	N/A	N/A	YES	E-87 SH.6	EC-13;EY-20
148	DHR	1	8	MO-0501	E-50B MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E. Knotwerus		5/3/95	Dale E. Engle		5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
149	DHR	2	8	MO-0501	E-50B MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01
150	DHR	1	8	MO-0510	E-50A MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01
151	DHR	2	8	MO-0510	E-50A MSIV BYPASS	M-205-1	AB	607	238	R	3	CLOSED	CLOSED	NO	E-238 SH.3	EC-01
152	DHR	2	8	MO-0743	E-50B ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005
153	DHR	1	8	MO-0748	E-50B ISOLATION	M-207-2	AB	570	005	S/R	N/A	OPEN	OP/CL	YES	E-1179 SH.1,2	EB-22;EC-11;EC-187;EJ-1005
154	DHR	2	8	MO-0753	E-50A ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005;EJ-1143
155	DHR	1	8	MO-0754	E-50A ISOLATION	M-207-2	AB	570	005	S/R	N/A	OPEN	OP/CL	YES	E-1174 SH.1,2	EB-24;EC-11;EC-187;EJ-1005
156	DHR	1	8	MO-0755	E-50B ISOLATION	M-207-2	AB	570	005	R	3	OPEN	OPEN	NO	E-1179 SH.1,2	EC-11;EC-187;EJ-1006
157	DHR	1	8	MO-0759	E-50A ISOLATION	M-207-2	AB	570	005	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1006
158	DHR	2	8	MO-0760	E-50A ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005;EJ-1144
159	DHR	2	8	MO-0798	E-50B ISOLATION	M-207-2	AB	590	123	R	3	OPEN	OPEN	NO	E-1174 SH.1,2	EC-11;EC-187;EJ-1005
160	RCPC	1	8	MO-1042A	POWER RELIEF ISOL.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-242 SH.4	EC-02;EB-25
161	RCPC	2	8	MO-1042A	POWER RELIEF ISOL.	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-242 SH.4	EB-25;EC-02
162	RCPC	1	8	MO-1043A	POWER RELIEF ISOL.	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-242 SH.4	EB-26;EC-02
163	RCPC	2	8	MO-1043A	POWER RELIEF ISOL.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-242 SH.4	EC-02
164	RCPC	1	8	MO-2087	VOL. CONTROL TANK ISOL.	M-202-1A	AB	590	100	S/R	12	OPEN	CLOSED	NO	E-242 SH.1	EC-33;EC-02;EC-13;EC-12;OPERATOR ACTION
165	RCPC	2	8	MO-2087	VOL. CONTROL TANK ISOL.	M-202-1A	AB	590	100	S/R	12	OPEN	CLOSED	YES	E-242 SH.1	EB-01;EC-33;EC-02;EC-13;EC-12
166	RCPC	1	8	MO-2140	BORIC ACID PUMP FEED ISOL.	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EJ-9401;EC-04;EC-12;EB-02;EC-02;EC-13;EC-33
167	RCPC	2	8	MO-2140	BORIC ACID PUMP FEED ISO	M-202-1A	AB	590	107	R	3	CLOSED	CLOSED	NO	E-241	EJ-9401;EC-04;EC-12;EC-02;EC-13;EC-33
168	RCPC	1	8	MO-2160	SIRW TO CHARGING PUMP	M-202-1A	AB	590	107	S/R	12	CLOSED	OP/CL	YES	E-242 SH.1	EB-02;EC-33;EC-02;EC-13;EC-12
169	RCPC	2	8	MO-2160	SIRW TO CHARGING PUMPS ISOLATION	M-202-1A	AB	590	107	S/R	12	CLOSED	OP/CL	NO	E-242 SH.1	EC-33;EC-02;EC-13;EC-12;OPERATOR ACTION

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
170	RCPC	1	8	MO-2169	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	R	3	CLOSED	CLOSED	NO	E-241	EC-12;EC-04;EB-01;EC-02;EC-13;EC-33;EJ-9400
171	RCPC	2	8	MO-2169	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EC-02;EC-13;EC-33;EJ-9400;EB-01;EC-04;EC-12
172	RCPC	2	8	MO-2170	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EC-02;EC-13;EC-33;EJ-9400;EB-01;EC-04;EC-12
173	RCPC	1	8	MO-3015	SHUTDOWN COOLING FROM LOOP 2	M-204-1	RB	607	236	R	3	CLOSED	CLOSED	NO	E-242 SH.3	EC-02;EC-33
174	RCPC	2	8	MO-3015	SHUTDOWN COOLING FROM LOOP 2	M-204-1	RB	607	236	R	3	CLOSED	CLOSED	NO	E-242 SH.3	EC-02;EC-33
175	RCPC	1	8	MO-3072	CHARGING TO SI ISOL.	M-204-1A	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-242 SH.2	EC-03
176	RCPC	2	8	MO-3072	CHARGING TO SI ISOL.	M-204-1A	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-242 SH.2	EC-03
177	RCPC	1	8	MO-3082	HPSI HOT LEG INJECT. MODE	M-203-2	RB	590	143	R	3	CLOSED	CLOSED	NO	E-244 SH.5A,6	EC-03;EC-33
178	RCPC	2	8	MO-3082	HPSI HOT LEG INJECT. MODE	M-203-2	RB	590	143	R	3	CLOSED	CLOSED	NO	E-244 SH.5A,6	EC-03;EC-33
179	RCPC	1	8	MO-3083	HPSI HOT LEG INJ. MODE SELECT VLV.	M-203-2	RB	617	143	R	3	CLOSED	CLOSED	NO	E-244 SH 5A & 6	EC-03, EC-33
180	RCPC	2	8	MO-3083	HPSI HOT LEG INJ. MODE SELECT VLV.	M-203-2	RB	617	143	R	3	CLOSED	CLOSED	NO	E-244 SH 5A & 6	EC-03, EC-33
181	RRC	2	18	NE-1/3	SOURCE WIDE RANGE FLUX MONITOR	M1-Q-1200	RB	590	142	R	7	ON	ON	YES	E-61 SH.2,2A	EY-30;EC-06
182	RRC	1	18	NE-2/4	SOURCE WIDE RANGE FLUX MONITOR	M1-Q-1200	RB	590	142	R	7	ON	ON	YES	E-61 SH.2,2A	EY-40;EC-06
183	EPD	1	5	P-18A	FUEL OIL TRANSFER PUMP	M-214-1	TB	590	136	S/R	N/A	OFF	ON/OFF	YES	E-178 SH.1	EB-08;EG-21;EG-31;EJ-43;EJ-44;EJ-79;EJ-214
184	EPD	2	5	P-18B	FUEL OIL TRANSFER PUMP	M-214-1	TB	590	136	S/R	N/A	OFF	ON/OFF	YES	E-178 SH.2	EB-01;EJ-43;EJ-44;EJ-79;EJ-214;EJ-245;EJ-246
185	RCPC	1	5	P-55B	CHARGING PUMP B	M-202-1B	AB	590	104A	S/R	N/A	OFF	ON/OFF	YES	E-257 SH.1	EJ-594;EJL-256;EB-12;EC-12;EC-13
186	RCPC	2	5	P-55C	CHARGING PUMP C	M-202-1B	AB	590	104B	S/R	N/A	OFF	ON/OFF	YES	E-257 SH.2	EJL-257;EJ-593;EB-11;EC-12;EC-13
187	RCPC	1	5	P-56A	BORIC ACID PUMP	M-202-1A	AB	590	107A	S/R	N/A	OFF	ON/OFF	YES	E-203	EB-02;EC-02;EC-13;EC-12
188	DHR	1	6	P-7A	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.1	EA-12;EC-08;EC-12;EC-13
189	DHR	2	6	P-7B	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.1	EA-11;EC-08;EC-12;EC-13
190	DHR	1-OP	6	P-7C	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.2	EA-12;EC-08;EC-12;EC-13
191	DHR	2	5	P-8A	MOTOR DRIVE AUX FEED PUMP	M-207-2	TB	570	007	S/R	N/A	ON	ON	YES	E-196 SH.1,2,3	EA-11;EC-01;EC-11;EC-13;EC-187;EJ-1005;EJ-1006;EJ-1051

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus		5/3/95	Dale E. Engle		5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
192	DHR	1	5	P-8C	MOTOR DRIVEN AUX FEED PUMP	M-207-2	AB	570	005	S/R	N/A	ON	ON	YES	E-196 SH.8	EA-12;EC-01;EC-11;EC-13;EC-187;EJ-1005;EJ-1006;EJ-1052
193	RCPC	1	18	PC/0216B	CHARG P P-55B LO-LUBE OIL PRESS SW	M-202-1B	AB	590	104A	R	3	CLOSED	CLOSED	NO	E-257 SH.1	EC-12,EC-13
194	RCPC	2	18	PC/0216C	CHARG P P-55C LO-LUBE OIL PRESS SW	M-202-1B	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-257 SH.1	EC-12,EC-13
195	RCPC	1	18	PC/0218B	P-55B LOW SUCT. PRESS. SWITCH	M-202-1B	AB	590	104A	R	3	CLOSED	CLOSED	NO	E-257 SH.1,2	EC-12;EC-13
196	RCPC	2	18	PC/0218C	LOW SUCTION PRESSURE SWITCH	M-202-1B	AB	590	104B	R	3	CLOSED	CLOSED	NO	E-257 SH.2	EC-12;EC-13
197	HVAC	2	0	PO-1711	MODULATING DAMP. D-20	M-218-6A	AB	625	300	S/R	N/A	OPEN	OPEN	NO	E-271 SH.19	EB-25;EJ-1001
198	HVAC	1	0	PO-1712	MODULATING DAMP. D-21	M-218-6A	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	E-271 SH.19	EB-26;EJ-1000
199	HVAC	2	0	PO-1745	OUTSIDE AIR DAMP. D-7	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-25;EC-186A;EJ-1001
200	HVAC	1	0	PO-1746	OUTSIDE AIR DAMP. D-14	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-26;EC-186B;EJ-1000
201	HVAC	2	18	POS-1711	MODULATING DAMP. D-20	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	E-271-3,4,5	EB-25;EC-11A;EC-186A;EJ-1001
202	HVAC	1	18	POS-1712	MODULATING DAMP. D-21	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	E-271 SH.3,4,5	EB-26;EC-11A;EC-186B;EJ-1000
203	HVAC	2	18	POS-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S/R	N/A	OPEN	CLOSED	YES	E-271-3,4,5	EB-25;EC-11A;EC-186A;EJ-1001
204	HVAC	1	18	POS-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S/R	N/A	OPEN	CLOSED	YES	E-271 SH.3,4,5	EB-26;EC-11A;EC-186B;EJ-1000
205	HVAC	2	18	POS-1745	OUTSIDE AIR DAMP. D-7	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-25;EC-186A;EJ-1001
206	HVAC	1	18	POS-1746	OUTSIDE AIR DAMP. D-14	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-26;EC-186B;EJ-1000
207	HVAC	1	18	POS-1758	D-94 DAMPER D-16	M-218-6	AB	625	300B	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.12	EC-186B;EJ-1000
208	RCPC	1	8	PRV-1042B	POWER OPERATION RELIEF	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.1	EC-02;EC-12
209	RCPC	2	8	PRV-1042B	POWER OPERATED RELIEF	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-256 SH.1	ED-11;EC-02;EC-12
210	RCPC	1	8	PRV-1043B	POWER OPERATED RELIEF	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-256 SH.1A	ED-21;EC-02;EC-12
211	RCPC	2	8	PRV-1043B	POWER OPERATED RELIEF	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.1A	EC-02;EC-12
212	RCPC	1	8	PRV-1067	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
213	RCPC	2	8	PRV-1067	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
214	RCPC	1	8	PRV-1068	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
215	RCPC	2	8	PRV-1068	REACTOR HEAD VENT POWER OP.	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
216	RCPC	1	8	PRV-1069	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knotwerus	Don E Knotwerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
217	RCPC	2	8	PRV-1069	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
218	RCPC	1	8	PRV-1070	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
219	RCPC	2	8	PRV-1070	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
220	RCPC	1	8	PRV-1072	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
221	RCPC	2	8	PRV-1072	PRESS. VENT	M-201-2	RB	649	424	R	3	CLOSED	CLOSED	NO	E-256 SH.4	EC-11A
222	DHR	1	18	PS-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0779A
223	DHR	2	18	PS-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-11;SV-0779A
224	DHR	1	18	PS-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-21;SV-0780A
225	DHR	2	18	PS-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0780A
226	DHR	1	18	PS-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0781A
227	DHR	2	18	PS-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-11;SV-0781A
228	DHR	1	18	PS-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-21;SV-0782A
229	DHR	2	18	PS-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0782A
230	EPD	2	18	PS-1476	K-6A LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116	S/R	N/A	OPEN	OPEN	NO	M-12(1)	K-6A
231	EPD	1	18	PS-1486	K-6B LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116B	S/R	N/A	OPEN	OPEN	NO	M-12 SH.105(1)	K-6B
232	EPD	2	18	PS-1496	K-6A LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116	S/R	N/A	OPEN	OPEN	NO	N/A	N/A
233	EPD	1	18	PS-1497	K-6B LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116B	S/R	N/A	OPEN	OPEN	NO	M-12 SH.105(1)	K-6B
234	HVAC	2	18	PS-1675	VC-11 SUCTION PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
235	HVAC	1	18	PS-1676	VC-10 SUCTION PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
236	HVAC	2	18	PS-1677	VC-11 DISC. PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
237	HVAC	1	18	PS-1678	VC-10 DISC. PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
238	HVAC	2	18	PS-1687	VC-11 COMPRESSOR OIL PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
239	HVAC	1	18	PS-1688	VC-10 COMPRESSOR OIL PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
240	HVAC	2	18	PS-1699	VC-11 PUMP DOWN	M-218-7	AB	625	300	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1089;EJ-1127
241	HVAC	1	18	PS-1700	VC-10 PUMP DOWN CYCLE	M-218-7	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1088;EJ-1126
242	RCPC	2	18	PT-0105A	PRESSURIZER WIDE RANGE PRESS.	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-84 SH.6	EY-30;EC-12
243	RCPC	1	18	PT-0105B	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-84 SH.6A	EY-40;EC-12
244	DHR	2	18	PT-0741A	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
245	DHR	2	18	PT-0741B	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
246	DHR	2	18	PT-0741DD	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
247	DHR	2	18	PT-0751C	E50A LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-30

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knothnerus	Don E Knothnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
248	DHR	1	18	PT-0751D	E50A LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-40
249	DHR	2	18	PT-0752C	E-50B LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-30
250	DHR	1	18	PT-0752D	E-50B LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-40
251	DHR	1	18	PT-0762A	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
252	DHR	1	18	PT-0762B	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
253	DHR	1	18	PT-0762C	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
254	DHR	1	18	PT-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	N/A	N/A	NO	E-270 SH.9	EC-189A
255	DHR	2	18	PT-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	R	3	N/A	N/A	NO	E-270 SH.9	EC-189A
256	DHR	1	18	PT-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	N/A	N/A	NO	E-270 SH.9	EC-189B
257	DHR	2	18	PT-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	R	3	N/A	N/A	NO	E-270 SH.9	EC-189B
258	RCPC	1	8	SV-0148	QUENCH TANK DRAIN	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
259	RCPC	2	8	SV-0148	QUENCH TANK DRAIN	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
260	RCPC	1	8	SV-0150	QUENCH TANK NITRO ISOL.	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
261	RCPC	2	8	SV-0150	QUENCH TANK NITRO ISOL.	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
262	RCPC	1	8	SV-0152	QUENCH TANK VENT	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
263	RCPC	2	8	SV-0152	QUENCH TANK VENT	M-201-2	RB	607	237	R	3	VENT	VENT	NO	E-234 SH.2	EC-02
264	RCPC	1	8	SV-0155	QUENCH TANK SPRAY	M-201-2	AB	607	150	R	3	VENT	VENT	NO	E-235 SH.2	EC-02;EJ-541
265	RCPC	2	8	SV-0155	QUENCH TANK SPRAY	M-201-2	AB	602	150	R	3	VENT	VENT	NO	E-235 SH.2	EC-02;EJ-541
266	RCPC	1	8	SV-0338	T-82D PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
267	RCPC	2	8	SV-0338	T-82D PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
268	RCPC	1	8	SV-0342	T-82A PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
269	RCPC	2	8	SV-0342	T-82A PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
270	RCPC	1	8	SV-0346	T-82B PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
271	RCPC	2	8	SV-0346	T-82B PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
272	RCPC	1	8	SV-0347	T-82C PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
273	RCPC	2	8	SV-0347	T-82C PRESS. CONTROL	M-203-1	RB	590	144	R	3	VENT	VENT	NO	E-245 SH.3	EC-03;EC-12;EC-13
274	DHR	1	8	SV-0502	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
275	DHR	2	8	SV-0502	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus		5/3/95	Dale E. Engle		5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
276	DHR	1	8	SV-0505A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
277	DHR	2	8	SV-0505A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
278	DHR	1	8	SV-0505B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
279	DHR	2	8	SV-0505B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
280	DHR	1	8	SV-0507A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
281	DHR	2	8	SV-0507A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
282	DHR	1	8	SV-0507B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-180
283	DHR	2	8	SV-0507B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
284	DHR	1	8	SV-0508	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
285	DHR	2	8	SV-0508	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181
286	DHR	1	8	SV-0513	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
287	DHR	2	8	SV-0513	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	R	3	OPEN	OPEN	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181
288	DHR	1	8	SV-0514	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
289	DHR	2	8	SV-0514	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	R	3	CLOSED	CLOSED	NO	E-238 SH.1,1A	EC-01;EC-13;EC-181
290	DHR	1	8	SV-0522A	STEAM SUPPLY FROM E-50B	M-205-2	AB	607	238	R	3	VENT	VENT	NO	E-238 SH.4	EC-01
291	DHR	2	8	SV-0522A	STEAM SUPPLY FROM E-50B	M-205-2	AB	607	238	R	3	VENT	VENT	NO	E-238 SH.4	EC-01
292	DHR	1	8	SV-0522B	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	VENT	VENT	NO	E-238 SH.4A	EC-01;EJ-1005
293	DHR	2	8	SV-0522B	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	VENT	VENT	NO	E-238 SH.4A	EC-01;EJ-1005
294	DHR	1	8	SV-0522C	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	AIR	AIR	NO	E-238 SH.12	EC-150
295	DHR	2	8	SV-0522C	STEAM SUPPLY E-50A	M-205-2	TB	590	134	R	3	AIR	AIR	NO	E-238 SH.12	EC-150
296	DHR	1	8	SV-0738	S/G E-50B RECIRCULATION	M-226-1	AB	607	238	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-541
297	DHR	2	8	SV-0738	S/G E-50B RECIRCULATION	M-226-1	AB	607	238	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-541
298	DHR	1	8	SV-0739	S/G E-50A RECIRCULATION	M-226-1	AB	590	123	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-540
299	DHR	2	8	SV-0739	S/G E-50A RECIRCULATION	M-226-1	AB	590	123	R	3	VENT	VENT	NO	E-235 SH.3,3B	EC-11;EC-13;EJ-540
300	DHR	1	8	SV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
301	DHR	2	8	SV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
302	DHR	1	8	SV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
303	DHR	2	8	SV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
304	DHR	1	8	SV-0779A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0779
305	DHR	2	8	SV-0779A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-11;PS-0779
306	DHR	1	8	SV-0779B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

Func No.	No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
307	DHR	2	8	SV-0779B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
308	DHR	1	8	SV-0779C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
309	DHR	2	8	SV-0779C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
310	DHR	1	8	SV-0780A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-21;PS-0780
311	DHR	2	8	SV-0780A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0780
312	DHR	1	8	SV-0780B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-21
313	DHR	2	8	SV-0780B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
314	DHR	1	8	SV-0780C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-21
315	DHR	2	8	SV-0780C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
316	DHR	1	8	SV-0781A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0781
317	DHR	2	8	SV-0781A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-11;PS-0781
318	DHR	1	8	SV-0781B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH1A,2	EC-04;EC-12;EC-182
319	DHR	2	8	SV-0781B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
320	DHR	1	8	SV-0781C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	E-238 SH1A,2	EC-04;EC-12;EC-182
321	DHR	2	8	SV-0781C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
322	DHR	1	8	SV-0782A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-21;PS-0782
323	DHR	2	8	SV-0782A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0782
324	DHR	1	8	SV-0782B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A2	EC-04;EC-12;EC-182;ED-21
325	DHR	2	8	SV-0782B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	OPEN	OPEN	NO	E-238 SH.1A,2	EC-04;EC-12;EC-182
326	DHR	1	8	SV-0782C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	M-238 SH.1A,2	EC-04;EC-12;EC-182;ED-21
327	DHR	2	8	SV-0782C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	R	3	CLOSED	CLOSED	NO	M-238 SH.1A,2	EC-04;EC-12;EC-182
328	DHR	1	8	SV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S/R	N/A	AIR	VENT	NO	E-219 SH.1	EC-08;EC-13
329	DHR	2	8	SV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S/R	N/A	AIR	VENT	NO	E-219 SH.1	EC-08;EC-13
330	DHR	1	8	SV-0844	HEADER "B" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
331	DHR	2	8	SV-0844	HEADER "B" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
332	DHR	1	8	SV-0845	HEADER "A" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
333	DHR	2	8	SV-0845	HEADER "A" ISOLATION	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
334	DHR	1	8	SV-0846	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
335	DHR	2	8	SV-0846	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
336	DHR	1	8	SV-0847	AIR COOLER SWS SUPPLY	M-208-1B	AB	607	238	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08;EC-33
337	DHR	2	8	SV-0847	AIR COOLER SWS SUPPLY	M-208-1B	AB	607	238	S/R	N/A	VENT	AIR	YES	E-219 SH.1,2	EC-08;EC-33;ED-11

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E. Knottnerus	Don E. Knottnerus	5/3/95	Dale E. Engle	Dale E. Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
338	DHR	1	8	SV-0857	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
339	DHR	2	8	SV-0857	A&B HEADER CROSSTIE	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
340	DHR	1	8	SV-0876	D/G 1-2 VC-10 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
341	DHR	2	8	SV-0876	D/G 1-2 VC-10 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
342	DHR	1	8	SV-0877	D/G 1-1 VC-11 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
343	DHR	2	8	SV-0877	D/G 1-1 VC-11 COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1,2	EC-08
344	DHR	1	8	SV-0879	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
345	DHR	2	8	SV-0879	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
346	DHR	1	8	SV-0880	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
347	DHR	2	8	SV-0880	ESS PUMP SEAL COOLING	M-208-1A	AB	590	123	R	3	VENT	VENT	NO	E-219 SH.1	EC-08;EC-33
348	DHR	1	8	SV-0884A	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
349	DHR	2	8	SV-0884A	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
350	DHR	1	8	SV-0884B	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
351	DHR	2	8	SV-0884B	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
352	DHR	1	8	SV-0885A	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
353	DHR	2	8	SV-0885A	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
354	DHR	1	8	SV-0885B	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
355	DHR	2	8	SV-0885B	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
356	DHR	1	8	SV-0951	COOLING SWS RETURN	M-209-2	AB	570	005	R	3	VENT	VENT	NO	E-239 SH.1,3	EC-08;EC-33
357	DHR	2	8	SV-0951	COOLING SWS RETURN	M-209-2	AB	570	005	R	3	VENT	VENT	NO	E-239 SH.1,3	EC-08;EC-33
358	DHR	1	8	SV-1318	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08
359	DHR	2	8	SV-1318	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08
360	DHR	1	8	SV-1319	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08
361	DHR	2	8	SV-1319	SERVICE WATER ISOLATION	M-213	TB	590	136	R	3	VENT	VENT	NO	E-219 SH.1	EC-08
362	DHR	1	8	SV-1359	SERVICE WATER ISOLATION	M-213	TB	590	136	S/R	N/A	AIR	VENT	NO	E-219 SH.1,3	EC-08;EC-12;EC-13
363	DHR	2	8	SV-1359	SERVICE WATER ISOLATION	M-213	TB	590	136	S/R	N/A	AIR	VENT	NO	E-219 SH.1,3	EC-08;EC-12;EC-13
364	DHR	1	8	SV-1414	DISCHARGE TO P-9B DAY TANK	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-178 SH.3	EJ-43
365	DHR	2	8	SV-1414	DISCHARGE TO P-9B DAY TANK	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-178 SH.3	EJ-43
366	EPD	1	8	SV-1415	DG-1/1 TO T-25A INLET	M-214-1	AB	590	116	R	3	CLOSED	CLOSED	NO	E-140; E-178-4	EG-21;EJ-246
367	EPD	2	8	SV-1415	DG-1/1 TO T-25A INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; E-178-4	EB-01;EG-21;EJ-246
368	EPD	1	8	SV-1452	DG-1/2 TO T-25B INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; E-178-4	EB-02;EG-31;EJ-245

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTHERUS	Don E Knothers	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
369	EPD	2	8	SV-1452	DG-1/2 TO T-25B INLET	M-214-1	AB	590	116B	R	3	CLOSED	CLOSED	NO	E-140; E-178-4	EG-31;EJ-245
370	EPD	2	8	SV-1470	DC-1/1 TO DAY INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-97	EB-01;EG-21
371	EPD	1	8	SV-1471	DG-1/2 FUEL OIL INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-104	EB-02;EG-31
372	EPD	2	8	SV-1479	STARTING AIR MOTOR INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.98	ED-11A;EG-20
373	EPD	2	8	SV-1480	STARTING AIR MOTOR INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.98	ED-11A;EG-20
374	EPD	1	8	SV-1489	STARTING AIR MOTOR INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.105	ED-21A;EG-30
375	EPD	1	8	SV-1490	STARTING AIR MOTOR INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.105	ED-21A;EG-30
376	HVAC	2	8	SV-1651	VDX-95 BLOCK	M-218-7	AB	625	300	R	3	OPEN	OPEN	NO	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093
377	HVAC	1	8	SV-1652	VDX-96 BLOCK	M-218-7	AB	625	300A	R	3	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092
378	HVAC	2	8	SV-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S/R	N/A	AIR	VENT	NO	E-270 SH.4,4A	EC-11A;EC-186A;EJ-1001
379	HVAC	1	8	SV-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S/R	N/A	AIR	VENT	NO	E-270 SH.4,4A	EC-11A;EC-186B;EJ-1000
380	HVAC	2	8	SV-1663	V-95 DAMPER D-3	M-218-6	AB	625	300	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186A;EJ-1001
381	HVAC	1	8	SV-1664	V-96 DAMPER D-10	M-218-6	AB	625	300A	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186B;EJ-1000
382	HVAC	2	8	SV-1675A	VC-11 CONDENSING UNIT	M-218-7	AB	625	300	S/R	N/A	CLOSED	OP/CL	YES	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093;EY-10
383	HVAC	2	8	SV-1675B	VC-11 CONDENSING UNIT	M-218-7	AB	625	300	S/R	N/A	CLOSED	OP/CL	YES	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093;EY-10
384	HVAC	1	8	SV-1676A	VC-10 CONDENSING UNIT	M-218-7	AB	625	300A	S/R	N/A	CLOSED	OP/CL	YES	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092;EY-20
385	HVAC	1	8	SV-1676B	VC-10 CONDENSING UNIT	M-218-7	AB	625	300A	S/R	N/A	CLOSED	OP/CL	YES	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092;EY-20
386	HVAC	2	8	SV-1697	VC-11 HOT GAS BYPASS	M-218-7	AB	625	300	R	3	OPEN	OPEN	NO	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093
387	HVAC	1	8	SV-1698	VC-10 HOT GAS BYPASS	M-218-7	AB	625	300A	R	3	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092
388	HVAC	2	8	SV-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S/R	N/A	AIR	VENT	NO	E-271-5	EC-186A;EJ-1001
389	HVAC	1	8	SV-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S/R	N/A	AIR	VENT	NO	E-271 SH.5	EC-186B;EJ-1000
390	HVAC	1	8	SV-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186B;EJ-1000
391	HVAC	2	8	SV-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	R	3	VENT	VENT	NO	E-271 SH.12	EC-11A;EC-186A;EJ-1001
392	RCPC	1	8	SV-1901	VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
393	RCPC	2	8	SV-1901	VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
394	RCPC	1	8	SV-1902	LIQUID PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
395	RCPC	2	8	SV-1902	LIQUID PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knuttnerus	Don E Knuttnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
396	RCPC	1	8	SV-1903	HOT LEG SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
397	RCPC	2	8	SV-1903	HOT LEG SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
398	RCPC	1	8	SV-1904	QUENCH TANK VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
399	RCPC	2	8	SV-1904	QUENCH TANK VAPOR PHASE SAMPLE	M-219-1B	RB	607	800	R	3	VENT	VENT	NO	E-230	EC-32;EC-168
400	RCPC	1	8	SV-2002A	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
401	RCPC	2	8	SV-2002A	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
402	RCPC	1	8	SV-2002B	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
403	RCPC	2	8	SV-2002B	LETDOWN BYPASS	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.3	EC-02;EC-12
404	RCPC	1	8	SV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S/R	N/A	AIR	VENT	NO	E-236 SH.1	EC-02;EC-12
405	RCPC	2	8	SV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S/R	N/A	AIR	VENT	NO	E-236 SH.1	EC-02;EC-12
406	RCPC	1	8	SV-2004	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12
407	RCPC	2	8	SV-2004	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12
408	RCPC	1	8	SV-2005	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12
409	RCPC	2	8	SV-2005	LETDOWN STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.1	EC-02;EC-12
410	RCPC	1	8	SV-2111	CHARGING LINE STOP	M-202-1B	AB	590	107A	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
411	RCPC	2	8	SV-2111	CHARGING LINE STOP VALVE	M-202-1B	AB	590	104A	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
412	RCPC	1	8	SV-2113	LOOP 1A STOP	M-202-1B	AB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
413	RCPC	2	8	SV-2113	LOOP 1-A STOP VALVE	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
414	RCPC	1	8	SV-2115	LOOP 2A STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
415	RCPC	2	8	SV-2115	LOOP 2A STOP	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
416	RCPC	1	8	SV-2117	PRESS. AUX. SPRAY	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
417	RCPC	2	8	SV-2117	PRESS. AUX. SPRAY	M-202-1B	RB	607	144	R	3	VENT	VENT	NO	E-236 SH.2	EC-02
418	RCPC	1	8	SV-2153	INLET VALVE TO BLENDER	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234 SH.1	EC-02;EC-12
419	RCPC	2	8	SV-2153	INLET VALVE TO BLENDER	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234 SH.1	EC-12;EC-02
420	RCPC	1	8	SV-2155	BORIC ACID BLENDER OUTLET	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234	EC-02;EC-13;EC-12
421	RCPC	2	8	SV-2155	BORIC ACID BLENDER OUTLET	M-202-1A	AB	590	107A	R	3	VENT	VENT	NO	E-234	EC-02;EC-13;EC-12
422	RCPC	1	8	SV-3029A	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33
423	RCPC	2	8	SV-3029A	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33
424	RCPC	1	8	SV-3029B	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
425	RCPC	2	8	SV-3029B	SUMP ISOLATION	M-204-1A	AB	570	004	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
426	RCPC	1	8	SV-3030A	SUMP ISOL.	M-204-1A	AB	570	005	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E. Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
427	RCPC	2	8	SV-3030A	SUMP ISOL.	M-204-1A	AB	570	005	R	3	AIR	AIR	NO	E-246	EC-03;EC-13;EC-33
428	RCPC	1	8	SV-3030B	SUMP ISOL.	M-204-1A	AB	570	005	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
429	RCPC	2	8	SV-3030B	SUMP ISOL.	M-204-1A	AB	570	005	R	3	VENT	VENT	NO	E-246	EC-03;EC-13;EC-33
430	RCPC	1	8	SV-3084	HPSI HOT LEG INJECTION	M-201-1	RB	607	237	R	3	VENT	VENT	NO	E-245 SH.4	EC-13
431	RCPC	2	8	SV-3084	HPSI HOT LEG INJECTION	M-201-1	RB	607	237	R	3	VENT	VENT	NO	E-245 SH.4	EC-13
432	DHR	1	8	SV-5353	T-40 DIESEL OIL TRANSFER	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-789 SH.2	EJ-214
433	DHR	2	8	SV-5353	T-40 DIESEL OIL TRANSFER	M-216-1	TB	590	136	R	3	CLOSED	CLOSED	NO	E-789 SH.2	EJ-214
434	RCPC	2	19	TE-0112CC	CHANNEL C COLD LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
435	RCPC	1	19	TE-0112CD	CHANNEL D COLD LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
436	RCPC	2	19	TE-0112HC	CHANNEL C HOT LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
437	RCPC	1	19	TE-0112HD	CHANNEL D HOT LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
438	RCPC	2	19	TE-0122CC	CHANNEL C COLD LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
439	RCPC	1	19	TE-0122CD	CHANNEL D COLD LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
440	RCPC	2	19	TE-0122HC	CHANNEL C HOT LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
441	RCPC	1	19	TE-0122HD	CHANNEL D HOT LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
442	HVAC	2	18	TS-1653	VC-11 OIL TEMP. SWITCH	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
443	HVAC	1	18	TS-1654	VC-10 OIL TEMP. SWITCH	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
444	DGV	1	18	TS-1820	V-24D TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
445	DGV	1	18	TS-1821	V-24C TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
446	DGV	1	18	TS-1822	V-24C TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
447	DGV	1	18	TS-1823	V-24D TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
448	DGV	2	18	TS-1827	V-24A TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
449	DGV	2	18	TS-1828	V-24A TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
450	DGV	2	18	TS-1843	V-24B TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
451	DGV	2	18	TS-1844	V-24B TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
452	DGV	2	9	V-24A	DG 1-1 VENT FAN	M-218-5	AB	590	116	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-25;N81
453	DGV	2	9	V-24B	DG 1-1 VENT FAN	M-218-5	AB	590	116	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-25;N69
454	DGV	1	9	V-24C	DG 1-2 VENT FAN	M-218-5	AB	590	116B	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-24;N93
455	DGV	1	9	V-24D	DG 1-2 VENT FAN	M-218-5	AB	590	116B	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-24;N61
456	HVAC	2	9	V-26A	AIR FILTER UNIT FAN	M-218-6A	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-271 SH.3,4	EB-25;EC-11A;EC-186A;EJ-1001

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E. KNOTTNERUS	D. E. Knottnerus	5/3/95	Dale E. Engle	Dale E. Engle	5/3/95

SAFE SHUTDOWN EQUIPMENT LIST (SSRL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
457	HVAC	1	9	V-26B	AIR FILTER VENT FAN	M-218-6A	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-271 SH.3,4	EB-26;EC-11A;EC-186B;EJ-1000
458	HVAC	2	9	V-95	CONTROL ROOM VENT. FAN	M-218-6	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.2,2A	EB-25;EC-11A;EC-186A;EC-188A;EJ-1001
459	HVAC	1	9	V-96	CONTROL ROOM VENT. FAN	M-218-6	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.2,2A	EB-26;EC-11A;EC-186B;EC-188B;EJ-1000
460	DHR	1	11	VC-10	CONTROL ROOM CONDENSING UNIT	M-208-1B	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.6,7	EB-26;EC-11A;EC-186B;EJ-1000;EJ-1088;EJ-1092
461	DHR	2	11	VC-11	CONTROL ROOM CONDENSING UNIT	M-208-1B	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.6,7	EB-25;EC-11A;EC-186A;EJ-1001;EJ-1089;EJ-1093
462	HVAC	2	10	VDX-95	V-95 COOLING COIL	M-218-6	AB	625	300	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1001;EJ-1089;EJ-1093
463	HVAC	1	10	VDX-96	V-96 COOLING COIL	M-218-6,7	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

DON E KNOTTNERUS — Print or type Name/Title

Signature

5/3/95 — Date

Dale E. Engle — Print or type Name/Title

Dale E Engle — Signature

5/3/95 — Date

CONSUMERS POWER

PALISADES NUCLEAR PLANT

ATTACHMENT B

RELAY LIST and SEISMIC EVALUATION TABULATION

(87 Pages)

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1	EPD	EA-12	E-247 REV 15	BKR 152-206 LPSI P-67A SELECT	1-43-206/SS	G.E. - SBM	EC-03	3
2	RCPC	P-56A	E-203 REV.18	PRI SYS MAKEUP STOP VALVE SW	1/F-0210	WESTINGHOUSE-W2	EC-02	3
3	RCPC	EU-1;EU-2	E-253 SH.1 REV 13; E-252 SH.2 REV 10	PRESSURIZER HEATERS CONRTOL SW	1/PRC-0101	G.E. - SBM 10AE451	EC-02	3
4	EPD	EA-11	E-139-1 REV 29, E-140-1 REV 17, E-209-2,2A REV 7,2; M-201-42 REV 54	BKR 152-107 CLOSE VOLT&LD SHED	106D-1	G.E. - 12HGA111J26	EC-13	4
5	EPD	EA-11	E-209-2 REV 27	SI CKT#1 SEQUENCE CNTL RLY	106D-1/XL	G.E. - 12HFA151A2H	EC-13	4
6	EPD	EA-12	E-139-1 REV 29, E-140-1 REV 17, E-209-2,2A REV 7,2; M-201-43 REV 57	BKR 152-213 LOAD SHEDDING RLY	106D-2	G.E. - 12HGA111J26	EC-13	4
7	EPD	EA-11	E-131-1 REV 19, E-131-1A REV 4, E-11 REV 21	BKR 152-105 SYNCHRONIZING SW	125-105/SS	G.E. - SBM	EC-04	3
8	EPD	EA-11	E-132-1 REV 22, E-132-1A REV 5	BKR 152-106 SYNCHRONIZING SW	125-106/SS	G.E. - SBM	EC-04	3
9	EPD	EA-11	E-14 REV 15, E-139-1 REV 29, M-201-63 REV 33	BKR 152-107 SYNCH SELECTOR SW	125-107/SS	G.E. - SBM10AA024	EC-04	3
10	EPD	EA-12	E-132 S.1 REV.22;E-132 SH.1A REV.5	SELECTOR SWITCH	125-202/SS	G.E. - SBM	EC-04	3
11	EPD	EA-12	E-131 SH.1 REV.19;E-131 SH.1A REV. 4	INCOMMING BRK SYNC SW	125-203/SS	G.E. - SBM	EC-04	3
12	EPD	EA-12	E-14 REV 15, E-139-1 REV 29, M-201-62 REV 34	BKR 152-213 SYNCH SELECTOR SW	125-213/SS	G.E. - SBM10AA024	EC-04	3
13	EPD	EA-11	E-131 SH.1 REV 22;SH.1A REV 5;E-136 SH1A REV 4,E-137 SH1 REV 23, SH2A REV 5	BKR 152-106 U.V. AUX RELAY	127-1-X1	G.E. - 12HFA151A42H	EJ-9400	4
14	EPD	EA-11	E-131 SH.1 REV 19,SH.1A REV 4,E-137 SH.1 REV 23,SH.2A REV 5	BKR 152-105 BUS U.V. AUX RELAY	127-1-X2	G.E. - 12HFA151A42H	EJ-9400	4
15	EPD	EA-11	E-137 SH1 REV 23,SH1A REV 8,E-11 REV21	EA-11 UNDERVOLTAGE RELAYS	127-1/XY,YZ & ZX	G.E. - IAV54E	EA-11	4
16	EPD	EA-12	E-137 SH.1 REV.8	BUS 1D UV AUX RELAY	127-2-X1	G.E. - 12HFA151A42H	1D SW GR	4
17	EPD	EA-12	E-131 SH.1 REV.19;E-131 SH.1A REV. 4	1D UV AUX RELAY	127-2-X2	G.E. - 12HFA151A42H	1D SW GR	4
18	EPD	EA-11	E-136 SH.1 REV 27,E-11 REV 21	EA-11 UNDERVOLTAGE RELAYS	127-5/XY, YX & ZX	G.E. - NGV13A	EA-11	4
19	EPD	EA-12	E-136 SH.1 REV.27;E-5 SH.55 REV. 4;VEN E-5 SH.35	STARTUP XFMR UV RELAY	127-6XY,6YZ,6ZX	G.E. - 12NGV13A11A	1D SW GR	1

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
20	EPD	EA-11	E-137 SH.1 REV 23,SH.2B REV 4	EA-11 UNDERVOLTAGE AUX RELAY	127-7-X1	G.E. - HFA151	EJ-9400	4
21	EPD	EA-11	E-137 SH. REV 23,SH.2B REV 4;E-11 REV 21	EA-11 UNDERVOLTAGE RELAYS	127-7/XY,YZ &ZX	ITE 27N	EJ-9400	4
22	EPD	K-6A	E-140-1 REV 17, E-209-2 REV 27, M-12-94 REV 9	K-6A UNDERVOLT. RLY(AUTOCLOSE)	127D-1	WESTING. TYPE SV, STY 1876094	EC-22	6A
23	EPD	K-6B	E-14 REV 15, E-209-2 REV 27, M-12-101 REV 10	K-6B UNDER VOLT RLY(AUTOCLOSE)	127D-2	WESTING. STY 1876094, TYPE SV	EC-26	6A
24	EPD	EA-11	E-154-1 REV 18, E-137-1,2 REV 23,17; E-248 REV 14, E-295-1,1A REV 17,6	BUS 1C & BUS 11 UV & LOAD SHED	127X-11	G.E. - 12HFA151A42F	EA-11	1
25	EPD	EA-12	E-154 SH.1 REV.18, E-154-2 REV 13, E-247 REV 15, E-259-1 REV 17	BUS 1D & 12 UV LOAD SHED RELAY	127X-21	G.E. - 12HFA151A42F	EA-12	4
26	EPD	EA-11	E-137 SH. REV 22,SH.1A REV 5;E-136 SH.1 REV 27, SH.2 REV 26	BKR 152-106 START TRANS 1-2 UV	127X-5	WESTINGHOUSE-WL-793A221G01	EC-04	4
27	EPD	EA-12	E-132 SH.1 REV.22;E-132 SH.1A REV. 5;E-136 SH.1 REV.27	UV AUX LOCKOUT RELAY	127X-6/C1-2	WESTINGHOUSE-WL	EC-04	4
28	EPD	EA-12	E-132 SH.1 REV.22;E-132 SH.1A REV. 5;E-136 SH.1 REV.27	UV AUX LOCKOUT RELAY	127X-6/C3-4	WESTINGHOUSE-WL	EC-04	4
29	EPD	EA-11	E-248 REV 14	BKR 152-111 SELECTOR SWITCH	143-111/SS	G.E. - CR2940 UN200F	EC-03	3
30	EPD	EA-11	E-154-1 REV 18, E-154-2A REV 3	BKR 152-103 STANDBY SETUP RLY	144-103	G.E. - 12HFA154E22F	EA-11	1
31	EPD	EA-11	E-259-1 REV 17, E-259-1A REV 6	BKR 152-109 STANDBY CNTL RELAY	144-109	G.E. - 12HFA154E187F	EA-11	1
32	EPD	EA-11	E-248 REV 14	BKR 152-111	144-111	G.E. - 12HFA154E	EA-11	1
33	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-112 CONTROL RELAY	144-112	G.E. - 12HFA154	EC-13	4
34	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-114 CONTROL RELAY	144-114	G.E. - 12HFA154	EA-11	1
35	EPD	EA-11	E-259-1 REV 17, E-259-1A REV 6	BKR 152-116 STANDBY CNTL RLY	144-116	G.E. - 12HFA154	EA-11	1
36	EPD	EA-12	E-154 SH.1 REV.18	P-7A STANDBY SET-UP RELAY	144-204	G.E. - 12HFA154E187F	EA-12	1
37	DHR	P-7C	E-154 SH.2 REV.13	SWS PP P-7C STANDBY SET-UP SW	144-205	G.E. - 12HFA154E187F	1D SW GR	1
38	EPD	EA-12	E-247 REV.15	LP SIS PP P-67A RELAY	144-206	G.E. - 12HFA154E187F	1D SW GR	4

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
39	EPD	EA-12	E-259-1 REV 17	BKR 152-208 P-52B CONTROL RLY	144-208	G.E. - 12HFA54E187F	EA-12	1
40	EPD	EA-12	E-251-1 REV 14	BKR 152-210 P-54A CONT RELAY	144-210	G.E. - 12HFA154E187F	EA-12	1
41	EPD	EA-11	E-130-3 REV 6, E-151 REV 16	BKR 152-102 P-40A OVERCUR RLY	150/151-102 X,Y,Z	G.E. - 12IAC66K19A	EA-11	1
42	EPD	EA-11	E-130-2 REV 4	BKR 152-103 OVERCURRENT RELAY	150/151-103 X,Y,Z	G.E. - 12IAC66K	EA-11	1
43	EPD	EA-11	E-130-2 REV 4	BKR 152-104 OVERCURRENT RELAY	150/151-104 X,Y,Z	G.E. - 12IAC66K	EA-11	1
44	EPD	EA-11	E-130-3 REV 6	BKR 152-108 SYD AUX O.C. RELAY	150/151-108 X,Y,Z	G.E. - 12IAC53B	EA-11	1
45	EPD	EA-11	E-130-2 REV 4	BKR 152-109 OVERCURRENT RELAY	150/151-109 X,Y,Z	G.E. - 12IAC66K19A	EA-11	1
46	EPD	EA-11	E-130-3 REV 6	BKR 152-110 TRANS13 OVERCUR RY	150/151-110 X,Y,Z	G.E. - 12IAC53B	EA-11	1
47	EPD	EA-11	E-130-2 REV 4	BKR 152-111 OVERCURRENT RELAY	150/151-111 X,Y,Z	G.E. - 12IAC66K	EA-11	1
48	EPD	EA-11	E-130-2 REV 4	BKR 152-112 OVERCURRENT RELAY	150/151-112 X,Y,Z	G.E. - 12IAC66K	EA-11	1
49	EPD	EA-11	E-130-2 REV 4	BKR 152-113 OVERCURRENT RELAY	150/151-113 X,Y,Z	G.E. - 12IAC66K	EA-11	1
50	EPD	EA-11	E-130-2 REV 4	BKR 152-114 OVERCURRENT RELAY	150/151-114 X,Y,Z	G.E. - 12IAC66K	EA-11	1
51	EPD	EA-11	E-130-3 REV 6	BKR 152-115 XFORM#11 O.C. RLY	150/151-115 X,Y,Z	G.E. - 12IAC53B	EA-11	1
52	EPD	EA-11	E-130-2 REV 4	BKR 152-116 OVERCURRENT RELAY	150/151-116 X,Y,Z	G.E. - 12IAC66K	EA-11	1
53	EPD	EA-12	E-130 SH.3 REV.6	EX-12 OVERCURRENT RELAY	150/151-201 X,Y,Z	G.E. - 12IAC53B104A	1D SW GR	1
54	EPD	EA-12	E-130 SH.2 REV.4&SH.3 REV.6&SH.4 REV.3&SH.5 REV.6	OVERCURRENT RELAY	150/151-204 X,Y,Z	G.E. - 12IAC66K	1D SW GR	1
55	EPD	EA-12	E-130 SH.2 REV.4&SH.3 REV.6&SH.4 REV.3&SH.5 REV.6	SER WTR PP P-7C OC RELAY	150/151-205	G.E. - 12IAC66K	1D SW GR	1
56	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4 REV 3	BKR 152-206 LPSI P-67A O.C. RY	150/151-206 X,Y,Z	G.E. - 12IAC66K	EA-12	1
57	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4,5 REV 3,6	BKR 152-207 HPSI P-66A O.C. RY	150/151-207 X,Y,Z	G.E. - 12IAC66K	EA-12	1

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
58	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4,5 REV 3,6	BKR 152-208 P-52B OVERCUR RLY	150/151-208 X,Y,Z	G.E. - 12IAC66K	EA-12	1
59	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4,5 REV 3,6	BKR 152-208 P-8C OVERCUR RLY	150/151-209 X,Y,Z	G.E. - 12IAC66K	EA-12	1
60	EPD	EA-12	E-130-2 REV 6, E-130-4 REV 3, E-130-5 REV 6	BKR 152-210 P-54A OVERCUR RLY	150/151-210 X,Y,Z	G.E. - 12IAC66K	EA-12	1
61	EPD	EA-12	E-130-4 REV 3	BKR 152-211 PR HTR XFORM16 OC	150/151-211 X,Y,Z	G.E. - 12IAC53B	EA-12	1
62	EPD	EA-11	E-130-3 REV 6	BKR 152-102 PRES HTR#15 OC RLY	150A/151A-102X,Y,Z	G.E. - 12IAC53B104A	EA-11	1
63	EPD	EA-11	E-130-3 REV 6	BKR 152-110 TRANS77 OVERCUR RY	150A/151A-110X,Y,Z	G.E. - 12IAC53B	EA-11	1
64	EPD	EA-11	E-130-3 REV 6	BKR 152-115 XFORM#19 O.C. RLY	150A/151A-115X,Y,Z	G.E. - 12IFC53B	EA-11	1
65	EPD	EA-12	E-130 SH.3 REV.6	EX-20 OVERCURRENT RELAY	150B/151B-201X,Y,Z	G.E. - 121FC53BD1A	EA-12	1
66	EPD	EA-11	E-129 SH.1 REV 10, SH.1A REV 4;E-5 SH.100 REV 1 PG 187; E-11 REV 21	BKR 152-105 OVERCURRENT RELAY	151-105 X,Y,Z	G.E. - 12IAC53A	EA-11	1
67	EPD	EA-11	E-129 SH.1A REV 4, SH.1B REV 3;E-11 REV 21; E-5 SH.100 REV 1 PG 187	BKR 152-106 OVERCURRENT RELAY	151-106 X,Y,Z	G.E. - IAC53A	EA-11	1
68	EPD	EA-11	E-130-5 REV 6, E-139-1 REV 29	BKR 152-107 OVERCURRENT RELAY	151-107 X,Y,Z	G.E. - IAC53A	EA-11	1
69	EPD	EA-12	E-129 SH.1 REV.10;E-129 SH.1A REV. 4	1D STARTUP FEEDER OVERCURRENT	151-202 X,Y,Z	G.E. - IAC53A	EA-12	1
70	EPD	EA-12	E-129 SH.1 REV.10	1D INCOMMING BRK	151-203 X,Y,Z	G.E. - 12IAC53A101A	EA-12	1
71	EPD	EA-12	E-130-5 REV 6, E-139-1 REV 29	BKR 152-213 OVERCURRENT RELAY	151-213 X,Y,Z	G.E. - IAC53A	EA-12	1
72	EPD	EA-11	E-130-2 REV 4, E-292	BKR 152-102 AUXILIARY RELAY	151X-102	G.E. - 12HGA11A52	EA-11	2
73	EPD	EA-11	E-130-2 REV 4, E-292	BKR 152-103 AUXILIARY RELAY	151X-103	G.E. - 12HGA11A52	EA-11	2
74	EPD	EA-11	E-130-2 REV 4, E-292	BKR 152-104 AUXILIARY RELAY	151X-104	G.E. - 12HGA11A52	EA-11	2
75	EPD	EA-11	E-129-1 REV 10, E-129-1A REV 4, E-132-1 REV 22, E-132-1A REV 5	BRK 152-105 & 152-106 AUX RLY	151X-105	WESTINGHOUSE-WL	EA-11	4
76	EPD	EA-11	E-130-2 REV 4	BKR 152-109 AUXILIARY RELAY	151X-109	G.E. - HGA11A52F	EA-11	2

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
77	EPD	EA-11	E-130-2 REV 4	BKR 152-111 AUXILIARY RELAY	151X-111	G.E. - HGA11A52F	EA-11	2
78	EPD	EA-11	E-130-2 REV 4	BKR 152-112 AUXILIARY RELAY	151X-112	G.E. - 12HGA11A52	EA-11	2
79	EPD	EA-11	E-130-2 REV 4	BKR 152-113 AUXILIARY RELAY	151X-113	G.E. - 12HGA	EA-11	2
80	EPD	EA-11	E-130-2 REV 4	BKR 152-114 AUXILIARY RELAY	151X-114	G.E. - HGA	EA-11	2
81	EPD	EA-11	E-130-2 REV 4	BKR 152-116 AUXILIARY RELAY	151X-116	G.E. - 12HGA111	EA-11	2
82	EPD	EA-12	E-129 SH.1 REV.10;E-129 SH.1A REV. 4	BRK 152-203 AUX RELAY	151X-203	ALLIS CHALMERS 210	EA-12	2
83	EPD	EA-12	E-130 SH.4 REV.3	BKR 152-204	151X-204	G.E. - 12HGA11A52F	EA-12	2
84	EPD	EA-12	E-130 SH.4 REV.3	BRK 152-205 AUX RELAY	151X-205	G.E. - 12HGA11A52F	EA-12	2
85	EPD	EA-12	E-130-4 REV 3	BKR 152-206 AUXILIARY RELAY	151X-206	G.E. - 12HGA11A52F	EA-12	2
86	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4,5 REV 3,6	BKR 152-207 AUXILIARY RELAY	151X-207	G.E. - 12HGA11A52F	EA-12	2
87	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4,5 REV 3,6	BKR 152-208 AUXILIARY RELAY	151X-208	G.E. - 12HGA11A52F	EA-12	2
88	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4,5 REV 3,6	BKR 152-209 AUXILIARY RELAY	151X-209	G.E. - 12HGA11A52F	EA-12	2
89	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4,5 REV 3,6	BKR 152-210 AUXILIARY RELAY	151X-210	G.E. - 12HGA11A52F	EA-12	2
90	EPD	EA-12	E-253-1, E-253-1A	BKR 152-211 O.C. LOCKOUT RLY	151X-211WL	ALLIS CHALMERS 210	EA-12	3
91	EPD	EA-11	E-253-1 REV 15	PRES HTR XFORM#15 RLY	151X-305/WL	ALLIS CHALMERS 210	EA-13	3
92	EPD	EA-11	E-3-1 REV 34, E-130-1,2 REV 13,4; E-151 REV 16	P-40A DILUTION WATER PUMP	152-102	ALLIS CHALMERS MA-250B	EA-11	5A
93	EPD	EA-11	E-151 REV 16	BKR 152-102 CONTROL SWITCH	152-102/CS	G.E. - SBM	EC-126	3
94	EPD	EA-11	E-130-1 REV 13	BKR 152-102 LOCAL HANDSWITCH	152-102/CS-L	ALLIS CHALMERS 210	EA-11	3
95	EPD	EA-11	E-3-1 REV 34, E-130-1,2 REV 13,4; E-154-1 REV 18	P-7B SERVICE WATER PUMP	152-103	ALLIS CHALMERS MA-250B	EA-11	3
96	EPD	EA-11	E-154-1 REV 18	BKR 152-103 CONTROL SWITCH	152-103/CS	G.E. - SBM	EC-08	3

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
97	EPD	EA-11	E-130-1 REV 13	BKR 152-103 LOCAL HANDSWITCH	152-103/CS-L	ALLIS CHALMERS 210	EA-11	3
98	EPD	EA-11	E-130-1 REV 13, E-130-2 REV 4, E-196-1 REV 12	P-8A AUX FEEDWATER PUMP	152-104	ALLIS CHALMERS MA-250B	EA-11	3
99	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-3 REV 3, E-196-5 REV 6	BKR 152-104 CONTROL SWITCH	152-104/CS	G.E. - SBM	EC-01	3
100	EPD	EA-11	E-130-1 REV 13, E-130-1A REV 0	BKR 152-104 LOCAL HANDSWITCH	152-104/CS-L	SYTEK 210	EA-11	3
101	EPD	EA-11	E-129-1 REV 10, E-129-1A REV 4, E-131-1 REV 19	EA-11 STA PWR XFER 1-2 BRK	152-105	ALLIS CHALMERS MA-250B	EA-11	3
102	EPD	EA-11	E-131-1 REV 19, E-131-1A REV 4	BKR 152-105 CONTROL SWITCH	152-105/CS	G.E. - SBM	EC-04	3
103	EPD	EA-11	E-129-1 REV 10, E-129-1A REV 4	BKR 152-105 LOCAL HANDSWITCH	152-105/CS-L	ALLIS CHALMERS 210	EA-11	3
104	EPD	EA-11	E-131-1 REV 19, E-131-1A REV 4	BKR 152-105 BLOCK TRIP AUX RLY	152-105/CSX	G.E. - 12HFA151A42H	EJ-9400	4
105	EPD	EA-11	E-129-1A,1B REV 4,3; E-132-1,1A REV 22,5	EA-11 STARTUP XFER 1-2 BKR	152-106	ALLIS CHALMERS MA-250B	EA-11	3
106	EPD	EA-11	E-131-1 REV 19	BKR 152-105 MAN TRANS LIMIT SW	152-106 AA	ALLIS CHALMERS MA-250B	EA-11	3
107	EPD	EA-11	E-132-1 REV 22, E-132-1A REV 5	BKR 152-106 CONTROL SWITCH	152-106/CS	G.E. - SBM	EC-04	3
108	EPD	EA-11	E-129-1 REV 10, E-129-1A REV 4	BKR 152-106 LOCAL HANDSWITCH	152-106/CS-L	ALLIS CHALMERS 210	EA-11	3
109	EPD	EA-11	E-132-1 REV 22, E-132-1A REV 5	BKR 152-106 AUXILIARY RELAY	152-106/CSX	G.E. - HFA151	EJ-9400	4
110	EPD	EA-11	E-130-1 REV 13, E-5-100	K-6A DIESL GEN 1-1 INCOMIN BRK	152-107	ALLIS CHALMERS MA-250B	EA-11	3
111	EPD	EA-11	E-139-1 REV 29, E-139-2 REV 15	BKR 152-107 CONTROL SWITCH	152-107/CS	G.E. - SBM10AA106	EC-04	3
112	EPD	EA-11	E-130-1 REV 13, E-139-1 REV 29, E-139-2 REV 15	BKR 152-107 LOCAL CONTROL SW	152-107/CS-L	G.E. - SBM	EA-11	3
113	EPD	EA-11	E-130-1 REV 13	BKR 152-107 LOCAL HANDSWITCH	152-107/CS-L	ALLIS CHALMERS 210	EA-11	3
114	EPD	EA-11	E-130-1 REV 13, E-130-3 REV 6, E-133-1 REV 10	SYD AUX POWER XFORMER#2 BKR	152-108	ALLIS CHALMERS MA-250B	EA-11	3
115	EPD	EA-11	E-133-1 REV 10	BKR 152-108 CONTROL SWITCH	152-108/CS	G.E. - SBM	EC-04	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
116	EPD	EA-11	E-130-1 REV 13	BKR 152-108 LOCAL HANDSWITCH	152-108/CS-L	ALLIS CHALMERS 210	EA-11	3
117	EPD	EA-11	E-130-1 REV 13, E-130-2 REV 4, E-259-1,1A REV 17,6	P-52A COMP COOLING PUMP BKR	152-109	ALLIS CHALMERS MA-250B	EA-11	3
118	EPD	EA-11	E-259-1 REV 17, E-259-1A REV 6	BKR 152-109 CONTROL SWITCH	152-109/CS	G.E. - SBM	EC-08	3
119	EPD	EA-11	E-130-1 REV 13	BKR 152-109 LOCAL HANDSWITCH	152-109/CS-L	ALLIS CHALMERS 210	EA-11	3
120	EPD	EA-11	E-130-1 REV 13, E-130-3 REV 6, E-133-1 REV 10	STATION POWER TRANS. #13 & 77	152-110	ALLIS CHALMERS MA-250B	EA-11	3
121	EPD	EA-11	E-133-1 REV 10	BKR 152-110 CONTROL SWITCH	152-110/CS	G.E. - SBM	EC-04	3
122	EPD	EA-11	E-130-1 REV 13	BKR 152-110 LOCAL HANDSWITCH	152-110/CS-L	ALLIS CHALMERS 210	EA-11	3
123	EPD	EA-11	E-130-1 REV 13, E-130-2 REV 4, E-248 REV 14	P-67B LOW PRESSURE S.I.	152-111	ALLIS CHALMERS MA-250B	EA-11	3
124	EPD	EA-11	E-247 REV 15, E-248 REV 14	BKR 152-111 CONTROL SWITCH	152-111/CS	G.E. - SBM	EC-03	3
125	EPD	EA-11	E-130-1 REV 13	BKR 152-111 LOCAL HANDSWITCH	152-111/CS-L	ALLIS CHALMERS 210	EA-11	3
126	EPD	EA-11	E-130-1,2 REV 13,4; E-251-1,1A REV 14,4	P-54B CONTAINMENT SPRAY PUMP	152-112	ALLIS CHALMERS MA-250B	EA-11	3
127	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-112 CONTROL SWITCH	152-112/CS	G.E. - SBM	EA-11	3
128	EPD	EA-11	E-130-1 REV 13	BKR 152-112 LOCAL HANDSWITCH	152-112/CS-L	ALLIS CHALMERS 210	EA-11	3
129	EPD	EA-11	E-130-1 REV 13, E-130-2 REV 4, E-249 REV 13	P-66B HIGH PRESSURE S.I. PUMP	152-113	ALLIS CHALMERS MA-250B	EA-11	3
130	EPD	EA-11	E-249 REV 13	BKR 152-113 CONTROL SWITCH	152-113/CS	G.E. - SBM	EC-03	3
131	EPD	EA-11	E-130-1 REV 13	BKR 152-113 LOCAL HANDSWITCH	152-113/CS-L	ALLIS CHALMERS 210	EA-11	3
132	EPD	EA-11	E-130-1,2 REV 13,4; E-251-1,1A REV 13,4	P-54C CONTAINMENT SPRAY PUMP	152-114	ALLIS CHALMERS MA-250B	EA-11	3
133	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-114 CONTROL SWITCH	152-114/CS	G.E. - SBM	EC-03	3
134	EPD	EA-11	E-130-1 REV 13	BKR 152-114 LOCAL HANDSWITCH	152-114/CS-L	ALLIS CHALMERS 210	EA-11	3

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
135	EPD	EA-11	E-130-1 REV 13, E-130-3 REV 6, E-133-1 REV 10	STATION POWER XFORM#11 & #19	152-115	ALLIS CHALMERS MA-250B	EA-11	3
136	EPD	EA-11	E-133-1 REV 10	BKR 152-115 CONTROL SWITCH	152-115/CS	G.E. - SBM	EC-04	3
137	EPD	EA-11	E-130-1 REV 13	BKR 152-115 LOCAL HANDSWITCH	152-115/CS-L	ALLIS CHALMERS 210	EA-11	3
138	EPD	EA-11	E-130-1,2 REV 13,4; E-259-1,1A REV 17,1A	P-52C COMP COOLING WATER PUMP	152-116	ALLIS CHALMERS MA-250B	EA-11	3
139	EPD	EA-11	E-259-1 REV 17, E-259-1A REV 6	BKR 152-116 CONTROL SWITCH	152-116/CS	G.E. - SBM	EA-11	3
140	EPD	EA-11	E-130-1 REV 13	BKR 152-116 LOCAL HANDSWITCH	152-116/CS-L	ALLIS CHALMERS 210	EA-11	3
141	EPD	EA-12	E-3 SH.1 REV.34;E-130 SH.1 REV. 13;E-133 SH.1 REV.10	STATION XFMER EX-12/EX-20 BRK	152-201	ALLIS CHALMERS MA-250B	EA-12	3
142	EPD	EA-12	E-130-1	BKR 152-201 LOCAL HANDSWITCH	152-201/CS-L	ALLIS CHALMERS 210	EA-12	3
143	EPD	EA-12	E-133 SH.1 REV.10	CONTROL SWITCH	152-201CS	G.E. - SBM	EC-04	3
144	EPD	EA-12	E-3 SH.1 REV.34;E-129 SH.1 REV. 10;E-132 SH.1 REV.22	BUS 1D STARTUP FEEDER BRK	152-202	ALLIS CHALMERS MA-250B	EA-12	3
145	EPD	EA-12	E-132 S.1 REV.22;E-132 SH.1A REV.5	CONTROL SWITCH	152-202/CS	G.E. - SBM	EC-04	3
146	EPD	EA-12	E-129-1	BKR 152-202 LOCAL HANDSWITCH	152-202/CS-L	ALLIS CHALMERS 210	EA-12	3
147	EPD	EA-12	E-132 S.1 REV.22;E-132 SH.1A REV.5	1D FDR BRK DEAD BUS SWITCH	152-202/CSX	G.E. - 12HFA151A42H	EA-12	4
148	EPD	EA-12	E-3 SH.1 REV.34;E-129 SH.1 REV10;E-129 SH.1A REV.4	ESG/STATION PWR FEEDER BRK	152-203	ALLIS CHALMERS MA-250B	EA-12	3
149	EPD	EA-12	E-131 SH.1 REV.19;E-131 SH.1A REV. 4	ESG/STATION PWR CONTROL SW	152-203/CS	G.E. - SBM	EA-12	3
150	EPD	EA-12	E-129-1	BKR 152-203 LOCAL HANDSWITCH	152-203/CS-L	ALLIS CHALMERS 210	EA-12	3
151	EPD	EA-12	E-131 SH.1 REV.19;E-131 SH.1A REV. 4	1D SG/ST PWR DEAD BUS SW	152-203CSX	G.E. - HFA151A	EA-12	4
152	EPD	EA-12	E-3 SH.1 REV.34;E-130 SH.1 REV. 13;E-154 SH.1 REV.18	SERVICE WTR PP P-7A BRK	152-204	ALLIS CHALMERS MA-250B	EA-12	3
153	DHR	P-7A	E-154 SH.1 REV.16	SWS PP P-7A MANUAL SWITCH	152-204/CS	G.E. - SBM	EC-08	3

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
154	EPD	EA-12	E-130-1	BKR 152-204 LOCAL HANDSWITCH	152-204/CS-L	ALLIS CHALMERS 210	EA-12	3
155	EPD	EA-12	E-130 SH.1 REV.13;E-154 SH.1 REV.18	SER WTR PP P-7C BRK	152-205	ALLIS CHALMERS MA-250B	EA-12	3
156	DHR	P-7C	E-154 SH.1 REV.18;E-154 SH.2 REV.13	SWS PP P-7C MANUAL SWITCH	152-205/CS	G.E. - SBM	EC-08	3
157	EPD	EA-12	E-130-1	BKR 152-205 LOCAL HANDSWITCH	152-205/CS-L	ALLIS CHALMERS 210	EA-12	3
158	EPD	EA-12	E-130 SH.1 REV.13&SH.1A REV.0&SH. 2 REV.4&SH.3 REV.6	LOW PRESS SIS PP P-67A BRK	152-206	ALLIS CHALMERS MA-250B	EA-12	3
159	EPD	EA-12	E-247 REV.15	LOW PRESS SIS PP P-67A MAN SW	152-206/CS	G.E. - SBM	EA-12	3
160	EPD	EA-12	E-130-1	BKR 152-206 LOCAL HANDSWITCH	152-206/CS-L	ALLIS CHALMERS 210	EA-12	3
161	EPD	EA-12	E-249-1 REV 13	P-66A HI PRES SAFETY INJECT	152-207	ALLIS CHALMERS MA-250B	EA-12	3
162	EPD	EA-12	E-249-1 REV 13	BKR 152-207 P-66A HPSI CNTL SW	152-207/CS	G.E. - SBM	EA-12	3
163	EPD	EA-12	E-130-1	BKR 152-207 LOCAL HANDSWITCH	152-207/CS-L	ALLIS CHALMERS 210	EA-12	3
164	EPD	EA-12	E-130-1,2,3,4,5,6; E-259-1 REV 17, E-259-1A REV 6	P-52B COMPONENT COOLING PUMP	152-208	ALLIS CHALMERS MA-250B	EA-12	3
165	EPD	EA-12	E-259-1 REV 17	BKR 152-208 P-52B CONTROL SW	152-208/CS	G.E. - SBM	EA-12	3
166	EPD	EA-12	E-130-1	BKR 152-208 LOCAL HANDSWITCH	152-208/CS-L	ALLIS CHALMERS 210	EA-12	3
167	EPD	EA-12	E-130-1,1A,2,3,4,5 REV 13,0,4,6,3,6; E-196-8 REV 7	AUX FEEDWATER PUMP P-8C BKR	152-209	ALLIS CHALMERS MA-250B	EA-12	3
168	DHR	P-8C	E-196 SH.10 REV.2;E-196 SH.12 REV.3	AUX FW PP P-8C CONTROL SWITCH	152-209/CS	G.E. - SBM	EC-01	3
169	EPD	EA-12	E-130-1A, E-196-10	BKR 152-209 LOCAL HANDSWITCH	152-209/CS-L	SYTEK 210	EA-12	3
170	EPD	EA-12	E-130-1,1A,2,3,4,5 REV 13,0,4,6,3,6; E-251-1 REV 14	P-54A CONTAINMENT SPRAY BKR	152-210	ALLIS CHALMERS MA-250B	EA-12	3
171	EPD	EA-12	E-251-1 REV 14	BKR 152-210 P-54A SWITCH	152-210/CS	G.E. - SBM	EA-12	3
172	EPD	EA-12	E-130-1A	BKR 152-210 LOCAL HANDSWITCH	152-210/CS-L	ALLIS CHALMERS 210	EA-12	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
173	EPD	EA-12	E-130-1,1A,2,3,4,5 REV 13,0,4,6,3,6	PRES HTR TRANSF EX16 FEED BKR	152-211	ALLIS CHALMERS MA-250B	EA-12	3
174	EPD	EA-12	E-253-1 REV 15	BKR 152-211 CONTROL SWITCH	152-211/CS	G.E. - SBM	EA-12	3
175	EPD	EA-12	E-130-1	BKR 152-211 LOCAL HANDSWITCH	152-211/CS-L	ALLIS CHALMERS 210	EA-12	3
176	EPD	EA-12	E-130-1 REV 13, E-5-100	K-6A INCOMING BREAKER	152-213	ALLIS CHALMERS MA-250B	EA-12	3
177	EPD	EA-12	E-139-1 REV 29, E-139-2 REV 15	BKR 152-213 CONTROL SWITCH	152-213/CS	G.E. - SBM10AA106	EC-04	3
178	EPD	EA-12	E-130-1 REV 13, E-139-1 REV 29, E-139-2 REV 15	BKR 152-213 LOCAL CONTROL SW	152-213/CS-L	G.E. - SBM	EA-12	3
179	EPD	EA-13	E-130-1 REV 13, E-130-4 REV 3	BKR 152-305 PRES HTR EX-15 FEE	152-305	ALLIS CHALMERS MA-250C	EA-13	6G
180	EPD	EA-11	E-253-1 REV 15, E-290-4	BKR 152-305 CONTROL SWITCH	152-305/CS	G.E. - SBM10AA106	EC-04	3
181	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 203-206	BKR 152-102 CNTL CKT UNDERVOLT	152/UV (152-102)	G.E. - HGA11J52	EA-11	1
182	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 203-206	BKR 152-103 CNTL CKT UNDERVOLT	152/UV (152-103)	G.E. - HGA11J52	EA-11	1
183	EPD	EA-11	E-130-1 REV 13, E-130-1A REV 0, E-5-100 REV 1 PAGE 203-206	BKR 152-104 CNTL CKT UNDERVOLT	152/UV (152-104)	G.E. - HGA11J52	EA-11	1
184	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 203-206	BKR 152-107 CNTL CKT UNDERVOLT	152/UV (152-107)	G.E. - HGA11	EA-11	1
185	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 203-206	BKR 152-108 CNTL CKT UNDERVOLT	152/UV (152-108)	G.E. - HGA11J52	EA-11	1
186	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 203-206	BKR 152-109 CNTL CKT UNDERVOLT	152/UV (152-109)	G.E. - HGA11J52	EA-11	1
187	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 203-206	BKR 152-109 CNTL CKT UNDERVOLT	152/UV (152-110)	G.E. - HGA11J52	EA-11	1
188	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 203-206	BKR 152-111 CNTL CKT UNDERVOLT	152/UV (152-111)	G.E. - HGA11	EA-11	1
189	EPD	EA-11	E-130-1 REV 13	BKR 152-112 CNTL CKT UNDERVOLT	152/UV (152-112)	G.E. - HGA11J52	EA-11	1
190	EPD	EA-11	E-130-1 REV 13	BKR 152-113 CNTL CKT UNDERVOLT	152/UV (152-113)	G.E. - HGA11J52	EA-11	1
191	EPD	EA-11	E-130-1 REV 13	BKR 152-114 CNTL CKT UNDERVOLT	152/UV (152-114)	G.E. - HGA11	EA-11	1

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
192	EPD	EA-11	E-130-1 REV 13	BKR 152-115 CNTL CKT UNDERVOLT	152/UV (152-115)	G.E. - HGA11J52	EA-11	1
193	EPD	EA-11	E-130-1 REV 13	BKR 152-116 CNTL CKT UNDERVOLT	152/UV (152-116)	G.E. - HGA11J52	EA-11	1
194	EPD	EA-12	E-130 SH.1 REV.13;E-5 SH.55 REV.4	UNDER VOLTAGE RELAY	152/UV (152-201)	G.E. - HGA11J52	EA-12	1
195	EPD	EA-12	E-130 SH.1 REV.13	BKR 152-204 CNTL CKT UNDERVOLT	152/UV (152-204)	G.E. - HGA11J52	EA-12	1
196	EPD	EA-12	E-130 SH.1 REV.13;E-130 SH.1A REV. 0	CONT'L CIRCUIT UV RELAY	152/UV (152-205)	G.E. - HGA11J52	EA-12	1
197	EPD	EA-12	E-130 SH.1 REV.13;E-130 SH.1A REV. 0	BKR 152-206 CNTL CKT UNDERVOLT	152/UV (152-206)	G.E. - HGA11J52	EA-12	1
198	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-207 CNTL CKT UNDERVOLT	152/UV (152-207)	G.E. - HGA11J52	EA-12	1
199	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-208 CNTL CKT UNDERVOLT	152/UV (152-208)	G.E. - HGA11J52	EA-12	1
200	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-209 CNTL CKT UNDERVOLT	152/UV (152-209)	G.E. - HGA11J52	EA-12	1
201	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-210 CNTL CKT UNDERVOLT	152/UV (152-210)	G.E. - HGA11J52	EA-12	1
202	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-211 CNTL CKT UNDERVOLT	152/UV (152-211)	G.E. - HGA11J52	EA-12	1
203	EPD	EA-12	E-130-1 REV 13	BKR 152-213 CNTL CKT UNDERVOLT	152/UV (152-213)	G.E. - HGA11J52	EA-12	1
204	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-6 REV 3	BKR 152-104 P-8A AUTOSTART IND	152X-104	G.E. - 12HGA111J2	EC-01	1
205	EPD	EA-11	E-131-1 REV 19, E-131-1A REV 4	BKR 152-105 OPEN AUXILIARY RLY	152X-105	G.E. - 12HGA11J52	EC-04	4
206	EPD	EA-11	E-196-1 REV 12, E-196-4 REV 4, E-196-6 REV 3	BKR 152-104 P-8A C-VALVE TEST	152Y-104	G.E. - 12HGA111J2	EJ-1005	4
207	RCPC	MO-2087	E-154-1 R 18, E-210-1,3 RV 14,18; E-242-1 R 21, E-248 R 14, E-259-1,1A RV 17,6;	SIS & SEQUENCE LOADING RELAY	16-1	CLARK CONTROL 5U-10	EC-13	4
208	EPD	EA-12	E-154-1 REV 16, E-247 REV 15, E-249-1 REV 13, E-259-1 REV 17	SIS & SEQUENCE LOADING CKT-2	16-2	CLARK CONTROL 5U-10	EC-13	4
209	RCPC	MO-2169	E-219-3 REV 15, E-241 REV 16, E-249 REV 13	SIS & SEQUENCE LOADING RELAY	16-3	CLARK CONTROL 5U-10	EC-13	4
210	RCPC	MO-2140	E-154-2 REV 13, E-219-3 REV 15, E-241 REV 16	SIS & SEQUENCE LOADING RELAY	16-4	CLARK CONTROL 5U-10	EC-13	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
211	EPD	EA-11	E-131-1 REV 19, E-131-1A REV 4	BRK 152-105 TIME DELAY RELAY	162-105	CONTROL PRODUCTS DIV.-E7022PB	EA-11	1
212	EPD	EA-11	E-132-1 REV 22, E-132-1A REV 5	BRK 152-106 TIME DELAY RELAY	162-106	CONTROL PRODUCTS DIV.-E7022PB	EA-11	1
213	EPD	EA-11	E-139-1 REV 29	BKR 152-107 TIME DELAY RELAY	162-107	CONTROL PRODUCTS DIV.-E7012	EA-11	1
214	EPD	EA-11	E-139-1 REV 29	BKR 152-107 CLOSE PERMISSIVE	162-107X	WESTINGHOUSE-SG	EA-11	6I
215	EPD	EA-11	E-137 SH.1 REV 23, SH.2B REV 4	EA-11 TIME DELAY RELAY	162-153	ITE TYPE 62K	EJ-9400	3
216	EPD	EA-11	E-131-1,1A REV 19,4; E-132-1,1A REV 22,5; E-137-1,2A REV 23,5	EA-11 TIME DELAY AUX RELAY	162-153-X1	G.E. - 12HFA151A42H	EJ-9400	4
217	EPD	EA-12	E-131 SH.1 REV.19;E-131 SH.1A REV. 4, E-137 SH.1 REV.8;E-136 SH.1A	1D TIME DELAY AUX RELAY	162-154-X1	G.E. - 12HFA151A42H	EA-12	4
218	EPD	EA-12	E-132 SH.1 REV.22	TIME DELAY RELAY	162-202	CONTROL PROD. 7022PB	EA-12	1
219	EPD	EA-12	E-131 SH.1 REV.19;E-131 SH.1A REV. 4	1D INCOMMING BRK	162-203	CONTROL PROD. 7022PB	EA-12	1
220	EPD	EA-12	E-139-1 REV 29	BKR 152-213 TIME DELAY RELAY	162-213	CONTROL PRODUCTS DIV.-7012	EA-12	1
221	EPD	EA-12	E-139-1 REV 29	BKR 152-213 CLOSE PERMISSIVE	162-213X	WESTINGHOUSE-SG	EA-12	6I
222	EPD	EA-11	E-136 SH.1 REV 27	XFER 1-2 TIME DELAY RELAY	162-5	CONTROL PRODUCTS DIV.-E7012	EC-04	4
223	EPD	EA-12	E-136 SH.1 REV.27	UV AUX RELAY	162-6	CONTROL PROD. 7012PA	EC-04	1
224	EPD	K-6A	E-140-3 REV 12, M-12-16 REV 11, M-201-63 REV 33	K-6A GOVERNOR SETPT SW	165-D1/CS (GSR)	G.E. - SBM10AC871	EC-04	3
225	EPD	K-6B	E-140-3 REV 12, M-201-62 REV	K-6B GOVERNOR SETPOINT SWITCH	165-D2/CS	G.E. - SBM10AC871	EC-04	3
226	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR152-112,114 SIS TEST CNT SP	169-L	G.E. - 12HFA151	EC-13	4
227	EPD	EA-12	E-251-1 REV 14	BKR 152-210 SIS TEST/CONT SPRA	169-R	G.E. - 12HFA151A49H	EC-13	4
228	EPD	EA-11	E-131-1 REV 19, E-131-1A REV 4	BRK 152-105 ALARM RELAY	174-105	CONTROL PRODUCTS DIV.-E7012PA	EA-11	1
229	EPD	EA-11	E-131-1 REV 19, E-131-1A REV 4	BKR 152-105 CONTROL PWR U.V.	174-A11/307	POTTER & BRUMFIELD-KAP5DG	EA-11	1
230	EPD	EA-11	E-139-1 REV 29	BKR 152-107 LOCKOUT RELAY	186-107	G.E. - 12HFA154E187F	EA-11	1

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
231	EPD	EA-12	E-139-1 REV 29	BKR 152-213 LOCKOUT RELAY	186-213	G.E. - 12HFA154E187F	EA-12	1
232	EPD	EA-11	E-130-5 REV 6, E-139-1 REV 29	BKR 152-107 DIFFERENTIAL RELAY	187D-107/X,Y,Z	G.E. - IJD52A	EA-11	6H
233	EPD	EA-12	E-130-5 REV 6, E-139-1 REV 29	BKR 152-213 DIFFERENTIAL RELAY	187D-213/X,Y,Z	G.E. - IJD52A	EA-12	6H
234	EPD	K-6A	E-140-3 REV 12, M-12-98(1) REV 15, M-201-63 REV 33	K-6A VOLT. REG.-MAN/AUTO SW	190-D1/CS (MAS)	G.E. - SBM10AA052	EC-04L	3
235	EPD	K-6B	E-140-3 REV 12, M-12-105(1) REV 10	K-6B VOLTAGE REGULATOR - MAS	190-D2/CS	G.E. - SBM10AA052	EC-04	3
236	EPD	EA-11	E-133-1 REV 10, E-137-1 REV 23, E-137-2 REV 17, E-151 REV 16, E-196-1 REV 12	BUS 1C & LOAD SHED	194-108	CLARK CONTROL/ALLIS CHALMERS	EA-11	6F
237	EPD	EA-12	E-154 SH.2 REV.13	P-7C STANDBY SETUP RELAY	194-205	G.E. - 12HFA154E187F	EA-12	1
238	EPD	EA-12	E-154-1,2 REV 18,13;E-247 REV 15;E-249-1 REV 13;E-251-1 REV 14;E-259-1 REV 17	BUS 1D & LOAD SHED	194-211	CLARK CNTL/A.C.14-237-012-511	EA-12	6F
239	EPD	EA-11	E-151 REV 16	BKR 152-102 START PWR LD SHED	194-41	G.E. - HFA151	EJ-541	4
240	EPD	EA-11	E-151 REV 16	BKR 152-102 START PWR LD SHED	194-42	G.E. - HFA151	EJ-541	4
241	HVAC	SV-1651	E-270 SH.7 REV.3	TDPU TIMING RELAY FOR SV-1651	1TR	CONTROL PRODUCTS DIV.-7014AD	EJ-1089	4
242	HVAC	SV-1652	E-270 SH.7 REV.3	TDPU TIMING RELAY FOR SV-1652	1TR	CONTROL PRODUCTS DIV.-7014AD	EJ-1088	4
243	EPD	EA-12	E-131-1 REV 19, E-132-1 REV 22, E-139-1 REV 29, E-10 REV 16	SYNCHRO-CHECK RELAY	25	WESTINGHOUSE-CVE-1-1957989	EC-04	1
244	EPD	ED-06; EY-10	E-8 SH.2 REV.25	PERF AC BUS 1 UV RELAY EY-10	27-1	ELECTRONIC DEVELOP AS67V	CS RM	2
245	EPD	ED-07; EY-20	E-8 SH.2 REV.25	PERF AC BUS 2 UV RELAY EY-20	27-2	ELECTRONIC DEVELOP AS67V	CS RM	2
246	EPD	ED-08; EY-30	E-8 SH.2 REV.25	PERF AC BUS 3 UV RELAY EY-30	27-3	ELECTRONIC DEVELOP AS67V	CS RM	2
247	EPD	ED-09; EY-40	E-8 SH.2 REV.25	PERF AC BUS 4 UV RELAY EY-40	27-4	ELECTRONIC DEVELOP AS67V	CS RM	2
248	HVAC	SV-1675,76A&B;1	E-270 SH.7 REV.3	TIMING RELAY	2TR	CONTROL PRODUCTS DIV.-7014AD	EJ-1089	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
249	EPD	EA-11	E-154-1 REV 18, E-154-2A REV 3, E-294-2 REV 12	P-7B SEQUENCE DISPLAY RELAY	30-103	WESTINGHOUSE-SG	EC-13	2
250	EPD	EA-11	E-259-1 REV 17, E-259-1A REV 6	BKR 152-109 SEQ DISPLAY RELAY	30-109	WESTINGHOUSE-SG293B255A20	EC-13	2
251	EPD	EA-11	E-248 REV 14	BKR 152-111 LO PRES.S.I. RELAY	30-111	WESTINGHOUSE-SG293B255A20	EC-13	2
252	EPD	K-6A	E-136-1A,2 REV 5,26; M-12-98(1) REV 15, M-201-62 REV 34	RELAY STARTS K-6A, CKT A	306D-1	G.E. - 12HGA111J52	EC-04	4
253	EPD	K-6B	E-136-1A REV 5, E-136-2 REV 26, M-12-105(1) REV 10	RELAY STARTS K-6B, CKT B	306D-2	G.E. - HGA111J52	EC-04	4
254	EPD	K-6B	E-136-1A REV 5, E-136-2 REV 26, M-12-105(1) REV 10	RELAY STARTS K-6B, CKT A	306D-3	G.E. - 12HGA111J52	EC-04	4
255	EPD	K-6A	E-136-1A,2 REV 5,26; M-12-98(1) REV 15, M-201-62 REV 34	RELAY STARTS K-6A, CKT B	306D-4	G.E. - 12HGA111J52	EC-04	4
256	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-3 REV 3, E-196-6 REV 3	BKR 152-104 P-8A START RELAY	34X/P8A	G.E. - 12HGA111J2	EJ-1005	4
257	DHR	P-8C	E-196 SH.9 REV.9;E-196 SH.13 REV.1	START AUX FW PUMP P-8C	34X/P8C	G.E. - 12HGA111J2	EA-12	4
258	EPD	EA-11	E-131-1,1A REV 19,4; E-132-1 REV 22, E-136-1,2 REV 27,26	EA-11 XFER RELAY	383-11	G.E. - 12HFA151A42H	EC-04	4
259	EPD	EA-11	E-136-1 REV 27, E-139-1 REV 29	BKR 152-107 FAST XFER TRIP RLY	383-11A	G.E. - 12HFA151A2H	EC-04	4
260	EPD	EA-12	E-131 SH.1 REV.19;E-131 SH.1A REV. 4, E-136 SH.1 REV.28	BUS 1D TRANSFER SWITCH	383-12	G.E. - 12HFA151A42H	EC-04	4
261	EPD	EA-12	E-136-1 REV 27, E-139-1 REV 29	BKR 152-213 FAST XFER TRIP RLY	383-12A	G.E. - 12HFA151A2H	EC-04	4
262	DHR	SV-0779,80,1,2,B,	E-238 SH.2 REV.29;E-238 SH.1A REV. 5	TURBINE TRIP LOCKOUT RELAY	386/AST	WESTINGHOUSE-503A692G01	EC-04	4
263	HVAC	SV-1675,6A&B;-1	M-91 SH.37	AUX RELAY	3CR	BRADLEY 700	EJ-1127	4
264	HVAC	SV-1659	E-270 SH.4 REV.2;E-270 SH.4A REV.1	AUX TO OPEN OUTSIDE AIR DAMPER	3X-1	G.E. - HGA111	EJ-1003	4
265	HVAC	SV-1659	E-270 SH.4 REV.2;E-270 SH.4A REV.1	OUTSIDE AIR DAMP, PURG FAN AUX	3X-11	G.E. - HGA111	EJ-1003	4
266	HVAC	SV-1659	E-270 SH.4 REV.2;E-270 SH.4A REV.1	V-26A EMERG OPERATING AUX	3X-17	G.E. - HGA111	EJ-1003	4
267	HVAC	SV-1663	E-271 SH.12 REV.1	RECIRC DAMP D-3 PURGE CLOSE	3X-25	G.E. - HGA111	EJ-1003	4

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
268	HVAC	VC-11	E-270 SH.7 REV.3;E-82	VC-10 & VC-11 START AUX RELAY	3X-3	G.E. - HGA111	EJ-1003	4
269	DHR	P-8C	E-196 SH.3 REV.	AUX FW PP P-8B & C AUTO START	3X-3/P8A	AMERACE EGPD002	EJ-1005	4
270	HVAC	V-26A	E-270 SH.3 REV.1;E-271 SH.3 REV. 2&SH.4 REV.0;E-82	START PERMISSIVE RELAY V-26A	3X-7	G.E. - HGA111	EJ-1003	4
271	HVAC	V-26A	E-270 SH.12 REV.2;E-271 SH.4 REV. 0;E-82	V-26A HTR COIL START AUX RELAY	3X-9	G.E. - HGA111	EJ-1003	4
272	HVAC	V-26B	E-270 SH.12 REV.2;E-271 SH.4 REV. 0;E-82	V-26B HTR COIL START AUX RELAY	3Y-10	G.E. - HGA111	EJ-1002	4
273	HVAC	SV-1660	E-270 SH.4 REV.2;E271 SH.9 REV.0;E-271 SH.12 REV.1	OUTSIDE AIR DAMP, PURG FAN AUX	3Y-12	G.E. - HGA111	EJ-1002	4
274	HVAC	SV-1660	E-270 SH.4 REV.2;E271 SH.9 REV.0;E-271 SH.12 REV.1	V-26B EMERG OPERATING AUX	3Y-18	G.E. - HGA111	EJ-1002	4
275	HVAC	SV-1660	E-270 SH.4 REV.2;E271 SH.9 REV.0;E-271 SH.12 REV.1	AUX TO OPEN OUTSIDE AIR DAMPER	3Y-2	G.E. - HGA111	EJ-1002	4
276	HVAC	SV-1664	E-271 SH.12 REV.1	RECIRC DAMP D-10 PURGE CLOSE	3Y-26	G.E. - HGA111	EJ-1002	4
277	HVAC	VC-10	E-270 SH.7 REV.3;E-82	VC-10 & VC-11 START AUX RELAY	3Y-4	G.E. - HGA111	EJ-1002	4
278	HVAC	V-26B	E-270 SH.3 REV.1;E-271 SH.3 REV. 2&SH.4 REV.0;E-82	START PERMISSIVE RELAY V-26B	3Y-8	G.E. - HGA111	EJ-1002	4
279	RRC	42-1/RPS	E-212 SH.1 REV.9	CONTROL ROD CLUTCH BREAKER	42-1/RPS	WESTINGHOUSE-375D649G04	CS RM	3
280	EPD	EB-01	VEN E-7 SH.10 REV.23	STARTER	42-113	C-H 9586H6281G	CS RM	4
281	EPD	K-6A	E-140-1A REV 2, M-12-96 REV 0G, M-12-97 REV 5	K-6A LUBE OIL HEATER	42-116A	G.E. - CR106D002AAA1	EG-21	2
282	EPD	K-6A	E-140-1A REV 2, M-12-96 REV 0G, M-12-97 REV 5	K-6A JACKET WATER HEATERS	42-116B	G.E. - CR105D002AAA1	EG-21	2
283	EPD	K-6A	E-140-1A REV 2, M-12-96 REV 0G, M-12-97 REV 5	K-6A AIR COMPRESSOR MOTOR	42-116C	G.E. - CR106C002XAA1	EG-21	2
284	EPD	K-6A	E-140-1A REV 2, M-12-96 REV 0G, M-12-97 REV 5	K-6A LUBE OIL PRIM PUMP CONTAC	42-116D	G.E. - CR106C000XAAT	EG-21	2
285	EPD	K-6A	M-12-18(2) REV 5, M-12-96 REV 0G	K-6A CRANK EXH MOTORS CONTAC	42-116E	G.E. - CR106B002XAA1	EG-21	2
286	EPD		VEN E-7 SH.10 REV.23	STARTER	42-117	C-H 9586H6492G	EB-01	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
287	EPD		VEN E-7 SH.10 REV.23	STARTER	42-123	C-H 9586H6990G	EB-01	4
288	EPD		VEN E-7 SH.10 REV.23	STARTER	42-127	C-H 9586H	EB-01	4
289	RCPC	MO-2169	E-241 REV.16	BORIC ACID VLV MO-2169 SWITCH	42-127/CS1	MICROSWITCH-PT	EC-02	3
290	RCPC	MO-2169	E-241 REV.16	BORIC ACID VLV MO-2169 SWITCH	42-127/CS2	MICROSWITCH-PT	EC-33	3
291	EPD		VEN E-7 SH.10 REV.23	STARTER	42-131	C-H 9586H6281	EB-01	4
292	EPD		VEN E-7 SH.10 REV.23	STARTER	42-133	C-H 9586H6281	EB-01	4
293	EPD		VEN E-7 SH.10 REV.23	STARTER	42-137	C-H 9656H158A	EB-01	4
294	EPD		VEN E-7 SH.10 REV.23	STARTER	42-141	C-H A50DNV0	EB-01	4
295	EPD		VEN E-7 SH.10 REV.23	STARTER	42-147	C-H A50DNV0	EB-01	4
296	RCPC	EH-0501A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1501	ITE 961-C	EB-15	4
297	RCPC	EH-0501A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTROL SW	42-1501/CS	G.E. - SBM	EC-02	3
298	RCPC	EH-0502A>F	E-254 SH.1 REV.7	PRESSURIZER HEATERS CONTACTOR	42-1502	ITE 961-C	EB-15	4
299	RCPC	EH-0502>0505A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTROL SW	42-1502/CS	G.E. - SBM	EC-02	3
300	RCPC	EH-0503A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1503	ITE 961-C	EB-15	4
301	RCPC	EH-0504A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1504	ITE 961-C	EB-15	4
302	RCPC	EH-0505A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1505	ITE 961-C	EB-15	4
303	RCPC	EH-0506A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1506	ITE 961-C	EB-15	4
304	RCPC	EH-0506>0510A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTROL SW	42-1506/CS	G.E. - SBM	EC-02	3
305	RCPC	EH-0507A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1507	ITE 961-C	EB-15	4
306	RCPC	EH-0508A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1508	ITE 961-C	EB-15	4
307	RCPC	EH-0509A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1509	ITE 961-C	EB-15	4

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
308	EPD		VEN E-7 SH.10 REV.23	STARTER	42-151	C-H 9656H158A	EB-01	4
309	RCPC	EH-0510A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1510	ITE 961-C	EB-15	4
310	EPD		VEN E-7 SH.10 REV.23	STARTER	42-155	C-H 9586H6990G	EB-01	4
311	EPD		VEN E-7 SH.10 REV.23	STARTER	42-157	C-H 9656H158A	EB-01	4
312	RCPC	EH-0601A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1601	ITE 961-C	EB-16	4
313	RCPC	EH-0601A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTROL SW	42-1601/CS	G.E. - SBM	EC-02	3
314	RCPC	EH-0602A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1602	ITE 961-C	EB-16	4
315	RCPC	EH-0602>0605A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTROL SW	42-1602/CS	G.E. - SBM	EC-02	3
316	RCPC	EH-0603A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1603	ITE 961-C	EB-16	4
317	RCPC	EH-0604A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1604	ITE 961-C	EB-16	4
318	RCPC	EH-0605A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1605	ITE 961-C	EB-16	4
319	RCPC	EH-0606A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1606	ITE 961-C	EB-16	4
320	RCPC	EH-0606>0610A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTROL SW	42-1606/CS	G.E. - SBM	EC-02	3
321	RCPC	EH-0607A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1607	ITE 961-C	EB-16	4
322	RCPC	EH-0608A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1608	ITE 961-C	EB-16	4
323	RCPC	EH-0609A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1609	ITE 961-C	EB-16	4
324	EPD		VEN E-7 SH.10 REV.23	STARTER	42-161	C-H 9656H158A	EB-01	4
325	RCPC	MO-2087	E-242 SH.1 REV.21	V C TANK OUTLET VLV MO-2087 SW	42-161/CS1	G.E. - SBM	EC-02	3
326	RCPC	MO-2087	E-242 SH.1 REV.21	V C TANK OUTLET VLV MO-2087 SW	42-161/CS2	MICROSWITCH-PT	EC-33	3
327	RCPC	EH-0610A>F	E-254 SH.1 REV 7	PRESSURIZER HEATERS CONTACTOR	42-1610	ITE 961-C	EB-16	4

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
328	EPD		VEN E-7 SH.10 REV.23	STARTER	42-165	C-H 9586H6990G	EB-01	4
329	EPD		VEN E-7 SH.10 REV.23	STARTER	42-167	C-H 9656H158A	EB-01	4
330	RCPC	MO-3015	E-242 SH.3 REV.21	SHUTDN COOLG VLV MO-3015 SW	42-167CS1	MICROSWITCH-PT	EC-02	3
331	RCPC	MO-3015	E-242 SH.3 REV.21	SHUTDN COOLG VLV MO-3015 SW	42-167CS2	MICROSWITCH-PT	EC-33	3
332	EPD		VEN E-7 SH.10 REV.23	STARTER	42-171	C-H A10CN0	EB-01	4
333	EPD		VEN E-7 SH.10 REV.23	STARTER	42-173	C-H 9586H6990G	EB-01	4
334	EPD		VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	STARTER	42-183	C-H A10DN0	EB-01	4
335	EPD		VEN E-7 SH.10 REV.23	STARTER	42-187	C-H 9656H158A	EB-01	4
336	RCPC	MO-2170	E-241 REV.16	BORIC ACID VLV MO-2170 SWITCH	42-187/CS1	G.E. - CR2940US200A	EC-13	3
337	RCPC	MO-2170	E-241 REV.16	BORIC ACID VLV MO-2170 SWITCH	42-187/CS2	G.E. - CR2940UN200BJ	EC-33	3
338	EPD		VEN E-7 SH.10 REV.23	STARTER	42-191	C-H 9586H6355G	EB-01	4
339	EPD		VEN E-7 SH.10 REV.23	STARTER	42-197	C-H 9656H158A	EB-01	4
340	RRC	42-2/RPS	E-212 SH.1 REV.9	CONTROL ROD CLUTCH BREAKER	42-2/RPS	WESTINGHOUSE-375D649G04	CS RM	3
341	EPD	EB-02	VEN E-7 SH.13 REV.27	STARTER	42-207	C-H 9656H158A	CS RM	4
342	RCPC	MO-2160	E-242 SH.1 REV.21	SIRW / CHARG PP VLV CONTROL SW	42-207/CS1	MICROSWITCH-PT	EC-02	3
343	RCPC	MO-2160	E-242 SH.1 REV.21	SIRW / CHARG PP VLV CONTROL SW	42-207/CS2	MICROSWITCH-PT	EC-33	3
344	EPD		VEN E-7 SH.12 REV.8	STARTER	42-211	C-H 9568H6281G	EB-02	4
345	EPD		VEN E-109 SH.13 REV.2B	STARTER	42-2111	G.E. - CR206C022ABCNNUC	EB-21	4
346	EPD		VEN E-109 SH.13 REV.2B	STARTER	42-2113	G.E. - CR209C022ABZDNUC	EB-21	4
347	EPD		VEN E-109 SH.13 REV.2B	STARTER	42-2127	G.E. - CR209C022ARZDNUC	EB-21	4
348	EPD		VEN E-109 SH.13 REV.2B	STARTER	42-2129	G.E. - CR209C022ABZDNUC	EB-21	4
349	EPD		VEN E-7 SH.12 REV.8	STARTER	42-213	C-H 9586H6281G	EB-02	4
350	EPD		VEN E-109 SH.13 REV.2B	STARTER	42-2137	G.E. - CR209C022ABZDNUC	EB-21	4
351	EPD		VEN E-109 SH.13 REV.2B	STARTER	42-2139	G.E. - CR209C022ABZDNUC	EB-21	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
352	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B LUBE OIL HEATER	42-216A	G.E. - CR106D002AAA1	EG-31	2
353	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B JACKET WATER HEATERS	42-216B	G.E. - CR106D002AAA1	EG-31	2
354	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B AIR COMPRESSOR MOTOR	42-216C	G.E. - CR106C002XAA1	EG-31	2
355	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B LUBE OIL PRIMING PUMP	42-216D	G.E. - CR106C000XAAT	EG-31	2
356	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B CRANK CASE EXHAUST MOTOR	42-216E	G.E. - CR106B002XAA1	EG-31	2
357	EPD		VEN E-7 SH.12 REV.8	STARTER	42-217	C-H 9656H158A	EB-02	4
358	RCPC	MO-3072	E-242 SH.2 REV.12	CHARGING PUMP TO SIT MO-3072	42-217/CS	MICROSWITCH-PT	EC-03	3
359	EPD	EB-02	VEN E-7 SH.12 REV.8	STARTER	42-221	C-H 9586H6281G	EB-02	4
360	EPD	EB-22	VEN E-109 SH.17 REV.2B	STARTER	42-2213	G.E. - CR209C022ABZDNUC	EB-22	4
361	EPD	EB-22	VEN E-109 SH.17 REV.2B	STARTER	42-2227	G.E. - CR209C022ABZDNUC	EB-22	4
362	EPD	EB-22	VEN E-109 SH.17 REV.2B	STARTER	42-2229	G.E. - CR209C022ABZDNUC	EB-22	4
363	EPD	EB-22	VEN E-109 SH.17 REV.2B	STARTER	42-2237	G.E. - CR209C022ABZDNUC	EB-22	4
364	EPD	EB-22	VEN E-109 SH.17 REV.2B	STARTER	42-2239	G.E. - CR209C022ABZDNUC	EB-22	4
365	EPD		VEN E-7 SH.12 REV.8	STARTER	42-227	C-H 9656H158A	EB-02	4
366	RCPC	MO-2140	E-241 REV.16	BORIC ACID PP FEED VLV SWITCH	42-227/CS1	G.E. - CR2940US200A	EC-02	3
367	RCPC	MO-2140	E-241 REV.16	BORIC ACID PP FEED VLV SWITCH	42-227/CS2	G.E. - CR2940UN200BJ	EC-33	3
368	EPD		VEN E-109 SH.21 REV.2B	STARTER	42-2313	G.E. - CR209C022ABZDNUC	EB-23	4
369	EPD		VEN E-109 SH.21 REV.2B	STARTER	42-2327	G.E. - CR209C022ABZDNUC	EB-23	4
370	EPD		VEN E-109 SH.21 REV.2B	STARTER	42-2329	G.E. - CR209C022ABZDNUC	EB-23	4
371	EPD		VEN E-109 SH.21 REV.2B	STARTER	42-2337	G.E. - CR209C022ABZDNUC	EB-23	4
372	EPD		VEN E-109 SH.21 REV.2B	STARTER	42-2339	G.E. - CR209C022ABZDNUC	EB-23	4
373	EPD		VEN E-7 SH.12 REV.8	STARTER	42-237	C-H 9656H158A	EB-02	4
374	EPD		VEN E-7 SH.12 REV.8	STARTER	42-241	C-H 9656H158A	EB-02	4
375	EPD		VEN E-109 SH.25 REV.2B	STARTER	42-2411	G.E. - CR209C022ABCNNUC	EB-24	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
376	EPD		VEN E-109 SH.25 REV.2B	STARTER	42-2413	G.E. - CR209C022ABZDNUC	EB-24	4
377	EPD		E-109 SH.44	STARTER	42-2425	G.E. - DD304A3636P015	EB-24	4
378	EPD	K-6B	E-280-1 REV 9	K-6B FAN V-24C CONTROL SW	42-2425/CS	G.E. - CR2940	K-6B	3
379	EPD		VEN E-109 SH.25 REV.2B	STARTER	42-2427	G.E. - CR209C022ABZDNUC	EB-24	4
380	EPD		VEN E-109 SH.25 REV.2B	STARTER	42-2429	G.E. - CR209C022ABZDNUC	EB-24	4
381	EPD		VEN E-109 SH.25 REV.2B	STARTER	42-2435	G.E. - DD304A3636P015	EB-24	4
382	EPD	K-6B	E-280-1 REV 9	K-6B FAN V-24D CONTROL SW	42-2435/CS	G.E. - CR2940	K-6B	3
383	EPD		VEN E-109 SH.25 REV.2B	STARTER	42-2437	G.E. - CR209C022ABZDNUC	EB-24	4
384	EPD		VEN E-109 SH.25 REV.2B	STARTER	42-2439	G.E. - CR209C022ABZDNUC	EB-24	4
385	EPD		VEN E-7 SH.12 REV.8	STARTER	42-245	C-H 9586H6990G	EB-24	4
386	EPD		VEN E-7 SH.12 REV.8	STARTER	42-247	C-H A50DNV0	EB-24	4
387	EPD		VEN E-7 SH.12 REV.8	STARTER	42-251	C-H A50DNV0	EB-02	4
388	EPD		E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	STARTER	42-2515	GOULD A213C	EB-25	4
389	EPD		VEN E-110 SH.1 REV.4D	STARTER	42-2524	GOULD A203F	EB-25	4
390	EPD		VEN E-110 SH.1 REV.4D, E-242 SH.4 REV 19	STARTER	42-2525	GOULD A213C	EB-25	4
391	EPD		VEN E-110 SH.1 REV.4D	STARTER	42-2527	GOULD A203D	EB-25	4
392	EPD		VEN E-110 SH.1 REV.4D	STARTER	42-2529	GOULD A203D	EB-25	4
393	EPD		VEN E-110 SH.1 REV.4D	STARTER	42-2535	GOULD A203D	EB-25	4
394	EPD	K-6A	E-280-1 REV 9	K-6A COOLING FAN V24A CNTL SW	42-2535/CS	G.E. CR2940	K-6A	3
395	EPD	EB-25	VEN E-110 SH.1 REV.4D	STARTER	42-2545	GOULD A203D	EB-25	4
396	EPD	K-6A	E-280-1 REV 9	K-6A COOLING FAN V24B CNTL SW	42-2545/CS	G.E. CR2940	K-6A	3
397	EPD	EB-25	VEN E-110 SH.1 REV.4D	STARTER	42-2549	GOULD A203C	EEQ RM	4
398	EPD	EB-02	VEN E-7 SH.12 REV.8	STARTER	42-255	C-H 9586H6990G	EB-02	4
399	EPD	EB-02	VEN E-7 SH.12 REV.8	STARTER	42-257	C-H 9586H6990G	EB-02	4
400	EPD	EB-02	VEN E-7 SH.13 REV.27	STARTER	42-261	C-H 9656H158A	EB-02	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
401	EPD		VEN E-110(Q) SH.2 REV.1C	STARTER	42-2615	ITE A213C	EB-26	4
402	EPD		VEN E-110(Q) SH.2 REV.1C	STARTER	42-2624	GOULD A203F	EB-26	4
403	EPD		VEN E-110(Q) SH.2 REV.1C, E-242 SH. 4 REV 19	STARTER	42-2625	ITE A213C48	EB-26	4
404	EPD		VEN E-110(Q) SH.2 REV.1C	STARTER	42-2627	ITE A203D	EB-26	4
405	EPD		VEN E-110(Q) SH.2 REV.1C	STARTER	42-2629	ITE A203D	EB-26	4
406	EPD		VEN E-110(Q) SH.2 REV.1C	STARTER	42-2649	ITE A203C	EB-26	4
407	EPD		VEN E-7 SH.13 REV.27	STARTER	42-267	C-H 9586H6355	EB-02	4
408	EPD		VEN E-7 SH.13 REV.27	STARTER	42-271	C-H 9656H158A	EB-02	4
409	EPD		VEN E-7 SH.13 REV.27	STARTER	42-275	C-H 9586H6990G	EB-02	4
410	EPD		VEN E-7 SH.13 REV.27	STARTER	42-277	C-H 9586H6492G	EB-02	4
411	EPD		VEN E-7 SH.13 REV.27	STARTER	42-287	C-H 9586H6355G	EB-02	4
412	RCPC	P-56A	E-203 REV.18	BORIC ACID PP P-56A CONTL SW	42-287/CS	G.E. - SBM10AA106	EC-02	3
413	EPD		VEN E-7 SH.13 REV.27	STARTER	42-291	C-H A10CN0	EB-02	4
414	EPD		VEN E-7 SH.13 REV.27	STARTER	42-299	C-H 9586H6355G	EB-02	4
415	EPD	EB-07	E-5 SH.4 REV.22	STARTER	42-711	C-H 9586H6281G	RM-121	4
416	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-713	C-H 9586H6281G	RM-121	4
417	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-717	C-H 9586H6355G	RM-121	4
418	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-723	C-H 9586H6990G	RM-121	4
419	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-727	C-H 9568H6281G	RM-121	4
420	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-729	C-H 9586H6990G	RM-121	4
421	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-731	C-H 9586H6990G	RM-121	4
422	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-737	C-H 9586H6990G	RM-121	4
423	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-739	C-H 9586H6281G	RM-121	4

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
424	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-741	C-H 9586H6990G	RM-121	4
425	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-743	C-H 9586H6281G	RM-121	4
426	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-747	C-H 9586H6281G	RM-121	4
427	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-749	C-H 9586H6281G	RM-121	4
428	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-751	C-H 9586H6990G	RM-121	4
429	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-753	C-H 9586H6990G	RM-121	4
430	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-757	C-H 9586H6990G	RM-121	4
431	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-759	C-H A10CN0	RM-121	4
432	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-761	C-H 9586H6281G	RM-121	4
433	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-763	C-H 9586H6990G	RM-121	4
434	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-771	C-H 9586H6990G	RM-121	4
435	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-773	C-H 9586H6281G	RM-121	4
436	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-775	C-H 9586H6990G	RM-121	4
437	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	STARTER	42-777	C-H 9586H6355G	RM-121	4
438	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-811	C-H 9586H6990G	RM-121	4
439	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-813	C-H 9586H6990G	RM-121	4
440	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-817	C-H 9586H6355G	RM-121	4
441	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-823	C-H 9586H6281G	RM-121	4
442	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-827	C-H 9586H6990G	RM-121	4
443	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-829	C-H 9586H6990G	RM-121	4
444	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-831	C-H 9586H6281G	RM-121	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
445	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-833	C-H 9586H6281G	RM-121	4
446	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-835	C-H 9586H6990G	RM-121	4
447	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-837	C-H 9586H6990G	RM-121	4
448	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-839	C-H 9586H6281G	RM-121	4
449	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-841	C-H 9586H6990G	RM-121	4
450	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-843	C-H 9586H6990G	RM-121	4
451	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-845	C-H A10CN0	RM-121	4
452	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-847	C-H 9586H6281G	RM-121	4
453	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-849	C-H 9586H6281G	RM-121	4
454	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-851	C-H 9586H6281G	RM-121	4
455	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-853	C-H 9586H6990G	RM-121	4
456	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-857	C-H A1FN0	RM-121	4
457	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-863	C-H 9586H6990G	RM-121	4
458	EPD	EB-08	VEN E-7 SH.19 REV.24	STARTER	42-867	C-H 9588H6990G	RM-121	4
459	RCPC	MO-2087	E-242 SH.1 REV.21	V C TANK OUTLET VLV MO-2087 SW	42X-161	WESTINGHOUSE-SG	EC-13	4
460	RCPC	EH-0502>0505A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTACTOR	42X/1502	CUTLER-HAMMER P/N D26MR60A	EB-15	4
461	RCPC	EH-0506>0510A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTACTOR	42X/1506	CUTLER-HAMMER P/N D26MR60A	EB-15	4
462	RCPC	EH-0602>0605A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTACTOR	42X/1602	CUTLER-HAMMER P/N D26MR60A	EB-16	4
463	RCPC	EH-0606>0610A>	E-254 SH.1 REV 7;E-254 SH.2 REV.9	PRESSURIZER HEATERS CONTACTOR	42X/1606	CUTLER-HAMMER P/N D26MR60A	EB-16	4
464	RCPC	P-55C	E-257 SH.2 REV.20	CHARGING PP P-55C SELECTOR SW	43-1105/SS	G.E. - CR2940UB200A	EC-12	3
465	RCPC	P-55B	E-257 SH.1 REV.20	CHARGING PP P-55B SELECTOR SW	43-1206/SS	G.E. - CR2940OUB200A	EC-12	3
466	EPD	EA-12	E-143 SH.1 REV.16	XFER 1-21 PROT LOCKOUT AUX	486-12	G.E. - HGA111	EC-04	2
467	EPD	EA-11	E-132-1 REV 22, E-132-1A REV 5, E-143-1 REV 15,E-143-2 REV 14	BKR 152-106 AUX RLY START TRAN	486-12X	G.E. - HGA111	EC-04	2
468	EPD	EA-12	E-117 SH.1A REV.6;E-132 SH.1 REV. 22	BRK 152-202 LOCKOUT AUX RELAY	486B-X/R	G.E. - 12HFA151A42H	EC-04	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
469	RCPC	SV-3030A;SV-303	E-246 SH.1 REV.15	SIRW TK LEVEL CONTROL VLV CKT1	4L1	G.E. - 12HFA151A42H	EC-13	4
470	RCPC	SV-3029A & SV-3	E-246-1	SIRW TK LEVEL CONTR VLV CKT 2	4L2	G.E. - 12HFA151A42H	EC-13	4
471	RCPC	SV-3030A;SV-303	E-219 SH.1 REV.10, E-246 SH.1 REV. 15, E-248 REV 14	BKR 152-111 SIRW TK LEVEL CNTL	4L3	G.E. - 12HFA151A42H	EC-13	4
472	EPD	EA-12	E-219 SH.1 REV.10, E-247 REV 15	BKR 152-206 SIRW TK LVL CIR#2	4L4	G.E. - 12HFA151A42H	EC-13	4
473	EPD	EA-11	E-129-1 REV 10, E-129-1A REV 4	BKR 152-105 OVERCUR LOCKOUT	51X/WL (152-105)	ALLIS CHALMERS 210	EA-11	1
474	EPD	EB-19	E-4 SH.2 REV.18;VEN E-111 SH.2 REV.4B	MCC #1 480V FEEDER	52-1006	ITE K-600S	EEQ RM	3
475	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	BUS 11 FEEDER FROM XFMER EX-11	52-1102	ITE K-600	EB-11	3
476	EPD	EB-12	E-4 SH.1 REV.31;E-135 SH.1 REV.6	CLOSING INTERLOCK	52-1102 (CI)	ITE L2	CS RM	3
477	EPD	EB-07	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A; E-134-1 REV 11	MCC #7 FEEDER	52-1103	ITE K-600	EB-11	3
478	EPD	EB-07	E-134-1 REV 11	BKR 52-1103 CONTROL SWITCH	52-1103/CS	G.E. - SBM	EC-04	3
479	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	CHARGING PUMP P-55C	52-1105	ITE K-225	CS RM	3
480	RCPC	P-55C	E-257 SH.2 REV.20	CHARGING PP P-55C CONTROL SW	52-1105/CS	G.E. - SBM10AA106	EC-02	3
481	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	INST AIR COMPRESSOR C-2A	52-1106	ITE K-225	CS RM	3
482	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	INST AIR COMPRESSOR C-2C	52-1107	ITE K-225	CS RM	3
483	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	CNTMT COOLER RECIRC FAN V-4A	52-1108	ITE K-225	CS RM	3
484	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	MAIN EXHAUST FAN V-6B	52-1111	ITE K-225	CS RM	3
485	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	MCC 21 & 23 480V FEEDER	52-1112	ITE K-225	CS RM	3
486	EPD	EB-21	E-134 SH.1 REV.11	MCC # 21 & 23 CONTROL SWITCH	52-1112/CS	G.E. - SBM	EC-04	3
487	EPD	EB-11	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	LC EB-11 & EB-12 TIE BREAKER	52-1118	ITE K-1600	CS RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
488	EPD	EB-12	E-4 SH.1 REV.31;E-135 SH.1 REV.6	CLOSING INTERLOCK	52-1118 (CI)	ITE L2	CS RM	3
489	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	HI PRES SEAL OIL BACKUP PP P24	52-113	WESTINGHOUSE-FA3560M	CS RM	3
490	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	LIGHTING PNL L 02A	52-115	WESTINGHOUSE-FB3020	CS RM	3
491	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	D/G 1-1 AUX	52-116	WESTINGHOUSE-FA377D944G22	CS RM	3
492	EPD	K-6A	E-140-1 REV 17, E-140-1A REV 2, M-12-97 REV 5	K-6A LUBE OIL HEATER CONTAC	52-116A	G.E. - CR306D000AAJA	EG-21	3
493	EPD	K-6A	E-140-1 REV 17, E-140-1A REV 2, M-12-97 REV 5	K-6A JACKET WATER HEAT CONTAC	52-116B	G.E. - CR306D000AAJA	EG-21	3
494	EPD	K-6A	E-140-1 REV 17, E-140-1A REV 2, M-12-97 REV 5	K-6A AIR COMPRESSOR CONTAC	52-116C	G.E. - CR306C000AAJA	EG-21	3
495	EPD	K-6A	E-140-1 REV 17, E-140-1A REV 2, M-12-97 REV 5	K-6A LUBE OIL PRIM PUMP CONTAC	52-116D	G.E. - CR306C000DAJA	EG-21	3
496	EPD	K-6A	E-140-1 REV 17, E-140-1A REV 2, M-12-97 REV 5	K-6A CRANKCASE EXHAUSTERS	52-116E	G.E. - CR306B000AAJA	EG-21	3
497	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	EMER TG BEARING OIL PP P-27	52-117	WESTINGHOUSE-FA31550M	CS RM	3
498	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A;E-134 SH.1 REV.11	FEED TO MCC #8	52-1201	ITE K-600	CS RM	3
499	EPD	EB-08	E-134 SH.1 REV.11	BRK 52-1201 CONTROL SWITCH	52-1201/CS	G.E. - SBM	EC-04	3
500	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A;E-135 SH.1 REV.6	BUS 12 FEEDER FROM XFMER EX-12	52-1202	ITE K-1600	CS RM	3
501	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	CHARGING PUMP P-55A	52-1205	ITE K-225	CS RM	3
502	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	CHARGING PUMP P-55B	52-1206	ITE K-225	CS RM	3
503	RCPC	P-55B	E-257 SH.1 REV.20	CHARGING PP P-55B CONTROL SW	52-1206/CS	G.E. - SBM10AA106	EC-02	3
504	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	INST AIR COMPRESSOR C-2B	52-1207	ITE K-225	CS RM	3
505	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	CNTMT COOLER RECIRC FAN V-1A	52-1208	ITE K-225	CS RM	3
506	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	CNTMT COOLER RECIRC FAN V-2A	52-1209	ITE K-225	CS RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
507	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	CNTMT COOLER RECIRC FAN V-3A	52-1210	ITE K-225	CS RM	3
508	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A, E-134 SH.1 REV.11;E-6 SH.21 REV.3	MCC 22 & 24 FEEDER	52-1214	ITE K-225	CS RM	3
509	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A	MAIN EXHAUST FAN V-6A	52-1215	ITE K-225	CS RM	3
510	EPD	EB-12	E-4 SH.1 REV.31;VEN E-6 SH.2 REV. 11A;E-135 SH.1 REV.11	LC EB-12 TIE	52-1217	ITE K-1600	CS RM	3
511	EPD	EB-12	E-4 SH.1 REV.31;E-135 SH.1 REV.6	CLOSING INTERLOCK	52-1217 (CI)	ITE L2	CS RM	3
512	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	FUEL OIL TRANSFER PP P-18B	52-123	WESTINGHOUSE-FA3080M	CS RM	3
513	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	CRD TRANSFORMER #2 EX-46	52-125	WESTINGHOUSE	CS RM	3
514	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	LIGHTING PNL L 04A	52-126	WESTINGHOUSE-FB3070	CS RM	3
515	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	BORIC ACID GF STOP VLV MO-2169	52-127	WESTINGHOUSE-FA3035M	CS RM	3
516	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	ESG RM COOLER V-27A	52-131	WESTINGHOUSE-FA3560M	CS RM	3
517	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	ESG RM COOLER V-27C	52-133	WESTINGHOUSE-FA3560M	CS RM	3
518	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	HEATING BOILER	52-135	WESTINGHOUSE-377D943G20	CS RM	3
519	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	FEED WATER CONTROL PNL EC-28	52-136	WESTINGHOUSE-FA3020	CS RM	3
520	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	HI PRESS INJECTION VLV MO-3007	52-137	WESTINGHOUSE-FA3080M	CS RM	3
521	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	LO PRESS INJECTION VLV MO-3008	52-141	WESTINGHOUSE-FA3480MRL	CS RM	3
522	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	INSTRUMENT AC TRANSF #1 EX-21	52-145	WESTINGHOUSE-FB3050	CS RM	3
523	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	STATION BATTERY CHARGER #1	52-146	WESTINGHOUSE-FB3100	CS RM	3
524	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	LO PRESS INJECTION VLV MO-3010	52-147	WESTINGHOUSE-FB3480MRL	CS RM	3
525	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1501	ITE FJ3 M125	RM-143	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
526	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1502	ITE FJ3 M125	RM-143	3
527	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1503	ITE FJ3 M125	RM-143	3
528	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1504	ITE FJ3 M125	RM-143	3
529	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1505	ITE FJ3 M125	RM-143	3
530	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1506	ITE FJ3 M125	RM-143	3
531	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1507	ITE FJ3 M125	RM-143	3
532	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1508	ITE FJ3 M125	RM-143	3
533	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1509	ITE FJ3 M125	RM-143	3
534	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	HI PRESS INJECTION VLV MO-3013	52-151	WESTINGHOUSE-FA3080M	CS RM	3
535	EPD	EB-15	E-4 SH.1 REV.31;VEN E-8 SH.2 REV. 3A, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1510	ITE FJ3 M125	RM-143	3
536	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	ESG RM SUMP PUMP P-72B	52-155	WESTINGHOUSE-FA3035M	CS RM	3
537	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	HI PRESS INJECTION VLV MO-3011	52-157	WESTINGHOUSE-FA3080M	CS RM	3
538	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1601	ITE FJ3 M125	RM-143	3
539	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1602	ITE FJ3 M125	RM-143	3
540	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1603	ITE FJ3 M125	RM-143	3
541	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1604	ITE FJ3 M125	RM-143	3
542	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1605	ITE FJ3 M125	RM-143	3
543	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1606	ITE FJ3 M125	RM-143	3
544	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1607	ITE FJ3 M125	RM-143	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
545	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1608	ITE FJ3 M125	RM-143	3
546	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1609	ITE FJ3 M125	RM-143	3
547	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	VOL CONTL TK OUTLET MO-2087	52-161	WESTINGHOUSE-FA3035M	CS RM	3
548	EPD	EB-16	E-4 SH.1 REV.31;VEN E-8 SH.4 REV.3, E-254 SH.1 REV 7	PRESSURIZER HEATERS BRK	52-1610	ITE FJ3 M125	RM-143	3
549	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	WESG RM SUMP PUMP P-73B	52-165	WESTINGHOUSE-FA3035M	CS RM	3
550	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	PRI LOOP SP COOLING MO-3015	52-167	WESTINGHOUSE-FA3190M	CS RM	3
551	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	SHIELD COOLING PP #2 P-77B	52-171	WESTINGHOUSE-FB3190MRL	CS RM	3
552	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	SIRW TANK RECIRC PUMP P-74	52-173	WESTINGHOUSE-FA3035M	CS RM	3
553	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	FREEZE PROT CONTL PNL EC-145	52-175	CUTLER-HAMMER	CS RM	3
554	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	HYDROGEN REMCOMBINER M69B	52-176	WESTINGHOUSE-377D021G23	CS RM	3
555	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	PENET & FAN RM SUPPLY FAN V-78	52-183	WESTINGHOUSE-FB348MRL	CS RM	3
556	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	LIGHTING PNL L-06 & L-06A	52-185	WESTINGHOUSE-FB3030	CS RM	3
557	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	STATION BATTERY CHARGER #4 D18	52-186	WESTINGHOUSE-FB3100	CS RM	3
558	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	BORIC ACID G FEED VLV MO-2170	52-187	WESTINGHOUSE-FA3035M	CS RM	3
559	EPD	EB-19	E-4 SH.2 REV.18;VEN E-111 SH.2 REV.4B	MCC #25 480V FEEDER	52-1901	ITE K-600S	EEQ RM	3
560	EPD	EB-25	E-134 SH.1 REV.11	BRK 52-1901 CONTROL SWITCH	52-1901/CS	G.E. - SBM	EC-04	3
561	EPD	EB-19	E-4 SH.2 REV.18;VEN E-111 SH.2 REV.4B	LC #19 480V FEEDER	52-1902	ITE K-600S	EEQ RM	3
562	EPD	EB-01	E-4 SH.2 REV.18;E-134 SH.1 REV. 11;E-128 SH.1 REV.5	MCC-1 FEEDER	52-1906	ITE K-600S	EB-19	3
563	EPD	EB-01	E-134 SH.1 REV.11	BKR 52-1906 CONTROL SWITCH	52-1906/CS	G.E. - SBM	EC-04	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
564	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	BORIC ACID PUMP P-56B	52-191	WESTINGHOUSE-1268C14G04	CS RM	3
565	EPD	EB-01	VEN E-7 SH.10 REV.23;E-5 SH.1 REV. 41	HI PRES INJECTION VLV MO-3009	52-197	WESTINGHOUSE-FA3080M	CS RM	3
566	EPD	EB-20	WD950-E-1-A REV.1;VEN E-111 SH.1 REV.5B, E-134 SH.1 REV.11	MCC EB-26 FEEDER BREAKER	52-2001	ITE K-1600S	EEQ RM	3
567	EPD	EB-20	E-1171 SH.1 REV.21;VEN E-111 SH.1 REV.5B	480V MCC EB-20 INCOMMING BRK	52-2002	ITE K-1600S	EEQ RM	3
568	EPD	EB-20	WD950-E-1-A REV.1;VEN E-111 SH.1 REV.5B, E-134 SH.1 REV.11;E-128 SH. 1 REV.5	480V MCC EB-02 FEEDER BRK	52-2006	ITE K-600S	EEQ RM	3
569	EPD	EB-02	E-134 SH.1 REV.11	BKR 52-2006 CONTROL SWITCH	52-2006/CS	G.E. - SBM	EC-04	3
570	EPD	EB-02	E-100 SH.1 REV.18;E-258 REV.7	HYDROGEN RECOMBINER M-69A	52-205	WESTINGHOUSE-FA3100	CS RM	3
571	EPD	EB-02	VEN E-7 SH.13 REV.27	SECURITY SYSTEM VITAL FEEDER	52-206	G.E. - TED136125	CS RM	3
572	EPD	EB-02	VEN E-7 SH.13 REV.27;E-100 SH.1 REV.18;E-242 SH.1 REV.21	REFUEL WTR CHRG PP VLV MO-2160	52-207	WESTINGHOUSE-FA3035M	CS RM	3
573	EPD	EB-02	VEN E-7 SH.12 REV.8	ESG ROOM COOLER V-27B	52-211	WESTINGHOUSE-FA3560M	CS RM	3
574	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	BATTERY RM EXHAUST FAN V-15A	52-2111	G.E. - TEC36003	CS RM	3
575	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	HPSI MODE SEL VLV MO-3081	52-2113	G.E. - TEC36007	CS RM	3
576	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	CNTMT HYDROGEN MON. PNL C-161	52-2123	G.E. - TED134020	CS RM	3
577	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	AUX FW E-50B ISO VLV MO-0743	52-2127	FE TEC36007	CS RM	3
578	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	SI TK T-82A OUTLET VLV MO-3041	52-2129	G.E. - TEC36015	CS RM	3
579	EPD	EB-02	VEN E-7 SH.12 REV.8	PENET & FAN RM'S EXH FAN V-79	52-213	WESTINGHOUSE-FA3560	CS RM	3
580	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	TRANSFORMER EX-87 BRK	52-2133	G.E. - TED134050	CS RM	3
581	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	AUX FW E-50B ISO VLV MO-0755	52-2137	G.E. - TEC36007	CS RM	3
582	EPD	EB-21	E-5 SH.5B REV.8;VEN E-109 SH.13 REV.2B	LPSI VLV MO-3189 P-67B SUCTION	52-2139	G.E. - TEC36007	CS RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
583	EPD	EB-02	VEN E-7 SH.12 REV.8	LIGHTING PANEL L-29	52-215	WESTINGHOUSE-FA3030	CS RM	3
584	EPD	EB-02	VEN E-7 SH.12 REV.8	DIESEL GEN 1-2 AUX	52-216	WESTINGHOUSE-FB3070	CS RM	3
585	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B LUBE OIL HEATER	52-216A	G.E. - CR306D000AAJA	EG-31	3
586	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B LUBE JACK WATER HEAT CONT	52-216B	G.E. - CR306D000AAJA	EG-31	3
587	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B AIR COMPRESSOR CONTACTOR	52-216C	G.E. - CR306D000AAJA	EG-31	3
588	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B LUBE OIL PRIM PUMP CONTAC	52-216D	G.E. - CR306C000DAJA	EG-31	3
589	EPD	K-6B	E-140-1A REV 2, M-12-103 REV 0C, M-12-104 REV 0C	K-6B CRANKCASE EXHAUSTERS	52-216E	G.E. - CR306B000AAJA	EG-31	3
590	EPD	EB-02	VEN E-7 SH.12 REV.8	FEED TO STOP VLV MO-3072	52-217	WESTINGHOUSE-FA3035M	CS RM	3
591	EPD	EB-02	VEN E-7 SH.12 REV.8	ESG ROOM COOLER V-27D	52-221	WESTINGHOUSE-FB3480MRL	CS RM	3
592	EPD	EB-22	E-5 SH.5B REV.8;E-244 SH.5 REV.3;E-244 SH.6 REV.4	HPSI MODE SEL SW VLV MO-3082	52-2213	G.E. - TEC360077	1D SW GR	3
593	EPD	EB-22	E-5 SH.5B REV.8	AUX FW E-50B ISO VLV MO-0789	52-2227	G.E. - TEC36007	1D SW GR	3
594	EPD	EB-22	E-5 SH.5B REV.8;E-243 SH.1 REV.8	SIS TK T-82C DISCH VLV MO-3049	52-2229	WESTINGHOUSE-FA3025M	1D SW GR	3
595	EPD	EB-22	E-5 SH.5B REV.8;E-13 SH.2 REV.7;E-44 SH.110 REV.5	XFMER EX-20 LIGHTING PNL EL-30	52-2234	G.E. - TED134070	1D SW GR	3
596	EPD	EB-22	E-5 SH.5B REV.8, E-1174 SH.1 REV. 3;E-1174 SH.2 REV.10	AUX FW E-50B ISO VLV MO-0748	52-2237	G.E. - TEC36007	1D SW GR	3
597	EPD	EB-22	E-5 SH.5B REV.8;E-928 SH.13 REV. 2;E-244 SH.8&9 REV.11	LPSI INLET VLV MO-3198	52-2239	G.E. - TEC36007	1D SW GR	3
598	EPD	EB-02	VEN E-7 SH.12 REV.8	STATION BATTERY CHARGER #2	52-225	WESTINGHOUSE-FB3100	CS RM	3
599	EPD	EB-02	VEN E-7 SH.12 REV.8	CRD TRANSF #1	52-226	WESTINGHOUSE-FB3030	CS RM	3
600	EPD	EB-02	VEN E-7 SH.12 REV.8	BORIC ACID PP FEED VLV MO-2140	52-227	WESTINGHOUSE-FA3035M	CS RM	3
601	EPD	EB-23	E-5 SH.5B REV.8;VEN E-109 SH.21 REV.2B	HPSI MODE SEL VLV MO-3083	52-2313	G.E. - TEC36007	CS RM	3
602	EPD	EB-23	E-5 SH.5B REV.8;VEN E-109 SH.21 REV.2B	1-E LIGHTING PANEL L-9014	52-2323	G.E. - TED134020	CS RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
603	EPD	EB-23	E-5 SH.5B REV.8;VEN E-109 SH.21 REV.2B	AUX FW E-50A ISO VLV MO-0753	52-2327	G.E. - TEC36007	CS RM	3
604	EPD	EB-23	E-5 SH.5B REV.8;VEN E-109 SH.21 REV.2B	SI TK T-82B OUTLET VLV MO-3045	52-2329	G.E. - TEC36015	CS RM	3
605	EPD	EB-23	E-5 SH.5B REV.8;VEN E-109 SH.21 REV.2B	AUX FW E-50A ISO VLV MO-0759	52-2337	G.E. - TEC36007	CS RM	3
606	EPD	EB-23	E-5 SH.5B REV.8;VEN E-109 SH.21 REV.2B	MOV-3190 P-67B SUCTION SHUTDN	52-2339	G.E. - TEC36007	CS RM	3
607	EPD	EB-02	VEN E-7 SH.12 REV.8	LIGHTING PANEL L-05A	52-235	WESTINGHOUSE-FB3020	CS RM	3
608	EPD	EB-02	VEN E-7 SH.12 REV.8	INSTRUMENT AC MANUAL TRANSFER	52-236	WESTINGHOUSE-FB3050	CS RM	3
609	EPD	EB-02	VEN E-7 SH.12 REV.8	HI PRESS INJECTION VLV MO-3064	52-237	WESTINGHOUSE-FA3080M	CS RM	3
610	EPD	EB-02	VEN E-7 SH.12 REV.8	HI PRES INJECTION VLV MO-3062	52-241	WESTINGHOUSE-FA3080M	CS RM	3
611	EPD	EB-24	E-5 SH.5B REV.8;E-214 SH.2 REV.4	BATTERY RM EXHAUST FAN V-15B	52-2411	G.E. - TEC36003	CS RM	3
612	EPD	EB-24	E-5 SH.5B REV.8;E-244 SH.5 REV.3;E-244 SH.6 REV.4	HPSI MODE SEL VLV MO-3080	52-2413	G.E. - TEC36007	CS RM	3
613	EPD	EB-24	E-5 SH.5B REV.8;E-928 SH.13 REV. 2;E-928 SH.18 REV.6	H2 SAMPLE PUMP PNL C-162	52-2423	G.E. - TED134020	CS RM	3
614	EPD	EB-24	E-5 SH.5B REV.8;E-280 SH.1 REV.9	DG K-6B RM CL'G VENT FAN V-24C	52-2425	G.E. - DD213A9893P011	CS RM	3
615	EPD	EB-24	E-5 SH.5B REV.8;E-1174 SH.1 REV.8	AUX FW E-50A ISO VLV MO-0760	52-2427	G.E. - TEC36007	CS RM	3
616	EPD	EB-24	E-5 SH.5B REV.8;E-243 SH.1 REV.8	SI TK T-82D DISCH VLV MO-3052	52-2429	WESTINGHOUSE-FA3025M	CS RM	3
617	EPD	ED-24	E-5 SH.5B REV.8;E-928 SH.13 REV. 1;E-928 SH.18 REV.6	DIST. PNL EL-58 XFORMER EX-88	52-2433	G.E. - TED134050	CS RM	3
618	EPD	EB-24	E-5 SH.5B REV.8;E-280 SH.1 REV.9	D/G K-6B RM CL'G FAN V-24D	52-2435	G.E. - DD213A9893P011	CS RM	3
619	EPD	EB-24	E-5 SH.5B REV.8;E-1174 SH.1 REV.8, E-1174 SH.2 REV.10	AUX FW E-50A ISO VLV MO-0754	52-2437	G.E. - TEC36007	CS RM	3
620	EPD	EB-24	E-5 SH.5B REV.8;E-928 SH.13 REV. 1;E-244 SH.8 REV.10	SHUTDN COOLING VLV MO-3199	52-2439	G.E. - TEC36007	CS RM	3
621	EPD	EB-02	VEN E-7 SH.12 REV.8	W ESG SUMP PUMP P-73A	52-245	WESTINGHOUSE-FA3035M	CS RM	3
622	EPD	EB-02	VEN E-7 SH.12 REV.8	LO PRESS INJECTION VLV MO-3012	52-247	WESTINGHOUSE-FB3480MRL	CS RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
623	EPD	EB-02	VEN E-7 SH.12 REV.8	LO PRESS INJECTION VLV MO-3014	52-251	WESTINGHOUSE-FA3560M	CS RM	3
624	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	FREEZE PROT CONTROL PNL C-190A	52-2511	ITE B015	EEQ RM	3
625	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	AFU VF-26A INLET DAMPER D-7	52-2515	ITE A003	EEQ RM	3
626	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	AFU AF-26A HEATER	52-2523	ITE B030	EEQ RM	3
627	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	CONDEN UNIT VC-11 FOR AHU V-95	52-2524	ITE 225A	EEQ RM	3
628	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D, E-242 SH.4 REV 19	PRESS RELIEF VLV MO-1042A	52-2525	ITE HE3A010	EEQ RM	3
629	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	AIR FILTER UNIT FAN V-26A	52-2527	ITE L050	EEQ RM	3
630	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	AHU FAN V-95	52-2529	ITE H050	EEQ RM	3
631	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	D/G RM VENT FAN V-24A	52-2535	ITE L050	EEQ RM	3
632	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	D/G RM VENT FAN V-24B	52-2545	ITE L050	EEQ RM	3
633	EPD	EB-25	E-5 SH.5C REV.6;VEN E-110 SH.1 REV.4D	AFU FAN V-26A MODUL DAMP D-20	52-2549	ITE A005	EEQ RM	3
634	EPD	EB-02	VEN E-7 SH.12 REV.8	E ESG SUMP PUMP P-72A	52-255	WESTINGHOUSE-FA3035M	CS RM	3
635	EPD	EB-02	VEN E-7 SH.12 REV.8	HI PRESS INJECTION VLV MO-3066	52-257	WESTINGHOUSE-FA3080M	CS RM	3
636	EPD	EB-02	VEN E-7 SH.13 REV.27	HI PRESS INJECTION VLV MO-3068	52-261	WESTINGHOUSE-FA3080M	CS RM	3
637	EPD	EB-26	E-5 SH.5C REV.6;VEN E-110(Q) SH.2 REV.1C	FREEZE CONTROL PNL C-190B	52-2611	ITE B015	EEQ RM	3
638	EPD	EB-26	E-5 SH.5C REV.6;VEN E-110(Q) SH.2 REV.1C	AFU VF-26B INLET DAMPER D-14	52-2615	ITE A003	EEQ RM	3
639	EPD	EB-26	E-5 SH.5C REV.6;VEN E-110(Q) SH.2 REV.1C	AFU AF-26B HEATER	52-2623	ITE B030	EEQ RM	3
640	EPD	EB-26	E-5 SH.5C REV.6;VEN E-110(Q) SH.2 REV.1C	COND. UNIT FOR AHU V-96	52-2624	ITE A225	EEQ RM	3
641	EPD	EB-26	E-5 SH.5C REV.6;VEN E-110(Q) SH.2 REV.1C, E-242 SH.4 REV 19	PRESS RELIEF ISO VLV MO-1043A	52-2625	ITE HE3A010	EEQ RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
642	EPD	EB-26	E-5 SH.5C REV.6;VEN E-110(Q) SH.2 REV.1C	AFU FAN V-26B	52-2627	ITE L050	EEQ RM	3
643	EPD	EB-26	E-5 SH.5C REV.6;VEN E-110(Q) SH.2 REV.1C	AHU FAN V-96	52-2629	ITE H050	EEQ RM	3
644	EPD	EB-26	VEN E-110(Q) SH.2 REV.1C	UNIT FAN V-26B MODUL DAMP D-21	52-2649	ITE A005	EEQ RM	3
645	EPD	EB-02	VEN E-7 SH.13 REV.27	PC PP BACKSTOP OIL PP P-83A-D	52-265	WESTINGHOUSE-FB3020	CS RM	3
646	EPD	EB-02	VEN E-7 SH.13 REV.27	FREEZE PROT CONTROL PNL C-146	52-266	CUTLER-HAMMER	CS RM	3
647	EPD	EB-02	VEN E-7 SH.13 REV.27	GEN TURNING GEAR MOTOR K-2	52-267	WESTINGHOUSE-FA31550M	CS RM	3
648	EPD	EB-02	VEN E-7 SH.13 REV.27	PRI LOOP SD COOL'G VLV MO-3016	52-271	WESTINGHOUSE-FA3190M	CS RM	3
649	EPD	EB-02	VEN E-7 SH.13 REV.27	TURNING GEAR PONY MOTOR K-2A	52-275	WESTINGHOUSE-FA3080M	CS RM	3
650	EPD	EB-02	VEN E-7 SH.13 REV.27	GEN TURNING GEAR OIL PUMP P-26	52-277	WESTINGHOUSE-FA31550M	CS RM	3
651	EPD	EB-02	VEN E-7 SH.13 REV.27	STATION BATTERY CHARGER #3	52-285	WESTINGHOUSE-FB3100	CS RM	3
652	EPD	EB-02	VEN E-7 SH.13 REV.27	BORIC ACID PUMP P-56A	52-287	WESTINGHOUSE-FA31550M	CS RM	3
653	EPD	EB-02	VEN E-7 SH.13 REV.27	SHIELD COOL'G PUMP #1 P-77A	52-291	WESTINGHOUSE-FB3190MRL	CS RM	3
654	EPD	EB-02	VEN E-7 SH.13 REV.27	T/GEN EMERG AIR BACKUP PP P-23	52-299	WESTINGHOUSE-FB-31550MRL	CS RM	3
655	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	SPENT RESIN TRANSFER PP P-107	52-711	WESTINGHOUSE	RM-121	3
656	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	AIR RM PURGE FAN V-46	52-713	WESTINGHOUSE-FA3560M	RM-121	3
657	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	AUX BLDG ELEVATOR M-4	52-715	WESTINGHOUSE-FB3030	RM-121	3
658	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	LIGHTING PANEL EL-05	52-716	WESTINGHOUSE-FB3100L	RM-121	3
659	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	FUEL POOL COOLING PUMP P-51A	52-717	WESTINGHOUSE-FA31550M	RM-121	3
660	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	FUEL HANDL'G AREA AHU V-7	52-723	WEST. FA3190M/FB-3190MRL	RM-121	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
661	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	FUEL BUILDING CRANE L-3	52-725	WESTINGHOUSE-KA3225F	RM-121	3
662	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	RADW SYS DEGASIFIER PP P-68A	52-727	WESTINGHOUSE-FA3560M	RM-121	3
663	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	FUEL HANDL'G AREA EXH FAN V-8A	52-729	WESTINGHOUSE	RM-121	3
664	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	LAUNDRY DRAIN TK PUMP P-62	52-731	WESTINGHOUSE-FA3190M	RM-121	3
665	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	FUEL XFER MECH SPENT FUEL SIDE	52-736	WEST. FA3030/FB303	RM-121	3
666	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	PRI SYS DRAIN TK PUMP P-71A	52-737	WEST. FA3080M/FB3110MRL	RM-121	3
667	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	RADW AREA EXH FAN V-14A	52-739	WEST. FA3560M/FB3480MRL	RM-121	3
668	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	CHEM LAB DRAIN PUMP P-61	52-741	WEST. FA3190M/FB3190MRL	RM-121	3
669	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	RECEIVER TK CIRC PUMP P-70	52-743	WEST. FA3560M/FB3480MRL	RM-121	3
670	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	CONF RM AIR COND VC-2	52-745	WEST. FA3070/FB3070	RM-121	3
671	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	RECEIVER TANK PUMP P-69A	52-747	WEST. FA3560M/FB3480MRL	RM-121	3
672	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	TREATED WASTE MONITOR PP P-58A	52-749	WEST. FA3560M/FB3480MRL	RM-121	3
673	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	WASTE GAS COMPRESSOR C-50A	52-751	WEST. FA3080M/FB3110MRL	RM-121	3
674	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	DIRTY WASTE DRAIN PUMP P-60B	52-753	WEST. FA3190M/3190MRL	RM-121	3
675	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	BACKSTOPS P-84A THRU D	52-755	WEST. FA3020/FB3020	RM-121	3
676	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	LIGHTING TRANSFORMER EX-48	52-756	WESTINGHOUSE-FA3040	RM-121	3
677	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	TK T-102 IMMERS HTR HT-0437A	52-757	WESTINGHOUSE-FA3015	RM-121	3
678	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	RADW DEGASIFIER VAC PP C-51B	52-759	WEST. FA3080M/FB3110MRL	RM-121	3
679	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	EQUIP DRAIN TK PUMP P-75A	52-761	WEST. FA3560M/FB3480MRL	RM-121	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
680	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	SWGR RM RECIRC FAN V-43	52-763	WEST. FA3080M/FB3110MRL	RM-121	3
681	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	BORIC ACID HT TRACE PNL EC-30A	52-768	WESTINGHOUSE-FA3040	RM-121	3
682	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	HI PRESS AIR COMPRESSOR C-6A	52-771	WEST. FA3190M/FB3190MRL	RM-121	3
683	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	BORIC AICD BATCH TK HTR EH-73	52-773	WEST. FA3070/FB3070	RM-121	3
684	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	TK T-103 IMMERS HTR HT-0438A	52-775	WESTINGHOUSE-FA3015	RM-121	3
685	EPD	EB-07	E-5 SH.4 REV.22;VEN E-7 SH.18 REV. 21	RADW AREA SUPPLY FAN V-10	52-777	WEST. FA3560M/FB3480MRL	RM-121	3
686	EPD	EB-08	VEN E-7 SH.19 REV.24	HI PRESS AIR COMPRESSOR C-6B	52-811	WESTINGHOUSE-FA3190M	RM-121	3
687	EPD	EB-08	VEN E-7 SH.19 REV.24	AUX BULDG RECIRC FAN V-42	52-813	WESTINGHOUSE-FA3190M	RM-121	3
688	EPD	EB-08	VEN E-7 SH.19 REV.24	BORIC ACID PNL EC-30B & EC-301	52-815	WESTINGHOUSE-FB3070	RM-121	3
689	EPD	EB-08	VEN E-7 SH.19 REV.24	FUEL POOL COOL'G PUMP P-51B	52-817	WESTINGHOUSE-FA31550M	RM-121	3
690	EPD	EB-08	VEN E-7 SH.19 REV.24	DEGASIFIER PUMP P-68B	52-823	WESTINGHOUSE-FA3560M	RM-121	3
691	EPD	EB-08	VEN E-7 SH.19 REV.24	NEW FUEL ELEVATOR H-5	52-825	WESTINGHOUSE-FA3030	RM-121	3
692	EPD	EB-08	VEN E-7 SH.19 REV.24	LIGHTING TRANSFORMER EX-37	52-826	WESTINGHOUSE-FA3070	RM-121	3
693	EPD	EB-08	VEN E-7 SH.19 REV.24	DEGASIFIER VAC PUMP C-51A	52-827	WESTINGHOUSE-FB3110MRL	RM-121	3
694	EPD	EB-08	VEN E-7 SH.19 REV.24	DIRTY WASTE DRAIN PUMP P-60A	52-829	WESTINGHOUSE-FA3560M	RM-121	3
695	EPD	EB-08	VEN E-7 SH.19 REV.24	EQUIP DRAIN TANK PUMP P-75B	52-831	WESTINGHOUSE-FA3560M	RM-121	3
696	EPD	EB-08	VEN E-7 SH.19 REV.24	SW GEAR SUPPLY FAN V-33	52-833	WESTINGHOUSE-FA3560M	RM-121	3
697	EPD	EB-08	VEN E-7 SH.19 REV.24	FILTERED WASTE MONITOR PP P-63	52-835	WESTINGHOUSE-FA3560M	RM-121	3
698	EPD	EB-08	VEN E-7 SH.19 REV.24	FUEL HANDL'G AREA EXH FAN V-8B	52-837	WESTINGHOUSE-FA3560M	RM-121	3
699	EPD	EB-08	VEN E-7 SH.19 REV.24	FUEL POOL BOOSTER PUMP P-82	52-839	WESTINGHOUSE-FB3480MRL	RM-121	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
700	EPD	EB-08	VEN E-7 SH.19 REV.24	OFFICE AREA SUPPLY FAN V-45	52-841	WESTINGHOUSE-FA3190M	RM-121	3
701	EPD	EB-08	VEN E-7 SH.19 REV.24	PRI SYS DRAIN TK PUMP P-71B	52-843	WESTINGHOUSE-FA3190M	RM-121	3
702	EPD	EB-08	VEN E-7 SH.19 REV.24	T-103 IMMERSION HTR HTR-0438B	52-845	WESTINGHOUSE-FB3015	RM-121	3
703	EPD	EB-08	VEN E-7 SH.19 REV.24	RADW AREA EXHAUST FAN V-14B	52-847	WESTINGHOUSE-FA3560M	RM-121	3
704	EPD	EB-08	VEN E-7 SH.19 REV.24	RECEIVER TANK PUMP P-69B	52-849	WESTINGHOUSE-FA3560M	RM-121	3
705	EPD	EB-08	VEN E-7 SH.19 REV.24	TREATED WASTE MONITOR PP P-58B	52-851	WESTINGHOUSE-FA3560M	RM-121	3
706	EPD	EB-08	VEN E-7 SH.19 REV.24	WASTE GAS COMPRESSOR C-50B	52-853	WESTINGHOUSE-FA3080M	RM-121	3
707	EPD	EB-08	VEN E-7 SH.19 REV.24	WELDING OUTLETS W801 THRU 804	52-855	WESTINGHOUSE-FB3070L	RM-121	3
708	EPD	EB-08	VEN E-7 SH.19 REV.24	AUX BLDG SFPOOL SERVICE PLATFM	52-856	WESTINGHOUSE-FA3030	RM-121	3
709	EPD	EB-08	VEN E-7 SH.19 REV.24	SW GR EXHAUST FAN V-47	52-857	WESTINGHOUSE-KA3225F	RM-121	3
710	EPD	EB-08	VEN E-7 SH.19 REV.24	TK T-102 IMMERS. HTR HTR-0437B	52-863	WESTINGHOUSE-FB3015	RM-121	3
711	EPD	EB-08	VEN E-7 SH.19 REV.24	FUEL POOL ROLL UP DOOR	52-866	WESTINGHOUSE-FB3020	RM-121	3
712	EPD	EB-08	VEN E-7 SH.19 REV.24	FUEL OIL XFER PUMP P-18A	52-867	WESTINGHOUSE-FA3080M	RM-121	3
713	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-102 AUXILIARY RELAY	52/X (152-102)	ALLIS CHALMERS JD-802	EA-11	1
714	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-103 AUXILIARY RELAY	52/X (152-103)	ALLIS CHALMERS JD-802	EA-11	1
715	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-104 AUXILIARY RELAY	52/X (152-104)	ALLIS CHALMERS JD-802	EA-11	1
716	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-107 AUXILIARY RELAY	52/X (152-107)	ALLIS CHALMERS JD-802	EA-11	1
717	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-108 AUXILIARY RELAY	52/X (152-108)	ALLIS CHALMERS JD-802	EA-11	1
718	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-109 AUXILIARY RELAY	52/X (152-109)	ALLIS CHALMERS JD-802	EA-11	1
719	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-110 AUXILIARY RELAY	52/X (152-110)	ALLIS CHALMERS JD-802	EA-11	1

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
720	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-111 AUXILIARY RELAY	52/X (152-111)	ALLIS CHALMERS JD-802	EA-11	1
721	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-112 AUXILIARY RELAY	52/X (152-112)	ALLIS CHALMERS JD-802	EA-11	1
722	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-113 AUXILIARY RELAY	52/X (152-113)	ALLIS CHALMERS JD-802	EA-11	1
723	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-114 AUXILIARY RELAY	52/X (152-114)	ALLIS CHALMERS JD-802	EA-11	1
724	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-115 AUXILIARY RELAY	52/X (152-115)	ALLIS CHALMERS JD-802	EA-11	1
725	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-116 AUXILIARY RELAY	52/X (152-116)	ALLIS CHALMERS JD-802	EA-11	1
726	EPD	EA-12	E-130 SH.1 REV.13	BRK AUX RELAY	52/X (152-201)	ALLIS CHALMERS JD-802	1D SW GR	1
727	EPD	EA-12	E-130 SH.1 REV.13;E-130 SH.1A REV. 0	BRK AUX RELAY	52/X (152-204)	ALLIS CHALMERS JD-802	1D SW GR	1
728	EPD	EA-12	E-130 SH.1 REV.13;E-130 SH.1A REV. 0	BRK AUX RELAY	52/X (152-205)	ALLIS CHALMERS JD-802	1D SW GR	1
729	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-206 AUXILIARY RELAY	52/X (152-206)	ALLIS CHALMERS JD-802	EA-12	1
730	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-207 AUXILIARY RELAY	52/X (152-207)	ALLIS CHALMERS JD-802	EA-12	1
731	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-208 AUXILIARY RELAY	52/X (152-208)	ALLIS CHALMERS JD-802	EA-12	1
732	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-209 AUXILIARY RELAY	52/X (152-209)	ALLIS CHALMERS JD-802	EA-12	1
733	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-210 AUXILIARY RELAY	52/X (152-210)	ALLIS CHALMERS JD-802	EA-12	1
734	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-211 AUXILIARY RELAY	52/X (152-211)	ALLIS CHALMERS JD-802	EA-12	1
735	EPD	EA-12	E-130-1 REV 13, E-5-100 REV 1 PAGE 156-164	BKR 152-213 AUXILIARY RELAY	52/X (152-213)	ALLIS CHALMERS JD-802	EA-12	1
736	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-102 ANTI-PUMPING RELAY	52/Y (152-102)	ALLEN BRADLEY TYPE G-110	EA-11	1
737	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-103 ANTI-PUMPING RELAY	52/Y (152-103)	ALLEN BRADLEY TYPE G-110	EA-11	1
738	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-104 ANTI-PUMPING RELAY	52/Y (152-104)	ALLEN BRADLEY TYPE G-110	EA-11	1

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
739	EPD	EA-11	E-129-1 REV 10, E-5-100 REV 1 PAGE 160-164	BKR 152-105 ANTI-PUMPING RELAY	52/Y (152-105)	ALLEN BRADLEY TYPE G-110	EA-11	1
740	EPD	EA-11	E-129-1A REV 4, E-129-1B REV 3, E-5-100 REV 1 PAGE 160-164	BKR 152-106 ANTI-PUMPING RELAY	52/Y (152-106)	ALLEN BRADLEY TYPE G-110	EA-11	1
741	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-107 ANTI-PUMPING RELAY	52/Y (152-107)	ALLEN BRADLEY TYPE G-110	EA-11	1
742	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-108 ANTI-PUMPING RELAY	52/Y (152-108)	ALLEN BRADLEY TYPE G-110	EA-11	1
743	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-109 ANTI-PUMPING RELAY	52/Y (152-109)	ALLEN BRADLEY TYPE G-110	EA-11	1
744	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-110 ANTI-PUMPING RELAY	52/Y (152-110)	ALLEN BRADLEY TYPE G-110	EA-11	1
745	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-111 ANTI-PUMPING RELAY	52/Y (152-111)	ALLEN BRADLEY TYPE G-110	EA-11	1
746	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-112 ANTI-PUMPING RELAY	52/Y (152-112)	ALLEN BRADLEY TYPE G-110	EA-11	1
747	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-113 ANTI-PUMPING RELAY	52/Y (152-113)	ALLEN BRADLEY TYPE G-110	EA-11	1
748	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-114 ANTI-PUMPING RELAY	52/Y (152-114)	ALLEN BRADLEY TYPE G-110	EA-11	1
749	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-115 ANTI-PUMPING RELAY	52/Y (152-115)	ALLEN BRADLEY TYPE G-110	EA-11	1
750	EPD	EA-11	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-116 ANTI-PUMPING RELAY	52/Y (152-116)	ALLEN BRADLEY TYPE G-110	EA-11	1
751	EPD	EA-12	E-130 SH.1 REV.13	BRK ANTI-PUMPING RELAY	52/Y (152-201)	ALLEN BRADLEY TYPE G-110	1D SW GR	1
752	EPD	EA-12	E-129 SH.1 REV.10;E-5 SH.100 REV.1 PG.160-164	BREAKER ANTI-PUMPING RELAY	52/Y (152-202)	ALLEN BRADLEY TYPE G-110	1D SW GR	1
753	EPD	EA-12	E-129 SH.1 REV.10	BRK ANTI-PUMPING RELAY	52/Y (152-203)	ALLEN BRADLEY TYPE G-110	1D SW GR	1
754	EPD	EA-12	E-130 SH.1 REV.13;E-130 SH.1A REV. 0	BRK ANTI-PUMPING RELAY	52/Y (152-204)	ALLEN BRADLEY TYPE G-110	1D SW GR	1
755	EPD	EA-12	E-130 SH.1 REV.13;E-130 SH.1A REV. 0	BRK ANTI-PUMPING REALY	52/Y (152-205)	ALLEN BRADLEY TYPE G-110	1D SW GR	1
756	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-206 ANTI-PUMPING RELAY	52/Y (152-206)	ALLEN BRADLEY TYPE G-110	EA-12	1
757	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-207 ANTI-PUMPING RELAY	52/Y (152-207)	ALLEN BRADLEY TYPE G-110	EA-12	1

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
758	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-208 ANTI-PUMPING RELAY	52/Y (152-208)	ALLEN BRADLEY TYPE G-110	EA-12	1
759	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-209 ANTI-PUMPING RELAY	52/Y (152-209)	ALLEN BRADLEY TYPE G-110	EA-12	1
760	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-210 ANTI-PUMPING RELAY	52/Y (152-210)	ALLEN BRADLEY TYPE G-110	EA-12	1
761	EPD	EA-12	E-130-1 REV 13, E-130-1A REV 0	BKR 152-211 ANTI-PUMPING RELAY	52/Y (152-211)	ALLEN BRADLEY TYPE G-110	EA-12	1
762	EPD	EA-12	E-130-1 REV 13, E-5-100 REV 1 PAGE 160-164	BKR 152-213 ANTI-PUMPING RELAY	52/Y (152-213)	ALLEN BRADLEY TYPE G-110	EA-12	1
763	EPD	EY-10	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI PRES RLY	5P-1	CLARK CONTROL 5U-12 (AC)	EC-13	4
764	EPD	EY-40	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI PRES RLY	5P-2	CLARK CONTROL 5U-12 (AC)	EC-13	4
765	EPD	EY-10	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI PRES RLY	5P-3	CLARK CONTROL 5U-12 (AC)	EC-13	4
766	EPD	EY-40	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI PRES RLY	5P-4	CLARK CONTROL 5U-12 (AC)	EC-13	4
767	EPD	EY-10	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI PRES RLY	5P-5	CLARK CONTROL 5U-12 (AC)	EC-13	2
768	EPD	EY-40	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI PRES RLY	5P-6	CLARK CONTROL 5U-12 (AC)	EC-13	2
769	EPD	EA-11	E-208-1 REV 16, E-251-1 REV 14, E-251-1A REV 4	BKR 152-112,114 CNT ISO HI PRS	5P-7	CLARK CONTROL 5U-12 (AC)	EC-13	4
770	EPD	EA-12	E-251-1 REV 14	BKR 152-210 CONT ISO HI PRES	5P-8	CLARK CONTROL 5U-12 (AC)	EC-13	4
771	EPD	EY-10	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RLY	5R-1	CLARK CONTROL 5U-12 (AC)	EC-13	4
772	EPD	EY-40	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RLY	5R-2	CLARK CONTROL 5U-12 (AC)	EC-13	4
773	EPD	EY-10	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RLY	5R-3	CLARK CONTROL 5U-12 (AC)	EC-13	2
774	EPD	EY-40	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RLY	5R-4	CLARK CONTROL 5U-12 (AC)	EC-13	2
775	EPD	EY-10	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RELAY	5R-5	CLARK CONTROL 5U-12 (AC)	EC-13	2
776	EPD	EY-40	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RELAY	5R-6	CLARK CONTROL 5U-12	EC-13	2
777	EPD	EY-10	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RELAY	5R-7	CLARK CONTROL 5U-12 (AC)	EC-13	2
778	EPD	EY-40	E-208-1 REV 16, E-208-2 REV 28	CONTAINMENT HI RAD RLY	5R-8	CLARK CONTROL 5U-12 (AC)	EC-13	2
779	EPD	EA-12	E-196-8 REV 7	BKR 152-209 DELAY TIMER HVAC	62-1	CONTROL PRODUCTS DIV.-7000 SER	EJ-1006	4
780	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-6 REV 3	BKR 152-104 P-8A AUX START RLY	62-1/P8A	CONTROL PRODUCTS DIV.-E7012 PC	EJ-1005	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
781	DHR	P-8C	E-196 SH.9 REV.9;E-196 SH.13 REV.1	START AUX FW PP P-8C	62-1/P8C	CONTROL PROD. E-7012PD	EJ-1006	4
782	RCPC	P-55C	E-257 SH.2 REV.20	CHARGING PP P-55C TD RELAY	62-1105	AGASTAT 7012PD (E7012PD)	EC-12	4
783	RCPC	P-55B	E-257 SH.1 REV.20	CHARGING PP P-55B TD RELAY	62-1206	AGASTAT RELAY CO. 7012PD	EC-12	4
784	HVAC	VC-11	E-270 SH.7 REV.3	AUX RELAY	62-15	AGASTAT E7012AD	EJ-1003	4
785	HVAC	VC-10	E-270 SH.7 REV.3	AUX RELAY	62-16	AGASTAT E7012AD	EJ-1002	4
786	EPD	EA-12	E-196-8 REV 7	BKR 152-209 DELAY TIMER HVAC	62-2	CONTROL PRODUCTS DIV.-7012	EJ-1006	4
787	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-6 REV 3	BKR 152-104 P-8A AUX START RLY	62-2/P8A	CONTROL PRODUCTS DIV.-E7012 PC	EJ-1005	4
788	DHR	P-8C	E-196 SH.9 REV.9;E-196 SH.13 REV.1	AUX FW PP P-8C AUTOSTART RESET	62-2/P8C	CONTROL PROD. E-7012PD	EJ-1006	4
789	HVAC	V-26A	E-270 SH.2 REV.4;E-271 SH.3 REV. 2&SH.9 REV.0;E-79	DELAY TIMER FOR EMG HVAC SYS	62-3	AGASTAT E7022PF	EJ-1003	4
790	EPD	EA-11	E-196-1,2,3 REV 12,10,3; E-196-7 REV 4	BKR 152-104 AFW LO SUC PRES	62-3/P8A	CONTROL PRODUCTS DIV.-E7012 PC	EJ-1005	4
791	HVAC	V-26B	E-270 SH.2 REV.4;E-271 SH.3 REV. 2&SH.9 REV.0;E-79	DELAY TIMER FOR EMG HVAC SYS	62-4	AGASTAT E7022PF	EJ-1002	4
792	HVAC	V-26A	E-271 SH.3 REV.2&SH.4 REV.0;E-79	V-26A TIMER OPEN INLET DAMPER	62-5	AGASTAT E7012AD	EJ-1003	4
793	HVAC	V-26B	E-271 SH.4 REV.0;E-79	V-26B TIMER OPEN INLET DAMPER	62-6	AGASTAT E7012AD	EJ-1002	4
794	EPD	EA-11	E-196-2 REV 10, E-196-6 REV 3	BKR 152-104 AUXILIARY RELAY	62X-2/P8A	G.E. - 12HGA111J2	EJ-1005	4
795	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-114 START TIME DELAY	62X/152-114	AGASTAT-E7014PD-002	EA-11	1
796	RCPC	MO-2087	E-242 SH.1 REV.21	PRZ LVL & PRESS CONTROL RELAY	62X/LS-0204	AGASTAT CO. E7022AC002	EC-12	4
797	RCPC	SV-2004;SV-2005	E-236 SH.1 REV.14, E-257 SH.1 REV. 20	PZR LEVEL & PRESS CONTROL SW	63X-1/LA-0101	CLARK CONTROL CO. 5U-10	EC-12	4
798	RCPC	EH-0502>0510A>	E-254 SH.2 REV.9, E-257 SH.1 REV.20	PRZ LEVEL & PRESS CONTROL SW	63X-1/LC-0101	CLARK CONTROL 5U-10	EC-12	4
799	RCPC	P-55C	E-257 SH.2 REV.20	PRZ LEVEL & PRESS CONTL RELAY	63X-2/LA-0101	CLARK CONTROL 5U-10	EC-12	2
800	RCPC	P-55C	E-257 SH.2 REV.20	PRZ LEVEL & PRESS CONTL RELAY	63X-2/LC-0101	CLARK CONTROL 5U-10	EC-12	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
801	RCPC	SV-2153	E-234 SH.1 REV.19	BORIC ACID MAKE-UP CONTROL SW	63X/0210B	ALLEN BRADLEY 200G200B1	EC-02	2
802	RCPC	SV-2002A	E-236 SH.3 REV.11	ORIFICE BYPASS STOP VLV RELAY	63X/2002A	WESTINGHOUSE-SG	EC-12	4
803	RCPC	SV-2002B	E-236 SH.3 REV.11	ORIFICE BYPASS STOP VLV RELAY	63X/2002B	WESTINGHOUSE-SG	EC-12	4
804	EPD	EA-12	E-236 SH.1 REV.14, E-253-1 REV 15	BKR 152-211 PRES LVL&PRES CNTL	63X/LIC-0101	G.E. - 12HFA151A49H	EC-12	4
805	EPD	EA-11	E-151 REV 16	BKR 152-102 PRES HTR XFORM15	63X/LIC-0101/HS	G.E. - CR2440 KEYLOCK	EA-11	3
806	RCPC	SV-2153;SV-2155	E-203 REV.18, E-234 SH.1 REV.19	PZR LEVEL & PRESS CONTROL SW	63X/LIC-0205	CLARK CONTROL 5U-8	EC-12	4
807	RCPC	EH-0502>0510A>	E-254 SH.2 REV.9	PRZ LOW PRESS CONTROL SWITCH	63X/PIC-0101	G.E. - 12HFA151A49H	EC-12	4
808	EPD	ED-06; EY-10	E-8 SH.2 REV.25	PERF AS BUS 1 GROUND DETECTOR	64-1	ELECTRONIC DEVELOP AS84	CS RM	2
809	EPD	ED-07; EY-20	E-8 SH.2 REV.25	PERF AC BUS 2 GROUND DETECTOR	64-2	ELECTRONIC DEVELOP AS84	CS RM	2
810	EPD	ED-08; EY-30	E-8 SH.2 REV.25	PERF AC BUS 3 GROUND DETECTOR	64-3	ELECTRONIC DEVELOP AS84	CS RM	2
811	EPD	ED-09; EY-40	E-8 SH.2 REV.25	PERF AC BUS 4 GROUND DETECTOR	64-4	ELECTRONIC DEVELOP AS84	CS RM	2
812	EPD	ED-13	E-18 SH.1 REV.1	DC BUS 1 GROUND DETECTOR	64-D1	WESTON INST. 705 TYPE 3	CS RM	2
813	EPD	ED-23	E-18 SH.1 REV.1	DC BUS 2 GND DETECTOR ED-23	64-D2	WESTON INST. 705 TYPE 3	CS RM	2
814	EPD	ED-01	E-359 SH.5 REV.6	BATT NO.1 ED-01 ISOLATION BRK	72-01	GOULD KM3B-800	EJL-423	3
815	EPD	ED-02	E-359 SH.5 REV.6	BATT NO.2 ED-02 ISOLATION BRK	72-02	GOULD KM3B-800	EJL-422	3
816	EPD	ED-10	E-1 SH.1 REV.AV	125VDC TIE BRK ED-10L & ED-10R	72-10	WESTINGHOUSE-KA-2225	CS RM	3
817	EPD	ED-11	E-8 SH.2 REV.25	REACTOR HEAD VENT PRV-C11A	72-103	WESTINGHOUSE-HFB2020	CS RM	3
818	EPD	ED-11	E-8 SH.2 REV.25	480V.L.C. NO.11 (B11)	72-105	WESTINGHOUSE-FB3100	CS RM	3
819	EPD	ED-11	E-8 SH.2 REV.25	480V.L.C. NO.19 (B19)	72-106	WESTINGHOUSE-FB3100	CS RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
820	EPD	ED-11	E-8 SH.2 REV.25	CNTRL RM C01 AUX FW RELAY BOX	72-108	WESTINGHOUSE-FB2270ML	CS RM	3
821	EPD	ED-08	E-1 SH.1 REV.AV	INVERTER NO.3 ED-08	72-11	WESTINGHOUSE-FB21550ML	CS RM	3
822	EPD	ED-17	E-1 SH.1 REV.AV	CHARGER NO.3 ED-17	72-12	WESTINGHOUSE-KA-2225	CS RM	3
823	EPD	ED-11	E-8 SH.2 REV.25	CONTROL RM PANEL C-08L	72-129	WESTINGHOUSE-FB2270ML	CS RM	3
824	EPD	ED-15	E-1 SH.1 REV.AV	CHARGER NO.1 ED-15	72-15	WESTINGHOUSE-KA-2225	CS RM	3
825	EPD	ED-06	E-1 SH.1 REV.AV	INVERTER NO.1 ED-06	72-16	WESTINGHOUSE-FR-21550ML	CS RM	3
826	EPD	ED-01	E-1 SH.1 REV.AV	BATTERY NO.1 ED-01	72-18	WESTINGHOUSE-MA-2800	CS RM	3
827	EPD	ED-20	E-1 SH.1 REV.AV	125VDC TIE BRK ED-20R & ED-20L	72-20	WESTINGHOUSE-KA-2225	CS RM	3
828	EPD	ED-21	E-8 SH.2 REV.25	REACTOR HEAD VENT PRV-C11A	72-203	WESTINGHOUSE-HFB2020	CS RM	3
829	EPD	ED-21	E-8 SH.2 REV.25	480V LOADCENTER NO.12 (B12)	72-205	WESTINGHOUSE-FB3100	CS RM	3
830	EPD	ED-21	E-8 SH.2 REV.25	480V LOADCENTER NO.20 (B20)	72-206	WESTINGHOUSE-FB3100	CS RM	3
831	EPD	ED-21	E-8 SH.2 REV.25	CNTRL RM C-01 AUX FW RELAY BOX	72-208	WESTINGHOUSE-FB2270ML	CS RM	3
832	EPD	ED-09	E-1 SH.1 REV.AV	INVERTER NO.4 ED-09	72-21	WESTINGHOUSE-FB21550ML	CS RM	3
833	EPD	ED-18	E-1 SH.1 REV.AV	CHARGER NO.4 ED-18	72-22	WESTINGHOUSE-KA-2225	CS RM	3
834	EPD	ED-16	E-1 SH.1 REV.AV	CHARGER NO.2 ED-16	72-25	WESTINGHOUSE-KA-2225	CS RM	3
835	EPD	ED-07	E-1 SH.1 REV.AV	INVERTER NO.2 ED-07	72-26	WESTINGHOUSE-FB-21550ML	CS RM	3
836	EPD	ED-02	E-1 SH.1 REV.AV	BATTERY NO.2 ED-02	72-28	WESTINGHOUSE-MA-2800	CS RM	3
837	EPD	ED-11A	E-8 SH.2 REV.25;E-13 SH.36 REV.4C	DG 1-1 CONTROL C-22	72-301	GOULD HE3-A030	1C SW GR	3
838	EPD	ED-11A	E-8 SH.2 REV.25;E-13 SH.36 REV.4C	DG 1-1 FIELD FLASHING - C22	72-302	GOULD HE3-A030	1C SW GR	3
839	EPD	ED-11A	E-8 SH.2 REV.25;E-13 SH.36 REV.4C	BATT ED-01 TRIP CKT ISO BRK	72-305	GOULD HE3-A025	EC SW GR	3
840	EPD	ED-11A	E-8 SH.2 REV.25;E-13 SH.36 REV.4C	2400V SWGR-1C INCOMING BRK	72-307	GOULD HE2-B100	1C SW GR	3
841	EPD	ED-11A	E-8 SH.2 REV.25;E-13 SH.36 REV.4C	2400V SWGR-1C FEEDER BRK	72-308	GOULD HE2-B100	1C SW GR	3
842	EPD	ED-21A	E-8 SH.2 REV.25;E-13 SH.37 REV.4C	DG 1-2 FIELD FLASHING - EC-26	72-401	GOULD HE3-A030	DG1-2 RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
843	EPD	ED-21A	E-8 SH.2 REV.25;E-13 SH.37 REV.4C	2400V SWGR 1D INCOMING BRK'S	72-402	GOULD HE3-A100	DG1-2 RM	3
844	EPD	ED-21A	E-8 SH.2 REV.25;E-13 SH.37 REV.4C	2400V SWGR 1D FEEDER BRK'S	72-403	GOULD HE3-A100	DG1-2 RM	3
845	EPD	ED-21A	E-8 SH.2 REV.25;E-13 SH.37 REV.4C	STA BATT ED-02 TRIP CKT	72-406	GOULD HE3-A025	DG1-2 RM	3
846	EPD	ED-21A	E-8 SH.2 REV.25;E-13 SH.37 REV.4C	DG 1-2 CONTROL - EC-26	72-407	GOULD HE3-A030	DG1-2 RM	3
847	EPD	ED-13	E-359 SH.1A REV.9;E-609 SH.10A REV.1	DC BUS 1 UNDERVOLTAGE RELAY	74-D1	POTTER&BRUMFIELD KRP11DG	CS RM	2
848	EPD	ED-23	E-359 SH.1A REV.9;E-609 SH.20A REV.1;E-609 SH.20 REV.3	DC BUS 2 UV RELAY ED-23	74-D2	POTTER&BRUMFIELD KRP11DG	CS RM	2
849	EPD	EY-10	E-208-1 REV 16	CONT HI PRES&RAD UV RELAY	74/CIS-1	WESTINGHOUSE-SG	EC-13	2
850	EPD	EY-40	E-208-1 REV 16	CONT HI PRES&RAD UV RELAY	74/CIS-2	WESTINGHOUSE-SG	EC-13	2
851	EPD	EB-07	E-134-1 REV 11	2400V BUS 1C; 480V BUS 11 UV	94-1109A	WESTINGHOUSE MG-6	EB-11	4
852	EPD	EB-08	E-134 SH.1 REV.11	UV & LOAD SHED RELAY	94-1213A	WESTINGHOUSE-MG6	CS RM	4
853	HVAC	V-95	E-270 SH.2 REV.3&SH.13 REV.4	V-95 LOAD SHEDDING AUX RELAY	94X1-1909	AGASTAT EGPD002	EJ-1003	4
854	HVAC	V-96	E-270 SH.2 REV.3&SH.13 REV.4	V-96 LOAD SHEDDING AUX RELAY	94Y2-2013	AGASTAT EGPD002	EJ-1002	4
855	EPD	EA-11	E-196 SH.1 REV.12;E-196 SH.2 REV. 10;E-196 SH.3 REV.3	BKR 152-104 P-8A AUTO INIT RLY	AFAS-AL-1	CONTROL PROD. GPD-N-R	EC-187A	4
856	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1, E-196 SH.12 REV.3	AUX FW PUMP AUTO INITIATIATION	AFAS-BR-1	CONTROL PROD. GPD-N-R	EC-187B	4
857	RCPC	EU-1;EU-2	E-253 SH.1 REV 13, SH.1A REV 3	PRESSURIZER HEATERS HAND SW	AMS-1057	G.E. - CR2940	EC-02	3
858	RCPC	EU-1;EU-2	E-253 SH.1 REV 13, SH.1A REV 3	PRESSURIZER HEATERS HAND SW	AMS-1059	G.E. - CR2940	EC-02	3
859	RCPC	SV-2155	E-234 SH.1 REV.19;M-202 SH.1A REV. 24	PRI SYS MAKE-UP VALVE SWITCH	AMS-2155	G.E. - CR2940	EC-02	3
860	RRC	42-1/RPS; 42-2/R	E-212 SH.1 REV.9	ATWS TO TRIP TRUBINE & REACTOR	ATWS1	TELEMECANIQUE J10C4012	CS RM	4
861	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4, E-618-450G REV 3	BKR 152-112 CRITICAL FUNC MON.	CFM#148 (MX04)	CUTLER HAMMER-D520 RC3	EJ-450	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
862	EPD	EA-11	E-248 REV 14, E-618-450G REV 3	BKR 152-111 CRITICAL FUNC MON.	CFM#159 (MX04)	CUTLER HAMMER-D520 RC3	EJ-450	2
863	EPD	EY-10	E-208-1 REV 16, E-210-2 REV 10	CONTAINMENT HI PRES RESET PB	CHP-L/RESET	G.E. - CR2946	EC-13	3
864	EPD	EY-40	E-208-1 REV 16, E-210-2 REV 10	CONTAINMENT HI PRES RESET PB	CHP-R/RESET	G.E. - CR2946	EC-13	3
865	EPD	EY-10; EY-30	E-210-2 REV 10	CONTAINMENT HI PRES TEST SW	CHPL/CS	G.E. - CR2940	EC-13	3
866	EPD	EY-20; EY-40	E-210-2 REV 10	CONTAINMENT HI PRES TEST SW	CHPR/CS	G.E. - CR2940	EC-13	3
867	EPD	EY-10; EY-30	E-207-1 REV 23, E-210-2 REV 10	CONTAINMENT HI PRES TEST RLY	CHPX-1L	G.E. - 12HFA151A49H	EC-13	2
868	EPD	EY-20; EY-40	E-207-1 REV 23, E-210-2 REV 10	CONTAINMENT HI PRES TEST RLY	CHPX-1R	G.E. - 12HFA151A49H	EC-13	2
869	EPD	EY-10; EY-30	E-210-2 REV 10	CONT HI PRESS TEST T.D. RLY	CHPX-2L	AGASTAT E7012	EC-13	4
870	EPD	EY-20; EY-40	E-210-2 REV 10	CONT HI PRESS TEST T.D. RLY	CHPX-2R	AGASTAT E7012	EC-13	4
871	EPD	EY-10	E-208-1 REV 16, E-210-2 REV 10	CONTAINMENT HI RAD RESET PB	CHR-L/RESET	G.E. - CR2946	EC-13	3
872	EPD	EY-40	E-208-1 REV 16, E-210-2 REV 10	CONTAINMENT HI RAD RESET PB	CHR-R/RESET	G.E. - CR2946	EC-13	3
873	EPD	EY-10; EY-30	E-207-1 REV 23	CONTAINMENT HI RAD CONTROL SW	CHRL/CS	G.E. - CR2940	EC-13	3
874	EPD	EY-20; EY-40	E-207-1 REV 23	CONTAINMENT HI RAD CONTROL SW	CHRR/CS	G.E. - CR2940	EC-13	3
875	RRC	CRD1-41	E-226 SH.1 REV.15	CONTROL ROD DRIVE MECHANISM	CRD1-41	COMBUSTION ENG. (NONE)	RB	3
876	RCPC	SV-1901,2,3,4	E-230 REV11;	NSSS D.C. POWER SW	CS-J057	G.E. - CR2940	EC-32	3
877	EPD	K-6A	M-12-6 REV X0	K-6A LUBE OIL FILTER DPI	DPI-1477	ASHCROFT-1279	K-6A	7
878	EPD	K-6A	M-12-6 REV X0	K-6A LUBE OIL STRAINER DIF PRE	DPI-1478	ASHCROFT GAGE-TYPE 1279	K-6A	2
879	EPD	K-6B	M-12-6 REV X0	K-6B LUBE OIL FILTER DPI	DPI-1487	ASHCROFT-1279	K-6B	7
880	EPD	K-6B	M-12-6 REV X0	K-6B LUBE OIL STRAINER DIF PRE	DPI-1488	ASHCROFT GAGE-TYPE 1279	K-6B	2
881	HVAC	V-95	E-270 SH.5 REV.2	V-95 MODULATING DAMPER D-2	DPIC-1659	BAILEY 701132AAAA1WEP	EC-11A	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
882	HVAC	V-96	E-270 SH.5 REV.2	V-96 MODULATING DAMPER D-9	DPIC-1660	BAILEY 701132AAAA1WEP	EC-11A	4
883	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A LUBE OIL FILTER	DPS-1477 (HLODS)	UNITED ELECT. CNTL.-J21K9504	K-6A	2
884	EPD	K-6B	E-140-1 REV 17, M-12-105(2) REV 10	K-6B LUBE OIL FILTER DIFF PRES	DPS-1487 (HLODS)	UNITED ELECT. CNTL.-357	K-6B	2
885	HVAC	V-95	E-270 SH.5 REV.2	AHU CONTROL RM PRESSURE	DPS-1659	ROCHESTER ET1214	EC-11A	3
886	HVAC	V-96	E-270 SH.5 REV.2	CONT'L RM DIFF PRESS SWITCH	DPS-1660	ROCHESTER ET1214	EC-11A	3
887	HVAC	V-95	E-270 SH.5 REV.2	V-95 MODULATING DAMPER D-2	DPT-1659	TAVIS P8C(S)	CONT'L RM	3
888	HVAC	V-96	E-270 SH.5 REV.2	V-96 MODULATING DAMPER D-9	DPT-1660	TAVIS P8C(S)	CONT'L RM	3
889	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW FLOW CONTR BYPASS E-50B	E/I-0736	MOORE INDUSTRIES SCT/1-5V/4	EC-01	4
890	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW FLOW CONTR BYPASS E-50A	E/I-0737	MOORE INDUSTRIES SCT/1-5V/4	EC-01	4
891	RCPC	SV-0338	E-85 SH.1 REV.9;M-203 SH.1 REV.37, VEN M-232-18	SAFETY INJECTION TANK T-82D	E/P-0338	ROSEMOUNT 3311SS1A1B1FIG3G4	RB	3
892	RCPC	SV-0342	E-85 SH.1 REV.9;M-203 SH.1 REV.37, VEN M-232-18	SAFETY INJECTION TANK T-82A	E/P-0342	ROSEMOUNT 3311SS1A1B1FIG3G4	RB	3
893	RCPC	SV-0346	E-85 SH.1 REV.9;M-203 SH.1 REV.37, VEN M-232-18	SAFETY INJECTION TANK T-82B	E/P-0346	ROSEMOUNT 3311SS1A1B1FIG3G4	RB	3
894	RCPC	SV-0347	E-85 SH.1 REV.9;M-203 SH.1 REV.37, VEN M-232-18	SAFETY INJECTION TANK T-82C	E/P-0347	ROSEMOUNT 3311SS1A1B1FIG3G4	RB	3
895	RCPC	CV-2153	PID M-202-1A, E-90-2, E-234-1	CONC BORIC ACID MAKEUP FLOW	E/P-2153	FOXBORO 69	RM-107A	3
896	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A LOCAL AMP IND.	EAI-1107DC (FA)	WEST. VX-252, STY 606B623A20	EC-22	7
897	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A AMP IND.	EAI-1107XX (A1)	WEST. VC-252, STY 644B014A24	EC-22	7
898	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A AMP IND.	EAI-1107YY (A2)	WEST. VC-252, STY 644B014A24	EC-22	7
899	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A AMP IND.	EAI-1107ZZ (A3)	WEST. VC-252, STY 644B014A24	EC-22	7
900	EPD	K-6B	M-12-16 REV 11, M-12-101 REV 10	K-6B LOCAL AMP IND	EAI-1213DC (FA)	WEST. VX-252, STY 606B623A20	EC-26	7

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
901	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B LOCAL AMP IND	EAI-1213XX (A1)	WEST. VC-252, STY 644B014A24	EC-26	7
902	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B LOCAL AMP IND	EAI-1213YY (A2)	WEST. VC-252, STY 644B014A24	EC-26	7
903	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B LOCAL AMP IND	EAI-1213ZZ (A3)	WEST. VC-252, STY 644B014A24	EC-26	7
904	EPD	ED-01	E-1 SH.1 REV.AV	MAIN STATION BATTERIES LEFT CH	ED-01	C&D BATTERIES LC-25	RM-225A	7
905	EPD	ED-02	E-1 SH.1 REV.AV	MAIN STATION BATTERIES RT CHL	ED-02	C&D BATTERIES LC-25	RM-225	7
906	EPD	ED-06	E-1 SH.1 REV.AV	INVERTER NO.1	ED-06	GNB BATTERIES 120G6000FE	CS RM	3
907	EPD	ED-07	E-1 SH.1 REV.AV;VEN E-11 SH.1(2) REV.0	INVERTER NO.2	ED-07	SOLA ELEC. 23-23-220-8	CS RM	3
908	EPD	ED-08	E-1 SH.1 REV.AV	AC INVERTER NO.3	ED-08	GNB BATTERIES 120G6000FE	CS RM	3
909	EPD	ED-09	E-1 SH.1 REV.AV	INVERTER NO.4	ED-09	GNB BATTERIES 120G6000FE	CS RM	3
910	EPD	ED-15	E-1 SH.1 REV.AV;E-8 SH.1 REV.27;E-11 SH.26 REV.0	BATTERY CHARGER NO.1	ED-15	GNB GRF120T-200	CS RM	3
911	EPD	ED-16	E-1 SH.1 REV.AV;E-8 SH.1 REV.27;E-11 SH.26 REV.0	BATTERY CHARGER NO.2	ED-16	GNB GRF120T-200	CS RM	3
912	EPD	ED-17	E-1 SH.1 REV.AV;E-8 SH.1 REV.27;E-11 SH.26 REV.0	BATTERY CHARGER NO.3	ED-17	GNB GRF120T-200	CS RM	3
913	EPD	ED-18	E-1 SH.1 REV.AV;E-8 SH.1 REV.27;E-11 SH.26 REV.0	BATTERY CHARGER NO.4	ED-18	GNB GRF120T-200	CS RM	3
914	EPD	K-6A	E-140-1A REV 2, M-12-18(2) REV 5, E-627-1 REV 25, M-12-37 REV 0E	K-6A CRANKCASE EXHAUSTER MOTOR	EMG-0501 (CKE1)	RELIANCE ELECTRIC-434175-CU	EC-22	7
915	EPD	K-6B	E-140-1A REV 2, M-12-18(2) REV 5, E-627-2 REV 19	K-6B CRANKCASE EXHAUSTER MTR	EMG-0502 (CKE1)	RELIANCE ELECTRIC-434175-CU	EC-26	7
916	EPD	K-6A	E-140-1A REV 2, M-12-18(2) REV 5, E-627-1 REV 25, M-12-37 REV 0E	K-6A CRANKCASE EXHAUSTER MOTOR	EMG-0503 (CKE2)	RELIANCE ELECTRIC-434175-CU	EC-22	7
917	EPD	K-6B	E-140-1A REV 2, M-12-18(2) REV 5, E-627-2 REV 19	K-6B CRANKCASE EXHAUSTER MTR	EMG-0504 (CKE2)	RELIANCE ELECTRIC-434175-CU	EC-26	7
918	RCPC	EH-0501A>F	E-254 SH.1 REV 7;M1-LD SHT 663 REV 1;E-253 SH.1 REV.13	PRES HTR SILICON RECTIFIR CTRL	EU-1	ROBICON 413-017	EB-16	3
919	RCPC	EH-0601A>F	E-254 SH.1 REV 7;M1-LD SHT 663 REV 1;E-253 SH.1 REV.13	PRES HTR SILICON RECTIFIR CTRL	EU-2	ROBICON 413-017	EB-16	3
920	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A LOCAL FIELD VOLTMETER	EVI-1107DC (FV)	WEST. VX-252, STY 606B413A19	EC-22	7

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
921	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A LOCAL VOLTMETER	EVI-1107L	WEST. VC-252, STY 644B018A11	EC-22	7
922	EPD	K-6B	M-12-16 REV 11, M-12-101 REV 10	K-6B FIELD VOLTMETER	EVI-1213DC (FV)	WEST. VX-252, STY 606B413A19	EC-26	7
923	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B LOCAL VOLTMETER	EVI-1213L (V)	WEST. VC-252, STY 644B018A11	EC-26	7
924	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A LOCAL WATTMETER	EWI-1107L (W)	WEST. VX-252, STY 714B607A10	EC-22	7
925	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B LOCAL WATTMETER	EWI-1213L (W)	WEST. VX-252, STY 7148607A10	EC-26	7
926	EPD	EX-11	E-4 SH.1 REV.31;VEN E-6 SH.19 REV. 0 PG.86-92	STATION PWR XFORMER #11	EX-11	ITE NU-1	CS RM	3
927	EPD	EX-12	E-4 SH.1 REV.31;VEN E-6 SH.19 REV. 0 PG.86-92	STATION PWR XFORMER #12	EX-12	ITE NU-1	CS RM	3
928	EPD	EX-15	E-4 SH.1 REV.31;VEN E-8 SH.18 REV. 0A	PRESSURIZER HTR XFORMER #15	EX-15	ASEA BROWN BOVERI VPI	RM-142	3
929	EPD	EX-16	E-4 SH.1 REV.31;VEN E-8 SH.18 REV. 0A	PRESSURIZER HTR XFORMER #16	EX-16	ASEA BROWN BOVERI VPE	RM-142	3
930	EPD	EX-19	E-4 SH.2 REV.18;VEN E-111 SH.2 REV.4B	STATION PWR XFORMER #19	EX-19	ASEA BROWN BOVERI FORM-1009	EEQ RM	3
931	EPD	EY-10	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CNTMT & FUEL HDLG AREA RAD C11	EY-10CB14	ITE EQ20A	CS RM	3
932	EPD	EY-10	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C11A-L	EY-10CB15	ITE EQ20A	CS RM	3
933	EPD	EY-10	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C13L	EY-10CB2	ITE 20-2 POLE EQ20A	CS RM	3
934	EPD	EY-10	E-11 SH.1 REV.9;E-8 SH.2 REV.25	INVERTER & CHARGER CLG FANS	EY-10CB20	ITE EQ20A	CS RM	3
935	EPD	EY-10	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONRTOL RM PANEL C12L	EY-10CB5	ITE 20-2 POLE EQ20A	CS RM	3
936	EPD	EY-10	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONRTOL RM PANEL C12L	EY-10CB6	ITE 20-2 POLE EQ20A	CS RM	3
937	RCPC	LT-0103;PT-0101	E-82 SH.3 REV 16;E-84 SH.1 REV 15	WD RANGE PRESSZR LVL/PRESS BRK	EY-20-06	ITE EQP	EY-20	3
938	EPD	EY-20	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CNTMT & FUEL HDLG AREA RAD	EY-20CB14	ITE EQ20A	CS RM	3
939	EPD	EY-20	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C11A	EY-20CB16	ITE EQ20A	CS RM	3
940	EPD	EY-20	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C13R	EY-20CB2	ITE EQ20A	CS RM	3
941	EPD	EY-20	E-11 SH.1 REV.9;E-8 SH.2 REV.25	INVERTER & CHARGER CLG FANS	EY-20CB20	ITE EQ20A	CS RM	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
942	EPD	EY-20	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C12R	EY-20CB6	ITE EQ20A	CS RM	3
943	EPD	EY-20	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C13R	EY-20CB8	ITE EQ20A	CS RM	3
944	EPD	EY-30	E-11 SH.1 REV.9;E-8 SH.2 REV.25	NEUTRON MON AMP NI-1/3B ISOL	EY-30CB12	ITE EQ20A	CS RM	3
945	EPD	EY-30	E-11 SH.1 REV.9;E-8 SH.2 REV.25	REACTOR PROT C06L & NUC INSTR	EY-30CB13	ITE EQ20A	CS RM	3
946	EPD	EY-30	E-11 SH.1 REV.9;E-8 SH.2 REV.25	INVERTER & CHARGER CLG FANS	EY-30CB20	ITE EQ20A	CS RM	3
947	EPD	EY-30	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C13L	EY-30CB3	ITE EQ20A	CS RM	3
948	EPD	EY-30	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C12L	EY-30CB4	ITE EQ20A	CS RM	3
949	EPD	EY-30	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C12L	EY-30CB5	ITE EQ20A	CS RM	3
950	EPD	EY-30	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C12L	EY-30CB8	ITE EQ20A	CS RM	3
951	RCPC	TE-0112CD;TE-0	E-96 SH.8 REV 2	PSTC LEG CHANNEL D BRK	EY-40-04	ITE EQP	EY-40	3
952	EPD	EY-40	E-11 SH.1 REV.9;E-8 SH.2 REV.25	NEUT MON AMP NI-2/4B& I/I C176	EY-40CB12	ITE EQ20A	CS RM	3
953	EPD	EY-40	E-11 SH.1 REV.9;E-8 SH.2 REV.25	REACTOR PROT C06R & NUC INSTR	EY-40CB13	ITE EQ20A	CS RM	3
954	EPD	EY-40	E-11 SH.1 REV.9;E-8 SH.2 REV.25	INVERTER & CHARGER CLG FANS	EY-40CB20	ITE EQ20A	CS RM	3
955	EPD	EY-40	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C12R	EY-40CB4	ITE EQ20A	CS RM	3
956	EPD	EY-40	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C12R	EY-40CB5	ITE EQ20A	CS RM	3
957	EPD	EY-40	E-11 SH.1 REV.9;E-8 SH.2 REV.25	CONTROL RM PANEL C12R	EY-40CB8	ITE EQ20A	CS RM	3
958	RCPC	CV-2153	E-90-2, M-202-1A	CONC BORIC ACID MAKEUP FLO DEV	FA-0210B	ROCHESTER ET-224	EC-02	4
959	RCPC	CV-2153	E-90-2, M-202-1A	BORIC ACID MAKEUP BORATION FLO	FE-0210B	FISCHER & PORTER 10D1418A	RM-107A	3
960	EPD	K-6A	M-503-13R	K-6A SERVICE WATER FLOW IND.	FI-0890	MERIAM INSTRUMENTS-1126	K-6A	2
961	EPD	K-6B	M-503-13R	K-6B SERVICE WATER FLOW IND	FI-0891	MERIAM INSTRUMENTS-1126	K-6B	2
962	RCPC	P-55B	E-257 SH.1 REV.20	CHRG LINE FLOW INDICATOR ALARM	FIA-0212	SIGMA 9223	EC-02	3
963	RCPC	SV-2002B	E-236 SH.3 REV.11;M-202 SH.1 REV. 51	LETDOWN FLOW IND. CONTROLLER	FIC-0202	VERSATILE INST. 928310EVB13M	EC-02	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
964	RCPC	CV-2153	E-90-2, M-202-1A, M-201-48	BORIC ACID MAKEUP BORATION FLO	FIC-0210B	FISCHER & PORTER 53EL3000	EC-02	3
965	DHR	FT-0727;I/P-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW TO STEAM GEN E-50B	FIC-0727	BAILEY 701132AAAA1WEP	EC-01	4
966	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	FW PP P-8C FLOW CONTR TO E-50B	FIC-0736A	YOKOGAWA SPLC-171-E/NPR/NPE	EC-01	4
967	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	FW PP P-8C FLOW CONTR TO E-50A	FIC-0737A	YOKOGAWA SPLC-171-E/NPR/NPE	EC-01	4
968	DHR	FT-0749;I/P-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW TO STEAM GEN E-50A	FIC-0749	BAILEY 701132AAAA1WEP	EC-01	4
969	HVAC	PO-1711	E-271 SH.17 REV.0	FLOW INDICATING/CONTROLLER	FIC-1711	BAILEY 701132AAAA1WEP	HVAC RM	4
970	HVAC	PO-1712	E-271 SH.17 REV.0	FLOW INDICATING/CONTROLLER	FIC-1712	BAILEY 701132AAAA1WEP	RM-300A	4
971	HVAC	V-95	E-270 SH.2 REV.3&SH.10 REV.3	V-95 LOW FLOW COND AUX RELAY	FISX-1681	G.E. - HGA111	EJ-1003	4
972	HVAC	V-96	E-270 SH.2 REV.3&SH.10 REV.3	V-96 LOW FLOW COND AUX RELAY	FISX-1682	G.E. - HGA111	EJ-1002	4
973	DHR	FT-0727;I/P-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW P-8A&B TO E-50B	FM-0727	BAILEY 745210AAAN2	EJ-1051	4
974	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW PP P-8C FLOW TO E-50B	FM-0736AA	BAILEY 750010AAAN2	EJ-1052	4
975	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW PP P-8C FLOW TO E-50A	FM-0737AA	BAILEY 750020AAAN2	EJ-1052	4
976	DHR	FT-0749;I/P-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW P-8A&B TO E-50A	FM-0749	BAILEY 750020AAAN2	EJ-1051	4
977	DHR	FT-0727;I/P-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW P-8A&B CONTROLER IND	FMA-0727	BAILEY 745210AAAN2	EJ-1051	4
978	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW P-8C CONTROLER IND	FMA-0736A	BAILEY 745210AAAN2	EJ-1052	4
979	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW P-8C CONTROLER IND	FMA-0737A	BAILEY 745210AAAN2	EJ-1052	4
980	DHR	FT-0749;I/P-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW P-8A&B CONTROLER IND	FMA-0749	BAILEY 745210AAAN2	EJ-1051	4
981	DHR	MO-0743;MO-075	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW ISOL VLV'S MO-0743	FOGG-AL-5	CONTROL PRODUCTS GPD-N-R	EC-187	4
982	DHR	MO-0755;MO-075	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW ISOL VLV'S MO-0755	FOGG-AL-6	CONTROL PRODUCTS GPD-N-R	EC-187	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
983	DHR	MO-0748;MO-075	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50B ISOLATION	FOGG-AR-5	CONTROL PRODUCTS GPD-N-R	EC-187	4
984	DHR	MO-0798;MO-076	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW ISOL VLV'S MO-0798	FOGG-AR-6	CONTROL PRODUCTS GPD-N-R	EC-187	4
985	DHR	MO-0754;MO-076	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW FOGG A ISOL VLV CLOSE	FOGG-AX-7	G.E. - 12HGA111J2	EC-187	4
986	DHR	MO-0759;MO-075	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW FOGG A ISOL VLV CLOSE	FOGG-AY-7	G.E. - 12HGA111J2	EC-187	4
987	DHR	MO-0759;MO-075	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW ISOL VLV'S MO-0759	FOGG-BL-10	CONTROL PRODUCTS GPD-N-R	EC-187	4
988	DHR	MO-0753;MO-074	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW ISOL VLV'S MO-0753	FOGG-BL-9	CONTROL PRODUCTS GPD-N-R	EC-187	4
989	DHR	MO-0760;MO-079	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW ISOL VLV'S MO-0760	FOGG-BR-10	CONTROL PRODUCTS GPD-N-R	EC-187	4
990	DHR	MO-0754;MO-074	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW ISOL VLV'S MO-0754	FOGG-BR-9	CONTROL PRODUCTS GPD-N-R	EC-187	4
991	DHR	MO-0748;MO-079	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW FOGG B ISOL VLV CLOSE	FOGG-BX-12	G.E. - 12HGA111J2	EJ-1005	4
992	DHR	MO-0755;MO-074	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW FOGG B ISOL VLV CLOSE	FOGG-BY-12	G.E. - 12HGA111J2	EJ-1006	4
993	RCPC	CV-2153	E-90-2, M-202-1A	CONC BORIC ACID MAKEUP FLOW	FQI-0210B	FISCHER & PORTER 52ET2115BA	EC-02	3
994	RCPC	SV-2153	E-234 SH.1 REV.19;M-202 SH.1A REV. 24	CONC. BORIC ACID MAKE-UP FLOW	FQIS-0210B	OMRON ELEC. H7AN-4DM	EC-02	4
995	EPD	CV-2153	E-90-2, M-202-1A	BORIC ACID MAKEUP BORATION FLO	FR-0210B	LEEDS&NORTHROP 132-203-00-00-L	EC-02	2
996	DHR	FT-0727;I/P-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW P-8A&B TO E-50B	FS-0727	BAILEY 745210AAAN2	EJ-1051	4
997	DHR	P-8A	E-196 SH.1 REV.12;E-196 SH.2 REV. 10;E-196 SH.3 REV.3	AUX FW FLOW P-8A/B TO E-50B	FS-0727A	BAILEY 745210AAAN2	1D SW GR	4
998	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW PP P-8C FLOW TO E-50B	FS-0736A	BAILEY 745210AAAN2	EJ-1052	4
999	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW PP P-8C FLOW TO E-50A	FS-0737A	BAILEY 745210AAAN2	EJ-1052	4
1000	DHR	FT-0749;I/P-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW P-8A&B TO E-50A	FS-0749	BAILEY 745210AAAN2	EJ-1051	4
1001	DHR	P-8A	E-196 SH.1 REV.12;E-196 SH.2 REV. 10;E-196 SH.3 REV.3	AUX FW FLOW P-8A/B TO E-50A	FS-0749A	BAILEY 745210AAAN2	1D SW GR	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1002	EPD	K-6A	E-140-1A REV 2, M-12-37 REV 0E	K-6A LUBE OIL FLOW SWITCH	FS-1477 (FS)	GEMS-FS-200	K-6A	3
1003	EPD	K-6B	E-140-1A REV 2, M-12-36 REV 6, M-12-104 REV 0C	K-6B LUBE OIL FLOW SWITCH	FS-1487 (FS)	GEMS	K-6B	3
1004	HVAC	PO-1711	E-271 SH.17 REV.0	FLOW SWITCH	FS-1711	RODCHESTER ET1214	HVAC RM	3
1005	HVAC	PO-1712	E-271 SH.17 REV.0	FLOW SWITCH	FS-1712	RODCHESTER ET1214	RM-300A	3
1006	HVAC	V-26A	E-270 SH.11 REV.2;E-271 SH.3 REV. 2;E-82	VF-26A/B LOW FLOW AUX RELAY	FSX-1711	G.E. - HGA111	EJ-1003	4
1007	HVAC	V-26B	E-270 SH.11 REV.2;E-271 SH.3 REV. 2;E-82	VF-26A/B LOW FLOW AUX RELAY	FSX-1712	G.E. - HGA111	EJ-1002	4
1008	RCPC	CV-2153	E-90-2, M-202-1A	BORIC ACID MAKEUP BORATION FLO	FT-0210B	FISCHER & PORTER 50SF2221A11	RM-107	3
1009	DHR	I/P-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW PPS P-8A&B FLOW TRANS	FT-0727	ROSEMOUNT 1153DB5	CCW	4
1010	DHR	I/P-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW PP P-8C FLOW TRANS	FT-0736A	ROSEMOUNT 1153DB4	W ESG	4
1011	DHR	I/P-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW PP P-8C FLOW TRANS	FT-0737A	ROSEMOUNT 1153DB4	W ESG	4
1012	DHR	I/P-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW PPS P-8A&B FLOW TRANS	FT-0749	ROSEMOUNT 1153DB5	CCW	4
1013	HVAC	PO-1711	E-271 SH.17 REV.0	FLOW TRANSMITTER	FT-1711	TAVIS P8C(S)	HVAC RM	3
1014	HVAC	PO-1712	E-271 SH.17 REV.0	FLOW TRANSMITTER	FT-1712	TAVIS P8C(S)	RM-300A	3
1015	EPD	K-6A	M-12-95(2) REV 10, M-12-98(2) REV 7	ALARM ACKNOWLEDGE PUSHBUTTON	G1-1/ACK	G.E. - CR2940	EG-20	3
1016	EPD	K-6A	M-12-95(2) REV 10, M-12-97 REV 5, E-627-1 REV 25	MAN/AUTO SW FOR AIR COMP MOTOR	G1-1/ACS	G.E. - CR2940	EG-20	3
1017	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A AIR PRESSURE RELAY	G1-1/APR	WESTING. ELEC.-BFD5072A49G12	EG-20	2
1018	EPD	K-6A	M-12-98(1) REV 15, M-12-99 REV 2	K-6A SETPOINT MOTOR	G1-1/AVM	OHMITE - 55677-3	EC-22	3
1019	EPD	K-6A	M-12-18(2) REV 5, M-12-96 REV 0G, M-12-97 REV 5	K-6A CRANK EXH BLOW ACT RLY	G1-1/CKR	G.E. - CR120J22002	EG-21	2
1020	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A ENGINE CRANKING RLY CKT A	G1-1/CR1	WESTINGHOUSE-BFD5072A49G05	EG-20	4
1021	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A ENGINE CRANKING RLY CKT B	G1-1/CR2	WESTINGHOUSE-BFD5072A49G05	EG-20	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1022	EPD	K-6A	E-140-3 REV 12, M-12-98(1) REV 15, M-201-63 REV 33	K-6A START/STOP SWITCH	G1-1/CS	G.E. - SBM10BB501	EC-04	3
1023	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A DC FAILURE RELAY CKT A	G1-1/DCFR1	WESTING. ELEC.- BFD5072A49G04	EG-20	2
1024	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A DC FAILURE RELAY CKT B	G1-1/DCFR2	WESTING. ELEC.- BFD5072A49G04	EG-20	2
1025	EPD	K-6A	E-140-2 REV 16, M-12-98(1) REV 15, M-12-99 REV 2	K-6A DROOP RELAY	G1-1/DR	SQUARE D-P04 TYPE, CLASS 7001	EC-22	6B
1026	EPD	K-6A	E-140-3 REV 12, M-12-98(1) REV 15	K-6A DROOP SWITCH REMOTE	G1-1/DSR	G.E. - SBM10AA050	EC-04	3
1027	EPD	K-6A	M-12-16 REV 11, M-12-94 REV 9	K-6A ELECT. GOVERNOR	G1-1/EGA	WOODWARD-8270-092	EC-22	3
1028	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A ENGINE RUNNING RELAY	G1-1/ERR	WESTING. ELEC.- BFD5072A49G04	EG-20	2
1029	EPD	K-6A	M-12-37 REV 0F, M-12-98(1) REV 15	K-6A ENGIN RUN SOLENOID	G1-1/ERS (K11)	WOODWARD	K-6A	7
1030	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A ENGINE START RELAY CKT A	G1-1/ESR1	WESTINGHOUSE- BFD5072A49G12	EG-20	4
1031	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A ENGINE START RELAY CKT B	G1-1/ESR2	WESTINGHOUSE- BFD5072A49G12	EG-20	4
1032	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A ENGINE TROUBLE RELAY	G1-1/ETR	WESTING. ELEC.- BFD5072A49G04	EG-20	2
1033	EPD	K-6A	M-12-96 REV 0G, M-12-97 REV 5	K-6A FUEL LEVEL RELAY	G1-1/FLR (FLR)	G.E. - CR120J22002	EG-21	2
1034	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A FIELD SHUTDOWN TIMER	G1-1/FST	CONTROL PRODUCTS DIV.- E7012 PD	EG-20	4
1035	EPD	K-6A	E-140-2 REV 16, M-12-94 REV 9	K-6A GOVERNOR SET POINT SW	G1-1/GSL	G.E. - SBM	EC-22	3
1036	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A HORN ALARM RELAY	G1-1/HAR	WESTING. ELEC.- BFD5072A49G04	EG-20	2
1037	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A HEATER CUTOFF RELAY	G1-1/HCR	WESTING. ELEC.- BFD5072A49G04	EG-20	2
1038	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A HIGH LUBE OIL DIFF. RELAY	G1-1/HLODR	WESTING. ELEC.- BFD5072A49G05	EG-20	2
1039	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A HIGH LUBE OIL TEMP RELAY	G1-1/HLOTR	WESTING. ELEC.- BFD5072A49G12	EG-20	2
1040	EPD	K-6A	M-12-94 REV 9, M-12-99 REV 2	K-6A HI VOLT. EXCITER CHASSIS	G1-1/HVE	BASLER - 90-59001-100	EC-22	7
1041	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A JACKET WATER LEVEL RELAY	G1-1/JWLR	WESTING. ELEC.- BFD5072A49G08	EG-20	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1042	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A FLASHING RELAY CKT A	G1-1/JWPR1	WESTINGHOUSE-BFD5072A49G112	EG-20	4
1043	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A FLASHING RELAY CKT B	G1-1/JWPR2	WESTINGHOUSE-BFD5072A49G12	EG-20	4
1044	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A JACKET WATER TEMP RELAY	G1-1/JWTR	WESTING. ELEC.-BFD5072A49G05	EG-20	2
1045	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A JACKET WATER TEMP RELAY	G1-1/JWTR1	WESTING. ELEC.-BFD5072A49G04	EG-20	2
1046	EPD	K-6A	M-12-99 REV 2	K-6A CONTROL RELAY	G1-1/K1	WESTINGHOUSE-MD-101	EC-22	6C
1047	EPD	K-6A	M-12-99 REV 2	K-6A FIELD SHORTING CONTACTOR	G1-1/K1A	WESTINGHOUSE-MD-101	EC-22	6C
1048	EPD	K-6A	M-12-99 REV 2	K-6A FIELD FLASHING CONTACTOR	G1-1/K2	WESTINGHOUSE-MD-110	EC-22	6E
1049	EPD	K-6A	M-12-99 REV 2	K-6A FIELD CURRENT RELAY	G1-1/K3	POTTER BRUMFIELD-PRD11DY	EC-22	4
1050	EPD	K-6A	M-12-99 REV 2	K-6A CONTROL RELAY	G1-1/K4	POTTER BRUMFIELD-PRD11DY	EC-22	4
1051	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A FUEL LEVEL RELAY HI/LO	G1-1/LFLR	WESTINGHOUSE-BFD 47E8406	EG-20	2
1052	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A LOW LUBE OIL TEMP RELAY	G1-1/LLOTR	WESTING-BFD5072A49G08	EG-20	2
1053	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(2) REV 7	K-6A LOW OIL LEVEL RELAY	G1-1/LOLR	WESTINGHOUSE-BF33F	EG-20	2
1054	EPD	K-6A	M-12-95(1) REV 11, M-12-97 REV 5	K-6A LUBE OIL HEATER RELAY	G1-1/LP1	TRANSAMERICAN DE LAVAL-ST22155	EG-20	3
1055	EPD	K-6A	M-12-95(1) REV 11, M-12-97 REV 5	K-6A LUBE OIL LEVEL RELAY	G1-1/LP2	TRANSAMERICAN DE LAVAL-ST22155	EG-20	3
1056	EPD	K-6A	M-12-94 REV 9, M-12-99 REV 2	K-6A EXCITER VOLT. REGULATOR	G1-1/LVE	BASLER ELECT.-90-59000-100	EC-22	3
1057	EPD	K-6A	M-12-94 REV 9	K-6A MTR OPER. POT. (SPEED/LD)	G1-1/MOP	WOODWARD-903-106	EC-22	7
1058	EPD	K-6A	M-12-98(1) REV 15, M-12-99 REV 2	K-6A VOLTAGE ADJUST MOTOR	G1-1/MVM	OHMITE - 55677-3	EC-22	3
1059	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OVERCRANK RELAY	G1-1/OCR	WESTINGHOUSE-BFD5072A49G12	EG-20	4
1060	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OVERCRANK TIMER CKT A	G1-1/OCT1	CONTROL PRODUCTS DIV.-E7012 PD	EG-20	4
1061	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OVERCRANK TIMER CKT B	G1-1/OCT2	CONTROL PRODUCTS DIV.-E7012 PD	EG-20	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1062	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OIL PRESSURE RELAY	G1-1/OPR	WESTINGHOUSE-BFD5072A49G05	EG-20	4
1063	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OIL PRESSURE RELAY	G1-1/OPR1	WESTING. ELEC.-BFD5072A49G05	EG-20	2
1064	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OIL PRESSURE TIMER CKT A	G1-1/OPT1	CONTROL PRODUCTS DIV.-E7012 PD	EG-20	4
1065	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OIL PRESSURE TIMER CKT B	G1-1/OPT2	CONTROL PRODUCTS DIV.-E7012 PD	EG-20	4
1066	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A OVERSPEED SWITCH	G1-1/OS	MICROSWITCH-DT F2-2RN2	K-6A	2
1067	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A OVERSPEED RELAY	G1-1/OSR	WESTINGHOUSE-BFD5072A49G12	EG-20	4
1068	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A PRESSURE DELAY TIMER	G1-1/PDT	CONTROL PRODUCTS DIV.-E7012 PD	EG-20	2
1069	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A PRELUBE TIMER RELAY	G1-1/PLT	CONTROL PRODUCTS DIV.-E7012 PD	EG-20	2
1070	EPD	K-6A	M-12-16 REV 11, M-12-51 REV B, M-12-94,100 REV 9,6	K-6A RESISTOR BOX	G1-1/RB	WOODWARD-8270-145	EC-22	7
1071	EPD	K-6A	M-12-95(2) REV 10, M-12-98(2) REV 7	ALARM RESET PUSHBUTTON	G1-1/RESET	G.E. - CR2940	EG-20	3
1072	EPD	K-6A	M-12-16 REV 11, M-12-95(2) REV 10, E-14 REV 15	K-6A RUNNING TIME METER	G1-1/RTM	INDUST. TIMER CORP.-MODEL C-2	EG-20	2
1073	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A RAW WATER PRES. RELAY	G1-1/RWPR	WESTING. ELEC.-BFD5072A49G08	EG-20	2
1074	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A SHUTDOWN RELAY	G1-1/SDR	WESTINGHOUSE-BFD5072A49G12	EG-20	4
1075	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 10, M-12-98(1) REV 15	K-6A START/STOP SWITCH, LOCAL	G1-1/SSS	G.E.-SBM	EG-20	3
1076	EPD	K-6A	M-12-95(2) REV 10, M-12-98(2) REV 7	ALARM TEST PUSHBUTTON SWITCH	G1-1/TEST	G.E. - CR2940	EG-20	3
1077	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A UNDERVOLT RELAY TEST SW	G1-1/TPS1	STATES - RTS	EC-22	3
1078	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A UNDERVOLT RELAY TEST SW	G1-1/TPS2	STATES - RTS	EC-22	3
1079	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A UNDERVOLT RELAY TEST SW	G1-1/TPS3	STATES - RTS	EC-22	3
1080	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	VOLTMETER SELECTOR SWITCH	G1-1/VS	G.E. - SBM	EC-22	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1081	EPD	K-6A	E-140-2 REV 16, M-12-94 REV 9, M-12-98(1) REV 15	K-6A LOCAL REGULATOR SW	G1-1/VSL	G.E. - SBM10BA873	EC-22	3
1082	EPD	K-6A	E-140-3 REV 12, M-12-98(1) REV 15	K-6A REMOTE REGULATOR SW	G1-1/VSR	G.E. - SBM10BB502	EC-04	3
1083	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A WATTMETER TRANSDUCER	G1-1/WT	WESTINGHOUSE-VP2	EC-22	3
1084	EPD	K-6B	M-12-102(2) REV 10, M-12-105(2) REV 9	ALARM ACKNOWLEDGE PUSHBTN	G1-2/ACK	G.E. - CR2940	EG-30	3
1085	EPD	K-6B	E-627-2 REV 19, M-12-102(2) REV 10, M-12-104 REV 0C	MAN/AUTO SW FOR AIR COMP MTR	G1-2/ACS	G.E. - CR2940	EG-30	3
1086	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B PRESSURE RELAY	G1-2/APR	WESTING. ELEC.-BFD5072A49G12	EG-30	2
1087	EPD	K-6B	M-12-105(1) REV 10	K-6B SETPOINT MOTOR	G1-2/AVM	OHMITE - 55677-3	EC-26	3
1088	EPD	K-6B	M-12-18(2) REV 5, M-12-103 REV 0C, M-12-104 REV 0C	K-6B CRANK EXH BLOW ACT RLY	G1-2/CKR	G.E. - CR120J22002	EG-31	2
1089	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B ENGINE CRANKING RLY CKT A	G1-2/CR1	WESTING. ELEC.-BFD5072A49G05	EG-30	4
1090	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B ENGINE CRANKING RLY CKT B	G1-2/CR2	WESTING. ELEC.-BFD5072A49G05	EG-30	4
1091	EPD	K-6B	E-140-3 REV 12, M-201-62 REV	K-6B START/STOP SWITCH	G1-2/CS	G.E. - SBM10BB501	EC-04	3
1092	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B D.C. FAILURE RELAY CKT A	G1-2/DCFR1	WESTING. ELEC.-BFD5072A49G04	EG-30	2
1093	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B D.C. FAILURE RELAY CKT B	G1-2/DCFR2	WESTING. ELEC.-BFD5072A49G04	EG-30	2
1094	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10, M-12-106 REV 2	K-6B DROOP RELAY	G1-2/DR	SQUARE D-P04 TYPE, CLASS 7001	EC-26	6B
1095	EPD	K-6B	E-140-3 REV 12, M-12-105(1) REV 10	K-6B DROOP SWITCH REMOTE	G1-2/DSR	G.E. - SBM10AA050	EC-04	3
1096	EPD	K-6B	M-12-16 REV 11, M-12-101 REV 10	K-6B ELECT. GOVERNOR	G1-2/EGA	WOODWARD-8270-092	EC-26	3
1097	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B ENGINE RUNNING RELAY	G1-2/ERR	WESTING. ELEC.-BFD5072A49G04	EG-30	2
1098	EPD	K-6B	M-12-36 REV 6, M-12-105(1) REV 10	K-6B ENGINE RUN SOLENOID	G1-2/ERS (K12)	WOODWARD-903-106	K-6B	7
1099	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B ENGINE START RELAY, CKT A	G1-2/ESR1	WESTING. ELEC.-BFD5072A49G12	EG-30	4
1100	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B ENGINE START RELAY, CKT B	G1-2/ESR2	WESTING. ELEC.-BFD5072A49G12	EG-30	4

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1101	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B ENGINE TROUBLE RELAY	G1-2/ETR	WESTING. ELEC.-BFD5072A49G04	EG-30	2
1102	EPD	K-6B	M-12-103 REV 0C, M-12-104 REV 0C	K-6B FUEL LEVEL RELAY	G1-2/FLR	G.E. - CR120J22002	EG-31	2
1103	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B FIELD SHUTDOWN TIMER	G1-2/FST	CONTROL PRODUCTS DIV.-E7012 PD	EG-30	4
1104	EPD	K-6B	M-12-101 REV 10	K-6B GOVERNOR SETPOINT SW	G1-2/GSL	G.E. - SBM	EC-26	3
1105	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B HORN ALARM RELAY	G1-2/HAR	WESTING. ELEC.-BFD5072A49G04	EG-30	2
1106	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B HEATER CUT-OFF RELAY	G1-2/HCR	WESTING. ELEC.-BFD5072A49G04	EG-30	2
1107	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B HIGH LUBE OIL DIFF RELAY	G1-2/HLODR	WESTING. ELEC.-BFD5072A49G05	EG-30	2
1108	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B HIGH LUBE OIL TEMP RELAY	G1-2/HLOTR	WESTING. ELEC.-BFD5072A49G12	EG-30	2
1109	EPD	K-6B	M-12-101 REV 10, M-12-106 REV 2	K-6B HIGH VOLT EXCITER CHASSIS	G1-2/HVE	BASLER-90-59001-100	EC-26	7
1110	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B JACKET WATER LEVEL RELAY	G1-2/JWLR	WESTING. ELEC.-BFD5072A49G08	EG-30	2
1111	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B FLASHING RELAY, CKT A	G1-2/JWPR1	WESTING. ELEC.-BFD5072A49G12	EG-30	4
1112	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B FLASHING RELAY, CKT B	G1-2/JWPR2	WESTING. ELEC.-BFD5072A49G12	EG-30	4
1113	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B JACKET WATER TEMP RELAY	G1-2/JWTR	WESTING. ELEC.-BFD5072A49G05	EG-30	2
1114	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B JACKET WATER TEMP RELAY	G1-2/JWTR1	WESTING. ELEC.-BFD5072A49G04	EG-30	2
1115	EPD	K-6B	M-12-106 REV 2	K-6B CONTROL RELAY	G1-2/K1	WESTINGHOUSE-MD-101	EC-26	6C
1116	EPD	K-6B	M-12-106 REV 2	K-6B FIELD SHORTING CONTACTOR	G1-2/K1A	WESTINGHOUSE-MD-101	EC-26	6C
1117	EPD	K-6B	M-12-106 REV 2	K-6B FIELD FLASHING CONTACTOR	G1-2/K2	WESTINGHOUSE-MD-110	EC-26	6D
1118	EPD	K-6B	M-12-106 REV 2	K-6B FIELD CURRENT	G1-2/K3	POTTER BRUMFIELD - PRD11DY	EC-26	4
1119	EPD	K-6B	M-12-106 REV 2	K-6B CONTROL RELAY	G1-2/K4	POTTER BRUMFIELD - PRD11DY	EC-26	4
1120	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B FUEL LEVEL RELAY HI/LO	G1-2/LFLR (HLFLR)	WESTING. ELEC.-BFD47E8406	EG-30	2

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1121	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B LOW LUBE OIL TEMP RELAY	G1-2/LLOTR	WESTING. ELEC.-BFD5072A49G08	EG-30	2
1122	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B LOW OIL LEVEL RELAY	G1-2/LOLR	WESTING. ELEC.-BFD47E8406	EG-30	2
1123	EPD	K-6B	M-12-102(1) REV 11, M-12-104 REV 0C	K-6B LUBE OIL HEATER RELAY	G1-2/LP1	TRANSAMERICAN DELAVAL-ST22155	EG-30	3
1124	EPD	K-6B	M-12-102(1) REV 11, M-12-104 REV 0C	K-6B LUBE OIL LEVEL RELAY	G1-2/LP2	TRANSAMERICAN DELAVAL-ST22155	EG-30	3
1125	EPD	K-6B	M-12-101 REV 10, M-12-106 REV 2	K-6B EXCITER VOLTAGE REGULATOR	G1-2/LVE	BASLER ELECT.-90-59000-100	EC-26	3
1126	EPD	K-6B	M-12-101 REV 10	K-6B MOTOR OPER POT (SPEED/LD)	G1-2/MOP	WOODWARD-903-106	EC-26	7
1127	EPD	K-6B	M-12-105(1) REV 10	K-6B VOLTAGE ADJUST MOTOR	G1-2/MVM	OHMITE - 55677-3	EC-26	3
1128	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OVERCRANK RELAY	G1-2/OCR	WESTING. ELEC.-BFD5072A49G12	EG-30	4
1129	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OVERCRANK TIMER CKT A	G1-2/OCT1	CONTROL PRODUCTS DIV.-E7012 PD	EG-30	4
1130	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OVERCRANK TIMER CKT B	G1-2/OCT2	CONTROL PRODUCTS DIV.-E7012 PD	EG-30	4
1131	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OIL PRESSURE RELAY	G1-2/OPR	WESTING. ELEC.-BFD5072A49G05	EG-30	4
1132	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OIL PRESSURE RELAY	G1-2/OPR1	WESTING. ELEC.-BFD5072A49G05	EG-30	2
1133	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OIL PRES TIMER CKT A	G1-2/OPT1	CONTROL PRODUCTS DIV.-E7012 PD	EG-30	4
1134	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OIL PRES TIMER CKT B	G1-2/OPT2	CONTROL PRODUCTS DIV.-E7012 PD	EG-30	4
1135	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B OVERSPEED SWITCH	G1-2/OS	MICROSWITCH-DT F2-2RN2	K-6B	2
1136	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B OVERSPEED RELAY	G1-2/OSR	WESTING. ELEC.-BFD5072A49G12	EG-30	4
1137	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B PRESSURE DELAY TIMER	G1-2/PDT	CONTROL PRODUCTS DIV.-E7012 PD	EG-30	2
1138	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B PRELUBE TIMER RELAY	G1-2/PLT	CONTROL PRODUCTS DIV.-E7012 PD	EG-30	2
1139	EPD	K-6B	M-12-16 REV 11, M-12-51 REV B, M-12-101 REV 10, M-12-107 REV 5	K-6B RESISTOR BOX	G1-2/RB	WOODWARD-8270-145	EC-26	7

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1140	EPD	K-6B	M-12-102(2) REV 10, M-12-105(2) REV 9	ALARM RESET PUSHBUTTON	G1-2/RESET	G.E. - CR2940	EG-30	3
1141	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-102(2) REV 10	K-6B RUNNING TIME METER	G1-2/RTM	INDUST TIMER CORP.-MODEL C-2	EG-30	2
1142	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B RAW WATER PRES RELAY	G1-2/RWPR	WESTING. ELEC.-BFD5072A49G08	EG-30	2
1143	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B SHUTDOWN RELAY	G1-2/SDR	WESTING. ELEC.-BFD5072A49G12	EG-30	4
1144	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B LOCAL START/STOP SWITCH	G1-2/SSS	G.E. - SBM	EG-30	3
1145	EPD	K-6B	M-12-102(2) REV 10, M-12-105(2) REV 9	ALARM TEST PUSHBUTTON	G1-2/TEST	G.E. - CR2940	EG-30	3
1146	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B UNDERVOLT RELAY TEST SW	G1-2/TPS1	STATES - RTS	EC-26	3
1147	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B UNDERVOLT RELAY TEST SW	G1-2/TPS2	STATES - RTS	EC-26	3
1148	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B UNDERVOLT RELAY TEST SW	G1-2/TPS3	STATES - RTS	EC-26	3
1149	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B VOLTMETER SELECTOR SW	G1-2/VS	G.E. - SBM	EC-26	3
1150	EPD	K-6B	E-140-1A REV 2, M-12-105(1) REV 10	K-6B LOCAL REGULATOR SWITCH	G1-2/VSL	G.E. - SBM10BA873	EC-26	3
1151	EPD	K-6B	E-140-3 REV 12, M-12-105(1) REV 10	K-6B REMOTE REGULATOR SWITCH	G1-2/VSR	G.E. - SBM10BB502	EC-04	3
1152	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B WATTMETER TRANSDUCER	G1-2/WT	WESTINGHOUSE-VP2	EC-26	3
1153	DHR	FT-0727;I/P-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW TO STEAM GEN E-50B	HIC-0727	BAILEY 71101AAAA1WAM	EC-33	4
1154	DHR	FT-0727;I/P-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	FLOW CONTROL IND. AUX FW E-50B	HIC-0727C	FOXBORO 67-HTG-OJ	EC-150	3
1155	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	FW PP P-8C FLOW CONTR TO E-50B	HIC-0736A	BAILEY 71101AAAA1WAM	EC-33	4
1156	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	FW PP P-8C FLOW CONTR TO E-50A	HIC-0737A	BAILEY 71101AAAA1WAM	EC-33	4
1157	DHR	FT-0749;I/P-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	FLOW CONTROL IND. AUX FW E-50A	HIC-0749	BAILEY 71101AAAA1WAM	EC-33	4
1158	DHR	FT-0749;I/P-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	FLOW CONTROL IND. AUX FW E-50A	HIC-0749C	FOXBORO 67-HTG-OJ	EC-150	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1159	DHR	FT-0749;I/P-0749	E-78-2 REV 16, E-79-3 REV 5;E-79-3A REV 7;E-79-3B REV 6, E-82-5 REV 10	AUX FW VLV CV-0747,49 CNTL SW	HS-0102A	ELECTRO 20KD-0915D4-0012H14A	EC-150	3
1160	DHR	FT-0727;I/P-0727	E-78 SH.2A REV.4, E-79 SH.3 REV. 5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW VLV CV-0727 CONTROL SW	HS-0102B	ELECTRO 20KD-0915DA-0012H14A	EC-150	3
1161	RCPC	SV-0148	E-234 SH.2 REV 13	QUENCH TANK DRAIN HAND SW	HS-0148	G.E. - CR2940	EC-02	3
1162	RCPC	SV-0150	E-234 SH.2 REV 13	QUENCH TNK NITRGN ISOLAT HD SW	HS-0150	G.E. - CR2940	EC-02	3
1163	RCPC	SV-0152	E-234 SH.2 REV 13	QUENCH TNK T-73 VENT HAND SW	HS-0152	G.E. - CR2940	EC-02	3
1164	RCPC	SV-0155	E-235 SH.2 REV 16	DEMIN WTR QUNCH TNK T-73 HD SW	HS-0155	G.E. - CR2940	EC-02	3
1165	DHR	SV-0502,508,513,	E-238 SH.1 REV.25;E-238 SH.1A REV. 5	MAIN STEAM FROM GEN. E-50B	HS-0501A	G.E. - CR2940	EC-01	3
1166	DHR	MO-0501	E-238 SH.3 REV.6	MSS ISOL VLV BYPASS HAND SW	HS-0501C	G.E. - CR2940	EC-01	3
1167	DHR	SV-0505A,B;507A	E-238 SH.1 REV.25;E-238 SH.1A REV. 5	MAIN STEAM FROM GEN. E-50A	HS-0510A	G.E. - CR2940	EC-01	3
1168	DHR	MO-0510	E-238 SH.3 REV.6	MSS ISOL VLV BYPASS HAND SW	HS-0510C	G.E. - CR2940	EC-01	3
1169	DHR	SV-0522A	E-238 SH.4 REV.25	AUX FW PUMP TURB STEAM VLV SW	HS-0522A	G.E. - CR2940	EC-01	3
1170	DHR	SV-0522B	E-238 SH.4A REV.1	AUX FW PUMP TURB STEAM VLV SW	HS-0522B	G.E. - CR2940	EC-01	3
1171	DHR	SV-0522C	E-238 SH.12 REV.7	AUXFW PP TURB STM CV-0522B SW	HS-0522C	ELECTRO 20KB-1251D4-2H17G	EC-150	3
1172	DHR	SV-0738	E-235 SH.3 REV15;E-235 SH.3A REV. 3;E-235 SH.3B REV.3	E-50B TOP BLOWDN ISOLATION SW	HS-0738	G.E. - CR2940	EC-13	3
1173	DHR	SV-0739	E-235 SH.3 REV15;E-235 SH.3A REV. 3;E-235 SH.3B REV.3	E-50A TOP BLOWDN ISOLATION SW	HS-0739	G.E. - CR2940	EC-13	3
1174	DHR	MO-0743	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50B ISOLATION	HS-0743	G.E. - CR2940	EC-11	3
1175	DHR	MO-0748	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50B ISOLATION	HS-0748	G.E. - CR2940	EC-11	3
1176	DHR	MO-0753	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50A ISOLATION	HS-0753	G.E. - CR2940	EC-11	3
1177	DHR	MO-0754	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50A ISOLATION	HS-0754	G.E. - CR2940	EC-11	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1178	DHR	MO-0755	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50B ISOLATION	HS-0755	G.E. - CR2940	EC-11	3
1179	DHR	MO-0759	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50A ISOLATION	HS-0759	G.E. - CR2940	EC-11	3
1180	DHR	MO-0760	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50A ISOLATION	HS-0760	G.E. - CR2940	EC-11	3
1181	DHR	SV-0767	E-235 SH.4A REV10	E-50A BOTTOM BLOWDN ISOL. SW	HS-0767	G.E. - CR2940	EC-13	3
1182	DHR	SV-0768	E-235 SH.4A REV10	E-50B BOTTOM BLOWDN ISOL. SW	HS-0768	G.E. - CR2940	EC-13	3
1183	DHR	MO-0798	E-1174 SH.1 REV.3;E-1174 SH.2 REV. 10	AUX FW TO S/G E-50B ISOLATION	HS-0798	G.E. - CR2940	EC-11	3
1184	DHR	SV-0821	E-219 SH.1 REV.10;E-219 SH.3 REV.15	CCW HT EXH SERVICE WTR BYPASS	HS-0828	G.E. - CR2940	EC-08	3
1185	DHR	SV-0844	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	CRITICAL SERV WTR LINE HAND SW	HS-0844	G.E. - CR2940	EC-08	3
1186	DHR	SV-0845	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	CRITICAL SERV WTR LINE HAND SW	HS-0845	G.E. - CR2940	EC-08	3
1187	DHR	SV-0846	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	CRITICAL SERV WTR CROSSOVER	HS-0846	G.E. - CR2940	EC-08	3
1188	DHR	SV-0847	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	SWS INLET TO AIR COOLERS SW	HS-0847A	G.E. - CR2940	EC-08	3
1189	DHR	SV-0847	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	SWS INLET TO AIR COOLERS SW	HS-0847B	G.E. - CR2940	EC-33	3
1190	DHR	SV-0857	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	CRITICAL SERV WTR CROSSOVER	HS-0857	G.E. - CR2940	EC-08	3
1191	DHR	SV-0876	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	SERV WTR DIESEL ENGINE SWITCH	HS-0876	G.E. - CR2940	EC-08	3
1192	DHR	SV-0877	E-219 SH.1 REV.10;E-219 SH.2 REV. 10;E-219 SH.3 REV.15	SERV WTR DIESEL ENGINE SWITCH	HS-0877	G.E. - CR2940	EC-08	3
1193	DHR	SV-0879	E-219 SH.1 REV.10;E-219 SH.3 REV.15	ESG PPS SEAL COOLING SWITCH	HS-0879A	G.E. - CR2940	EC-08	3
1194	DHR	SV-0879	E-219 SH.1 REV.10;E-219 SH.3 REV.15	ESG PPS SEAL COOLING SWITCH	HS-0879B	G.E. - CR2940	EC-33	3
1195	DHR	SV-0880	E-219 SH.1 REV.10;E-219 SH.3 REV.15	ESG PPS SEAL COOLING SWITCH	HS-0880A	G.E. - CR2940	EC-08	3
1196	DHR	SV-0880	E-219 SH.1 REV.10;E-219 SH.3 REV.15	ESG PPS SEAL COOLING SWITCH	HS-0880B	G.E. - CR2940	EC-33	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1197	DHR	SV-0951	E-239 SH.1 REV.16;E-239 SH.3 REV.13	SWS BACKUP FOR SEAL COOLING SW	HS-0951A	G.E. - CR2940	EC-08	3
1198	DHR	SV-0951	E-239 SH.1 REV.16;E-239 SH.3 REV.13	SWS BACKUP FOR SEAL COOLING SW	HS-0951B	G.E. - CR2940	EC-33	3
1199	RCPC	MO-1042A	E-242 SH.4 REV 19	PWR OPERATED RELIEF VAL HD SW	HS-1042A	G.E. - SB1	EC-02	3
1200	RCPC	PRV-1042B	E-256 SH.1 REV.21	PRZ / QUENCH TK T-73 HAND SW	HS-1042B	G.E. - SB1	EC-02	3
1201	RCPC	MO-1043A	E-242 SH.4 REV 19	PWR OPERATED RELIEF VAL HD SW	HS-1043A	G.E. - SB1	EC-02	3
1202	RCPC	PRV-1043B	E-256 SH.1A REV.7	PRZ / QUENCH TK T-73 HAND SW	HS-1043B	G.E. - SB1	EC-02	3
1203	RCPC	PRV-1067	E-256 SH.4 REV.3	PCS REACTOR HEAD VENT HAND SW	HS-1067	G.E. - CR2940UN311AW	EC-11A	3
1204	RCPC	PRV-1068	E-256 SH.4 REV.3	PCS REACTOR HEAD VENT HAND SW	HS-1068	G.E. - CR2940UN311AW	EC-11A	3
1205	RCPC	PRV-1069	E-256 SH.4 REV.3	PCS REACTOR HEAD VENT HAND SW	HS-1069	G.E. - CR2940UN311AW	EC-11A	3
1206	RCPC	PRV-1070	E-256 SH.4 REV.3	PCS REACTOR HEAD VENT HAND SW	HS-1070	G.E. - CR2940UN200F	EC-11A	3
1207	RCPC	PRV-1072	E-256 SH.4 REV.3	PCS REACTOR HEAD VENT HAND SW	HS-1072	G.E. - CR2940UN311AW	EC-11A	3
1208	DHR	SV-1318	E-219 SH.1 REV.10;E-219 SH.3 REV.15	SWS HEADER ISOLATION HAND SW	HS-1318	G.E. - CR2940	EC-08	3
1209	DHR	SV-1319	E-219 SH.1 REV.10;E-219 SH.3 REV.15	SWS HEADER ISOLATION HAND SW	HS-1319	G.E. - CR2940	EC-08	3
1210	DHR	SV-1359	E-219 SH.1 REV.10;E-219 SH.3 REV.15	SWS TO NONCRITICAL HDR HAND SW	HS-1359	G.E. - CR2940	EC-08	3
1211	DHR	SV-1414	E-178 SH.1 REV.18	FIRE PP DRIVE DAY TK T-24	HS-1414	G.E. - CR2940	RM-136	3
1212	EPD	K-6A	E-178-4 REV 3, E-178-2 REV 18	DISCHARGE TO EDG TANK T-25A	HS-1415	G.E. - CR2940	EJ-246	3
1213	DHR	SV-1414	E-178 SH.3 REV.14	DISCH TO DIESEL FIRE PP DAY TK	HS-1417	G.E. - CR2940	RM-136	3
1214	EPD	K-6A	E-178-2 REV 18, E-178-4 REV 3	DISCHARGE TO EDG TANK T-25A	HS-1418	G.E. - CR2940	EJ-246	3
1215	EPD	K-6B	E-178-4 REV 3	K-6B DAY TANK T-25B	HS-1452	G.E. - CR2940	K-6B	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1216	EPD	K-6B	E-178-2 REV 18, E-178-4 REV 3	K-6B DAY TANK T-25B	HS-1453	G.E. - CR2940	K-6B	3
1217	EPD	EA-11	E-130-1 REV 13, E-154-1 REV 18, E-154-3 REV 0	BKR 152-103 TRANSFER SWITCH	HS-152-103-RLTS	G.E. - SBM	EA-11	3
1218	EPD	EA-11	E-129-1A REV 4, E-129-1B REV 3	BKR 152-106 TRANSFER SWITCH	HS-152-106 RLTS	G.E. - SBM	EA-11	3
1219	EPD	EA-11	E-130-1 REV 13, E-139-1,2 REV 29,15; E-140-1,2,3 REV 17,16,12	BKR 152-107 TRANSFER SWITCH	HS-152-107 RLTS	G.E. - 16SBML2A17R1A3N1246	EA-11	3
1220	EPD	EA-11	E-130-1 REV 13, E-133-1 REV 10	BKR 152-110 TRANSFER SWITCH	HS-152-110 RLTS	G.E. - SBM	EA-11	3
1221	HVAC	V-95	E-270 SH.2 REV.4;E-88	V-95 HAND SWITCH	HS-1673A	G.E. - SBM	EC-11A	3
1222	HVAC	V-95	E-270 SH.2 REV.3	V-95 HAND SWITCH	HS-1673B	G.E. - CR2940	EC-186A	3
1223	HVAC	V-96	E-270 SH.2 REV.4;E-88	V-96 HAND SWITCH	HS-1674A	G.E. - SBM	EC-11A	3
1224	HVAC	V-96	E-270 SH.2 REV.3;E-86	V-96 HAND SWITCH	HS-1674B	G.E. - CR2940UB203F	EC-186B	3
1225	HVAC	V-26A	E-271 SH.3 REV.2	V-26A HAND SWITCH	HS-1715A	G.E. - SBM	EC-11A	3
1226	HVAC	V-26A	E-271 SH.4 REV.0	V-26A HAND SWITCH	HS-1715B	G.E. - CR2940UB203F	EC-186A	3
1227	HVAC	V-26B	E-271 SH.4 REV.0	FAN V-26B CONTROL SWITCH	HS-1716A	G.E. - SBM	EC-11A	3
1228	HVAC	V-26B	E-271 SH.4 REV.0	FAN V-26B LOCAL CONTROL SWITCH	HS-1716B	G.E. - CR2940UB203F	EC-186B	3
1229	HVAC	PO-1745	E-271 SH.6 REV.1;E-271 SH.7 REV.0	D-7 HAND SWITCH	HS-1745A	G.E. - SBM	EC-11A	3
1230	HVAC	PO-1745	E-271 SH.6 REV.1;E-271 SH.7 REV.0	D-7 HAND SWITCH	HS-1745B	G.E. - CR2940	HVAC RM	3
1231	HVAC	PO-1746	E-271 SH.6 REV.1;E-271 SH.7 REV.0	D-14 HAND SWITCH	HS-1746A	G.E. - SBM	EC-11A	3
1232	HVAC	PO-1746	E-271 SH.6 REV.1;E-271 SH.7 REV.0	D-14 HAND SWITCH	HS-1746B	G.E. - CR2940	EC-186B	3
1233	RCPC	SV-1901,2,3,4	E-230 REV11;M-219 SH.1B REV16	NSSS SAMPLING SELECTOR SWITCH	HS-1901	G.E. - S81	EC-32	3
1234	RCPC	SV-2002A	E-236 SH.3 REV.11;M-202 SH.1B REV. 18	ORIFICE BYPASS STOP VLV SWITCH	HS-2002A	G.E. - CR2940	EC-02	3
1235	RCPC	SV-2002B	E-236 SH.3 REV.11;M-202 SH.1B REV. 18	ORIFICE BYPASS STOP VLV SWITCH	HS-2002B	G.E. - CR2940	EC-02	3
1236	RCPC	SV-2003	E-236 SH.1 REV.14;M-202 SH.1B REV. 18	LETDOWN ORIFICE VALVE SWITCH	HS-2003	G.E. - CR2940	EC-02	3
1237	RCPC	SV-2004	E-236 SH.1 REV.14;M-202 SH.1B REV. 19	LETDOWN ORIFICE VALVE SWITCH	HS-2004	G.E. - CR2940	EC-02	3
1238	RCPC	SV-2005	E-236 SH.1 REV.14;M-202 SH.1B REV. 19	LETDOWN ORIFICE VALVE SWITCH	HS-2005	G.E. - CR2940	EC-02	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1239	RCPC	SV-2111	E-236 SH.2 REV.11;M-202 SH.1B REV. 19	CHARGING LINE STOP VLV. SW.	HS-2111	G.E. - CR2940	EC-02	3
1240	RCPC	SV-2113	E-236 SH.2 REV.11;M-202 SH.1B REV. 19	CHARGING DIST. STOP VLV. SW.	HS-2113	G.E. - CR2940	EC-02	3
1241	RCPC	SV-2115	E-236 SH.2 REV.11;M-202 SH.1B REV. 19	CHARGING DIST. STOP VLV. SW.	HS-2115	G.E. - CR2940	EC-02	3
1242	RCPC	SV-2117	E-236 SH.2 REV.11;M-202 SH.1B REV. 19	AUX. SPRAY STOP VALVE SWITCH	HS-2117	G.E. - CR2940	EC-02	3
1243	RCPC	CV-3029, SV-302	E-246-1, M-204-1A	CONTAINMENT SUMP VLV SW	HS-3029A	G.E. - CR2940UN200D	EC-03	3
1244	RCPC	CV-3029, SV-302	E-246-1, M-204-1A	CONTAINMENT SUMP VLV SW	HS-3029B	G.E. - CR2940UN200A	EC-33	3
1245	RCPC	SV-3030A;SV-303	E-246 SH.1 REV.15;M-204 SH.1A REV. 18	CONTAINMENT SUMP VLV SWITCH	HS-3030A	G.E. - CR2940	EC-03	3
1246	RCPC	SV-3030A;SV-303	E-246 SH.1 REV.15;M-204 SH.1A REV. 18	CONTAINMENT SUMP VLV SWITCH	HS-3030B	G.E. - CR2940	EC-33	3
1247	RCPC	MO-3082	E-244 SH.5A REV.0	H.L.INJ MODE SEL VLV MO-3082CS	HS-3082A	G.E. - CR2940	EC-03	3
1248	RCPC	MO-3082	E-244 SH.5A REV.0	H.L.INJ MODE SEL VLV MO-3082CS	HS-3082B	G.E. - CR2940	EC-33	3
1249	DHR	SV-5353	E-789 SH.2 REV.7	T-40 DIESEL OIL TRANSF CONTROL	HS-5353A	G.E. - CR2940	EJ-217	3
1250	DHR	SV-1414	E-789 SH.2 REV.7	T-40 DIESEL OIL TRANSF CONTROL	HS-5353B	G.E. - CR2940	EJ-217	3
1251	EPD	K-6A	E-140-2 REV 16, E-140-3 REV 12, M-12-94 REV 9, M-12-98(1) REV 15	ISOLATION/TRANSFER SWITCH	HS-C22-RLTS	G.E.-165BML2A17R1A3N1246	EC-22	3
1252	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 9, M-12-98(1) REV 15	ISOLATION/TRANSFER SWITCH	HS-G20-RLTS	G.E.-165BML2A17R1A3N1246	EG-20	3
1253	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-3 REV 3, E-196-5 REV 6	BKR 152-104 AUX FW PP P-8A	HS-P8A	G.E. - CR2940UB200A	EC-01	3
1254	DHR	P-8C	E-196 SH.9 REV.9;E-196 SH.12 REV.3	SEL SW FOR AUX FW PP P-8C	HS-P8C	G.E. - CR2940	EC-01	3
1255	HVAC	D-14	E-82-4, E-271-6, E-271-7, E-618-1002	AUX RELAY	HSV-1716B	G.E. - HGA111	EJ-1002	4
1256	HVAC	PO-1711	E-271 SH.19 REV.2	AUX RELAY	HSX-1715A	G.E. - HGA111	HVAC RM	4
1257	HVAC	PO-1745	E-271 SH.6 REV.1;E-271 SH.7 REV.0	AUX RELAY	HSX-1715B	G.E. - HGA111	EJ-1003	4
1258	HVAC	PO-1712	E-271 SH.19 REV.2	AUX RELAY	HSY-1716A	G.E. - HGA111	RM-300A	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1259	HVAC	PO-1746	E-271 SH.6 REV.1;E-271 SH.7 REV.0	AUX RELAY	HSY-1716B	G.E. - HGA111	RM-300A	4
1260	HVAC	SV-1758	E-271 SH.12 REV.1	AUX RELAY TO OPEN DAMPER D-16	HSY-1759	G.E. - HGA111	EJ-1002	4
1261	RCPC	PT-0105A	E-84 SH.6 REV.12	WIDE RANGE PRES INPUT CHNL A	I/E-0105A	FOXBORO N-2AI-I2V	EC-12	4
1262	RCPC	PT-0105B	E-84 SH.6A REV.2	WIDE RANGE PRES INPUT CHNL B	I/E-0105B	FOXBORO N-2AI-I2V	EC-11A	4
1263	RCPC	SV-2153;SV-2155	E-234 SH.1 REV.19;M-202 SH.1A REV. 24	PRI SYSTEM MAKE-UP STOP VLV SW	I/F-0210	WESTINGHOUSE TYPE W2	EC-02	3
1264	RCPC	EU-1;EU-2	E-253 SH.1 REV 13;M1-MA SH.999 REV 1	PRESSURIZER HEATERS TRANSDUCER	I/I-0101A	FISHER PORTER 50EK1000	EC-02	3
1265	RCPC	EU-1;EU-2	E-253 SH.1 REV 13;M1-MA SH.999 REV 1	PRESSURIZER HEATERS TRANSDUCER	I/I-0101B	FISHER PORTER 50EK1000	EC-02	3
1266	RCPC	PT-0105A	E-84 SH.6 REV.12	PRI COOLANT WIDE RANGE PRESS	I/I-0105A	DEVAR 18-119	EC-12	4
1267	RCPC	PT-0105B	E-84 SH.6A REV.2	PRI COOLANT WIDE RANGE PRESS	I/I-0105B	DEVAR 18-119	EC-12	4
1268	RCPC	TE-0112CC	E-96 SH.7 REV.15	PRI LOOP COLD LEG ISOL TRANSM	I/I-0112CC	DEVAR 18-119	EC-12	4
1269	RCPC	TE-0112CD	E-96 SH.8 REV.3	PRI LOOP COLD LEG ISOL TRANSM	I/I-0112CD	DEVAR 18-119X-RT-M31X	EC-12	4
1270	RCPC	TE-0122CC	E-96 SH.7 REV.15	PRI LOOP COLD LEG ISOL TRANSM	I/I-0122CC	DEVAR 18-119X-RT-M31X	EC-12	4
1271	RCPC	TE-0122CD	E-96 SH.8 REV.3	PRI LOOP COLD LEG ISOL TRANSM	I/I-0122CD	DEVAR 18-119	EC-12	4
1272	DHR	FT-0727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW CONTROL TO E-50B	I/P-0727	ITT GT25CA1826	CCW	4
1273	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW FLOW CONTR BYPASS E-50B	I/P-0736	ITT GT25CA1826	W ESG	4
1274	DHR	FT-0736A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW FLOW CONTR TO E-50B	I/P-0736A	ITT GT25CA1826	W ESG	4
1275	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW FLOW CONTR BYPASS E-50B	I/P-0737	ITT GT25CA1826	W ESG	4
1276	DHR	FT-0737A;I/P-073	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	AUX FW FLOW CONTR TO E-50A	I/P-0737A	ITT GT25CA1826	W ESG	4
1277	DHR	FT-0749	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	AUX FW FLOW CONTROL TO E-50A	I/P-0749	ITT GT25CA1826	CCW	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1278	DHR	PT-1655	E-270 SH.9 REV.1	COND UNIT VC-11 I/P CONVERTER	I/P-1655	ITT GT25CA1826	W MER	4
1279	DHR	PT-1656	E-270 SH.9 REV.1	COND UNIT VC-10 I/P CONVERTER	I/P-1656	ITT GT25CA1826	E MER	4
1280	HVAC	V-95	E-270 SH.5 REV.2	V-95 MODULATING DAMPER D-2	I/P-1659	MOORE INDUSTRIES 7716	RM-300	3
1281	HVAC	V-96	E-270 SH.5 REV.2	V-96 MODULATING DAMPER D-9	I/P-1660	MOORE INDUSTRIES 7716	RM-300A	3
1282	RCPC	P-55B	E-257 SH.1 REV.20	PRZ LEVEL & CHG PP SPEED CONTL	LC-0101-1	ROCHESTER INST. ET-218	EC-12	3
1283	RCPC	P-55C	E-257 SH.2 REV.20	CHRG PP & LETDN ORIF VLV CONTL	LC-0101-2	ROCHESTER ET-218	EC-12	3
1284	RCPC	SV-2004	E-236 SH.1 REV.14	PZR LEVEL & PUMP SPEED CONTROL	LC-0101-4	ROCHESTER ET-222	EC-12	3
1285	RCPC	SV-2005	E-236 SH.1 REV.14;M-202 SH.1B REV. 19	PZR LEVEL & PUMP SPEED CONTROL	LC-0101-5	ROCHERTER ET-222	EC-12	3
1286	RCPC	P-55B	E-257 SH.1 REV.20	PRZ LVL CONTL PP P-55B RELAY	LCX-0101-1	BLISS/EAGLE AF40 AIRFLEX	EC-12	2
1287	RCPC	P-55C	E-257 SH.2 REV.20	CHRG PP P-55C LVL CONTL RELAY	LCX-0101-2	BLISS/EAGLE AF40 AIRFLEX	EC-12	2
1288	RCPC	LT-0102	E-82 SH.5 REV.10	AUX HOR SHUTDN PNL PRZ LEVEL	LI-0102B	VERSATILE 9283-00-D	EC-150	3
1289	RCPC	LT-0103	E-82 SH.3 REV 16;M-206 SH.101 REV 3	WD RANGE PRESSZR LVL INDICATOR	LI-0103A	VERSATILE 9283-00-D-VB-13N	EC-12	3
1290	RCPC	LT-0103	E-82 SH.3 REV.17	PRZ WIDE RANGE LVL INDICATION	LI-0103B	VERSATILE 9283-00-D-VB-13N	EC-33	3
1291	DHR	LT-0757A	E-78 SH.2 REV.16	E-50A WIDE RANGE LEVEL IND	LI-0757A	VERSATILE 9283-00-D-VB-13N	EC-12	3
1292	DHR	LT-0757B	E-78 SH.2 REV.16	E-50A WIDE RANGE LEVEL IND	LI-0757B	VERSATILE 9283-00-D-VB-N	EC-12	3
1293	DHR	LT-0757A	E-78 SH.2 REV.16	E-50B WIDE RANGE LEVEL IND	LI-0757C	VERSATILE 9283-00-D-1-SVDC	EC-150	3
1294	DHR	LT-0758A	E-78 SH.2A REV.4	E-50B WIDE RANGE LEVEL IND	LI-0758A	VERSATILE 9283-00-D-VB-13N	EC-12	3
1295	DHR	LT-0758B	E-78 SH.2A REV.4	E-50B WIDE RANDE LEVEL IND	LI-0758B	VERSATILE 9283-00-D-VB-13N	EC-12	3
1296	DHR	LT-0758A	E-78 SH.2A REV.4	E-50B WIDE RANGE LEVEL IND	LI-0758C	VERSATILE 9283-00-D	EC-150	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1297	RCPC	LT-0102	E-82 SH.5 REV.10	PRESSURIZER LEVEL INDICATION	LIA-0102A	VERSATILE 9283-10-D-VB-13M	EC-02	3
1298	RCPC	LT-0331	E-87 SH.1 REV.15	SIRW TK LEVEL INDICATION ALARM	LIA-0331	VERSATILE 9283-20-D-VB-13M	EC-13	3
1299	RCPC	LT-0332A	E-87 SH.1A REV.3	SIRW TK LVL IND IN CONTROL RM	LIA-0332A	VERSATILE 9283-20-D-VB-13M	EC-13	3
1300	DHR	LT-2021	E-87 SH.6 REV.6	COND TANK T-2 LEVEL ALARM	LIA-2021	VERSATILE 9283-20-E-VB-13M	EC-13	3
1301	DHR	LT-2022	E-87 SH.6 REV.6	COND TANK T-2 LEVEL ALARM	LIA-2022	VERSATILE 9283-20-E-VB-13M	EC-13	4
1302	DHR	SV-0505A,5B,7A,	E-238 SH.1 REV.25;E-238 SH.1A REV. 5	E-50A LOW PRESSURE RELAY	LPX/E50A	WESTINGHOUSE-SG293B255A26	EC-12	4
1303	DHR	SV-0502,8,13,14	E-238 SH.1 REV.25;E-238 SH.1A REV. 5	E-50B LOW PRESSURE RELAY	LPX/E50B	WESTINGHOUSE-SG293B255A26	EC-12	4
1304	RCPC	LS-0327	E-207 SH.1 REV.24	SIRW TK CHNL1 LO LEVEL SWITCH	LS-0327	B/W E-55	RM-808	3
1305	RCPC	LS-0328	E-207 SH.1 REV.24	SIRW TK CHNL2 LO LEVEL SWITCH	LS-0328	B/W E-55	RM-808	3
1306	RCPC	LS-0329	E-207 SH.1 REV.24	SIRW TK CHNL3 LO LEVEL SWITCH	LS-0329	B/W E-55	RM-808	3
1307	RCPC	LS-0330	E-207 SH.1 REV.24	SIRW TK CHNL4 LO LEVEL SWITCH	LS-0330	B/W E-55	RM-808	3
1308	DHR	SV-1414	E-178 SH.1 REV.18	DIESEL FUEL DAY TK T-24 LEVEL	LS-1308	MAGNETROL-A-103-F	RM-136	3
1309	EPD	K-6A	E-140-1A REV 2, E-178-4 REV 3	K-6A LEVEL CONTROL SWITCH HI	LS-1417	MAGNETROL-291-SP	K-6A	2
1310	EPD	K-6A	E-140-1A REV 2, E-178-4 REV 3	K-6A LEVEL CONTROL SWITCH LO	LS-1418	MAGNETROL-291-SP	K-6A	2
1311	EPD	K-6B	E-140-1A REV 2, E-178-4 REV 3, M-12-104 REV 0C	FUEL OIL DY TK T-25B,WEST SIDE	LS-1452	MAGNETROL-291-SP	K-6B	2
1312	EPD	K-6B	E-140-1A REV 2, E-178-4 REV 3, M-12-104 REV 0C	FUEL OIL DY TK T-25B,WEST SIDE	LS-1453	MAGNETROL-291-SP	K-6B	2
1313	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A FUEL OIL LEVEL ALARM LO	LS-1467 (LFLS)	VIKING IND.-HL-2	K-6A	2
1314	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B FUEL OIL RESERV ALARM LO	LS-1468 (LFLS)	VIKING IND.-HL-2B	K-6B	2
1315	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5, M-12-37 REV 0F	K-6A SUMP STOP FILL LEVEL SW	LS-1470 (FLS1)	VIKING IND.-HL-2B	K-6A	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1316	EPD	K-6B	E-140-1A REV 2, M-12-104 REV 0C	K-6B SUMP STOP FILL LEVEL SW	LS-1471 (FLS1)	VIKING IND.-HL-2B	K-6B	2
1317	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5, M-12-37 REV 0F	K-6A SUMP START FILL LEVEL SW	LS-1472 (FLS2)	VIKING IND.-HL-2B	K-6A	2
1318	EPD	K-6B	E-140-1A REV 2, M-12-104 REV 0C	K-6B SUMP START FILL LEVEL SW	LS-1473 (FLS2)	VIKING IND.-HL-2B	K-6B	2
1319	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A FUEL OIL RESERVOIR LEVEL	LS-1474 (LFLS)	VIKING IND.-HL-2B	K-6A	2
1320	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B FUEL OIL RESERVOIR LEVEL	LS-1475 (LFLS)	VIKING IND.-HL-2B	K-6B	2
1321	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5	K-6A LUBE OIL LEVEL	LS-1477 (LOLS)	GEMS SENSORS DELAVAL-LS-1800	K-6A	2
1322	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A JACKET WATER LEVEL SWITCH	LS-1482 (JWLS)	BINDICATOR-GT-1	K-6A	2
1323	EPD	K-6B	E-140-1A REV 2, M-12-104 REV 0C	K-6B LUBE OIL RESERV LOW LEVEL	LS-1487	GEMS SENSORS/DELAVAL-LS-1800	K-6B	2
1324	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B JACKET WATER LEVEL SW	LS-1492 (JWLS)	BINDICATOR-GT-1	K-6B	2
1325	DHR	SV-5353	E-789 SH.2 REV.7	T-40 DIESEL OIL TRANSF CONTROL	LS-5353	MAGNETROL-A103F-EP/VPK3X	EJ-217	3
1326	RCPC	RELAY 4L1 & 4L3	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#1	LSX-0327	G.E. - 12HFA151A49H	EC-13	4
1327	RCPC	RELAY 4L1 & 4L3	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#2	LSX-0328	G.E. - 12HFA151A49H	EC-13	4
1328	RCPC	RELAY 4L1 & 4L3	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#3	LSX-0329	G.E. - 12HFA151A49H	EC-13	4
1329	RCPC	RELAY 4L1 & 4L3	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#4	LSX-0330	G.E. - 12HFA151A49H	EC-13	4
1330	DHR	SV-1414	E-178 SH.3 REV.14	OIL TRANS PP P-18A RELAY	LSX-1308	CUTLER-HAMMER 6-2-2	EB-0867	2
1331	EPD	K-6A	E-178-4 REV 3, M-12-96 REV 0G	K-6A T-25A DAY TK FILL CNTL	LSX-1417	ALLEN BRADLEY-700N-200A1 SER B	EG-21	4
1332	EPD	K-6B	E-178-4 REV 3, M-12-103 REV 0C	K-6B T-25B DAY TK FILL CNTL	LSX-1452	ALLEN BRADLEY-700N-200A1 SER B	EG-31	4
1333	DHR	SV-0738;SV-0739	E-235 SH.3 REV15;E-235 SH.3A REV. 3;E-235 SH.3B REV.3	BOTTOM & SURFACE BLOWDN RELAY	LSX-5146A	G.E. - HFA151	EC-13	4
1334	DHR	SV-5353	E-789 SH.2 REV.7	T-40 DIESEL OIL TRANSF CONTROL	LSX-5353	ALLEN BRADLEY 700N	EJ-214	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1335	RCPC	RELAY 4L2 & 4L4	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#1	LSY-0327	G.E. - 12HFA151A49H	EC-13	4
1336	RCPC	RELAY 4L2 & 4L4	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#2	LSY-0328	G.E. - 12HFA151A49H	EC-13	4
1337	RCPC	RELAY 4L2 & 4L4	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#3	LSY-0329	G.E. - 12HFA151A49H	EC-13	4
1338	RCPC	RELAY 4L2 & 4L4	E-207-1, E-246-1	SIRW TK LO LEVEL DETECT#4	LSY-0330	G.E. - 12HFA151A49H	EC-13	4
1339	RCPC	LT-0102	E-82 SH.5 REV.10	PRZ WIDE RANGE LVL CHNL A	LT-0102	ROSEMOUNT 1154HP5RCN0012	RM-143	4
1340	RCPC	LT-0103	E-82 SH.3 REV.17, M-206B SH.4 REV E	PRZ WIDE RANGE LVL INDICATION	LT-0103	ROSEMOUNT 1153HD5	RM-143	4
1341	RCPC	LT-0331	E-87 SH.1 REV.15	SIRW TK CKT 2 LVL TRANSMITTER	LT-0331	ROSEMOUNT 1152GP5N22	RM-808	4
1342	RCPC	LT-0332A	E-87 SH.1A REV.3	SIRW TK LEVEL TRANSMITTER	LT-0332A	ROSEMOUNT 1152GP5N22	RM-808	4
1343	DHR	LT-0757A	E-78 SH.2 REV.16	WIDE RANGE STM GEN LEVEL TRANS	LT-0757A	ROSEMOUNT 1153DD5	RB RM 142	4
1344	DHR	LT-0757B	E-78 SH.2 REV.16	E-50A WIDE RANGE LEVEL TRANS	LT-0757B	ROSEMOUNT 1153DD5	RB RM 142	4
1345	DHR	LT-0758A	E-78 SH.2A REV.4	E-50B WIDE RANGE LEVEL TRANS	LT-0758A	ROSEMOUNT 1153DD5	RB RM 142	4
1346	DHR	LT-0758B	E-78 SH.2A REV.4	E-50B WIDE RANGE LEVEL TRANS	LT-0758B	ROSEMOUNT 1153DD5	RB RM 142	4
1347	EPD	K-6A	E-359-1R, E-87-1 REV 15	DIESEL OIL T-25A LEVEL TRANS.	LT-1416	FISCHER & PORTER-10B2465EAAB1	T-25A	7
1348	EPD	K-6B	E-87-1 REV 15, E-359-1R	K-6B OIL DAY TK T-25B LEVEL TR	LT-1417	FISCHER & PORTER-10B2465EAAB1	K-6B	7
1349	DHR	LT-2021	E-87 SH.6 REV.6	COND TK T-2 HI-LO LEVEL TRANS	LT-2021	ROSEMOUNT 1152DP5-E-92-PB	TK T-2	4
1350	DHR	LT-2022	E-87 SH.6 REV.6	COND TK T-2 HI-LO LEVEL TRANS	LT-2022	ROSEMOUNT 1152DP5-E-92-PB	TK T-2	4
1351	RCPC	MO-2087	E-242 SH.1 REV.21	D/G LOAD SEQ AC O/P CARD CKT 1	MC-34L103	GOULD B810-008	EC-13	3
1352	RCPC	MO-2169	E-241 REV.16	D/G LOAD SEQ AC O/P CARD CKT 1	MC-34L104	GOULD B810-008	EC-13	3
1353	EPD	EA-11	E-154-1 REV 18, E-248 REV 14, E-259-1 REV 17, E-259-1A REV 6	D/G LOAD SEQ. DC OUTPUT CARD	MC-34L105	GOULD INC. B836-116	EC-13	3

SQUG RELAY LIST

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1354	EPD	EA-11	E-196-1,2,3 REV 12,10,3; E-249-1 REV 13,E-251-1,1A REV 14,4; E-259-1,1A REV 17,6	D/G LOAD SEQ. DC OUTPUT CARD	MC-34L106	GOULD INC. B836-016	EC-13	3
1355	EPD	EA-11	E-249 REV 13	BKR 152-113 EDG LD SEQ DC CARD	MC-34L107	GOULD INC. B836	EC-13	3
1356	RCPC	MO-2140	E-241 REV.16	D/G LOAD SEQ AC O/P CARD CKT 2	MC-34R103	GOULD B810-008	EC-13	3
1357	EPD	EA-12	E-154 SH.1 REV.18, E-247 REV.15	D/G LOAD SEQ DC OUTPUT CARD	MC-34R105	GOULD INC. B836-016	EC-13	3
1358	EPD	EA-12	E-154-2 REV 13, E-196-9 REV 9, E-251-1 REV 14, E-259-1 REV 17	D/G LOAD SEQ DC OUTPUT CARD	MC-34R106	GOULD INC. B836-016	EC-13	3
1359	RRC	NE-1/3	E-61 SH.1 REV.7;E-61 SH.2 REV.8	WIDE RANGE EXCORE DET ASSEMB	NE-1/3	GAMMA/METRICS 900199-101	RB	4
1360	RRC	NE-2/4	E-61 SH.1 REV.7;E-61 SH.2 REV.8	WIDE RANGE EXCORE DET ASSEMB	NE-2/4	GAMMA/METRICS 900199-101	RB	4
1361	RCPC	PT-0101B	E-84 SH.1 REV 15;M1-HK SH. 8019 REV 0	PRESSZR PRESSURE PWR SUPPLY	P-0101B	FOXBORO 610	EC-12	3
1362	RCPC	PT-0101B	E-84 SH.1 REV 15;M1-MA SH.841 REV 0	PRESSZR PRESSURE ALARM	PA-0101B	ROCHESTER ET-215	EC-12	4
1363	DHR	PT-0751D	E-83 SH.3 REV.0	RSP CH D S/G 1 LP BIST TRIP	PA-0751D	COMBUSTION 47001-5	EC-06	4
1364	DHR	PT-0752C	E-83 SH.3 REV.0	RSP CH D S/G 2 LP BIST TRIP	PA-0752C	COMBUSTION 47001-8	EC-06	4
1365	DHR	PT-0752D	E-83 SH.3 REV.0	RSP CH D S/G 2 LP BIST TRIP	PA-0752D	COMBUSTION 47001-8	EC-06	4
1366	DHR	PT-0751C	E-83 SH.3 REV.0	RSP CH C S/G 1 LP BIST TRIP	PA0751C	COMBUSTION 47001-5	EC-06	4
1367	EPD	EA-11	E-154-1 REV 18	BKR 152-103 STANDBY P-7B P.B.	PB-103	G.E. - CR103DB411A	EC-08	3
1368	EPD	EA-11	E-259-1 REV 17	BKR 152-109 STANDBY SET UP P.B	PB-109	G.E. - CR103DB411A	EC-08	3
1369	EPD	EA-11	E-248 REV 14	BKR 152-111 STANDBY SET UP P.B	PB-111	G.E. - CR103	EC-03	3
1370	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-114 CHP TEST	PB-114	G.E. - CR103	EC-03	3
1371	EPD	EA-11	E-259-1 REV 17	BKR 152-116 STANDBY SET UP P.B	PB-116	G.E. - CR103	EC-08	3
1372	DHR	P-7A	E-154 SH.1 REV.16	SWS PP P-7A STANDBY PB SWITCH	PB-204	G.E. - CR103DB411A	EC-08	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1373	EPD	EA-12	E-154 SH.2 REV.13	SWS PP P-7C STANDBY PB SWITCH	PB-205	G.E. - CR103DB411A	EC-08	3
1374	EPD	EA-12	E-247 REV 15	BKR 152-206 LPSI P-67A STANDBY	PB-206	G.E. - CR103DB411A	EC-03	3
1375	EPD	EA-12	E-259-1 REV 17	BKR 152-208 P-52A STANDBY SW	PB-208	G.E. - CR103DB411A	EC-08	3
1376	EPD	EA-12	E-251-1 REV 14	BKR 152-210 P-52A STANDBY SW	PB-210	G.E. - CR103DB411A	EC-03	3
1377	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-112 CHP TEST	PB-CHP TEST (112)	G.E. - CR103	EC-03	3
1378	RCPC	P-55B	E-257 SH.1 REV.20	P-55B LOW LUBE OIL PRESS SW	PC/0216B	STATIC 4-N6-BB4NXC1AJJTTX12	CHG PP RM	3
1379	RCPC	P-55C	E-257 SH.2 REV.20	P-55C LOW LUBE OIL PRESS SW	PC/0216C	ALLEN-BRADLEY 836-C6J	CHG PP RM	3
1380	RCPC	P-55B	E-257 SH.1 REV.20	P-55B LOW SUCTION PRESS SW	PC/0218B	STATIC 54N6BB118NXC1AJJTTX1	CHG PP RM	3
1381	RCPC	P-55C	E-257 SH.2 REV.20	P-55C LOW SUCTION PRESS SW	PC/0218C	UNITED ELECT. J300-452	CHG PP RM	3
1382	RCPC	P-55B	E-257 SH.1 REV.20	CHARGING PP P-55B AUX RELAY	PCX/0216B	CONTROL PROD. 7012PB	EC-12	4
1383	RCPC	P-55C	E-257 SH.2 REV.20	CHARGING PP P-55C AUX RELAY	PCX/0216C	CONTROL PROD. 7012PB	EC-12	4
1384	RCPC	P-55B	E-257 SH.1 REV.20	CHARGING PP P-55B AUX RELAY	PCX/0218B	CONTROL PROD. 7012PD	EC-12	4
1385	RCPC	P-55C	E-257 SH.2 REV.20	CHARGING PP P-55C AUX RELAY	PCX/0218C	CONTROL PROD. 7012PD	EC-12	4
1386	RCPC	PT-0105A	E-84 SH.6 REV.12	PCS OVERPRES & PRZ IND	PI-0105A	VERSATILE 9283-00-D-VB-13N	EC-12	3
1387	RCPC	PT-0105B	E-84 SH.6A REV.2	PCS OVERPRES & PRZ IND	PI-0105B	VERSATILE M09-LI9283	EC-02	3
1388	RCPC	PT-0105A	E-84 SH.6 REV.12	PCS OVERPRES & PRZ IND	PI-0105C	VERSATILE 9283-00-D-VB-13N	EC-33	3
1389	RCPC	PT-0105B	E-84 SH.6A REV.2	PCS OVERPRES & PRZ IND	PI-0105D	VERSATILE 9283-00-D-VB-13N	EC-33	3
1390	EPD	K-6A	M-12-95(2) REV 9	K-6A RAW WATER PRESSURE IND.	PI-1472	AMETEK/US GAGE-251F	EG-20	2
1391	EPD	K-6B	M-12-102(2) REV 9	K-6B RAW WATER PRES IND	PI-1473	AMETEK/US GAGE-P824FF	EG-30	2
1392	EPD	K-6A	M-12-95(2) REV 9	K-6A FUEL OIL PRESSURE IND.	PI-1475	AMETEK/US GAGE-P824FF	EG-20	2
1393	EPD	K-6A	M-12-95(2) REV 9	K-6A LUBE OIL PRESSURE IND.	PI-1478	AMETEK/US GAGE-P824FF	EG-20	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1394	EPD	K-6A	M-12-95(2) REV 9	K-6A STARTING AIR PRESSURE IND	PI-1479	AMETEK/US GAGE-1639A	EG-20	2
1395	EPD	K-6A	M-12-95(2) REV 9	K-6A STARTING AIR PRESSURE IND	PI-1480	AMETEK/US GAGE-1639A	EG-20	2
1396	EPD	K-6A	M-12-95(2) REV 9	K-6A JACKET WATER PRESSURE IND	PI-1482	AMETEK/US GAGE-P824FF	EG-20	2
1397	EPD	K-6B	M-12-102(2) REV 9	K-6B FUEL OIL PRESSURE IND	PI-1485	AMETEK/US GAGE-P824FF	EG-30	2
1398	EPD	K-6B	M-12-102(2) REV 9	K-6B LUBE OIL PRESSURE IND	PI-1488	AMETEK/US GAGE-P824FF	EG-30	2
1399	EPD	K-6B	M-12-102(2) REV 9	K-6B STARTING AIR PRES IND	PI-1489	AMETEK/US GAGE-9102	EG-30	2
1400	EPD	K-6B	M-12-102(2) REV 9	K-6B STARTING AIR PRES IND	PI-1490	AMETEK/US GAGE-9102	EG-30	2
1401	EPD	K-6B	M-12-102(2) REV 9	K-6B JACKET WATER PRES IND	PI-1492	AMETEK/US GAGE-P824FF	EG-30	2
1402	EPD	K-6A	M-12-95(2) REV 9	K-6A ENGINE AIR MANIFOLD P.I.	PI-EAMP-1	AMETEK/US GAGE-P824FF	EG-20	2
1403	EPD	K-6B	M-12-102(2) REV 9	K-6B ENGINE AIR MANIFOLD P. I.	PI-EAMP-2	AMETEK/US GAGE-P824FF	EG-30	2
1404	RCPC	EU-1;EU-2	E-253 SH.1 REV 13;E-84 SH.1 REV 15; M-204 SH.142 REV 0	PRESSZR HEATERS PRESS CONTROLR	PIC-0101A	YOKOGAWA SLCD-181E/MTS/HTB	EC-02	3
1405	RCPC	EU-1;EU-2	E-253 SH.1 REV 13;E-84 SH.1 REV 15; M-204 SH.142 REV 0	PRESSZR HEATERS PRESS CONTROLR	PIC-0101B	YOKOGAWA SLCD-181E/MTS/HTB	EC-02	3
1406	DHR	PT-0751C	E-83 SH.3 REV.0	S/G E-50A LOW PRESS CKT 3	PIC-0751C	VERSATILE 9283-22-D-VB-11M	EC-12	4
1407	DHR	PT-0751D	E-83 SH.3 REV.0	S/G E-50A LOW PRESS CKT 4	PIC-0751D	VERSATILE 9283-22-D-VB-11M	EC-12	4
1408	DHR	PT-0752C	E-83 SH.3 REV.0	S/G E-50B LOW PRESS CKT 3	PIC-0752C	VERSATILE 9283-22-D-VB-11M	EC-12	4
1409	DHR	PT-0752D	E-83 SH.3 REV.0	S/G E-50B LOW PRESS CKT 4	PIC-0752D	VERSATILE 9283-22-D-VB-11M	EC-12	4
1410	DHR	PT-1655;I/P-1655	E-270 SH.9 REV.1	COND UNIT VC-11 SERVICE WTR	PIC-1655	BAILEY 701132AAAA1WES	W MER	4
1411	DHR	PT-1656;I/P-1656	E-270 SH.9 REV.1	COND UNIT VC-10 SERVICE WTR	PIC-1656	BAILEY 701132AAAA1WES	E MER	4
1412	HVAC	PO-1711	E-271 SH.17 REV.0;E-271 SH.19 REV.2	MODULATING DAMPER D-20 POS	PO-1171	ITT MAMP HYDRAMOTOR NH91	RM-300	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1413	HVAC	D-20	E-218-6A, E-271-17, E-271-19, M-244(Q)-57-72	DAMPER ACTUATOR	PO-1711	GEN. CNTL DIV ITT NH-91	HVAC RM	3
1414	HVAC	PO-1712	E-271 SH.17 REV.0;E-271 SH.19 REV.2	DAMPER D-21 ACTUATOR	PO-1712	ITT MAMP HYDRAMOTOR NH91	RM-300A	3
1415	HVAC	PO-1745	E-271 SH.6 REV.1;E-271 SH.7 REV.0	DAMPER D-7 ACTUATOR	PO-1745	LIMITORQUE SMB0002	HVAC RM	3
1416	HVAC	PO-1746	E-271 SH.6 REV.1;E-271 SH.7 REV.0	DAMPER D-14 ACTUATOR	PO-1746	LIMITORQUE SMB0002	RM-300A	3
1417	RCPC	PRV-1042B	E-256 SH.1 REV.21	PRZ PWR RV 1042B CONTROL RELAY	PORVX-1042B	SIEMENS 3TC44-170AG4	EC-12	4
1418	RCPC	PRV-1043B	E-256 SH.1A REV.7	PRV-1043B AUX RELAY	PORVX-1043B	SIEMENS 3TC44-170AG4	EC-12	4
1419	RCPC	MO-1042A	E-242 SH.4 REV 19	PWR OP RELIEF VAL POSITION SW	POS-1042A	NAMCO EA-180	MO-1042A	3
1420	RCPC	MO-1043A	E-242 SH.4 REV 19	PWR OP RELIEF VAL POSITION SW	POS-1043A	NAMCO EA-180	MO-1043A	3
1421	HVAC	V-95	E-270 SH.2 REV.3&SH.4 REV.2	V-95 & DAMPER D-1 INTERLOCK	POS-1657	NAMCO EA180-31302/32302	RM-400	3
1422	HVAC	V-96	E-270 SH.2 REV.3&SH.4 REV.2	V-96 & DAMPER D-8 INTERLOCK	POS-1658	NAMCO EA180-31302/32302	RM-400A	3
1423	HVAC	V-95	E-270 SH.2 REV.3&SH.4 REV.2	V-95 & DAMPER D-2 INTERLOCK	POS-1659	NAMCO EA180-31302/32302	RM-300	3
1424	HVAC	V-96	E-270 SH.2 REV.3&SH.4 REV.2	V-96 & DAMPER D-9 INTERLOCK	POS-1660	NAMCO EA180-31302/32302	RM-400A	3
1425	HVAC	V-95	E-270 SH.2 REV.4;E-271 SH.12 REV.1	INTERLOCK WITH DAMPER D-3	POS-1663	NAMCO EA180-31302/32302	RM-400	3
1426	HVAC	V-96	E-270 SH.2 REV.4;E-271 SH.12 REV.1	DAMPER D-10 INTERLOCK	POS-1664	NAMCO EA180-31302/32302	RM-400A	3
1427	HVAC	V-26A	E-271 SH.3 REV.2&SH.5 REV.3	MODUL DAMPER D-20 INTERLOCK	POS-1711	NAMCO EA180-31302/32302	RM-400	3
1428	HVAC	V-26B	E-271 SH.5 REV.3	MODUL DAMPER D-21 INTERLOCK	POS-1712	NAMCO EA180-31302/32302	RM-400A	3
1429	HVAC	V-26A	E-271 SH.3 REV.2	RECIRC DAMPER D-6 INTERLOCK	POS-1743	NAMCO EA180-31302/32302	RM-400	3
1430	HVAC	V-26B	E-271 SH.3 REV.2&SH.4 REV.0	VF-26B RECIRC DAMP D-13 INTERL	POS-1744	NAMCO EA180-31302/32302	RM-400A	3
1431	HVAC	POS-1745	E-271 SH.6 REV.1	VF-26A OUTSIDE AIR DAMPER D-7	POS-1745	NAMCO EA18031302/32302	RM-300	N/A
1432	HVAC	POS-1746	E-271 SH.6 REV.1	VF-26B OUTSIDE AIR DAMPER D-14	POS-1746	NAMCO EA18031302/32302	BM-300A	N/A

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1433	HVAC	SV-1663	E-271 SH.12 REV.1	PURGE FAN V-94 DAMPER D-15	POS-1757	NAMCO EA18032302/31302	RM-300B	3
1434	HVAC	POS-1758	E-271 SH.12 REV.1	V-94 DAMPER D-16 CONT'L&INTERL	POS-1758	NAMCO EA18031302/32302	RM-300B	3
1435	RCPC	MO-1042A	E-242 SH.4 REV 19	PWR OP RELF VAL POS SW LIMIT	POS-L(MO-1042A)	LIMITORQUE SMB-00-25	MO-1042A	3
1436	RCPC	MO-1043A	E-242 SH.4 REV 19	PWR OP RELF VAL POS SW LIMIT	POS-L(MO-1043A)	LIMITORQUE SMB-00-25	M0-1043A	3
1437	RCPC	MO-1042A	E-242 SH.4 REV 19	PWR OP RELF VAL POS SW TORQUE	POS-T(MO-1042A)	LIMITORQUE SMB-00-25	MO-1042A	3
1438	RCPC	MO-1043A	E-242 SH.4 REV 19	PWR OP RELF VAL POS SW TORQUE	POS-T(MO-1043A)	LIMITORQUE SMB-00-25	MO-1043A	3
1439	RCPC	PRV-1067	E-256 SH.4 REV.3	PRV-1067 AUX RELAY	PRVX-1067	POTTER-BRUMFIELD MDR-137-8	EC-11A	4
1440	RCPC	PRV-1068	E-256 SH.4 REV.3	PRV-1068 AUX RELAY	PRVX-1068	POTTER-BRUMFIELD MDR-137-8	EC-11A	4
1441	RCPC	PRV-1069	E-256 SH.4 REV.3	PRV-1069 AUX RELAY	PRVX-1069	POTTER-BRUMFIELD MDR-137-8	EC-11A	4
1442	RCPC	PRV-1070	E-256 SH.4 REV.3	PRV-1070 AUX RELAY	PRVX-1070	POTTER-BRUMFIELD MDR-137-8	EC-11A	4
1443	RCPC	PRV-1072	E-256 SH.4 REV.3	PRV-1072 AUX RELAY	PRVX-1072	POTTER-BRUMFIELD MDR-137-8	EC-11A	4
1444	RCPC	MO-3015	E-242 SH.3 REV.21	SHUTDN COOLG PRES INTRLOK CH A	PS-0104A	ROSEMOUNT ET-1215	EC-12	4
1445	RCPC	SV-2002A	E-236 SH.3 REV.11	INTERMID. LETDOWN PRESS SWITCH	PS-0220	STATIC O-RING 5NN-Y45	EC-02	3
1446	RCPC	SV-2002B	E-236 SH.3 REV.11;M-202 SH.1B REV. 18	INTERMID. LETDOWN PRESS SWITCH	PS-0221	STATIC O-RING 5NN-Y45	EC-02	3
1447	RCPC	SV-2002A	E-236 SH.3 REV.11;M-202 SH.1 REV. 51	PRESS. SWITCH LETDOWN PRESSURE	PS-0222	UNITED ELEC. CNTL. J6-358-9646	EC-12	3
1448	EPD	EA-12	E-247 REV.15	LP SIS P-67B DISCH PRESS SW	PS-0322	UNITED ELEC. 670	COMP CLG	3
1449	EPD	EA-11	E-248 REV 14	BKR 152-111 LPSI DISCHARGE P.S	PS-0323	UNITED ELECTRIC-#670	EAST SG	3
1450	EPD	EA-11	E-81-3 REV 3;E-81-4 REV 2, E-196-3 REV 3	BKR 152-104 P-8A&B LO SUC TRIP	PS-0741A	BAILEY CONTROLS-745210AAAN2	EJ-1051	4
1451	EPD	EA-11	E-81-3 REV 3;E-81-4 REV 2, E-196-3 REV 3	BKR 152-104 P-8A&B LO SUC TRIP	PS-0741B	BAILEY CONTROLS-745210AAAN2	EJ-1051	4
1452	DHR	P-8A	E-81 SH.3 REV.3;E-81 SH.4 REV.2	AUX FW PP P-8A & B LOW SUCTION	PS-0741DD	BAILEY CONTROLS-745210AAAN2	1D SW GR	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1453	DHR	P8-C	E-81 SH.3 REV.3;E-81 SH.4 REV.2	PP P-8C LOW SUCTION PRESS TRIP	PS-0762A	BAILEY CONTROLS-745210AAAN2	1D SW GR	4
1454	DHR	P8-C	E-81 SH.3 REV.3;E-81 SH.4 REV.2	PP P-8C LOW SUCTION PRESS TRIP	PS-0762B	BAILEY CONTROLS-745210AAAN2	1D SW GR	4
1455	DHR	P8-C	E-81 SH.3 REV.3;E-81 SH.4 REV.2	PP P-8C LOW SUCTION PRESS TRIP	PS-0762C	BAILEY CONTROLS-745210AAAN2	1D SW GR	4
1456	DHR	SV-0779A	E-238 SH.2 REV.29;E-238 SH.1A REV. 5	STM GEN E-50B STM DUMP CONTROL	PS-0779	UNITED ELEC. H5-9782 (270)	EC-182	3
1457	DHR	SV-0780A	E-238 SH.2 REV.29;E-238 SH.1A REV. 5	STM GEN E-50B STM DUMP CONTROL	PS-0780	UNITED ELEC. H5-9782 (270)	EC-182	3
1458	DHR	SV-0781A	E-238 SH.2 REV.29;E-238 SH.1A REV. 5	STM GEN E-50A STM DUMP CONTROL	PS-0781	UNITED ELEC. H5-9782 (270)	EC-182	3
1459	DHR	SV-0782A	E-238 SH.2 REV.29;E-238 SH.1A REV. 5	STM GEN E-50A STM DUMP CONTROL	PS-0782	UNITED ELEC. H5-9782 (270)	EC-182	3
1460	EPD	EA-12	E-259-1 REV 17	BKR 152-208 P-52 PRESSURE SW	PS-0919	UNITED ELECTRIC - #270	CCW RM	3
1461	EPD	EA-11	E-154-1 REV 18, M-274-2 REV 0	BKR 152-103 P-7B PRESSURE SW	PS-1318	UNITED ELECTRIC-J11 (266)	RM-136	3
1462	EPD	EA-12	E-154 SH.1 REV.18	SER WTR PP P-7A PRESS SW	PS-1319	UNITED ELECTRIC-J11 (266)	RM-136	3
1463	EPD	EA-12	E-154 SH.1 REV.18	SER WTR PP P-7A PRESS SW	PS-1320	UNITED ELECTRIC-J11 (266)	RM-136	3
1464	EPD	EA-12	E-154 SH.2 REV.13	SER WTR PP P-7C PRESS SW	PS-1321	UNITED ELECTRIC-J11 (266)	RM-136	3
1465	EPD	EA-12	E-154 SH.2 REV.13	SER WTR PP P-7C PRESS SW	PS-1322	UNITED ELECTRIC-J11 (266)	RM-136	3
1466	EPD	EA-11	E-154-1 REV 18, M-274-2 REV 0	BKR 152-103 P-7B PRESSURE SW	PS-1325	UNITED ELECTRIC-J11 (266)	RM-136	3
1467	EPD	K-6A	E-140-1 REV 17; M-12-95(1,2) REV 15, 9; M-12-98(1) REV 15	K-6A JACKET WATER PRES SW	PS-1470 (JWPS4)	UNITED ELEC. CNTL-J6-156-A059	EG-20	3
1468	EPD	K-6B	E-140-1 REV 17, M-12-18(2), M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B JACK WATER PRES SW ALARM	PS-1471 (JWPS4)	UNITED ELEC. CNTL-J6-156-A059	EG-30	3
1469	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A RAW WATER LOW PRESSURE SW	PS-1472 (RWPS)	UNITED ELEC. CONTROL-J6 (272)	EG-20	2
1470	EPD	K-6B	M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B RAW WATER PRESSURE SW	PS-1473 (RWPS)	UNITED ELEC. CNTL-J6-272-B010	EG-30	2
1471	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 9, M-12-98(1) REV 15	K-6A JACKET WATER PRES SW	PS-1474 (JWPS3)	UNITED ELEC. CNTL-J6-156-A059	EG-20	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1472	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B JACKET WATER PRES SW	PS-1475 (JWPS3)	UNITED ELEC. CNTL-J6-156-A059	EG-30	3
1473	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 9, M-12-98(1) REV 15	K-6A LUBE OIL PRESSURE SW	PS-1476 (OPS1)	UNITED ELEC. CONTROL-J6-156	EG-20	3
1474	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A OIL PRESSURE & LEVEL SW	PS-1477	STATIC O-RING-4L-12-PP	EG-20	2
1475	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 9, M-12-98(1) REV 15	K-6A LUBE OIL PRESSURE SWITCH	PS-1478 (OPS3)	UNITED ELEC. CONTROL-156-J6	EG-20	2
1476	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 9, M-12-98(1) REV 15	K-6A START. AIR P.S. (ALARM)	PS-1479 (APS2)	UNITED ELEC. CONTROL-J6-272	EG-20	2
1477	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 9, M-12-98(1) REV 15	K-6A START. AIR P.S. (ALARM)	PS-1480 (APS1)	UNITED ELEC. CONTROL-J6-272	EG-20	2
1478	EPD	K-6A	E-140-1 REV 17, E-140-2 REV 16, M-12-98(2) REV 7	K-6A STARTING AIR ALARM	PS-1481	UNITED ELECT. CNTL.-H302-274	K-6A	2
1479	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A JACKET WATER PRES SW	PS-1482 (JWPS2)	UNITED ELEC. CNTL-J6-156-A059	EG-20	3
1480	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5	K-6A CONTROL PRESSURE SWITCH	PS-1483	UNITED ELECT. CNTL.-J302-274	K-6A	2
1481	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5	K-6A STARTING AIR PRESSURE SW	PS-1484	UNITED ELECT. CNTL.-J402-274	K-6A	2
1482	EPD	K-6A	E-140-1 REV 17, E-140-2 REV 16, M-12-98(2) REV 7	K-6A CONTROL PRES. SW (ALARM)	PS-1485	UNITED ELECT. CNTL.-H302-274	K-6A	2
1483	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B LUBE OIL PRESSURE SW	PS-1486 (OPS1)	UNITED ELEC. CNTL-J6-156-A059	EG-30	3
1484	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B PRELUBE OIL PRES SW	PS-1487 (PLPS)	STATIC-O-RING-4L-L2-N4-B1A-PP	EG-30	2
1485	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B LUBE OIL PRESSURE SWITCH	PS-1488 (OPS3)	UNITED ELEC. CNTL-J6-156-A059	EG-30	2
1486	EPD	K-6B	M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B START AIR PRES SW(ALARM)	PS-1489 (APS1)	UNITED ELEC. CNTL-J6-272-B010	EG-30	2
1487	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B START AIR PRES SW(ALARM)	PS-1490 (APS2)	UNITED ELEC. CNTL-J6-272-B010	EG-30	2
1488	EPD	K-6B	E-140-1 REV 17, E-140-2 REV 16, M-12-105(2) REV 9	K-6B CONTROL PRES SW (ALARM)	PS-1491	UNITED ELECT. CNTL.-H302-274	K-6B	2
1489	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B JACKET WATER PRES SW	PS-1492 (JWPS2)	UNITED ELEC. CNTL-J6-156-A059	EG-30	3
1490	EPD	K-6B	E-140-1A REV 2, M-12-104 REV 0C	K-6B CONTROL PRESSURE SWITCH	PS-1493	UNITED ELECT. CNTL.-J302-274	K-6B	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1491	EPD	K-6B	E-140-1A REV 2, M-12-104 REV 0C	K-6B CONTROL PRESSURE SWITCH	PS-1494	UNITED ELECT. CNTL.-J302-274	K-6B	2
1492	EPD	K-6B	E-140-1 REV 17, E-140-2 REV 16, M-12-105(2) REV 9	K-6B CONTROL PRES SW (ALARM)	PS-1495	UNITED ELECT. CNTL.-H302-274	K-6B	2
1493	EPD	K-6A	E-140-1 REV 17, M-12-95(2) REV 9, M-12-98(1) REV 15	K-6A LUBE OIL PRESSURE SW	PS-1496 (OPS2)	UNITED ELEC. CNTL-J6-156-A059	EG-20	3
1494	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B LUBE OIL PRESSURE SW	PS-1497 (OPS2)	UNITED ELEC. CNTL-J6 TYPE	EG-30	3
1495	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A JACKET WATER PRESSURE SW	PS-1498 (JWPS1)	UNITED ELECT. CTL.-56-156-A059	K-6A	3
1496	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B JACKET WATER PRES SW	PS-1499	UNITED ELECT. CNTL.-156	K-6B	3
1497	HVAC	PS-1675	E-270 SH.7 REV.3	VC-11 SUCTION PRESSURE SW	PS-1675	UNITED ELEC. J6D-272	HVAC RM	3
1498	HVAC	PS-1676	E-270 SH.7 REV.3	VC-10 SUCTION PRESSURE SW	PS-1676	UNITED ELEC. J6D-272	RM-300A	3
1499	HVAC	PS-1677	E-270 SH.7 REV.3	VC-11 DISCHARGE PRESSURE SW	PS-1677	UNITED ELEC. J6D-364	HVAC RM	3
1500	HVAC	PS-1678	E-270 SH.7 REV.3	VC-10 DISCHARGE PRESSURE SW	PS-1678	UNITED ELEC. J6D-364	RM-300A	3
1501	HVAC	PS-1687	E-270 SH.7 REV.3	VC-11 COMPRESSOR OIL PRES SW	PS-1687	PENN CONTROLS P45PCA-4	HVAC RM	4
1502	HVAC	PS-1688	E-270 SH.7 REV.3	VC-10 COMPRESSOR OIL PRES SW	PS-1688	PENN CONTROLS P45PCA-4	RM-300A	4
1503	HVAC	PS-1699	E-270 SH.7 REV.3	VC-11 PUMP DOWN SWITCH	PS-1699	UNITED ELEC. J6D-272	HVAC RM	3
1504	HVAC	PS-1700	E-270 SH.7 REV.3	VC-10 PUMP DOWN CYCLE PRES SW	PS-1700	UNITED ELEC. J6D-272	RM-300A	3
1505	EPD	EY-10	E-207-1 REV 23, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1801	UNITED ELECTRIC - J302	CHRG PP590	3
1506	EPD	EY-40	E-208-1 REV 16, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1801A	UNITED ELECTRIC - J302	CHRG PP590	3
1507	EPD	EY-20	E-207-1 REV 23, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1802	UNITED ELECTRIC - J302	CCW 590	3
1508	EPD	EY-10	E-208-1 REV 16, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1802A	UNITED ELECTRIC - J302	CCW 590	3
1509	EPD	EY-30	E-207-1 REV 23, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1803	UNITED ELECTRIC - J302	CHRG PP590	3
1510	EPD	EY-40	E-208-1 REV 16, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1803A	UNITED ELECTRIC - J302	CHRG PP590	3
1511	EPD	EY-40	E-207-1 REV 23, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1804	UNITED ELECTRIC - J302	CCW 590	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1512	EPD	EY-10	E-208-1 REV 16, M-1HA-9 REV 0	CONTAINMENT HI PRES SW	PS-1804A	UNITED ELECTRIC - J302	CCW 590	3
1513	RCPC	PRV-1043B	E-256 SH.1A REV.7	PRV/ATWS BIST TRIP PA-0102AL	PSA-0102AHH	ROCHESTER ET-1219-T2-T10	EC-12	4
1514	RCPC	PRV-1043B	E-256 SH.1A REV.7	PRV/ATWS BIST TRIP PA-0102BL	PSA-0102BHH	ROCHESTER ET-1219-T2-T10	EC-12	4
1515	RCPC	PRV-1043B	E-256 SH.1A REV.7	PRV/ATWS BIST TRIP PA-0102CL	PSA-0102CHH	ROCHESTER ET-1219-T2-T10	EC-12	4
1516	RCPC	PRV-1043B	E-256 SH.1A REV.7	PRV/ATWS BIST TRIP PA-0102DL	PSA-0102DHH	ROCHESTER ET-1219-T2-T10	EC-12	4
1517	RCPC	PRV-1042B	E-256 SH.1 REV.21	PCS OVERPRES PROT CHAN A RELAY	PSX-0105A-1	ALLEN-BRADLEY 700NM400-1	EC-12	4
1518	RCPC	PRV-1043B	E-256 SH.1A REV.7	PCS OVERPRES PROT CHAN B RELAY	PSX-0105B-1	ALLEN-BRADLEY 700NM400-A1	EC-12	4
1519	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-3 REV 3, E-196-6 REV 3	BKR 152-104 LOW SUCTION TRIP	PSX-0741	G.E. - 12HGA111J2	EJ-1005	4
1520	EPD	EA-11	E-259-1 REV 17, E-259-1A REV 6	BKR 152-109,116 CCW LO PRES RY	PSX-0918	G.E. - 12HFA151A49H	EC-13	4
1521	EPD	EY-10	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI PRES RELAY	PSX-1801	G.E. - 12HFA151A49H	EC-13	4
1522	EPD	EY-20	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI PRES RELAY	PSX-1802	G.E. - 12HFA151A49H	EC-13	4
1523	EPD	EY-30	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI PRES RELAY	PSX-1803	G.E. - 12HFA151A49H	EC-13	4
1524	EPD	EY-40	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI PRES RELAY	PSX-1804	G.E. - 12HFA151A49H	EC-13	4
1525	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-3 REV 3, E-196-6 REV 3	BKR 152-104 P-8A AUX TRIP RLY	PSX-P8A	G.E. - 12HGA111J2	EJ-1005	4
1526	EPD	EA-12	E-196-8 REV 7	BKR 152-209 P-8C TRIP RELAY	PSX-P8C	G.E. - HGA111	EJ-1006	4
1527	RCPC	PT-0101B	E-84 SH.1 REV 15;M-206 SH.158 REV 0	PRESSZR PRESS TRANSMITTER	PT-0101B	ROSEMOUNT 1151GP9E22B3D1	PT-0101B	3
1528	RCPC	PT-0105A	E-84 SH.6 REV.12	PRZ WIDE RANGE PRES TRANS CHLA	PT-0105A	ROSEMOUNT 1154GP9RB	RM-143	4
1529	RCPC	PT-0105B	E-84 SH.6A REV.2	PRZ WIDE RANGE PRESS TRANS	PT-0105B	ROSEMOUNT 1154GP9RB	RM-143	4
1530	DHR	P-8A	E-81 SH.3 REV.3;E-81 SH.4 REV.2	AUX FW PP P-8A & B LOW SUCTION	PT-0741A	ROSEMOUNT 1152AP5E22PB	RM-007	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1531	DHR	P-8A	E-81 SH.3 REV.3;E-81 SH.4 REV.2	AUX FW PP P-8A & B LOW SUCTION	PT-0741B	ROSEMOUNT 1152AP5E22PB	RM-007	4
1532	DHR	P-8A	E-81 SH.3 REV.3;E-81 SH.4 REV.2	AUX FW PP P-8A & B LOW SUCTION	PT-0741DD	ROSEMOUNT 1152AP5E22PB	RM-007	4
1533	DHR	PT-0751C	E-83 SH.3 REV.0	S/G E-50A LOW PRESS CKT 3	PT-0751C	ROSEMOUNT 1154GP9	RM-142	4
1534	DHR	PT-0751D	E-83 SH.3 REV.0	S/G E-50A LOW PRESS CKT 4	PT-0751D	ROSEMOUNT 1154GP9	RM-142	4
1535	DHR	PT-0752C	E-83 SH.3 REV.0	S/G E-50B LOW PRESS CKT 3	PT-0752C	ROSEMOUNT 1154GP9	RM-142	4
1536	DHR	PT-0752D	E-83 SH.3 REV.0	S/G E-50B LOW PRESS CKT 4	PT-0752D	ROSEMOUNT 1154GP9	RM-142	4
1537	DHR	P8-C	E-81 SH.3 REV.3;E-81 SH.4 REV.2	PP P-8C LOW SUCTION PRESS TRIP	PT-0762A	ROSEMOUNT 1153AB5	W ESG	4
1538	DHR	P8-C	E-81 SH.3 REV.3;E-81 SH.4 REV.2	PP P-8C LOW SUCTION PRESS TRIP	PT-0762B	ROSEMOUNT 1153AB5	W ESG	4
1539	DHR	P8-C	E-81 SH.3 REV.3;E-81 SH.4 REV.2	PP P-8C LOW SUCTION PRESS TRIP	PT-0762C	ROSEMOUNT 1153AB5	W ESG	4
1540	DHR	I/P-1655	E-270 SH.9 REV.1	COND UNIT VC-11 SERVICE WTR	PT-1655	ROSEMOUNT 1153D87PA	W MER	4
1541	DHR	I/P-1656	E-270 SH.9 REV.1	COND UNIT VC-10 SERVICE WTR	PT-1656	ROSEMOUNT 1153D87PA	E MER	4
1542	RCPC	P-56A	E-203 REV.18	PP P-56A EMERG AUTOSTART RELAY	R-287	WESTINGHOUSE-SG	EC-13	4
1543	EPD	EY-10	E-208-1 REV 16	REFUEL ACCIDENT HI RAD SW	RF-1/SW	G.E. - CR2940	EC-11	3
1544	EPD	EY-40	E-208-1 REV 16	REFUEL ACCIDENT HI RAD SW	RF-2/SW	G.E. - CR2940	EC-11	3
1545	EPD	EY-10	E-207-1 REV 23, E-227-3 REV 9	CONTAINMENT HI RAD MONITOR	RIA-1805	GA TECHNOLOGIES - RP-2A	EC-11	4
1546	EPD	EY-20	E-207-1 REV 23, E-227-3 REV 9	CONTAINMENT HI RAD MONITOR	RIA-1806	GA TECHNOLOGIES - RP-2A	EC-11	4
1547	EPD	EY-30	E-207-1 REV 23, E-227-3 REV 9	CONTAINMENT HI RAD MONITOR	RIA-1807	GA TECHNOLOGIES - RP-2A	EC-11	4
1548	EPD	EY-40	E-207-1 REV 23, E-227-3 REV 9	CONTAINMENT HI RAD MONITOR	RIA-1808	GA TECHNOLOGIES - RP-2A	EC-11	4
1549	EPD	EY-10	E-208-1 REV 16, E-227-2 REV 18	FUEL HANDLING AREA RAD MONITOR	RIA-2316	VICTOREEN 946A-200	EC-11	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1550	EPD	EY-40	E-208-1 REV 16, E-227-2 REV 18	FUEL HANDLING AREA RAD MONITOR	RIA-2317	VICTOREEN 946A-200	EC-11	2
1551	DHR	SV-0738;SV-0739	E-235 SH.3 REV15;E-235 SH.3A REV. 3;E-235 SH.3B REV.3	LIQUID WASTE HIGH RAD. RELAY	RIAX-1/0707	G.E. - HFA151	EC-11	4
1552	EPD	EY-10	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI RAD RELAY	RIAX-1805	G.E. - 12HFA151A49H	EC-13	4
1553	EPD	EY-20	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI RAD RELAY	RIAX-1806	G.E. - 12HFA151A49H	EC-13	4
1554	EPD	EY-30	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI RAD RELAY	RIAX-1807	G.E. - 12HFA151A49H	EC-13	4
1555	EPD	EY-40	E-207-1 REV 23, E-208-1 REV 16	CONTAINMENT HI RAD RELAY	RIAX-1808	G.E. - 12HFA151A49H	EC-13	4
1556	RRC	42-1/RPS; 42-2/R	E-212 SH.1 REV.9	REACTOR TRIP PUSHBUTTON	RPS-PB2	G.E. - CR304XC02BB	EC-06	3
1557	DHR	SV-0779,80,81,82	E-238 SH.2 REV.29;E-238 SH.1A REV. 5	STEAM DUMP CONTROL RELAY	SDCR	G.E. - 12HFA51A49H	EC-12	4
1558	RCPC	SV-3030A;SV-303	E-207 SH.1 REV.24;E-246 SH.1 REV.15	SIRW TK LO LVL DET CHNL 1&2 SW	SIRWL/CS	G.E. - CR104PSG96892	EC-13	3
1559	RCPC	SV-3029A;SV-302	E-207 SH.1 REV.24;E-246 SH.1 REV.15	SIRW TK LO LVL DET CHNL 3&4 SW	SIRWR/CS	G.E. - CR104PSG96892	EC-13	3
1560	RCPC	SV-0342, SV-135	E-219 SH.3 REV.15, E-245 SH.3 REV.8	SI INITIATION RELAY CKT1	SIS-1	G.E. - 12HFA151A49H	EC-13	4
1561	RCPC	SV-0342;SV-0346	E-245 SH.3 REV.8	SI INITIATION RELAY CKT2	SIS-10	CLARK CONTROL 5U-12	EC-13	4
1562	RCPC	SV-0347, SV-135	E-219 SH.3 REV.15, E-245 SH.3 REV.8	SI INITIATION RELAY CKT2	SIS-2	G.E. - 12HFA151A49H	EC-13	2
1563	RCPC	SV-0346	E-209-2, E-209-4, E-245-3 REV 8	SI INITIATION RELAY CKT1	SIS-3	G.E. - 12HFA151A49H	EC-13	4
1564	RCPC	SV-0338	E-209-2, E-209-4, E-245-3 REV 8	SI INITIATION RELAY CKT2	SIS-4	G.E. - 12HFA151A9H	EC-13	4
1565	RCPC	SV-0338;SV-0347	E-234 SH.1 REV.19, E-245 SH.3 REV.8	SI INITIATION RELAY CKT1	SIS-5	G.E. - 12HFA151A49H	EC-13	4
1566	EPD	EA-11	E-248 REV 14, E-249 REV 13, E-251-1 REV 14, E-251-1A REV 4	BKR 152-111,2,3 SIS W/STAND	SIS-X1	G.E. - 12HFA151	EC-13	4
1567	EPD	EA-12	E-247 REV.15, E-249-1 REV 13, E-251-1 REV 14	BKR 152-207,210 SIS W/STAND	SIS-X2	G.E. - 12HFA151A49H	EC-13	4
1568	EPD	EA-11	E-251-1 REV 14, E-251-1A REV 4	BKR 152-114 SIS W/STAND. RLY	SIS-X3	G.E. - 12HFA151	EC-13	4
1569	RCPC	MO-2169,-2087, P	E-241 REV.16, E-242 SH.1 REV.21, E-257 SH.2 REV.20	MOM SIS W/STDBY PWR RELAY CKT1	SIS-X5	G.E. - 12HFA151A49H	EC-13	4
1570	EPD	EA-12	E-241 REV.16, E-154 SH.1 REV.18, E-257 SH.1 REV.20	SIS W/STANDBY PWR RELAY CKT-2	SIS-X6	G.E. - 12HFA151A49H	EC-13	4

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1571	EPD	EA-11	E-154-1 REV.16, E-259-1 REV 17, E-259-1A REV 6	SIS W/STANDBY PWR RELAY CKT-1	SIS-X7	G.E. - 12HFA151A49H	EC-13	4
1572	EPD	EA-12	E-154-2 REV 13, E-259-1 REV 17	SIS W/STANDBY PWR RELAY CKT-2	SIS-X8	G.E. - 12HFA151A49H	EC-13	4
1573	RCPC	TE-0112CC	E-96 SH.7A REV.2	SUBCOOLED MARGIN MONITOR	SMM-0114	COMBUSTION ENG. (NONE)	EC-12	4
1574	RCPC	TE-0122CC	E-96 SH.8A REV.2	SUBCOOLED MARGIN MONITOR	SMM-0124	COMBUSTION ENG. (NONE)	EC-12	4
1575	EPD	K-6B	E-140-1 REV 17, M-12-36 REV 5, M-12-105(2) REV 9	K-6B DIESEL GENERATOR SPEED	SPE-1473	AIRPAX ELECTRONICS-700-0941	K-6B	3
1576	EPD	K-6A	E-140-1 REV 17, M-12-37 REV 0E, M-12-98(2) REV 7	K-6A DIESEL GENERATOR SPEED	SPE-1474	AIRPAX ELECTRONICS-700-0941	K-6A	3
1577	EPD	K-6A	E-14 REV 15, M-12-16 REV 11, M-12-94 REV 9	K-6A LOCAL FREQUENCY METER	SPI-1107L (F)	WEST. VR3-252, STY 670B408A83	EC-22	7
1578	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B LOCAL FREQUENCY METER	SPI-1213L (F)	WEST. VR-3-252, STY 670B408A13	EC-26	7
1579	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B SPEED INDICATOR	SPI-1473	AIRPAX ELEC.-M77650-200-5013	EG-30	7
1580	EPD	K-6A	E-140-1 REV 17, M-12-55 REV 1, M-12-98(1) REV 15, M-12-95(2) REV 10	K-6A SPEED INDICATOR	SPI-1474	AIRPAX ELEC.-M77650-200-5013	EG-20	7
1581	EPD	K-6B	E-140-1 REV 17, M-12-102(1) REV 11, M-12-105(1) REV 10	K-6B SPEED IND. TRANSMITTER	SPTS-1473	AIRPAX-FSS-462	EG-30	3
1582	EPD	K-6A	E-140-1 REV 17, M-12-95(1) REV 11, M-12-98(1) REV 15	K-6A SPEED INDICATING TRANS.	SPTS-1474	AIRPAX ELEC.-FSS-462	EG-20	3
1583	EPD	EA-11	E-196-1 REV 12, E-196-2 REV 10, E-196-3 REV 3, E-196-6 REV 3	BKR 152-104 P-8A AUX TEST RLY	SSX-1/P8A	G.E. - 12HGA111J2	EJ-1005	4
1584	DHR	P-8C	E-196 SH.9 REV.9;E-196 SH.13 REV.1	TEST AUX FW PP P-8C	SSX-1/P8C	G.E. - 12HG111J2	1D SW GR	4
1585	DHR	FT-727,49;I/P-727	E-79 SH.3 REV.5;E-79 SH.3A REV.7;E-79 SH.3B REV.6	CV-0727 & CV-0749 TEST AUX SW	SSX-3/P8A/B	POTTER ELECT. KHS-17D13-120	EJ-1005	4
1586	DHR	FT-736,7A;I/P-736	E-79 SH.3E REV.2;E-79 SH.3F REV. 0;E-79 SH.3G REV.1	TO CLOSE CV-0736A & CV-0737A	SSX-4/P8C	POTTER ELECT. KHS-17D13-120	EJ-1006	4
1587	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15, M-234-6R, M-234-17R	SERVICE WATER TO K-6A	SV-0884A (RWFS2)	ASCO VALVES-NP8320A175E	K-6A	7
1588	EPD	K-6A	E-140-1 REV 17, M-12-37 REV 0E, M-12-98(1) REV 15	SERVICE WATER TO K-6A	SV-0884B (RWFS1)	ASCO VALVES-XHV206-381-3RF	K-6A	7
1589	EPD	K-6B	E-140-1 REV 17, M-12-36 REV 5, M-12-105(1) REV 10	SERVICE WATER TO K-6B	SV-0885A (RWFS2)	ASCO VALVES-NP8320A175E	K-6B	7

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1590	EPD	K-6B	E-140-1 REV 17, M-12-36 REV 5, M-12-105(1) REV 10	SERVICE WATER TO K-6B	SV-0885B (RWFS1)	ASCO VALVES-XHV206-381-3RF	K-6B	7
1591	EPD	K-6A	E-140-1A REV 2, E-178-4 REV 3, M-12-97 REV 5	K-6A DAY TANK T-25A INLET	SV-1415	ASCO VALVES-EF8210D89	K-6A	7
1592	EPD	K-6B	E-140-1A REV 2, E-178-4 REV 3, M-12-104 REV 0C	K-6B DAY TANK T-25B INLET	SV-1452	ASCO VALVES-EF821D89	K-6B	7
1593	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5	K-6A FUEL OIL RES IN. VIA D TK	SV-1470	ASCO VALVES-EF8210D89	K-6A	7
1594	EPD	K-6B	E-140-1A REV 2, M-12-104 REV 0C	K-6B FUEL OIL RES IN VIA DY TK	SV-1471	ASCO VALVES-EF8210D89	K-6B	7
1595	EPD	K-6A	M-12-37 REV 0E, M-12-98(1) REV 15	K-6A STARTING AIR MOTOR "A" IN	SV-1479 (ASV1)	ROSS OPERATING VALVE-2671A8011	K-6A	7
1596	EPD	K-6A	M-12-37 REV 0E, M-12-98(1) REV 15	K-6A STARTING AIR MOTOR "B" IN	SV-1480 (ASV2)	ROSS OPERATING VALVE-2671A8011	K-6A	7
1597	EPD	K-6B	M-12-36 REV 5, M-12-101 REV 10, M-12-105(1) REV 10	K-6B START AIR MTR "A" INLET	SV-1489	ROSS OPERATING VALVE-2671A8011	K-6B	7
1598	EPD	K-6B	M-12-36 REV 5, M-12-101 REV 10	K-6B START AIR MTR "B" INLET	SV-1490	ROSS OPERATING VALVE-2671A8011	K-6B	7
1599	RCPC	SV-0155	E-235 SH.2 REV 16	DEMIN WTR QUENCH TANK T-73	SVX-0155	G.E. - HGA111(DC)	EJ-541	4
1600	DHR	SV-0738	E-235 SH.3 REV15;E-235 SH.3A REV. 3;E-235 SH.3B REV.3;E-618 SH 541	E-50B BLOWDN ISOLATION RELAY	SVX-0738	G.E. - HFA151	EJ-541	4
1601	DHR	SV-0739	E-235 SH.3 REV15;E-235 SH.3A REV. 3;E-235 SH.3B REV.3;E-618 SH 540	E-50A BLOWDN ISOLATION RELAY	SVX-0739	G.E. - HGA111	EJ-540	4
1602	DHR	SV-0767	E-235 SH.4A REV10, E-618 SH 540	E-50A BOTTOM BLOWDN ISOL RELAY	SVX-0767	G.E. - HGA111	EJ-540	4
1603	DHR	SV-0768	E-235 SH.4A REV10, E-618 SH 540	E-50B BOTTOM BLOWDN ISOL RELAY	SVX-0768	G.E. - HGA111	EJ-540	4
1604	DHR	SV-0522B	E-238 SH.4A REV.1	ENERGIZE TO CLOSE CV-0522B	SVX-C/0522B	AMERACE CORP. EGPD002	1D SW GR	4
1605	DHR	CV-0522B	E-238-4A	ENERGIZE TO OPEN CV-0522B	SVY-0/0522B	G.E. - 12HGA111J2	EJ-1005	4
1606	HVAC	SV-1651	E-270 SH.7 REV.3	VC-11 CONTROL RM TEMP	TC-1675A	HONEYWELL L60180	EJ-1093	3
1607	HVAC	SV-1651	E-270 SH.7 REV.3	VC-11 CONTROL RM TEMP	TC-1675B	HONEYWELL L60180	EJ-1093	3
1608	HVAC	SV-1652	E-270 SH.7 REV.3	VC-10 CONTROL RM TEMP	TC-1676A	HONEYWELL L60180	EJ-1092	3
1609	HVAC	SV-1652	E-270 SH.7 REV.3	VC-10 CONTROL RM TEMP	TC-1676B	HONEYWELL L60180	EJ-1092	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1610	RCPC	TE-0112CD	E-96 SH.8 REV 2;M1-D SH.1	PRIMARY SYS Tc LEG CH D ELEMNT	TE-0112CD	ROSEMOUNT 104-AJB	TE-0112CD	3
1611	RCPC	TE-0122CD	E-96 SH.8 REV 2;M1-D SH.1	PRIMARY SYS Tc LEG CH D ELEMNT	TE-0122CD	ROSEMOUNT 104-AJB	TE-0122CD	3
1612	RCPC	TE-0112CC	E-96 SH.7 REV.15	PRI SYS TEMP PROTECTIVE CHNL C	TI-0112CC	SIGMA 9223-E-00	EC-12	2
1613	RCPC	TE-0112CD	E-96 SH.8 REV 2;M-204 SH.71 REV 2	PRI SYS TEMP PROTECTIVE CHNL D	TI-0112CD	SIGMA 9223-E-00	EC-12	2
1614	RCPC	TE-0122CC	E-96 SH.7 REV.15	PRI SYS TEMP PROTECTIVE CHNL C	TI-0122CC	SIGMA 9223-E-00	EC-12	2
1615	RCPC	TE-0122CD	E-96 SH.8 REV 3;M-204 SH.71 REV 2	PRI SYS TEMP PROTECTIVE CHNL D	TI-0122CD	SIGMA 9223-E-00	EC-12	2
1616	EPD	K-6A	M-12-6 REV X0	K-6A LUBE OIL COOLER, TEMP.IND	TI-0890	ASHCROFT GAGE-50-EL-60-E-040	K-6A	2
1617	EPD	K-6B	M-12-6 REV X0	K-6B LUBE OIL COOLER, TEMP IND	TI-0891	ASHCROFT GAGE-50-EL-60-E-040	K-6B	2
1618	EPD	K-6A	M-12-7 REV Y0	K-6A JACKET WATER COOLER, T.I.	TI-0892	ASHCROFT GAGE-50-EL-60-E-040	K-6A	2
1619	EPD	K-6B	M-12-7 REV Y0	K-6B JACKET WATER COOLER T.I.	TI-0893	ASHCROFT GAGE-50-EL-60-E-040	K-6B	2
1620	EPD	K-6A	E-140-1 REV 17, M-12-37 REV 0E, M-12-95(2) REV 9, E-627-1 REV 25	K-6A EXHAUST TEMPERATURE IND.	TI-1476	ALNOR INSTRUMENT CO.-N-11	EG-20	2
1621	EPD	K-6A	M-12-6 REV X0	K-6A LOW LUBE OIL TEMP. IND.	TI-1477	ASHCROFT GAGE-50-EL-60-E-040	K-6A	2
1622	EPD	K-6A	M-12-6 REV X0	K-6A HIGH LUBE OIL TEMP. IND.	TI-1478	ASHCROFT GAGE-50-EL-60-E-040	K-6A	2
1623	EPD	K-6B	E-140-1 REV 17, M-12-36 REV 5, M-12-102(2) REV 9, E-627-2 REV 19	K-6B EXHAUST TEMP IND	TI-1479	ALNOR INSTRUMENT CO.-N-11	EG-30	2
1624	EPD	K-6A	M-12-7 REV Y0	K-6A JACKET WATER TEMP. IND.	TI-1481	ASHCROFT GAGE-50-EL-60-E-040	K-6A	2
1625	EPD	K-6A	M-12-7 REV Y0	K-6A JACKET WATER TEMP. IND.	TI-1482	ASHCROFT GAGE-50-EL-60-E-040	K-6A	2
1626	EPD	K-6B	M-12-6 REV X0	K-6B LOW LUBE OIL TEMP IND	TI-1487	ASHCROFT GAGE-50-EL-60-E-040	K-6B	2
1627	EPD	K-6B	M-12-6 REV X0	K-6B HIGH LUBE OIL TEMP IND	TI-1488	ASHCROFT GAGE-50-EL-60-E-040	K-6B	2
1628	EPD	K-6B	M-12-7 REV Y0	K-6B JACKET WATER TEMP IND	TI-1491	ASHCROFT GAGE-50-EL-60-E-040	K-6B	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1629	EPD	K-6B	M-12-7 REV Y0	K-6B JACKET WATER TEMP IND	TI-1492	ASHCROFT GAGE-50-EL-60-E-040	K-6B	2
1630	EPD	EA-11	E-130-3 REV 6	BKR 152-102 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS 29103B	EA-11	3
1631	EPD	EA-11	E-130-2 REV 4	BKR 152-103 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS 29103B	EA-11	3
1632	EPD	EA-11	E-130-3 REV 6	BKR 152-104 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS 29103B	EA-11	3
1633	EPD	EA-11	E-130-3 REV 6	BKR 152-108 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1634	EPD	EA-11	E-130-2 REV 4	BKR 152-109 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1635	EPD	EA-11	E-130-3 REV 6	BKR 152-110 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1636	EPD	EA-11	E-130-2 REV 4	BKR 152-111 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1637	EPD	EA-11	E-130-2 REV 4	BKR 152-112 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1638	EPD	EA-11	E-130-2 REV 4	BKR 152-113 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1639	EPD	EA-11	E-130-2 REV 4	BKR 152-114 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1640	EPD	EA-11	E-130-3 REV 6	BKR 152-115 XFORM#11 O.C. TEST	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1641	EPD	EA-11	E-130-2 REV 4	BKR 152-116 OVERCUR. TEST SW	TPS 150/151 X,Y,Z	STATES - RTS	EA-11	3
1642	EPD	EA-12	E-130-2 REV 4, E-130-3 REV 6, E-130-4 REV 3	BKR 152-211 SWITCHGEAR TEST SW	TPS-150/151 X,Y,Z	STATES - RTS	EA-12	3
1643	EPD	EA-12	E-130 SH.1 THRU SH.6	EX-12 OVERCURRENT RELAY	TPS-150/151BX-201	STATES - RTS	1D SW GR	3
1644	EPD	EA-12	E-130 SH.1 THRU SH.6	EX-12 OVERCURRENT RELAY	TPS-150/151BY-201	STATES - RTS	1D SW GR	3
1645	EPD	EA-12	E-130 SH.1 THRU SH.6	EX-12 OVERCURRENT RELAY	TPS-150/151BZ-201	STATES - RTS	1D SW GR	3
1646	EPD	EA-12	E-130 SH.1 THRU SH.6	EX-12 OVERCURRENT RELAY	TPS-150/151X-201	STATES - RTS	1D SW GR	3
1647	EPD	EA-12	E-130 SH.1 THRU SH.6	EX-12 OVERCURRENT RELAY	TPS-150/151Y-201	STATES - RTS	1D SW GR	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1648	EPD	EA-12	E-130 SH.1 THRU SH.6	EX-12 OVERCURRENT RELAY	TPS-150/151Z-201	STATES - RTS	1D SW GR	3
1649	EPD	EA-12	E-129 SH.1 REV.10;E-11REV.21	1D STARTUP BRK LOCAL TEST SW	TPS-151X,Y,Z-202	STATES - RTS	1D SW GR	3
1650	EPD	EA-12	E-130 SH.5 REV.6;E-129 SH.1 REV.10	SW GR TEST SWITCH	TPS-151X,Y,Z-203	STATES - RTS	1D SW GR	3
1651	EPD	EA-11	E-130-5 REV 6	BKR 152-107 OVERCUR. TEST SW	TPS-151X-107	STATES - RTS	EA-11	3
1652	EPD	EA-12	E-130-5 REV 6	BKR 152-211 SWITCHGEAR TEST SW	TPS-151X-202	STATES - RTS	EA-12	3
1653	EPD	EA-12	E-130-5 REV 6	BKR 152-213 OVERCUR. TEST SW	TPS-151X-213	STATES - RTS	EA-12	3
1654	EPD	EA-11	E-130-5 REV 6	BKR 152-107 OVERCUR. TEST SW	TPS-151Y-107	STATES - RTS	EA-11	3
1655	EPD	EA-12	E-130-5 REV 6	BKR 152-213 OVERCUR. TEST SW	TPS-151Y-213	STATES - RTS	EA-12	3
1656	EPD	EA-11	E-130-5 REV 6	BKR 152-107 OVERCUR. TEST SW	TPS-151Z-107	STATES - RTS	EA-11	3
1657	EPD	EA-12	E-130-5 REV 6	BKR 152-213 OVERCUR. TEST SW	TPS-151Z-213	STATES - RTS	EA-12	3
1658	EPD	EA-12	E-130-5 REV 6	BKR 152-213 DIFFERENTIAL RELAY	TPS-187D X-213	STATES - RTS	EA-12	3
1659	EPD	EA-12	E-130-5 REV 6	BKR 152-213 DIFF TEST SW	TPS-187D Y-213	STATES - RTS	EA-12	3
1660	EPD	EA-12	E-130-5 REV 6	BKR 152-213 DIFF TEST SW	TPS-187D Z-213	STATES - RTS	EA-12	3
1661	EPD	EA-11	E-130-5 REV 6	BKR 152-107 DIFF TEST SW	TPS-187DX-107	STATES - RTS	EA-11	3
1662	EPD	EA-11	E-130-5 REV 6	BKR 152-107 DIFF TEST SW	TPS-187DY-107	STATES - RTS	EA-11	3
1663	EPD	EA-11	E-130-5 REV 6	BKR 152-107 DIFF TEST SW	TPS-187DZ-107	STATES - RTS	EA-11	3
1664	EPD	K-6A	M-12-94 REV 9, E-14 REV 15	K-6A ELECTRIC METER TEST SW	TPS-G1-1 (MTS)	MULTI-AMP CORP.-C3-209-K	EC-22	3
1665	EPD	K-6B	E-14 REV 15, M-12-16 REV 11, M-12-101 REV 10	K-6B ELECTRIC METER TEST SW	TPS-G1-2 (TS)	MULTI-AMP CORP.-C3-209-K	EC-26	3
1666	EPD	EA-11	E-130-3 REV 6	BKR 152-102 OVERCUR. TEST SW	TPS150A/151A X,Y,Z	STATES - RTS	EA-11	3
1667	EPD	EA-11	E-130-3 REV 6	BKR 152-110 OVERCUR. TEST SW	TPS150A/151A X,Y,Z	STATES - RTS	EA-11	3
1668	EPD	EA-11	E-130-3 REV 6	BKR 152-115 XFORM#19 O.C. TEST	TPS150A/151A X,Y,Z	STATES - RTS	EA-11	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1669	EPD	EA-11	E-129-1 REV 10	BKR 152-105 OVERCUR. TEST SW	TS SW-105 X,Y,Z	STATES - RTS	EA-11	3
1670	EPD	EA-11	E-129-1B REV 3	BKR 152-106 OVERCUR. TEST SW	TS SW-151-106	STATES - RTS	EA-11	3
1671	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5	K-6A JACKET WATER TEMP. SW	TS-1470 (JWT3)	UNITED ELEC. CONTROL-102	EG-21	2
1672	EPD	K-6B	E-140-1A REV 2, M-12-36 REV 5, M-12-104 REV 0C	K-6B JACKET WATER TEMP SW#3	TS-1471 (JWT3)	UNITED ELEC. CNTL-102	EG-31	2
1673	EPD	K-6A	M-12-94 REV 9, E-140-2 REV 16	CABINET HEATER CONTROL	TS-1473 (HTS2)	WHITE ROGERS-469B	EC-22	2
1674	EPD	K-6A	M-12-94 REV 9, E-140-2 REV 16	CABINET HEATER CONTROL	TS-1474 (HTS3)	G.E. - 1-6A428	EC-22	2
1675	EPD	K-6A	E-140-2 REV 16, M-12-95(1) REV 11	G20 CABINET HEATER CONTROL SW	TS-1475 (TH1)	WHITE ROGERS-469B	EG-20	3
1676	EPD	K-6A	E-140-1A REV 2, M-12-97 REV 5	K-6A LUBE OIL HEATER CONTROL	TS-1476	CHROMALOX-AR2524	K-6A	2
1677	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A LUBE OIL TEMP. SWITCH	TS-1477 (OTS1)	UNITED ELECT. CNTL.-89B UE	K-6A	2
1678	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A LUBE OIL TEMP. SWITCH	TS-1478 (OTS2)	UNITED ELECT. CNTL.-C100;M 120	K-6A	2
1679	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A JACKET WATER TEMP SWITCH2	TS-1481 (JWT2)	CHROMALOX-EL WIEGAND-P/N2524	K-6A	2
1680	EPD	K-6A	E-140-1 REV 17, M-12-98(1) REV 15	K-6A JACKET WATER TEMP. SWITCH	TS-1482 (JWT1)	CHROMALOX-EL WIEGAND-2524	K-6A	2
1681	EPD	K-6B	E-140-2 REV 16, M-12-101 REV 10	EC-26 CABINET HEATER CONTROL	TS-1483 (HTS2)	WHITE ROGERS-469B	EC-26	2
1682	EPD	K-6B	E-140-2 REV 16, M-12-101 REV 10	EC-26 CABINET HEATER CONTROL	TS-1484 (HTS3)	G.E. - 1-6A428	EC-26	2
1683	EPD	K-6B	E-140-2 REV 16, M-12-102(1) REV 11	EG-30 CABINET HEATER CONTROL	TS-1485 (TH1)	WHITE ROGERS-469B	EG-30	3
1684	EPD	K-6B	E-140-1 REV 17, M-12-36 REV 5, M-12-104 REV 0C	K-6B LUBE OIL HEATER CONTROL	TS-1486 (OTS3)	WHITE ROGERS-469B	K-6B	2
1685	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B LUBE OIL LOW TEMP. SW	TS-1487 (OTS1)	UNITED ELECT. CNTL.-89B	K-6B	2
1686	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B LUBE OIL HIGH TEMP. SW	TS-1488 (OTS2)	UNITED ELECT. CNTL.-C100;M 120	K-6B	2
1687	EPD	K-6B	E-140-1 REV 17, M-12-105(1) REV 10	K-6B JACKET WATER TEMP SW#2	TS-1491 (JWT2)	UNITED ELECT. CNTL.-89B	K-6B	2

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1688	EPD	K-6B	E-627-2 REV 19, M-12-105(1) REV 10	K-6B JACKET WATER TEMP. SW	TS-1492 (JWT1)	UNITED ELECT. CNTL.-89B	K-6B	2
1689	HVAC	TS-1653	E-270 SH.7 REV.3	VC-11 OIL TEMP. SWITCH	TS-1653	UNITED ELEC. F302-68S	RM-300	3
1690	HVAC	TS-1654	E-270 SH.7 REV.3	VC-10 OIL TEMP. SWITCH	TS-1654	UNITED ELEC. F302-68S	RM-300A	3
1691	EPD	K-6B	E-280-1 REV 9	K-6B COOLING FAN V-24D T. S. LO	TS-1820	JOHNSON/YOKOGAWA-T26S-18C	K-6B	2
1692	EPD	K-6B	E-280-1 REV 9, M-55-7(12) REV 3	K-6B COOLING FAN V-24C T. S. HI	TS-1821	JOHNSON/YOKOGAWA-T26S-18C	K-6B	2
1693	EPD	K-6B	E-280-1 REV 9	K-6B COOLING FAN V-24C T. S. LO	TS-1822	JOHNSON/YOKOGAWA-T26S-18C	K-6B	2
1694	EPD	K-6B	E-280-1 REV 9	K-6B COOLING FAN V-24D T. S. HI	TS-1823	JOHNSON/YOKOGAWA-T26S-18C	K-6B	2
1695	EPD	K-6A	E-280-1 REV 9, M-55-7(12) REV 3	K-6A COOLING FAN V24A T. S. HI	TS-1827	JOHNSON/YOKOGAWA-T26S-18C	K-6A	2
1696	EPD	K-6A	E-280-1 REV 9, M-55-7(12) REV 3	K-6A COOLING FAN V24A T. S. LO	TS-1828	JOHNSON/YOKOGAWA-T26S-18C	K-6A	2
1697	EPD	K-6A	E-280-1 REV 9, M-55-7(12) REV 3	K-6A COOLING FAN V24B T. S. HI	TS-1843	JOHNSON/YOKOGAWA-T26S-18C	K-6A	2
1698	EPD	K-6A	E-280-1 REV 9, M-55-7(12) REV 3	K-6A COOLING FAN V24B T. S. LO	TS-1844	JOHNSON/YOKOGAWA-T26S-18C	K-6A	2
1699	EPD	K-6A	E-14 REV 15, M-201-63 REV 33	K-6A METER TEST SWITCH	TS-D1	G.E. - SBM	EC-04	3
1700	EPD	K-6B	E-14 REV 15, M-201-62 REV 34	K-6B METER TEST SWITCH	TS-D2	G.E. - SBM	EC-04	3
1701	RCPC	TE-0112CC	E-96 SH.7 REV.15	PRI SYS TEMP PROTECTIVE CHNL C	TT-0112CC	ROCHESTER XSC-1372-89192	EC-12	4
1702	RCPC	TE-0112CD	E-96 SH.8 REV 3;J-55 SH.16 REV 0	PRI SYS TEMP PROTECTIVE CHNL D	TT-0112CD	ROCHESTER SC-1373-323-H3	EC-12	4
1703	RCPC	TE-0122CC	E-96 SH.7 REV.15	PRI SYS TEMP PROTECTIVE CHNL C	TT-0122CC	ROCHESTER SC-1373-323-H3	EC-12	4
1704	RCPC	TE-0122CD	E-96 SH.8 REV 2;J-55 SH.16 REV 0	PRI SYS TEMP PROTECTIVE CHNL D	TT-0122CD	ROCHESTER XSC-1372-89192	EC-12	4
1705	HVAC	V-26A	E-271 SH.3 REV.2	AFU VF-26A FAN	V-26A	JOY MANUF. 18-14-3450	RM-300	3
1706	HVAC	V-26B	E-271 SH.3 REV.2	1040 FILTER UNIT VF-26B FAN	V-26B	JOY MANUF. 18-14-3450	RM-300A	3
1707	HVAC	V-95	E-270 SH.2 REV.3	CNTL RM VENT MAIN SUPPLY FAN	V-95	ELLIS & WATTS ACH-522	RM-300	3

NO.	SYSTEM	SUBSYSTEM COMPONENT	REFERENCE DRAWING	CONTACT/CONTACT GROUP	RELAY ID	TYPE	LOCATION	NOTES
1708	HVAC	V-96	E-270 SH.2 REV.3	CNT'L RM VENT MAIN SUPPLY FAN	V-96	ELLIS & WATTS ACH-522	RM-300A	3
1709	EPD	K-6A	E-154-1 R 18, E-210-1,3 R 14,18; E-241 R 16, E-242,E-248 R 14,E-259-1,1A R 17,6;	SI & SEQUENCE LOADING RELAY	V16-1	CLARK CONTROL 5U-10	EC-13	4
1710	EPD	EA-12	E-154-1,2 REV 18,13; E-241 REV.16, E-247 REV.15, E-259-1 REV 17	SIS & SEQ LOADING RELAY	V16-2	CLARK CONTROL 5U-10	EC-13	4
1711	EPD	EA-11	E-151 REV 16, E-219 SH.3 REV.15, E-249 REV 13	SIS & SEQUENCE LOADING RELAY	V16-3	CLARK CONTROL 5U-10	EC-13	4
1712	EPD	EA-11	E-151 REV 16, E-219 SH.3 REV.15, E-249 REV 13	SIS & SEQUENCE LOADING RELAY	V16-4	CLARK CONTROL 5U-10	EC-13	4
1713	EPD	K-6A	E-140-3 REV 12, M-201-63 REV 33	K-6A VOLTAGE REG. SETPT SW	VSR-1	G.E. - SBM10BA873	EC-04	3
1714	EPD	K-6B	E-140-3 REV 12, M-201-62 REV 34	K-6B VOLTAGE REG SETPOINT SW	VSR-2	G.E. - SBM10BA873	EC-04	3

CONSUMERS POWER

PALISADES NUCLEAR PLANT

ATTACHMENT C

RELAY LIST NOTES and DESCRIPTION of OUTLIERS

(4 Pages)

Relay Notes
Screening Basis

1. Relays Directly Control Switchgear

2. Circuit/Relay Malfunction Acceptable

3. Solid-State or Mechanical Actuated

4. Relay GERS or Specific Qualification

5. Operator Action

   5A Breaker 152-102 is the alternate feed for the pressurizer heater transformer #15. This alternate feed is accomplished by implementing procedure ONP 2.1 Attachment 1, which requires an operator action to physically remove and relocate links in the rear of breaker cubical 152-102, and open and isolate breaker 152-305 and the associated protective devices(ie. relay, amp meter) of breaker 152-305. Operator action is required to physically connect the cabling per ONP 2.1 Attachment 1.

6. Corrective Action Required

   6A These relays, 127D-2 and 127D-1, Westinghouse type SV, are outliers. EPRI NP-7148-SL, DEC. 1990, Appendix E, identifies these relays as low ruggedness relays for all modes of operation. Evaluate system operation and replace if necessary.

   6B These relays, G1-1/DR and G1-2/DR, Square D-P04 Type, Class 7001 are outliers. No GERS exist for these relays in EPRI NP-7147-SL, dated Aug. 1991. MPR verified that no testing was performed on this relay type. Evaluate system operation and replace if necessary.

   6C These relays, G1-1/K1, G1-1/K1A, G1-2/K1, G1-2/K1A, Westinghouse type MD-101, are outliers. No GERS exist for these relays in EPRI NP-7147-SL, dated Aug. 1991. MPR verified that no testing was performed on this relay type. Evaluate system operation and replace if necessary.

   6D These relays, G1-1/K2 and G1-2/K2, Westinghouse type MD-110, are outliers. No GERS exist for these relays in EPRI NP-7147-SL, dated Aug. 1991. MPR verified that no testing was performed on this relay type. Evaluate system operation and replace if necessary.

6F These relays, 194-108, 194-211, Clark Control/Allis Chalmers, are outliers. Per fax received on December 3, 1993, Joslyn Clark Relays cannot be identified. These relays appear to be assembled with different parts. Evaluate system operation and replace if necessary.

6G This relay, 152-305, Allis Chalmers type MA-250C, is an outlier. When the pressurizer heater (transformer #15) is fed from 1C bus (A11), the breaker 152-305 shall be isolated. Bus 1E is not seismically qualified at this time. Evaluate system operation and replace if necessary.

6H These relays, 187D-107/X,Y,Z, 187D-213/X,Y,Z, General Electric type IJD52A, are outliers. The GERS-RLY-PP1.5 requires the IJD relays to have "HIGH-G" letters on the faceplate. A walkdown was unable to verify the "HIGH-G" lettering even though the documentation for the purchase and installation reflects the appropriate requirements. Evaluate system operation and replace if necessary.

6I These relays, 162-107X, 162-213X, Westinghouse type SG are outliers. These relays are deenergized, normally closed contact. EPRI NP-7148-SL, DEC. 1990, Appendix E, identifies these relays as low ruggedness relay for this mode of operation. Evaluate system operation and replace if necessary.

7. Component Not Affected By Relays

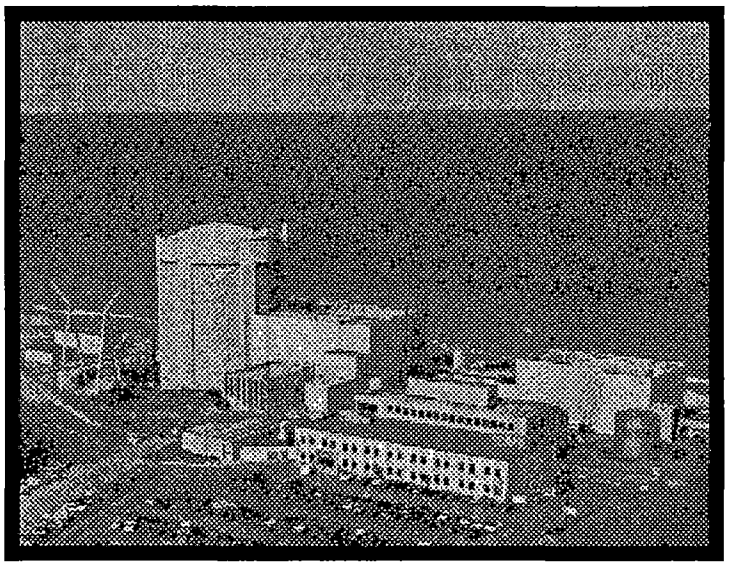
Table C.1
A-46 OUTLIER ISSUES AND PROPOSED RESOLUTION

ID	OUTLIER ISSUES	PROPOSED RESOLUTION
127D-1 127D-2	These relays, 127D-2 and 127D-1, Westinghouse type SV, are outliers. EPRI NP-7148-SL, DEC. 1990, Appendix E, identifies these relays as low ruggedness relays for all modes of operation.	Evaluate system operation and replace if necessary.
G1-1/DR G1-2/DR	These relays, G1-1/DR and G1-2/DR, Square D-P04 Type, Class 7001 are outliers. No GERS exist for these relays in EPRI NP-7147-SL, dated Aug. 1991. MPR verified that no testing was performed on this relay type.	Evaluate system operation and replace if necessary.
G1-1/K1 G1-1/K1A G1-2/K1 G1-2/K1A	These relays, G1-1/K1, G1-1/K1A, G1-2/K1, G1-2/K1A, Westinghouse type MD-101, are outliers. No GERS exist for these relays in EPRI NP-7147-SL, dated Aug. 1991. MPR verified that no testing was performed on this relay type.	Evaluate system operation and replace if necessary.
G1-1/K2 G1-2/K2	These relays, G1-1/K2 and G1-2/K2, Westinghouse type MD-110, are outliers. No GERS exist for these relays in EPRI NP-7147-SL, dated Aug. 1991. MPR verified that no testing was performed on this relay type.	Evaluate system operation and replace if necessary.
194-108 194-211	These relays, 194-108, 194-211, Clark Control/Allis Chalmers, are outliers. Per fax received on December 3, 1993, Joslyn Clark Relays cannot be identified. These relays appear to be assembled with different parts.	Evaluate system operation and replace if necessary.
152-305	This relay, 152-305, Allis Chalmers type MA-250C, is an outlier. When the pressurizer heater (transformer #15) is fed from 1C bus (A11), the breaker 152-305 shall be isolated. Bus 1E is not seismically qualified at this time.	Evaluate system operation and replace if necessary.

187D-107/X,Y,Z 187D-213/X,Y,Z	These relays, 187D-107/X,Y,Z, 187D-213/X,Y,Z, General Electric type IJD52A, are outliers. The GERS-RLY-PP1.5 requires the IJD relays to have "HIGH-G" letters on the faceplate. A walkdown was unable to verify the "HIGH-G" lettering even though the documentation for the purchase and installation reflects the appropriate requirements.	Evaluate system operation and replace if necessary.
162-107X 162-213X	These relays, 162-107X, 162-213X, Westinghouse type SG are outliers. These relays are deenergized, normally closed contact. EPRI NP-7148-SL, DEC. 1990, Appendix E, identifies these relays as low ruggedness relay for this mode of operation.	Evaluate system operation and replace if necessary.

USI A-46 SEISMIC EVALUATION REPORT

PALISADES



NUCLEAR PLANT

May 19, 1995

Report 92C2750.A46
Report of SQUG Assessment at Palisades Nuclear Plant for Resolution of USI A-46

Prepared for

Consumers Power Company
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, Michigan 49043

prepared by

Stevenson & Associates
State Street
Woburn, Massachusetts 01801

May 15, 1995

1. INTRODUCTION AND SEISMIC VERIFICATION METHODOLOGY 1-1

1.1 INTRODUCTION 1-1
1.2 SEISMIC VERIFICATION METHODOLOGY 1-1
1.3 REPORT ORGANIZATION 1-2

2. PALISADES NUCLEAR PLANT SAFE SHUTDOWN PATH 2-1

3. PALISADES NUCLEAR PLANT SEISMIC DESIGN BASIS 3-1

3.1 DESCRIPTION OF INPUT MOTIONS 3-1
3.2 DESCRIPTION OF DYNAMIC MODELING AND BASES FOR THE SELECTION OF KEY MODELING PARAMETERS 3-1
3.3 DESCRIPTION OF SOIL-STRUCTURE INTERACTION STUDIES 3-2
3.4 IN-STRUCTURE RESPONSE SPECTRA 3-2

4. RESULTS OF SCREENING VERIFICATION AND WALKDOWN - CLASS OF TWENTY 4-1

4.1 SEISMIC EVALUATION GUIDELINES 4-1
4.1.1 SEISMIC CAPACITY VS. DEMAND 4-2
4.1.2 CAVEAT COMPLIANCE 4-2
4.1.3 ANCHORAGE ADEQUACY 4-3
4.1.4 SEISMIC INTERACTION CHECKS 4-7
4.2 OUTLIER RESOLUTION 4-7
4.3 SEISMIC CAPABILITY ENGINEERS AND PEER REVIEWER 4-8
4.4 OTHER TYPES OF SEISMIC EVALUATIONS AND INTERFACES 4-8
4.5 DOCUMENTATION 4-9
4.6 CLASS OF TWENTY EVALUATION RESULTS 4-9

5. GIP DEVIATIONS AND COMMENTARY ON MEETING THE INTENT OF CAVEATS 5-1

6. RESULTS OF THE TANKS AND HEAT EXCHANGER REVIEW 6-1

6.1 EVALUATION METHODOLOGY 6-1
6.2 SUMMARY OF EVALUATION RESULTS 6-3

7. RESULTS OF THE CABLE TRAY AND CONDUIT RACEWAY REVIEW 7-1

7.1 INTRODUCTION AND PURPOSE 7-1
7.2 SCOPE OF ELECTRICAL RACEWAYS ASSESSED 7-1
7.3 GENERAL DESCRIPTION OF PALISADES RACEWAYS 7-2
7.4 SPECIFIC RACEWAY SYSTEMS EVALUATED 7-2
7.5 RACEWAY SEISMIC EVALUATION WALKDOWNS 7-5
7.5.1 GIP INCLUSION RULES RESULTS 7-5
7.5.2 GIP OTHER SEISMIC PERFORMANCE CONCERNS & SEISMIC INTERACTION REVIEW 7-5
7.6 LIMITED ANALYTICAL REVIEW (LAR) RESULTS 7-6
7.6.1 SUMMARY OF RESULTS 7-7
7.6.2 LOGIC DIAGRAMS FOR CABLE TRAY AND CONDUIT SUPPORT EVALUATIONS 7-9
7.7 CONCLUSIONS 7-14

8. DESCRIPTION OF THE EQUIPMENT OUTLIERS 8-1

8.1 OUTLIERS RESOLVED PRIOR TO FINAL A46 WALKDOWNS 8-1
8.2 GENERIC OUTLIER ISSUES 8-1
8.3 EQUIPMENT SPECIFIC OUTLIERS IDENTIFIED DURING THE A46 WALKDOWNS 8-2

9. RESOLUTION OF OUTLIERS 9-1

10. REFERENCES 10-1

APPENDIX A: SAFE SHUTDOWN EQUIPMENT LIST (SSEL)

APPENDIX B: SEISMIC DESIGN BASIS SPECTRA

APPENDIX C: WALKDOWN PERSONNEL RESUMES

APPENDIX D: SCREENING VERIFICATION DATA SHEETS (SVDS)

List of Acronyms

CPCO	Consumers Power Company
EPRI	Electric Power Research Institute
GERS	Generic Equipment Ruggedness Spectra
GIP	Generic Implementation Procedure
GL	Generic Letter
IAEA	International Atomic Energy Agency
IPEEE	Individual Plant Examination for External Events
PNP	Palisades Nuclear Plant
LAR	Limited Analytical Review
MCC	Motor Control Center
OSVS	Outlier Seismic Verification Sheet
PASS	Plant Area Summary Sheet
PSD	Power Spectral Density
S&A	Stevenson & Associates
SCE	Seismic Capability Engineer
SEWS	Screening Evaluation Work Sheet
SQUG	Seismic Qualification Utility Group
SRT	Seismic Review Team
SSE	Safe Shutdown Earthquake
SSEL	Safe Shutdown Equipment List
SSER	Supplemental Safety Evaluation Report
SVDS	Screening Verification Data Sheet
USI	Unresolved Safety Issue
USNRC	United States Nuclear Regulatory Commission
ZPA	Zero Period Acceleration

1. Introduction and Seismic Verification Methodology

1.1 Introduction

This report provides the final documentation of the seismic adequacy evaluations performed at the Palisades Nuclear Plant (PNP) for resolution of Unresolved Safety Issue (USI) A-46, "Seismic Qualification of Equipment in Operating Plants". USI A-46 was issued by the United States Nuclear Regulatory Commission (USNRC) in December, 1980 to address the concern with the seismic adequacy of mechanical and electrical equipment in older nuclear power plants. This report describes the results of the seismic reviews of active mechanical and electrical equipment, selected tanks and heat exchangers, and cable and conduit raceways.

1.2 Seismic Verification Methodology

Utilities affected by USI A-46 formed the Seismic Qualification Utility Group (SQUG) in 1982 to develop a consistent industry approach for resolving USI A-46. SQUG utilities with the technical and financial assistance of the Electric Power Research Institute (EPRI) conducted research and studies regarding this issue in order to formulate a thorough and reasoned program to resolve the identified concern. In February, 1987, USNRC issued Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating Reactors, Unresolved Safety Issue (USI) A-46", as a detailed approach for resolving USI A-46 [1].

Subsequently, further research conducted by SQUG (and its contractors) and reviewed by USNRC staff resulted in a detailed procedure developed by SQUG called the "Generic Implementation Procedure (GIP) for Seismic Verification of Nuclear Power Plant Equipment" [2]. Specifically, USNRC reviewed Revision 2 of the GIP and accepted (with provisos) the approach in *Supplement No. 1 to Generic Letter (GL) 87-02 that Transmits Supplemental Evaluation Report No. 2 (SSER #2) on SQUG Generic Implementation Procedure, Revision 2 as Corrected on February 14, 1992 (GIP-2)* [3]. This GIP version and the clarifications, guidance and additional requirements provided by the USNRC in SSER #2 are the basis for the seismic evaluation of mechanical and electrical equipment at Palisades for resolution of USI A-46.

Separate, but related issues pertaining to methods of analysis for above-ground flexible tanks identified in USI A-40, "Seismic Design Criteria" [4], and seismic adequacy of proximity items above and around important-to-safety equipment identified in USI A-17 [5] are explicitly addressed and resolved by implementation of the GIP.

The GIP approach relies on developing a safe shutdown equipment list (SSEL) and identifying equipment needed to achieve and maintain safe shutdown conditions in a nuclear power plant. This equipment is then seismically reviewed in accordance with the GIP methodology. By means of plant walkdowns to specifically observe and evaluate each equipment item on the SSEL, an assessment can be made concerning its seismic adequacy. By meeting seismic demand criteria, selected caveats to ensure similarity, an anchorage evaluation, and a seismic interaction proximity assessment, the trained walkdown engineer can be satisfied (or not) that the equipment will survive the

design basis seismic event. The basis for this approach is rooted in detailed observations of similar, if not identical, equipment in industrial facilities that have survived earthquakes of similar or greater magnitude in California and throughout seismically active regions around the world. Each equipment assessment is documented on a Screening Evaluation Work Sheet (SEWS). Any deficiencies are documented on an Outlier Seismic Verification Sheet(s) (OSVS).

1.3 Report Organization

The following section of this report discusses the development of the safe shutdown path and the resulting Safe Shutdown Equipment List (SSEL). The SSEL is provided in Appendix A. The seismic design basis and the assessment of it by the USNRC are discussed in Section 3. The design basis spectra are contained in Appendix B. The equipment walkdown and results are provided in Section 4. These assessments resulted in summary level screening verification data sheets, SVDS, (Appendix D)

SSER #2 requires explicit documentation of any deviations from the exact requirements of the GIP. Section 5 provides a detailed listing of exceptions to the rules taken for any equipment item assessment. Section 6 discusses the results of the Tanks & Heat Exchangers assessment. They are also summarized under Class 21 - which is the Tanks & Heat Exchangers class - in the SVDS given in Appendix D. Cable Tray & Conduit Raceway assessments are provided in Section 7. Sections 8 and 9 provide a listing of identified outliers, the reasons for which they are outliers, and their proposed resolution, respectively.

2. Palisades Nuclear Plant Safe Shutdown Path

For a complete discussion of the safe shutdown paths used at the Palisades plant see the attached report entitled, "USI A-46 Equipment Evaluation Report - Palisades Plant" located in Section 3 of this Palisades report.

3. Palisades Nuclear Plant Seismic Design Basis

This section describes the seismic motion used for the A-46 study. In accordance with Item 3. under Required Response [pg. 3, Ref. 3] the floor spectra can be utilized as "conservative" floor spectra. The following sections describe the basis and development of the design basis spectra.

3.1 DESCRIPTION OF INPUT MOTIONS

The Palisades plant original seismic design basis is the Housner ground spectrum. The SSE input motions (time history) used to create the earthquake analysis of PNP [6] were based on the Taft earthquake S69E recorded in 1952. For the analysis and design of the Seismic Class 1 structures themselves at Palisades, the horizontal input design motion is the Housner Ground Spectrum scaled to 0.20g peak ground acceleration (PGA). The vertical response spectra were taken as two-thirds of the horizontal free field ground spectrum for all plant elevations.

3.2 DESCRIPTION OF DYNAMIC MODELING AND BASES FOR THE SELECTION OF KEY MODELING PARAMETERS

The Palisades Nuclear Plant is made up of the following Seismic Class 1 structures:

1. Reactor Building (Containment) and Internals
2. Auxiliary Building
3. Portions of Turbine Building (remainder is Class 3)
4. Portions of Intake Structure (remainder is Class 3)
5. Auxiliary Feedwater Pump Room

Safe shutdown equipment is located in structures 1 through 5 listed above. The structural response was determined for structures 1 and 2 above. The Intake Structure is mainly below ground and the Auxiliary Feedwater Pump Room is completely below ground level, therefore, the design used the Housner horizontal peak ground acceleration as the design input acceleration.

The mathematical model of the structures and underlying soil was constructed in terms of lumped masses and stiffness coefficients.

Damping values used were based upon the evaluation of the materials and mode shapes. Given that the first and second modes of the structures are dominated by the soil response, no proportional damping was used. The damping used is as shown in Table 3-1 shown below:

Table 3-1
Palisades Design Basis Damping Values

Building	Damping
Auxiliary Building	0.5% & 5%*
Reinforced Concrete Structures on Soil (Containment)	7.5%

* Certain modes were assigned 0.5% damping, and other modes were assigned 5% damping

3.3 DESCRIPTION OF SOIL-STRUCTURE INTERACTION STUDIES

As discussed in the Palisades' Final Safety Analysis Report, the soil-structural interaction under seismic motions is represented by the translational and rotational springs in the model. The stiffness of these springs were determined by using equations developed for the case of a rigid plate on a semi-infinite elastic half-space.

3.4 IN-STRUCTURE RESPONSE SPECTRA

Reference 8 describes the horizontal and vertical in-structure response acceleration spectra. Horizontal response spectra curves for equipment inside the buildings were generated by the time history technique of seismic analysis. The input (base motion) time history used was that recorded at Taft 1952. The amplified time histories were then developed for each building elevation in the lumped mass building model. From these amplified time histories of acceleration, acceleration floor response spectra were developed for various damping values. The floor spectra developed represent the Operating Basis Earthquake (OBE) level. They were increased by a factor of 2.0 to represent the Safe Shutdown Earthquake (SSE). The response spectra curves were subsequently broadened +/- 10% in 1989 to account for parameter uncertainties such as building and soil properties. The structural analysis determined the response in the North-South and East-West directions. No vertical model was generated.

The SSE site ground response spectrum and the generated floor response spectra are provided in Appendix B.

4. Results of Screening Verification and Walkdown - Class of Twenty

The purpose of this section is to describe the Screening Verification and Walkdown performed to verify the seismic adequacy of active mechanical and electrical equipment identified in Section 2. The guidelines contained in this section were used to screen the equipment for seismic adequacy. If the equipment did not pass this screen, it was declared an outlier (see Section 8). Other more refined or sophisticated methods for verifying the seismic adequacy of the equipment were used as described in Section 9, Resolution of Outliers; or possible equipment modification was considered.

4.1 Seismic Evaluation Guidelines

The procedure for performing the Screening Verification and Walkdown is based on the following four seismic screening guidelines:

1. Seismic Capacity vs. Seismic Demand - The seismic capacity of the equipment, based on earthquake experience data, generic seismic testing data, or equipment-specific seismic qualification data, should be greater than the seismic demand imposed on the equipment by the safe shutdown earthquake (SSE).

2. Caveat Compliance - In order to use the seismic capacity defined by the earthquake experience Bounding Spectrum or the generic equipment ruggedness spectra (GERS), the equipment should be similar to the equipment in the earthquake experience equipment class or the generic seismic testing equipment class and also meet the intent of the specific caveats for that class of equipment. If equipment-specific seismic qualification data is used, then any specific restrictions or caveats for that qualification data apply instead.

3. Anchorage Adequacy - The equipment anchorage capacity, installation, and stiffness should be adequate to withstand the seismic demand from the SSE at the equipment location.

4. Seismic Interaction Checks - The effect of possible seismic spatial interactions with nearby equipment, systems, and structures should not cause the equipment to fail to perform its intended safe shutdown function.

The evaluation of equipment against each of these four screening guidelines at Palisades is based upon walkdown evaluations, calculations, and other supporting data.

4.1.1 Seismic Capacity Vs. Demand

Palisades determined the seismic capacity of safe shutdown equipment using:

- Earthquake experience data with capacity defined by the Bounding Spectrum,
- Generic seismic test data which have been compiled into Generic Equipment Ruggedness Spectra (GERS), or
- Equipment-specific seismic qualification data, or data on similar equipment.

The seismic demand imposed on an item of equipment depends on whether or not the ground spectrum or amplified floor response spectra were used, and how it is compared to the capacity data.

Generally, conservative floor spectra were compared to 1.5 times the bounding spectrum. To a lesser extent, the ground spectrum was compared to the bounding spectrum for equipment within 40' of grade with an estimated fundamental frequency greater than 8 Hz. GERS were used for some equipment and for those comparisons the GERS were compared to conservative floor spectra or 2.25 times the ground spectrum (SSE). In order to utilize 2.25 times SSE as the demand, the equipment item had to be within 40' of grade and have an estimated fundamental frequency greater than 8 Hz. Finally, newer, upgraded equipment that had been seismically proof tested (shaking table tested) in accordance with the IEEE 344 Standard, 1975 Edition or later, was accepted based on this documentation and was supplemented only by a seismic interaction review by the SRT.

For purposes of determining the *40' Above Grade* elevation, effective grade for the site and/or each building must be determined. "Effective grade" at a nuclear plant is defined as the average elevation of the ground surrounding the building along its perimeter. As Palisades is a soil site, effective grade was established at 590'.

4.1.2 Caveat Compliance

The second screening guideline which must be satisfied to verify the seismic adequacy of an item of mechanical or electrical equipment is to confirm that (1) the equipment characteristics are generally similar to the earthquake experience equipment class or the generic seismic testing equipment class and (2) the equipment meets the intent of the specific caveats for the equipment class. This review is only necessary when the Bounding Spectrum or the GERS is used to represent the seismic capacity of an item of equipment. If equipment-specific seismic qualification data is used instead, then only the specific restrictions applicable to that equipment-specific qualification data need be applied.

Another aspect of verifying the seismic adequacy of equipment included within the scope of this procedure is explained by the "rule of the box." For the equipment included in either the earthquake or testing equipment class all of the components mounted on or in this equipment are considered to be part of that equipment and do not have to be evaluated separately. However, the walkdown engineers did look for suspicious details or uncommon situations which could make the equipment item vulnerable.

An item of equipment should have the same general characteristics as the equipment in the earthquake experience equipment class or the generic seismic testing equipment class. The intent of this caveat is to preclude items of equipment with unusual designs and characteristics which have not demonstrated seismic adequacy in earthquakes or tests.

"Caveats" are defined as the set of inclusion and exclusion rules which represent specific characteristics and features particularly important for seismic adequacy of a particular class of equipment. Appendix B of the GIP contains a summary of the caveats for the earthquake experience equipment class and for the generic seismic testing equipment class.

The "intent" of the caveats should be met when evaluating an item of equipment as they are not fixed, inflexible rules. Engineering judgment is used to determine whether the specific seismic concern addressed by the caveat is met. Each item of equipment should be evaluated to determine whether it meets the specific wording of the applicable caveats and their intent. However, if an item of equipment meets the intent of the caveats but the specific wording of the caveat rule is not met, then that item is considered to have met the caveat. At Palisades, a small number of SSEL items were judged to meet the intent, if not the exact wording of a caveat and these cases are reported in Section 5 of this report.

4.1.3 Anchorage Adequacy

Palisades verified anchorage adequacy with an approach incorporating three elements:

- Comparison of the anchorage capacity with the seismic demand.
- Evaluation of the anchorage to verify that it is free of gross installation defects.
- Evaluation of the equipment anchorage load path to verify that there is adequate stiffness and strength.

The screening approach for verifying the seismic adequacy of equipment anchorage is based upon a combination of inspections, analyses, and engineering judgment. Inspections consist of measurements and visual evaluations of the equipment and its anchorage, supplemented by use of plant documentation and drawings. Analyses compare the anchorage capacity to the seismic loadings (demand) imposed upon the anchorage. These analyses were done using the guidelines in Section 4 and Appendix C of the GIP. Engineering judgment is also an important element in the evaluation of equipment anchorage. As a general rule, all significantly sized equipment was

rigorously analyzed using the ANCHOR software package developed by Stevenson & Associates. Small equipment, weighing usually 100 lbs. or less was accepted by judgment and a "tug test". The tug test simply involves pulling on the device (say, a wall-mounted transmitter) with a force to exceed 2-3 g's of equivalent acceleration.

The four main steps used to evaluate seismic adequacy of equipment anchorages at Palisades followed the guidance of the GIP and are shown below:

1. Anchorage Installation Inspection
2. Anchorage Capacity Determination
3. Seismic Demand Determination
4. Comparison of Capacity to Demand

The first main step in evaluating the seismic adequacy of anchorages is to check the anchorage installation and its connection to the base of the equipment. This inspection consists of visual checks and measurements along with a review of plant documentation and drawings where necessary.

All accessible anchorages were visually inspected. A check of the following equipment anchorage attributes was made:

1. Equipment Characteristics
2. Type of Anchorage
3. Size and Location of Anchorage
4. Installation Adequacy
5. Embedment Length
6. Gap at Threaded Anchors
7. Spacing Between Anchorages
8. Edge Distance
9. Concrete Strength and Condition
10. Concrete Crack Locations and Sizes
11. Essential Relays in Cabinets
12. Equipment Base Stiffness/Prying Action
13. Equipment Base Strength/Structural Load Path
14. Embedment Steel and Pads

The equipment damping for certain classes of equipment are given in Section C.1 of the GIP and were used in this study.

At Palisades, the possibility of the use of leaded shell (or "ring") expansion anchors manufactured by Cinch Company was discovered. A number of anchorage installations were found not to have an identifiable manufacturer or anchor type. Review of some of the plant's original documentation suggests that some of the "unknown" anchors could be Cinch anchors, but this is not necessarily straightforward to verify because the anchors are not disassembleable. In some cases, it is evident that where Cinch anchors are called for in the documentation, a Hilti or Phillips anchor is actually the anchor that is utilized. To that end, assumptions have been made that

these unknown anchors are Cinch anchors for the sake of conservatism. To establish that anchor type's anchorage capacity, testing data from an extensive testing program undertaken at the Savannah River Site was used to establish conservative load allowables. All suspected anchors of this type have been declared outliers since they are an anchorage type not covered in the GIP.

All equipment with suspected Cinch anchorage are required to be tightness checked to ensure the anchor is still viable (not loose) in its installation.

For expansion anchors, a tightness check is required to detect gross installation defects (such as oversized concrete holes, total lack of preload, loose nuts, damaged subsurface concrete, and missing plug for shell types) which would leave the anchor loose in the hole. The tightness check was waived for expansion anchors supporting raceway hangers and for later vintage equipment installed under modern quality assurance requirements. The tightness check for expansion anchors is accomplished by applying a torque to the anchor by hand until the anchor was "wrench tight," i.e., tightened without excessive exertion. If the anchor bolt or nut rotates less than about 1/4 turn, then the anchor is considered tight. The tightness checks will be scheduled for a subsequent re-fueling outage. In addition, random ("spot") embedment checks for shell anchors will be performed on selected anchors inspecting them to ensure that the shell anchor and the equipment base are not in contact. The results of the tightness checks and embedment checks will be documented in a separate report by Palisades. The list of equipment to be checked by the tightness check process, including those with suspected Cinch anchorage, are provided in Table 4-1.

Table 4-1
List of Equipment Requiring Bolt Tightness Check

No.	Item ID	Building	Room	Elev
1	EA-13	TB	133	590
2	EX-63&64	AB	224	607
3	P54A,B,C	AB	4&5	570
4	P-56A	AB	107	590
5	EA-13	TB	133	590
6	EX-63&64	AB	224	607
7	P8C	AB	4	570
8	P7A,B,C	TB	136	590
9	EC-182	AB	338R	625
10	ED-01&-02	AB	225A	607
11	ED-11A & 21A	AB	116A&B	590
12	EC-150	AB	250	607
13	EJ- 9400, 9401	AB	116A	590
14	EJL-258, 423	AB	225A	607

Later anchorage installations from the time period of the Systematic Evaluation Program (1980) and later were installed under modern Quality Control provisions and were tested at the time of installation, and they are not being scheduled for tightness checking.

The second main step in evaluating the seismic adequacy of anchorages is to determine the allowable capacity of anchors used to secure an item of equipment. The

The second main step in evaluating the seismic adequacy of anchorages is to determine the allowable capacity of anchors used to secure an item of equipment. The allowable capacity is obtained by multiplying the nominal allowable capacities by the applicable capacity reduction factors. The nominal capacities and reduction factors are obtained from Appendix C of the GIP, based on the results of the anchorage installation inspection checks.

The pullout capacity allowable is based on the product of the nominal pullout capacity and the applicable capacity reduction factors:

$$P_{all} = P_{nom}\ RT_p\ RL_p\ RS_p\ RE_p\ RF_p\ RC_p\ RR_p$$

Where: P_{all} = Allowable Pullout capacity of installed anchor (kip)
P_{nom}= Nominal allowable Pullout capacity (kip)
RT_p= Reduction factor for the Type of expansion anchors
RL_p= Reduction factor for short embedment Lengths
RS_p= Reduction factor for closely Spaced anchors
RE_p= Reduction factor for near Edge anchors
RF_p= Reduction factor for low strength (f'_c) concrete
RC_p= Reduction factor for Cracked concrete
RR_p= Reduction factor for expansion anchors securing equipment with essential Relays

The shear capacity allowable is based on the product of the nominal shear capacity and the applicable capacity reduction factors:

$$V_{all} = V_{nom}\ RT_s\ RL_s\ RS_s\ RE_s\ RF_s\ RR_s$$

Where: V_{all} = Allowable shear capacity of installed anchor (kip)
V_{nom}= Nominal allowable shear capacity (kip)
RT_s= Reduction factor for the Type of expansion anchors
RL_s= Reduction factor for short embedment Lengths
RS_s= Reduction factor for closely Spaced anchors
RE_s= Reduction factor for near Edge anchors
RF_s= Reduction factor for low strength (f'_c) concrete
RR_s= Reduction factor for expansion anchors securing equipment with essential Relays

Note that the pullout and shear capacities for anchors given above are based on having adequate stiffness in the base of the equipment and on not applying significant prying action to the anchor. If Check 12, Base Stiffness and Prying Action, shows that stiffness is not adequate or that significant prying action is applied to the anchors, then the Seismic Capability Engineers lowered the allowable capacity loads accordingly, normally by completely discounting the affected bolt.

The third step in evaluating the anchorages was to determine the seismic demand imposed on the equipment. The demand was established based on the type of demand spectrum used. If the amplified floor spectra were used, no additional factors of conservatism were used to establish the demand load since the floor spectra were

deemed conservative. The demand load was simply determined based on spectral acceleration value times the weight of the equipment item. Table C.1-1 of the GIP was used, in general, to establish fundamental frequency. If the item was deemed rigid, the zero period acceleration (ZPA) was used. If the item was deemed flexible, the peak of the response spectrum was used. If the fundamental frequency is given in the SEWS, then the largest spectral acceleration in the range from that estimated frequency to the ZPA is used. If the ground spectrum is used for demand, then 1.875 times the appropriate spectral acceleration is used where 1.875 is the product of 1.5, the median amplification factor, and 1.25, the additional anchorage factor of conservatism for non-conservative demand spectra.

The fourth and final step to complete the evaluation compares the seismic demand to the anchorage capacity. If the demand is less than the capacity, the anchorage is acceptable; otherwise, the equipment item is declared an outlier.

4.1.4 Seismic Interaction Checks

The fourth and final screening guideline used to verify the seismic adequacy of an item of mechanical or electrical equipment was to confirm that there were no adverse seismic spatial interactions with nearby equipment, systems, and structures which could cause the equipment to fail to perform its intended safe shutdown function. The interactions of concern are (1) proximity effects, (2) structural failure and falling, and (3) flexibility of attached lines and cables. Guidelines for judging interaction effects when verifying the seismic adequacy of equipment are presented in Appendix D of the GIP.

During the plant walkdowns at Palisades, the SRT's identified only a few interaction concerns; specifically, portable equipment items in general (carts, racks, etc.) in the main control room and the aluminum diffusers in the suspended ceiling of the main control room which are considered a personnel hazard only. These particular issues and their resolution are discussed in detail in Sections 8 and 9.

Overhead piping systems and ductwork were closely examined in all plant areas containing A-46 and seismic IPEEE equipment. The SRT's identified no vulnerabilities and noted that the systems were well supported.

4.2 Outlier Resolution

An outlier is defined as an item of equipment which does not meet the screening guidelines noted above. An outlier may be shown to be adequate for seismic loadings by performing additional evaluations such as the seismic qualification techniques currently being used in newer nuclear power plants. These additional evaluations and alternate methods were thoroughly documented on the OSVS forms.

4.3 Seismic Capability Engineers and Peer Reviewer

The guidelines described in Section 4 were applied by Seismic Capability Engineers as defined in Section 2 of the GIP. These engineers exercised engineering judgment based upon an understanding of the guidelines given in this document, the basis for these guidelines given in the reference documents and presented in the SQUG training course, and their own seismic engineering experience.

The station walkdowns were conducted during the weeks of July 5-9 and August 23-27, 1993; and March 22, April 13, July 14, and October 3-5, 1994. The seismic capability engineers for the Palisades walkdown were Messrs. W. Djordjevic and S. Anagnostis of S&A, and A. Lyon, J. Boucher and R. Jenkins of Consumers Power Company. All have been SQUG trained and certified. Their resumes are provided in Appendix C.

An independent evaluation and peer review of the walkdown process was performed by Drs. R. P. Kennedy and J. D. Stevenson. Their resumes are also provided in Appendix C. They conducted their site review on March 3, 1995. As required by the GIP, the review included an assessment of the walkdown and analyses by audit and sampling to identify any gross errors. Both reviewers also reviewed specific SQUG documentation. Dr. Kennedy reviewed the detailed calculation for the Safety Injection Refueling Water Tank. Dr. Stevenson reviewed some randomly selected SEWS documentation packages of some of the equipment walked down during the peer review. The peer reviewers concluded that the walkdowns were being conducted competently and the findings made were appropriate. Reference 20 provides documentation of the peer review.

4.4 Other Types of Seismic Evaluations and Interfaces

In addition to the seismic evaluations covered in Section 4 for active mechanical and electrical equipment, seismic evaluations for two other types of equipment are covered in other sections as follows:

- Section 6 - Tanks and Heat Exchangers Review
- Section 7 - Cable and Conduit Raceways Review

A separate Relay Evaluation Report will be issued to document the results of the relay functionality review required in Section 6 of the GIP. Spot (random) checking of relay mountings as well as verification of make and model number was conducted on numerous relay panels and I&C panels including the diesel generator and main control rooms among others.

While these other seismic evaluations can generally be performed independently from those for active mechanical and electrical equipment, there are a few areas where an interface with the Relay Functionality Review is appropriate:

- Any cabinets containing essential relays, as determined by the relay review, should be evaluated for seismic adequacy using the guidelines contained in this section.
- A capacity reduction factor should be applied to expansion anchor bolts which secure cabinets containing essential relays. The capacity reduction factor is discussed in Section 4.4 and Appendix C of the GIP.
- Seismic interaction, including even mild bumping, is not allowed on cabinets containing essential relays. This limitation is discussed in Section 4.5 of the GIP.
- In-cabinet amplification factors for cabinets containing essential relays may be estimated, using the guidelines in Section 6 of the GIP, by the Seismic Capability Engineers for use in the Relay Functionality Review.

4.5 Documentation

Palisades documented the results of the Screening Verification and Walkdown on Screening Verification Data Sheets (SVDS) in Appendix D.

As discussed in Section 4.4, the discussion of the review of Heat Exchangers & Tanks and Cable Tray & Conduit Raceways is given in Sections 6 and 7, respectively.

Outliers for all equipment are discussed in Sections 8 and 9. The Relay Functionality Assessment is given in a separately bound report entitled, "USI A-46 Relay Evaluation Report for Palisades"[6].

4.6 Class of Twenty Evaluation Results

The SSEL list contains 514 equipment items excluding heat exchangers & tanks and electrical raceways. Of this population, 48 items were declared outliers. For a discussion of the outliers see Sections 8 and 9.

5. GIP Deviations and Commentary on Meeting The Intent of Caveats

No significant or programmatic deviations from the GIP were made while performing the walkdowns and seismic adequacy evaluations at Palisades for resolution of USI A-46. Very few *interpretations* were made with respect to the *wording* of the GIP caveats versus the caveat's intent. This section lists those interpretations or measures taken to meet the intent of the caveat in Table 5.1 below. All other equipment not listed in this table met the caveat rules as stated in the GIP.

Revision 2 of the GIP was used exclusively for the Palisades A-46 assessment. The only exception to this statement was in the case of 2 valves for which the "moment product" approach was used as outlined in Revision 2A of the GIP. According to Reference 12, this provision was inadvertently left out of Revision 2 and was always part of the SSRAP Report [13] which forms the basis for the GIP caveats and rules. As such, this provision is being interpreted in this report as belonging, in actuality, to Revision 2 of the GIP. It is also incorporated in the planned Revision 3 of the GIP.

Table 5-1
Commentary Regarding GIP Deviations

No.	Equipment ID and Description	Commentary
1.	Buses EB-11, 12, 15, 16, 19 & 20 MC Low Voltage Switchgear	1) These low voltage switchgear are ITE and Brown Boveri Breakers. This issue specifically pertains to Westinghouse DB-25 & -50 breakers. The Palisades breakers do not have these restraints. Based on inspection of the secondary stabs, no concern similar to that of Caveat 3 was identified, so these breakers were judged adequate.
2.	E-56 Regenerative Heat Exchangers	The minimum embedment required for J-bolts is 16D (Appendix C of GIP). Using a conservative estimate for bond stress of 135 psi - which is the value used in the GIP - this anchorage, hence, the heat exchanger is shown adequate.
3.	Pumps P-54A,B,C,P-55C, P-56A, P-8C, P-7A,B,C Horizontal and Vertical Pumps	Some of the plant's documentation suggests these units are anchored by leaded Cinch expansion anchors. The GIP states that expansion anchors should not generally be used for anchoring vibratory equipment; however, in cases where they are subjected primarily to shear it is acceptable. It was shown that all of the pump anchorages are subjected only or primarily to shear loads. This anchorage was evaluated with the appropriate safety factors based on a test program administered by Savannah River [7]. They are also classified as "outliers" because leaded anchors are not covered by the GIP. The bolt tightness checking will be scheduled during a subsequent system outage to determine anchorage installation adequacy..

Table 5-1 (continued)

No.	Equipment ID and Description	Commentary
4.	T-31A,B,C (Air Starting Tanks)	These anchors are assumed grouted-in-place since they are not Cinch anchors and they were not cast-in-place. The 90% knockdown for tensile capacity of the cast-in-place value was employed in accordance with the GIP. This item was determined to be acceptable.
5.	MO-0748, -1042A, -1043A	GIP Rev2A moment capacity comparisons for valves where either the operator weight or valve cantilever offset exceeded the Table 8.1 limits of GIP by not more than 30%. Small exceedances of the moment capacities were judged acceptable.
6.	SV-2003, RV-2280	Small valves of bronze or brass material adjudged acceptable given that either valve has no extended operator structure.

6. Results of the Tanks and Heat Exchanger Review

Tanks and heat exchangers were evaluated in accordance with the rules and procedures given in Section 7 of the GIP [2]. If the vertical tanks did not meet the caveats, they were generally evaluated using the procedures of Appendix H - *Flat Bottom Vertical Fluid Storage Tanks* of EPRI Report NP-6041, Rev. 1 [17].

This section gives the results of the tank and heat exchanger reviews performed. In total, nineteen (19) tanks and heat exchangers were evaluated. Twelve (12) tanks and heat exchangers were declared outliers generally due to exceeding anchorage allowables.

6.1 EVALUATION METHODOLOGY

The screening evaluations described in this section for verifying the seismic adequacy of tanks and heat exchangers cover those features of tanks and heat exchangers which experience has shown can be vulnerable to seismic loadings. These evaluations include the following features:

- Check that the shell of large, flat-bottom, vertical tanks will not buckle. Loadings on these types of tanks include the effects of hydrodynamic loadings and tank wall flexibility.
- Check that the anchor bolts and their embedments have adequate strength against breakage and pullout.
- Check that the anchorage connection between the anchor bolts and the tank shell (e.g., saddles, legs, chairs, etc.) have adequate strength.
- Check that the attached piping has adequate flexibility to accommodate the motion of large, flat-bottom, vertical tanks.

The Seismic Capability Engineers, Messrs. W. Djordjevic and S. Anagnostis, reviewed these evaluations to verify that they meet the intent of these guidelines. This review included a field inspection of the tank, the anchorage connections, and the anchor bolt installation against the guidelines described in this Section 7, Section 4.4, and Appendix C of the GIP [2].

The derivation and technical justification for the guidelines utilized were developed specifically for: (1) large, flat-bottom, cylindrical, vertical, storage tanks; and (2) horizontal cylindrical tanks and heat exchangers with support saddles made of plates. The types of loadings and analysis methods described in this section are considered to be appropriate for these types of tanks and heat exchangers; however, a generic procedure cannot cover all the possible design variations. Other design features not covered by the GIP were evaluated using the same procedures and loading conditions as given in Section 7 of the GIP.

Other types of tanks and heat exchangers (e.g., vertical tanks supported on skirts and structural legs) which were not specifically covered by the guidelines in Section 7 of the GIP were evaluated by the Seismic Capability Engineers using an approach similar to that described in Section 7 of the GIP.

For vertical tanks, Reference 17 provides guidelines for evaluating flat bottom vertical tanks using the Conservative Deterministic Failure Margin (CDFM) analysis approach. The same design basis input spectra are used as for the GIP (Section 7) analysis. The results, expressed as High Confidence Low Probability of Failure (HCLPF), are known to be less conservative than the GIP evaluation results. This is due, predominantly, to the use of more sophisticated evaluation techniques such as accounting for water hold-down forces. The screening guidelines described in Section 7 of the GIP were developed to simplify the complex dynamic fluid-structure interaction analyses for large vertical tanks and to further simplify the equivalent static analysis procedure for smaller horizontal tanks. To accomplish this, it was necessary to make certain simplifying assumptions and to limit the range of applicability of the guidelines. As such, the HCLPF result should normally exhibit a higher capacity margin over the design basis demand than the GIP approach. The CDFM approach was used for the Condensate Storage Tank (T-2) and the SIRWT (T-58) at Palisades. The T-58 tank was evaluated to the new floor spectra based on the USNRC RG 1.60 spectrum with a 0.20g peak ground acceleration [19].

The other types of tanks covered by the screening guidelines in Section 7 of the GIP are cylindrical steel tanks and heat exchangers whose axes of symmetry are horizontal and are supported on their curved bottom by steel saddle plates. The screening guidelines are based on the assumption that the horizontal tanks are anchored to a stiff foundation which has adequate strength to resist the seismic loads applied to the tank. All the base plates under the saddles are assumed to have slotted anchor bolt holes in the longitudinal direction to permit thermal growth of the tank, except for the saddle at one end of the tank which is fixed. The saddles are assumed to be uniformly spaced a distance S apart, with the two ends of the tank overhanging the end saddles a maximum distance of S/2

A simple, equivalent static method is used to determine the seismic demand on and capacity of the anchorages and the supports for horizontal tanks. The screening guidelines contained in Section 7 of the GIP specifically addressed only the seismic loads due to the inertial response of horizontal tanks. If, during the Screening Verification and Walkdown of a tank, the Seismic Capability Engineers determined that the imposed nozzle loads due to the seismic response of attached piping may be significant, then these loads were included in the seismic demand applied to the anchorage and supports of the tank.

6.2 Summary of Evaluation Results

The results of the A-46 evaluations are summarized below:

Table 6-1
Tank & Heat Exchanger Evaluation Results

No.	ID	Description	Type	Results
1	E-54A&B	CCW Heat Exchanger	Horizontal Heat Exchanger	Anchorage (J-bolts) do not have sufficient embedment (<16 diameters) per the GIP
2	E-56	Regenerative Heat Exchanger	Horizontal Heat Exchanger	Meets Design Basis in Accordance with GIP Section 7 Rules
3	E-60A&B	Shutdown Cooling Heat Exchanger	Horizontal Heat Exchanger	Anchorage capacity is exceeded.
4	T-10	Diesel Fuel Oil Storage Tank	Horizontal Storage Tank	Meets Design Basis
5	T-13A&B	Diesel Jacket Water Expansion Tank	Horizontal Storage Tank	Outlier due to anchorage and strap restraints. Straps need to be tightened to preclude longitudinal travel of tank. Analysis documented on CPCo Calc. EA-0007899-T13
6	T-2	Condensate Storage Tank	Vertical Flat Bottom Tank	Ring type foundation. Meets design basis with a CDFM HCLPF of 0.30g. Analysis documented on CPCo Calc. EA-0007899-T2.
7	T-25A&B	Diesel Fuel Oil Day Tanks	Tank on Legs	Meets Design Basis in Accordance with GIP Section 7 Rules
8	T-31A-D	Diesel Air Start Tanks	Vertical Tanks	Meets Design Basis in Accordance with GIP Section 7 Rules. T-31D has gapped anchorage, but still has sufficient anchorage capacity.
11	T-53A&B	Boric Acid Tanks	Tank on Legs	Anchorage capacity exceeded using grouted-in-place tensile capacity of 10% of cast-in-place anchors
12	T-58	Safety Injection & Refueling Water Tanks	Vertical Flat Bottom Tank	Anchorage details are not well documented. Declared Outlier. Analyzed as an unanchored tank which resulted in a CDFM PGA HCLPF of 0.21g with respect to RG 1.60 ground motion (0.20g PGA). Analysis documented on CPCo Calc. EA-0007899-T58
13	T-73	Quench Tank	Horizontal Storage Tank	Meets Design Basis in Accordance with GIP Section 7 Rules

7. Results of the Cable Tray and Conduit Raceway Review

7.1 Introduction and Purpose

The seismic adequacy of electrical raceway systems has been identified as an open issue (Unresolved Safety Issue A-46) by the U. S. Nuclear Regulatory Commission (USNRC) for older nuclear power plant facilities.

This section gives the results of the USI A-46 evaluation for the electrical raceways at Palisades. The evaluations were conducted by Stevenson & Associates (S&A) following Section 8 of the GIP.

The seismic evaluation involves conducting a thorough plant walkdown to identify representative, "worst case" examples of raceway systems and evaluate their adequacy.

The scope of raceways reviewed is reported in Section 7.2. Section 7.3 describes the raceway systems at Palisades and Section 7.4 describes the specific raceways evaluated. The raceway walkdowns are summarized in Section 7.5. The results of the LAR evaluations are summarized in Section 7.6.

7.2 Scope of Electrical Raceways Assessed

This section describes the areas of the Palisades Nuclear Plant that were assessed and the specific raceway systems chosen for evaluation. Electrical raceways are cable tray and conduit systems that are wall-mounted, floor supported and suspended systems.

All power block buildings and elevations were surveyed. The cable tray and conduit walkdown was conducted from August 23-27, 1993 by Messrs. W. Djordjevic and S. Anagnostis of S&A. Essentially all electrical raceway systems were walked down. A list of the buildings in which the walkdowns were conducted is shown below:

1. Reactor Building (Containment) and Internals
2. Auxiliary Feedwater Pump Room
3. Auxiliary Building
4. Turbine Building
5. Screenhouse Building

All rooms and areas were visited without exception at Palisades.

All areas were evaluated against the Inclusions Rules, and the caveats (also known as "Other Seismic Concerns" and "Seismic Interaction"). Section 7.3 discusses the evaluation criteria at greater length.

The surveys are documented on Plant Area Summary Sheets (PASS).

7.3 General Description of Palisades Raceways

Palisade's raceway systems are primarily light steel strut frame construction manufactured by Unistrut Corporation. The strut hangers vary from the very simple single cantilever struts supporting one or a few conduits to multi-tier, three-dimensional strut frames supporting cable trays and conduits. The predominant strut hanger type at Palisades is the trapeze strut frame with brackets supporting cable trays or conduits. The largest number of tray tiers at Palisades were five tier systems found in the Bus 1-C switchgear room adjacent to the diesel generator rooms in the Auxiliary building.

The trays varied in size from 6" width to 36" width, primarily of 12" to 24" ladder and trough type construction. Conduits vary in size from 1/2" to 4" nominal diameter and are of rigid steel material (standard schedule pipe). Trays were sometimes sprayed with fire retardant or covered.

The trays and conduits were secured to hangers using standard tray clamps (clips), pipe clamps, or bolting. No missing or damaged hardware was identified in the scope of the walkdown.

The hangers are generally constructed of double channel members interconnected with 4-bolt ninety degree fittings. The hangers are anchored to overhead channels which are embedded into (cast-in) concrete or connected to concrete slabs by expansion anchors. Hangers are also sometimes bolted through connection fittings directly to the reinforced concrete slab or wall. Anchorage designs such as welding fittings directly to steel and clamping to structural steel using clamps are infrequently seen, although more so in Containment.

Lateral (transverse) and longitudinal bracing is used in various systems.

A considerable percentage of the raceway systems are rigidly mounted on walls using strut frames, brackets or single strut members mounted directly on the wall. Post plant construction raceway hangers are observed using rolled (structural tube) shapes.

7.4 Specific Raceway Systems Evaluated

The goal of the evaluation process is to determine overall plant raceway systems acceptability based on a detailed examination of a focused review scope. The GIP evaluation procedure requires that each plant evaluates 10 - 20 raceway supports selected for Limited Analytical Reviews (LAR) to envelop the most heavily loaded of the major different support configurations in use at that plant. Following GIP, all of the raceway systems and their supports were first checked against the Inclusion Rules and Caveats. Then the Seismic Review team (SRT) selected representative, worst-case (bounding) samples of the raceway supports on which LARs were performed. This process allows for the establishment of the adequacy of the plant's raceway systems. The actual supports used for LAR were selected following GIP recommendations and at the discretion of the SRT relying on experience and technical judgment.

A limited number of large junction boxes were observed. The conduit/tray feeding into the junction boxes are well supported in all instances. In addition, the junction boxes are also well supported. No unusual conditions were observed.

Raceways spanning seismically separate buildings were also observed. The raceway trays and supports, including cable and conduit, possess adequate flexibility to absorb relative movement between the buildings. It is also noted that relative seismic movement between seismically separate buildings at Palisades are very small.

Based on the equipment layout and cable routing, the majority of the cable trays are located in the Auxiliary Building in the vital switchgear rooms outside of the diesel generator area, cable spreading room, and main control room.

As required by the GIP, the entire plant was inspected, however, the inspection focused on the cable tray and conduit systems located in the Auxiliary building. The most heavily loaded cable tray supports were identified in the cable spreading room and switchgear rooms adjacent to the emergency diesel generators. Twelve cable hanger supports, listed below in Table 7-1, were chosen for limited analytical review. Drawings or sketches of the LAR supports may be found in the respective PASS Forms.

Table 7-1
Locations of Hangers Chosen for Limited Analytical Reviews

LAR Number	Description	Location
1	4 tier, 3 bay trapeze frame system	Cable Spreading Room - Hanger above north end of Load Center #2
2	3-4tier, 3 bay trapeze frame system	Cable Spreading Room - Hanger above Cabinet Y-01
3	Vertical and suspended tray system designated XV460	Cable Spreading Room near east wall
4	Large 4 tier, 2 bay trapeze frame system	Bus 1C Room - Main raceway system adjacent to Bus 1C
5	Large 5 tier, 1 bay trapeze frame system with lateral brace	Bus 1D Room - Main raceway system adjacent to Bus 1D
6	2 tier, 1 bay trapeze frame system supporting only conduit	Diesel Generator Room
7	5 tier system mounted to containment wall and floor of Auxiliary building	North Electrical Penetration Rm, El. 625', Room 332
8	3 tier rod hung system also mounted to wall supporting only trays	Auxiliary Building Hallway, El. 590' outside Rm 106
9	Wall mounted single tier conduit hanger supporting 5 - 3" diameter conduits	Auxiliary Building Hallway, El. 590' outside Rm 106
10	1 tier rod hung system supporting 8 - 2" and 1 - 3" diameter conduits	Auxiliary Building Mechanical Penetration, El. 590' Rm 123, 238, & 338
11	5 tier wall mounted bracket supporting 24" wide trays	Reactor Building El. 607 Pressurizer Cubicle
12	1 tier trapeze frame system Supported from Containment wall and Auxiliary bldg ceiling	Auxiliary Building Rm 121B, El. 590'

7.5 Raceway Seismic Evaluation Walkdowns

This section discusses the raceway seismic evaluations for the Palisades station.

7.5.1 GIP Inclusion Rules Results

As previously stated, essentially all of the raceway systems in the power block buildings were included in the walkdown. Where it is clear that not every hanger fitting or every square foot of supporting concrete can be inspected, it is still important to note that a very thorough review of the raceways was accomplished.

Without exception, no anomalies in design or construction were found. All inspected raceways meet the requirements of Section 8.2.2 of the GIP as follows:

- Cable tray spans did not exceed the 10' limit between adjacent supports and the 5' limit for cantilevers;
- Conduit spans were within the limits required by Rule 2 of Section 8.2.2 [2];
- On all cantilever bracket-supported systems cable trays and conduit were found secured to their supports so no tray or conduit sliding can occur;
- Channel nuts used with light metal framing systems were nuts with teeth (ridges) stamped into the nuts (Fig.8-1, Ref. 2);
- No "rigid boot" type connection or similar (Fig.8-2, Ref. 2) was observed during the walkdown inspection;
- None of the beam clamps inspected had friction resistance in the direction of gravity;
- Cast-iron anchor embedment rule implementation was resolved as follows. To check for cast iron anchorage embedments in a walkdown is not clearly feasible; however, Consumers Power undertook an exhaustive effort to identify and document its concrete anchorages for the IE 79-02 Bulletin Issue in 1981 and reported the use of various commonly used and well documented ductile steel anchor types, but no usage of cast iron embedments was found. Therefore, this issue has no impact on Palisades Station.

Palisades Station meets the Inclusion Rules in their entirety.

7.5.2 GIP Other Seismic Performance Concerns & Seismic Interaction Review

In addition to the Inclusion Rules the SRT inspected the raceway systems for the caveats known as "Other Seismic Performance Concerns" and "Seismic Interaction Review". The assessment results are as follows:

Other Seismic Performance Concerns

- All raceway anchorages were reviewed for adequacy in accordance with Section 8.2.3 [2]. No concerns were found;
- No concerns were found regarding visible cracks, significantly spalled concrete, serious honeycombs or other gross defects in the concrete to which the raceway supports are attached;
- No significant corrosion of cable trays, conduit supports or anchorage was noted by the SRT;
- No noticeable sag of any conduit or cable tray as defined in Concern 4 of Section 8.2.3 [2] was observed;
- No broken or missing cable tray and conduit components were found by the SRT;
- All cables inspected were restrained so they will be kept in the tray during an earthquake. No concern of that type was observed by the SRT;
- Plastic ties were pull-tested where found and no brittle ties of plastic materials were found by the SRT;
- The SRT evaluated the raceways for stiff/short supports and found no instances of this design flaw. Palisades' hangers are of uniform height in long flexible runs of cable trays or conduit.

No findings were noted with respect to "Other Seismic Performance Concerns".

Seismic Interaction

- The raceway systems were reviewed for seismic proximity interaction [2]. No concerns were found by the SRT.
- The raceway systems were reviewed for falling hazards [2]. No concerns were found by the SRT.
- Conduit and cables were reviewed for sufficient flexibility to accommodate differential displacement between safe shutdown equipment and adjacent equipment and structure. The LARs 007 and 012 cable tray and conduit supports utilize both buildings for anchorage and thus are subject to seismic anchor movement loading. They were analyzed for this differential motion and were found acceptable (passed) by the SRT.
- No Isolated Outliers (other findings) were found by the SRT.

7.6 Limited Analytical Review (LAR) Results

This Limited Analytical Review (LAR), performed within the scope of Unresolved Safety Issue (USI) A-46, evaluates the structural integrity of cable tray and conduit supports which have been chosen as representative, worst case examples of the raceway support configurations within the Palisades Plant.

The hangers (members, connections and fittings) were first evaluated for static, dead load stresses. They were then evaluated for lateral load ductility to ensure no brittle

failure loads. Finally, the vertical capacity was checked by comparing support anchorage capacity to 3 times the support deadweight. If any of these evaluations are failed, the support is declared an Outlier and additional evaluations of lateral load capacity are performed. This section describes the criteria and overall results for all 12 LARs.

In all, 12 raceway systems (supports) were chosen for LAR evaluation as shown in Table 7-1. Five (5) out of the 12 supports chosen for LAR did not meet the LAR requirements - specifically the requirement that anchorage vertical capacity exceed three times the dead weight (3.0 x DL) and were, therefore, considered as outliers. Outlier Seismic Verification Sheets (OSVS) for the outliers were completed.

7.6.1 Summary of Results

The critical interaction value and related comments for each of the raceway support evaluations in this LAR are summarized in Table 7-2 on the next page. Refer to Reference 11 for details of each of the evaluations.

Table 7-2
Critical Interaction Values

LAR No.	Interaction Values						
	Members		Fittings/ Connections		Anchorage**		Maximum
001	0.14	DL	0.12	DL	0.37	3xDL	0.37
002	0.18	DL	0.77	DL	1.84	3xDL	See Ref. 11 for resolution
003	0.10	DL	0.44	DL	1.07	3xDL	1.07
004* Shell Anchor Version	0.67	DL	0.58	DL	0.91	3xDL	0.91
004* Embedded Strut Version	0.67	DL	0.58	DL	1.39	3xDL	See Ref. 11 for resolution
005	0.16	DL	0.75	DL	1.17	3xDL	See Ref. 11 for resolution
006	0.10	DL	0.22	DL	0.35	3xDL	0.35
007	NMF	–	NMF	–	1.61	Relative Bldg. Δ	See Ref. 11 for resolution
008	Low	DL	Low	DL	0.25	3xDL	0.25
009	0.10	DL	Low	DL	0.16	3xDL	0.21
010	0.77	DL	Low	DL	0.45	3xDL	0.77
011	0.12	DL	0.21	DL	0.13	DL	0.21
012	NMF	Relative Bldg. Δ	NMF	Relative Bldg. Δ	NMF	Relative Bldg. Δ	See Ref. 11 for resolution

* Shell anchor version. See Reference 11 for outlier resolution of embedded strut anchorage version.

** Support connection to building structure.

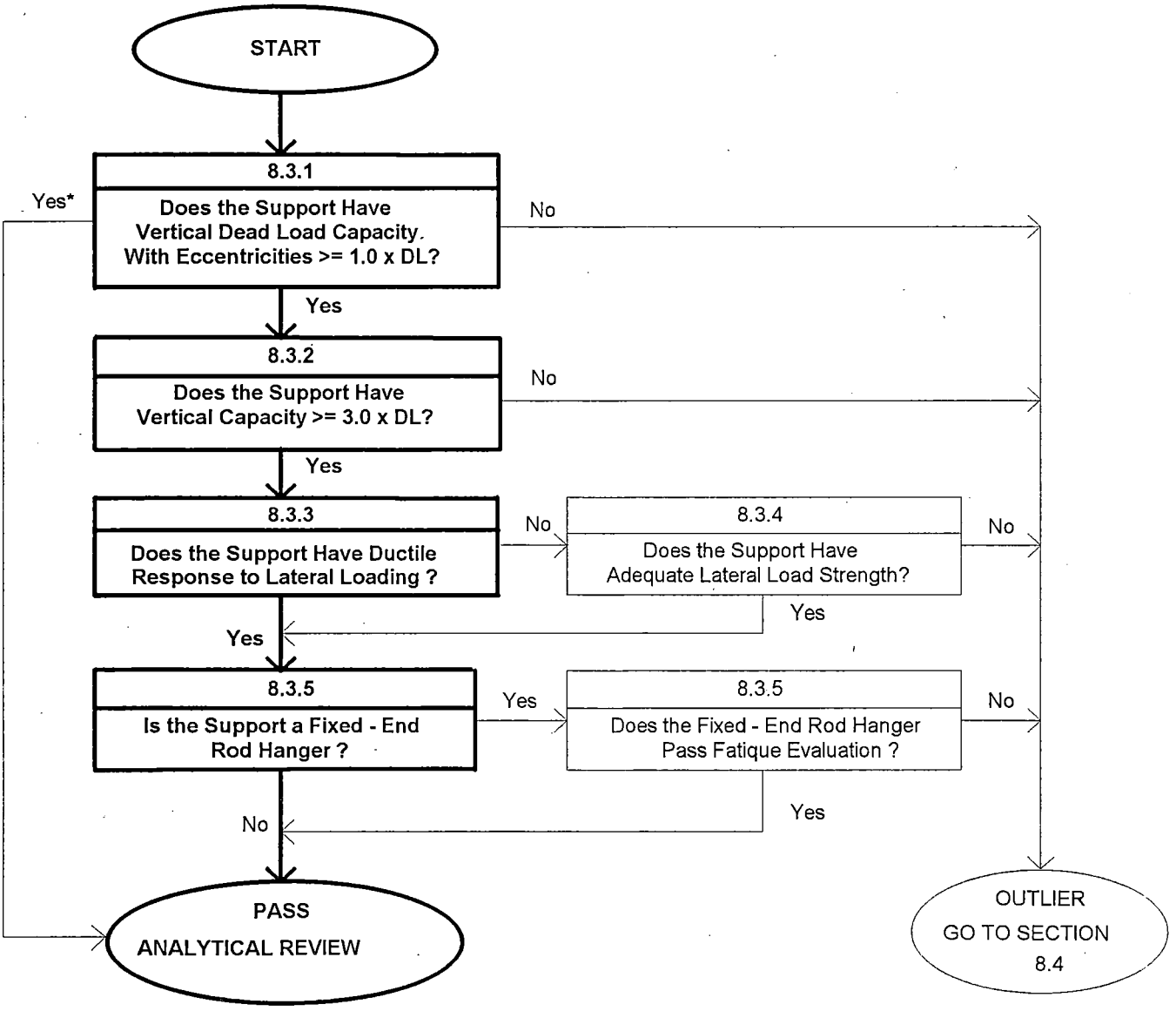
DL -	Dead Load
3DL -	3x Dead Load (Vertical Load Check)
LL -	Lateral Load Check
RF -	Rod Fatigue Check
NMF	Non-Meaningful Factor
	Outlier analytically resolved

LARs 002, 004 and 012 were resolved analytically by Limit State analysis as allowed by Section 8.4.8 of the GIP [2]. LARs 005 was resolved analytically via a Lateral Load Check as allowed by Section 8.4.8 of the GIP [2]. LAR 007 was resolved analytically by a Redundancy and Consequence Evaluation as allowed by Section 8.4.8 of the GIP [2].

7.6.2 Logic Diagrams for Cable Tray and Conduit Support Evaluations

Logic diagrams indicating the evaluation path taken to demonstrate the acceptance of each of the raceway supports are shown below. Note that the particular evaluation path taken for the support in question is defined in heavy outline.

LAR Nos. 001, 003, 004**, 006, and 009



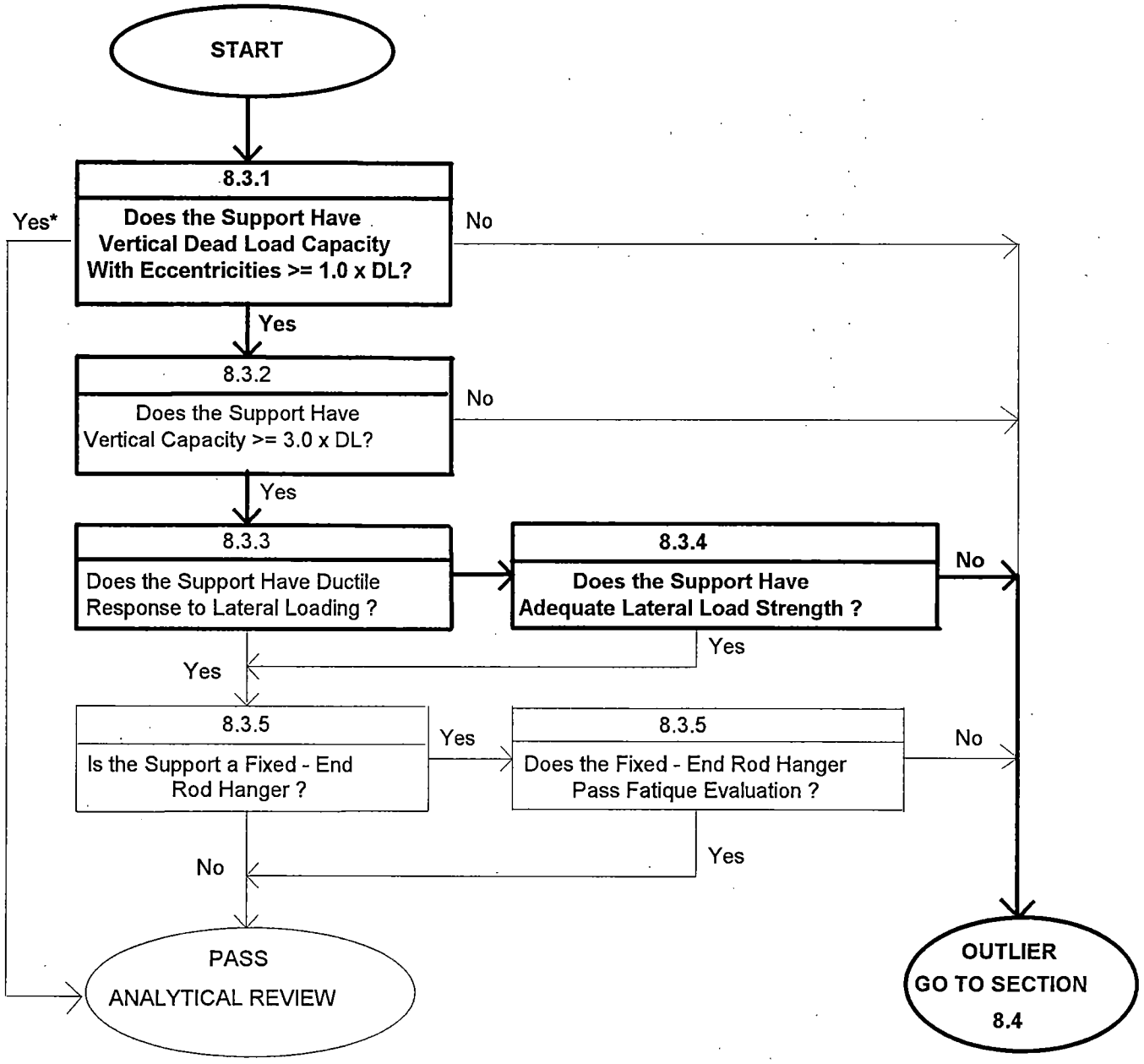
* (Directly mounted or rigidly cantilevered from structural wall)

**Version with shell anchorage only. See page 7-12 for version with embedded strut anchorage.

2.2 Logic Diagrams for Cable Tray and Conduit Support Evaluations (Cont.)

LAR Nos. 007, 012

Note: Evaluation path is defined in heavy outline.

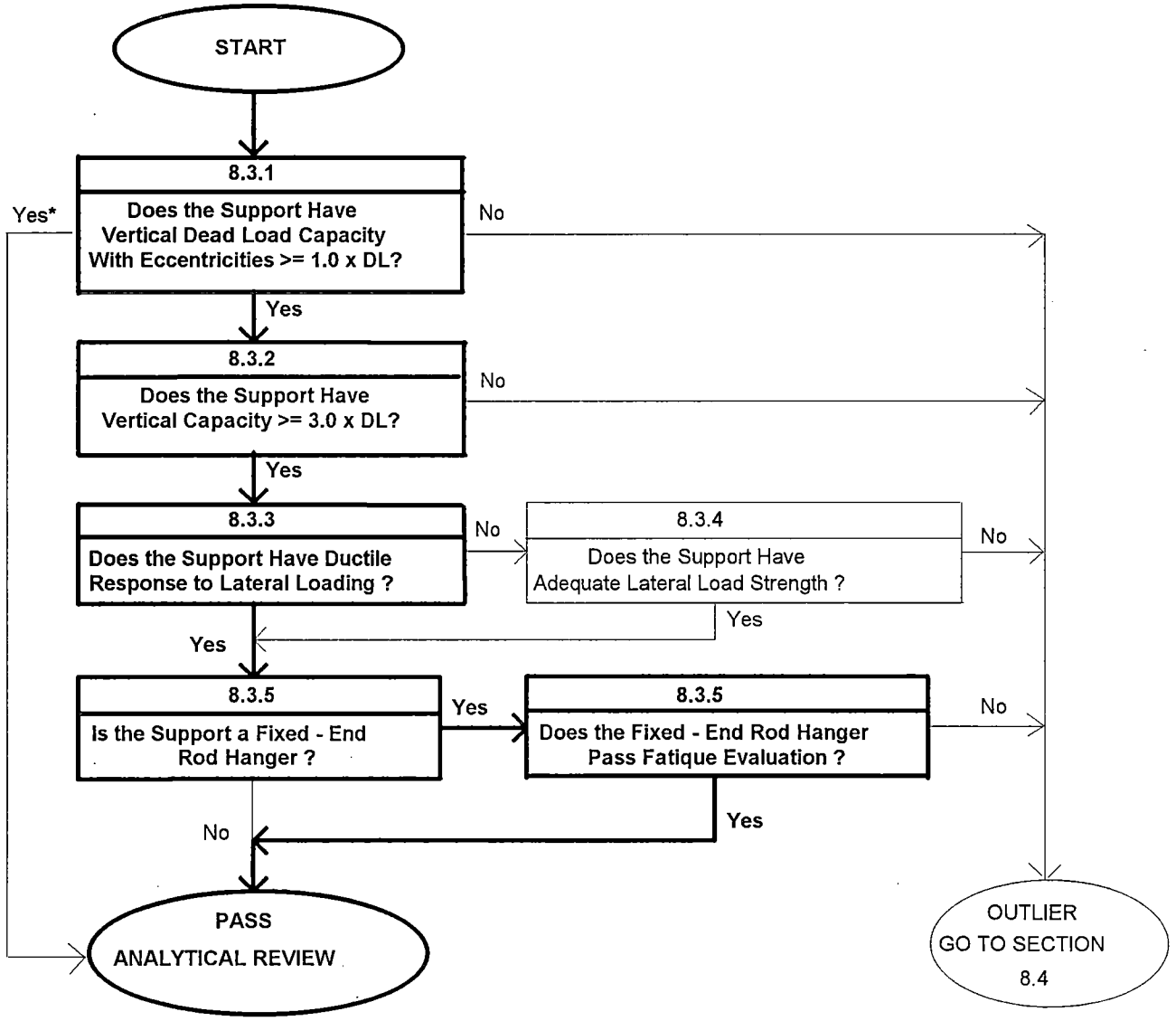


* (Directly mounted or rigidly cantilevered from structural wall)

2.2 Logic Diagrams for Cable Tray and Conduit Support Evaluations (Cont.)

LAR Nos. 008, 010

Note: Evaluation path is defined in heavy outline.

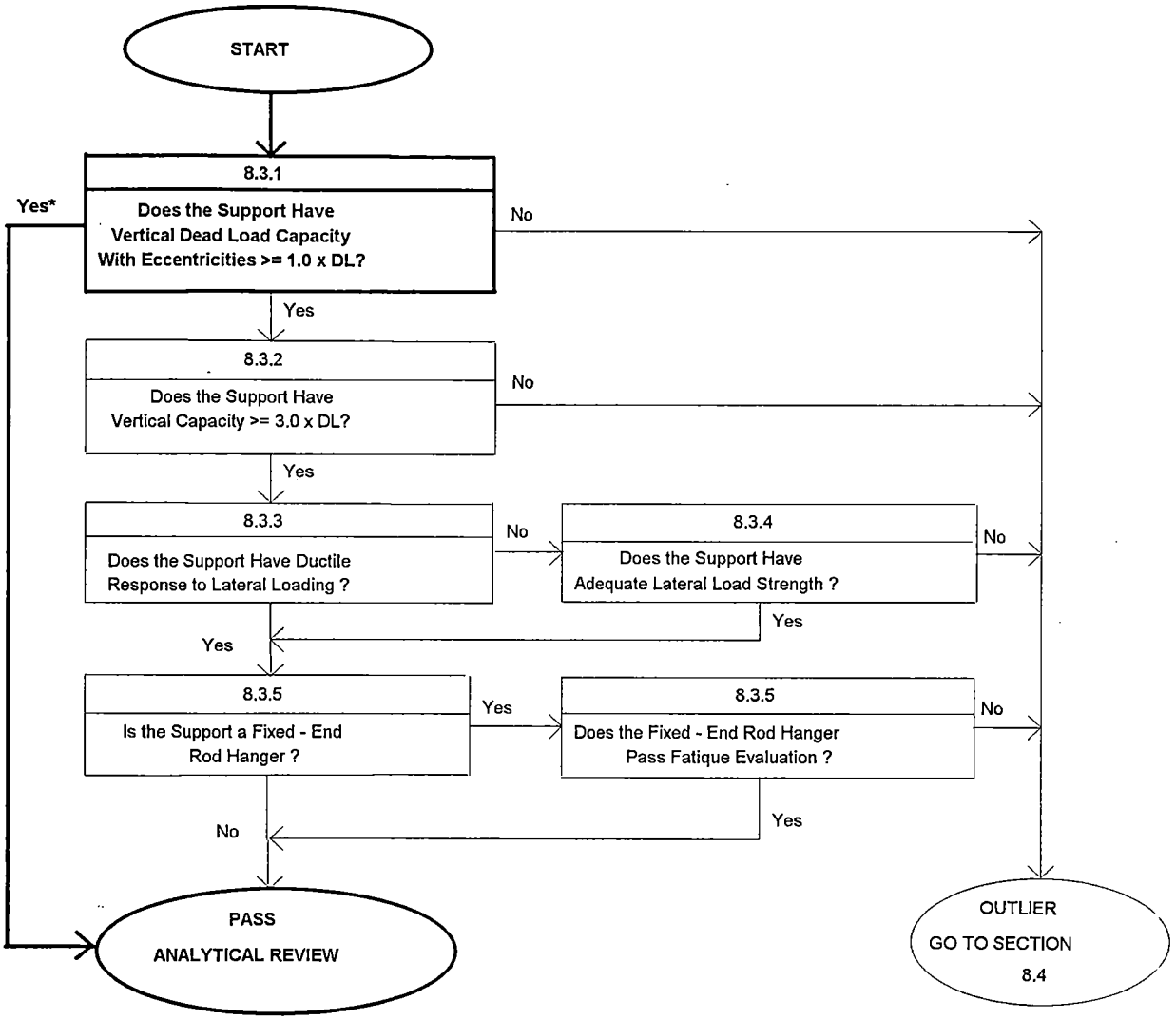


* (Directly mounted or rigidly cantilevered from structural wall)

2.2 Logic Diagrams for Cable Tray and Conduit Supports (Cont.)

LAR No. 011

Note: Evaluation path is defined in heavy outline.

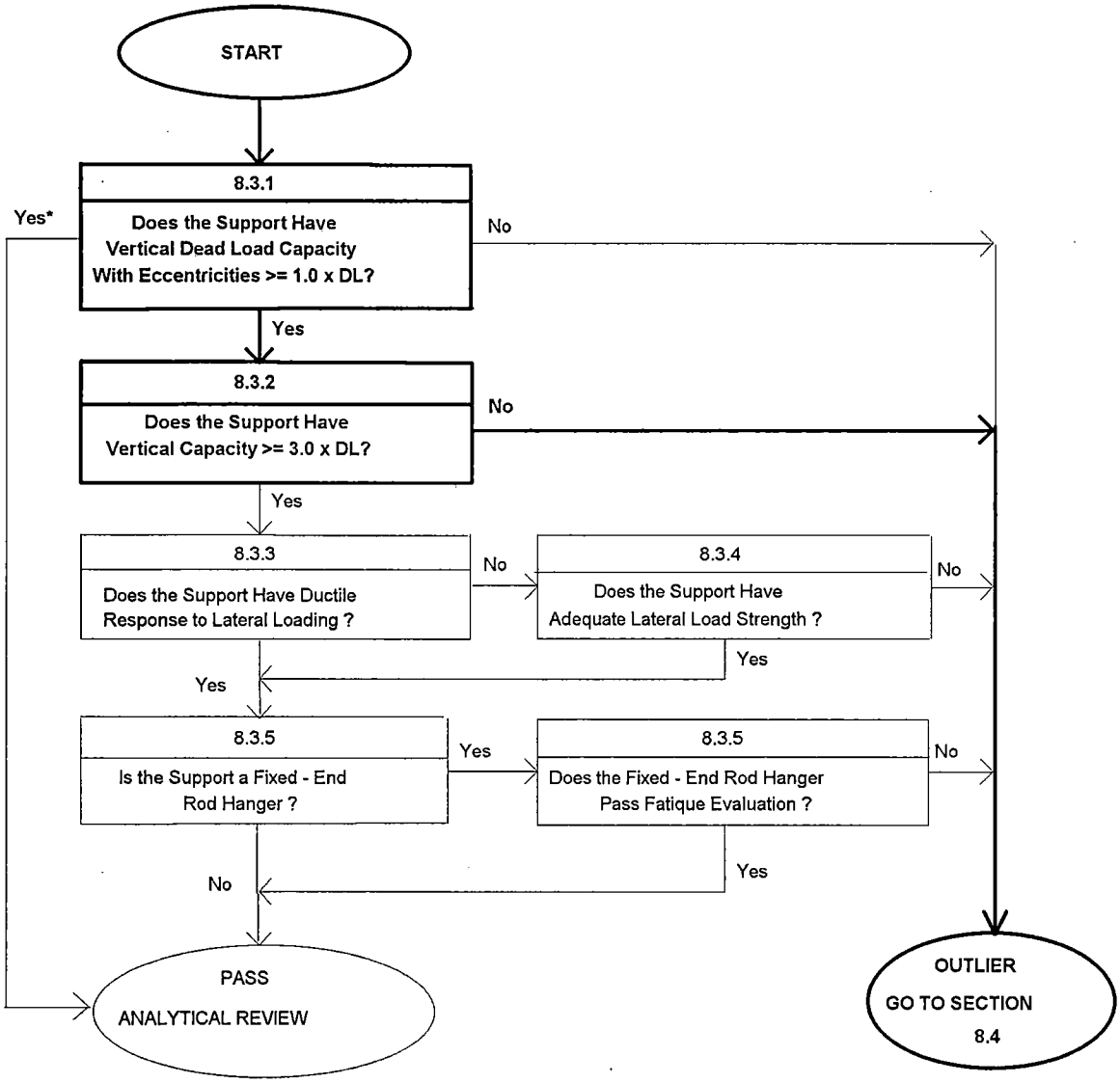


* (Directly mounted or rigidly cantilevered from structural wall)

2.2 Logic Diagrams for Cable Tray and Conduit Support Evaluations (Cont.)

LAR Nos. 002, 004**, 005

Note: Evaluation path is defined in heavy outline.



* (Directly mounted or rigidly cantilevered from structural wall).

** Version with embedded strut anchorage only. See page 7-8 for version with shell anchorage.

7.7 Conclusions

The cable tray and conduit supports, which have been chosen by the Seismic Review Team as representative, worst case examples of the raceway support configurations within the Palisades Nuclear Plant, are shown to meet the guidelines set forth in Section 8.3 of Reference 2 and are, therefore, judged to be seismically adequate.

8. Description of the Equipment Outliers

This section discusses the outliers identified during the USI A-46 walkdowns conducted at Palisades. The outliers are identified from the Twenty Classes of Equipment assessment discussed in Section 4, the Tanks & Heat Exchangers Review discussed in Section 6, and the Cable Tray & Conduit Raceway Review given in Section 7. Relay outliers are discussed in the USI A-46 Relay Evaluation Report for Palisades [6].

An outlier is an item of equipment which does not comply with all of the screening guidelines provided in the GIP. The GIP screening guidelines are intended to be used as a generic basis for evaluating the seismic adequacy of equipment. If an item of equipment fails to pass these generic screens, it may still be shown to be adequate by additional evaluations.

Section 9 provides a discussion of the disposition or corrective action, as appropriate, for each outlier discussed below.

8.1 Outliers Resolved Prior to Final A46 Walkdowns

Pre-walkdowns of a sampling of A46 equipment were conducted in October, 1992 and April, 1993 to collect data for the official walkdowns conducted in the latter half of 1993 and during 1994. During the pre-walkdowns, potential outliers were noted and two were subsequently resolved prior to the start of the official walkdowns and others were removed from the SSEL, thus given no further consideration. The potential outlier(s) listed below are not considered official outliers and OSVS sheets were not completed since the final walkdown teams inspected the equipment in their upgraded condition.

R1	CV-0781 Accumulator	Two of the nuts holding the accumulator tank for CV-0781 to the Unistrut frame were "turned"- that is, oriented such that the teeth of the nuts were not aligned with the strut. This was identified as a maintenance type outlier and has since been corrected by work order WO-24410925.
R2	EB-25	A potential interaction hazard - a hand operated hoist on rollers - was repositioned away from the load center. Carts and temporary equipment left in room are attached to the walls by chain to prevent rolling during a seismic event.

8.2 Generic Outlier Issues

Only one generic issue was identified during the final walkdowns that affected A46 equipment items in several plant areas. This generic issue is pertains to the possible use of leaded Cinch anchors. Some of the plant's documentation suggests some tanks, pumps and electrical equipment are anchored by leaded Cinch expansion anchors. The GIP states that expansion anchors should not generally be used for anchoring

vibratory equipment; however, in cases where they are subjected primarily to shear it is acceptable. It was shown that all of the pump anchorages are subjected only or primarily to shear loads. This anchorage was evaluated with the appropriate safety factors based on a test program administered by Savannah River [7]. They are also classified as "outliers" because leaded anchors are not covered by the GIP. All equipment for which the use of Cinch anchors are suspected will be subjected to bolt tightness checking to ensure the integrity of the anchorage installation itself.. The bolt tightness checking will be scheduled during a subsequent refueling outage to determine anchorage installation adequacy.

8.3 Equipment Specific Outliers Identified During the A46 Walkdowns

Outliers identified during the walkdowns are listed below. The proposed resolution of these outliers are discussed in Section 9.

TABLE 8-1
A-46 OUTLIER ISSUES

No.	ID	EQUIPMENT	OUTLIER ISSUES
P1	EB-01	480 VOLT MOTOR CONTROL CENTER	Conservative design floor response spectra exceeds 1.5 x bounding spectrum.
P2	EB-02	480 VOLT MOTOR CONTROL CENTER	Conservative design floor response spectra exceeds 1.5 x bounding spectrum.
P3	EA-13	2400 V BUS 1-E	a) Equipment is located in room 133 which has not been seismically qualified. b) Pending internal inspection, review of Block Wall and anchorage evaluation.
P4	EX-63	CONTROL ROD CLUTCH TRANSFORMER	Bolt tightness check has not been performed.
P5	EX-64	CONTROL ROD CLUTCH TRANSFORMER	Bolt tightness check has not been performed.
P6	P-54A	CONTAINMENT SPRAY PUMP	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P7	P-54B	CONTAINMENT SPRAY PUMP	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P8	P-54C	CONTAINMENT SPRAY PUMP	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P9	P-56A	BORIC ACID PUMP	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.

TABLE 8-1 (continued)
A-46 OUTLIER ISSUES

No.	ID	EQUIPMENT	OUTLIER ISSUES
P10	P-8C	MOTOR DRIVEN AUX FEED PUMP	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P11	P-7A	SERVICE WATER PUMP	1) Cantilever impeller shaft is longer than 20 feet (37 feet). 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P12	P-7B	SERVICE WATER PUMP	1) Cantilever impeller shaft is longer than 20 feet (Approx. 37 feet). 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P13	P-7C	SERVICE WATER PUMP	1) Cantilever impeller shaft is longer than 20 feet (Approx. 37 feet). 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P14	RV-1039	PRESS. RELIEF	Seismic demand, based on 2% of critical damping, exceeds 1.5xBS in the 2 HZ and 7 HZ regions of the spectrum by a significant amount. FRS based on 5% of critical damping is not available for use.
P15	RV-1040	PRESS. RELIEF	Seismic demand, based on 2% of critical damping, exceeds 1.5xBS in the 2 HZ and 7 HZ regions of the spectrum by a significant amount. FRS based on 5% of critical damping is not available for use.
P16	RV-1041	PRESS. RELIEF	Seismic demand, based on 2% of critical damping, exceeds 1.5xBS in the 2 HZ and 7 HZ regions of the spectrum by a significant amount. FRS based on 5% of critical damping is not available for use.
P17	MO-1042A	POWER RELIEF ISOL.	Seismic demand, based on 2% of critical damping, exceeds 1.5xBS in the 2 HZ and 7 HZ regions of the spectrum by a significant amount. FRS based on 5% of critical damping is not available for use.
P18	MO-1043A	POWER RELIEF ISOL.	Seismic demand, based on 2% of critical damping, exceeds 1.5xBS in the 2 HZ and 7 HZ regions of the spectrum by a significant amount. FRS based on 5% of critical damping is not available for use.
P19	PRV-1042B	POWER OPERATED RELIEF	Seismic demand, based on 2% of critical damping, exceeds 1.5xBS in the 2 HZ and 7 HZ regions of the spectrum by a significant amount. FRS based on 5% of critical damping is not available for use.
P20	PRV-1043B	POWER OPERATED RELIEF	Seismic demand, based on 2% of critical damping, exceeds 1.5xBS in the 2 HZ and 7 HZ regions of the spectrum by a significant amount. FRS based on 5% of critical damping is not available for use.
P21	ED-11A	125 V DC DISTRIBUTION PANEL	Bolt tightness check has not been performed.

TABLE 8-1 (continued)
A-46 OUTLIER ISSUES

No.	ID	EQUIPMENT	OUTLIER ISSUES
P22	ED-21A	125 V DC DISTRIBUTION PANEL	Bolt tightness check has not been performed.
P23	ED-01	MAIN STATION BATTERIES	1) Batteries are 13 years old. 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P24	ED-02	MAIN STATION BATTERIES	1) Batteries are 13 years old. 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.
P25	LS-0327	SIRW LOW LEVEL SWITCH	Conservative floor response spectra exceeds 1.5 x bounding spectrum.
P26	LS-0328	SIRW LOW LEVEL SWITCH	Conservative floor response spectra exceeds 1.5 x bounding spectrum.
P27	LS-0329	SIRW TANK LOW LEVEL SWITCH	Conservative floor response spectra exceeds 1.5 x bounding spectrum.
P28	LS-0330	SIRW TANK LOW LEVEL SWITCH	Conservative floor response spectra exceeds 1.5 x bounding spectrum.
P29	LT-2021	T-2 LEVEL TRANSMITTER	Box enclosure supports are rusted and will eventually become an interaction hazard for the device and its wiring if they are not replaced..
P30	LT-2022	T-2 LEVEL TRANSMITTER	Box enclosure supports are rusted and will eventually become an interaction hazard for the device and its wiring if they are not replaced..
P31	EC-150	AUX. HOT SHUTDOWN PANEL	Bolt tightness check has not been performed.
P32	EC-180	E-50A ISOLATION SOLENOIDS	Equipment is located in room 247 which has not been seismically qualified.
P33	EC-182	ATMOSPHERIC STEAM DUMP PA	Bolt tightness check has not been performed.
P34	EC-32	NSSS SAMPLE HOOD	Anchored with 4 1/4" anchors. Base steel on large shims which will induce bolt bending. Anchors appear to be corroded. Outlier - needs to be reanchored.
P35	EJ-44	DIESEL FUEL TRANSFER	Mounted to unqualified (non-modified) block wall.
P36	EJ-79	DIESEL FUEL DAY TANKS	a) Located in block wall structure with no seismic design. b) Equipment is located in room 707 which has not been seismically qualified.
P37	EJ-9400	BUS 1-C UNDER VOLTAGE RELAYS	Bolt tightness check has not been performed.
P38	EJ-9401	BUS 1-D UNDERVOLTAGE RELAYS	Bolt tightness check has not been performed.
P39	EJL-258	ED-01 FUSE BOX	Bolt tightness check has not been performed.
P40	EJL-423	72-01 BREAKER BOX	Bolt tightness check has not been performed.
P41	E-54A	CCW HEAT EXCHANGER	J bolt embedment is less than 16 x bolt diameter and analysis of its support structure has not been performed.
P42	E-54B	CCW HEAT EXCHANGER	J bolt embedment is less than 16 x bolt diameter and analysis of its support structure has not been performed.
P43	E-60A	SHUTDOWN COOLING HX	Bolt capacity is less than the demand.

TABLE 8-1 (continued)
A-46 OUTLIER ISSUES

No.	ID	EQUIPMENT	OUTLIER ISSUES
P44	E-60B	SHUTDOWN COOLING HX	Bolt capacity is less than the demand.
P45	T-13A	JACKET WATER SURGE TANK	Strapped on wall bracket. No apparent longitudinal load path.
P46	T-13B	JACKET WATER SURGE TANK	Strapped on wall bracket. No apparent longitudinal load path.
P47	T-2	CONDENSATE STORAGE TANK	A ring-type foundation is used to support a large, flat-bottom, vertical tank.
P48	T-53A	BORIC ACID TANK	Bolt capacity is less than the demand. Outlier can be resolved if documentation is provided to state the grout used is of non-shrink type and new RG 1.60 FRS are used instead of original design basis..
P49	T-53B	BORIC ACID TANK	Bolt capacity is less than the demand. Outlier can be resolved if documentation is provided to state the grout used is of non-shrink type and new RG 1.60 FRS are used instead of original design basis..
P50	T-58	SIRW TANK	Tank anchorage is inadequately documented.
P51	Electrical Raceways Bus 1C Rm	Bus 1C Room (Room 116A)	Support version with embedded strut anchorage fails 3xDL Check. Support qualified via a Limit State Evaluation included in LAR 004.
P52	Electrical Raceways Bus 1D Rm	Bus 1D Room - Aux 607 Room 223	Support anchorage fails 3xDL Check. Support qualified via a Lateral Load Check included in LAR 005.
P53	Electrical Raceways Spreading Rm	Cable Spreading Room - Aux 607 Room 224	Type 1 support anchorage fails 3xDL Check. Support qualified via a Limit State Evaluation included in LAR 002.
P54	Electrical Raceways Penetration	North Electrical Penetration, Aux 625, Room 332	Support anchorage fails the Lateral Load Check considering relative seismic building displacement. Support is qualified via a Redundancy and Consequence Evaluation included in LAR 007.
P55	T-10	Diesel Fuel Oil Storage Tank	Tank is buried (secured by buoyancy straps) and is not covered by Section 7 of the GIP [2].
P56	T-31D	Diesel Air Start Tank	One anchor has a 1/2" gap (due to unlevel concrete pad) which exceeds the 1/4" allowance in GIP.
P57	RV-2006	E-58 Inlet Relief Valve	Not walked down
P58	RV-3161	Drain to Quench Tank Valve	Not walked down
P59	RV-3162	Low Press. SI Relief Valve	Not walked down
P60	RV-3165	High Press. SI Relief Valve	Not walked down
P61	RV-0401	Shutdwn Cool'g Relief Valve	Not walked down
P62	RV-0402	Shtdwn Cool'g E-60A Valve	Not walked down
P63	RV-0403	Shtdwn Cool'g E-60B Valve	Not walked down
P64	RV-3164	Shutdwn Cool'g Relief Valve	Not walked down

9. Resolution of Outliers

All outliers discussed in Section 8 are shown in the following Table with completed, in-progress or proposed resolutions along with an estimated completion schedule if appropriate.

TABLE 9-1
A-46 OUTLIER ISSUES AND PROPOSED RESOLUTION

No.	ID	OUTLIER ISSUES	PROPOSED RESOLUTION
A1	EB-01	Conservative design floor response spectra exceeds 1.5 x bounding spectrum.	Evaluate load center for design basis loads.
A2	EB-02	Conservative design floor response spectra exceeds 1.5 x bounding spectrum.	Evaluate load center for design basis loads.
A3	EA-13	a) Equipment is located in room 133 which has not been seismically qualified. b) Pending internal inspection, review of Block Wall and anchorage evaluation.	Evaluate impact on system operation and modify if necessary
A4	EX-63	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A5	EX-64	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A6	P-54A	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage
A7	P-54B	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage
A8	P-54C	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage
A9	P-56A	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage

TABLE 9-1 (continued)
A-46 OUTLIER ISSUES AND PROPOSED RESOLUTION

No.	ID	OUTLIER ISSUES	
A10	P-8C	Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage
A11	P-7A	1) Cantilever impeller shaft is longer than 20 feet (37 feet). 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage
A12	P-7B	1) Cantilever impeller shaft is longer than 20 feet (Approx. 37 feet). 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage
A13	P-7C	1) Cantilever impeller shaft is longer than 20 feet (Approx. 37 feet). 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Analysis using Ref. 7 data shows anchorage adequate pending bolt tightness checking which is scheduled for subsequent outage
A14	RV-1039	Conservative design floor response spectra exceeds 1.5 x bounding spectrum	Evaluate using new RG 1.60 spectra based on soil-structure interaction for piping for comparison of demand vs. capacity.
A15	RV-1040	Conservative design floor response spectra exceeds 1.5 x bounding spectrum	Evaluate using new RG 1.60 spectra based on soil-structure interaction for piping for comparison of demand vs. capacity.
A16	RV-1041	Conservative design floor response spectra exceeds 1.5 x bounding spectrum	Evaluate using new RG 1.60 spectra based on soil-structure interaction for piping for comparison of demand vs. capacity.
A17	MO-1042A	Conservative design floor response spectra exceeds 1.5 x bounding spectrum	Evaluate using new RG 1.60 spectra based on soil-structure interaction for piping for comparison of demand vs. capacity.
A18	MO-1043A	Conservative design floor response spectra exceeds 1.5 x bounding spectrum	Evaluate using new RG 1.60 spectra based on soil-structure interaction for piping for comparison of demand vs. capacity.
A19	PRV-1042B	Conservative design floor response spectra exceeds 1.5 x bounding spectrum	Evaluate using new RG 1.60 spectra based on soil-structure interaction for piping for comparison of demand vs. capacity.
A20	PRV-1043B	Conservative design floor response spectra exceeds 1.5 x bounding spectrum	Evaluate using new RG 1.60 spectra based on soil-structure interaction for piping for comparison of demand vs. capacity.
A21	ED-11A	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.

TABLE 9-1 (continued)
A-46 OUTLIER ISSUES AND PROPOSED RESOLUTION

No.	ID	OUTLIER ISSUES	
A22	ED-21A	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A23	ED-01	1) Batteries are 13 years old. 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Batteries will be evaluated and replaced if necessary in a subsequent outage.
A24	ED-02	1) Batteries are 13 years old. 2) Bolt type is not covered by the GIP - Cinch Anchor and bolt tightness check has not been performed.	Batteries will be evaluated and replaced if necessary in a subsequent outage.
A25	LS-0327	Conservative floor response spectra exceeds 1.5 x bounding spectrum.	Evaluate using new RG 1.60 spectra based on soil-structure interaction for comparison of demand vs. capacity.
A26	LS-0328	Conservative floor response spectra exceeds 1.5 x bounding spectrum.	Evaluate using new RG 1.60 spectra based on soil-structure interaction for comparison of demand vs. capacity.
A27	LS-0329	Conservative floor response spectra exceeds 1.5 x bounding spectrum.	Evaluate using new RG 1.60 spectra based on soil-structure interaction for comparison of demand vs. capacity.
A28	LS-0330	Conservative floor response spectra exceeds 1.5 x bounding spectrum.	Evaluate using new RG 1.60 spectra based on soil-structure interaction for comparison of demand vs. capacity.
A29	LT-2021	Box enclosure supports are rusted and will eventually become an interaction hazard for the device and its wiring if they are not replaced..	Box enclosure and supports will be corrected in a subsequent outage.
A30	LT-2022	Box enclosure supports are rusted and will eventually become an interaction hazard for the device and its wiring if they are not replaced..	Box enclosure and supports will be corrected in a subsequent outage.
A31	EC-150	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A32	EC-180	Equipment is located in room 247 which has not been seismically qualified.	Evaluate impact on system operation and relocate if necessary
A33	EC-182	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A34	EC-32	Anchored with 4 1/4" anchors. Base steel on large shims which will induce bolt bending. Anchors appear to be corroded. Needs to be reanchored.	Cabinet will be evaluated to determine extent of necessary modifications.
A35	EJ-44	Mounted to unqualified (non-modified) block wall.	Evaluate impact on system operation and relocate if necessary
A36	EJ-79	a) Located in block wall structure with no seismic design. b) Equipment is located in room 707 which has not been seismically qualified.	Evaluate impact on system operation and relocate if necessary
A37	EJ-9400	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A38	EJ-9401	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.

TABLE 9-1 (continued)
A-46 OUTLIER ISSUES AND PROPOSED RESOLUTION

No.	ID	OUTLIER ISSUES	
A39	EJL-258	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A40	EJL-423	Bolt tightness check has not been performed.	Perform bolt tightness check during a subsequent outage.
A41	E-54A	J bolt embedment is less than 16 x bolt diameter and analysis of its support structure has not been performed.	Perform analysis using ACI 349 App. B anchorage allowables for embedded anchors & RG 1.60
A42	E-54B	J bolt embedment is less than 16 x bolt diameter and analysis of its support structure has not been performed.	Perform analysis using ACI 349 App. B anchorage allowables for embedded anchors & RG 1.60
A43	E-60A	Bolt capacity is less than the demand.	Evaluate using new RG 1.60 spectra based on soil-structure interaction for comparison of demand vs. capacity.
A44	E-60B	Bolt capacity is less than the demand.	Evaluate using new RG 1.60 spectra based on soil-structure interaction for comparison of demand vs. capacity.
A45	T-13A	Strapped on wall bracket. No apparent longitudinal load path.	Tighten U-bolts to ensure "snug" tension in straps and evaluate anchorage ??.
A46	T-13B	Strapped on wall bracket. No apparent longitudinal load path.	Tighten U-bolts to ensure "snug" tension in straps and evaluate anchorage ??.
A47	T-2	A ring-type foundation is used to support a large, flat-bottom, vertical tank.	Resolved - shown to meet design basis by CPCo Calc. EA-0007899-T2
A48	T-53A	Bolt capacity is less than the demand. Outlier can be resolved if the safety factor of 10 is reduced due to documented use of expansive or non-shrink grout.	Show that grout is expansive or non-shrink type so cast-in-place tensile allowable can be justified using new RG 1.60 FRS
A49	T-53B	Bolt capacity is less than the demand. Outlier can be resolved if the safety factor of 10 is reduced due to documented use of expansive or non-shrink grout.	Show that grout is expansive or non-shrink type so cast-in-place tensile allowable can be justified using new RG 1.60 FRS
A50	T-58	Tank anchorage details inadequately documented.	Resolved - shown to meet design basis by CPCo Calc. EA-0007899-T58??
A51	T-10	Tank is buried tank secured by buoyancy straps.	Resolved - shown to meet design basis by CPCo Calc. EA-0007899-T10
A52	T-31D	One anchor has a 1/2" gap which exceeds the 1/4" gap allowance in GIP.	Resolved - shown to meet design basis by completely discounting (ignoring) gapped anchor.
A53	Electrical Raceways Bus 1C Rm	Support version with embedded strut anchorage fails 3xDL Check. Support qualified via a Limit State Evaluation included in LAR 004.	Evaluated by Limit State analysis (Section 8.4.8 of GIP) and shown acceptable for design basis loads.

TABLE 9-1 (continued)
A-46 OUTLIER ISSUES AND PROPOSED RESOLUTION

No.	ID	OUTLIER ISSUES	
A54	Electrical Raceways Bus 1D Rm	Support anchorage fails 3xDL Check. Support qualified via a Lateral Load Check included in LAR 005.	Evaluated by Lateral Load analysis (Section 8.4 of GIP) and shown acceptable for design basis loads.
A55	Electrical Raceways Spreading Rm	Type 1 support anchorage fails 3xDL Check. Support qualified via a Limit State Evaluation included in LAR 002.	Evaluated by Limit State analysis (Section 8.4.8 of GIP) and shown acceptable for design basis loads.
A56	Electrical Raceways Penetration	Support anchorage fails the Lateral Load Check considering relative seismic building displacement. Support is qualified via a Redundancy and Consequence Evaluation included in LAR 007.	Evaluated by Redundancy & Consequence analysis (Section 8.4.8 of GIP) and shown acceptable for design basis loads.
A57	RV-2006	Not walked down	Perform walkdown during a subsequent outage.
A58	RV-3161	Not walked down	Perform walkdown during a subsequent outage.
A59	RV-3162	Not walked down	Perform walkdown during a subsequent outage.
A60	RV-3165	Not walked down	Perform walkdown during a subsequent outage.
A61	RV-0401	Not walked down	Perform walkdown during a subsequent outage.
A62	RV-0402	Not walked down	Perform walkdown during a subsequent outage.
A63	RV-0403	Not walked down	Perform walkdown during a subsequent outage.
A64	RV-3164	Not walked down	Perform walkdown during a subsequent outage.

10. References

1. Generic Letter 87-02, "Verification of Seismic Adequacy of Mechanical and Electrical Equipment in Operating reactors, Unresolved safety issue (USI) A-46", USNRC, Washington, D.C., February 19,1987.
2. "Generic Implementation Procedure (GIP), for Seismic Verification of Nuclear Plant Equipment", Revision 2, Corrected, 2/14/92, Seismic Qualification Utility Group.
3. "Supplemental Safety Evaluation Report No. 2 (SSER #2) on GIP-2", USNRC, Washington, D.C., May 22, 1992.
4. USI A-40 "Seismic Design Criteria Short-Term Program", USNRC, Washington, D.C.
5. USI A-17 "Systems Interactions In Nuclear Power Plants" USNRC, Washington, D.C.
6. Consumers Power Company, Palisades Nuclear Plant - USI A-46 Relay Evaluation Report for Palisades", May, 1995, Covert, Michigan.
7. Lead Expansion Anchor Load Capacity in Reactor Buildings at the Savannah River Site, E. L. Bryant, Westinghouse Savannah River Company, RTR-2661, August 15, 1989.
8. Technical Spec 175 (Q), Revision 4, Consumers Power Company, Palisades Plant, Covert, Michigan.
9. SPECTRA Software Package, Stevenson & Associates, Version 2, November, 1992.
10. CPCO letter response to GL 87-02, "Response to Supplement 1 to Generic Letter 87-02 on SQUG Resolution of USI A-46", GB Slade (CPCo) to USNRC, September 21, 1992.
11. "Cable and Conduit Raceway Limited Analytical Review (LAR) for USI A-46 at Palisades Nuclear Plant" Calc. C-009, Rev.0, 3/24/95, 92C2750 by Stevenson and Associates.
12. SQUG Letter from N.P. Smith, SQUG Chairman to J.G. Partlow of USNRC, *Subject: Revision 2A to the Generic Implementation Procedure*, dated March 26, 1993.
13. SSRAP Report, "Use of Seismic Experience Data to Show Ruggedness of Equipment in Nuclear Power Plants," Senior Seismic Review and Advisory Panel, Revision 4.0, February 28, 1991.
14. Consumers Power Company, Palisades Nuclear Plant - Drawings. (Dwg. numbers are specified where referenced).
15. EPRI Report NP-5228-SL, "Seismic Verification of Nuclear Plant Equipment Anchorage (Revision 1)." Electric Power Research Institute, Palo Alto, CA, prepared by URS/John A. Blume & Associates, Engineers, June, 1991.
16. ACI 318-83, "Building Code Requirements for Reinforced Concrete", American Concrete Institute, 1983.
17. EPRI Report NP-6041-SL, "A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1).", Electric Power Research Institute, Palo Alto, CA, prepared by JR Benjamin Associates et. al., August, 1991.
18. EPRI Report NP-7146, "Development of In-Cabinet Amplified Response Spectra for Electrical Panels and Benchboards." Revision 0, Electric Power Research Institute, Palo Alto, CA, prepared by Stevenson & Associates, December, 1990.

19. "Palisades RG 1.60 Floor and Piping Response Spectra with SSI" Calc. C-008, Rev.1, 10/21/94, 92C2750 by Stevenson and Associates.
20. Peer Review Letter: RP Kennedy & JD Stevenson to Consumers Power Company, May 12, 1995.

CONSUMERS POWER

PALISADES NUCLEAR PLANT

APPENDIX A

SAFE SHUTDOWN EQUIPMENT LIST (SSSL)
(SEISMIC)

(25 pages)

SAFE SHUTDOWN EQUIPMENT LIST (SSSL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
1	RRC	1	1	42-1/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
2	RRC	2	1	42-1/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
3	RRC	1	1	42-2/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
4	RRC	2	1	42-2/RPS	CONTROL ROD CLUTCH BREAKER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
5	DHR	1	0	ACCUM-0779	CV-0779 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
6	DHR	2	0	ACCUM-0779	CV-0779 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
7	DHR	1	0	ACCUM-0780	CV-0780 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
8	DHR	2	0	ACCUM-0780	CV-0780 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
9	DHR	1	0	ACCUM-0781	CV-0781 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
10	DHR	2	0	ACCUM-0781	CV-0781 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
11	DHR	1	0	ACCUM-0782	CV-0782 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
12	DHR	2	0	ACCUM-0782	CV-0782 ACCUMULATOR	M-207-1	AB	625	338	S	N/A	N/A	N/A	NO	N/A	N/A
13	DHR	1	0	ACCUM-MSIV1	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
14	DHR	2	0	ACCUM-MSIV1	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
15	DHR	1	0	ACCUM-MSIV2	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
16	DHR	2	0	ACCUM-MSIV2	CV-0510 & CV-0501 ACCUMULATOR	M-205-1	AB	607	238	S	N/A	N/A	N/A	NO	N/A	N/A
17	EPD	2	0	ASM-1A	AIR STARTING MOTOR	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
18	EPD	2	0	ASM-1B	AIR STARTING MOTOR	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
19	EPD	1	0	ASM-2A	AIR STARTING MOTOR	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	N/A
20	EPD	1	0	ASM-2B	AIR STARTING MOTOR	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	N/A
21	HVAC	2	10	BD-1	HVAC BALANCING DAMP.	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
22	HVAC	1	10	BD-10	CONTROL RM. BALANCING DAMP.	M-218-6	AB	625	325	S	N/A	OPEN	OPEN	NO	N/A	N/A
23	HVAC	2	10	BD-10	CONTROL RM. BALANCING DAMP.	M-218-6	AB	625	325	S	N/A	OPEN	OPEN	NO	N/A	N/A
24	HVAC	1	10	BD-2	HVAC BALANCING DAMPER	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
25	HVAC	2	10	BD-5	HVAC BALANCING DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
26	HVAC	1	10	BD-6	HVAC BALANCING DAMPER	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
27	HVAC	2	10	BD-7	HVAC BALANCING DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
28	HVAC	1	10	BD-8	HVAC BALANCING DAMPER	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
29	HVAC	1	10	CD-41	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
30	HVAC	2	10	CD-41	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	D E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
31	HVAC	1	10	CD-42	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
32	HVAC	2	10	CD-42	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
33	HVAC	1	10	CD-43	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
34	HVAC	2	10	CD-43	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
35	HVAC	1	10	CD-44	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
36	HVAC	2	10	CD-44	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
37	HVAC	1	10	CD-45	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
38	HVAC	2	10	CD-45	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
39	HVAC	1	10	CD-46	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
40	HVAC	2	10	CD-46	V-95 & V-96 FIRE DAMPER	M-218-6	AB	625	320A	S	N/A	OPEN	OPEN	NO	N/A	N/A
41	HVAC	1	10	CD-47	V-26B FIRE DAMPER	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
42	HVAC	2	10	CD-47	V-26B FIRE DAMPER	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
43	HVAC	1	10	CD-48	V-26A FIRE DAMPER	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
44	HVAC	2	10	CD-48	V-26A FIRE DAMPER	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
45	HVAC	2	10	CD-49	V-95 FIRE DAMPER RETURN	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
46	HVAC	1	10	CD-50	V-95 FIRE DAMPER RETURN	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
47	HVAC	2	10	CD-50	V-95 FIRE DAMPER RETURN	M-218-6	AB	625	300	S	28	OPEN	OPEN	NO	N/A	N/A
48	HVAC	1	10	CD-51	V-96 FIRE DAMPER RETURN	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
49	HVAC	1	10	CD-52	V-96 FIRE DAMPER RETURN	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
50	HVAC	2	10	CD-52	V-96 FIRE DAMPER RETURN	M-218-6	AB	625	300A	S	28	OPEN	OPEN	NO	N/A	N/A
51	RCPC	1	7	CK-CVC2112	LOOP 1A RELIEF CHK.	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
52	RCPC	2	7	CK-CVC2112	LOOP 1A RELIEF CHK.	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
53	DHR	1	7	CV-0501	MAIN STEAM ISOLATION E-50B	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0502;SV-0514
54	DHR	2	7	CV-0501	MAIN STEAM ISOLATION E-50B	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0505B;SV-0507B
55	DHR	1	7	CV-0510	MAIN STEAM ISOLATION E-50A	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0508;SV-0513
56	DHR	2	7	CV-0510	MAIN STEAM ISOLATION E-50A	M-205-1	AB	607	238	S	20	OPEN	CLOSED	YES	E-238 SH. 1,1A	SV-0505A;SV-0507A
57	DHR	2	7	CV-0727	E-50B FLOW FROM P-8A & P-8B	M-207-2	AB	590	123	S	19	CLOSED	OP/CL	YES	E-79 SH.3A&B	I/P-0727
58	DHR	1	7	CV-0736A	E-50B FLOW CONTROL	M-207-2	AB	570	005	S	19	CLOSED	OPEN	NO	N/A	I/P-0736A
59	DHR	1	7	CV-0737A	E-50A FLOW CONTROL	M-207-2	AB	570	005	S	19	CLOSED	OPEN	NO	N/A	I/P-0737A
60	DHR	2	7	CV-0749	E-50A FROM P-8A&P-8B	M-207-2	AB	590	123	S	19	CLOSED	OP/CL	YES	E-79 SH.3A,3B	I/P-0749
61	DHR	1	7	CV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	SV-0767;OPERATOR

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
62	DHR	2	7	CV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	ACTION SV-0767;OPERATOR ACTION
63	DHR	1	7	CV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	SV-0768;OPERATOR ACTION
64	DHR	2	7	CV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S	31	OPEN	CLOSED	NO	N/A	SV-0768;OPERATOR ACTION
65	DHR	2	7	CV-0779	S/G E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0779A;SV-0779B;SV-0779C
66	DHR	1	7	CV-0780	STEAM GEN E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0780A;SV-0780B;SV-0780C
67	DHR	2	7	CV-0781	STEAM GEN E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0781A;SV-0781B;SV-0781C
68	DHR	1	7	CV-0782	S/G E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338	S	19	CLOSED	OP/CL	YES	E-238 SH.1A,2	SV-0782A;SV-0782B;SV-0782C
69	DHR	1	7	CV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
70	DHR	2	7	CV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
71	DHR	1	7	CV-0822	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
72	DHR	2	7	CV-0822	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S	19	OPEN	CLOSED	NO	N/A	SV-0821
73	DHR	1	7	CV-0847	AIR COOLERS SWS SUPPLY	M-208-1B	AB	607	238	S	25	OPEN	CLOSED	NO	N/A	SV-0847;OPERATOR ACTION
74	DHR	2	7	CV-0847	AIR COOLERS SWS SUPPLY	M-208-1B	AB	607	238	S	25	OPEN	CLOSED	YES	E-219 SH.1,2	SV-0847;OPERATOR ACTION
75	DHR	1	7	CV-0884	K-6A SERVICE WATER	M-208-1A	AB	590	116	S	19	CLOSED	OPEN	NO	N/A	SV-0884A;SV-0884B
76	DHR	2	7	CV-0884	K-6A SERVICE WATER	M-208-1A	AB	590	116	S	19	CLOSED	OPEN	NO	N/A	SV-0884A;SV-0884B
77	DHR	1	7	CV-0885	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S	19	CLOSED	OPEN	NO	N/A	SV-0885A;SV-0885B
78	DHR	2	7	CV-0885	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S	19	CLOSED	OPEN	NO	N/A	SV-0885A;SV-0885B
79	DHR	1	7	CV-1359	NON CRITICAL S.W. ISOLATION	M-213	TB	590	136	S	26	OPEN	CLOSED	NO	N/A	SV-1359;OPERATOR ACTION
80	DHR	2	7	CV-1359	NON CRITICAL S.W. ISOLATION	M-213	TB	590	136	S	26	OPEN	CLOSED	NO	N/A	SV-1359;OPERATOR ACTION

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
81	DHR	2	7	CV-1655	VC-11 SERVICE WATER CONTROL	M-208-1B	AB	625	300	S	17	OPEN	OP/CL	NO	N/A	I/P-1655;OPERATOR ACTION
82	DHR	1	7	CV-1656	VC-10 SERVICE WATER CONTROL	M-208-1B	AB	625	300A	S	17	OPEN	OP/CL	NO	N/A	I/P-1656;OPERATOR ACTION
83	RCPC	1	7	CV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S	35	OPEN	CLOSED	NO	N/A	SV-2003
84	RCPC	2	7	CV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S	35	OPEN	CLOSED	NO	N/A	SV-2003
85	HVAC	1	10	D-10	V-96 RECIRC. DAMPER	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
86	HVAC	1	10	D-11	V-96 DISC. DAMPER	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
87	HVAC	2	10	D-11	V-96 DISC. DAMPER	M-218-6	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
88	HVAC	1	10	D-12	V-26B DISC. DAMPER	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
89	HVAC	1	10	D-13	V-26B RECIRC. DAMP.	M-218-6A	AB	625	300A	S	N/A	CLOSED	OPEN	NO	N/A	N/A
90	HVAC	1	10	D-14	V-26B OUTSIDE AIR DAMP.	M-218-6A	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
91	HVAC	1	10	D-16	V-94 DAMPER	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
92	HVAC	2	10	D-16	V-94 DAMPER	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
93	HVAC	2	10	D-2	V-95 MODULATING DAMP.	M-218-6	AB	625	300	S	N/A	OPEN	CLOSED	NO	N/A	N/A
94	HVAC	2	10	D-20	V-26A MODULATING DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
95	HVAC	1	10	D-21	V-26B MODULATING DAMP.	M-218-6A	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
96	DGV	1	10	D-22	DG 1-2 RM EXHAUST DAMPER	M-218-5	AB	590	116B	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
97	DGV	2	10	D-23	DG 1-1 RM EXHAUST DAMPER	M-218-5	AB	590	116	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
98	DGV	1	10	D-24	DG 1-2 RM INLET DAMPER	M-218-5	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
99	DGV	2	10	D-25	DG 1-1 RM INLET DAMPER	M-218-5	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
100	DGV	2	10	D-26	V-24A GRAVITY DAMPER	M-218-5	AB	590	116	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
101	DGV	2	10	D-27	V-24B GRAVITY DAMPER	M-218-5	AB	590	116	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
102	DGV	1	10	D-28	V-24C GRAVITY DAMPER	M-218-5	AB	590	116B	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
103	DGV	1	10	D-29	V-24D GRAVITY DAMPER	M-218-5	AB	590	116B	S	N/A	OP/CL	OP/CL	NO	N/A	N/A
104	HVAC	2	10	D-3	V-95 RECIRC. DAMP.	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
105	HVAC	1	10	D-4	V-95 DISC. DAMPER	M-218-6	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
106	HVAC	2	10	D-4	V-95 DISC. DAMPER	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
107	HVAC	2	10	D-5	V-26A DISC. DAMP.	M-218-6A	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
108	HVAC	2	10	D-6	V-26A RECIRC. DAMP.	M-218-6A	AB	625	300	S	N/A	CLOSED	OPEN	NO	N/A	N/A
109	HVAC	2	10	D-7	V-26A OUTSIDE AIR DAMP.	M-218-6A	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knotnerus	Don E Knotnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
110	HVAC	1	10	D-9	V-96 MODULATING DAMP.	M-218-6	AB	625	300A	S	N/A	OPEN	CLOSED	NO	N/A	N/A
111	EPD	2	21	E-22A	JACKET WATER COOLER	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
112	EPD	1	21	E-22B	JACKET WATER COOLER	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
113	EPD	2	21	E-31A	K-6A LUBE OIL COOLER	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
114	EPD	1	21	E-31B	K-6B LUBE OIL COOLER	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	MECHANICAL ACTION
115	EPD	2	21	E-32A	ENGINE AFTER COOLER	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
116	EPD	1	21	E-32B	ENGINE AFTER COOLER	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
117	DHR	1	21	E-54A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
118	DHR	2	21	E-54A	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
119	DHR	1	21	E-54B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
120	DHR	2	21	E-54B	CCW HEAT EXCHANGER	M-208-1A	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
121	RCPC	1	21	E-56	REGENERATIVE HEAT EXCHANGER	M-202-1B	RB	607	236	S	N/A	N/A	N/A	NO	N/A	N/A
122	RCPC	2	21	E-56	REGENERATIVE HEAT EXCHANGER	M-202-1B	RB	607	236	S	N/A	N/A	N/A	NO	N/A	N/A
123	RCPC	1	21	E-60A	EAST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
124	RCPC	2	21	E-60A	EAST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
125	RCPC	1	21	E-60B	WEST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
126	RCPC	2	21	E-60B	WEST DIRTY WASTE DRAIN PUMP	M-204-1	AB	570	005	S	N/A	N/A	N/A	NO	N/A	N/A
127	EPD	1	3	EA-11	2400 VOLT BUS 1C	E1-1	AB	590	116A	S/R	N/A	ON	OFF	NO	E-3 SH.1	K-6A
128	EPD	2	3	EA-11	2400 VOLT BUS 1C	E1-1	AB	590	116A	S/R	N/A	ON	ON	YES	E-3 SH.1	ED-11A;K-6A
129	EPD	1	3	EA-12	2400 VOLT BUS 1D	E1-1	AB	607	223	S/R	N/A	ON	ON	YES	E-3 SH.1	ED-21A;K-6B
130	EPD	2	3	EA-12	2400 VOLT BUS 1D	E1-1	AB	607	223	S/R	N/A	ON	OFF	NO	E-3 SH.1	K-6B
131	EPD	2	3	EA-13	2400 V BUS 1-E	E1-1	TB	590	133	S/R	N/A	ON	OFF	NO	E-3 SH.1	EX-15
132	EPD	2	1	EB-01	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.1	EB-19
133	EPD	1	1	EB-02	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.1	EB-20
134	EPD	2	1	EB-07	480 V MOTOR CONTROL CENTER	E1-1	AB	590	121	S/R	N/A	ON	ON	YES	E-5 SH.4	EB-11
135	EPD	1	1	EB-08	480 V MOTOR CONTROL CENTER	E1-1	AB	590	121	S/R	N/A	ON	ON	YES	E-5 SH.4	EB-12
136	EPD	2	2	EB-11	480 VOLT LOAD CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	ED-11;EX-11
137	EPD	1	2	EB-12	480 VOLT LOAD CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	ED-21;EX-12
138	EPD	2	2	EB-15	480 VOLT LOAD CENTER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EX-15
139	EPD	1	2	EB-16	480 VOLT LOAD CENTER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EX-16
140	EPD	2	2	EB-19	480 VOLT LOAD CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	ED-11;EX-19

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
141	EPD	1	2	EB-20	480 VOLT LOAD CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	ED-21;EX-20
142	EPD	2	1	EB-21	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-11
143	EPD	1	1	EB-22	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	223	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-12
144	EPD	2	1	EB-23	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-11
145	EPD	1	1	EB-24	480 VOLT MOTOR CONTROL CENTER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-5 SH.5B	EB-12
146	EPD	2	1	EB-25	480 VOLT MOTOR CONTROL CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-5 SH.5C	EB-19
147	EPD	1	1	EB-26	480 VOLT MOTOR CONTROL CENTER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-5 SH.5C	EB-20
148	EPD	1	20	EC-01	TURBINE GENERATOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
149	EPD	2	20	EC-01	TURBINE GENERATOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
150	EPD	1	20	EC-02	PRIMARY PROCESS & REACTOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
151	EPD	2	20	EC-02	PRIM. PROCESS & REACTOR CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
152	EPD	1	20	EC-03	CONTAINMENT ISOL. & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
153	EPD	2	20	EC-03	CONTAINMENT ISOL. & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
154	EPD	1	20	EC-04	RELAY & STATION AUXILARY CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
155	EPD	2	20	EC-04	RELAY & STATION AUXILARY CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
156	EPD	1	20	EC-06	REACTOR PROTECTIVE SYSTEM CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
157	EPD	2	20	EC-06	REACTOR PROTECTIVE SYSTEM CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
158	EPD	1	20	EC-08	SERV. WATER & COMP COOLING CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
159	EPD	2	20	EC-08	SERV. WTR. & COMP. COOLING CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
160	EPD	1	20	EC-11	RADIATION TURBINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
161	EPD	2	20	EC-11	RADIATION, TURBINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
162	EPD	1	20	EC-11A	POST ACCIDENT CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
163	EPD	2	20	EC-11A	POST ACCIDENT CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
164	EPD	1	20	EC-12	PRIMARY PROCESS & INSTRUMENTATION	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
165	EPD	2	20	EC-12	PRIMARY PROCESS & INSTRUMENTATION	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
166	EPD	1	20	EC-126	CIRC. WATER & IODINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
167	EPD	2	20	EC-126	CIRC. WATER & IODINE CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
168	EPD	1	20	EC-13	DBA SHUTDOWN & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
169	EPD	2	20	EC-13	DBA SHUTDOWN & MISC. CONTROL	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
170	EPD	1	20	EC-150	AUX. HOT SHUTDOWN PANEL	E-363-1	AB	607	250	S	9	N/A	N/A	NO	N/A	N/A
171	EPD	2	20	EC-150	AUX. HOT SHUTDOWN PANEL	E-363-1	AB	607	250	S	9	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNUTTINERUS	D E Knuttinerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

SAFE SHUTDOWN EQUIPMENT LIST (SSSL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
172	EPD	1	20	EC-168	POST ACCIDENT SAMPLE MONITORING	E-380-2	AB	607	214	S	9	N/A	N/A	NO	N/A	N/A
173	EPD	2	20	EC-168	POST ACCIDENT SAMPLE MONITORING	E-380-2	AB	607	214	S	9	N/A	N/A	NO	N/A	N/A
174	EPD	1	20	EC-180	E-50A ISOLATION SOLENOIDS	E-363-1	TB	607	247	S	9	N/A	N/A	NO	N/A	N/A
175	EPD	2	20	EC-180	E-50A ISOLATION SOLENOIDS	E-363-1	TB	607	247	S	9	N/A	N/A	NO	N/A	N/A
176	EPD	1	20	EC-181	E-50B ISOLATION SOLENOIDS	E-363-1	AB	625	328	S	9	N/A	N/A	NO	N/A	N/A
177	EPD	2	20	EC-181	E-50B ISOLATION SOLENOIDS	E-363-1	AB	625	328	S	9	N/A	N/A	NO	N/A	N/A
178	EPD	1	20	EC-182	ATMOSPHERIC STEAM DUMP PANEL	E-364	AB	625	338R	S	9	N/A	N/A	NO	N/A	N/A
179	EPD	2	20	EC-182	ATMOSPHERIC STEAM DUMP PANEL	E-364	AB	625	338R	S	9	N/A	N/A	NO	N/A	N/A
180	EPD	2	20	EC-186A	CONTROL ROOM HVAC CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
181	EPD	1	20	EC-186B	CONTROL ROOM HVAC CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
182	EPD	1	20	EC-187	AUX. FEEDWATER CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
183	EPD	2	20	EC-187	AUX FEEDWATER CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
184	EPD	2	20	EC-188A	DAMPER CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
185	EPD	1	20	EC-188B	DAMPER CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
186	EPD	1	20	EC-189A	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
187	EPD	2	20	EC-189A	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
188	EPD	1	20	EC-189B	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
189	EPD	2	20	EC-189B	CONDENSER SERVICE WATER CONTROL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
190	EPD	2	20	EC-22	DG-1/1 CONTROL PANEL	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
191	EPD	1	20	EC-26	DG-1/2 CONTROL PANEL	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
192	EPD	1	20	EC-32	NSSS SAMPLE HOOD	E-380-2	AB	607	228	S	9	N/A	N/A	NO	N/A	N/A
193	EPD	2	20	EC-32	NSSS SAMPLE PANEL	E-380-2	AB	607	228	S	9	N/A	N/A	NO	N/A	N/A
194	EPD	1	20	EC-33	REDUNDANT SAFETY INJECTION CONTROL	E-356	AB	590	121	S	9	N/A	N/A	NO	N/A	N/A
195	EPD	2	20	EC-33	REDUNDANT SAFETY INJECTION CONTROL	E-356	AB	590	121	S	9	N/A	N/A	NO	N/A	N/A
196	EPD	2	15	ED-01	MAIN STATION BATTERIES	E1-1	AB	607	225A	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-11A;ED-15;EJL-258
197	EPD	1	15	ED-02	MAIN STATION BATTERIES	E1-1	AB	607	225	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-16;ED-21A;EJL-259
198	EPD	2	16	ED-06	AC INVERTER #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
199	EPD	1	16	ED-07	AC INVERTER #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
200	EPD	2	16	ED-08	AC INVERTER #3	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
201	EPD	1	16	ED-09	AC INVERTER #4	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
202	EPD	2	14	ED-10	125 V DC BUS	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-01;ED-13;EJL-423

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
203	EPD	2	14	ED-11	125 V DC DISTRIBUTION PANEL	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-10
204	EPD	2	14	ED-11A	125 V DC DISTRIBUTION PANEL	E1-1	AB	590	116A	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-01
205	EPD	2	20	ED-13	METERING SECTION DC BUSS	E-359-1A	AB	607	224	S/R	N/A	ON	ON	YES	E-8-1	ED-10
206	EPD	2	16	ED-15	DC CHARGER #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	EB-01
207	EPD	1	16	ED-16	DC CHARGER #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	EB-02
208	EPD	2-OP	16	ED-17	DC CHARGER #3	E1-1	AB	607	224	S/R	N/A	ON	ON/OFF	YES	E-8 SH.1	EB-02
209	EPD	1-OP	16	ED-18	DC CHARGER #4	E1-1	AB	607	224	S/R	N/A	ON	ON/OFF	YES	E-8 SH.1	EB-01
210	EPD	1	14	ED-20	125 V DC BUS	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-02;ED-23;EJL-422
211	EPD	1	14	ED-21	125 V DC DISTRIBUTION PANEL	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-20
212	EPD	1	14	ED-21A	125 V DC DISTRIBUTION PANEL	E1-1	AB	590	116B	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-02
213	EPD	1	20	ED-23	METERING SECTION DC BUS	E-359-1A	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.1	ED-20
214	EPD	2	20	EG-20	DG-1/1 GAUGE PANEL	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
215	EPD	2	20	EG-21	DG-1/1 STARTER BOX	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
216	EPD	1	20	EG-30	DG-1/2 GAUGE PANEL	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
217	EPD	1	20	EG-31	DG-1/2 STARTER BOX	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
218	EPD	1	20	EJ-1002	CONTROL ROOM HVAC CONTROLS	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
219	EPD	2	20	EJ-1003	CONTROL ROOM HVAC CONTROLS	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
220	EPD	1	20	EJ-1005	AUX. FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
221	EPD	2	20	EJ-1005	AUX FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
222	EPD	1	20	EJ-1006	AUX. FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
223	EPD	2	20	EJ-1006	AUX FEEDWATER RELAY CONTROL	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
224	EPD	2	20	EJ-1051	AUX FEEDWATER CONTROLS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
225	EPD	1	20	EJ-1052	AUX. FEEDWATER RELAY CONTROLS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
226	EPD	1	20	EJ-1088	VC-10 CONTROLS	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
227	EPD	2	20	EJ-1089	VC-11 CONTROL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
228	EPD	1	20	EJ-1092	CONTROL ROOM HVAC VC-10 CONTROLS	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
229	EPD	2	20	EJ-1093	CONTROL ROOM HVAC VC-11 CONTROLS	E-361-1	AB	625	325	S	9	N/A	N/A	NO	N/A	N/A
230	EPD	1	20	EJ-1126	VC-10 RELAY PANEL	E-1168-1	AB	625	300A	S	9	N/A	N/A	NO	N/A	N/A
231	EPD	2	20	EJ-1127	VC-11 RELAY PANEL	E-1168-1	AB	625	300	S	9	N/A	N/A	NO	N/A	N/A
232	EPD	2	20	EJ-1143	MO-0753 DISCONNECT 8/2327	E-362	AB	590	123	S	9	N/A	N/A	NO	N/A	N/A
233	EPD	2	20	EJ-1144	MO-0760 DISCONNECT 8/2427	E-362	AB	590	123	S	9	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

SAFE SHUTDOWN EQUIPMENT LIST (SSSL)

5/02/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
234	EPD	1	20	EJ-214	T-40 DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/A	N/A
235	EPD	2	20	EJ-214	T-40 DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/A	N/A
236	EPD	1	20	EJ-245	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	147	S	9	N/A	N/A	NO	N/A	N/A
237	EPD	2	20	EJ-245	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	147	S	9	N/A	N/A	NO	N/A	N/A
238	EPD	1	20	EJ-246	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	146	S	9	N/A	N/A	NO	N/A	N/A
239	EPD	2	20	EJ-246	DIESEL OIL TRANSFER PUMPS	E-259-1	AB	590	146	S	9	N/A	N/A	NO	N/A	N/A
240	EPD	1	20	EJ-43	DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/A	N/A
241	EPD	2	20	EJ-43	DIESEL FUEL TRANSFER	E-375	TB	590	136	S	9	N/A	N/A	NO	N/A	N/A
242	EPD	1	20	EJ-44	DIESEL FUEL TRANSFER	E-367	TB	590	124	S	9	N/A	N/A	NO	N/A	N/A
243	EPD	2	20	EJ-44	DIESEL OIL TRANSFER	E-367	TB	590	124	S	9	N/A	N/A	NO	N/A	N/A
244	EPD	1	20	EJ-540	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
245	EPD	2	20	EJ-540	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
246	EPD	1	20	EJ-541	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
247	EPD	2	20	EJ-541	CONTAINMENT ISOLATION RELAYS	E-359-1A	AB	607	224	S	9	N/A	N/A	NO	N/A	N/A
248	EPD	2	20	EJ-593	P-55B&C TRANSFER SWITCH	E-356	AB	590	104B	S	9	N/A	N/A	NO	N/A	N/A
249	EPD	1	20	EJ-594	P-55 B&C TRANSFER SWITCH	E-356	AB	590	104A	S	9	N/A	N/A	NO	N/A	N/A
250	EPD	2	20	EJ-594	P-55B&C TRANSFER SWITCH	E-356	AB	590	104A	S	9	N/A	N/A	NO	N/A	N/A
251	EPD	1	20	EJ-79	DIESEL FUEL DAY TANKS	E-381	TB	590	707	S	9	N/A	N/A	NO	N/A	N/A
252	EPD	2	20	EJ-79	DIESEL FUEL DAY TANKS	E-831	TB	590	707	S	9	N/A	N/A	NO	N/A	N/A
253	EPD	1	20	EJ-9400	BUS 1-C UNDER VOLTAGE RELAYS	E-359-12	AB	590	116A	S	9	N/A	N/A	NO	N/A	N/A
254	EPD	2	20	EJ-9400	BUS 1-C UNDERVOLTAGE RELAYS	E-359-12	AB	590	116A	S	9	N/A	N/A	NO	N/A	N/A
255	EPD	1	20	EJ-9401	BUS 1-D UNDER VOLTAGE RELAYS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
256	EPD	2	20	EJ-9401	BUS 1-D UNDERVOLTAGE RELAYS	E-359-17	AB	607	223	S	9	N/A	N/A	NO	N/A	N/A
257	EPD	1	20	EJL-256	P-55B TRANSFER SWITCH	E-356	AB	590	104A	S	9	N/A	N/A	NO	N/A	N/A
258	EPD	2	20	EJL-257	P-55C TRANSFER SWITCH	E-356	AB	590	104B	S	9	N/A	N/A	NO	N/A	N/A
259	EPD	2	20	EJL-258	ED-01 FUSE BOX	E-359-2	AB	607	225A	S	9	N/A	N/A	NO	N/A	N/A
260	EPD	1	20	EJL-259	ED-02 FUSE BOX	E-359-2	AB	607	225	S	9	N/A	N/A	NO	N/A	N/A
261	EPD	2	20	EJL-263	AUX FEEDWATER CONTROLS	E-362	AB	590	123	S	9	N/A	N/A	NO	N/A	N/A
262	EPD	2	20	EJL-264	AUX FEEDWATER CONTROLS	E-362	AB	590	123	S	9	N/A	N/A	NO	N/A	N/A
263	EPD	1	20	EJL-422	72-02 BREAKER BOX	E-359-2	AB	607	225	S	9	N/A	N/A	NO	N/A	N/A
264	EPD	2	20	EJL-423	72-01 BREAKER BOX	E-359-2	AB	607	225A	S	9	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
265	EPD	2	9	EMG-0501	CRANKCASE EXHAUST	M-214-1	AB	590	116	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-22;EG-20;EG-21;EX-67
266	EPD	2	9	EMG-0502	CRANKCASE EXHAUST	M-214-1	AB	590	116	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-22;EG-20;EG-21;EX-67
267	EPD	1	9	EMG-0503	CRANKCASE EXHAUST	M-214-1	AB	590	116B	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-26;EG-30;EG-31;EX-66
268	EPD	1	9	EMG-0504	CRANKCASE EXHAUST	M-214-1	AB	590	116B	S/R	N/A	OFF	ON	YES	M-12 SH.18(2)	EC-26;EG-30;EG-31;EX-66
269	RCPC	2	1	EU-1	SCR CONTROLLER-HEATERS	M-201-2	RB	590	143	S/R	N/A	ON/OFF	ON/OFF	YES	E-254 SH.1	EB-15;EX-15;EC-02
270	RCPC	1	1	EU-2	SCR CONTROLLER-HEATERS	M-201-2	RB	590	143	S/R	N/A	ON/OFF	ON/OFF	YES	E-253 SH.1	EB-16;EX-16;EC-02
271	EPD	2	4	EX-11	2400/480 VOLT TRANSFORMER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-11
272	EPD	1	4	EX-12	2400/480 VOLT TRANSFORMER	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-12
273	EPD	2	4	EX-15	2400/480 VOLT TRANSFORMER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-3-1; E-4-1	EA-11;EA-13
274	EPD	1	4	EX-16	2400/480 VOLT TRANSFORMER	E1-1	RB	590	143	S/R	N/A	ON	ON	YES	E-4 SH.1	EA-12
275	EPD	2	4	EX-19	2400/480 VOLT TRANSFORMER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	EA-11
276	EPD	1	4	EX-20	2400/480 VOLT TRANSFORMER	E1-3	AB	607	725	S/R	N/A	ON	ON	YES	E-4 SH.2	EA-12
277	RRC	2	4	EX-63	CONTROL ROD CLUTCH TRANSFORMER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
278	RRC	1	4	EX-64	CONTROL ROD CLUTCH TRANSFORMER	M1-Q-1198	AB	607	224	S/R	N/A	ON	OFF	NO	E-212 SH.1	EC-06
279	EPD	1	4	EX-66	DG-1/2 EXHAUSTER TRANSFORMER	E1-1	AB	590	116B	S/R	N/A	OFF	ON	YES	VM-12-18(2)	K-6B
280	EPD	2	4	EX-67	DG-1/1 EXHAUSTER TRANSFORMER	E1-1	AB	590	116	S/R	N/A	OFF	ON	YES	VM-12-18(2)	K-6A
281	EPD	2	14	EY-10	120 V AC PANEL #1	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-06
282	EPD	1	14	EY-20	120 V AC PANEL #2	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-07
283	EPD	2	14	EY-30	120 V AC PANEL #3	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-08
284	EPD	1	14	EY-40	120 V AC PANEL #4	E1-1	AB	607	224	S/R	N/A	ON	ON	YES	E-8 SH.2	ED-09
285	RCPC	1	18	FI-0212	CHARGING PUMP LOCAL FLOW IND.	M-202-1B	AB	590	106	S	34	ON	ON	NO	N/A	OPERATOR ACTION
286	RCPC	2	18	FI-0212	CHARGING PUMP LOCAL FLOW IND.	M-202-1B	AB	590	106	S	34	ON	ON	NO	N/A	OPERATOR ACTION
287	DHR	2	18	FT-0727	P-8A/B FLOW TRANSMITTER	M-207-2	AB	590	123	S/R	N/A	N/A	N/A	YES	E-79 SH.3,3A&B	EJ-1051;EY-10
288	DHR	1	18	FT-0736A	E-50B STEAM FLOW TRANS.	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-79 SH.3E,F,G	EJ-1052;EY-20
289	DHR	1	18	FT-0737A	E-50A STEAM FLOW TRANS.	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-79 SH.3E,F,G	EJ-1052;EY-20
290	DHR	2	18	FT-0749	P-8A/B FLOW TRANSMITTER	M-207-2	AB	590	123	S/R	N/A	N/A	N/A	YES	E-79 SH.3,3A,3B	EJ-1051;EY-10
291	DHR	2	18	I/P-0727	E-50B FLOW CONTROL	M-207-2	AB	590	123	S/R	N/A	ON	ON/OFF	YES	E-79 SH.3 A&B	EC-01;EC-33;EJ-

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
292	DHR	1	18	I/P-0736A	E-50B FLOW CONTROL	M-207-2	AB	570	005	S/R	N/A	ON	OFF	NO	E-79 SH.3E,F,G	1005;EJ-1051;EJL-EC-01;EC-33;EC-187;EJ-1006;EJ-10
293	DHR	1	18	I/P-0737A	E-50A FLOW CONTROL	M-207-2	AB	570	005	S/R	N/A	ON	OFF	NO	E-79 SH.3E,F,G	EC-01;EC-33;EC-187;EJ-1006;EJ-10
294	DHR	2	18	I/P-0749	E-50A FLOW CONTROL	M-207-2	AB	590	123	S/R	N/A	ON	ON/OFF	YES	E-79 SH.3 A&B	EC-01;EC-33;EJ-1005;EJ-1051;EJL-
295	HVAC	2	18	I/P-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S/R	N/A	ON	OFF	NO	E-270 SH.5	EC-11A;EC-188A
296	HVAC	1	18	I/P-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S/R	N/A	ON	OFF	NO	E-270 SH.5	EC-11A;EC-188B
297	DHR	2	17	K-6A	DIESEL GENERATOR 1-1	M-208-1A	AB	590	116	S/R	N/A	OFF	ON	YES	E-140;M-12	EC-22;ED-01;ED-11A;K-6A
298	DHR	1	17	K-6B	DIESEL GENERATOR 1-2	M-208-1A	AB	590	116B	S/R	N/A	OFF	ON	YES	E-140; M-12	EC-26;ED-02;ED-21A;K-6B
299	EPD	2	18	LC-1482	JACKET WATER LEVEL CONTROL	M-214-1	AB	590	116	S	N/A	CLOSED	OP/CL	NO	N/A	MECHANICAL ACTION
300	EPD	1	18	LC-1492	JACKET WATER LEVEL CONTROL	M-214-1	AB	590	116B	S	N/A	CLOSED	OP/CL	NO	N/A	MECHANICAL ACTION
301	RCPC	1	18	LS-0327	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
302	RCPC	2	18	LS-0327	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
303	RCPC	1	18	LS-0328	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
304	RCPC	2	18	LS-0328	SIRW LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
305	RCPC	1	18	LS-0329	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
306	RCPC	2	18	LS-0329	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
307	RCPC	1	18	LS-0330	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
308	RCPC	2	18	LS-0330	SIRW TANK LOW LEVEL SWITCH	M-204-1B	AB	649	808	S/R	N/A	CLOSED	OPEN	NO	E-207 SH.1	EC-13
309	EPD	2	18	LS-1417	DG-1/1 CONTROL LEVEL	M-214-1	AB	590	146	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-21;EJ-246
310	EPD	2	18	LS-1418	DG-1/1 CONTROL LEVEL	M-214-1	AB	590	146	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-21;EJ-246
311	EPD	1	18	LS-1452	DG-1/2 CONTROL LEVEL	M-214-1	AB	590	147	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-31;EJ-245
312	EPD	1	18	LS-1453	DG-1/2 CONTROL LEVEL	M-214-1	AB	590	147	S/R	N/A	OPEN	OP/CL	YES	E-140 SH.1A	EG-31;EJ-245
313	EPD	2	18	LS-1470	DG-1/1 SUMP STOP FILL LEVEL	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-97	EG-21
314	EPD	1	18	LS-1471	DG-1/2 SUMP STOP FILL LEVEL	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-104	EG-31
315	EPD	2	18	LS-1472	DG-1/1 SUMP START FILL LEVEL	M-214-1	AB	590	116	S/R	N/A	OPEN	OP/CL	YES	E-140; M-12-97	EG-21
316	EPD	1	18	LS-1473	DG-1/2 SUMP START FILL LEVEL	M-214-1	AB	590	116B	S/R	N/A	OPEN	OP/CL	YES	E-140; M-12-104	EG-31

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
317	RCPC	2	18	LT-0102	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-82 SH.5	EY-10;EC-12
318	RCPC	1	18	LT-0103	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-82 SH.3	EY-20;EC-12
319	RCPC	1	18	LT-0331	SIRW TANK LOW LEVEL TRANSMITTER	M-204-1B	AB	649	808	S/R	N/A	N/A	N/A	YES	E-87 SH.1	EY-20;EC-13
320	RCPC	2	18	LT-0332A	SIRW TANK LOW LEVEL TRANSMITTER	M-204-1B	AB	649	808	S/R	N/A	N/A	N/A	YES	E-87 SH.1A	EY-10;EC-13
321	DHR	2	18	LT-0757A	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2	EC-11;EC-12;EY-10
322	DHR	1	18	LT-0757B	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2	EC-11;EC-12;EY-20
323	DHR	2	18	LT-0758A	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2A	EC-11;EC-12;EY-10
324	DHR	1	18	LT-0758B	WIDE RANGE LEVEL TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-78 SH.2A	EC-11;EC-12;EY-20
325	DHR	2	18	LT-2021	T-2 LEVEL TRANSMITTER	M-220-1	TB	590	OUTSIDE	S/R	N/A	N/A	N/A	YES	E-87 SH.6	EC-13;EY-30
326	DHR	1	18	LT-2022	T-2 LEVEL TRANSMITTER	M-220-1	TB	590	OUTSIDE	S/R	N/A	N/A	N/A	YES	E-87 SH.6	EC-13;EY-20
327	DHR	1	8	MO-0748	E-50B ISOLATION	M-207-2	AB	570	005	S/R	N/A	OPEN	OP/CL	YES	E-1179 SH.1,2	EB-22;EC-11;EC-187;EJ-1005
328	DHR	1	8	MO-0754	E-50A ISOLATION	M-207-2	AB	570	005	S/R	N/A	OPEN	OP/CL	YES	E-1174 SH.1,2	EB-24;EC-11;EC-187;EJ-1005
329	RCPC	2	8	MO-1042A	POWER RELIEF ISOL.	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-242 SH.4	EB-25;EC-02
330	RCPC	1	8	MO-1043A	POWER RELIEF ISOL.	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-242 SH.4	EB-26;EC-02
331	RCPC	1	8	MO-2087	VOL. CONTROL TANK ISOL.	M-202-1A	AB	590	100	S/R	12	OPEN	CLOSED	NO	E-242 SH.1	EC-33;EC-02;EC-13;EC-12;OPERATOR
332	RCPC	2	8	MO-2087	VOL. CONTROL TANK ISOL.	M-202-1A	AB	590	100	S/R	12	OPEN	CLOSED	YES	E-242 SH.1	EB-01;EC-33;EC-02;EC-13;EC-12
333	RCPC	1	8	MO-2140	BORIC ACID PUMP FEED ISOL.	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EJ-9401;EC-04;EC-12;EB-02;EC-02;
334	RCPC	1	8	MO-2160	SIRW TO CHARGING PUMP	M-202-1A	AB	590	107	S/R	12	CLOSED	OP/CL	YES	E-242 SH.1	EB-02;EC-33;EC-02;EC-13;EC-12
335	RCPC	2	8	MO-2160	SIRW TO CHARGING PUMPS ISOLATION	M-202-1A	AB	590	107	S/R	12	CLOSED	OP/CL	NO	E-242 SH.1	EC-33;EC-02;EC-13;EC-12;OPERATOR
336	RCPC	2	8	MO-2169	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EC-02;EC-13;EC-33;EJ-9400;EB-01;
337	RCPC	2	8	MO-2170	BORIC ACID GRAVITY FEED	M-202-1A	AB	590	107	S/R	N/A	CLOSED	OPEN	YES	E-241	EC-02;EC-13;EC-33;EJ-9400;EB-01;
338	EPD	1	20	N-61	VENT FAN V-24D STARTER BOX	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
339	EPD	2	20	N-69	VENT FAN V-24B STARTER BOX	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
340	EPD	2	20	N-81	VENT FAN V-24A STARTER BOX	E-359-1	AB	590	116	S	9	N/A	N/A	NO	N/A	N/A
341	EPD	1	20	N-93	VENT FAN V-24C STARTER BOX	E-359-1	AB	590	116B	S	9	N/A	N/A	NO	N/A	N/A
342	DHR	2	0	N2-1	NITROGEN BACKUP STATION 1	M-222-2	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
343	DHR	2	0	N2-1A	NITROGEN BACK-UP STATION 1-A	M-222-2	AB	590	123	S	N/A	N/A	N/A	NO	N/A	N/A
344	EPD	1	5	P-18A	FUEL OIL TRANSFER PUMP	M-214-1	TB	590	136	S/R	N/A	OFF	ON/OFF	YES	E-178 SH.1	EB-08;EG-21;EG-31;EJ-43;EJ-44;EJ
345	EPD	2	5	P-18B	FUEL OIL TRANSFER PUMP	M-214-1	TB	590	136	S/R	N/A	OFF	ON/OFF	YES	E-178 SH.2	EB-01;EJ-43;EJ-44;EJ-79;EJ-214;E
346	EPD	2	0	P-209A	DG-1/1 FUEL OIL BOOSTER PP.	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
347	EPD	1	0	P-209B	FUEL OIL BOOSTER PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
348	EPD	2	0	P-210A	DG-1/1 FUEL OIL PRIMING PP.	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
349	EPD	1	0	P-210B	FUEL OIL PRIMING PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
350	EPD	2	0	P-211A	JACKET WATER PUMP	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
351	EPD	1	0	P-211B	JACKET WATER PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
352	EPD	2	0	P-212A	K-6A LUBE OIL BOOSTER PUMP	M-214-1	AB	590	116	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
353	EPD	1	0	P-212B	K-6B LUBE OIL BOOSTER PUMP	M-214-1	AB	590	116B	S	N/A	OFF	ON/OFF	NO	N/A	MECHANICAL ACTION
354	RCPC	1	5	P-54A	CONTAINMENT SPRAY PUMP	M-204-1A	AB	570	004	S	36	OFF	OFF	NO	N/A	N/A
355	RCPC	2	5	P-54A	CONTAINMENT SPRAY PUMP	M-204-1A	AB	570	004	S	36	OFF	OFF	NO	N/A	N/A
356	RCPC	1	5	P-54B	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
357	RCPC	2	5	P-54B	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
358	RCPC	1	5	P-54C	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
359	RCPC	2	5	P-54C	CONTAINMENT SPRAY PUMP	M-204-1	AB	590	005	S	36	OFF	OFF	NO	N/A	N/A
360	RCPC	1	5	P-55B	CHARGING PUMP B	M-202-1B	AB	590	104A	S/R	N/A	OFF	ON/OFF	YES	E-257 SH.1	EJ-594;EJL-256;EB-12;EC-12;EC-13
361	RCPC	2	5	P-55C	CHARGING PUMP C	M-202-1B	AB	590	104B	S/R	N/A	OFF	ON/OFF	YES	E-257 SH.2	EJL-257;EJ-593;EB-11;EC-12;EC-13
362	RCPC	1	5	P-56A	BORIC ACID PUMP	M-202-1A	AB	590	107A	S/R	N/A	OFF	ON/OFF	YES	E-203	EB-02;EC-02;EC-13;EC-12
363	DHR	1	6	P-7A	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.1	EA-12;EC-08;EC-12;EC-13

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
364	DHR	2	6	P-7B	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.1	EA-11;EC-08;EC-12;EC-13
365	DHR	1-OP	6	P-7C	SERVICE WATER PUMP	M-213	TB	590	136	S/R	N/A	ON	ON	YES	E-154 SH.2	EA-12;EC-08;EC-12;EC-13
366	DHR	2	5	P-8A	MOTOR DRIVE AUX FEED PUMP	M-207-2	TB	570	007	S/R	N/A	ON	ON	YES	E-196 SH.1,2,3	EA-11;EC-01;EC-11;EC-13;EC-187;E
367	DHR	1	5	P-8C	MOTOR DRIVEN AUX FEED PUMP	M-207-2	AB	570	005	S/R	N/A	ON	ON	YES	E-196 SH.8	EA-12;EC-01;EC-11;EC-13;EC-187;E
368	EPD	2	0	P-905A	K-6A PRE-LUBE OIL PRIMING PUMP	M-214-1	AB	590	116	S	N/A	ON	ON/OFF	NO	N/A	MECHANICAL ACTION
369	EPD	1	0	P-905B	K-6B PRE-LUBE OIL PRIMING PUMP	M-214-1	AB	590	116B	S	N/A	ON	ON/OFF	NO	N/A	MECHANICAL ACTION
370	HVAC	2	18	P/P-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S	N/A	ON	OFF	NO	N/A	N/A
371	HVAC	1	18	P/P-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S	N/A	ON	OFF	NO	N/A	N/A
372	EPD	2	18	PI-1475	DG-1/1 FUEL OIL PRESS.	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
373	EPD	2	18	PI-1478	K-6A LUBE OIL PRESSURE INDICATOR	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
374	EPD	2	18	PI-1482	JACKET WATER PRESS. IND.	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
375	EPD	1	18	PI-1485	DG-1/2 FUEL OIL PRESS.	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
376	EPD	1	18	PI-1488	K-6B LUBE OIL PRESSURE INDICATOR	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
377	EPD	1	18	PI-1492	JACKET WATER PRESS. GAUGE	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
378	HVAC	2	0	PO-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S	N/A	OPEN	CLOSED	NO	N/A	N/A
379	HVAC	1	0	PO-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S	N/A	OPEN	CLOSED	NO	N/A	N/A
380	HVAC	2	0	PO-1663	V-95 DAMPER D-3	M-218-6	AB	625	300	S	N/A	OPEN	OPEN	NO	N/A	N/A
381	HVAC	1	0	PO-1664	V-96 DAMPER D-10	M-218-6	AB	625	300A	S	N/A	OPEN	OPEN	NO	N/A	N/A
382	HVAC	2	0	PO-1711	MODULATING DAMP. D-20	M-218-6A	AB	625	300	S/R	N/A	OPEN	OPEN	NO	E-271 SH.19	EB-25;EJ-1001
383	HVAC	1	0	PO-1712	MODULATING DAMP. D-21	M-218-6A	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	E-271 SH.19	EB-26;EJ-1000
384	HVAC	2	0	PO-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S	N/A	CLOSED	OPEN	NO	N/A	N/A
385	HVAC	1	0	PO-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S	N/A	CLOSED	OPEN	NO	N/A	N/A
386	HVAC	2	0	PO-1745	OUTSIDE AIR DAMP. D-7	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-25;EC-186A;EJ-1001
387	HVAC	1	0	PO-1746	OUTSIDE AIR DAMP. D-14	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-26;EC-186B;EJ-1000
388	HVAC	1	0	PO-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
389	HVAC	2	0	PO-1758	V-94 DAMPER D-16	M-218-6	AB	625	300B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
390	DGV	1	0	PO-1834	DAMPER D24	M-218-5	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knotnerus	Don E Knotnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
391	DGV	2	0	PO-1843	DAMPER D25	M-218-5	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
392	DHR	2	18	POC-0727	E-50B FLOW CONTROL BYPASS	M-207-2	AB	590	123	S	19	ON	ON/OFF	NO	N/A	I/P-0727
393	DHR	1	18	POC-0736A	E-50B FLOW CONTROL	M-207-2	AB	570	005	S	19	ON	ON/OFF	NO	N/A	I/P-0736A
394	DHR	1	18	POC-0737A	E-50A FLOW CONTROL	M-207-2	AB	570	005	S	19	ON	ON/OFF	NO	N/A	I/P-0737A
395	DHR	2	18	POC-0749	E-50A FLOW CONTROL BYPASS	M-207-2	AB	590	123	S	19	ON	ON/OFF	NO	N/A	I/P-0749
396	HVAC	2	18	POS-1711	MODULATING DAMP. D-20	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	E-271-3,4,5	EB-25;EC-11A;EC-186A;EJ-1001
397	HVAC	1	18	POS-1712	MODULATING DAMP. D-21	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	E-271 SH.3,4,5	EB-26;EC-11A;EC-186B;EJ-1000
398	HVAC	2	18	POS-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S/R	N/A	OPEN	CLOSED	YES	E-271-3,4,5	EB-25;EC-11A;EC-186A;EJ-1001
399	HVAC	1	18	POS-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S/R	N/A	OPEN	CLOSED	YES	E-271 SH.3,4,5	EB-26;EC-11A;EC-186B;EJ-1000
400	HVAC	2	18	POS-1745	OUTSIDE AIR DAMP. D-7	M-218-6A	AB	625	300	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-25;EC-186A;EJ-1001
401	HVAC	1	18	POS-1746	OUTSIDE AIR DAMP. D-14	M-218-6A	AB	625	300A	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.6	EB-26;EC-186B;EJ-1000
402	HVAC	1	18	POS-1758	D-94 DAMPER D-16	M-218-6	AB	625	300B	S/R	N/A	CLOSED	CLOSED	NO	E-271 SH.12	EC-186B;EJ-1000
403	RCPC	2	8	PRV-1042B	POWER OPERATED RELIEF	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-256 SH.1	ED-11;EC-02;EC-12
404	RCPC	1	8	PRV-1043B	POWER OPERATED RELIEF	M-201-2	RB	649	424	S/R	N/A	CLOSED	OP/CL	YES	E-256 SH.1A	ED-21;EC-02;EC-12
405	DHR	1	18	PS-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0779A
406	DHR	2	18	PS-0779	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-11;SV-0779A
407	DHR	1	18	PS-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-21;SV-0780A
408	DHR	2	18	PS-0780	E-50B STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0780A
409	DHR	1	18	PS-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0781A
410	DHR	2	18	PS-0781	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-11;SV-0781A
411	DHR	1	18	PS-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	CLOSED	YES	E-238 SH.1A,2	EC-182;ED-21;SV-0782A
412	DHR	2	18	PS-0782	E-50A STEAM DUMP CONTROL	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	NO	E-238 SH.1A,2	EC-182;SV-0782A
413	EPD	2	18	PS-1476	K-6A LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116	S/R	N/A	OPEN	OPEN	NO	M-12(1)	K-6A
414	EPD	1	18	PS-1486	K-6B LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116B	S/R	N/A	OPEN	OPEN	NO	M-12 SH.105(1)	K-6B
415	EPD	2	18	PS-1496	K-6A LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116	S/R	N/A	OPEN	OPEN	NO	N/A	N/A
416	EPD	1	18	PS-1497	K-6B LUBE OIL PRESSURE SWITCH	M-214-1	AB	590	116B	S/R	N/A	OPEN	OPEN	NO	M-12 SH.105(1)	K-6B
417	HVAC	2	18	PS-1675	VC-11 SUCTION PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
418	HVAC	1	18	PS-1676	VC-10 SUCTION PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
419	HVAC	2	18	PS-1677	VC-11 DISC. PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
420	HVAC	1	18	PS-1678	VC-10 DISC. PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
421	HVAC	2	18	PS-1687	VC-11 COMPRESSOR OIL PRESS.	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
422	HVAC	1	18	PS-1688	VC-10 COMPRESSOR OIL PRESS.	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
423	HVAC	2	18	PS-1699	VC-11 PUMP DOWN	M-218-7	AB	625	300	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1089;EJ-1127
424	HVAC	1	18	PS-1700	VC-10 PUMP DOWN CYCLE	M-218-7	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1088;EJ-1126
425	RCPC	2	18	PT-0105A	PRESSURIZER WIDE RANGE PRESS.	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-84 SH.6	EY-30;EC-12
426	RCPC	1	18	PT-0105B	PRESS. LEVEL CHAN. A	M-201-2	RB	590	143	S/R	N/A	N/A	N/A	YES	E-84 SH.6A	EY-40;EC-12
427	DHR	2	18	PT-0741A	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
428	DHR	2	18	PT-0741B	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
429	DHR	2	18	PT-0741DD	P-8A/B LOW SUCTION	M-207-2	TB	570	007	S/R	N/A	N/A	N/A	YES	E-81 SH.3,4	EJ-1051;EY-10
430	DHR	2	18	PT-0751C	E50A LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-30
431	DHR	1	18	PT-0751D	E50A LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-40
432	DHR	2	18	PT-0752C	E-50B LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-30
433	DHR	1	18	PT-0752D	E-50B LOW PRESSURE TRANS.	M-207-1	RB	590	142	S/R	N/A	N/A	N/A	YES	E-83 SH.3	EC-06;EC-12;EC-187;EY-40
434	DHR	1	18	PT-0762A	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
435	DHR	1	18	PT-0762B	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
436	DHR	1	18	PT-0762C	LOW SUCTION PRESSURE TRIP	M-207-2	AB	570	005	S/R	N/A	N/A	N/A	YES	E-196 SH.8,10	EC-11;ED-21;EJ-1006;EJ-1052
437	RCPC	1	7	RV-0401	SHUTDOWN COOLING RELIEF	M-204-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
438	RCPC	2	7	RV-0401	SHUTDOWN COOLING RELIEF	M-204-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
439	RCPC	1	7	RV-0402	SHUTD COOL. HX E-60A TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
440	RCPC	2	7	RV-0402	SHUTD COOL. HX E-60A TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
441	RCPC	1	7	RV-0403	SHUTD COOL. HX E-60B TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
442	RCPC	2	7	RV-0403	SHUTD COOL. HX E-60B TUBE SIDE	M-204-1	AB	570	005	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
443	DHR	1	7	RV-0701	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
444	DHR	2	7	RV-0701	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
445	DHR	1	7	RV-0702	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
446	DHR	2	7	RV-0702	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
447	DHR	1	7	RV-0703	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
448	DHR	2	7	RV-0703	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
449	DHR	1	7	RV-0704	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
450	DHR	2	7	RV-0704	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
451	DHR	1	7	RV-0705	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
452	DHR	2	7	RV-0705	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
453	DHR	1	7	RV-0706	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
454	DHR	2	7	RV-0706	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
455	DHR	1	7	RV-0707	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
456	DHR	2	7	RV-0707	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
457	DHR	1	7	RV-0708	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
458	DHR	2	7	RV-0708	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
459	DHR	1	7	RV-0709	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
460	DHR	2	7	RV-0709	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
461	DHR	1	7	RV-0710	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
462	DHR	2	7	RV-0710	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
463	DHR	1	7	RV-0711	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
464	DHR	2	7	RV-0711	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
465	DHR	1	7	RV-0712	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
466	DHR	2	7	RV-0712	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
467	DHR	1	7	RV-0713	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
468	DHR	2	7	RV-0713	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
469	DHR	1	7	RV-0714	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
470	DHR	2	7	RV-0714	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
471	DHR	1	7	RV-0715	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
472	DHR	2	7	RV-0715	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
DON E KNOTTNERUS	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
473	DHR	1	7	RV-0716	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
474	DHR	2	7	RV-0716	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
475	DHR	1	7	RV-0717	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
476	DHR	2	7	RV-0717	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
477	DHR	1	7	RV-0718	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
478	DHR	2	7	RV-0718	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
479	DHR	1	7	RV-0719	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
480	DHR	2	7	RV-0719	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
481	DHR	1	7	RV-0720	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
482	DHR	2	7	RV-0720	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
483	DHR	1	7	RV-0721	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
484	DHR	2	7	RV-0721	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
485	DHR	1	7	RV-0722	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
486	DHR	2	7	RV-0722	S/G B RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
487	DHR	1	7	RV-0723	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
488	DHR	2	7	RV-0723	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
489	DHR	1	7	RV-0724	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
490	DHR	2	7	RV-0724	S/G A RELIEF	M-207-1	AB	625	338	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
491	DHR	2	7	RV-0783	P-8A/B DISCHARGE RELIEF	M-207-2	TB	570	007	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
492	RCPC	1	7	RV-1039	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
493	RCPC	2	7	RV-1039	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
494	RCPC	1	7	RV-1040	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
495	RCPC	2	7	RV-1040	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
496	RCPC	1	7	RV-1041	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
497	RCPC	2	7	RV-1041	PRESS. RELIEF	M-201-2	RB	649	424	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
498	EPD	2	7	RV-1475	FUEL OIL PRIMING LINE RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
499	EPD	2	7	RV-1476	DG-1/1 FUEL OIL RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
500	EPD	2	7	RV-1478	K-6A LUBE OIL RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
501	EPD	2	7	RV-1479	T-31A RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
502	EPD	2	7	RV-1480	T-31B RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
503	EPD	1	7	RV-1485	DG-1/2 FUEL PRIMING RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
504	EPD	1	7	RV-1486	DG-1/2 FUEL OIL RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
505	EPD	1	7	RV-1488	K-6B LUBE OIL RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
506	EPD	1	7	RV-1489	T-31C RELIEF VALVE	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
507	EPD	1	7	RV-1490	T-31D RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
508	HVAC	1	7	RV-1685	VC-11 SAFETY RELIEF	M-218-7	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
509	HVAC	2	7	RV-1685	VC-11 SAFETY RELIEF	M-218-7	AB	625	300	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
510	HVAC	1	7	RV-1686	VC-10 SAFETY RELIEF	M-218-7	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
511	HVAC	2	7	RV-1686	VC-10 SAFETY RELIEF	M-218-7	AB	625	300A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
512	RCPC	1	7	RV-2006	E-58 INLET RELIEF	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
513	RCPC	2	7	RV-2006	E-58 INLET RELIEF	M-202-1B	RB	607	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
514	RCPC	1	7	RV-2090	P-55A SUCTION RELIEF	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
515	RCPC	2	7	RV-2090	CHARG. P. P-55A SUCTION RELIEF VLV	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
516	RCPC	1	7	RV-2092	P-55A DISC. SAFETY RELIEF	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
517	RCPC	2	7	RV-2092	CHARG. P. P-55A DISC SAFETY RELIEF	M-202-1B	AB	590	104	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
518	RCPC	1	7	RV-2096	P-55B SUCTION REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
519	RCPC	2	7	RV-2096	P-55B SUCTION REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
520	RCPC	1	7	RV-2098	P-55B DISC. REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
521	RCPC	2	7	RV-2098	P-55B DISC. REFIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
522	RCPC	1	7	RV-2102	P-55C SUCTION RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
523	RCPC	2	7	RV-2102	P-55C SUCTION RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
524	RCPC	1	7	RV-2104	P-55C DISCHARGE RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
525	RCPC	2	7	RV-2104	P-55C DISCHARGE RELIEF	M-202-1B	AB	590	104B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
526	RCPC	2	7	RV-2230	BORIC ACID TANK RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
527	RCPC	1	7	RV-2231	BORIC ACID TANK RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
528	RCPC	2	7	RV-2231	BORIC ACID TANK RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
529	RCPC	1	7	RV-2232	BORIC ACID DISC. RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
530	RCPC	2	7	RV-2233	P-56B RECIRC RELIEF	M-202-1A	AB	590	107	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
531	RCPC	2	7	RV-2234	BORIC ACID RECIRC. RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
532	RCPC	1	7	RV-2235	BORIC ACID RECIRC. RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
533	RCPC	1	7	RV-2236	BORIC ACID PREFILTER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
534	RCPC	2	7	RV-2236	BORIC ACID PREFILTER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knothnerus	Don E Knothnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
535	RCPC	1	7	RV-2237	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
536	RCPC	2	7	RV-2237	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
537	RCPC	1	7	RV-2238	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
538	RCPC	2	7	RV-2238	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
539	RCPC	1	7	RV-2239	BLEADER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
540	RCPC	2	7	RV-2239	BLENDER RELIEF	M-202-1A	AB	590	107A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
541	RCPC	1	7	RV-2255	T-54 SUCTION RELIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
542	RCPC	2	7	RV-2255	T-54 SUCTION RELIEF	M-202-1B	AB	590	104A	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
543	DHR	2	7	RV-2273	N2 STA. 1 PRESS. RELIEF	M-222-2	AB	590	123	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
544	DHR	2	7	RV-2280	STATION 1-A PRESS. RELIEF	M-222-2	AB	590	123	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
545	RCPC	1	7	RV-3161	DRAIN TO QUENCH TANK	M-203-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
546	RCPC	2	7	RV-3161	DRAIN TO QUENCH TANK	M-203-1	RB	607	236	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
547	RCPC	1	7	RV-3162	LOW PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
548	RCPC	2	7	RV-3162	LOW PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
549	RCPC	1	7	RV-3164	SHUTDOWN COOLING RELIEF	M-204-1	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
550	RCPC	2	7	RV-3164	SHUTDOWN COOLING RELIEF	M-204-1	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
551	RCPC	1	7	RV-3165	HIGH PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
552	RCPC	2	7	RV-3165	HIGH PRESS. SFTY. INJECT. RFL VLV	M-203-2	RB	590	143	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
553	RCPC	1	7	RV-3264	SAFETY INJECT. RELIEF	M-203-2	RB	590	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
554	RCPC	2	7	RV-3264	SAFETY INJECT. RELIEF	M-203-2	RB	590	144	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
555	RCPC	1	7	RV-3266	H.P. PUMPS DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
556	RCPC	2	7	RV-3266	H.P. PUMPS DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
557	RCPC	1	7	RV-3267	P-66A DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
558	RCPC	2	7	RV-3267	P-66A DISCHARGE	M-204-1A	AB	570	004	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
559	EPD	1	7	RV-PUMP	K-6B LUBE OIL BOOSTER PUMP RELIEF	M-214-1	AB	590	116B	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
560	EPD	2	7	RV-PUMP	K-6A LUBE OIL BOOSTER PUMP RELIEF	M-214-1	AB	590	116	S	N/A	CLOSED	CLOSED	NO	N/A	N/A
561	DHR	1	8	SV-0502	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
562	DHR	2	8	SV-0505A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
563	DHR	2	8	SV-0505B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
564	DHR	2	8	SV-0507A	MAIN STEAM ISOLATION E-50B	M-205-1	TB	607	247	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
565	DHR	2	8	SV-0507B	MAIN STEAM ISOLATION E-50A	M-205-1	TB	607	247	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-180;ED-11
566	DHR	1	8	SV-0508	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
567	DHR	1	8	SV-0513	MAIN STEAM ISOLATION E-50A	M-205-1	AB	625	328	S/R	N/A	OPEN	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
568	DHR	1	8	SV-0514	MAIN STEAM ISOLATION E-50B	M-205-1	AB	625	328	S/R	N/A	CLOSED	CLOSED	YES	E-238 SH.1,1A	EC-01;EC-13;EC-181;ED-21
569	DHR	1	8	SV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
570	DHR	2	8	SV-0767	S/G E-50A BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
571	DHR	1	8	SV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
572	DHR	2	8	SV-0768	S/G E-50B BOTTOM BLOWDOWN	M-226-1	AB	607	238	S/R	N/A	AIR	VENT	NO	E-235 SH.4A	EC-13;EJ-540
573	DHR	1	8	SV-0779A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0779
574	DHR	2	8	SV-0779A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-11;PS-0779
575	DHR	2	8	SV-0779B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
576	DHR	2	8	SV-0779C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
577	DHR	1	8	SV-0780A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-21;PS-0780
578	DHR	2	8	SV-0780A	E-50B STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0780
579	DHR	1	8	SV-0780B	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-21
580	DHR	1	8	SV-0780C	E-50B ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-21
581	DHR	1	8	SV-0781A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0781
582	DHR	2	8	SV-0781A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-11;PS-0781
583	DHR	2	8	SV-0781B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
584	DHR	2	8	SV-0781C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	E-238 SH.1A,2	EC-04;EC-12;EC-182;ED-11
585	DHR	1	8	SV-0782A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	OPEN	YES	E-238 SH.1A,2	EC-182;ED-21;PS-0782
586	DHR	2	8	SV-0782A	E-50A STEAM DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	NO	E-238 SH.1A,2	EC-182;PS-0782
587	DHR	1	8	SV-0782B	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	OPEN	CLOSED	YES	E-238 SH.1A2	EC-04;EC-12;EC-182;ED-21
588	DHR	1	8	SV-0782C	E-50A ATMOSPHERIC DUMP	M-207-1	AB	625	338R	S/R	8	CLOSED	OPEN	YES	M-238 SH.1A,2	EC-04;EC-12;EC-182;ED-21
589	DHR	1	8	SV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S/R	N/A	AIR	VENT	NO	E-219 SH.1	EC-08;EC-13
590	DHR	2	8	SV-0821	CCW HEAT EXCHANGER OUTLET	M-208-1A	AB	590	123	S/R	N/A	AIR	VENT	NO	E-219 SH.1	EC-08;EC-13
591	DHR	2	8	SV-0847	AIR COOLER SWS SUPPLY	M-208-1B	AB	607	238	S/R	N/A	VENT	AIR	YES	E-219 SH.1,2	EC-08;EC-33;ED-11
592	DHR	1	8	SV-0884A	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
593	DHR	2	8	SV-0884A	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
594	DHR	1	8	SV-0884B	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
595	DHR	2	8	SV-0884B	K-6A SERVICE WATER	M-208-1A	AB	590	116	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-20
596	DHR	1	8	SV-0885A	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
597	DHR	2	8	SV-0885A	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
598	DHR	1	8	SV-0885B	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
599	DHR	2	8	SV-0885B	K-6B SERVICE WATER	M-208-1A	AB	590	116B	S/R	N/A	AIR	VENT	NO	E-140 SH.1	EG-30
600	DHR	1	8	SV-1359	SERVICE WATER ISOLATION	M-213	TB	590	136	S/R	N/A	AIR	VENT	NO	E-219 SH.1,3	EC-08;EC-12;EC-13
601	DHR	2	8	SV-1359	SERVICE WATER ISOLATION	M-213	TB	590	136	S/R	N/A	AIR	VENT	NO	E-219 SH.1,3	EC-08;EC-12;EC-13
602	EPD	2	8	SV-1415	DG-1/1 TO T-25A INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; E-178-4	EB-01;EG-21;EJ-246
603	EPD	1	8	SV-1452	DG-1/2 TO T-25B INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; E-178-4	EB-02;EG-31;EJ-245
604	EPD	2	8	SV-1470	DC-1/1 TO DAY INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-97	EB-01;EG-21
605	EPD	1	8	SV-1471	DG-1/2 FUEL OIL INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	E-140; M-12-104	EB-02;EG-31
606	EPD	2	8	SV-1479	STARTING AIR MOTOR INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.98	ED-11A;EG-20
607	EPD	2	8	SV-1480	STARTING AIR MOTOR INLET	M-214-1	AB	590	116	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.98	ED-11A;EG-20
608	EPD	1	8	SV-1489	STARTING AIR MOTOR INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.105	ED-21A;EG-30
609	EPD	1	8	SV-1490	STARTING AIR MOTOR INLET	M-214-1	AB	590	116B	S/R	N/A	CLOSED	OP/CL	YES	M-12 SH.105	ED-21A;EG-30
610	HVAC	2	8	SV-1659	V-95 DAMPER D-2	M-218-6	AB	625	300	S/R	N/A	AIR	VENT	NO	E-270 SH.4,4A	EC-11A;EC-186A;EJ-1001

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
611	HVAC	1	8	SV-1660	V-96 DAMPER D-9	M-218-6	AB	625	300A	S/R	N/A	AIR	VENT	NO	E-270 SH.4,4A	EC-11A;EC-186B;EJ-1000
612	HVAC	2	8	SV-1675A	VC-11 CONDENSING UNIT	M-218-7	AB	625	300	S/R	N/A	CLOSED	OP/CL	YES	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093;EY-10
613	HVAC	2	8	SV-1675B	VC-11 CONDENSING UNIT	M-218-7	AB	625	300	S/R	N/A	CLOSED	OP/CL	YES	E-270 SH.7	EJ-1001;EJ-1089;EJ-1093;EY-10
614	HVAC	1	8	SV-1676A	VC-10 CONDENSING UNIT	M-218-7	AB	625	300A	S/R	N/A	CLOSED	OP/CL	YES	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092;EY-20
615	HVAC	1	8	SV-1676B	VC-10 CONDENSING UNIT	M-218-7	AB	625	300A	S/R	N/A	CLOSED	OP/CL	YES	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092;EY-20
616	HVAC	2	8	SV-1743	RECIRC. DAMP. D-6	M-218-6A	AB	625	300	S/R	N/A	AIR	VENT	NO	E-271-5	EC-186A;EJ-1001
617	HVAC	1	8	SV-1744	RECIRC. DAMPER D-13	M-218-6A	AB	625	300A	S/R	N/A	AIR	VENT	NO	E-271 SH.5	EC-186B;EJ-1000
618	RCPC	1	8	SV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S/R	N/A	AIR	VENT	NO	E-236 SH.1	EC-02;EC-12
619	RCPC	2	8	SV-2003	LETDOWN STOP	M-202-1B	RB	607	144	S/R	N/A	AIR	VENT	NO	E-236 SH.1	EC-02;EC-12
620	EPD	1	21	T-10	DIESEL OIL STORAGE TANK	M-214-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/A	N/A
621	EPD	2	21	T-10	DIESEL OIL STORAGE TANK	M-214-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/A	N/A
622	RCPC	1	0	T-105A	P-55A SUCTION STABILIZER	M-202-1B	AB	590	104	S	N/A	OPEN	OPEN	NO	N/A	N/A
623	RCPC	2	0	T-105A	CHARG. P. P-55A SUCTION STABILIZER	M-202-1B	AB	593	104	S	N/A	OPEN	OPEN	NO	N/A	N/A
624	RCPC	1	0	T-105B	P-55B SUCTION STABILIZER	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
625	RCPC	2	0	T-105B	P-55B SUCTION STABILIZER	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
626	RCPC	1	0	T-105C	P-55C SUCTION STABILIZER	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
627	RCPC	2	0	T-105C	P-55C SUCTION STABLIZER	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
628	RCPC	1	0	T-106A	P-55A DISC. ACCUMULATOR	M-202-1B	AB	590	104	S	N/A	OPEN	OPEN	NO	N/A	N/A
629	RCPC	2	0	T-106A	CHARG. P. P-55A DISCH ACCUMULATOR	M-202-1B	AB	593	104	S	N/A	OPEN	OPEN	NO	N/A	N/A
630	RCPC	1	0	T-106B	P-55B DISC. ACCUM.	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
631	RCPC	2	0	T-106B	P-55B DISC. ACCUM.	M-202-1B	AB	590	104A	S	N/A	OPEN	OPEN	NO	N/A	N/A
632	RCPC	1	0	T-106C	P-55C DISCHARGE ACCUMULATOR	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
633	RCPC	2	0	T-106C	P-55C DISCHARGE ACCUMULATIOR	M-202-1B	AB	590	104B	S	N/A	OPEN	OPEN	NO	N/A	N/A
634	EPD	2	21	T-13A	JACKET WATER SURGE TANK	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
635	EPD	1	21	T-13B	JACKET WATER SURGE TANK	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
636	DHR	1	21	T-2	CONDENSATE STORAGE TANK	M-220-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
637	DHR	2	21	T-2	CONDENSATE STORAGE TANK	M-220-1	TB	590	OUTSIDE	S	N/A	N/A	N/A	NO	N/A	N/A
638	EPD	2	21	T-25A	DG-1/1 DAY TANK	M-214-1	AB	590	146	S	N/A	N/A	N/A	NO	N/A	N/A
639	EPD	1	21	T-25B	DG-1/2 DAY TANK	M-214-1	AB	590	147	S	N/A	N/A	N/A	NO	N/A	N/A
640	EPD	2	21	T-31A	AIR STARTING TANK	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
641	EPD	2	21	T-31B	AIR STARTING TANK	M-214-1	AB	590	116	S	N/A	N/A	N/A	NO	N/A	N/A
642	EPD	1	21	T-31C	AIR STARTING TANK	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
643	EPD	1	21	T-31D	AIR STARTING TANK	M-214-1	AB	590	116B	S	N/A	N/A	N/A	NO	N/A	N/A
644	RCPC	1	21	T-53A	BORIC ACID TANK	M-202-1A	AB	590	107	S	N/A	N/A	N/A	NO	N/A	N/A
645	RCPC	2	21	T-53A	BORIC ACID TANK	M-202-1A	AB	590	107	S	N/A	N/A	N/A	NO	N/A	N/A
646	RCPC	2	21	T-53B	BORIC ACID TANK	M-202-1A	AB	590	107	S	N/A	N/A	N/A	NO	N/A	N/A
647	RCPC	1	21	T-58	SIRW TANK	M-204-1B	AB	649	808	S	N/A	N/A	N/A	NO	N/A	N/A
648	RCPC	2	21	T-58	SIRW TANK	M-204-1B	AB	649	808	S	N/A	N/A	N/A	NO	N/A	N/A
649	RCPC	1	21	T-73	QUENCH TANK	M-201-2	RB	625	335	S	N/A	N/A	N/A	NO	N/A	N/A
650	RCPC	2	21	T-73	QUENCH TANK	M-201-2	RB	625	335	S	N/A	N/A	N/A	NO	N/A	N/A
651	RCPC	2	19	TE-0112CC	CHANNEL C COLD LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
652	RCPC	1	19	TE-0112CD	CHANNEL D COLD LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
653	RCPC	2	19	TE-0112HC	CHANNEL C HOT LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
654	RCPC	1	19	TE-0112HD	CHANNEL D HOT LEG TEMP. ELEM.	M-201-1	RB	607	237	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
655	RCPC	2	19	TE-0122CC	CHANNEL C COLD LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
656	RCPC	1	19	TE-0122CD	CHANNEL D COLD LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
657	RCPC	2	19	TE-0122HC	CHANNEL C HOT LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.7	EC-12;EY-30
658	RCPC	1	19	TE-0122HD	CHANNEL D HOT LEG TEMP. ELEM.	M-201-1	RB	607	236	S/R	N/A	N/A	N/A	YES	E-96 SH.8	EC-12;EY-40
659	EPD	2	18	TI-1478	K-6A LUBE OIL TEMP. IND	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
660	EPD	2	18	TI-1482	JACKET WATER TEMP. IND.	M-214-1	AB	590	116	S	34	ON	ON	NO	N/A	OPERATOR ACTION
661	EPD	1	18	TI-1488	K-6B LUBE OIL TEMPERATURE IND.	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
662	EPD	1	18	TI-1492	JACKET WATER TEMP.	M-214-1	AB	590	116B	S	34	ON	ON	NO	N/A	OPERATOR ACTION
663	HVAC	2	18	TS-1653	VC-11 OIL TEMP. SWITCH	M-218-7	AB	625	300	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1089;EY-10
664	HVAC	1	18	TS-1654	VC-10 OIL TEMP. SWITCH	M-218-7	AB	625	300A	S/R	N/A	CLOSED	CLOSED	YES	M-91-37;E-270-7	EJ-1088;EY-20
665	DGV	1	18	TS-1820	V-24D TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
666	DGV	1	18	TS-1821	V-24C TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
667	DGV	1	18	TS-1822	V-24C TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Don E Knottnerus	Don E Knottnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95
Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date

No.	Func No.	Train	Eq. Cl.	Equipment ID Number	System/Equipment Description	Drawing No /Rev./Zone	Bldg.	Floor Elev.	Room or Row/Col.	Eval Type	Notes	Normal State	Desired State	Power Req'd	Supporting Sys Dwg. No./Rev	Required Supporting Systems or Components
668	DGV	1	18	TS-1823	V-24D TEMP	M-218-5	AB	590	116B	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-24
669	DGV	2	18	TS-1827	V-24A TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
670	DGV	2	18	TS-1828	V-24A TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
671	DGV	2	18	TS-1843	V-24B TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
672	DGV	2	18	TS-1844	V-24B TEMP	M-218-5	AB	590	116	S/R	N/A	OP/CL	OP/CL	YES	E-280 SH.1	EB-25
673	DGV	2	9	V-24A	DG 1-1 VENT FAN	M-218-5	AB	590	116	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-25;N81
674	DGV	2	9	V-24B	DG 1-1 VENT FAN	M-218-5	AB	590	116	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-25;N69
675	DGV	1	9	V-24C	DG 1-2 VENT FAN	M-218-5	AB	590	116B	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-24;N93
676	DGV	1	9	V-24D	DG 1-2 VENT FAN	M-218-5	AB	590	116B	S/R	N/A	ON/OFF	ON/OFF	YES	E-280 SH.1	EB-24;N61
677	HVAC	2	9	V-26A	AIR FILTER UNIT FAN	M-218-6A	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-271 SH.3,4	EB-25;EC-11A;EC-186A;EJ-1001
678	HVAC	1	9	V-26B	AIR FILTER VENT FAN	M-218-6A	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-271 SH.3,4	EB-26;EC-11A;EC-186B;EJ-1000
679	HVAC	2	9	V-95	CONTROL ROOM VENT. FAN	M-218-6	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.2,2A	EB-25;EC-11A;EC-186A;EC-188A;EJ-
680	HVAC	1	9	V-96	CONTROL ROOM VENT. FAN	M-218-6	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.2,2A	EB-26;EC-11A;EC-186B;EC-188B;EJ-
681	DHR	1	11	VC-10	CONTROL ROOM CONDENSING UNIT	M-208-1B	AB	625	300A	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.6,7	EB-26;EC-11A;EC-186B;EJ-1000;EJ-
682	DHR	2	11	VC-11	CONTROL ROOM CONDENSING UNIT	M-208-1B	AB	625	300	S/R	N/A	ON/OFF	ON/OFF	YES	E-270 SH.6,7	EB-25;EC-11A;EC-186A;EJ-1001;EJ-
683	HVAC	2	10	VDX-95	V-95 COOLING COIL	M-218-6	AB	625	300	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1001;EJ-1089;EJ-1093
684	HVAC	1	10	VDX-96	V-96 COOLING COIL	M-218-6,7	AB	625	300A	S/R	N/A	OPEN	OPEN	NO	M-91-37;E-270-7	EJ-1000;EJ-1088;EJ-1092

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 my knowledge and belief, correct and accurate. (One or more signatures of Systems or Operations Engineers)

Print or type Name/Title	Signature	Date	Print or type Name/Title	Signature	Date
Don E Knotnerus	Don E Knotnerus	5/3/95	Dale E. Engle	Dale E Engle	5/3/95

Appendix B: Seismic Design Basis Spectra

Consumers Power Company
Palisades Nuclear Plant
Ground Response Spectra - SSE

BUILDING : GROUND
ELEVATION : 590'
DIRECTION : HORIZONTAL

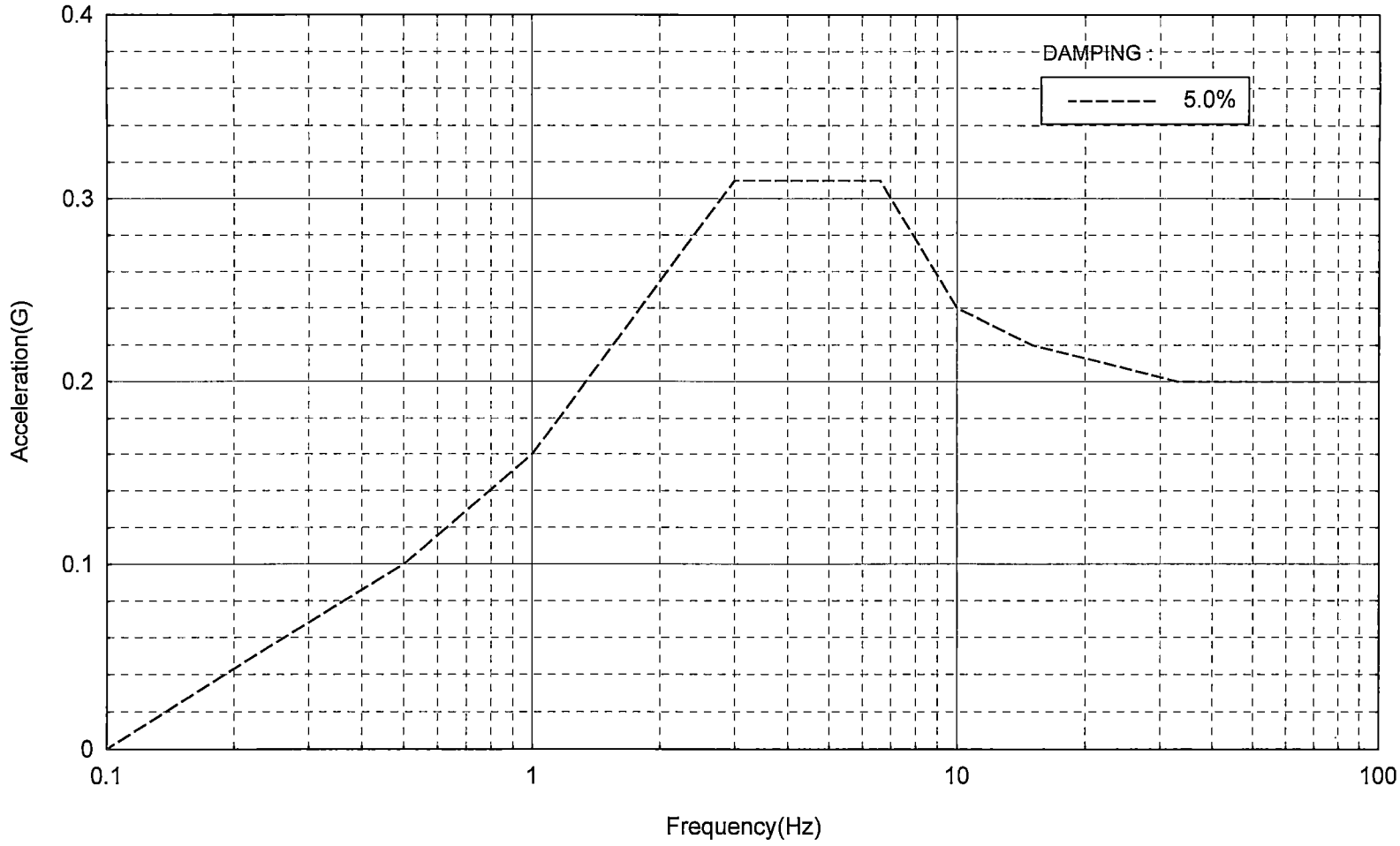


Figure B-1

Consumers Power Company
Palisades Nuclear Plant
Ground Response Spectra - SSE

BUILDING : GROUND
ELEVATION : 590'
DIRECTION : VERTICAL

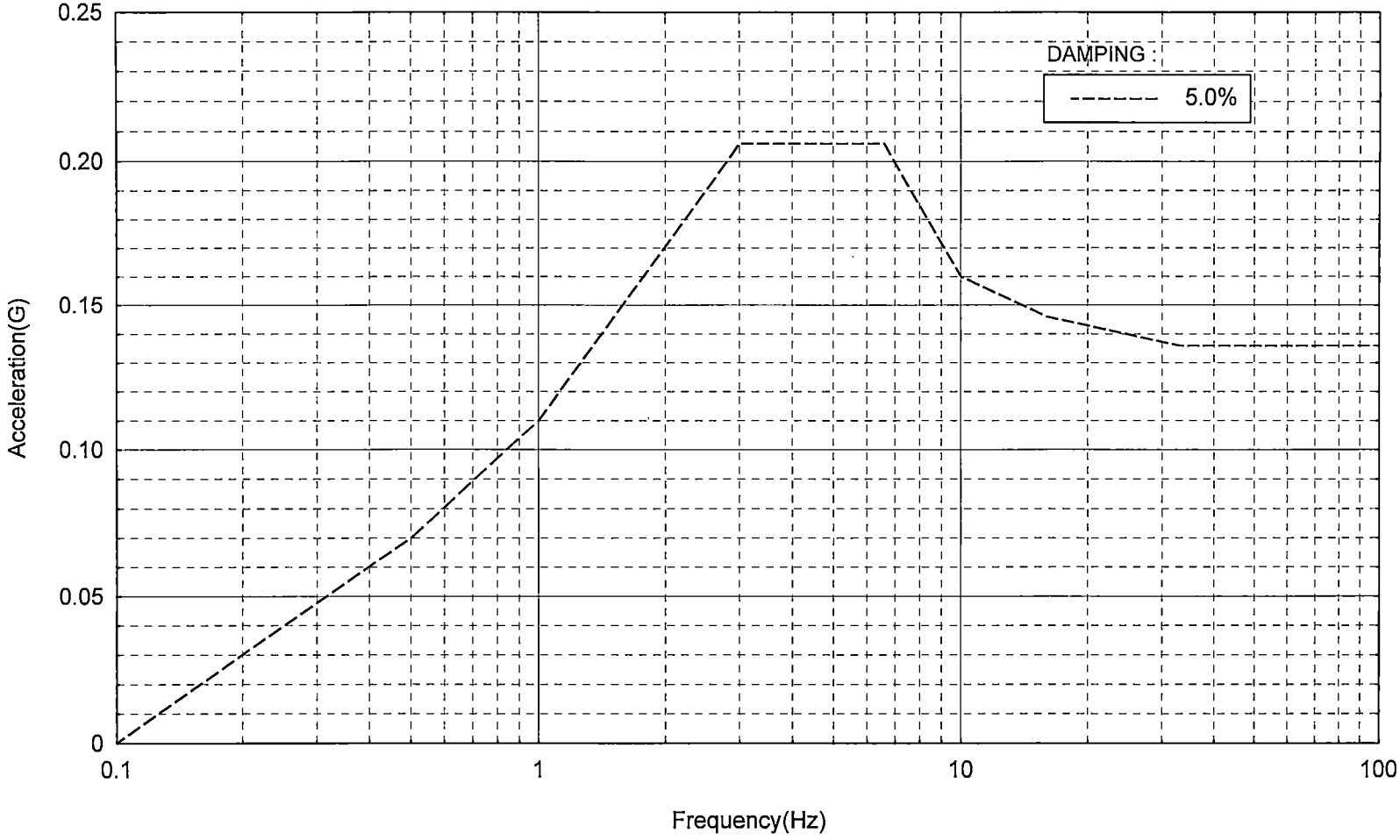


Figure B-2

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : REACTOR (BaseMat)
ELEVATION : 590'
DIRECTION : HORIZONTAL

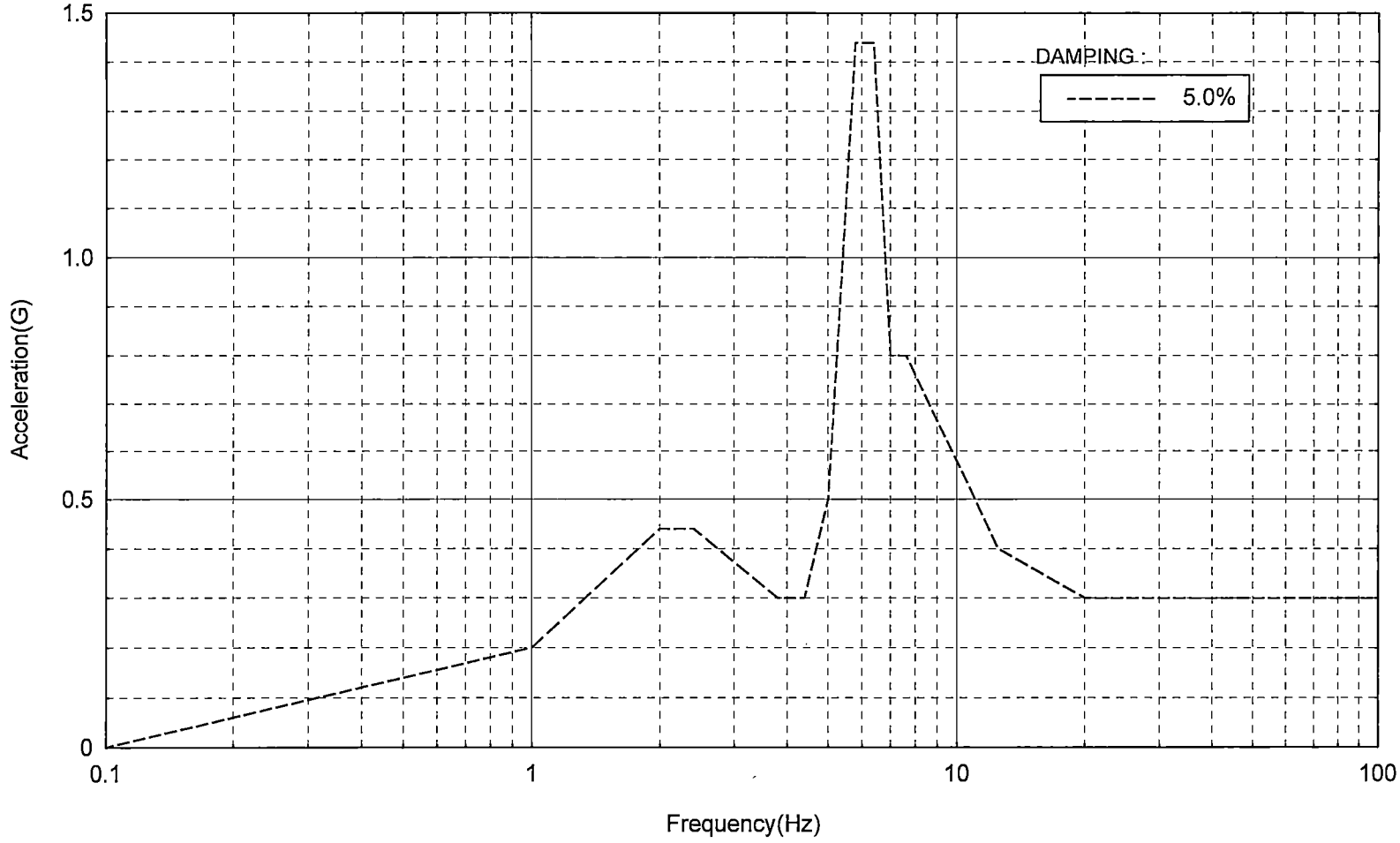


Figure B-3

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : REACTOR (Internal)
ELEVATION : 606'
DIRECTION : HORIZONTAL

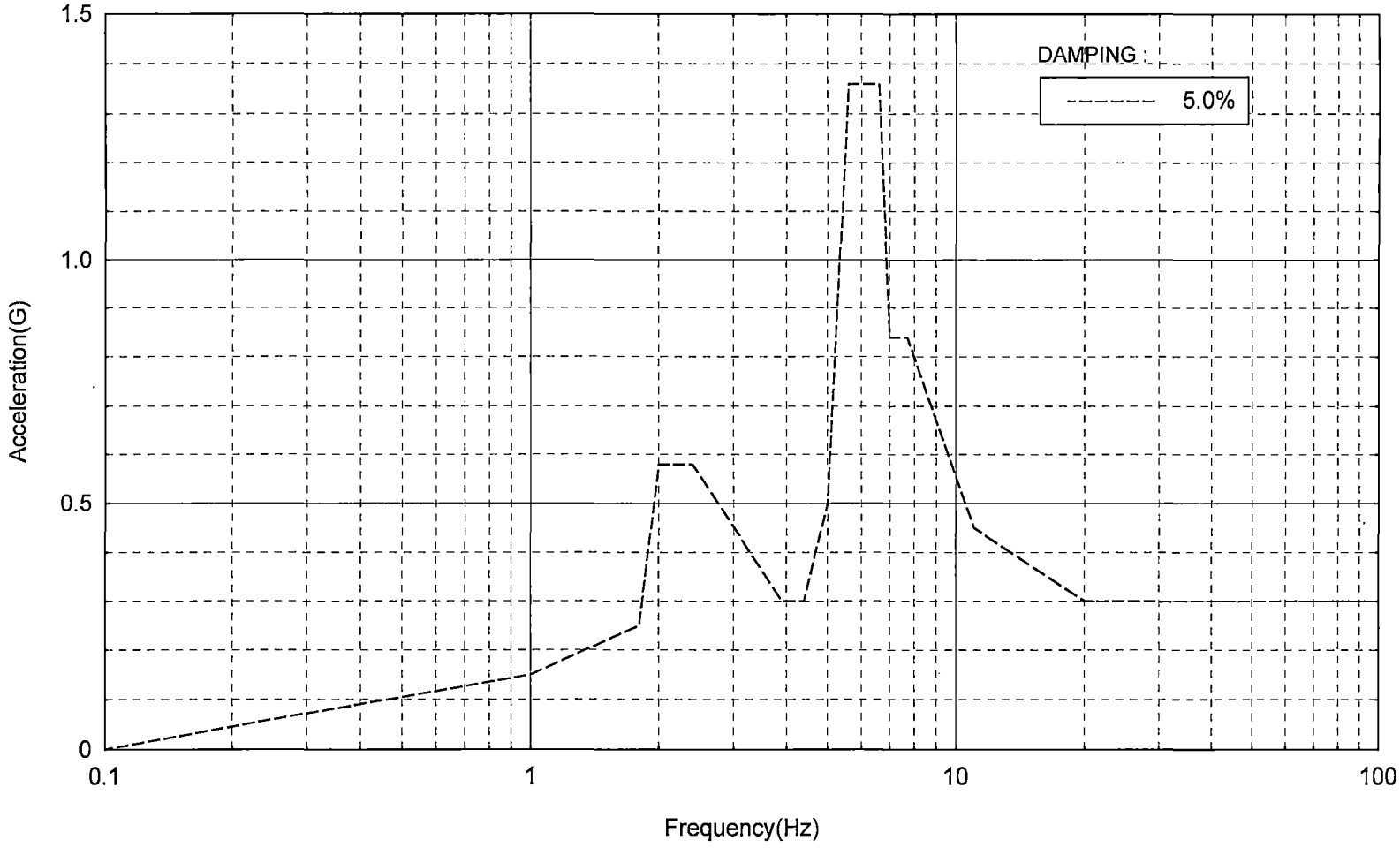


Figure B-4

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : REACTOR (Internal)
ELEVATION : 649'
DIRECTION : HORIZONTAL

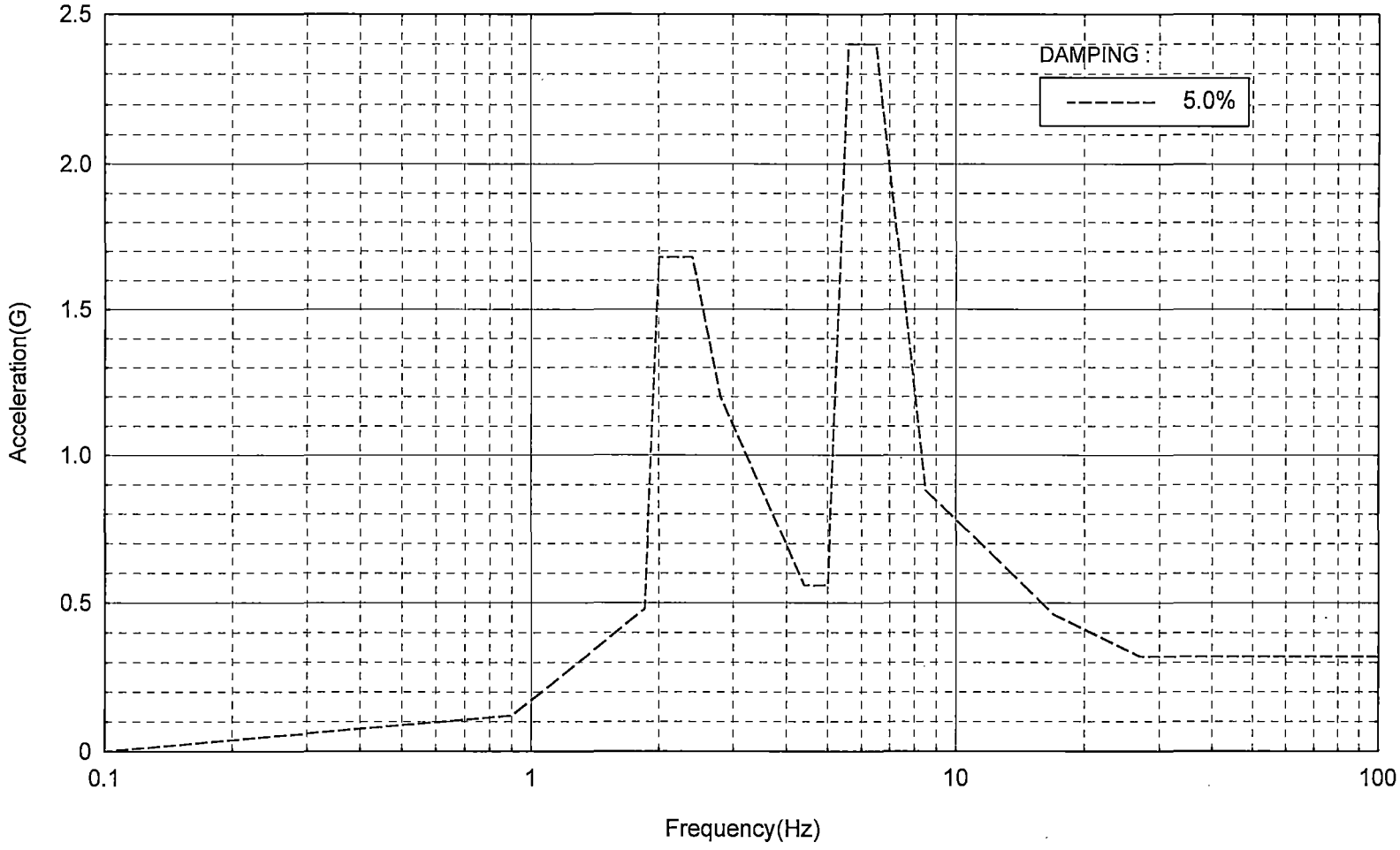


Figure B-5

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : REACTOR (Shell)
ELEVATION : 608.75'
DIRECTION : HORIZONTAL

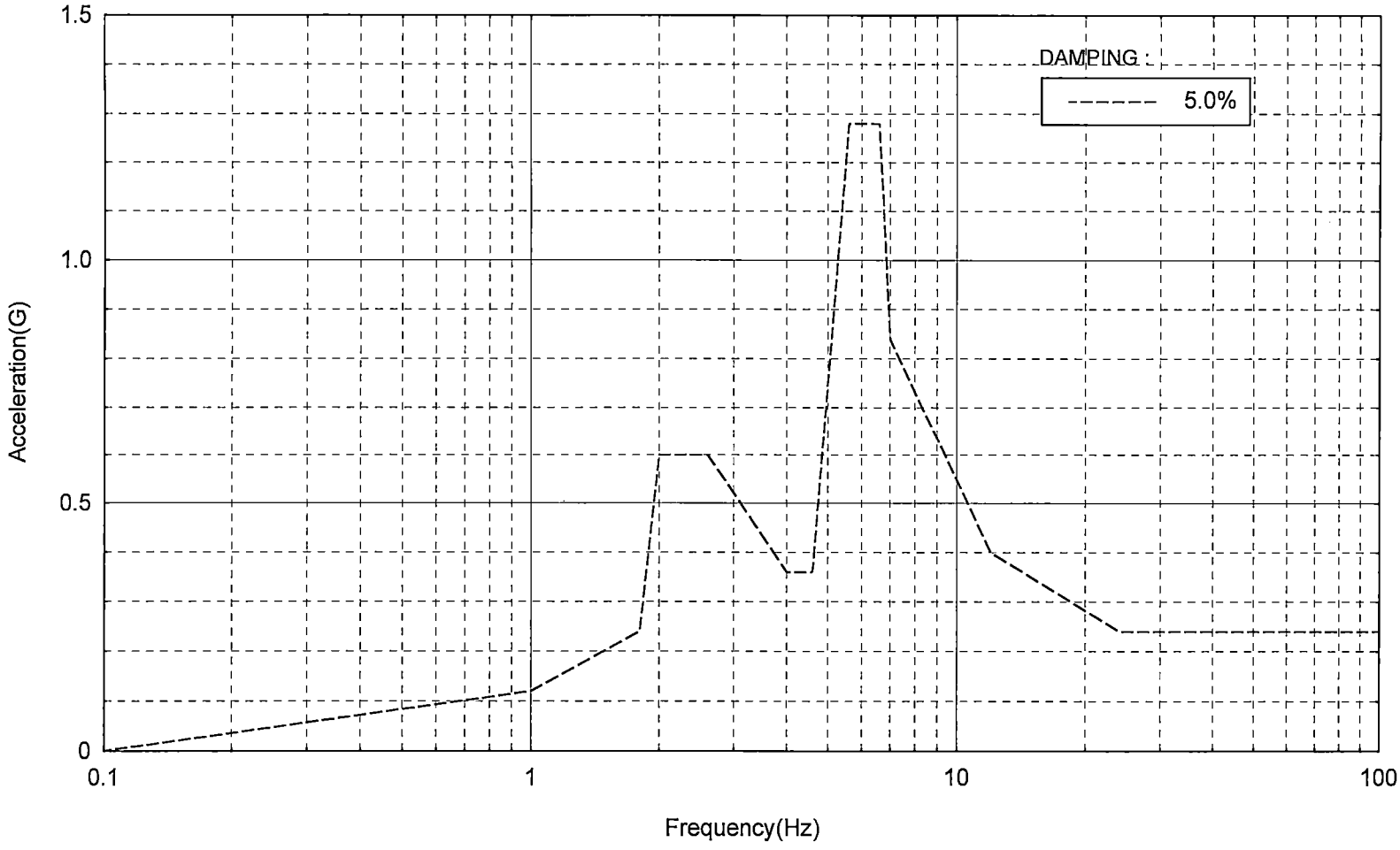


Figure B-6

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : REACTOR (Shell)
ELEVATION : 646.25'
DIRECTION : HORIZONTAL

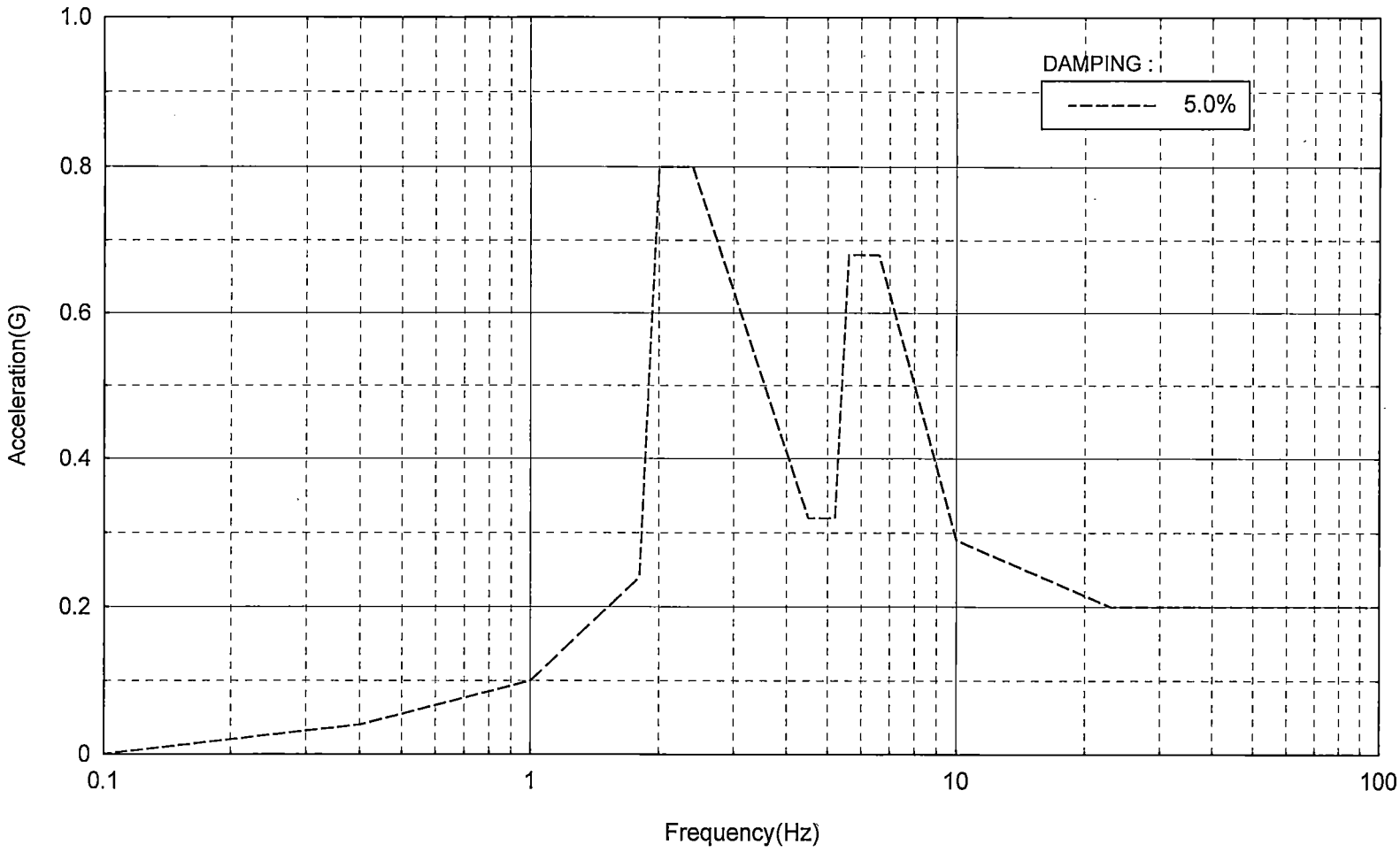


Figure B-7

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : REACTOR (Shell)
ELEVATION : 683.75'
DIRECTION : HORIZONTAL

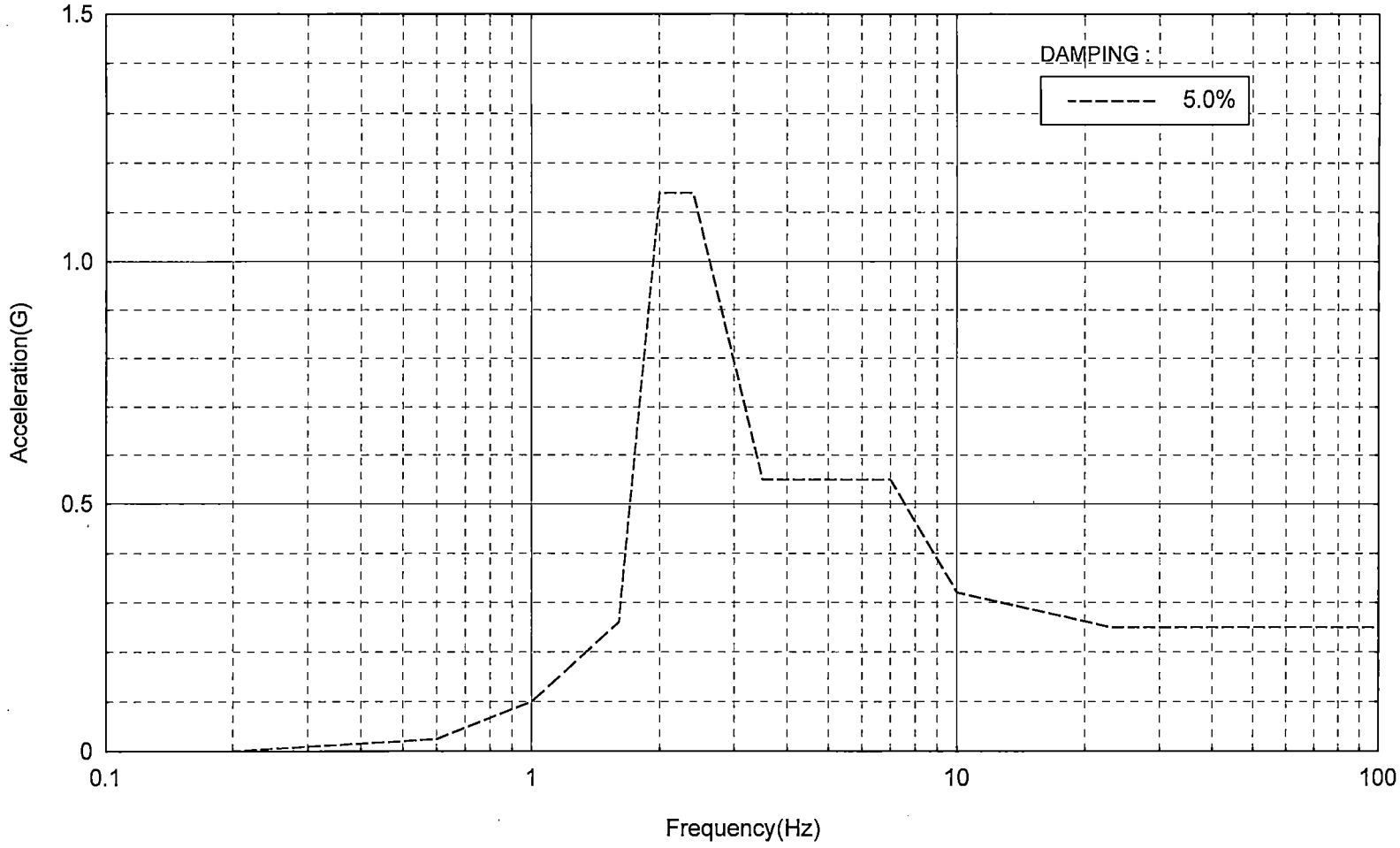


Figure B-8

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : REACTOR (Shell)
ELEVATION : 765'
DIRECTION : HORIZONTAL

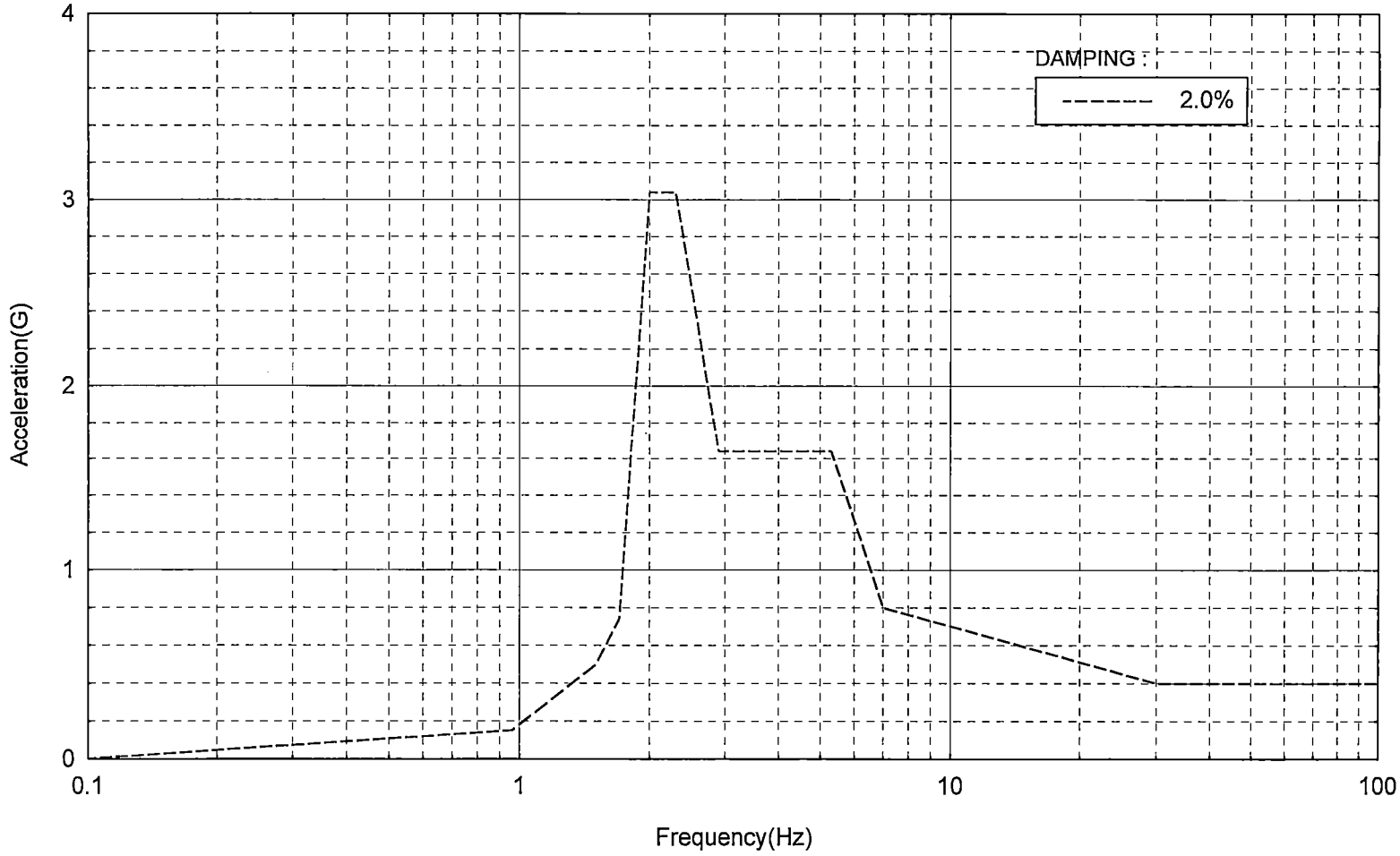


Figure B-9

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : AUXILIARY
ELEVATION : 590'
DIRECTION : HORIZONTAL

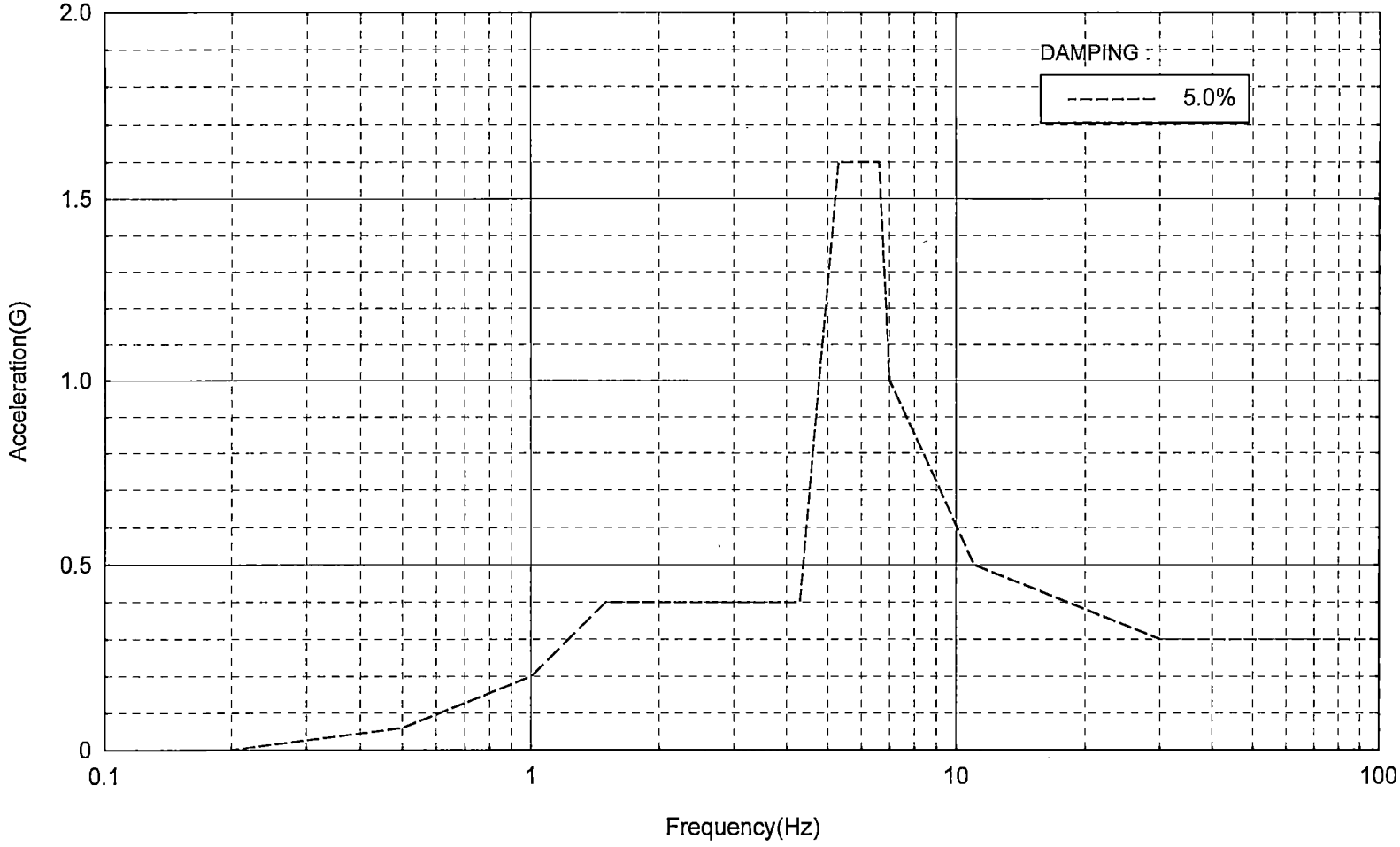


Figure B-10

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : AUXILIARY
ELEVATION : 601'
DIRECTION : HORIZONTAL

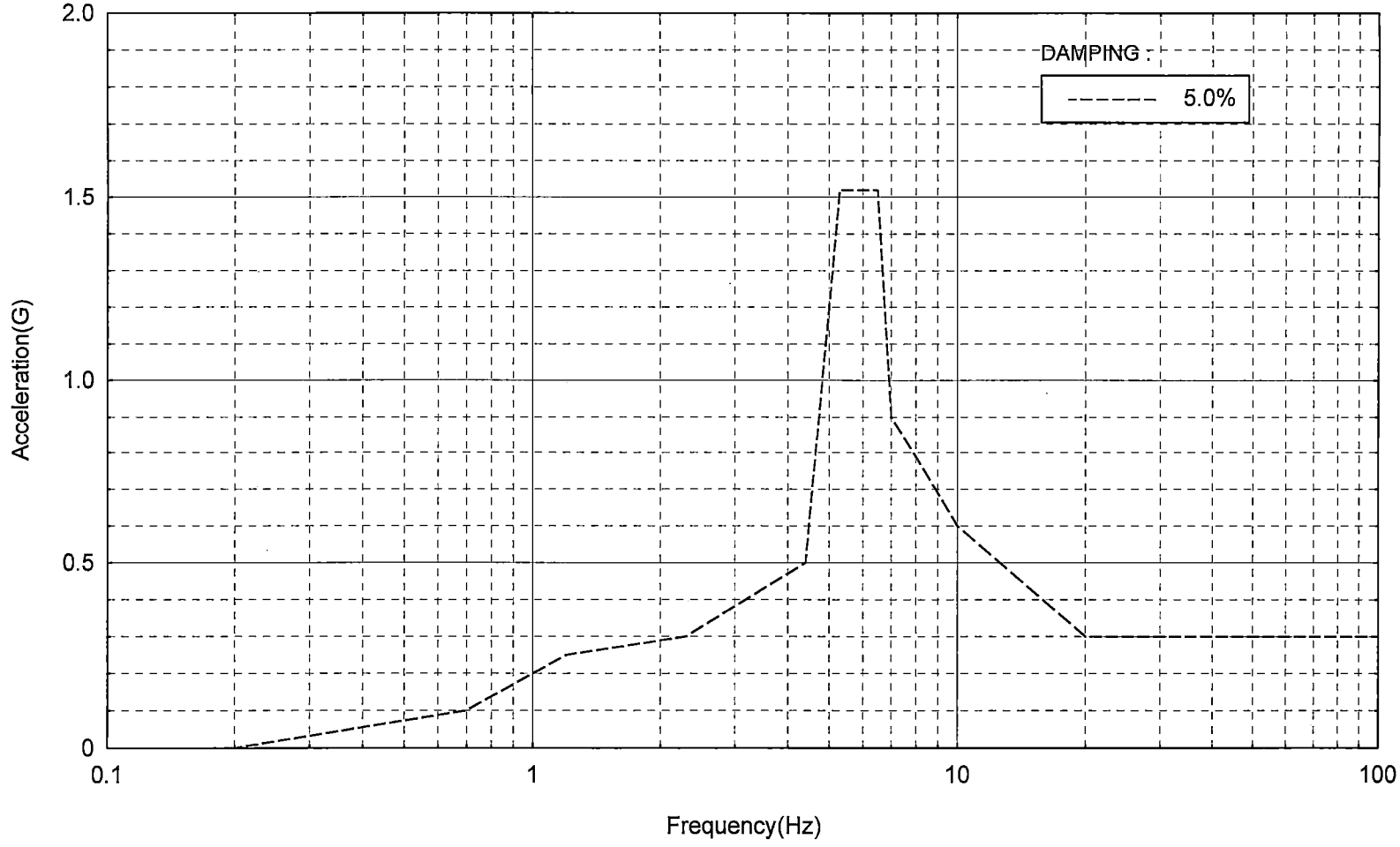


Figure B-11

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : AUXILIARY
ELEVATION : 610'
DIRECTION : HORIZONTAL

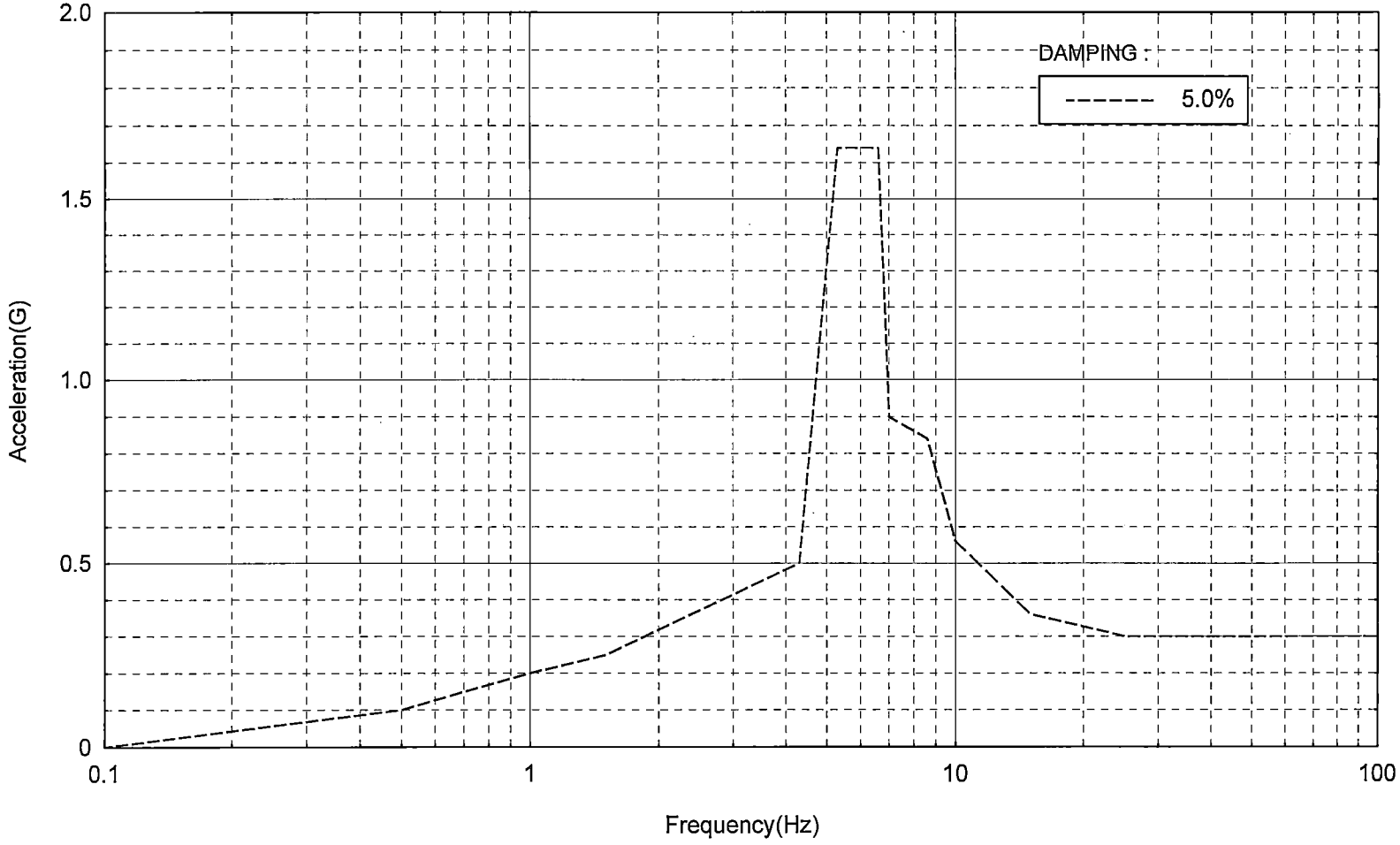


Figure B-12

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : AUXILIARY
ELEVATION : 625'
DIRECTION : HORIZONTAL

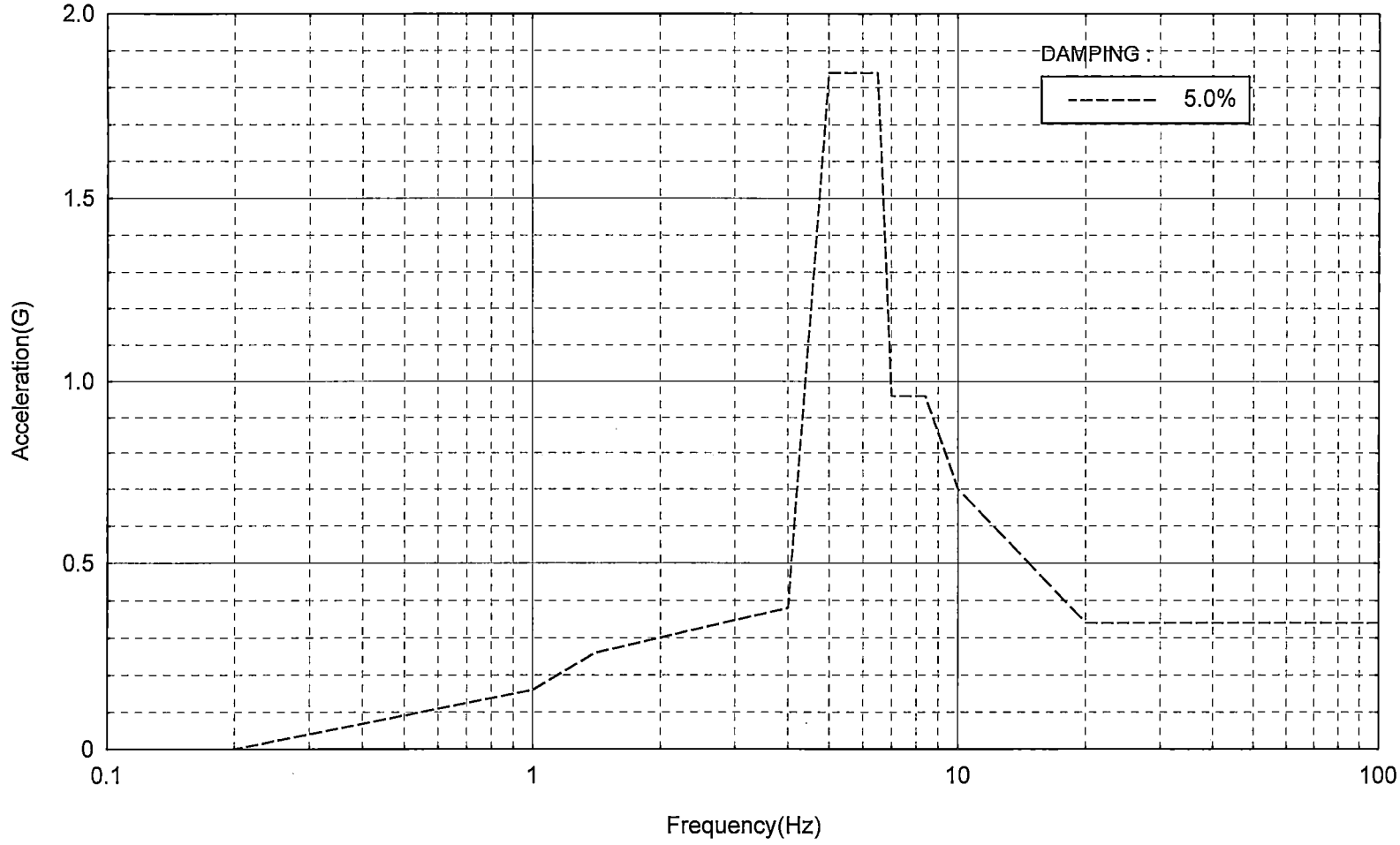


Figure B-13

Consumers Power Company
Palisades Nuclear Plant
Amplified Floor Response Spectra - SSE

BUILDING : AUXILIARY
ELEVATION : 649'
DIRECTION : HORIZONTAL

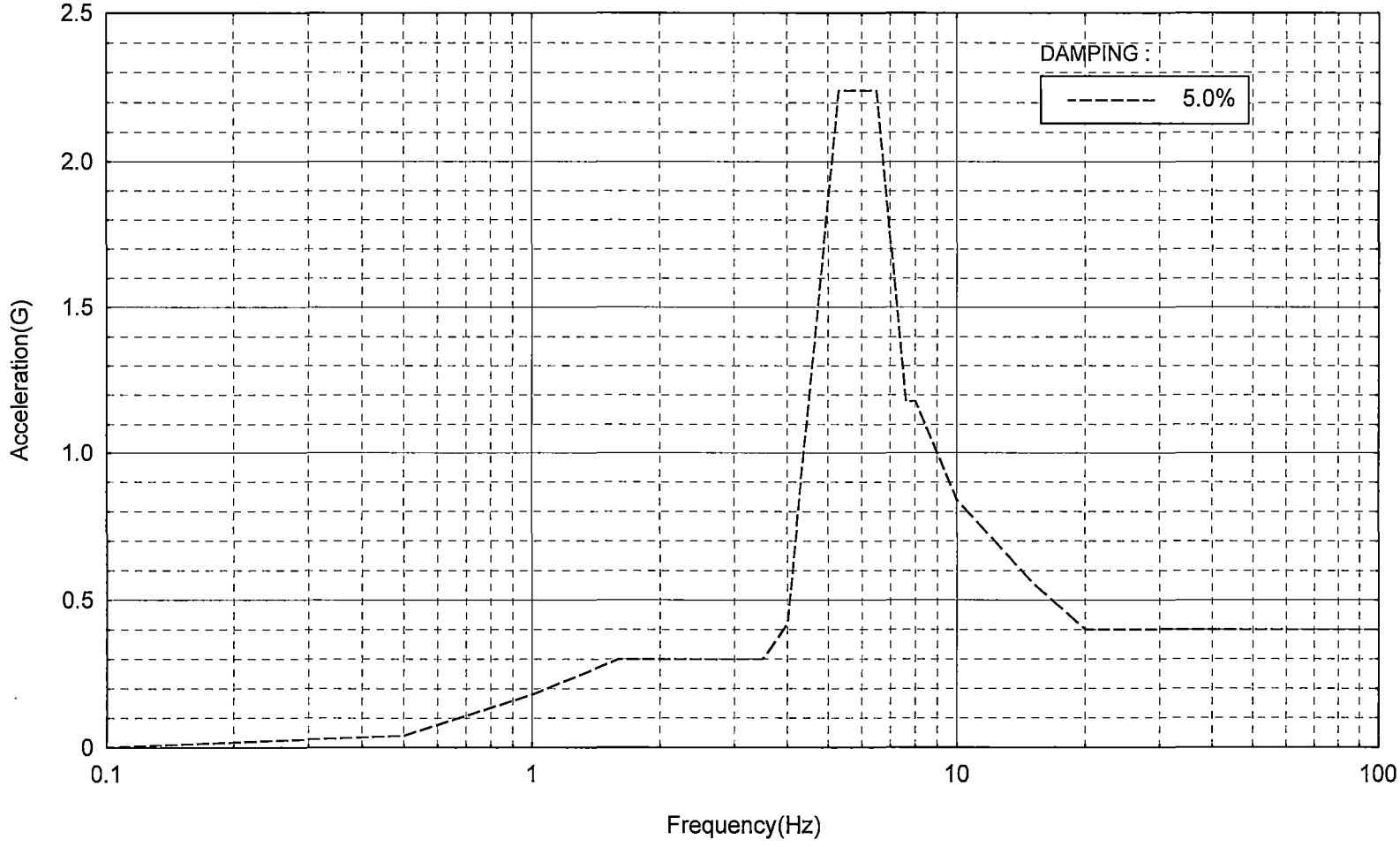


Figure B-14

Appendix C: Walkdown & Peer Review Personnel Resumes

Walkdown Engineers

S. Anagnostis
J. Boucher
W. Djordjevic
A. Lyon
R. Jenkins

Peer Reviewers

R. P. Kennedy
J. D. Stevenson

STEPHEN ANAGNOSTIS

EDUCATION:

B.S. - Civil Engineering, Columbia University School of Engineering, 1974
M.S. - Structural Engineering, Massachusetts Institute of Technology, 1976

PROFESSIONAL HISTORY:

Stevenson & Associates, Inc., Project Manager, 1983 - present
URS / John A. Blume & Associates, Engineers, Boston, Massachusetts, Project Engineer 1982 - 1983; Senior Engineer, 1980 - 1982
Charles Stark Draper Laboratory , Cambridge, Massachusetts, Technical Staff, 1976 - 1980; Draper Fellow, 1974 - 1976

PROFESSIONAL EXPERIENCE:

Mr. Anagnostis has eighteen years of experience, principally in the areas of seismic and dynamic engineering analysis. He joined Stevenson & Associates in February 1983 as a Project Manager in the Boston area office. He is currently the Project Manager for the resolution of USI A-46 for the Salem plants, and will be the lead walkdown engineer and analyst for the James A. Fitzpatrick A-46 project. He has conducted hundreds of hours of seismic walkdowns at nuclear power facilities throughout the US and aborad. Mr. Anagnostis is the principal author of S&A's ***GIPPER*** and ***IPEXPERT,*** computer programs specifically designed to gather and analyze data for the implementation of the USI A-46 and seismic IPEEE programs respectively.

Mr. Anagnostis was extensively involved in both analysis (frequency domain and time domain structural dynamics) and testing (in-situ modal and full-scale shaking-table) at URS/Blume's Boston office. He had lead technical responsibility for a two year program to develop a seismic evaluation criteria for electrical raceway systems at eight of the oldest United States nuclear power stations. This program included the design, supervision, and data analysis of shaking-table tests of full-scale raceway systems, cyclic/fatigue tests of raceway components, and the development of analytical evaluation techniques incorporating the test results.

As a member of the technical staff of Charles Stark Draper Laboratory, Mr.Anagnostis was involved in the assessment of space based surveillance (infra-red and radar) and defense systems for the Defense Advanced Research Projects Agency. He was a major author of a software simulation system to assess the capabilities of spaced based optical systems including structural vibrations, control dynamics, and optical performance.

S&A

PROFESSIONAL GROUPS:

Committee, Working Group for the Analysis and Design of Electrical Cable Support Systems

Member, American Society of Civil Engineers Nuclear Structures and Materials

PUBLICATIONS AND REPORTS:

"Vibration Engineering in the Semiconductor Industry," with W. Djordjevic and T. M, Tseng, Test and Measurement World, May, 1984

"EDASP: Structural Modification Program," with W. Djordjevic and T. M. Tseng, Proceedings, Second International Modal Analysis Conference, Orlando, Florida (February 1984).

"Implementation of Software to Account for Equipment Modifications," with W. Djordjevic, C. Gangone, R. Jenkins and A. Marion, Transactions, ANS 1983 Winter Meeting, San Francisco, California (October 1983)

"Theory and Implementation of Analytical Tools to Calculate Response Changes in Equipment Previously Evaluated by Testing," with W, Djordjevic, Transactions, 7th International Conference on Structural Mechanics in Reactor Technology (August 1983)

"Seismic Evaluation of Electrical Raceway Systems," with W. Djordjevic and F. Elsabee, 1983 ASME Pressure Vessel and Piping Conference, Portland, Oregon (June 1983)

"Space Radar Large Aperture Simulation/Analysis," with F. Ayer, CSDL R-1413 (October 1980)

"Large Beam Expander Technology Design, Analysis and Simulation Development Program" (U), with K. Soosaar, et al., CSDL R-1224 (Secret), (April 1979)

"High Altitude Large Optics Integrated Simulations" (U). with K. Soosaar. et al., CSDL R-1286 (Secret), (July 1979)

"Passive and Active Suppression of Vibration Response in Precision Structures" (U), with K. Soosaar et al., CSDL R-889 (Secret) (February 1978)

"Optimal Actuator Locations for Mirror Surface Control," M.S. Thesis Massachusetts Institute of Technology (May 1976)

S&A

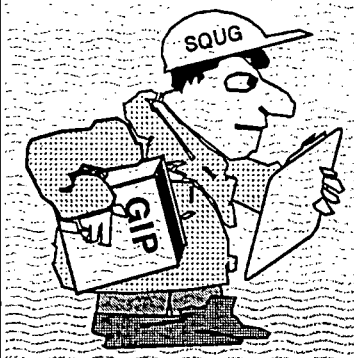
SQUG

Certificate of Achievement

This is to Certify that

Steve Anagnostis

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held April 6-10, 1992



Neil P. Smith, Commonwealth Edison
SQUG Chairman

David A. Freed, MPR Associates
SQUG Training Coordinator

Robert P. Kassawara, EPRI
SQUG Program Manager

WALTER DJORDJEVIC

EDUCATION:

B.S. - Civil Engineering, University of Wisconsin at Madison, 1974
M.S. - Structural Engineering, Massachusetts Institute of Technology, 1976

REGISTRATION:

State of California, State of Wisconsin, Commonwealth of Massachusetts, State of Michigan

PROFESSIONAL HISTORY:

Stevenson & Associates, Inc., Vice President and General Manager of the Boston area office, 1983 - present
URS/John A. Blume & Associates, Engineers, Boston, Massachusetts, General Manager, 1980 - 1983; San Francisco, California, Supervisory Engineer, 1979 - 1980
Impell Corporation, San Francisco, California, Senior Engineer, 1976 - 1979
Stone & Webster Engineering Corporation, Boston, Massachusetts, Engineer, 1974 - 1976

PROFESSIONAL EXPERIENCE:

Mr. Djordjevic founded the Stevenson & Associates Boston area office in 1983 and serves as Vice President and General Manager. He is currently preforming numerous seismic walkdowns for resolution of the USI A-46 and seismic IPEEE issues, and serving as the Project Manager for the Kewaunee, Point Beach and Palisades projects, all joint A-46 and Seismic PRA projects.

Mr. Djordjevic is expert in the area of seismic fragiity analysis and dynamic qualification of electrical and mechanical equipment. He has participated in and managed over twenty major projects involving the evaluation and qualification of vibration sensitive equipment and seismic hardening of equipment. As demonstrated by his committee work and publications, Mr. Djordjevic has participated in and contributed steadily to the development of equipment qualification and vibration hardening methodology.

Mr. Djordjevic's previous walkdown experience included all of the SEP plants (8 plants), Nine Mile - Unit 1, D.C. Cook - Units 1 & 2, the Hanford Reservation Purex facility and the Savannah River Plant Reservation L-Reactor. He has personally participated in seismic walkdowns at 26 U.S. nuclear units.

Representative projects include overseeing the SEP shake-table testing of electrical raceways, in-situ testing of control panels and instrumentation racks at various nuclear facilities, equipment anchorage walkdowns and evaluations at various nuclear facilities, principal author of the *CERTIVALVE* software package to evaluate nuclear service valves, and contributing author in the development of the *ANCHOR* and *EDASP* software packages commercially distributed by Stevenson & Associates.

S&A

Mr. Djordjevic has been involved extensively in the reassessment of safety-related equipment for commercial nuclear facilities and government U.S. Department of Energy facilities, for which he maintains an active Q-clearance status. He has served on advisory groups and review teams touring older existing nuclear facilities to assess safety and has performed earthquake reconnaissance at such installations following seismic events.

PROFESSIONAL GROUPS:

Member, Institute of Electrical and Electronics Engineers, Nuclear Power Engineering Committee Working Group SC 2.5 (IEEE-344)

Chairman, American Society of Civil Engineers Nuclear Structures and Materials Committee, Working Group for the Analysis and Design of Electrical Cable Support Systems

Member, American Society of Mechanical Engineers Operation, Application, and Components Committee on Valves, Working Group SC-5

S&A

SQUG

Certificate of Arhievement

This is to Certify that

Walter Djordjevic

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held April 6–10, 1992

Neil P. Smith, Commonwealth Edison
SQUG Chairman

David A. Freed, MPR Associates
SQUG Training Coordinator

Robert P. Kassawara, EPRI
SQUG Program Manager

ROBERT P. KENNEDY

EDUCATION:

B.S. - Civil Engineering, Stanford University
M.S. - Structural Engineering, Stanford University
Ph.D. - Structural Engineering, Stanford University

REGISTRATION:

State of California, State of Tennessee, State of Texas, State of Alabama

PROFESSIONAL HISTORY:

RPK Structural Mechanics Consulting, Yorba Linda, California, President, 1987 to Present

National Technical Services Engineering, Los Angeles, California, Vice President, 1985 - 1987

Structural Mechanics Associates, Newport Beach, California, President, 1979-1985

Engineering Decision Analysis Corp., Newport Beach, California, Vice President, 1977 - 1979

Homes and Narvier, Inc., Los Angeles, California, Manager of Engineering Mechanics Division, 1970 - 1979

PROFESSIONAL EXPERIENCE:

Dr. Kennedy has over twenty years experience in static and dynamic analysis plus design of special purpose civil and mechanical-type structures, particularly for the nuclear, petroleum, and defense industries: design of structures to resist extreme loadings including seismic, missile impact, extreme wind, impulsive loads, and nuclear environmental effects; development of computerized structural analysis methods: administrative and program management; and teaching.

Seismic Ruggedness - Nuclear Facilities

Chairman, Senior Seismic Review and Advisory Panel (SSRAP), jointly advising both nuclear power utilities and the U.S. NRC on issues relating to seismic ruggedness of existing nuclear power plants. Member of NRC Expert Panel on Seismic Margin for nuclear power plants. Co-author of Electric Power Research Institute (EPRI) Seismic Margin Research Program. Provided technical direction on Seismic fragility portion of seismic probabilistic risk assessments for 23 nuclear power plants. Developed the methodology most commonly used for such studies and author of many technical papers thereon.

Taught short courses on seismic PRA methodology in U.S., Spain, Taiwan, and People's Republic of China. Consultant on seismic evaluation or design for more than 40 nuclear facilities through the world. Directed seismic analysis of many nuclear power plant buildings and components. Directed many nonlinear seismic response analyses investigations. Evaluated effects of differential earth movement (faulting) on nuclear facility. Performed a number of

dynamic soil-structure interaction analyses of nuclear reactor containment buildings accounting for the nonlinear effects of base slab uplift. Directed nonlinear seismic evaluation of nuclear facility to demonstrate increased seismic capacity. Evaluated concepts for seismic response mitigation and increased energy absorption. Has participated in 13 nuclear power plant seismic walkdown.

Dynamic Loads - Nuclear Facilities

Extensive experience in the analysis of nuclear facilities subjected to extreme dynamic loads including effects of external missile and aircraft impact, and impulsive loading resulting from loss-of-coolant accident and SRV discharge. Prime developer of the method currently in extensive use by the nuclear industry in the U.S. for evaluating the local effects of missile impact on concrete. Consultant on the effects of aircraft impact for several nuclear plants. Consultant to General Electric on effects of pool swell loads resulting from LOCA, and on the increased dynamic reserve margin available in structures subjected to pulsive loads. Consultant to G.E. and Mark I, Mark II, and Mark III Owner's Group on combination of responses from multiple dynamic loadings. Consultant on Mark I and Mark III evaluations to address the conservatism and uncertainty associated with standard structural analyses for SRV loadings. Consultant on methods of response combination and expert witness at Black Fox hearings. Consultant to Mark I and Mark III groups on conservatism, uncertainty, structural modeling, and load definition for new dynamic loads. Consultant on three Mark III BWR plants with free-standing steel containment, Leibstadt, Allens Creek, and River Bend, in order to evaluate realistic containment response to SR; loadings as current approaches are overconservative and lead to serious design problems. Developed floor response spectra for final design of attached piping for Leibstadt plant by coupled analysis such that beneficial effects of energy feedback are included. Developed method to account for the coupling of equipment and piping to the main structure and to account for energy feedback from the subsystem to the structure. Developed method to account for random phasing of multiple harmonics of condensation oscillation loading in order to compute responses more compatible with measured results. Member ASCE committee on impact and impulse analysis of nuclear facilities, and ACI committee which developed code for the design of nuclear safety-related concrete structures subjected to impact and impulse loads.

Dr. Kennedy has personally performed seismic walkdowns of 12 nuclear power plants and serves on numerous government (NRC) and industry advisory boards (EPRI) dealing with seismic qualification of nuclear power plant facilities.

PROFESSIONAL GROUPS:

Chairman, Seismic Analysis, Nuclear Structure and Materials Committee, Structures Division, ASCE.

Chairman, Seismic Analysis of Safety Class Structures Standard Committee, Technical Council on Codes and Standards, ASCE.

Former Chairman, Gas and Liquid Fuel Lifelines Committee, Technical Council on Lifeline Earthquake Engineering, ASCE.

Member, Nuclear Structures and Materials Technical and Administrative Committee, Structures Division, ASCE.

Member, Impact and Impulse Analysis, Nuclear Structures and Materials Committee Structures Division, ASCE.

Member, Editing Board, ASCE Report entitled "Structural Analysis and Design of Nuclear Plant Facilities."

Member, Ad Hoc Group on Soil-Structure Intersection, Nuclear Structures and Materials Committee, Structures Division, ASCE.

Member, ACI 349, "Subcommittee on Standard Requirements for Nuclear afety-Related Concrete Structures," Design Committee and Working Group 5 - "Impactive and Impulsive Loads."

Member, AWWA DIOO Revision Task Force, charged with revising the AWWA Standard for Welded Steel Tanks for Water Storage.

Member, National Research Council Subcommittee on Probabilistic Seismic Hazard Assessment.

JOHN D. STEVENSON

EDUCATION:

B.S. - Civil Engineering - Virginia Military Institute, 1954
M.S. - Civil Engineering - Case Institute of Technology, 1962
Ph.D. - Civil Engineering - Case Institute of Technology, 1968

REGISTRATION:

Commonwealth of Virginia, State of Ohio

PROFESSIONAL HISTORY:

Stevenson & Associates, Cleveland, Ohio, President: 1981 - present
Structural Mechanics Associates, Cleveland, Ohio, Vice President: 1980 - 1981
Woodward Clyed Consultants, Cleveland, Ohio, Vice President: 1979 - 1980
A. G. McKee & Co., Cleveland, Ohio, Vice President: 1976 - 1979
Case Western Reserve University, Cleveland, Ohio, Assoc. Prof.: 1974 - 1976
Westinghouse Electric Co., Pittsburgh, Pennsylvania, Consultant: 1972 - 1974
University of Pittsburgh, Pittsburgh, Pennsylvania, Adjunct Professor: 1970 - 1972
Westinghouse Nuclear Energy Systems, Manager Structural System Engineering: 1966 - 1970
Virginia Military Institute, Assistant Professor: 1957 - 1962

PROFESSIONAL EXPERIENCE:

Since November 1981, Dr. Stevenson has managed and has served as President and Senior Consultant to Stevenson & Associates. The firm specializes in high technology consulting and engineering services associated with failure analysis of structural and mechanical systems; extreme loads; and nonlinear, dynamic, probabilistic and high temperature analyses.

His years of expertise include structural and mechanical design andqualification of nuclear power plant structures and components. He serves on several committees of the ASCE, ASME, ANS, ACI and AISC charged with the development of standards devoted to design of nuclear plant facilities. Dr. Stevenson's relevant experience includes seismic walkdowns of 13 nuclear power stations and 23 years as a structural- mechanical engineer with particular application to earthquake design and analysis. A list of earthquake related projects which Dr. Stevenson performed or directly supervised is as follows:

1. Developed seismic design criteria for 5 nuclear power stations: Westinghouse Turnkeys

2. Reviewed and approved seismic design adequacy from plans and specifications for 5 nuclear power plants: Westinghouse Turnkeys

S&A

3. Evaluation of seismic design adequacy of mechanical equipment for French nuclear power station: Fessenhein station

4. Evaluation of seismic design adequacy of liquified natural and petroleum gas storage facilities: U.S. General Accounting Office

5. Testing of electrical racks to demonstrate seismic design adequacy: Federal Pioneer, Canada

6. Analytical seismic qualification of spent fuel racks - nonlinear analysis for 10 nuclear power plants

7. Quality Assurance audit (technical) of the Tokomak fusion test reactor tritium retention structures to resist seismic loads: U.S. Department of Energy

8. Prepare preliminary assessment of requirements and installation specification for anchorage of electrical equipment in the Monticello Nuclear Plant in anticipation of meeting I&E 80-21 requirements: Northern States Power Co.

9. Review and evaluation of the Purex facility seismic capabilities at Hanford Plant: U.S. Department of Energy

10. Survey and evaluation of the L reactor mechanical and electrical equipment seismic capabilities for Savannah River Plant: E. I. DuPont

11. Systematic evaluation of the seismic capacity of a 600 MW Candu reactor station for safety shutdown in Argentina

12. Review of literature and develop recommendations for piping system damping values for Kraftwerk Union and Mitsubish

13. Detailed evaluation of seismic design adequacy for selected mechanical and electrical equipment of five nuclear power stations as part of the U.S. NRC systematic evaluation program: U.S. Nuclear Regulatory Commission

14. Review of seismic design adequacy of nuclear plant facilities for the D.C. Cook Nuclear Power Plant: American Electric Power Corporation

15. Systematic evaluation of the seismic capacity of mechanical and electrical equipment for the Connecticut Yankee Nuclear Power Plant: Northeast Utilities

16. Systematic evaluation of the seismic capacity of mechanical and electrical equipment for the Maine Yankee Nuclear Power Plant: Yankee Atomic Co.

17. Consultant to EPRI to develop criteria for OBE Exceedance based on measure and observed site behavior: Electric Power Research Institute

18. Consultant to NRC to develop an experience data base and criteria for design and analysis

S&A

of piping systems to resist seismic loads:

19. Consultant to NRC to evaluate procedures for HCLPF assessment of equipment in nuclear power plants (NUREG/CR-5270): U.S. Nuclear Regulatory Commission

20. Review of earthquake resistance of plutonium fabrication facility: Rockwell International Corp.

21. Consultant to EPRI to develop procedures for plant start-up following a damaging earthquake at a nuclear power plant site: Electric Power Research Institute

22. Personally performed seismic walkdowns of 16 nuclear power plants in the U.S., Europe, Asia and South America.

PROFESSIONAL GROUPS:

Member, American Society of Civil Engineers, Structural Division Committee on Nuclear Safety; Structural Division Committee on Nuclear Structures and Materials; Steering Committee on Development of a Manual of Professional Practice for Quality in the Constructed Project

Former Chairman, American Society of Civil Engineers, Executive Committee Technical Council Codes and Standards

Chairman, American Society of Civil Engineers, Nuclear Standards Committee

Member, American Concrete Institute, Joint ACI-ASME Subgroup on Design of Concrete Components in Nuclear Service, ASME BPVC-Section III-Div. 2

Member, American Society of Mechanical Engineers, Subgroup on Design of ASME BPVC-Section III-Div. 1 Nuclear Components Subcommittee on Qualification of Mechanical Components in Nuclear Service

Member, Nuclear Standards Management Board of ANSI representing ASCE

Member, U.S. Representative International Standards Committee SC 85/3/7 on Seismic Criteria for Nuclear Plants

Member, U.S. Representative International Atomic Energy Agency Working Group on the Development of Seismic Design Standards

Member, ANS-2, American Nuclear Society Committee on Site Evaluation; NUPPSCO, American Nuclear Society Committee on Nuclear Power Plant Codes and Standards

Member, AISC, American Institute of Steel Construction Committee on Specifications for Structural Steel in Safety Class Nuclear Structures

Member, Earthquake Engineering Research Institute

S&A

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: Plant Engineering

SECTION: System Engineering

Name: Jeffrey S. Boucher

Title: Seismic Capability Engineer

EDUCATIONAL BACKGROUND:

Attended various colleges in the field of engineering.
Also completed the following training programs:

-MPR/EPRI Seismic Qualifications Utility Group (SQUG)
-Montana State University BS Civil Engineer, BS Math
-Purdue MS Structural Engineer
-State of Michigan Professional Engineer License (# G 639 856)
-State of Illinois Professional License (# 062-045797)
-SSEL Training
-IPE Add-on Training

JOB-RELATED EXPERIENCE

Total of 19 years experience.
Responsibilities include 6 years of operating nuclear plant experience at Palisades.
Duties included but were not limited to the following:

-Senior Engineer
-Contractor
-Construction
-Operating Plants
-Nuclear Licensing
-System Analysis and Design

Certificate of Achievement

This is to Certify that

Jeffrey Boucher

has Completed the SQUG Walkdown Screening
and Seismic Evaluation Training Course
Held June 22-26, 1992

David A. Freed, MPR Associates
SQUG Training Coordinator

Neil P. Smith, Commonwealth Edison
SQUG Chairman

Robert P. Kassawara, EPRI
SQUG Program Manager

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: NECO-Engineering Programs

SECTION: Civil/Structural Engineering

Name: Alan L. Lyon, P.E.

Title: Seismic Capability Engineer

EDUCATIONAL BACKGROUND:

Attended Michigan State University in the field of engineering.
Also completed the following training programs:

-Bachelor of Science and Civil Engineering (BSCE)
-MPR/EPRI Seismic Qualifications Utility Group (SQUG)
-Walkdown Screening and Seismic Evaluation Training Course

JOB-RELATED EXPERIENCE

Total of 15 years experience.
Responsibilities include 4 years of operating nuclear plant experience at Palisades Nuclear Plant
Duties included but were not limited to the following:

-Design of Power Plants
-Design of Seismic Restraints for Piping
-Mechanical and Electrical Equipment
-Senior Engineer/NECO
-System Analysis and Design

SQUG

Certificate of Achievement

This is to Certify that

Alan L. Lyon

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held November 9-13, 1992

Neil P. Smith, Commonwealth Edison
SQUG Chairman

David A. Freed, MPR Associates
SQUG Training Coordinator

Robert P. Kassawara, EPRI
SQUG Program Manager

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: Design Engineering

SECTION: Civil/Structural Engineering

Name: Rolfe B. Jenkins

Title: Senior Lead Engineer

EDUCATIONAL BACKGROUND:

Attended Michigan State University in the field of management and engineering. Also completed the following training programs:

-Michigan State University Bachelor of Science and Math, 1969
-Michigan State University Masters of Science, PhD in Mechanics, 1973
-MPR/EPRI Seismic Qualification Utility Group (SQUG) "Walkdown Screening and Seismic Evaluation Training", February 28 - March 4, 1994
-State of Michigan PE License

JOB RELATED EXPERIENCE

Total of 32 years experience.
Responsibilities include 19 years of operating nuclear plant experience at Palisades. 10 years - present experience of ASMR Working Group on Piping Design. And 3 years experience with Light Water Breeder Crid Design with Westinghouse. Duties included, but were not limited to the following:

-Fossil Plant Design and Analysis
-Nuclear Plant Design and Analysis
-Reactor Vessel Surveillance INRC Interface
-CE and Westing House Owners Group Representative
-Nuclear/Fossil Project Management
-Trainer - Technical

SQUG

Certificate of Achievement

This is to Certify that

Rolfe B. Jenkins

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held February 28 – March 4, 1994

Neil P. Smith, Commonwealth Edison
SQUG Chairman

David A. Freed, MPR Associates
SQUG Training Coordinator

Robert P. Kassawara, EPRI
SQUG Program Manager

Appendix D: Screening Verification Data Sheets (SVDS)

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
0	ACCUM-0779	0	/ CV-0779 ACCUMULATOR	AB	625.00	338	625.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
0	ACCUM-0780	0	/ CV-0780 ACCUMULATOR	AB	625.00	338	625.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
0	ACCUM-0781	0	/ CV-0781 ACCUMULATOR	AB	625.00	338	625.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
0	ACCUM-0782	0	/ CV-0782 ACCUMULATOR	AB	625.00	338	625.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
0	N2-1	0	/ NITROGEN BACKUP STATION 1	AB	590.00	123	590.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
0	N2-1A	0	/ NITROGEN BACK-UP STATION 1-A	AB	590.00	123	590.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
1	42-1/RPS	0	/ CONTROL ROD CLUTCH BREAKER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
1	42-2/RPS	0	/ CONTROL ROD CLUTCH BREAKER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
1	EB-01	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	224	610.00	N/A	ABS	CRS	No	Yes	Yes	Yes	No
1	EB-02	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	224	610.00	N/A	ABS	CRS	No	Yes	Yes	Yes	No
1	EB-07	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	590.00	121	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
1	EB-08	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	590.00	121	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
1	EB-21	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	224	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
1	EB-22	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	223	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
1	EB-23	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	224	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
1	EB-24	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	224	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
1	EB-25	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	725	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
1	EB-26	0	/ 480 VOLT MOTOR CONTROL CENTER	AB	607.00	725	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
1	EU-1	0	/ SCR CONTROLLER-HEATERS	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
1	EU-2	0	/ SCR CONTROLLER-HEATERS	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
2	EB-11	0	/ 480 VOLT LOAD CENTER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
2	EB-12	0	/ 480 VOLT LOAD CENTER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
2	EB-15	0	/ 480 VOLT LOAD CENTER	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
2	EB-16	0	/ 480 VOLT LOAD CENTER	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
2	EB-19	0	/ 480 VOLT LOAD CENTER	AB	607.00	725	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic	N/A	5/19/95
S. Anagnostis		5/19/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/22/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
2	EB-20	0	/ 480 VOLT LOAD CENTER	AB	607.00	725	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
3	EA-11	0	/ 2400 VOLT BUS 1C	AB	590.00	116A	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
3	EA-12	0	/ 2400 VOLT BUS 1D	AB	607.00	223	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
3	EA-13	0	/ 2400 V BUS 1-E	TB	590.00	133	590.00	Yes	BS	GRS	Yes	Unk	Unk	No	No
4	EX-11	0	/ 2400/480 VOLT TRANSFORMER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
4	EX-12	0	/ 2400/480 VOLT TRANSFORMER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
4	EX-15	0	/ 2400/480 VOLT TRANSFORMER	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
4	EX-16	0	/ 2400/480 VOLT TRANSFORMER	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
4	EX-19	0	/ 2400/480 VOLT TRANSFORMER	AB	607.00	725	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
4	EX-20	0	/ 2400/480 VOLT TRANSFORMER	AB	607.00	725	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
4	EX-63	0	/ CONTROL ROD CLUTCH TRANSFORMER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
4	EX-64	0	/ CONTROL ROD CLUTCH TRANSFORMER	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
4	EX-66	0	/ DG-1/2 EXHAUSTER TRANSFORMER	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
4	EX-67	0	/ DG-1/1 EXHAUSTER TRANSFORMER	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
5	P-18A	0	/ FUEL OIL TRANSFER PUMP	TB	590.00	136	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
5	P-18B	0	/ FUEL OIL TRANSFER PUMP	TB	590.00	136	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
5	P-54A	0	/ CONTAINMENT SPRAY PUMP	AB	570.00	004	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
5	P-54B	0	/ CONTAINMENT SPRAY PUMP	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
5	P-54C	0	/ CONTAINMENT SPRAY PUMP	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
5	P-55B	0	/ CHARGING PUMP B	AB	590.00	104A	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
5	P-55C	0	/ CHARGING PUMP C	AB	590.00	104B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
5	P-56A	0	/ BORIC ACID PUMP	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
5	P-8A	0	/ MOTOR DRIVE AUX FEED PUMP	TB	570.00	007	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
5	P-8C	0	/ MOTOR DRIVEN AUX FEED PUMP	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
6	P-7A	0	/ SERVICE WATER PUMP	TB	590.00	136	590.00	N/A	ABS	CRS	Yes	No	No	Yes	No

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/19/95
S. Anagnostis		5/19/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D. Engle	5/22/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
6	P-7B	0	/ SERVICE WATER PUMP	TB	590.00	136	590.00	N/A	ABS	CRS	Yes	No	No	Yes	No
6	P-7C	0	/ SERVICE WATER PUMP	TB	590.00	136	590.00	N/A	ABS	CRS	Yes	No	No	Yes	No
7	CK-CVC2112	0	/ LOOP 1A RELIEF CHK.	RB	607.00	144	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0501	0	/ MAIN STEAM ISOLATION E-50B	AB	607.00	238	610.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0510	0	/ MAIN STEAM ISOLATION E-50A	AB	607.00	238	610.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0727	0	/ E-50B FLOW FROM P-8A & P-8B	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0736A	0	/ E-50B FLOW CONTROL	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0737A	0	/ E-50A FLOW CONTROL	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0749	0	/ E-50A FROM P-8A&P-8B	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0767	0	/ S/G E-50A BOTTOM BLOWDOWN	AB	607.00	238	610.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0768	0	/ S/G E-50B BOTTOM BLOWDOWN	AB	607.00	238	610.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0779	0	/ S/G E-50B ATMOSPHERIC DUMP	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0780	0	/ STEAM GEN E-50B ATMOSPHERIC DUMP	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0781	0	/ STEAM GEN E-50A ATMOSPHERIC DUMP	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0782	0	/ S/G E-50A ATMOSPHERIC DUMP	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0821	0	/ CCW HEAT EXCHANGER OUTLET	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0822	0	/ CCW HEAT EXCHANGER OUTLET	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0847	0	/ AIR COOLERS SWS SUPPLY	AB	607.00	238	610.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0884	0	/ K-6A SERVICE WATER	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-0885	0	/ K-6B SERVICE WATER	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-1359	0	/ NON CRITICAL S.W. ISOLATION	TB	590.00	136	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-1655	0	/ VC-11 SERVICE WATER CONTROL	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-1656	0	/ VC-10 SERVICE WATER CONTROL	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	CV-2003	0	/ LETDOWN STOP	RB	607.00	144	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0701	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic	W.D.	5/19/95
S. Anagnostis	A.G.	5/19/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
NA	NA	
NA	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/22/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
7	RV-0702	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0703	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0704	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0705	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0706	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0707	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0708	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0709	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0710	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0711	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0712	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0713	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0714	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0715	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0716	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0717	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0718	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0719	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0720	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0721	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0722	0	/ S/G B RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0723	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0724	0	/ S/G A RELIEF	AB	625.00	338	625.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0783	0	/ P-8A/B DISCHARGE RELIEF	TB	570.00	007	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-1039	0	/ PRESS. RELIEF	RB	649.00	424	649.00	N/A	ABS	CRS	No	Yes	N/A	Yes	No

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/11/95
S. Anagnostis		5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
7	RV-1040	0	/ PRESS. RELIEF	RB	649.00	424	649.00	N/A	ABS	CRS	No	Yes	N/A	Yes	No
7	RV-1041	0	/ PRESS. RELIEF	RB	649.00	424	649.00	N/A	ABS	CRS	No	Yes	N/A	Yes	No
7	RV-1479	0	/ T-31A RELIEF	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-1480	0	/ T-31B RELIEF	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-1489	0	/ T-31C RELIEF VALVE	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-1490	0	/ T-31D RELIEF	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2090	0	/ P-55A SUCTION RELIEF	AB	590.00	104	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2092	0	/ P-55A DISC. SAFETY RELIEF	AB	590.00	104	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2096	0	/ P-55B SUCTION REFIEF	AB	590.00	104A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2098	0	/ P-55B DISC. REFIEF	AB	590.00	104A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2102	0	/ P-55C SUCTION RELIEF	AB	590.00	104B	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2104	0	/ P-55C DISCHARGE RELIEF	AB	590.00	104B	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2230	0	/ BORIC ACID TANK RELIEF	AB	590.00	107	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2231	0	/ BORIC ACID TANK RELIEF	AB	590.00	107	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2232	0	/ BORIC ACID DISC. RELIEF	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2233	0	/ P-56B RECIRC RELIEF	AB	590.00	107	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2235	0	/ BORIC ACID RECIRC. RELIEF	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2236	0	/ BORIC ACID PREFILTER RELIEF	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2237	0	/ BLENDER RELIEF	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2238	0	/ BLENDER RELIEF	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2239	0	/ BLEADER RELIEF	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2255	0	/ T-54 SUCTION RELIEF	AB	590.00	104A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2273	0	/ N2 STA. 1 PRESS. RELIEF	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-2280	0	/ STATION 1-A PRESS. RELIEF	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-3264	0	/ SAFETY INJECT. RELIEF	RB	590.00	144	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/11/95
S. Anagnostis		5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
8	MO-0748	0	/ E-50B ISOLATION	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	MO-0754	0	/ E-50A ISOLATION	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	MO-1042A	0	/ POWER RELIEF ISOL.	RB	649.00	424	649.00	N/A	ABS	CRS	No	Yes	N/A	Yes	No
8	MO-1043A	0	/ POWER RELIEF ISOL.	RB	649.00	424	649.00	N/A	ABS	CRS	No	Yes	N/A	Yes	No
8	MO-2087	0	/ VOL. CONTROL TANK ISOL.	AB	590.00	100	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	MO-2140	0	/ BORIC ACID PUMP FEED ISOL.	AB	590.00	107	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	MO-2160	0	/ SIRW TO CHARGING PUMPS ISOLATION	AB	590.00	107	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	MO-2169	0	/ BORIC ACID GRAVITY FEED	AB	590.00	107	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	MO-2170	0	/ BORIC ACID GRAVITY FEED	AB	590.00	107	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	PRV-1042B	0	/ POWER OPERATED RELIEF	RB	649.00	424	649.00	N/A	ABS	CRS	No	Yes	N/A	Yes	No
8	PRV-1043B	0	/ POWER OPERATED RELIEF	RB	649.00	424	649.00	N/A	ABS	CRS	No	Yes	N/A	Yes	No
8	SV-0767	0	/ S/G E-50A BOTTOM BLOWDOWN	AB	607.00	238	610.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	SV-0768	0	/ S/G E-50B BOTTOM BLOWDOWN	AB	607.00	238	610.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	SV-1415	0	/ DG-1/1 TO T-25A INLET	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	SV-1452	0	/ DG-1/2 TO T-25B INLET	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
8	SV-2003	0	/ LETDOWN STOP	RB	607.00	144	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
9	V-24A	0	/ DG 1-1 VENT FAN	AB	590.00	116	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
9	V-24B	0	/ DG 1-1 VENT FAN	AB	590.00	116	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
9	V-24C	0	/ DG 1-2 VENT FAN	AB	590.00	116B	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
9	V-24D	0	/ DG 1-2 VENT FAN	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
9	V-26A	0	/ AIR FILTER UNIT FAN	AB	629.17	300	649.00	N/A	ABS	CRS	Yes	Yes	Yes	Yes	Yes
9	V-26B	0	/ AIR FILTER VENT FAN	AB	629.17	300A	649.00	N/A	ABS	CRS	Yes	Yes	Yes	Yes	Yes
9	V-95	0	/ CONTROL ROOM VENT. FAN	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
9	V-96	0	/ CONTROL ROOM VENT. FAN	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	BD-1	0	/ HVAC BALANCING DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

W. Djordjevic		5/11/95
Print or Type Name	Signature	Date
S. Anagnostis		5/11/95
Print or Type Name	Signature	Date

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

	NA	
Print or Type Name	Signature	Date
	NA	
Print or Type Name	Signature	Date

Owner's Review:

D. Engle	D Engle	5/16/95
Print or Type Name	Signature	Date

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
10	BD-10	0	/ CONTROL RM. BALANCING DAMP.	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	BD-2	0	/ HVAC BALANCING DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	BD-5	0	/ HVAC BALANCING DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	BD-6	0	/ HVAC BALANCING DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	BD-7	0	/ HVAC BALANCING DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	BD-8	0	/ HVAC BALANCING DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-41	0	/ V-95 & V-96 FIRE DAMPER	AB	625.00	320A	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-42	0	/ V-95 & V-96 FIRE DAMPER	AB	625.00	320A	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-43	0	/ V-95 & V-96 FIRE DAMPER	AB	625.00	320A	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-44	0	/ V-95 & V-96 FIRE DAMPER	AB	625.00	320A	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-45	0	/ V-95 & V-96 FIRE DAMPER	AB	625.00	320A	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-46	0	/ V-95 & V-96 FIRE DAMPER	AB	625.00	320A	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-47	0	/ V-26B FIRE DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-48	0	/ V-26A FIRE DAMPER	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-49	0	/ V-95 FIRE DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-50	0	/ V-95 FIRE DAMPER RETURN	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-51	0	/ V-96 FIRE DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	CD-52	0	/ V-96 FIRE DAMPER RETURN	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-10	0	/ V-96 RECIRC. DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-11	0	/ V-96 DISC. DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-12	0	/ V-26B DISC. DAMPER	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-13	0	/ V-26B RECIRC. DAMP.	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-14	0	/ V-26B OUTSIDE AIR DAMP.	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-16	0	/ V-94 DAMPER	AB	629.17	300B	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-2	0	/ V-95 MODULATING DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/11/95
S. Anagnostis		5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
10	D-20	0	/ V-26A MODULATING DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-21	0	/ V-26B MODULATING DAMP.	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-22	0	/ DG 1-2 RM EXHAUST DAMPER	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-23	0	/ DG 1-1 RM EXHAUST DAMPER	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-24	0	/ DG 1-2 RM INLET DAMPER	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-25	0	/ DG 1-1 RM INLET DAMPER	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-26	0	/ V-24A GRAVITY DAMPER	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-27	0	/ V-24B GRAVITY DAMPER	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-28	0	/ V-24C GRAVITY DAMPER	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-29	0	/ V-24D GRAVITY DAMPER	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-3	0	/ V-95 RECIRC. DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-4	0	/ V-95 DISC. DAMPER	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-5	0	/ V-26A DISC. DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-6	0	/ V-26A RECIRC. DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-7	0	/ V-26A OUTSIDE AIR DAMP.	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	D-9	0	/ V-96 MODULATING DAMP.	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
11	VC-10	0	/ CONTROL ROOM CONDENSING UNIT	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
11	VC-11	0	/ CONTROL ROOM CONDENSING UNIT	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
14	ED-10	0	/ 125 V DC BUS	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
14	ED-11	0	/ 125 V DC DISTRIBUTION PANEL	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
14	ED-11A	0	/ 125 V DC DISTRIBUTION PANEL	AB	590.00	116A	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
14	ED-20	0	/ 125 V DC BUS	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
14	ED-21	0	/ 125 V DC DISTRIBUTION PANEL	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
14	ED-21A	0	/ 125 V DC DISTRIBUTION PANEL	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
14	EY-10	0	/ 120 V AC PANEL #1	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

W. Djordjevic		5/11/95
Print or Type Name	Signature	Date
S. Anagnostis		5/11/95
Print or Type Name	Signature	Date

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

	N A	
Print or Type Name	Signature	Date
	NA	
Print or Type Name	Signature	Date

Owner's Review:

D. Engle	D Engle	5/16/95
Print or Type Name	Signature	Date

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
14	EY-20	0	/ 120 V AC PANEL #2	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
14	EY-30	0	/ 120 V AC PANEL #3	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
14	EY-40	0	/ 120 V AC PANEL #4	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
15	ED-01	0	/ MAIN STATION BATTERIES	AB	607.00	225A	610.00	Yes	BS	GRS	Yes	No	No	Yes	No
15	ED-02	0	/ MAIN STATION BATTERIES	AB	607.00	225	610.00	Yes	BS	GRS	Yes	No	No	Yes	No
16	ED-06	0	/ AC INVERTER #1	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
16	ED-07	0	/ AC INVERTER #2	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
16	ED-08	0	/ AC INVERTER #3	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
16	ED-09	0	/ AC INVERTER #4	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
16	ED-15	0	/ DC CHARGER #1	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
16	ED-16	0	/ DC CHARGER #2	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
16	ED-17	0	/ DC CHARGER #3	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
16	ED-18	0	/ DC CHARGER #4	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
17	K-6A	0	/ DIESEL GENERATOR 1-1	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
17	K-6B	0	/ DIESEL GENERATOR 1-2	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	FI-0212	0	/ CHARGING PUMP LOCAL FLOW IND.	AB	590.00	106	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	FT-0727	0	/ P-8A/B FLOW TRANSMITTER	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	FT-0736A	0	/ E-50B STEAM FLOW TRANS.	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	FT-0737A	0	/ E-50A STEAM FLOW TRANS.	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	FT-0749	0	/ P-8A/B FLOW TRANSMITTER	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	I/P-0727	0	/ E-50B FLOW CONTROL	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	I/P-0736A	0	/ E-50B FLOW CONTROL	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	I/P-0737A	0	/ E-50A FLOW CONTROL	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	I/P-0749	0	/ E-50A FLOW CONTROL	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	I/P-1659	0	/ V-95 DAMPER D-2	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

W. Djordjevic	WJ	5/11/95
Print or Type Name	Signature	Date
S. Anagnostis		5/11/95
Print or Type Name	Signature	Date

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

	NA	
Print or Type Name	Signature	Date
	NA	
Print or Type Name	Signature	Date

Owner's Review:

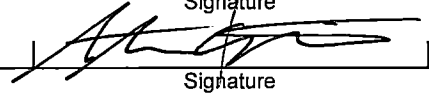
D. Engle	D Engle	5/16/95
Print or Type Name	Signature	Date

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
18	LS-0327	0	/ SIRW LOW LEVEL SWITCH	AB	649.00	808	649.00	N/A	ABS	CRS	No	Yes	Yes	Yes	No
18	LS-0328	0	/ SIRW LOW LEVEL SWITCH	AB	649.00	808	649.00	N/A	ABS	CRS	No	Yes	Yes	Yes	No
18	LS-0329	0	/ SIRW TANK LOW LEVEL SWITCH	AB	649.00	808	649.00	N/A	ABS	CRS	No	Yes	Yes	Yes	No
18	LS-0330	0	/ SIRW TANK LOW LEVEL SWITCH	AB	649.00	808	649.00	N/A	ABS	CRS	No	Yes	Yes	Yes	No
18	LS-1417	0	/ DG-1/1 CONTROL LEVEL	AB	590.00	146	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LS-1418	0	/ DG-1/1 CONTROL LEVEL	AB	590.00	146	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LS-1452	0	/ DG-1/2 CONTROL LEVEL	AB	590.00	147	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LS-1453	0	/ DG-1/2 CONTROL LEVEL	AB	590.00	147	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LT-0102	0	/ PRESS. LEVEL CHAN. A	RB	590.00	143	609.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LT-0103	0	/ PRESS. LEVEL CHAN. A	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LT-0331	0	/ SIRW TANK LOW LEVEL TRANSMITTER	AB	649.00	808	649.00	N/A	ABS	CRS	Yes	Yes	Yes	Yes	Yes
18	LT-0332A	0	/ SIRW TANK LOW LEVEL TRANSMITTER	AB	649.00	808	649.00	N/A	ABS	CRS	Yes	Yes	Yes	Yes	Yes
18	LT-0757A	0	/ WIDE RANGE LEVEL TRANS.	RB	590.00	142	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LT-0757B	0	/ WIDE RANGE LEVEL TRANS.	RB	590.00	142	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LT-0758A	0	/ WIDE RANGE LEVEL TRANS.	RB	590.00	142	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LT-0758B	0	/ WIDE RANGE LEVEL TRANS.	RB	590.00	142	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	LT-2021	0	/ T-2 LEVEL TRANSMITTER	TB	590.00	OUTSIDE	590.00	Yes	BS	GRS	Yes	Yes	Yes	No	No
18	LT-2022	0	/ T-2 LEVEL TRANSMITTER	TB	590.00	OUTSIDE	590.00	Yes	BS	GRS	Yes	Yes	Yes	No	No
18	P/P-1659	0	/ V-95 DAMPER D-2	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0105A	0	/ PRESSURIZER WIDE RANGE PRESS.	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0105B	0	/ PRESS. LEVEL CHAN. A	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0741A	0	/ P-8A/B LOW SUCTION	TB	570.00	007	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0741B	0	/ P-8A/B LOW SUCTION	TB	570.00	007	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0741DD	0	/ P-8A/B LOW SUCTION	TB	570.00	007	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0751C	0	/ E50A LOW PRESSURE TRANS.	RB	590.00	142	609.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/11/95
S. Anagnostis		5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle		5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
18	PT-0751D	0	/ E50A LOW PRESSURE TRANS.	RB	590.00	142	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0752C	0	/ E-50B LOW PRESSURE TRANS.	RB	590.00	142	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0752D	0	/ E-50B LOW PRESSURE TRANS.	RB	590.00	142	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0762A	0	/ LOW SUCTION PRESSURE TRIP	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0762B	0	/ LOW SUCTION PRESSURE TRIP	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	PT-0762C	0	/ LOW SUCTION PRESSURE TRIP	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1653	0	/ VC-11 OIL TEMP. SWITCH	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1654	0	/ VC-10 OIL TEMP. SWITCH	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1820	0	/ V-24D TEMP	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1821	0	/ V-24C TEMP	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1822	0	/ V-24C TEMP	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1823	0	/ V-24D TEMP	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1827	0	/ V-24A TEMP	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1828	0	/ V-24A TEMP	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1843	0	/ V-24B TEMP	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
18	TS-1844	0	/ V-24B TEMP	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
19	TE-0112CC	0	/ CHANNEL C COLD LEG TEMP. ELEM.	RB	607.00	237	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
19	TE-0112CD	0	/ CHANNEL D COLD LEG TEMP. ELEM.	RB	607.00	237	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
19	TE-0112HC	0	/ HOT LEG TEMPERATURE-D	RB	607.00	237	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
19	TE-0112HD	0	/ HOT LEG TEMPERATURE-D	RB	607.00	237	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
19	TE-0122CC	0	/ CHANNEL C COLD LEG TEMP. ELEM.	RB	607.00	236	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
19	TE-0122CD	0	/ CHANNEL D COLD LEG TEMP. ELEM.	RB	607.00	236	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
19	TE-0122HC	0	/ HOT LEG TEMPERATURE-D	RB	607.00	236	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
19	TE-0122HD	0	/ HOT LEG TEMPERATURE-D	RB	607.00	236	607.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
20	EC-01	0	/ TURBINE GENERATOR CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/11/95
S. Anagnostis		5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
20	EC-02	0	/ PRIMARY PROCESS & REACTOR CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-03	0	/ CONTAINMENT ISOL. & MISC. CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-04	0	/ RELAY & STATION AUXILARY CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-06	0	/ REACTOR PROTECTIVE SYSTEM CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-08	0	/ SERVICE WATER & COMP. COOLING CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-11	0	/ RADIATION TURBINE CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-11A	0	/ POST ACCIDENT CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-12	0	/ PRIMARY PROCESS & INSTRUMENTATION	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-126	0	/ CIRC. WATER & IODINE CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-13	0	/ DBA SHUTDOWN & MISC. CONTROL	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-150	0	/ AUX. HOT SHUTDOWN PANEL	AB	607.00	250	610.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
20	EC-168	0	/ POST ACCIDENT SAMPLE MONITORING	AB	607.00	214	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-17	0	/ P-55A SPEED CONTROL	AB	590.00	106	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-180	0	/ E-50A ISOLATION SOLENOIDS	TB	607.00	247	610.00	Yes	BS	GRS	Yes	No	Yes	Yes	No
20	EC-181	0	/ E-50B ISOLATION SOLENOIDS	AB	625.00	328	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-182	0	/ ATMOSPHERIC STEAM DUMP PA	AB	625.00	338R	625.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
20	EC-186A	0	/ CONTROL ROOM HVAC CONTROL	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-186B	0	/ CONTROL ROOM HVAC CONTROL	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-187	0	/ AUX FEEDWATER CONTROL	AB	607.00	223	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-188A	0	/ DAMPER CONTROL	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-188B	0	/ DAMPER CONTROL	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/11/95
S. Anagnostis		5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
20	EC-189A	0	/ CONDENSER SERVICE WATER CONTROL	AB	629.17	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-189B	0	/ CONDENSER SERVICE WATER CONTROL	AB	629.17	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-22	0	/ DG-1/1 CONTROL PANEL	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-26	0	/ DG-1/2 CONTROL PANEL	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EC-32	0	/ NSSS SAMPLE HOOD	AB	607.00	228	610.00	Yes	BS	GRS	Yes	No	No	Yes	No
20	EC-33	0	/ REDUNDANT SAFETY INJECTION CONTROL	AB	590.00	121	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	ED-13	0	/ METERING SECTION DC BUSS	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	ED-23	0	/ METERING SECTION DC BUS	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1002	0	/ CONTROL ROOM HVAC CONTROLS	AB	625.00	300A	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1003	0	/ CONTROL ROOM HVAC CONTROLS	AB	625.00	300	640.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1005	0	/ AUX FEEDWATER RELAY CONTROL	AB	607.00	223	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1006	0	/ AUX. FEEDWATER RELAY CONTROL	AB	607.00	223	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1051	0	/ AUX FEEDWATER CONTROLS	AB	607.00	223	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1052	0	/ AUX. FEEDWATER RELAY CONTROLS	AB	607.00	223	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1092	0	/ CONTROL ROOM HVAC VC-10 CONTROLS	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1093	0	/ CONTROL ROOM HVAC VC-11 CONTROLS	AB	625.00	325	625.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1143	0	/ MO-0753 DISCONNECT 8/2327	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-1144	0	/ MO-0760 DISCONNECT 8/2427	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-214	0	/ T-40 DIESEL FUEL TRANSFER	TB	590.00	136	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-245	0	/ DIESEL OIL TRANSFER PUMPS	AB	590.00	147	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-246	0	/ DIESEL OIL TRANSFER PUMPS	AB	590.00	146	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic		5/11/95
S. Anagnostis		5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
20	EJ-43	0	/ DIESEL FUEL TRANSFER	TB	590.00	136	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-44	0	/ DIESEL FUEL TRANSFER	TB	590.00	136	590.00	Yes	BS	GRS	Yes	Yes	Yes	No	No
20	EJ-541	0	/ CONTAINMENT ISOLATION RELAYS	AB	607.00	224	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-593	0	/ P-55B&C TRANSFER SWITCH	AB	590.00	104B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-594	0	/ P-55B&C TRANSFER SWITCH	AB	590.00	104A	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJ-79	0	/ DIESEL FUEL DAY TANKS	TB	590.00	707	590.00	Yes	BS	GRS	Yes	Unk	Unk	No	No
20	EJ-9400	0	/ BUS 1-C UNDER VOLTAGE RELAYS	AB	590.00	116A	590.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
20	EJ-9401	0	/ BUS 1-D UNDERVOLTAGE RELAYS	AB	607.00	223	610.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
20	EJL-256	0	/ P-55B TRANSFER SWITCH	AB	590.00	104A	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJL-257	0	/ P-55C TRANSFER SWITCH	AB	590.00	104B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJL-258	0	/ ED-01 FUSE BOX	AB	607.00	225A	610.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
20	EJL-259	0	/ ED-02 FUSE BOX	AB	607.00	225	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJL-263	0	/ AUX FEEDWATER CONTROLS	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJL-264	0	/ AUX FEEDWATER CONTROLS	AB	590.00	123	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJL-422	0	/ 72-02 BREAKER BOX	AB	607.00	225	610.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	EJL-423	0	/ 72-01 BREAKER BOX	AB	607.00	225A	610.00	Yes	BS	GRS	Yes	Yes	No	Yes	No
20	N-61	0	/ VENT FAN V-24D STARTER BOX	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	N-69	0	/ VENT FAN V-24B STARTER BOX	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	N-81	0	/ VENT FAN V-24A STARTER BOX	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
20	N-93	0	/ VENT FAN V-24C STARTER BOX	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
W. Djordjevic	W. Djordjevic	5/11/95
S. Anagnostis	S. Anagnostis	5/11/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	D Engle	5/16/95

Eq. Cl	Eq. ID	Rev No	Sys/Eq. Desc	Bldg.	Fl El.	Rm or Rw/Cl	Base El.	<40'?	Cap. Spec.	Demd. Spec	Cap > Demd?	Caveats OK?	Anchor OK?	Interact OK?	Equip OK?
0	ACCUM-MSIV1	0	/ CV-0510 & CV-0501 ACCUMULATOR	AB	607.00	238	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
0	ACCUM-MSIV2	0	/ CV-0510 & CV-0501 ACCUMULATOR	AB	607.00	238	610.00	N/A	DOC	CRS	Yes	Yes	Yes	Yes	Yes
7	POC-0736A	0	/ E-50B FLOW CONTROL	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	POC-0737A	0	/ E-50A FLOW CONTROL	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-0401	0	/ SHUTDOWN COOLING RELIEF	RB	607.00	236	607.00	Yes	BS	GRS	Yes	Unk	N/A	Unk	Unk
7	RV-0402	0	/ SHUTD COOL. HX E-60A TUBE SIDE	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Unk	N/A	Yes	Unk
7	RV-0403	0	/ SHUTD COOL. HX E-60B TUBE SIDE	AB	570.00	005	590.00	Yes	BS	GRS	Yes	Unk	N/A	Yes	Unk
7	RV-2006	0	/ E-58 INLET RELIEF	RB	607.00	144	607.00	Yes	BS	GRS	Yes	Unk	N/A	Unk	Unk
7	RV-2234	0	/ BORIC ACID RECIRC. RELIEF	AB	590.00	107A	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-3161	0	/ DRAIN TO QUENCH TANK	RB	607.00	236	607.00	Yes	BS	GRS	Yes	Unk	N/A	Unk	Unk
7	RV-3162	0	/ LOW PRESS. SFTY. INJECT. RFL VLV	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Unk	N/A	Unk	Unk
7	RV-3164	0	/ SHUTDOWN COOLING RELIEF	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Unk	N/A	Unk	Unk
7	RV-3165	0	/ HIGH PRESS. SFTY. INJECT. RFL VLV	RB	590.00	143	590.00	Yes	BS	GRS	Yes	Unk	N/A	Unk	Unk
7	RV-3266	0	/ H.P. PUMPS DISCHARGE	AB	570.00	004	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
7	RV-3267	0	/ P-66A DISCHARGE	AB	570.00	004	590.00	Yes	BS	GRS	Yes	Yes	N/A	Yes	Yes
10	PO-1834	0	/ DAMPER D24	AB	590.00	116B	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes
10	PO-1843	0	/ DAMPER D25	AB	590.00	116	590.00	Yes	BS	GRS	Yes	Yes	Yes	Yes	Yes

Certification:

All the information contained on this Screening Verification Data Sheet (SVDS) 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 of all Seismic Capability Engineers on the Seismic Review Team (SRT) are required; there should be atleast two on the SRT. All signatories should agree with all the entries and conclusions. One signatory should be a licensed professional engineer.)

Print or Type Name	Signature	Date
Alan L Lyon	Alan L Lyon	5/22/95
Rolfe B. Jenkins	RB Jenkins	5/22/95

Certification:

The information provided to the Seismic Capability Engineers regarding systems and operations of the equipment contained in the SVDS is, to the best of our knowledge and belief, correct and accurate.

Approved: (One signature of Systems or Operations Engineer is required if the Seismic Capability Engineers deem it necessary.)

Print or Type Name	Signature	Date
	NA	
	NA	

Owner's Review:

Print or Type Name	Signature	Date
D. Engle	Dale E Engle	5/22/95

1.0 Personnel resumes and training documentation for the development of the SSEL and Relay Evaluations.

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: NECO-Engineering Programs

SECTION: Special Projects

Name: Dale E. Engle

Title: SQUG Project Manager/Engineer

EDUCATIONAL BACKGROUND:

Attended college in the field of engineering.
Also completed the following training programs:

-Bachelor of Science and Mechanical Engineering (BSME)
-MPR/EPRI Seismic Qualifications Utility Group (SQUG) [(3 day course for equipment selection and relay evaluation) Betheseda, MD Aug. 25, 26, 27 1992.]

JOB-RELATED EXPERIENCE

Total of 20 years operating nuclear plant experience.
Responsibilities include 15 years of operating nuclear plant experience at Palisades Nuclear Plant.
Duties included but were not limited to the following:

-Plant Start-up Testing
-Project Engineering
-Project Management
-Surveillance Testing
-Maintenance Engineering
-SQUG Project Manager - 3 years

Certificate of Achievement

This is to Certify that

Dale Engle

has Completed the
SQUG Equipment Selection Training Course
Held August 25–27, 1992

Paul W. Hayes, MPR Associates

Richard G. Starck II, MPR Associates

Certificate of Achievement

This is to Certify that

Dale Engle

has Completed the
SQUG Relay Evaluation Training Course
Held August 25–27, 1992

Jess O. Betlack, MPR Associates

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: Plant Engineering

SECTION: System Engineering

Name: Brian Shaler

Title: Lead Relay Reviewer

EDUCATIONAL BACKGROUND:

Attended Western Michigan University in the field of engineering.
Also completed the following training programs:

-Bachelor of Science and Electrical Engineering (BSEE)
-MPR/EPRI Seismic Qualifications Utility Group (SQUG)
-Safe shutdown equipment selection.
-Relay screening and evaluation training.

JOB-RELATED EXPERIENCE

Total of 8 years experience.
Responsibilities include 4 years of operating nuclear plant experience at Palisades Nuclear Plant
Duties included but were not limited to the following:

-Start-up Testing
-Constructuion Field Engineer
-Project Engineering
-Consultant

SQUG

Certificate of Archievement

This is to Certify that

Brian Shaler

has Completed the
SQUG Relay Evaluation Training Course
Held November 17-19, 1992

Jess Betlack

Jess O. Betlack, MPR Associates

SQUG

Certificate of Achievement

This is to Certify that

Brian Shaler

has Completed the
SQUG Equipment Selection Training Course
Held November 17-19, 1992

Paul W. Hayes, MPR Associates

Richard G. Starck II, MPR Associates

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: NECO-Engineering Programs

SECTION: Consultant

Name: Don E. Knottnerus

Title: Project Manager/Engineer

EDUCATIONAL BACKGROUND:

Attended various colleges in the field of management and engineering.
Also completed the following training programs:

-MPR/EPRI Seismic Qualifications Utility Group (SQUG)
-Raychem Energy Division Instructor/Inspector qualification
-University of Wisconsin Administration/Supervision/Estimating
-Lansing Community College OSHA/MIOSHA safety courses
-Grand Rapids Junior College Welding qualification
-State of Michigan Master Electrician License
-United States Department of Labor Electrical Apprenticeship

JOB-RELATED EXPERIENCE

Total of 20 years experience.
Responsibilities include 12 years of operating nuclear plant experience at Palisades Nuclear Plant in the management of construction, maintenance and engineering.
Duties included but were not limited to the following:

-All project preparatory purchasing, estimating, cost/scheduling, subcontractors, contracts and labor acquisition for all crafts and disciplines.
-The assurance of proper engineering interface and design activity
-Development of instructional and training material for company personnel
-The assurance that a project complied with all Federal and nuclear industry codes and regulations
-All civil, electrical and mechanical maintenance construction installation for major and minor modifications
-Interfacing with Quality Assurance
-Design modifications
-Appendix R Program (ARP)
-Configuration Control Program(CCP)
-Seismic Qualification Utility Group Program(SQUG)
-Electrical Equipment Qualification(EEQ)
-Q-list Program, including developing procedures and training
-Circuit/Raceway Program

SQUG

Certificate of Achievement

This is to Certify that

Donald Knottnerus

has Completed the
SQUG Relay Evaluation Training Course
Held November 17-19, 1992

Jess O. Betlack, MPR Associates

SQUG

Certificate of Achievement

This is to Certify that

Donald Knottnerus

has Completed the

SQUG Equipment Selection Training Course

Held November 17-19, 1992

Paul W. Hayes, MPR Associates

Richard G. Starck II, MPR Associates

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: Operation Department

SECTION: Operation Support

Name: Stevan R. Oakley

Title: Operations Dept. Reviewer

EDUCATIONAL BACKGROUND:

Attended college in the field of engineering.
Also completed the following training programs:

-Bachelor of Science and Electrical Engineering (BSEE)
-MPR/EPRI Seismic Qualifications Utility Group (SQUG)
-Safe shutdown equipment selection.
-Relay screening and evaluation training.
-State of Michigan Professional Engineering License
-Senior Reactor Operator License

JOB-RELATED EXPERIENCE

Total of 13 years experience.
Responsibilities include 13 years of operating nuclear plant experience at Palisades Nuclear Plant
Duties included but were not limited to the following:

-Systems Engineering
-Project Engineering
-Operation Support

2.0 Personnel resumes and training documentation for the development of the Seismic Evaluations.

STEPHEN ANAGNOSTIS

EDUCATION:

B.S. - Civil Engineering, Columbia University School of Engineering, 1974
M.S. - Structural Engineering, Massachusetts Institute of Technology, 1976

PROFESSIONAL HISTORY:

Stevenson & Associates, Inc., Project Manager, 1983 - present
URS / John A. Blume & Associates, Engineers, Boston, Massachusetts, Project Engineer 1982 - 1983; Senior Engineer, 1980 - 1982
Charles Stark Draper Laboratory , Cambridge, Massachusetts, Technical Staff, 1976 - 1980; Draper Fellow, 1974 - 1976

PROFESSIONAL EXPERIENCE:

Mr. Anagnostis has eighteen years of experience, principally in the areas of seismic and dynamic engineering analysis. He joined Stevenson & Associates in February 1983 as a Project Manager in the Boston area office. He is currently the Project Manager for the resolution of USI A-46 for the Salem plants, and will be the lead walkdown engineer and analyst for the James A. Fitzpatrick A-46 project. He has conducted hundreds of hours of seismic walkdowns at nuclear power facilities throughout the US and aborad. Mr. Anagnostis is the principal author of S&A's ***GIPPER*** and ***IPEXPERT,*** computer programs specifically designed to gather and analyze data for the implementation of the USI A-46 and seismic IPEEE programs respectively.

Mr. Anagnostis was extensively involved in both analysis (frequency domain and time domain structural dynamics) and testing (in-situ modal and full-scale shaking-table) at URS/Blume's Boston office. He had lead technical responsibility for a two year program to develop a seismic evaluation criteria for electrical raceway systems at eight of the oldest United States nuclear power stations. This program included the design, supervision, and data analysis of shaking-table tests of full-scale raceway systems, cyclic/fatigue tests of raceway components, and the development of analytical evaluation techniques incorporating the test results.

As a member of the technical staff of Charles Stark Draper Laboratory, Mr.Anagnostis was involved in the assessment of space based surveillance (infra-red and radar) and defense systems for the Defense Advanced Research Projects Agency. He was a major author of a software simulation system to assess the capabilities of spaced based optical systems including structural vibrations, control dynamics, and optical performance.

S&A

PROFESSIONAL GROUPS:

Committee, Working Group for the Analysis and Design of Electrical Cable Support Systems

Member, American Society of Civil Engineers Nuclear Structures and Materials

PUBLICATIONS AND REPORTS:

"Vibration Engineering in the Semiconductor Industry," with W. Djordjevic and T. M, Tseng, Test and Measurement World, May, 1984

"EDASP: Structural Modification Program," with W. Djordjevic and T. M. Tseng, Proceedings, Second International Modal Analysis Conference, Orlando, Florida (February 1984).

"Implementation of Software to Account for Equipment Modifications," with W. Djordjevic, C. Gangone, R. Jenkins and A. Marion, Transactions, ANS 1983 Winter Meeting, San Francisco, California (October 1983)

"Theory and Implementation of Analytical Tools to Calculate Response Changes in Equipment Previously Evaluated by Testing," with W, Djordjevic, Transactions, 7th International Conference on Structural Mechanics in Reactor Technology (August 1983)

"Seismic Evaluation of Electrical Raceway Systems," with W. Djordjevic and F. Elsabee, 1983 ASME Pressure Vessel and Piping Conference, Portland, Oregon (June 1983)

"Space Radar Large Aperture Simulation/Analysis," with F. Ayer, CSDL R-1413 (October 1980)

"Large Beam Expander Technology Design, Analysis and Simulation Development Program" (U), with K. Soosaar, et al., CSDL R-1224 (Secret), (April 1979)

"High Altitude Large Optics Integrated Simulations" (U). with K. Soosaar. et al., CSDL R-1286 (Secret), (July 1979)

"Passive and Active Suppression of Vibration Response in Precision Structures" (U), with K. Soosaar et al., CSDL R-889 (Secret) (February 1978)

"Optimal Actuator Locations for Mirror Surface Control," M.S. Thesis Massachusetts Institute of Technology (May 1976)

S&A

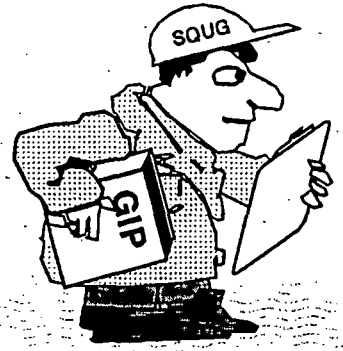
SQUG

Certificate of Achievement

This is to Certify that

Steve Anagnostis

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held April 6–10, 1992



David A. Freed, MPR Associates
SQUG Training Coordinator

Neil P. Smith, Commonwealth Edison
SQUG Chairman

Robert P. Kassawara, EPRI
SQUG Program Manager

WALTER DJORDJEVIC

EDUCATION:

B.S. - Civil Engineering, University of Wisconsin at Madison, 1974
M.S. - Structural Engineering, Massachusetts Institute of Technology, 1976

REGISTRATION:

State of California, State of Wisconsin, Commonwealth of Massachusetts, State of Michigan

PROFESSIONAL HISTORY:

Stevenson & Associates, Inc., Vice President and General Manager of the Boston area office, 1983 - present
URS/John A. Blume & Associates, Engineers, Boston, Massachusetts, General Manager, 1980 - 1983; San Francisco, California, Supervisory Engineer, 1979 - 1980
Impell Corporation, San Francisco, California, Senior Engineer, 1976 - 1979
Stone & Webster Engineering Corporation, Boston, Massachusetts, Engineer, 1974 - 1976

PROFESSIONAL EXPERIENCE:

Mr. Djordjevic founded the Stevenson & Associates Boston area office in 1983 and serves as Vice President and General Manager. He is currently preforming numerous seismic walkdowns for resolution of the USI A-46 and seismic IPEEE issues, and serving as the Project Manager for the Kewaunee, Point Beach and Palisades projects, all joint A-46 and Seismic PRA projects.

Mr. Djordjevic is expert in the area of seismic fragiity analysis and dynamic qualification of electrical and mechanical equipment. He has participated in and managed over twenty major projects involving the evaluation and qualification of vibration sensitive equipment and seismic hardening of equipment. As demonstrated by his committee work and publications, Mr. Djordjevic has participated in and contributed steadily to the development of equipment qualification and vibration hardening methodology.

Mr. Djordjevic's previous walkdown experience included all of the SEP plants (8 plants), Nine Mile - Unit 1, D.C. Cook - Units 1 & 2, the Hanford Reservation Purex facility and the Savannah River Plant Reservation L-Reactor. He has personally participated in seismic walkdowns at 26 U.S. nuclear units.

Representative projects include overseeing the SEP shake-table testing of electrical raceways, in-situ testing of control panels and instrumentation racks at various nuclear facilities, equipment anchorage walkdowns and evaluations at various nuclear facilities, principal author of the *CERTIVALVE* software package to evaluate nuclear service valves, and contributing author in the development of the *ANCHOR* and *EDASP* software packages commercially distributed by Stevenson & Associates.

S&A

Mr. Djordjevic has been involved extensively in the reassessment of safety-related equipment for commercial nuclear facilities and government U.S. Department of Energy facilities, for which he maintains an active Q-clearance status. He has served on advisory groups and review teams touring older existing nuclear facilities to assess safety and has performed earthquake reconnaissance at such installations following seismic events.

PROFESSIONAL GROUPS:

Member, Institute of Electrical and Electronics Engineers, Nuclear Power Engineering Committee Working Group SC 2.5 (IEEE-344)

Chairman, American Society of Civil Engineers Nuclear Structures and Materials Committee, Working Group for the Analysis and Design of Electrical Cable Support Systems

Member, American Society of Mechanical Engineers Operation, Application, and Components Committee on Valves, Working Group SC-5

S&A

SQUG

Certificate of Achievement

This is to Certify that

Walter Djordjevic

has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held April 6–10, 1992

Neil P. Smith, Commonwealth Edison
SQUG Chairman

David A. Freed, MPR Associates
SQUG Training Coordinator

R. P. Kassawara, EPRI
SQUG Program Manager

ROBERT P. KENNEDY

EDUCATION:

B.S. - Civil Engineering, Stanford University
M.S. - Structural Engineering, Stanford University
Ph.D. - Structural Engineering, Stanford University

REGISTRATION:

State of California, State of Tennessee, State of Texas, State of Alabama

PROFESSIONAL HISTORY:

RPK Structural Mechanics Consulting, Yorba Linda, California, President, 1987 to Present

National Technical Services Engineering, Los Angeles, California, Vice President, 1985 - 1987

Structural Mechanics Associates, Newport Beach, California, President, 1979-1985

Engineering Decision Analysis Corp., Newport Beach, California, Vice President, 1977 - 1979

Homes and Narvier, Inc., Los Angeles, California, Manager of Engineering Mechanics Division, 1970 - 1979

PROFESSIONAL EXPERIENCE:

Dr. Kennedy has over twenty years experience in static and dynamic analysis plus design of special purpose civil and mechanical-type structures, particularly for the nuclear, petroleum, and defense industries: design of structures to resist extreme loadings including seismic, missile impact, extreme wind, impulsive loads, and nuclear environmental effects; development of computerized structural analysis methods: administrative and program management; and teaching.

Seismic Ruggedness - Nuclear Facilities

Chairman, Senior Seismic Review and Advisory Panel (SSRAP), jointly advising both nuclear power utilities and the U.S. NRC on issues relating to seismic ruggedness of existing nuclear power plants. Member of NRC Expert Panel on Seismic Margin for nuclear power plants. Co-author of Electric Power Research Institute (EPRI) Seismic Margin Research Program. Provided technical direction on Seismic fragility portion of seismic probabilistic risk assessments for 23 nuclear power plants. Developed the methodology most commonly used for such studies and author of many technical papers thereon.

Taught short courses on seismic PRA methodology in U.S., Spain, Taiwan, and People's Republic of China. Consultant on seismic evaluation or design for more than 40 nuclear facilities through the world. Directed seismic analysis of many nuclear power plant buildings and components. Directed many nonlinear seismic response analyses investigations. Evaluated effects of differential earth movement (faulting) on nuclear facility. Performed a number of

dynamic soil-structure interaction analyses of nuclear reactor containment buildings accounting for the nonlinear effects of base slab uplift. Directed nonlinear seismic evaluation of nuclear facility to demonstrate increased seismic capacity. Evaluated concepts for seismic response mitigation and increased energy absorption. Has participated in 13 nuclear power plant seismic walkdown.

Dynamic Loads - Nuclear Facilities

Extensive experience in the analysis of nuclear facilities subjected to extreme dynamic loads including effects of external missile and aircraft impact, and impulsive loading resulting from loss-of-coolant accident and SRV discharge. Prime developer of the method currently in extensive use by the nuclear industry in the U.S. for evaluating the local effects of missile impact on concrete. Consultant on the effects of aircraft impact for several nuclear plants. Consultant to General Electric on effects of pool swell loads resulting from LOCA, and on the increased dynamic reserve margin available in structures subjected to pulsive loads. Consultant to G.E. and Mark I, Mark II, and Mark III Owner's Group on combination of responses from multiple dynamic loadings. Consultant on Mark I and Mark III evaluations to address the conservatism and uncertainty associated with standard structural analyses for SRV loadings. Consultant on methods of response combination and expert witness at Black Fox hearings. Consultant to Mark I and Mark III groups on conservatism, uncertainty, structural modeling, and load definition for new dynamic loads. Consultant on three Mark III BWR plants with free-standing steel containment, Leibstadt, Allens Creek, and River Bend, in order to evaluate realistic containment response to SR; loadings as current approaches are overconservative and lead to serious design problems. Developed floor response spectra for final design of attached piping for Leibstadt plant by coupled analysis such that beneficial effects of energy feedback are included. Developed method to account for the coupling of equipment and piping to the main structure and to account for energy feedback from the subsystem to the structure. Developed method to account for random phasing of multiple harmonics of condensation oscillation loading in order to compute responses more compatible with measured results. Member ASCE committee on impact and impulse analysis of nuclear facilities, and ACI committee which developed code for the design of nuclear safety-related concrete structures subjected to impact and impulse loads.

Dr. Kennedy has personally performed seismic walkdowns of 12 nuclear power plants and serves on numerous government (NRC) and industry advisory boards (EPRI) dealing with seismic qualification of nuclear power plant facilities.

PROFESSIONAL GROUPS:

Chairman, Seismic Analysis, Nuclear Structure and Materials Committee, Structures Division, ASCE.

Chairman, Seismic Analysis of Safety Class Structures Standard Committee, Technical Council on Codes and Standards, ASCE.

Former Chairman, Gas and Liquid Fuel Lifelines Committee, Technical Council on Lifeline Earthquake Engineering, ASCE.

Member, Nuclear Structures and Materials Technical and Administrative Committee, Structures Division, ASCE.

Member, Impact and Impulse Analysis, Nuclear Structures and Materials Committee Structures Division, ASCE.

Member, Editing Board, ASCE Report entitled "Structural Analysis and Design of Nuclear Plant Facilities."

Member, Ad Hoc Group on Soil-Structure Intersection, Nuclear Structures and Materials Committee, Structures Division, ASCE.

Member, ACI 349, "Subcommittee on Standard Requirements for Nuclear afety-Related Concrete Structures," Design Committee and Working Group 5 - "Impactive and Impulsive Loads."

Member, AWWA DIOO Revision Task Force, charged with revising the AWWA Standard for Welded Steel Tanks for Water Storage.

Member, National Research Council Subcommittee on Probabilistic Seismic Hazard Assessment.

JOHN D. STEVENSON

EDUCATION:

B.S. - Civil Engineering - Virginia Military Institute, 1954
M.S. - Civil Engineering - Case Institute of Technology, 1962
Ph.D. - Civil Engineering - Case Institute of Technology, 1968

REGISTRATION:

Commonwealth of Virginia, State of Ohio

PROFESSIONAL HISTORY:

Stevenson & Associates, Cleveland, Ohio, President: 1981 - present
Structural Mechanics Associates, Cleveland, Ohio, Vice President: 1980 - 1981
Woodward Clyed Consultants, Cleveland, Ohio, Vice President: 1979 - 1980
A. G. McKee & Co., Cleveland, Ohio, Vice President: 1976 - 1979
Case Western Reserve University, Cleveland, Ohio, Assoc. Prof.: 1974 - 1976
Westinghouse Electric Co., Pittsburgh, Pennsylvania, Consultant: 1972 - 1974
University of Pittsburgh, Pittsburgh, Pennsylvania, Adjunct Professor: 1970 - 1972
Westinghouse Nuclear Energy Systems, Manager Structural System Engineering: 1966 - 1970
Virginia Military Institute, Assistant Professor: 1957 - 1962

PROFESSIONAL EXPERIENCE:

Since November 1981, Dr. Stevenson has managed and has served as President and Senior Consultant to Stevenson & Associates. The firm specializes in high technology consulting and engineering services associated with failure analysis of structural and mechanical systems; extreme loads; and nonlinear, dynamic, probabilistic and high temperature analyses.

His years of expertise include structural and mechanical design andqualification of nuclear power plant structures and components. He serves on several committees of the ASCE, ASME, ANS, ACI and AISC charged with the development of standards devoted to design of nuclear plant facilities. Dr. Stevenson's relevant experience includes seismic walkdowns of 13 nuclear power stations and 23 years as a structural- mechanical engineer with particular application to earthquake design and analysis. A list of earthquake related projects which Dr. Stevenson performed or directly supervised is as follows:

1. Developed seismic design criteria for 5 nuclear power stations: Westinghouse Turnkeys

2. Reviewed and approved seismic design adequacy from plans and specifications for 5 nuclear power plants: Westinghouse Turnkeys

S&A

3. Evaluation of seismic design adequacy of mechanical equipment for French nuclear power station: Fessenhein station

4. Evaluation of seismic design adequacy of liquified natural and petroleum gas storage facilities: U.S. General Accounting Office

5. Testing of electrical racks to demonstrate seismic design adequacy: Federal Pioneer, Canada

6. Analytical seismic qualification of spent fuel racks - nonlinear analysis for 10 nuclear power plants

7. Quality Assurance audit (technical) of the Tokomak fusion test reactor tritium retention structures to resist seismic loads: U.S. Department of Energy

8. Prepare preliminary assessment of requirements and installation specification for anchorage of electrical equipment in the Monticello Nuclear Plant in anticipation of meeting I&E 80-21 requirements: Northern States Power Co.

9. Review and evaluation of the Purex facility seismic capabilities at Hanford Plant: U.S. Department of Energy

10. Survey and evaluation of the L reactor mechanical and electrical equipment seismic capabilities for Savannah River Plant: E. I. DuPont

11. Systematic evaluation of the seismic capacity of a 600 MW Candu reactor station for safety shutdown in Argentina

12. Review of literature and develop recommendations for piping system damping values for Kraftwerk Union and Mitsubish

13. Detailed evaluation of seismic design adequacy for selected mechanical and electrical equipment of five nuclear power stations as part of the U.S. NRC systematic evaluation program: U.S. Nuclear Regulatory Commission

14. Review of seismic design adequacy of nuclear plant facilities for the D.C. Cook Nuclear Power Plant: American Electric Power Corporation

15. Systematic evaluation of the seismic capacity of mechanical and electrical equipment for the Connecticut Yankee Nuclear Power Plant: Northeast Utilities

16. Systematic evaluation of the seismic capacity of mechanical and electrical equipment for the Maine Yankee Nuclear Power Plant: Yankee Atomic Co.

17. Consultant to EPRI to develop criteria for OBE Exceedance based on measure and observed site behavior: Electric Power Research Institute

18. Consultant to NRC to develop an experience data base and criteria for design and analysis

S&A

of piping systems to resist seismic loads:

19. Consultant to NRC to evaluate procedures for HCLPF assessment of equipment in nuclear power plants (NUREG/CR-5270): U.S. Nuclear Regulatory Commission

20. Review of earthquake resistance of plutonium fabrication facility: Rockwell International Corp.

21. Consultant to EPRI to develop procedures for plant start-up following a damaging earthquake at a nuclear power plant site: Electric Power Research Institute

22. Personally performed seismic walkdowns of 16 nuclear power plants in the U.S., Europe, Asia and South America.

PROFESSIONAL GROUPS:

Member, American Society of Civil Engineers, Structural Division Committee on Nuclear Safety; Structural Division Committee on Nuclear Structures and Materials; Steering Committee on Development of a Manual of Professional Practice for Quality in the Constructed Project

Former Chairman, American Society of Civil Engineers, Executive Committee Technical Council Codes and Standards

Chairman, American Society of Civil Engineers, Nuclear Standards Committee

Member, American Concrete Institute, Joint ACI-ASME Subgroup on Design of Concrete Components in Nuclear Service, ASME BPVC-Section III-Div. 2

Member, American Society of Mechanical Engineers, Subgroup on Design of ASME BPVC-Section III-Div. 1 Nuclear Components Subcommittee on Qualification of Mechanical Components in Nuclear Service

Member, Nuclear Standards Management Board of ANSI representing ASCE

Member, U.S. Representative International Standards Committee SC 85/3/7 on Seismic Criteria for Nuclear Plants

Member, U.S. Representative International Atomic Energy Agency Working Group on the Development of Seismic Design Standards

Member, ANS-2, American Nuclear Society Committee on Site Evaluation; NUPPSCO, American Nuclear Society Committee on Nuclear Power Plant Codes and Standards

Member, AISC, American Institute of Steel Construction Committee on Specifications for Structural Steel in Safety Class Nuclear Structures

Member, Earthquake Engineering Research Institute

S&A

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: Plant Engineering

SECTION: System Engineering

Name: Jeffrey S. Boucher

Title: Seismic Capability Engineer

EDUCATIONAL BACKGROUND:

Attended various colleges in the field of engineering.
Also completed the following training programs:

-MPR/EPRI Seismic Qualifications Utility Group (SQUG)
-Montana State University BS Civil Engineer, BS Math
-Purdue MS Structural Engineer
-State of Michigan Professional Engineer License (# G 639 856)
-State of Illinois Professional License (# 062-045797)
-SSEL Training
-IPE Add-on Training

JOB-RELATED EXPERIENCE

Total of 19 years experience.
Responsibilities include 6 years of operating nuclear plant experience at Palisades.
Duties included but were not limited to the following:

-Senior Engineer
-Contractor
-Construction
-Operating Plants
-Nuclear Licensing
-System Analysis and Design

Certificate of Achievement

This is to Certify that

Jeffrey Boucher

has Completed the SQUG Walkdown Screening
and Seismic Evaluation Training Course
Held June 22–26, 1992

David A. Freed, MPR Associates
SQUG Training Coordinator

Neil P. Smith, Commonwealth Edison
SQUG Chairman

Robert P. Kassawara, EPRI
SQUG Program Manager

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: NECO-Engineering Programs

SECTION: Civil/Structural Engineering

Name: Alan L. Lyon, P.E.

Title: Seismic Capability Engineer

EDUCATIONAL BACKGROUND:

Attended Michigan State University in the field of engineering.
Also completed the following training programs:

-Bachelor of Science and Civil Engineering (BSCE)
-MPR/EPRI Seismic Qualifications Utility Group (SQUG)
-Walkdown Screening and Seismic Evaluation Training Course

JOB-RELATED EXPERIENCE

Total of 15 years experience.
Responsibilities include 4 years of operating nuclear plant experience at Palisades Nuclear Plant
Duties included but were not limited to the following:

-Design of Power Plants
-Design of Seismic Restraints for Piping
-Mechanical and Electrical Equipment
-Senior Engineer/NECO
-System Analysis and Design

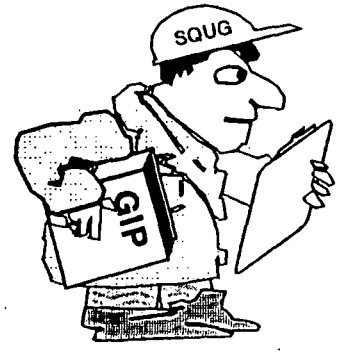
SQUG

Certificate of Achievement

This is to Certify that

Alan L. Lyon

has Completed the SQUG Walkdown Screening
and Seismic Evaluation Training Course
Held November 9–13, 1992



Neil P. Smith, Commonwealth Edison
SQUG Chairman

David A. Freed, MPR Associates
SQUG Training Coordinator

Robert P. Kassawara, EPRI
SQUG Program Manager

ENGINEERING AND TECHNICAL STAFF RESUME

DEPARTMENT: Design Engineering

SECTION: Civil/Structural Engineering

Name: Rolfe B. Jenkins

Title: Senior Lead Engineer

EDUCATIONAL BACKGROUND:

Attended Michigan State University in the field of management and engineering. Also completed the following training programs:

-Michigan State University Bachelor of Science and Math, 1969
-Michigan State University Masters of Science, PhD in Mechanics, 1973
-MPR/EPRI Seismic Qualification Utility Group (SQUG) "Walkdown Screening and Seismic Evaluation Training", February 28 - March 4, 1994
-State of Michigan PE License

JOB RELATED EXPERIENCE

Total of 32 years experience.
Responsibilities include 19 years of operating nuclear plant experience at Palisades. 10 years - present experience of ASMR Working Group on Piping Design. And 3 years experience with Light Water Breeder Crid Design with Westinghouse. Duties included, but were not limited to the following:

-Fossil Plant Design and Analysis
-Nuclear Plant Design and Analysis
-Reactor Vessel Surveillance INRC Interface
-CE and Westing House Owners Group Representative
-Nuclear/Fossil Project Management
-Trainer - Technical

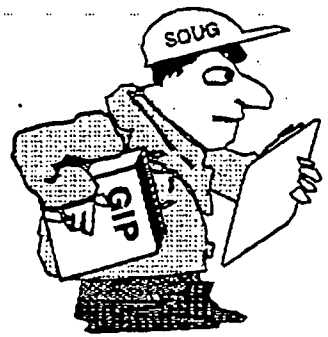
SQUG

Certificate of Achievement

This is to Certify that

Rolfe B. Jenkins

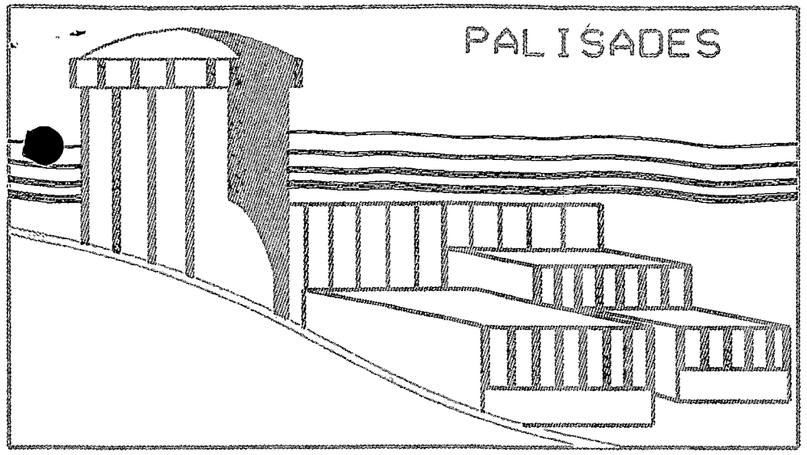
has Completed the SQUG Walkdown Screening and Seismic Evaluation Training Course Held February 28 – March 4, 1994



Neil P. Smith, Commonwealth Edison
SQUG Chairman

David A. Freed, MPR Associates
SQUG Training Coordinator

Robert P. Kassawara, EPRI
SQUG Program Manager



SQUG

EQUIPMENT LIST

LEGEND

——— TRAIN 2 EQUIPMENT

——— TRAIN 1 & 2 EQUIPMENT

——— OPTIONAL EQUIPMENT

PIPING & INSTRUMENT DIAGRAM PRIMARY COOLANT SYSTEM

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

REV	DATE	DESCRIPTION	BY	APP
59	10-18-94	REMOVED CLASS FLAGS PER DCR 94-902	HMW	

DRAWING NUMBER M201 — SHT 1 — REV 59

THIS DWG. IS SOUG COLOR CODED

9505310007-02

CONTAINMENT VENT HEADER
M-211 SH. 2 (E-7)

SHUTDOWN COOLING RELIEF
M-204 SH 1 (F-1)

S.I. TANKS DRAIN RELIEF
M-203 SH 1 (C-7)

LETDOWN LINE RELIEF
M-202 SH.1B (F,G-8)

PRIMARY SYSTEM MAKE-UP WATER T-90
M-652 (D-8)

NITROGEN
M-222 SH.1 (G-1)

DPCT
M-210 SH. 2 (G-7)

QUENCH TANK
T-73

EVENT RECORDER & DLS

PY-0102A
M201 SH.1 (C-6)

PY-0102B
M201 SH.1 (E-6)

PY-0102C
M201 SH.1 (C-6)

PY-0102D
M201 SH.1 (E-6)

SAFETY INJECTION SIGNAL BLOCK CIRCUIT

ATWS ALARM LOGIC

ATWS HI PRESSURIZER PRESSURE (2/4 LOGIC)

LOW-LOW PRESSURIZER PRESSURE (2/4 LOGIC)

CONTAINMENT HIGH PRESSURE (2/4 LOGIC) REFER TO M-218

RX & TURB. TRIPS

BACK-UP VOLUME CONTROL SIGNAL
M-202 SH.1B (G-4)

NORMAL VOLUME CONTROL SIGNAL
M-202 SH.1B (G-3)

TAVE FROM SELECTOR SWITCHES SS-TAVE

PRESSURIZER PRESS. TRIP (2/4 LOGIC)

TO EVENT RECORDER (OPEN-CLOSE) & DLS

PRESSURIZER T-72

SPRAY CONTROL VALVES

AUX. SPRAY FROM CVCS
M-202 SH.1B (A-8)

REACTOR HEAD N-50
M-201 SH.1 (H-4)

EU-1
#1 PROPORTIONAL HEATER CONTROLS

EU-2
#2 PROPORTIONAL HEATER CONTROLS

BACK-UP HEATER CONTACTORS

HS-2003
M-202 SH.1B (D-7)

PTR-0122
M-201 SH.1 (E-6)

MO-3015 INTERLOCK
M-204 SH.1 (G-2)

(ENERGIZED ON LOW PRESSURE)

(ENERGIZED ON HIGH LEVEL)

(TRIP ON LOW-LOW LEVEL)

9505310007-03

NOTES:
1. MV-PC-164B & MV-PC-165B ARE PART OF ANDERSON - GREENWOOD INSTRUMENT MANIFOLD INSTALLED ON LT-0105.
2. MV-PC-1045A OPERATOR IS INACCESSIBLE DUE TO BEING ENCASED IN LEAK SEALANT PER SC-94-068.

THIS DWG. IS SQUG COLOR CODED.

NO	DATE	REVISIONS	BY	APP
36	12-27-94	REVISED PER APP. R CIRCUIT ANALYSIS & DCR-94-1007.	ALB	

SCALE: NONE | DESIGNED | DRAWN: PG BROWN

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
PRIMARY COOLANT SYSTEM

SITE ID.	DRAWING NO.	REV.
0950	M-201 SH.2	36

M201-2-DGN

VOLUME CONTROL TANK T-54

CHARGING PUMP ACCUMULATORS M-202 SH. 1B (F-2)

VDT M-210 SH. 2 (H-3)

PURIF. FILTERS M-202 SH. 1 (B-7)

SPENT RESIN STORAGE TK. M-202 SH. 1 (G-7)

DIRTY WASTE DRAIN TANK M-211 SH. 1 (E-3)

CONTROLLED BLEED-OFF M-202 SH. 1 (E-5)

WASTE GAS SURGE TK. M-211 SH. 2 (F-5)

VGCH M-211 SH. 3 (F-1)

M-222 SH. 1A (F-8)

M-222 SH. 1 (D-1)

PRIMARY SYSTEM MAKE-UP WATER T-90 M-652 (C-8)

PURIF. DEMINS. M-202 SH. 1 (G-6)

BORIC ACID BATCHING TANK T-77

DDWH M-211 SH. 1 (E-5)

TO CHAROID PUMPS FOR FLUSHING AND LUBE TANKS

RECYCLED BORIC ACID STORAGE TANK M-550 SH 1A (F-8)

CONCENTRATED BORIC ACID TANKS T-53B

CONCENTRATED BORIC ACID TANKS T-53A

HEATERS

TO FLOOR

DBA SEQUENCER

BLENDER M-51

BORIC ACID FILTER

HEAT TRACING INTERLOCK

TO TIME DELAY 62/F-0210

DDWH HC-36-1" M-211 SH. 1 (E-5)

SIRW TANK M-204 SH 1B (D-2)

CHEMICAL ADDITION TANK T-56

METERING PUMP P-57

CHARGING PUMPS M-202 SH. 1B (E-2)

P-56A

P-56B

CONCENTRATE BORIC ACID PUMPS

LIC-0205 M-202 SH. 1A (G-6)

TO INDICATOR OF PIC-0206 (F-3)

TO INDICATOR OF PIC-0206 (F-4)

9505310007-04

THIS DWG. IS SOUG COLOR CODED.

REV	DATE	DESCRIPTION	BY	APP
24	12-29-94	REV. VALVE 76Y-2329A PER FES-94-369 & DCR 94-1818	JGD	

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

PIPING & INSTRUMENT DIAGRAM
CHEMICAL & VOLUME CONTROL SYSTEM

DRAWING NUMBER M202 | SHT. 1A | REV. 24

NITROGEN M-222 SH. 1 (G-1) — GC-7-1"

VCVH M-211 SH. 2 (D-8) — HB-1-1"

HB-1-1" — GC-7-1" — GC-9-1" — GC-9-2" — CC-4-12" — CC-4-6"

SAFETY INJECTION TANK T-82A (SE)

SAFETY INJECTION TANK T-82B (SW)

SAFETY INJECTION TANK T-82C (NW)

SAFETY INJECTION TANK T-82D (NE)

SIRW TANK M-204 SH 1 (G-8) — CLOSES SIS

QUENCH TK T-73 M-201 SH. 3 (C-3) — HC-30-3" — 2"

OPCT M-210, SH. 2 (G-7) — HC-1-2"

REACTOR COOLANT LOOP 1A M-201, SH. 1 (F-3) — 12"-ES 3101

REACTOR COOLANT LOOP 1B M-201, SH. 1 (E-4) — 12"-ES 3116

REACTOR COOLANT LOOP 2A M-201, SH. 1 (E-4) — 12"-ES 3131

REACTOR COOLANT LOOP 2B M-201, SH. 1 (F-5) — 12"-ES 3146

SAFETY INJECTION HEADER M-203, SH. 2 (D-8)

SAFETY INJECTION HEADER M-203, SH. 2 (C-8)

SAFETY INJECTION HEADER M-203, SH. 2 (B-8)

SAFETY INJECTION HEADER M-203, SH. 2 (A-8)

9505310007-05

THIS DWG. IS SOUG COLOR CODED.

REV	DATE	DESCRIPTION	BY	CK	APP
37	9/17/94	CHANGED CV-3069 STATUS TO CLOSED PER DCR 94-484	JFM		

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

PIPING & INSTRUMENT DIAGRAM
SAFETY INJECTION, CONTAINMENT SPRAY & SHUDOWN COOLING SYSTEM

DRAWING NUMBER: M203 — SHEET NO.: 1 — REV: 37

SIS

DBA SEQUENCER

HC-30-2"

FLOOR DRAIN

½" RV 3165

½" RV 3264

RV 3162

RO 3081

RO 3080

HIGH PRESSURE INJECTION TRAIN 1 M-204 SH 1A (D-8)

REDUNDANT HIGH PRESSURE INJECTION TRAIN 2 M-204 SH 1A (C-8)

DATA LOGGER THRU EVENT RECORDER

P-50A M-209 SH. 1 (E-4)

P-50B M-209 SH. 1 (G-4)

P-50C M-209 SH. 1 (A-4)

P-50D M-209 SH. 1 (C-4)

LOOP #1 HOT LEG M-201, SH. 1 (B-3)

LOW PRESSURE INJECTION M-204 SH 1 (A-8)

BACKUP N2 STA 5 M-222 SH. 2 (E-5)

RECIRCULATION TO SIRW TANK M-204 SH 1 (G-8)

SHUTDOWN COOLING HEAT EXCHANGER E-52B M-204 SH 1 (D-8)

SHUTDOWN COOLING HEAT EXCHANGER E-52A M-204 SH 1 (E-8)

T-82A M-203, SH. 1 (C-2)

T-82B M-203, SH. 1 (B-2)

T-82C M-203, SH. 1 (B-2)

T-82D M-203, SH. 1 (B-2)

7 HALF RING HEADERS

CONTAINMENT SPRAY PUMP TEST INTERLOCK (OPEN & CLOSE)

EVENT RECORDER (OPEN)

CONTAINMENT SPRAY

(QUALITY GROUP 2)

THIS DWG. IS SQUG COLOR CODED.

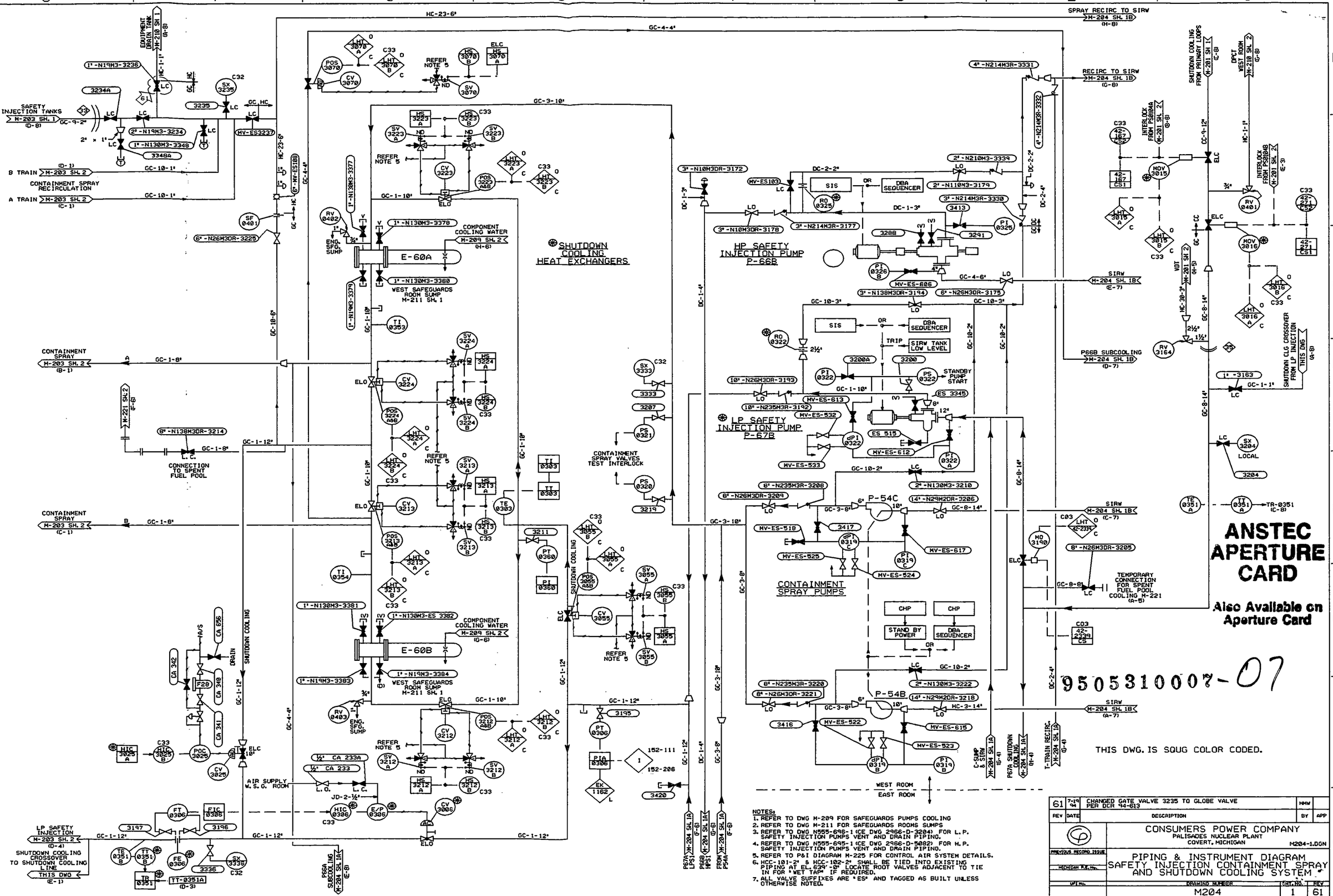
9505310007 - 06

REV	DATE	DESCRIPTION	BY	CK	APP
16	5-19-94	ROTATED VALVES MV-ES3002 & MV-ES3001 TO SHOW PROPER INSTALLATION PER DCR 94-422	HMW		

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

PIPING & INSTRUMENT DIAGRAM
SAFETY INJECTION, CONTAINMENT SPRAY & SHUTDOWN COOLING SYS #1

M203 — 2 — 16



NOTES:
1. REFER TO DWG M-209 FOR SAFEGUARDS PUMPS COOLING
2. REFER TO DWG M-211 FOR SAFEGUARDS ROOMS SUMPS
3. REFER TO DWG N555-646-1 (CE DWG 2966-D-3204) FOR L.P. SAFETY INJECTION PUMPS VENT AND DRAIN PIPING.
4. REFER TO DWG N555-645-1 (CE DWG 2966-D-3682) FOR H.P. SAFETY INJECTION PUMPS VENT AND DRAIN PIPING.
5. REFER TO P&I DIAGRAM M-225 FOR CONTROL AIR SYSTEM DETAILS.
6. HCC-101-2" & HCC-102-2" SHALL BE TIED INTO EXISTING PIPING AT EL. 639'-0". LOCATE ROOT VALVES ADJACENT TO TIE IN FOR "WET TAP" IF REQUIRED.
7. ALL VALVE SUFFIXES ARE "ES" AND TAGGED AS BUILT UNLESS OTHERWISE NOTED.

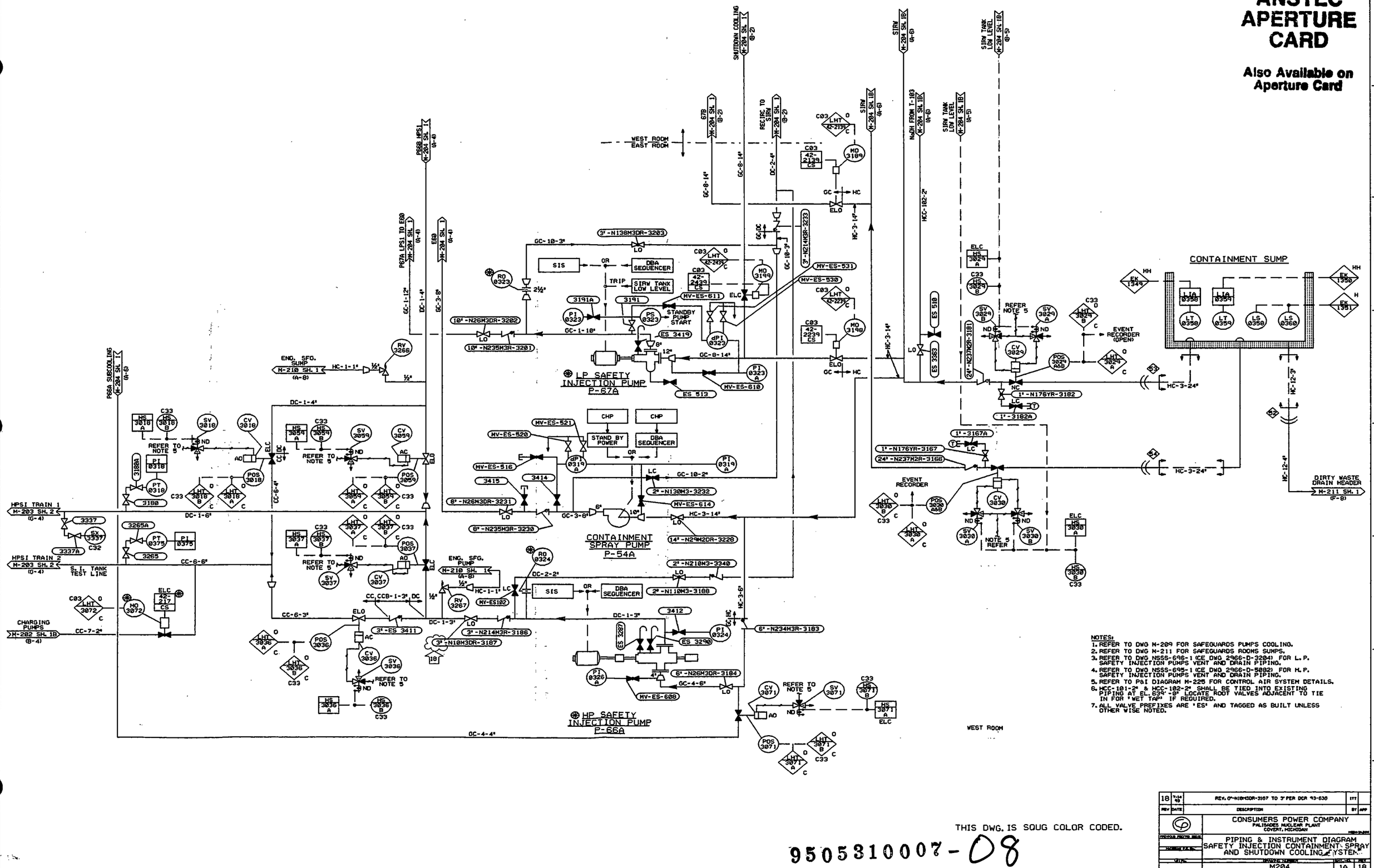
REV	DATE	DESCRIPTION	BY	APP
61	7-19-94	CHANGED GATE VALVE 3235 TO GLOBE VALVE PER DCR 94-613	MHW	

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M204-1.DGN

PIPING & INSTRUMENT DIAGRAM
SAFETY INJECTION CONTAINMENT SPRAY AND SHUTDOWN COOLING SYSTEM

DRAWING NUMBER	SHT. NO.	REV
M204	1	61

PREVIOUS RECORD ISSUE
MICHIGAN P.E. No.
UPT No.



NOTES:
1. REFER TO DWG M-209 FOR SAFEGUARDS PUMPS COOLING.
2. REFER TO DWG M-211 FOR SAFEGUARDS ROOMS SUMPS.
3. REFER TO DWG NSSS-698-1 (CE DWG 2966-D-3204) FOR L.P. SAFETY INJECTION PUMPS VENT AND DRAIN PIPING.
4. REFER TO DWG NSSS-698-1 (CE DWG 2966-D-5082) FOR H.P. SAFETY INJECTION PUMPS VENT AND DRAIN PIPING.
5. REFER TO P&I DIAGRAM M-225 FOR CONTROL AIR SYSTEM DETAILS.
6. HCC-101-2" & HCC-102-2" SHALL BE TIED INTO EXISTING PIPING AT EL. 639'-0" LOCATE ROOT VALVES ADJACENT TO TIE IN FOR 'WET TAP' IF REQUIRED.
7. ALL VALVE PREFIXES ARE 'ES' AND TAGGED AS BUILT UNLESS OTHER WISE NOTED.

THIS DWG. IS SOUG COLOR CODED.

9505310007-08

REV	DATE	DESCRIPTION	BY	APP
18	9/14/95	REV. 0"-N10M3DR-3187 TO 3" PER DCR 93-630	ITT	

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

PIPING & INSTRUMENT DIAGRAM
SAFETY INJECTION CONTAINMENT SPRAY AND SHUTDOWN COOLING SYSTEM

DRAWING NUMBER	SHT	REV
M204	1A	18

SAFETY INJECTION AND REFUELING WATER TANK T-58

T-102 IODINE REMOVAL N2 H4 TANK

T-103 IODINE REMOVAL N2 H4 TANK

SIRW TANK HEAT EXCH E-57

SIRW TANK RECIRC. PUMP P-74

SPRAY RECIRC. M-204 SH. 1 (H-2)

RECIRC M-204 SH. 1 (H-2)

SPENT FUEL POOL M-221 SH. 2 (C-8)

RADWASTE DEMINERALIZERS M-210 SH. 1C (H-7)

P66B M-204 SH. 1 (F-1)

P66B SUBCOOLING M-204 SH. 1 (E-2)

P54C M-204 SH. 1 (D-2)

P54B M-204 SH. 1 (B-2)

P67B M-204 SH. 1A (D-3)

P54A, P66A, P67A M-204 SH. 1A (D-3)

TRAIN A HEADER M-204 SH. 1A (D-3)

CV-3029 & CV-3030 M-204 SH. 1A (D-3)

TRIP LP INJECTION PUMPS POSITION CV-0823 & 0826 (M-209) OPEN CV-0945 & 0946 (M-209)

CONDENSATE RETURN M-215 (F-1)

HEATING STEAM M-215 (E-1)

RADWASTE M-210 SH 1B (C-3)

FUEL POOL COOLING PUMPS SUCTION M-221 SH. 2 (C-4)

CVCS M-202 SH. 1A (D-6)

DEDT

EVENT RECORDER (CLOSED)

NA OH FILL

BACKUP N2 STA 4 M-222 SH. 2 (E-6)

N2 M-222 SH. 1 (F-5)

ROOF PENETRATIONS

DEDT FLOOR DRAIN

ROOF PEN'S

COINCIDENCE ½TWICE

OVERFLOW

LOCAL

SEE NOTE 5

* SEE NOTE #9

NOTES:
1. REFER TO DWG M-209 FOR SAFEGUARDS PUMPS COOLING.
2. REFER TO DWG M-211 FOR SAFEGUARDS ROOMS SUMPS.
3. REFER TO DWG N555-695-1 (CE DWG 2966-D-3204) FOR L.P. SAFETY INJECTION PUMPS VENT AND DRAIN PIPING.
4. REFER TO DWG N555-695-1 (CE DWG 2966-D-5082) FOR H.P. SAFETY INJECTION PUMPS VENT AND DRAIN PIPING.
5. REFER TO P&I D M-225 FOR CONTROL AIR SYSTEM DETAILS.
7. ALL VALVE PREFIXES ARE 'ES' AND TAGGED AS BUILT UNLESS OTHER WISE NOTED.
8. REFER TO DWG E-8000 SH. 1, 2 & 3 FOR HEAT TRACING OF LT-0332A & B. AND DWG E-358 SH 5 FOR LT-0331.
9. DUE TO POOR RELIABILITY THE DISCS WERE REMOVED FROM CK-ES-3400, 3401, 3404 & 3405 PER SC-92-078, REF. D-PAL-92-079.

THIS DWG. IS SOUG COLOR CODED.

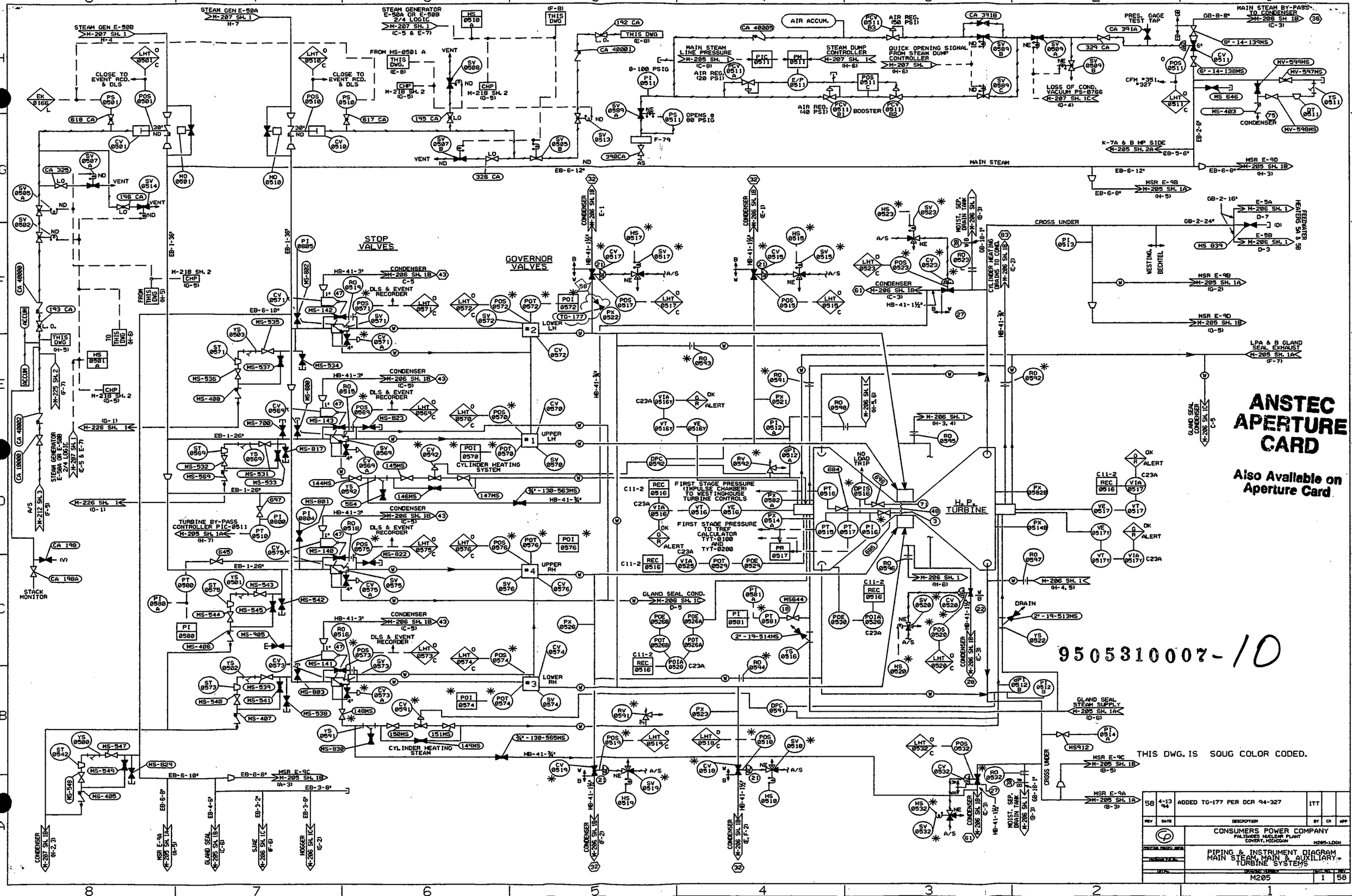
9505310007-09

REV	DATE	DESCRIPTION	BY	CK	APP
25	2-15-95	CHANGED N.C. VALVE ES-3372 TO N.O. PER DCR 95-030.	HMM		

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

PIPING & INSTRUMENT DIAGRAM
SAFETY INJECTION CONTAINMENT SPRAY

DRAWING NUMBER	SHEET NO.	REV
M204	1B	25


STEAM GEN E-50A
STEAM GEN E-50B
STEAM GENERATOR E-50A OR E-50B 2/4 LOGIC
MAIN STEAM
MAIN STEAM BY-PASS TO CONDENSER
AIR ACCUM.
AIR REG. (50 PSI)
AIR REG. (20 PSI)
AIR REG. (40 PSI)
BOOSTER
MAIN STEAM LINE PRESSURE
STEAM DUMP CONTROLLER
QUICK OPENING SIGNAL FROM STEAM DUMP CONTROLLER
LOSS OF COND. VACUUM PS-0786
CONDENSER
K-7A & B HP SIDE
MSR E-9D
MSR E-9B
MSR E-9A
MSR E-9C
STOP VALVES
GOVERNOR VALVES
H.P. TURBINE
CYLINDER HEATING STEAM
GLAND SEAL COND.
GLAND SEAL STEAM SUPPLY
LPA & B GLAND SEAL EXHAUST
MOIST. SEP. DRAIN TANK
CROSS UNDER
FEEDWATER HEATERS 5A & 5B
TURBINE BY-PASS CONTROLLER PIC-0511
STACK MONITOR
DLS & EVENT RECORDER
FIRST STAGE PRESSURE (IMPULSE CHAMBER) TO WESTINGHOUSE TURBINE CONTROLS
FIRST STAGE PRESSURE TO TREF CALCULATOR TYT-0100 AND TYT-0200
NO LOAD TRIP
ANSTEC APERTURE CARD
Also Available on Aperture Card
9505310007-10
THIS DWG. IS SOUG COLOR CODED.
58 4-13-94 ADDED TG-177 PER DCR 94-327 ITT
CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
PIPING & INSTRUMENT DIAGRAM
MAIN STEAM, MAIN & AUXILIARY TURBINE SYSTEMS
M205
1
58

AUX. FEEDWATER PUMP TURBINE DRIVER K-8

FOR NOTES SEE M-205 SH. 1

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	APP
4 1	10-25-94	REV'D. YS-0520 & ID'D. YS-0513 PER DCR-94-309	JGD	

SCALE NONE — DESIGNED — DRAWN P. G. BROWN

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
MAIN STEAM AND AUXILIARY TURBINE SYSTEMS

SITE ID.	DRAWING NO.	REV.
0950	M-205 SH. 2	41

M205-2.DGN

9505310007 – //

NOTES:
1. SHOWN FOR CV 0781: CV 0780, CV 0779 & CV 0782 ARE IDENTICAL.
2. SX-0779 THRU SX-0782 ARE HYDROSTATIC TEST TAPS

THIS DWG. IS SQUG COLOR CODED.

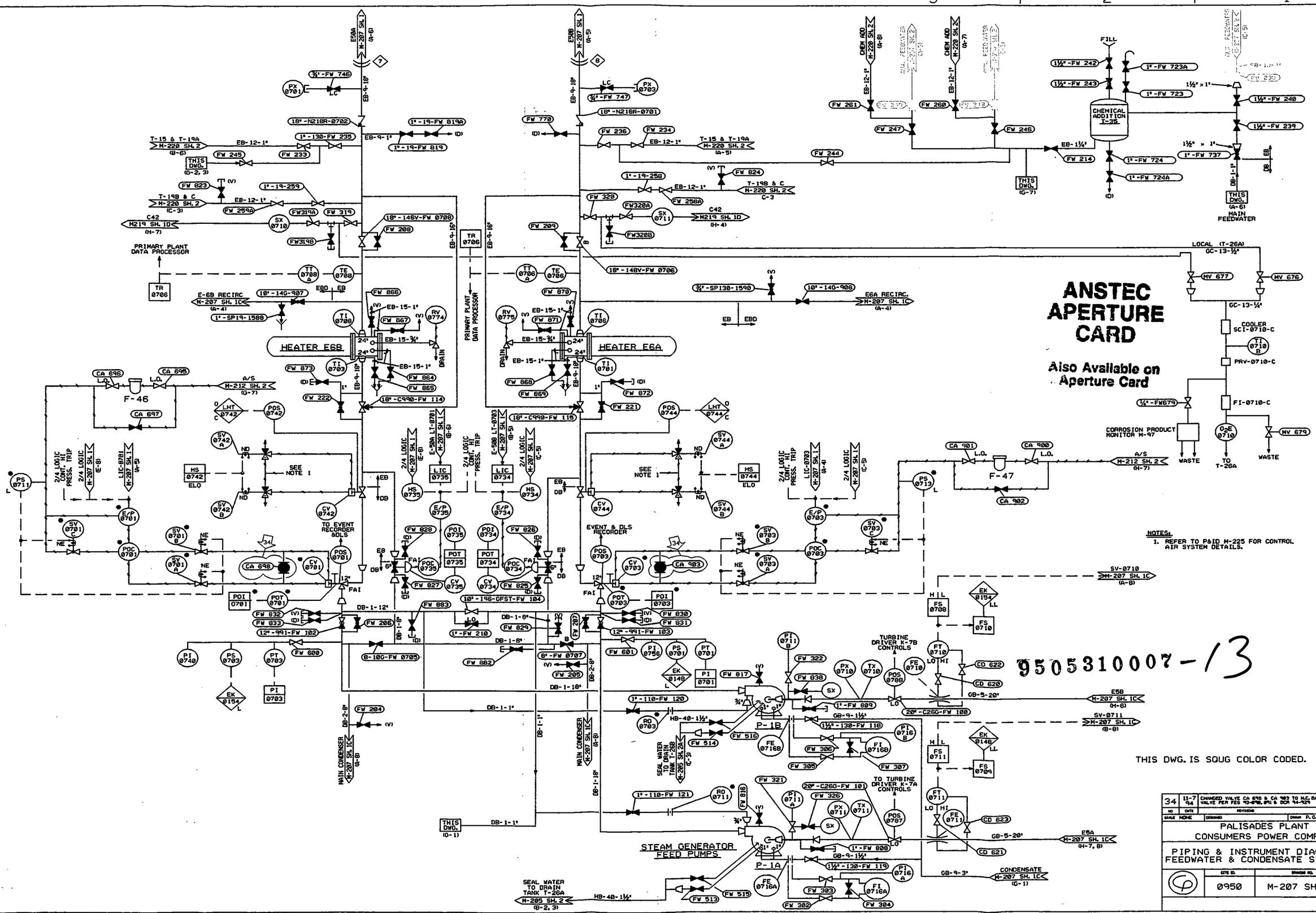
71	12-87 4-1	REVISED BOOSTER AND ADDED PCV-0781A PER C-PAL-94-62035 & DCR 94-1864		HMW
NO	DATE	REVISIONS	BY	APP
SCALE: NONE	DESIGNED	DRAWN: J.L. STERRETT		

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
FEEDWATER & CONDENSATE SYSTEM

SIZE	DRAWING NO.	REV.
D	0950 M-207 SH. 1	71

M207-1.DGN


ANSTEC APERTURE CARD
Also Available on Aperture Card
9505310007-13
THIS DWG. IS SOUG COLOR CODED.
NOTES:
1. REFER TO P&ID M-225 FOR CONTROL AIR SYSTEM DETAILS.
PALISADES PLANT M207-1A.DGN
CONSUMERS POWER CONPANY
PIPING & INSTRUMENT DIAGRAM
FEEDWATER & CONDENSATE SYSTEM
0950
M-207 SH. 1A
34
HEATER E5B
HEATER E5A
P-1B
P-1A
F-46
F-47
CHEMICAL ADDITION T-35
STEAM GENERATOR FEED PUMPS
MAIN FEEDWATER
PRIMARY PLANT DATA PROCESSOR
TURBINE DRIVER K-7B CONTROLS
TURBINE DRIVER K-7A CONTROLS
EVENT & DLS RECORDER
CORROSION PRODUCT MONITOR M-97
MAIN CONDENSER
SEAL WATER TO DRAIN TANK T-26B
SEAL WATER TO DRAIN TANK T-26A
CONDENSATE
TO T-26A
WASTE
LOCAL (T-26A)
E5B
E5A
EGA RECIRC.
E-6B RECIRC
CHEM ADD
AUX FEEDWATER
TO EVENT RECORDER &DLS
SEE NOTE 1
2/4 LOGIC CONT. HI PRESS. TRIP
2/4 LOGIC
THIS DWG.
PRIMARY PLANT DATA PROCESSOR
34 11-7-94 CHANGED VALVE CA 698 & CA 903 TO N.C. BALL VALVE PER FEG 93-098, SPI & DCR 94-029 HMW
NO DATE REVISIONS BY CK APP
SCALE NONE DESIGNED DRAWN P.C. BROWN

HOTWELL

DRAIN COOLER E7A

DRAIN COOLER E7B

E-8 AIR EJECTOR INTER & AFTER CONDENSERS

E-19 MAIN TURBINE GLAND SEAL CONDENSER

P2A

P2B

P-64B

P-64A

P-10A & B SEALS M-207 SH. 1C (D, E-2, 3)

BYP TO E3A M-207 SH. 1C (G-6)

P-10A & B SUCTION M-207 SH. 1C (B-2)

CHEMICAL INJECTION HYDRAZINE M-220 SH. 2 (A-8)

WATER BOX WEST OUTLET M-653 SH. 1C (B-7)

MAIN STEAM M-205 SH. 1 (A-8)

CV 05228 STEAM TRAP M-205 SH. 2 (F-5)

PLANT HEATING STEAM TRAP M-206 SH. 1A (H-8)

LP TURBINE HOOD SPRAY M-205 SH 1B (G-2)

B/P TO E-3B M-207 SH. 1C (G-3)

FAST MAKE-UP FOR MAIN STM. DUMP

NORMAL MAKE-UP HB-26-3"

MAKEUP FOR COND. FILL & MAX. BLOW DOWN

T-2 COND. STOR. TK. M-220 (B-5)

P-8C RECIRC. M-207 SH.2 (C-7)

P-8B RECIRC. M-207 SH.2 (F-8)

P-8A RECIRC. M-207 SH.2 (F-8)

CONDENSATE DEMINERALIZER M-918 SH. 1 (A, B-8)

CONDENSATE DEMINERALIZER M-918 SH. 1 (G, H-8)

C-208 PANEL M-903 (G-7)

P-214 M-207 SH. 1D (F-7)

NOTES:

1. REFER TO P&ID M-225 FOR CONTROL AIR SYSTEM DETAILS.
50. INGERSOLL-RAND CONN. NO.'S (F.P. 5935-M4-4, I-R DWG: N4 210RET501X1)

THIS DWG. IS SOUG COLOR CODED.

9505310007 -14

22	9-14-94	CORRECTED CD-646 CONNECTION PER DCR 94-823	JDC	
NO.	DATE	REVISIONS	BY	APP
SCALE		DESIGNED	DRAWN	

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
FEEDWATER & CONDENSATE SYSTEM

SIZE	DRAWING NO.	REV.
D	0950 M-207 SH. 1B	22

M207-1B.DGN

P&ID

NOTES

1. FOR LEVEL TRANSMITTER AND DIFFERENTIAL PRESSURE TRANSMITTER INPUTS TO FOGG/AFAS SEE P & ID M-207ID SHEET 1.

FOGG A MEANS STEAM GENERATOR E-50B IS ISOLATED.

FOGG B MEANS STEAM GENERATOR E-50A IS ISOLATED.

2. REMOVE STRAINER INTERNALS DURING NORMAL OPERATION.
3. REMOVE STARTUP STRAINER DURING NORMAL OPERATION.
4. ALL AUXILIARY FEEDWATER SYSTEM SIGNALS TO THE CRITICAL FUNCTIONS MONITOR (CFM) EXCEPT MOV VALVE POSITION, ORIGINATE FROM THE BAILEY CABINETS J-1051 AND J-1052. CONNECTIONS ARE MADE AT THE CFM ISOLATION CABINETS

9505310007-15

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	APP'D
22	10-18-94	REMOVED Q FLAGS PER DCR 94-902	HMW	

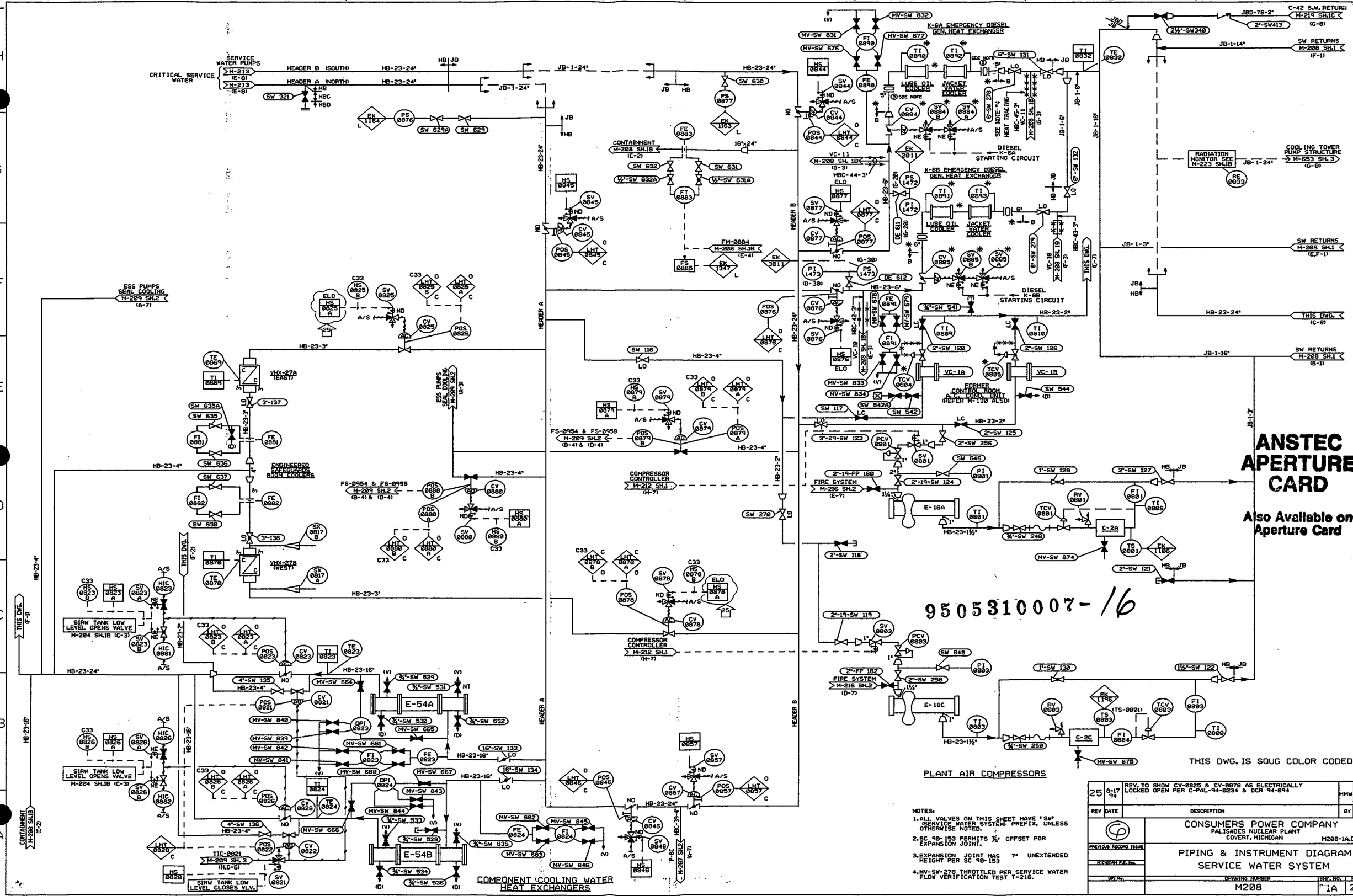
SCALE | DESIGNED | DRAWN

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
AUXILIARY FEEDWATER SYSTEM

	SIZE	DRAWING NO.	REV.
	0950	M-207 SH 2	22

M207-2.DGN


SERVICE WATER PUMPS
CRITICAL SERVICE WATER
M-213 (E-8)
M-213 (E-8)
HEADER B (SOUTH)
HEADER A (NORTH)
HB-23-24"
JB-1-24"
SW 321
HB
HBC
HBD
EK 1154
PS 0876
SW 629A
SW 629
SW 630
PS 0877
EK 1163
CONTAINMENT M-208 SH.1B (C-2)
FE 0863
16"x24"
SW 632
SW 631
½"-SW 632A
½"-SW 631A
FT 0863
FM-0884 M-208 SH.1B (E-4)
FS 0885
EK 1347
EK 3011
HS 0845
SV 0845
CV 0845
POS 0845
LHT 0845
ESS PUMPS SEAL COOLING M-209 SH.2 (A-7)
C33
HS 0825 B
SV 0825
LHT 0825 B
LHT 0825 A
ELO
HS 0825 A
CV 0825
POS 0825
HB-23-3"
TE 0869
TI 0869
VHX-27A (EAST)
3"-137
SW 635A
SW 635
FI 0881
FE 0881
SW 636
SW 637
SW 638
ENGINEERED SAFEGUARDS ROOM COOLERS
FI 0882
FE 0882
3"-138
TI 0870
TE 0870
VHX-27B (WEST)
SX 0817 B
SX 0817 A
THIS DWG. (F-2)
THIS DWG. (F-1)
HB-23-4"
HB-23-2"
HB-23-16"
CONTAINMENT M-208 SH.1B (C-2)
SIRW TANK LOW LEVEL OPENS VALVE M-204 SH.1B (C-3)
HS 0823
SV 0823 A
SV 0823 B
HIC 0823
HIC 0881
LHT 0823 B
LHT 0823 A
POS 0823
CV 0823
TI 0823
TE 0823
4"-SW 135
HB-23-4"
HB-23-16"
(V)
¾"-SW 529
¾"-SW 531
MV-SW 664
E-54A
¾"-SW 530
¾"-SW 532
MV-SW 840
MV-SW 839
MV-SW 842
MV-SW 841
MV-SW 681
MV-SW 680
MV-SW 667
DPI 0823
FI 0823
FE 0823
16"-SW 133
16"-SW 134
HB-23-16"
LO
HS 0826
SV 0826 A
SV 0826 B
HIC 0826
HIC 0882
LHT 0826 B
LHT 0826 A
POS 0826
CV 0826
TE 0824
TI 0824
DPI 0824
MV-SW 843
MV-SW 844
¾"-SW 533
¾"-SW 528
E-54B
¾"-SW 534
¾"-SW 536
¾"-SW 535
MV-SW 683
MV-SW 682
MV-SW 845
FE 0824
FI 0824
MV-SW 846
4"-SW 136
HB-23-4"
MV-SW 666
LHT 0822
POS 0822
CV 0822
TIC-0821 M-209 SH. 3 (H,G-6)
HS 0828
SIRW TANK LOW LEVEL CLOSES VLV.
SV 0821
POS 0821
CV 0821
HB-23-24"
HEADER A
HEADER B
SW 116
HB-23-4"
LO
C33
HS 0879 B
SV 0879
LHT 0879 B
LHT 0879 A
HS 0879 A
CV 0879
POS 0879 A
POS 0879 B
FS-0954 & FS-0958 M-209 SH.2 (B-4) & (D-4)
HB-23-4"
FS-0954 & FS-0958 M-209 SH.2 (B-4) & (D-4)
POS 0880 B
CV 0880
POS 0880 A
HS 0880 A
SV 0880
HS 0880 B
LHT 0880 B
LHT 0880 A
COMPRESSOR CONTROLLER M-212 SH.1 (H-7)
HB-23-2"
SW 270
POS 0876
LHT 0876
HB-23-24"
C33
LHT 0878 B
LHT 0878 A
SV 0878
HS 0878 B
ELO
HS 0878 A
POS 0878
CV 0878
COMPRESSOR CONTROLLER M-212 SH.1 (H-7)
HS 0857
SV 0857
LHT 0846
POS 0846
CV 0857
POS 0857
LHT 0857
HB-23-24"
CV 0846
SV 0846
HS 0846
M-207 SH.2 (A-7)
COMPONENT COOLING WATER HEAT EXCHANGERS
(V)
MV-SW 832
MV-SW 831
MV-SW 677
MV-SW 676
FI 0890
K-6A EMERGENCY DIESEL GEN. HEAT EXCHANGER
HS 0844
SV 0844
FE 0890
CV 0844
POS 0844
LHT 0844
TI 0890
TI 0892
6"-SW 131
TI 0832
TE 0832
LUBE OIL COOLER
JACKET WATER COOLER
SEE NOTE
SEE NOTE "4 HEAT TRACING
6"-SW 278
HBC-45-3"
VC-11
M-208 SH.1B (G-3)
CV 0884
SV 0884 B
SV 0884 A
POS 0884
LHT 0884
EK 2011
VC-11
M-208 SH. 1B (G-3)
HBC-44-3"
DIESEL K-6A STARTING CIRCUIT
K-6B EMERGENCY DIESEL GEN. HEAT EXCHANGER
PS 1472
PI 1472
HS 0877
SV 0877
CV 0877
POS 0877
LHT 0877
TI 0891
TI 0893
LUBE OIL COOLER
JACKET WATER COOLER
6"-SW 279
VC-10
M-208 SH.1B (G-3)
HBC-43-3"
DE 611
DE 612
PI 1473
PS 1473
(G-30)
SV 0885
SV 0885 B
SV 0885 A
CV 0885
DIESEL K-6B STARTING CIRCUIT
¾"-SW 541
FE 0891
FI 0891
MV-SW 678
MV-SW 679
HBC-42-3"
VC-10
M-208 SH.1B (E-3)
CV 0876
SV 0876
HS 0876
ELO
TI 0889
TI 0810
2"-SW 120
2"-SW 126
VC-1A
VC-1B
TCV 0804
TCV 0805
MV-SW 833
MV-SW 834
FORMER CONTROL ROOM A/C COND. UNIT (REFER M-130 ALSO)
SW 544
SW 542A
SW 542
SW 117
LC
HB-23-2"
2"-SW 125
2"-SW 256
3"-29-SW 123
PCV 0801
SV 0801
SW 646
PI 0801
2"-19-FP 180
FIRE SYSTEM M-216 SH.2 (E-7)
2"-19-SW 124
1¼"
E-18A
TI 0801
1"-SW 128
2"-SW 127
HB
JB
RV 0801
TCV 0801
FI 0801
TI 0896
C-2A
TS 0801
EK 1126
MV-SW 874
2"-SW 121
2"-SW 118
2"-19-SW 119
SV 0803
PCV 0803
SW 646
PI 0803
2"-FF 182
FIRE SYSTEM M-216 SH.2 (D-7)
2"-SW 258
1¼"
E-18C
TI 0803
1"-SW 130
1½"-SW 122
RV 0803
EK 1148
TS 0803
(TS-0801)
TCV 0803
FI 0803
TI 0808
C-2C
¾"-SW 250
MV-SW 875
C-42 S.W. RETURN
JBD-76-2"
M-219 SH.1C (G-8)
2"-SW413
2½"-SW340
JB-1-14"
SW RETURNS M-208 SH.1 (F-1)
RADIATION MONITOR SEE M-223 SH.1B
RE 0833
JB-1-24"
COOLING TOWER PUMP STRUCTURE M-653 SH. 3 (G-8)
JB-1-3"
SW RETURNS M-208 SH.1 (E,F-1)
HB-23-24"
THIS DWG. (C-8)
JB-1-16"
SW RETURNS M-208 SH.1 (B-1)
JB-1-3"
JB-1-16"
JB-1-8"
JB-1-6"
JB-1-3"
9505310007-16
ANSTEC APERTURE CARD
Also Available on Aperture Card
THIS DWG. IS SOUG COLOR CODED.
PLANT AIR COMPRESSORS
NOTES:
1. ALL VALVES ON THIS SHEET HAVE 'SW' (SERVICE WATER SYSTEM) PREFIX, UNLESS OTHERWISE NOTED.
2. SC 90-153 PERMITS ⅛" OFFSET FOR EXPANSION JOINT.
3. EXPANSION JOINT HAS 7" UNEXTENDED HEIGHT PER SC 90-153
4. MV-SW-276 THROTTLED PER SERVICE WATER FLOW VERIFICATION TEST T-216.
25 8-17-94 REV. TO SHOW CV-0825 & CV-0876 AS ELECTRICALLY LOCKED OPEN PER C-PAL-94-0234 & DCR 94-694 HMW
REV DATE DESCRIPTION BY APP
CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M208-1A.DGN
PREVIOUS RECORD ISSUE
MICHIGAN P.E. No.
UP No.
PIPING & INSTRUMENT DIAGRAM
SERVICE WATER SYSTEM
DRAWING NUMBER M208
SHT. NO. 1A
REV 25

THIS DWG C-8

STEAM GENERATOR TEST COOLERS E-71

COOLER #1 | COOLER #2 | COOLER #5 | COOLER #6

MV-SW364 MV-SW365 MV-SW366 MV-SW367 MV-SW368 MV-SW369

THIS DWG D-8

CONTAINMENT AIR COOLERS

CLOSE VALVE ON SIS

VALVE FAILED CLOSED

OPEN VALVE ON SIS

OPEN VALVE ON SIS

OPEN VALVE ON SIS

STEAM GEN. TEST COOLERS RETURN

STEAM GENERATOR TEST COOLERS SUPPLY

CONTROL ROOM H.V.A.C. CONDENSERS

SERVICE WATER RETURN HEADER >M-208 SH. 1A (A-8)

HEADER B >M-208 SH. 1A (G-5)

BACKUP N2 >M-222 SH. 2 (H-5)

VC-11

VC-10

THIS DWG. IS SQUG COLOR CODED.

NOTES:
1. ALL VALVES ON THIS SHEET HAVE 'SWS' (SERVICE WATER SYSTEM) SUFFIX, UNLESS OTHERWISE NOTED.

ANSTEC APERTURE CARD

Also Available on Aperture Card

9505310007-17

REV	DATE	DESCRIPTION	BY	CK	APP
20	5-27-94	REVISED SW-833G FROM GATE VALVE TO GLOBE VALVE PER DCR 94-442	JFH		

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M208-1B.DGN

PIPING & INSTRUMENT DIAGRAM
SERVICE WATER SYSTEM

DRAWING NUMBER M208 | REVISION 1B | REV 20

SHUTDOWN COOLING HEAT EXCHANGERS

HB-24-18"

HB-24-12"

12"-CC 103

12"-CC 104

TI 0912

TE 0912

TE 0913

TI 0913

1"-CC 517

1"-CC 519

SHUTDOWN COOLING M-204 SH. 1 (E-5)

PI 0912 B

PI 0913 B

¾"-CC 617

¾"-CC 619

E-60A

E-60B

1"-CC 518

1"-CC 520

RV 0954

RV 0955

¾"-CC 610

¾"-CC 618

PI 0912 A

PI 0913 A

LO

12"-CC 101

12"-CC 102

E-54 M-209 SH. 3 (G-8)

E-54 M-209 SH. 3 (D-6)

P-52 SUCT M-209 SH. 3 (E-6)

SIS

SV 0913

POS 0913 B

POS 0913 A

CV 0913

HS 0913 A

HS 0913 B

LHT 0913 A

LHT 0913 B

C33

A/S

NE

½"-CC 569

PERMIT ALARM WHEN CV-0913, CV-0879 OR CV-0880 ARE OPENED

HB-24-1½"

HB-24-3"

HB-24-4"

HB-23-4"

¾"-CC 3277

¾"-CC 3279

1"-CC 132

1"-CC 135

1"-CC 136

1"-CC 138

1"-CC 139

½"-CC 137

1"-CC 140

1"-CC 142

1"-130-CC 143

½"-CC 141

1"-CC 125

1"-130-131CC

3"-CC 481

3"-CC 482

FI 0959

FI 0957

FI 0956

FI 0953

FI 0958

FI 0955

FI 0952

FS 0954

EK 1155 L

CV 0947

POS 0947

LHT 0947 A

LHT 0947 B

SV 0947

HS 0947 A ELO

HS 0947 B

ND

A/S

L.P.S.I. PUMP P-67B COOLING

CONT. SPRAY PUMP P-54C COOLING

CONT. SPRAY PUMP P-54B COOLING

H.P.S.I. PUMP P-66B COOLING

H.P.S.I. PUMP P-66A COOLING

H.P.S.I. PUMP P-66C COOLING

TI 0381 B

TI 0381 A

¾"-CC 3276

¾"-CC 3278

1½"-CC 144

1½"-CC 147

1½"-CC 149

1½"-CC 148

1½"-CC 151

1½"-CC 150

1½"-CC 152

1"-CC 157

3" x 1½"

1½" x 1"

FS 0958

EK 1156 L

CV 0948

POS 0948

LHT 0948 A

LHT 0948 B

SV 0948

HS 0948 A ELO

HS 0948 B

SIS

SV 0950

CV 0950

POS 0950

LHT 0950 A

LHT 0950 B

HS 0950 A

HS 0950 B

SV 0951

CV 0951

POS 0951

LHT 0951 A

LHT 0951 B

HS 0951 A

HS 0951 B

SV 0949

CV 0949

POS 0949

LHT 0949 A

LHT 0949 B

HS 0949 A ELO

HS 0949 B

SERVICE WATER BACKUP RETURN M-208 SH. 1A (F-8)

SERVICE WATER BACKUP M-208 SH. 1A (E-6)

9505310007-18

THIS DWG. IS SOUG COLOR CODED.

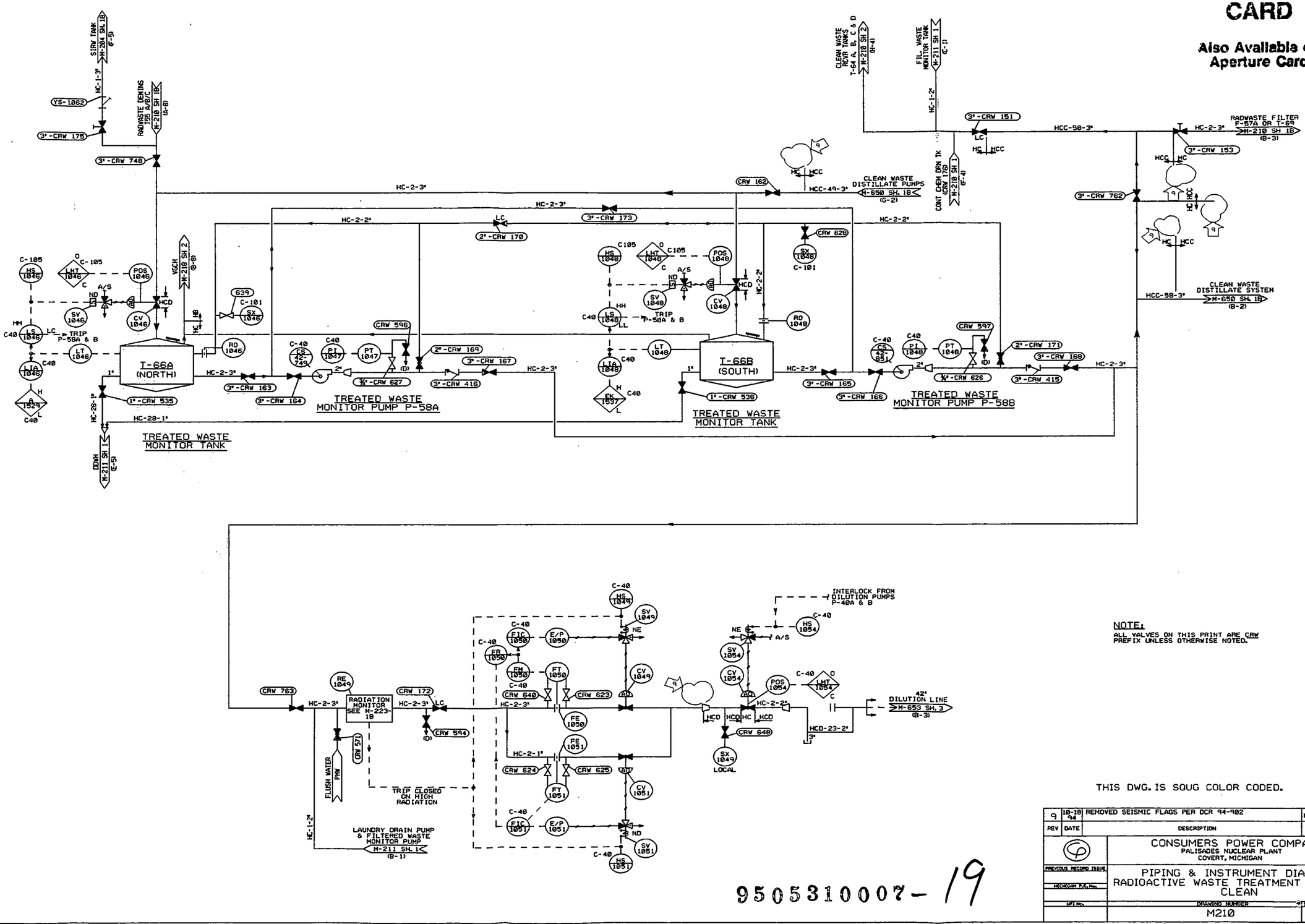
18	6-9-94	REV'D P52 REF. TO P-52 PERC-PAL-94-8183 & DCR 94-452	IT: —
NO	DATE	REVISIONS	BY / CK / APVD
SCALE: NONE	DESIGNED	DRAWN: J.L. STERRETT	

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
COMPONENT COOLING SYSTEM

SITE ID.	DRAWING NO.	REV.
0950	M-209 SH. 2	18

M209-2.DGN



NOTE:
ALL VALVES ON THIS PRINT ARE CRW PREFIX UNLESS OTHERWISE NOTED.

THIS DWG. IS SOUG COLOR CODED.

9505310007-19

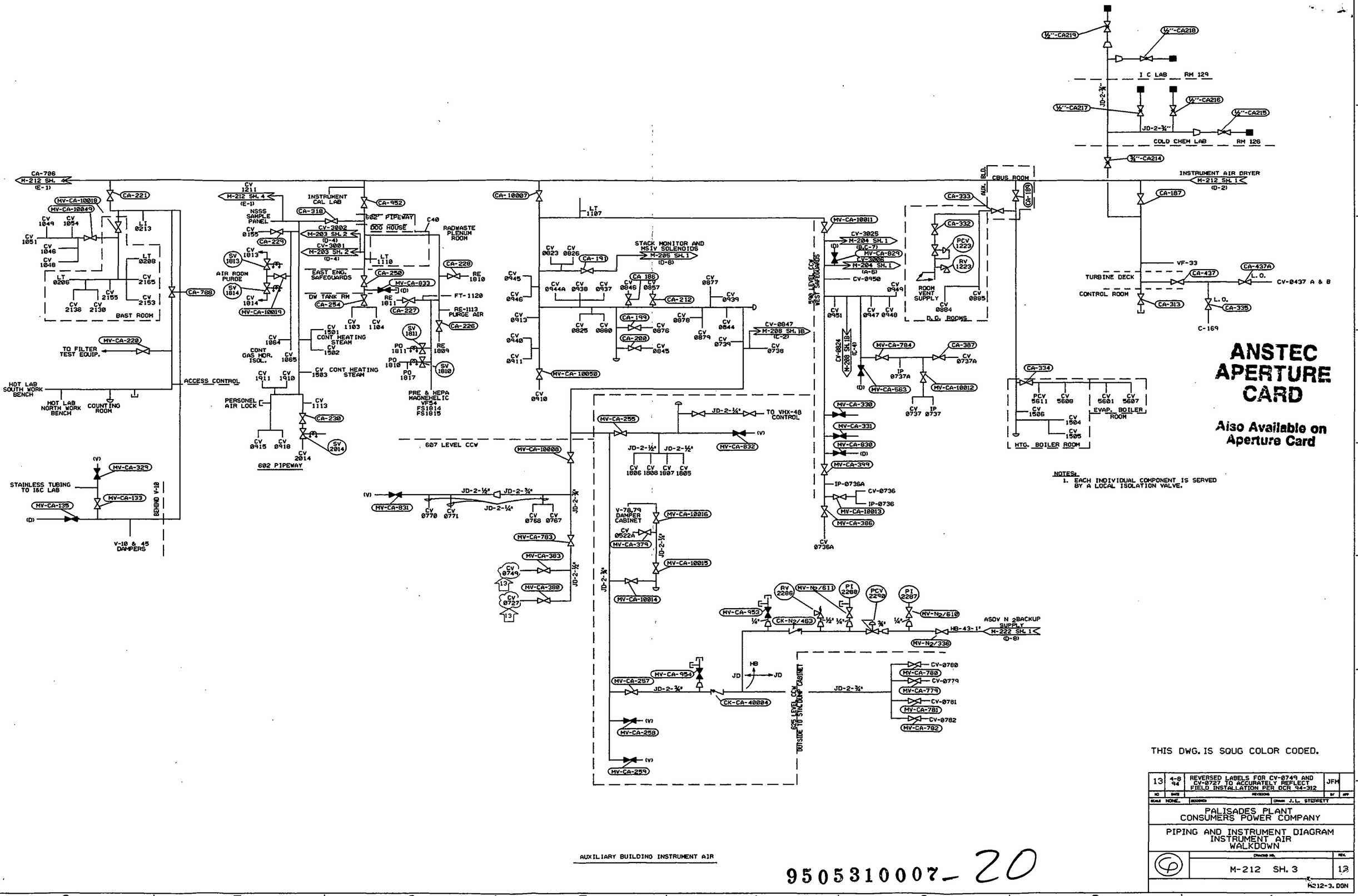
REV	DATE	DESCRIPTION	BY	CK	APP
9	10-18-94	REMOVED SEISMIC FLAGS PER DCR 94-902	MMW		

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M210-1C.DGN

PREVIOUS RECORD ISSUE
MICHIGAN P.E. No.
WP No.

PIPING & INSTRUMENT DIAGRAM
RADIOACTIVE WASTE TREATMENT SYSTEM
CLEAN

DRAWING NUMBER	SHT. NO.	REV
M210	1C	9



NOTES:
1. EACH INDIVIDUAL COMPONENT IS SERVED BY A LOCAL ISOLATION VALVE.

AUXILIARY BUILDING INSTRUMENT AIR

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	APP
13	4-8 94	REVERSED LABELS FOR CV-0749 AND CV-0727 TO ACCURATELY REFLECT FIELD INSTALLATION PER DCR 94-312	JFM	

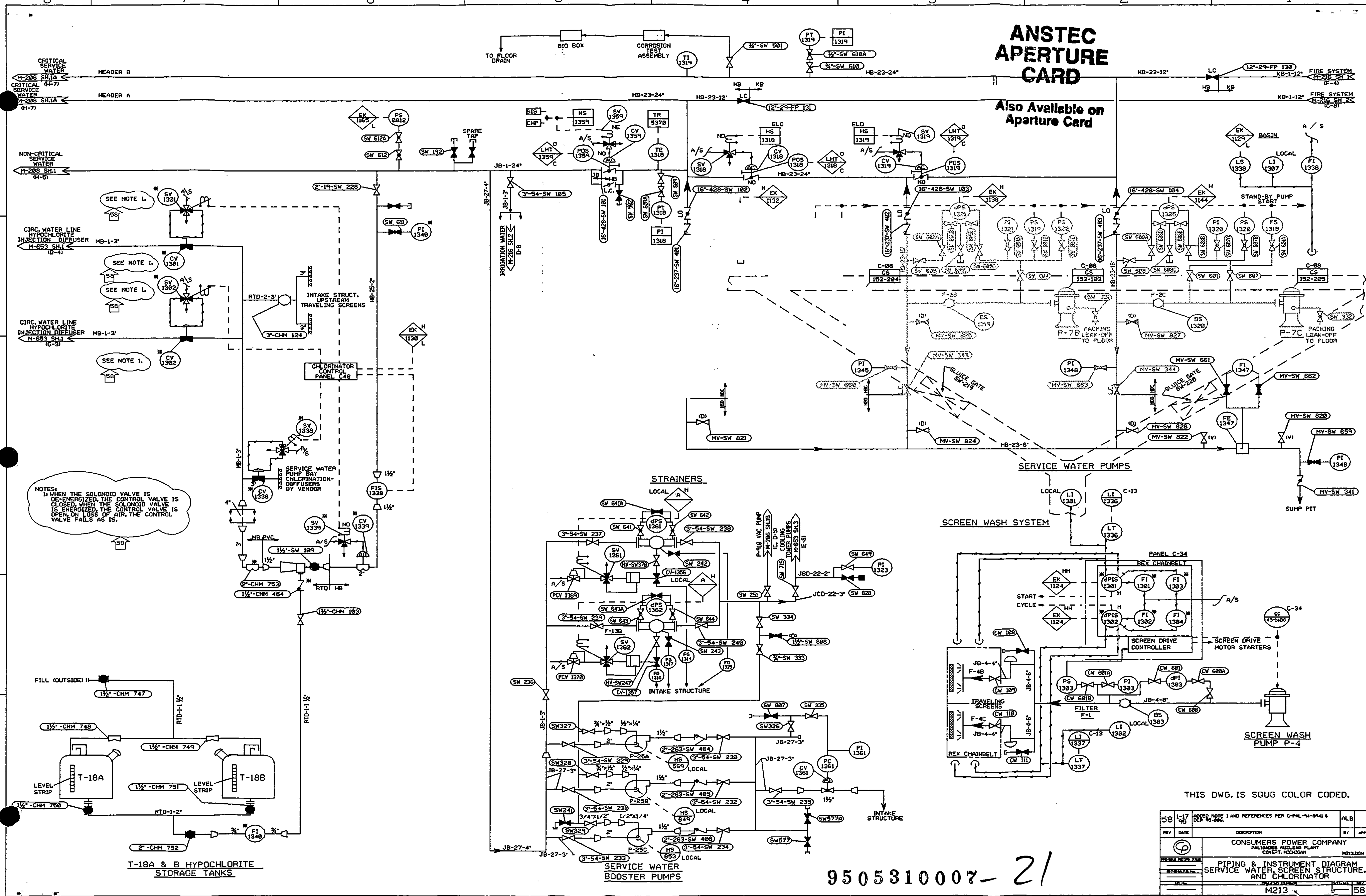
SCALE NONE | DESIGNED | DRAWN J.L. STERRETT

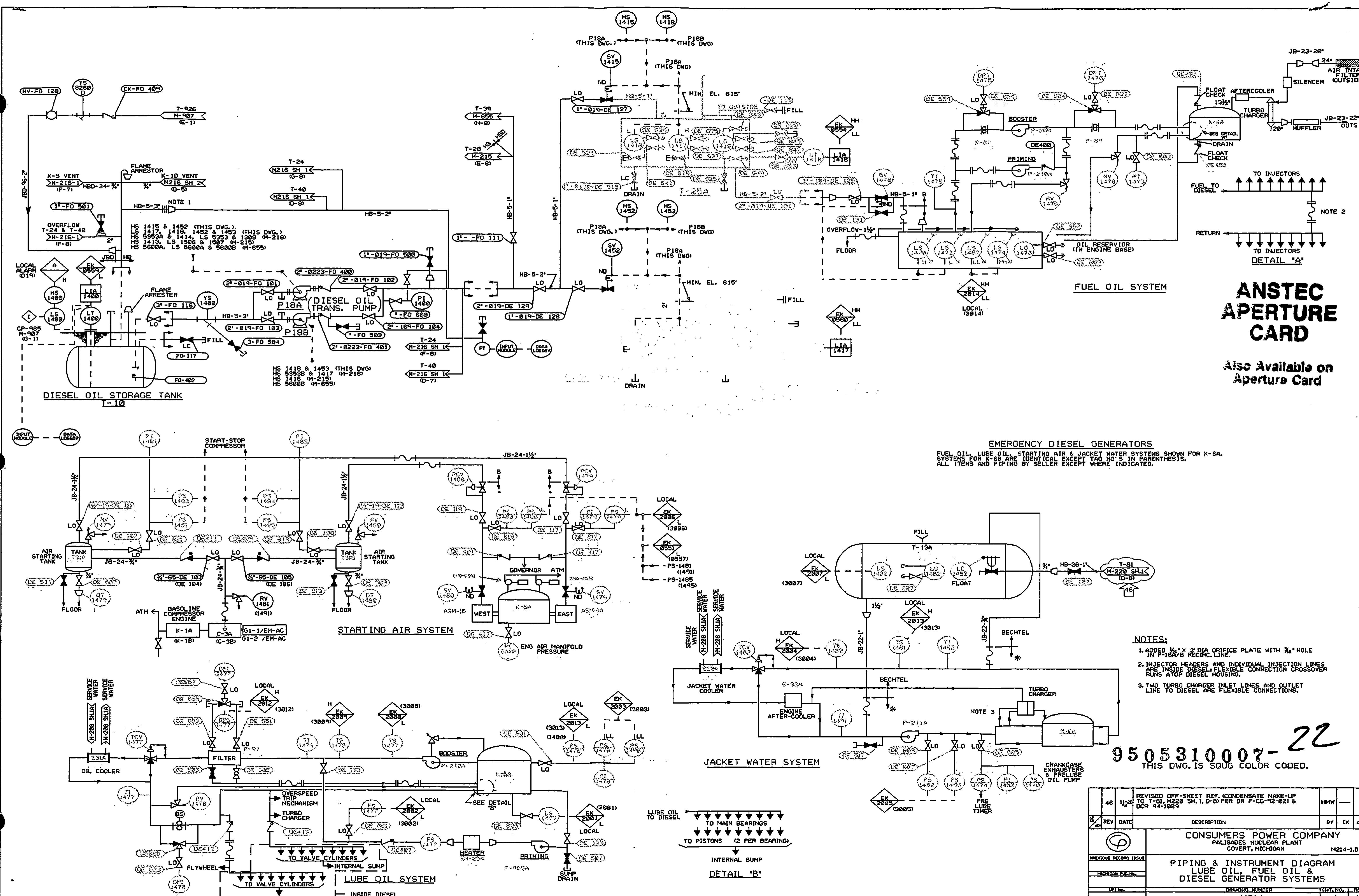
PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING AND INSTRUMENT DIAGRAM
INSTRUMENT AIR
WALKDOWN

DRAWING NO. M-212 SH. 3 REV. 13

M212-3.DGN


ANSTEC APERTURE CARD
Also Available on Aperture Card
CRITICAL SERVICE WATER
M-208 SH.1A (H-7)
HEADER B
HEADER A
NON-CRITICAL SERVICE WATER
M-208 SH.1 (H-5)
TO FLOOR DRAIN
BIO BOX
CORROSION TEST ASSEMBLY
HB-23-24"
HB-23-12"
FIRE SYSTEM
M-216 SH 1 (F-4)
M-216 SH 2 (C-8)
KB-1-12"
12"-29-FP 130
12"-29-FP 131
SPARE TAP
JB-1-24"
IRRIGATION WATER
M-216 SH.2 D-8
CIRC. WATER LINE HYPOCHLORITE INJECTION DIFFUSER
M-653 SH.1 (D-4)
M-653 SH.1 (G-3)
MB-1-3"
SEE NOTE 1.
RTD-2-3"
3"-CHM 124
INTAKE STRUCT. UPSTREAM TRAVELING SCREENS
CHLORINATOR CONTROL PANEL C48
SERVICE WATER PUMP BAY CHLORINATION-DIFFUSERS BY VENDOR
NOTES:
1: WHEN THE SOLONOID VALVE IS DE-ENERGIZED, THE CONTROL VALVE IS CLOSED. WHEN THE SOLONOID VALVE IS ENERGIZED, THE CONTROL VALVE IS OPEN. ON LOSS OF AIR, THE CONTROL VALVE FAILS AS IS.
16"-428-SW 102
16"-428-SW 103
16"-428-SW 104
16"-237-SW 401
16"-237-SW 402
16"-237-SW 403
STAND-BY PUMP START
BASIN
LOCAL
P-7B
P-7C
PACKING LEAK-OFF TO FLOOR
SLUICE GATE SW-219
SLUICE GATE SW-220
HB-23-6"
SERVICE WATER PUMPS
SUMP PIT
STRAINERS
SERVICE WATER BOOSTER PUMPS
P-25A
P-25B
P-25C
INTAKE STRUCTURE
P-910 VAC PUMP M-206 SH.1B (C, D-5)
COOLING TOWER PUMPS M-653 SH.3 (E-8)
SCREEN WASH SYSTEM
PANEL C-34
REX CHAINBELT
SCREEN DRIVE CONTROLLER
SCREEN DRIVE MOTOR STARTERS
TRAVELING SCREENS
FILTER F-1
SCREEN WASH PUMP P-4
T-18A
T-18B
LEVEL STRIP
FILL (OUTSIDE)
T-18A & B HYPOCHLORITE STORAGE TANKS
THIS DWG. IS SQUG COLOR CODED.
58 1-17-95 ADDED NOTE 1 AND REFERENCES PER C-PAL-94-0941 & DCR 95-006. ALB
CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M213.DGN
PIPING & INSTRUMENT DIAGRAM
SERVICE WATER, SCREEN STRUCTURE, AND CHLORINATOR
M213
58
9505310007-21


DIESEL OIL STORAGE TANK
T-10
DIESEL OIL TRANS. PUMP
P18A
P18B
T-25A
FUEL OIL SYSTEM
DETAIL "A"
TO INJECTORS
FUEL TO DIESEL
RETURN
OIL RESERVIOR (IN ENGINE BASE)
AIR INTAKE FILTER (OUTSIDE)
SILENCER
AFTERCOOLER
TURBO CHARGER
MUFFLER
BOOSTER
PRIMING
EMERGENCY DIESEL GENERATORS
FUEL OIL, LUBE OIL, STARTING AIR & JACKET WATER SYSTEMS SHOWN FOR K-6A. SYSTEMS FOR K-6B ARE IDENTICAL EXCEPT TAG NO'S IN PARENTHESIS. ALL ITEMS AND PIPING BY SELLER EXCEPT WHERE INDICATED.
STARTING AIR SYSTEM
AIR STARTING TANK
GASOLINE COMPRESSOR ENGINE
START-STOP COMPRESSOR
GOVERNOR
ENG AIR MANIFOLD PRESSURE
JACKET WATER SYSTEM
JACKET WATER COOLER
ENGINE AFTER-COOLER
CRANKCASE EXHAUSTERS & PRELUBE OIL PUMP
PRE LUBE TIMER
LUBE OIL SYSTEM
OIL COOLER
FILTER
OVERSPEED TRIP MECHANISM
TO VALVE CYLINDERS
INTERNAL SUMP
INSIDE DIESEL
FLYWHEEL
HEATER
SUMP DRAIN
DETAIL "B"
LUBE OIL TO DIESEL
TO MAIN BEARINGS
TO PISTONS (2 PER BEARING)

ANSTEC APERTURE CARD

Also Available on Aperture Card

NOTES:

1. ADDED 1/8" X 3" DIA ORIFICE PLATE WITH 3/16" HOLE IN P-18A/B RECIRC. LINE.
2. INJECTOR HEADERS AND INDIVIDUAL INJECTION LINES ARE INSIDE DIESEL; FLEXIBLE CONNECTION CROSSOVER RUNS ATOP DIESEL HOUSING.
3. TWO TURBO CHARGER INLET LINES AND OUTLET LINE TO DIESEL ARE FLEXIBLE CONNECTIONS.

9505310007-22

THIS DWG. IS SQUG COLOR CODED.

REV	DATE	DESCRIPTION	BY	CK	APP
46	11-26-94	REVISED OFF-SHEET REF. (CONDENSATE MAKE-UP TO T-81, M220 SH. 1, D-8) PER DR F-CG-92-021 & DCR 94-1029	HMW	—	

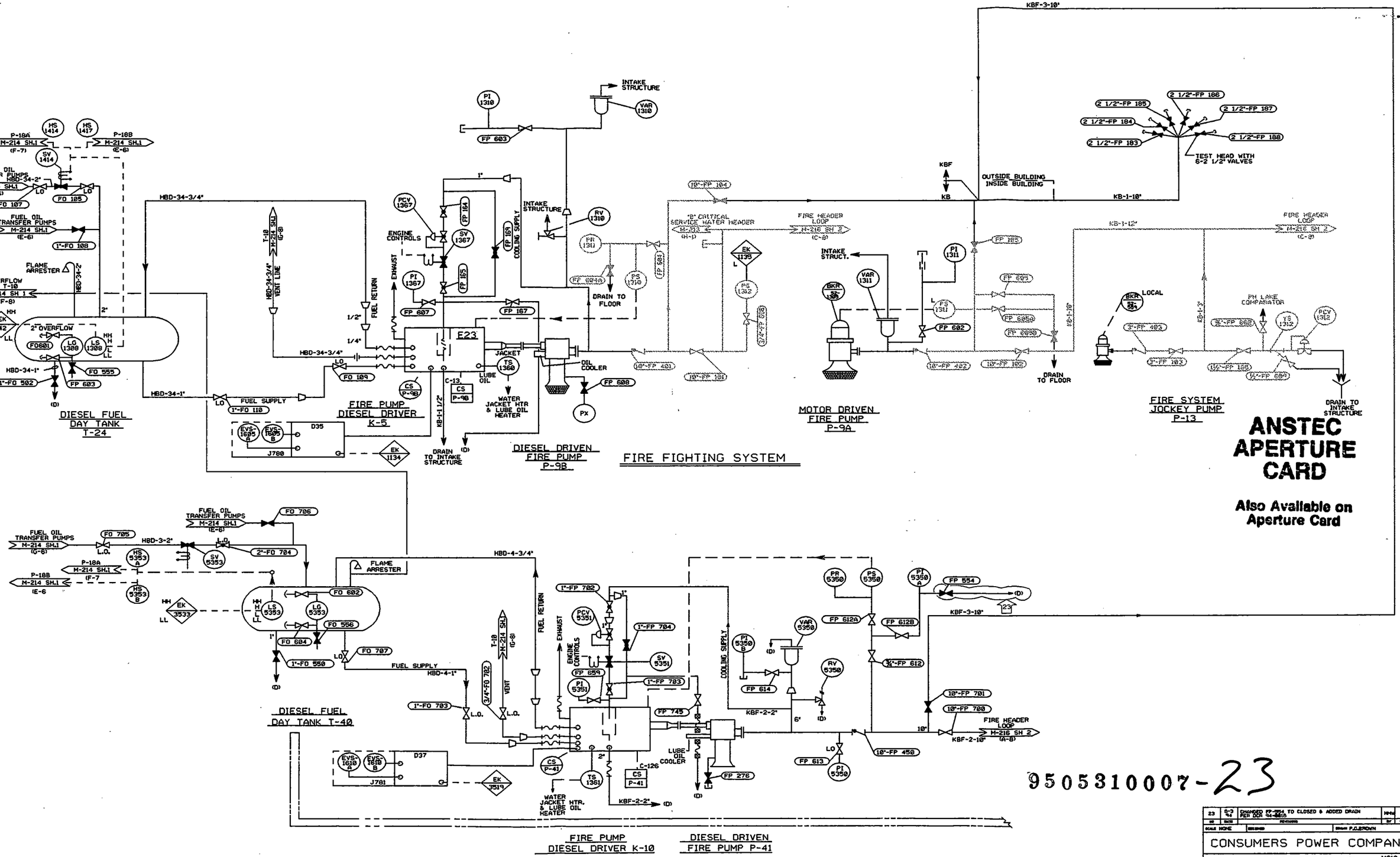
CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M214-1.DGN

PREVIOUS RECORD ISSUE

MICHIGAN P.E. No.

PIPING & INSTRUMENT DIAGRAM
LUBE OIL, FUEL OIL & DIESEL GENERATOR SYSTEMS

DRAWING NUMBER	SHT. NO.	REV
M214	1	46


DIESEL FUEL DAY TANK T-24
FIRE PUMP DIESEL DRIVER K-5
DIESEL DRIVEN FIRE PUMP P-9B
FIRE FIGHTING SYSTEM
MOTOR DRIVEN FIRE PUMP P-9A
FIRE SYSTEM JOCKEY PUMP P-13
DIESEL FUEL DAY TANK T-40
FIRE PUMP DIESEL DRIVER K-10
DIESEL DRIVEN FIRE PUMP P-41
ANSTEC APERTURE CARD
Also Available on Aperture Card
9505310007-23
THIS DWG. IS SOUG COLOR CODED.
CONSUMERS POWER COMPANY
PALISADES PLANT
CONSUMERS POWER COMPANY
M216-1.DGN
PIPING & INSTRUMENT DIAGRAM
FIRE PROTECTION SYSTEM
0950
M-216 SH. 1
23
P&ID

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	CK	APP
32	5-27-94	ADDED "B" CRITICAL SERVICE WATER HEADER TO FLOW INDICATOR PER C-PAL-94-0033 & DCR 94-441	HMW		

SCALE: NONE | DESIGNED | DRAWN: P.C. BROWN | CK | APP

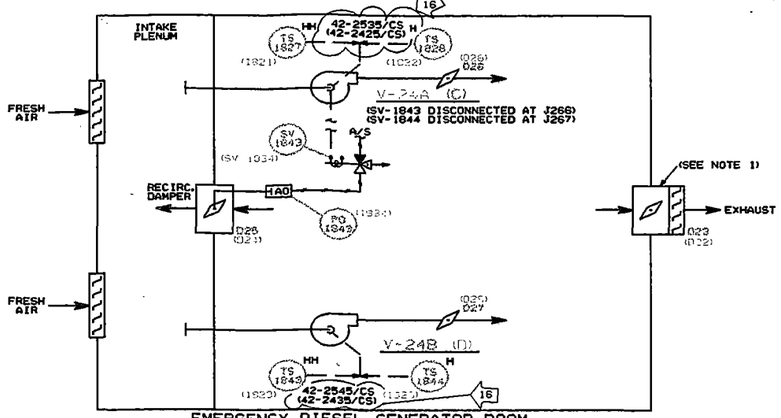
CONSUMERS POWER COMPANY

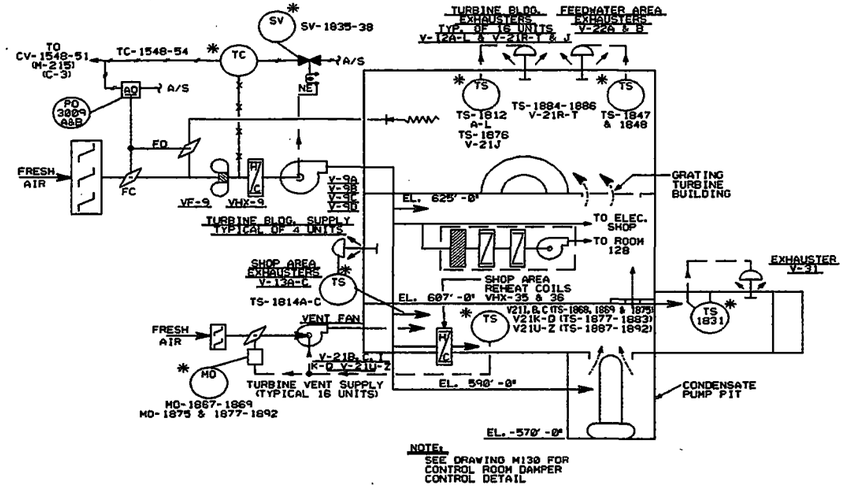
PALISADES PLANT
CONSUMERS POWER COMPANY

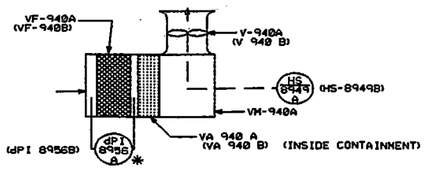
PIPING & INSTRUMENT DIAGRAM
FIRE PROTECTION SYSTEM

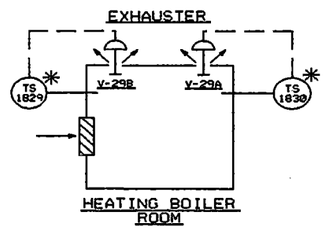
	JOB NO.	DRAWING NO.	REV.
CP	0950	M-216 SH.2	32

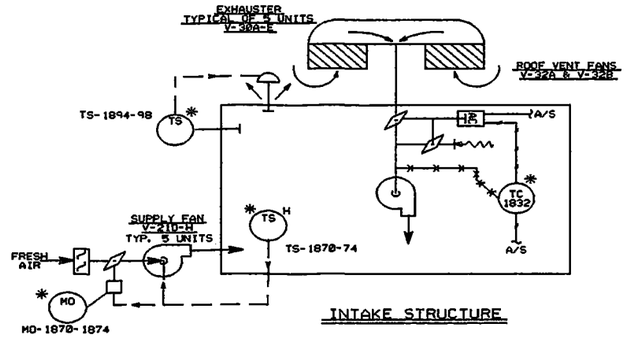
M216-2.DGN

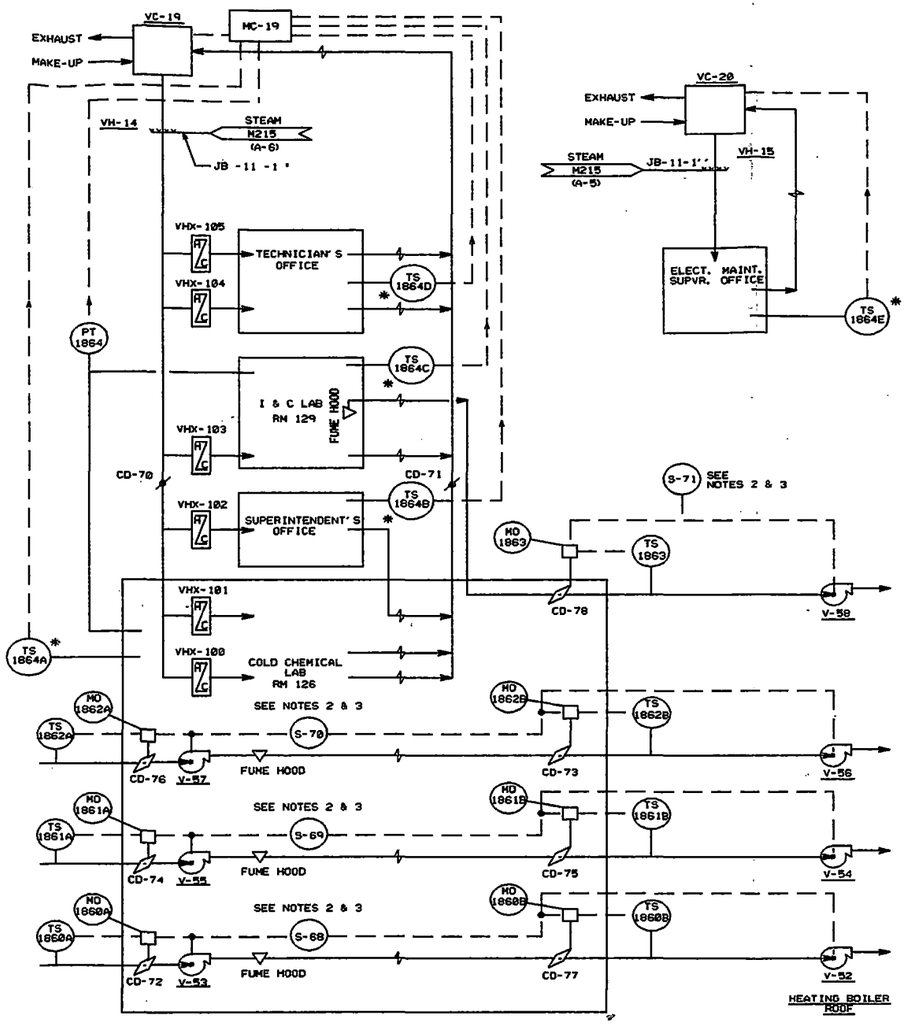












NOTES:

1. THIS DAMPER IS BALANCE DRAFT TYPE LOCATED IN THE DIESEL MUFFLER ROOMS.
2. FAN SWITCH IS LOCATED AT FUME HOOD.
3. DRY AUX. CONTACT GOES TO HVAC TRACER 100 PANEL.
4. VHX MODEL HEATERS ARE ELECTRICAL.

WARNING
ELECTRIC HEATERS PRESENT IN DUCTWORK.
ELECTRIC SHOCK POTENTIAL

16	16	REV. PER DIESEL GEN. RM. PER D-PAL-94-8720 AND DCR 93-845	JDD	
NO	DATE	REVISIONS	BY	APVD

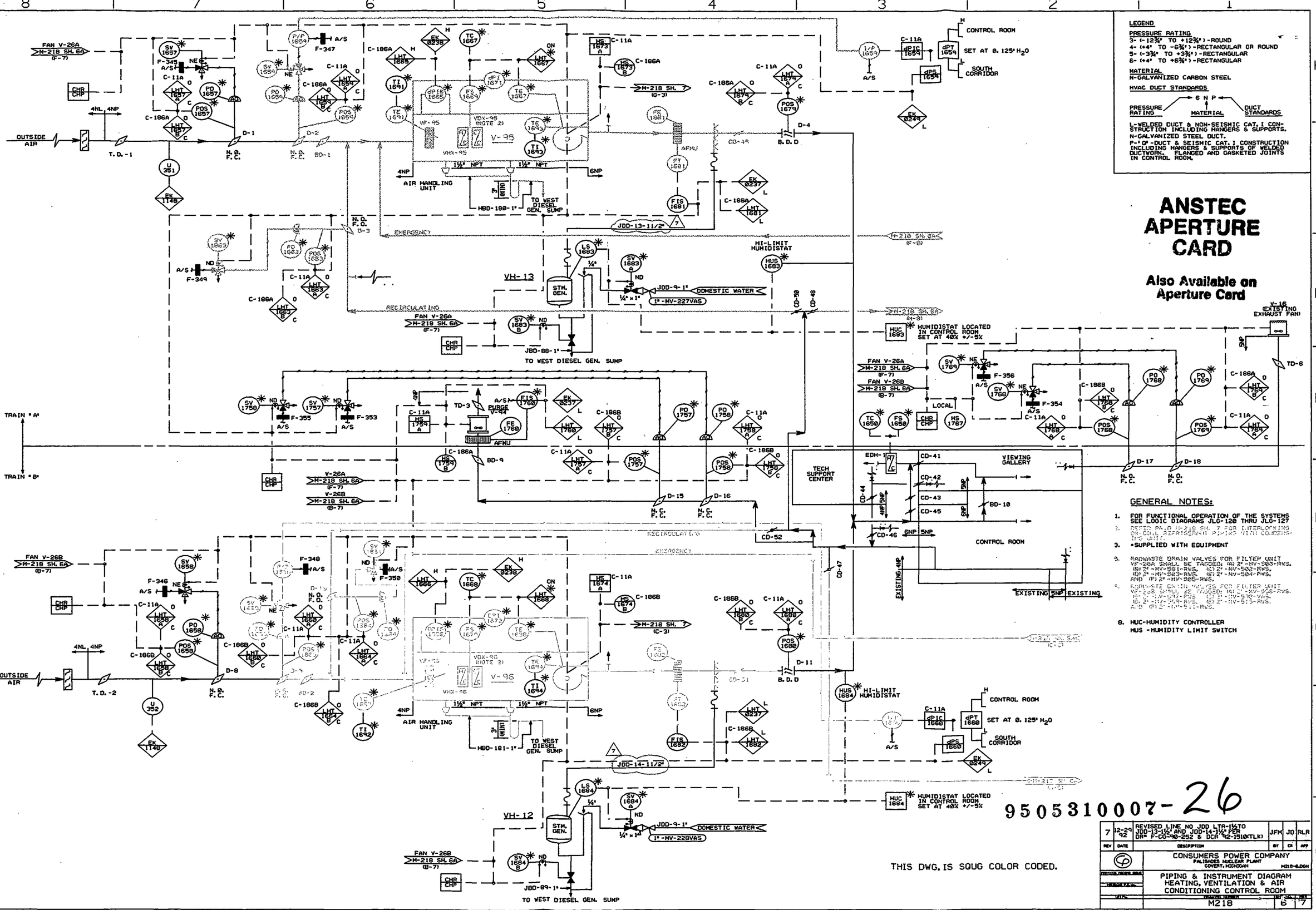
SCALE NONE — DESIGNED — DRAWN J.L. STEPPETT

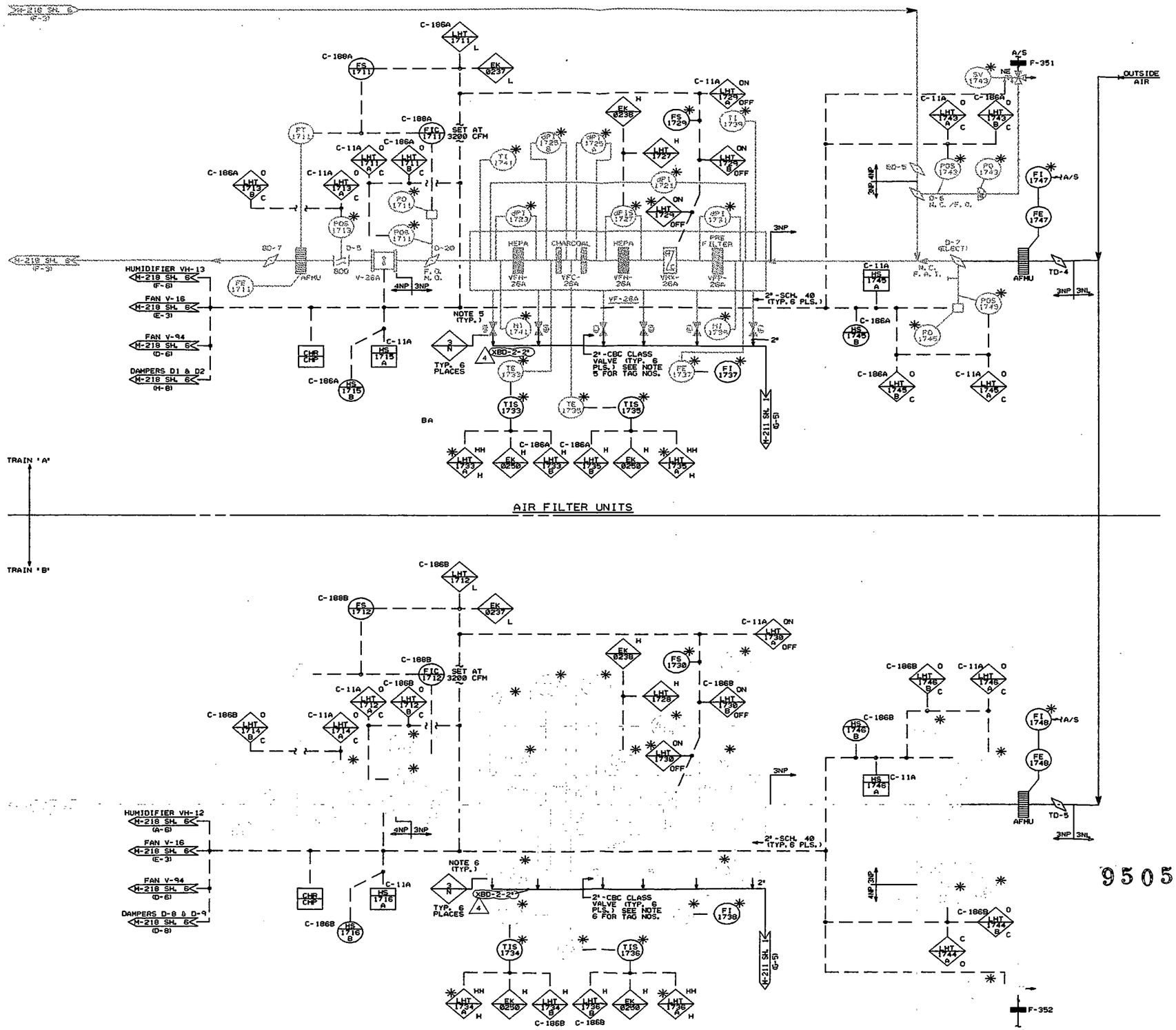
PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
HTG. VENT. & AIR COND.
MISCELLANEOUS BUILDINGS

SITE ID.	DRAWING NO.	REV.
0950	M218 SH. 5	16

M218-5.DGN


LEGEND
PRESSURE RATING
3- (-12¾" TO +12¾")-ROUND
4- (+4" TO +6¾")-RECTANGULAR OR ROUND
5- (-3¾" TO +3¾")-RECTANGULAR
6- (+4" TO +6¾")-RECTANGULAR
MATERIAL
N-GALVANIZED CARBON STEEL
HVAC DUCT STANDARDS
S N P
PRESSURE RATING
MATERIAL
DUCT STANDARDS
L-WELDED DUCT & NON-SEISMIC CAT. I CONSTRUCTION INCLUDING HANGERS & SUPPORTS.
N-GALVANIZED STEEL DUCT.
P-1 0"-DUCT & SEISMIC CAT. I CONSTRUCTION INCLUDING HANGERS & SUPPORTS OF WELDED DUCTWORK. FLANGED AND GASKETED JOINTS IN CONTROL ROOM.
ANSTEC APERTURE CARD
Also Available on Aperture Card
OUTSIDE AIR
T.D.-1
T.D.-2
AIR HANDLING UNIT
VF-95
VF-96
V-95
V-96
VDX-98 (NOTE 2)
VHX-95
VHX-96
RECIRCULATING
EMERGENCY
TRAIN "A"
TRAIN "B"
STM. GEN.
VH-13
VH-12
TO WEST DIESEL GEN. SUMP
DOMESTIC WATER
HI-LIMIT HUMIDISTAT
HUMIDISTAT LOCATED IN CONTROL ROOM SET AT 40% +/-5%
CONTROL ROOM
SET AT 0.125" H2O
SOUTH CORRIDOR
LOCAL
TECH SUPPORT CENTER
VIEWING GALLERY
CONTROL ROOM
EXISTING 5NP EXISTING
(EXISTING EXHAUST FAN)
GENERAL NOTES:
1. FOR FUNCTIONAL OPERATION OF THE SYSTEMS SEE LOGIC DIAGRAMS JLO-120 THRU JLO-127
2. REFER PALO M-218 SH. 7 FOR INTERLOCKING ON COLD REFRIGERANT PIPING WITH CONDENSING UNIT.
3. *SUPPLIED WITH EQUIPMENT
5. RADWASTE DRAIN VALVES FOR FILTER UNIT VF-95A SHALL BE TAGGED: (A) 2"-HV-595-RWS. (B) 2"-HV-591-RWS. (C) 2"-HV-592-RWS. (D) 2"-HV-593-RWS. (E) 2"-HV-594-RWS. AND (F) 2"-HV-595-RWS.
RADWASTE DRAIN VALVES FOR FILTER UNIT VF-96A SHALL BE TAGGED: (A) 2"-HV-596-RWS. (B) 2"-HV-597-RWS. (C) 2"-HV-598-VAS. (D) 2"-HV-599-VAS. (E) 2"-HV-513-RWS. AND (F) 2"-HV-511-RWS.
8. HUC-HUMIDITY CONTROLLER
HUS -HUMIDITY LIMIT SWITCH
THIS DWG. IS SOUG COLOR CODED.
9505310007-26
7 12-29-92 REVISED LINE NO JDD LTR-1½"TO JDD-13-1½" AND JDD-14-1½" PER DR# F-CO-90-252 & DCR 92-1510(TLK) JFM JD RLR
CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M216-6.00H
PIPING & INSTRUMENT DIAGRAM
HEATING, VENTILATION & AIR CONDITIONING CONTROL ROOM
M218
6
7



GENERAL NOTES:

REF. M-218 SH. 6

9505310007 - 27

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	CHK	APP
4	12-29-92	REVISED LINE NO. 2"-XBD TO XBD-2-2" IN TWO PLACES PER DPC P-CC-92-252 & DCR 92-1310 (TLE)	JPM	PLR	JDD

SCALE: NONE | DESIGNED | DRAWN E. E. MCCANN

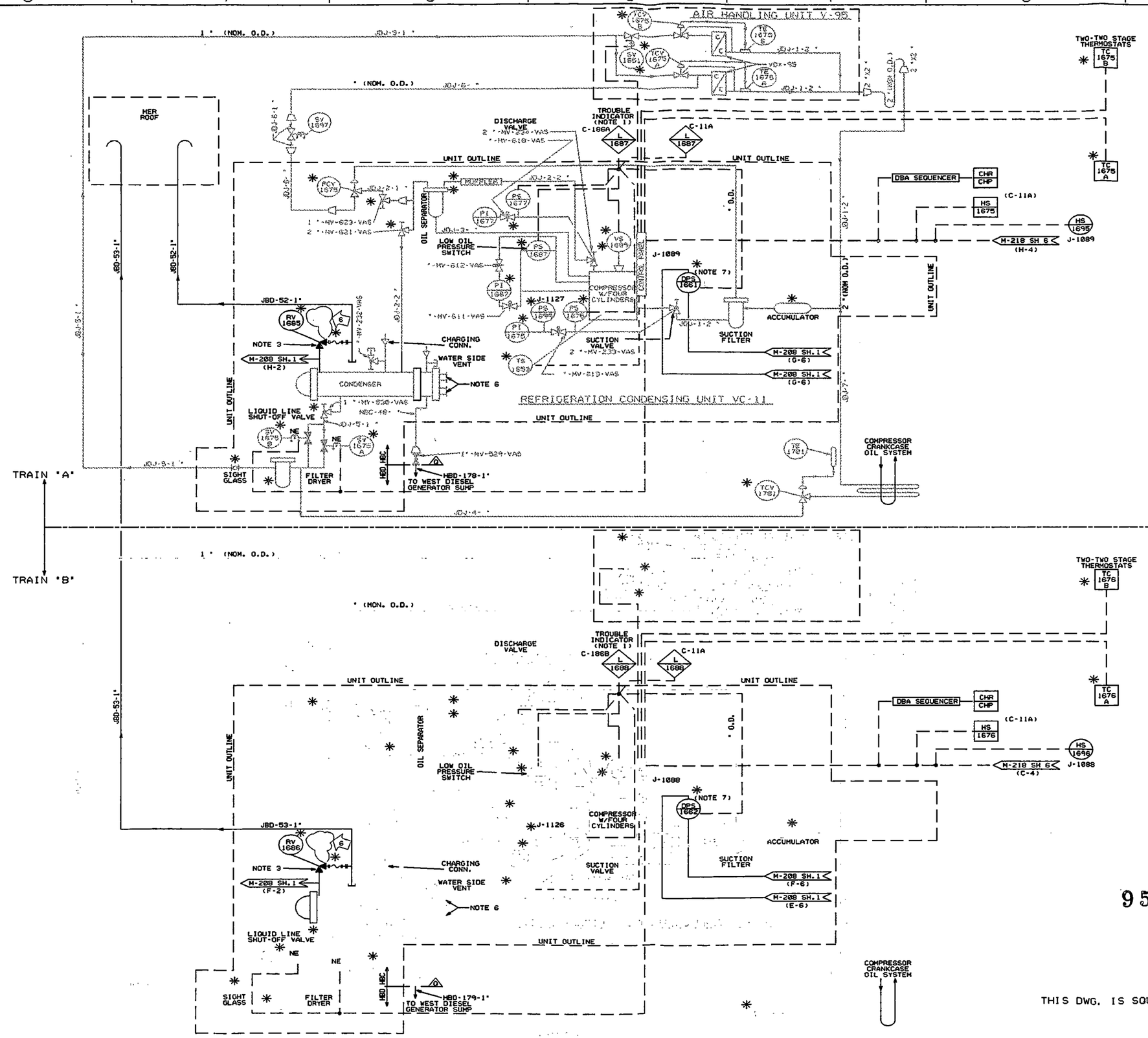
PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
HEATING, VENTILATION & AIR CONDITIONING CONTROL ROOM

SITE ID.	DRAWING NO.	REV.
0950	M-218 SH. 6A	4

CAD NO. M218-6A.DGN

PB2082484



NOTES

1. INDICATES COMPRESSOR TRIPS ON HIGH DISCH. PRESS. LOW OIL PRESSURE, OR LOW SUCTION PRESSURE. ALSO INDICATES HIGH VIBRATION & HIGH SERVICE WATER PRESSURE DROP ACROSS THE CONDENSER. INDICATES HIGH OIL TEMPERATURE TRIP AS WELL.
2. SET AT 350 PSIG.
3. UNIT STARTS & LOADS ONE CYLINDER @ TEMPERATURE AS DETERMINED BY PLANT (TB). LOADS THIRD & FOURTH CYLINDER @ TB+6°F(±1°)
4. LOADS SECOND CYLINDER @ TB+3°F(±1°)
5. FOR SERVICE WATER PIPING CONNECTIONS REFER TO SHEET M-208(G).
6. THE FOLLOWING LISTED ITEMS ARE NON-0+ PI-1678, PI-1688, VS-1690, PI-1676, PI-1677, PI-1687, VS-1689, PI-1675.
7. REFERENCE BY ELLIS & WATTS DRAWING 41F3S (BECHTEL DRAWING 12447-S4-M-91-68).
8. BACKSEATING OF THE FOLLOWING VALVES WILL ISOLATE COMPRESSOR FAULT PROTECTION:
   MV-233-VAS MV-230-VAS
   MV-234-VAS MV-231-VAS
9. CLOSING OF *-MV-613-VAS AND *-MV-608-VAS WILL PREVENT COMPRESSOR SHUT DOWN AFTER THE AUTO PUMP-DOWN CYCLE
10. ALL LOCALLY MOUNTED INSTRUMENTATION SHOWN IS MOUNTED IN J1088 OR J1089 UNLESS OTHERWISE SPECIFIED.

9505310007-28

THIS DWG. IS SQUG COLOR CODED.

6	10:15 94	REMOVED QUALITY FLAGS PER DCR 92-183		TCW
NO	DATE	REVISIONS	BY	APP.
SCALE	DESIGNED	DRAWN	M218-7.DGN	

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
HTG. VENT. & AIR COND.
CONTROL ROOM

SITE ID.	DRAWING NO.	REV.
0950	M-218 SH.7	6

PRIMARY SYSTEM MAKE-UP STORAGE TANK HEAT EXCHANGER E-26

PRIMARY SYSTEM MAKE-UP TRANSFER PUMPS

PRIMARY SYSTEM MAKE-UP STORAGE TANK T-81

CONTROLLED INSTRUMENT SHOP & CHEM. LABS. ROOM 112

PRIMARY SYSTEM MAKE-UP STORAGE TANK T-81 M-852 (G-8)

F-51A

F-51B

COLD CHEM LAB RM 126

TO HOOD SINK

TO COUNTER SINK

TO DISH-WASHER

TO COUNTER SINK

TO MILLI-Q FILTER

I/C LAB RM 129

TO MILLI-Q FILTER

TO COUNTER SINKS

P-79A

P-79B

CONTROL FOR STEAM HTR

TRIP

OVERFLOW

SHIELD COOLING SURGE TANK M-221 SH.1 (D-1)

DIESEL GEN. JACKET WATER MAKE-UP TANK M-214 SH.1 (C-2)

COMPONENT COOLING WATER SURGE TANK M-209 SH.3 (H-3)

CONDENSATE REC TK T-20 M-215 (D-8)

CHEM ADD TANKS T-15, T-16 & T-19A M-220 SH.2 (D-5)

CHEM ADD TANKS T-19B & T-19C M-220 SH.2 (C-3)

WATER BOX PRIMING PP's M-653 SH.4 (C-3)

CONDENSATE STORAGE TANK T-2

CONDENSATE STORAGE TANK HEAT EXCHANGER E-27

P-11

AUX FW PUMP P-8A & P-8B M-207 SH.2 (A-8)

CONDENSATE HEADER TO REJECT M-207 SH.1B (A-5)

STEAM FCV 1578 M-215 (B-3)

C-42 M-219 SH.1E (H-3)

C-42 M-219 SH.1E (D-5)

MAKE-UP DEMINERALIZING SYSTEM M-902 (E-8)

DEMINERALIZED WATER STORAGE TANK T-939

DEMINERALIZED WATER STORAGE TANK HEAT EXCHANGER E-903

DEMINERALIZED WATER TRANSFER PUMP P-936

CDC SYSTEM M-904 (B-5)

BACKWASH WATER PUMPS P-42A & B M-919 (G-7)

TEMP SCREEN

TO FLOOR EQUIPMENT & DRAIN SUMP

SAMPLE SYSTEM M-904 (G-8)

P-937A

P-937B

DEMINERALIZED WATER RECIRCULATION PUMPS

S.P.P. HANDLING SYSTEM M-921 (F-6)

COND. REC. TK T-327 M-907 (B-8)

HOT WATER TANK T-916 M-912 (D-5)

M/B DEMINS M-902 SH.1 (E-6)

HEATING BOILER FEED WATER PUMPS P20A & B M-655 (E-8)

EVAPORATOR HEATING BOILER FEEDWATER PUMP P42A & B M-655 (E-8)

MISCELLANEOUS WASTE SYSTEM M-651 (C-1)

BOILER FEED PUMPS P33A & B M-907 (A-5)

BLOW DOWN DEMIN. M-226 SH.1B (C-1)

4" X 3" RED.

* NOTE: CIA 2020 INTERLOCKS SV2008 AND SV2010 ON HIGH CONDUCTIVITY.

THIS DWG. IS SOUG COLOR CODED.

52	08-15-94	Changed drawing reference for water box priming PP's per DCP#94-583.
NO	DATE	REVISIONS

SCALE: NONE | DESIGNED E. P. LETHE | DRAWN K. A. DELELLIS

PALISADES PLANT M220-1.DGN
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
MAKE-UP DOMESTIC WATER & CHEMICAL INJECTION SYSTEMS

CODE ID.	DRAWING NO.	REV.
0950	M-220 SH.1	52

PRESSURIZER VAPOR PHASE
PRESSURIZER LIQUID PHASE (SURGE LINE)
PRIMARY COOLANT LOOP 2 HT LEG
QUENCH TANK LIQUID PHASE
QUINCH TANK VAPOR PHASE
COMPONENT COOLING WATER
PURIFICATION ION EXCH. INLET
PURIFICATION FILTERS OUTLET
LOW PRESSURE INJECTION PUMPS DISCHARGE
PURIFICATION ION EXCH. OUTLET
SI TANK DRAIN
CONTAINMENT SPRAY PUMPS DICHARGE
SIRW TANK RECIRC
HIGH PRESSURE INJECTION PUMPS DISCHARGE
DOMESTIC WATER
PMU

SAMPLE COOLER
SAMPLE COOLERS
NSSS INLET ISOLATION
BOMB BY-PASS
BOMB OUTLETS
BOMB INLETS
GAS COLLECTION BOMB (ONE KB)
PUMP IN
PUMP OUT
PANEL OUTLET
TO BURET
NSSS DEGAS PATH
PASM PANEL
SAMPLE SINK
GRAB SAMPLE (TYP.)
SAMPLE SINK FLUSH RING
SX-2022 TO BOMB INLET
POST ACCIDENT SAMPLE MONITORING SYSTEM PANEL DRAIN
CONTROLLED CHEM. LAB. DRAIN TANK

NSSS SAMPLING STATION
C-32

NOTE:
1. HS-1901 IS 6 POSITION SELESTOR SWITCH GE TYPE SB1.
2. THE DESIGN TEMPERATURE RATING IS 105°F AT THE OUTLET OF THE SAMPLE COOLERS PER PC-676.

THIS DWG. IS SOUG COLOR CODED.

9505310007-30

16	1-22-93	ADDED CK VLV * PER DCR 93-043	ITT	
NO	DATE	REVISIONS	BY	APP

PALISADES PLANT
CONSUMERS POWER COMPANY M219-1B.DGN

PIPING & INSTRUMENTATION DIAGRAM
PROCESS SAMPLING SYSTEM

CP	CODE ID.	DRAWING NO.	REV.
	0950	M-219 SH. 1B	16

WELL #4
NOTE: WELL #4 CAPPED PER FC-720
P-6D
WELL #1
P-6C
WELL #3
MANHOLE 18
WELL #2
SUBMERSIBLE WELL PUMP
P-6B
SUPPORT BUILDING
SUPPORT BUILDING WATER TANK T-119
FILTER F-35
SECURITY BUILDING
DOMESTIC WATER STORAGE TANK T-7
DOMESTIC WATER HEAT EXCHANGER E-25
HYDRO PNEUMATIC ACCUMULATER T-1
P-956
P-12A
P-12B
P-957
T-36 PERMANGANATE FILTER
OVERFLOW
TRIP
DRAIN
EMERGENCY SHOWER & EYE WASH
COLD CHEM LAB RM 126 EMERGENCY SHOWER & EYEWASH
SERVICE BLDG DOMESTIC WATER SYSTEM
HYDROPNEUMATIC TANK CONTROL PANEL IN SERVICE BLDG
T-16
T-15
T-19A
T-19C
T-19B
P-15D
P-15A
P-15B
P-15C
P-15F
P-15G
P-15E
CHEMICAL ADDITION SYSTEM
CHEMICAL ADDITION SYSTEM
STM GEN NO.1 (E-50A)
STM GEN NO.2 (E-50B)
COND. PUMP DISCHARGE
COND. DEMIN. EFFLUENT
AUX FEED PUMP SUCT.
STEAM GENERATOR BLOWDOWN
LP HOOD SPRAY
DEMIN WATER
AUX FEEDWATER
VENT
VENT TO OUTSIDE
DOMESTIC WATER SUPPLY
DOMESTIC WATER TO CONDENSATE & MAKE-UP DEMIN. BUILDING

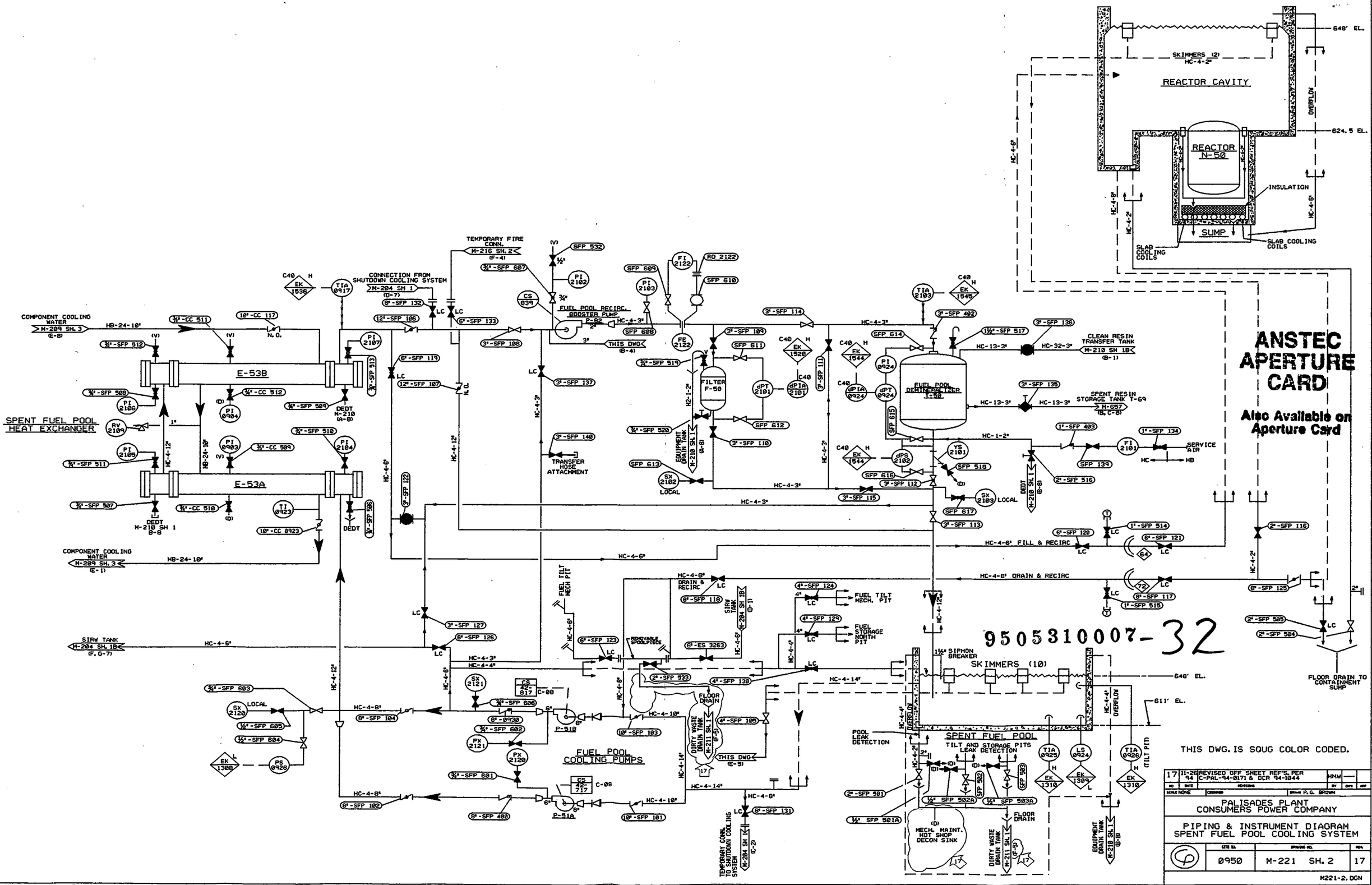
THIS DWG. IS SQUG COLOR CODED.

18	2-24-94	ADDED VALVES CD 806 AND CD 807 PER DCR 94-203	JFM
NO	DATE	REVISIONS	BY APP
SCALE NONE	DESIGNED E. P. LETKE	DRAWN K. A. DELELLIS	M220-2.DGN

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
MAKE-UP DOMESTIC WATER & CHEMICAL INJECTION SYSTEMS

CODE ID.	DRAWING NO.	REV.
0950	M-220 SH.2	18



THIS DWG. IS SQUG COLOR CODED.

17	11-26-94	REVISED OFF SHEET REF'S. PER C-PAL-94-0171 & DCR 94-1044	HMW
NO.	DATE	REVISIONS	BY / CHK'D / APP'D

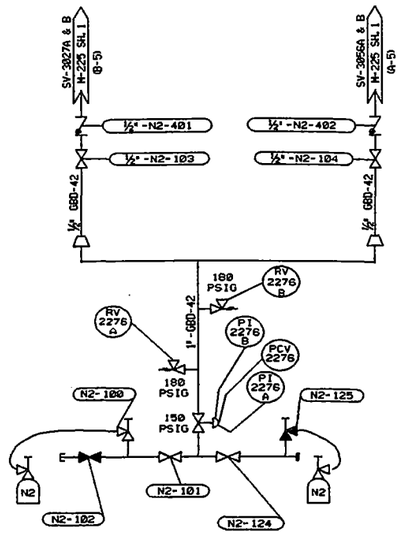
SCALE: NONE — DESIGNED — DRAWN: P. G. BROWN

PALISADES PLANT
CONSUMERS POWER COMPANY

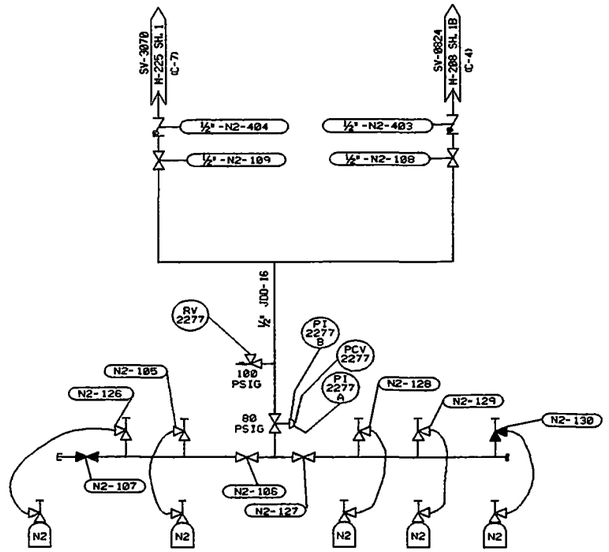
PIPING & INSTRUMENT DIAGRAM
SPENT FUEL POOL COOLING SYSTEM

SITE ID.	DRAWING NO.	REV.
0950	M-221 SH. 2	17

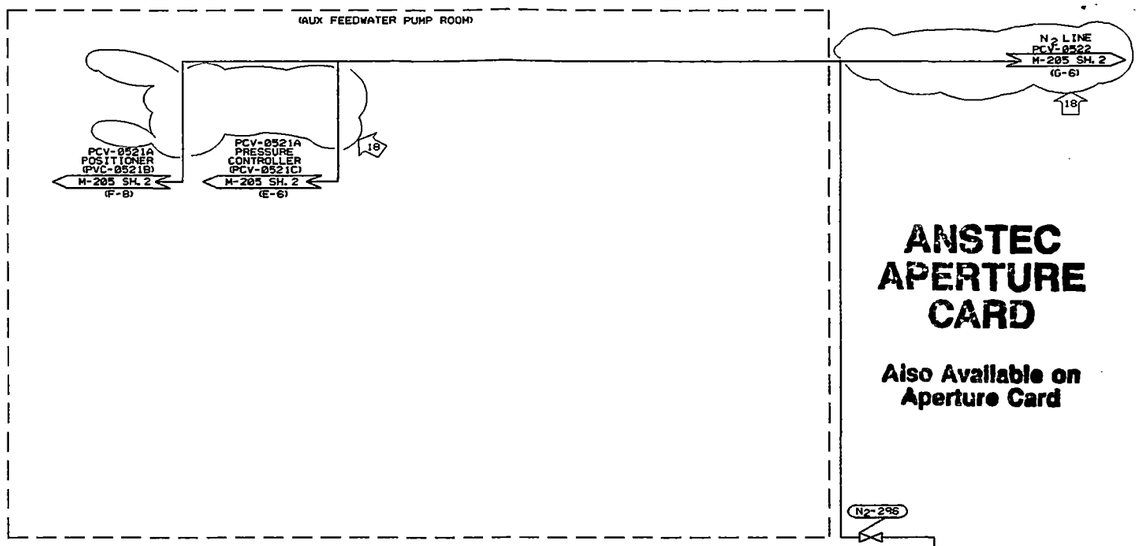
M221-2.DGN



STATION 3A
HP N_2 BACKUP



STATION 3B
LP N_2 BACKUP

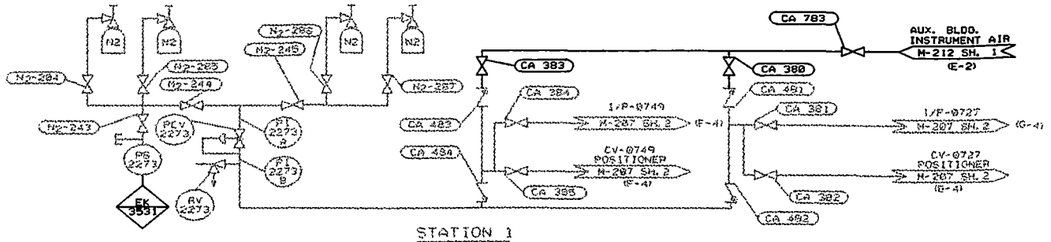


STATION 2
N_2 BACKUP A/S

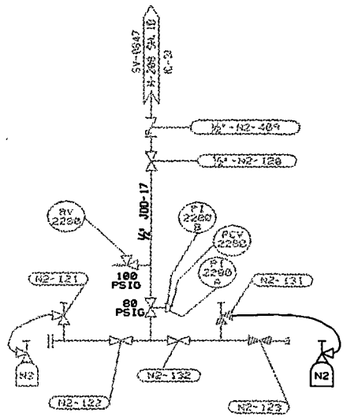
STATION 2
N_2 BACKUP AUX FEEDPUMP
TURBINE INLET VALVES

STATION 4
LP N_2 BACKUP

STATION 5
LP N_2 BACKUP



STATION 1
N_2 BACKUP A/S
(COMPONENT COOLING ROOM)



STATION 1A
LP N_2 BACKUP

9505310007-33

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	CHK'D
18	8-3-94	REMOVED VALVES N2-265, 266, 268, 456, 457 & 459 PER DCR 94-089	HMW	

SCALE: NONE | DESIGNED | DRAWN: E. E. MCCOMB | CHECKED

PALISADES PLANT
CONSUMERS POWER COMPANY

PIPING & INSTRUMENT DIAGRAM
MISCELLANEOUS GAS SUPPLY SYSTEMS

CODE ID.	DRAWING NO.	REV.
0950	M-222 SH. 2	18

M222-2.DGN

STEAM GENERATOR BLOWDOWN PUMPS

NOTES
1. REFER TO P & ID M-212 SH. 1 THRU 4 FOR CONTROL AIR SYSTEM DETAILS

THIS DWG. IS SOUG COLOR CODED.

REV	DATE	DESCRIPTION	BY	CHD	APP
42	97-01-92	REV'D EK-3117 TO EK-3217 PER ARP -228 & 92-468WTOC)	RLR	JD	DMB

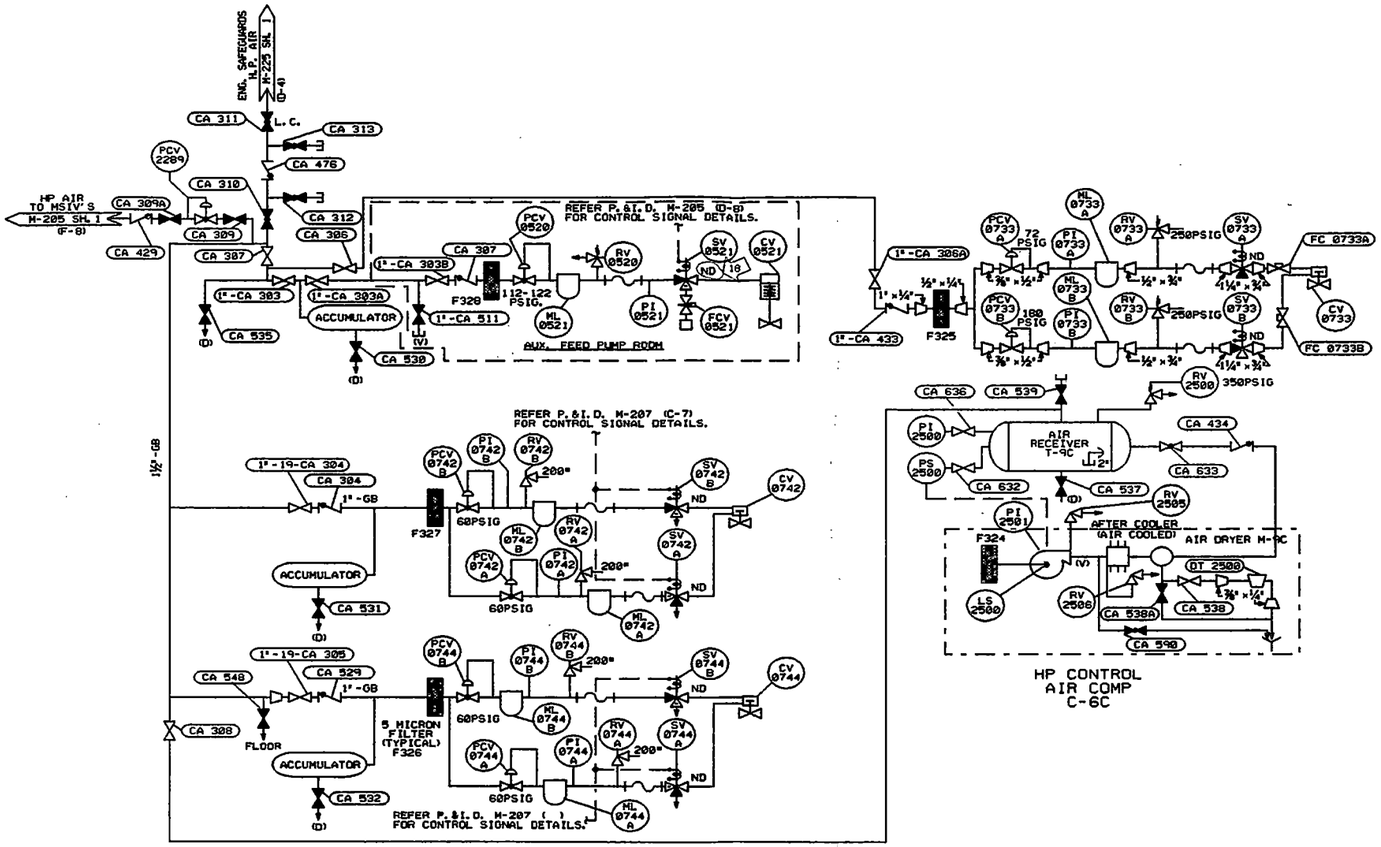
CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

PIPING & INSTRUMENT DIAGRAM
STEAM GENERATOR BLOWDOWN MODIFICATION

M226-1-DSN

M226 | 42

9505310007-34



NOTE
ALL AIR SYSTEM VALVES ON THIS PRINT CA PREFIX UNLESS OTHERWISE NOTED.

9505310007-35

THIS DWG. IS SOUG COLOR CODED.

REV.	DATE	DESCRIPTION	BY	APP
18	5-18-94	REVISED STATUS OF SV0521 PER 94-408	HMW	

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN

PIPING & INSTRUMENT DIAGRAM
HIGH PRESSURE AIR
OPERATED VALVES

M-225

SHEET NO. 2 | REV. NO. 18

PRIMARY SYSTEM MAKE-UP STORAGE TANK HEAT EXCHANGE E-65

PRIMARY SYSTEM MAKE-UP STORAGE TANK T-81

PRIMARY SYSTEM MAKE-UP STORAGE TANK T-90

PRIMARY SYSTEM MAKE-UP WATER PUMPS

PRIMARY SYSTEM MAKE-UP WATER FILTERS

UTILITY WATER STORAGE TANK HEAT EXCHANGE E-66

UTILITY WATER STORAGE TANK T-91

UTILITY WATER TRANSFER PUMPS

WASTE OIL REMOVAL SYSTEM EFFLUENT PUMPS

P-205 WASTE OIL TRANSFER PUMP

TURBINE BLDG. SUMP PUMPS P-45A & P-45B

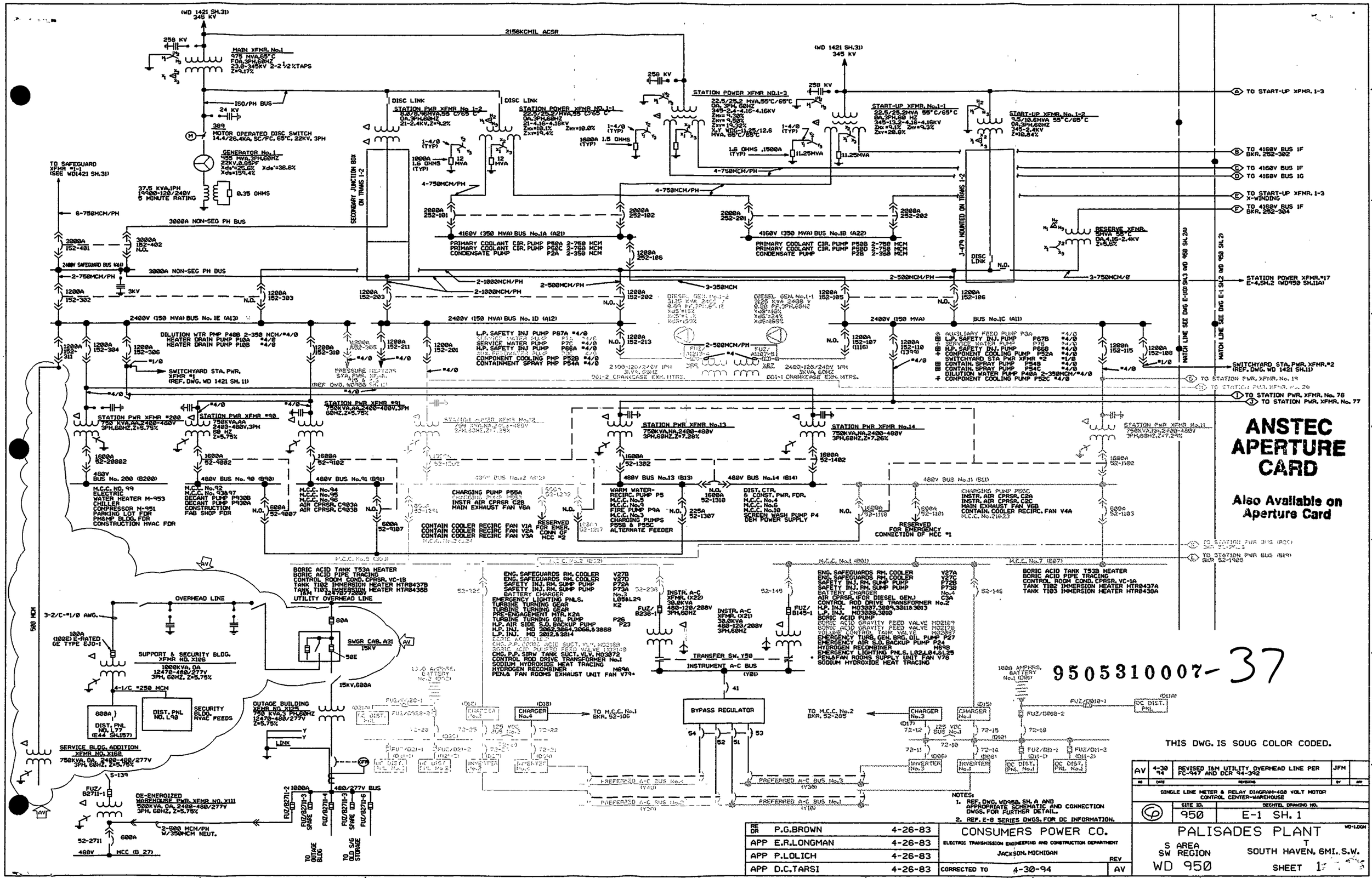
THIS DWG. IS SOUG COLOR CODED.

REV	DATE	DESCRIPTION	BY	CK	APP
39	10-18-94	Installed FOI-5210 and removed seismic flags per C-PAL-94-6700 & DCR94-878.	ALB		

CONSUMERS POWER COMPANY
PALISADES NUCLEAR PLANT
COVERT, MICHIGAN
M652-1.DGN

PIPING & INSTRUMENT DIAGRAM
PRIMARY SYSTEM MAKE-UP WATER
UTILITY WATER & OIL WASTE SYS.

DRAWING NUMBER	SHT. NO.	REV
M652	1	39



ANSTEC APERTURE CARD

Also Available on Aperture Card

9505310007-37

THIS DWG. IS SOUG COLOR CODED.

NOTES:
1. REF. DWG. WD950, SH. A AND APPROPRIATE SCHEMATIC AND CONNECTION DWGS. FOR FURTHER DETAIL.
2. REF. E-8 SERIES DWGS. FOR DC INFORMATION.

DR	P.G.BROWN	4-26-83	CONSUMERS POWER CO.
APP	E.R.LONGMAN	4-26-83	ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
APP	P.LOLICH	4-26-83	JACKSON, MICHIGAN
APP	D.C.TARSI	4-26-83	REV
			CORRECTED TO 4-30-94 AV

REV	DATE	REVISIONS	BY	APP
AV	4-30 94	REVISED I&M UTILITY OVERHEAD LINE PER FC-947 AND DCR 94-342	JFM	

SINGLE LINE METER & RELAY DIAGRAM-480 VOLT MOTOR CONTROL CENTER-WAREHOUSE

SITE ID.	DECITEL DRAWING NO.
950	E-1 SH. 1

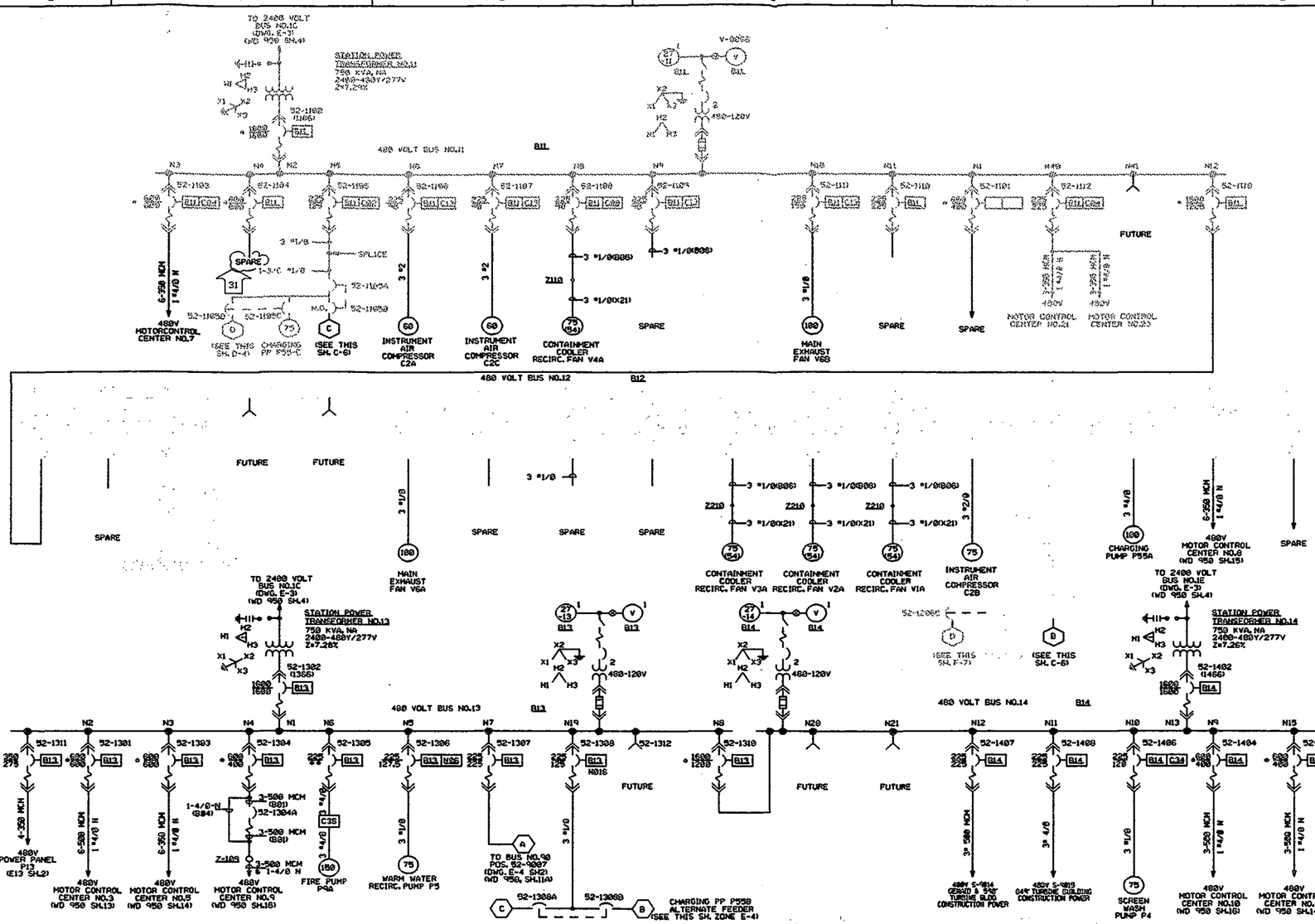
PALISADES PLANT

S AREA SW REGION WD 950

T SOUTH HAVEN, 6MI. S.W.

SHEET 1

WD-1.DGN



METER AND RELAY TABLE		
DEVICE	DESCRIPTION	FUNCTION
27-11 & 12	UNDERVOLTAGE RELAY	ALARM & AIR INTERLOCK
27-13,14, 15 & 16	UNDERVOLTAGE RELAY	ALARM
27-90, 91, 200	UNDERVOLTAGE RELAY	ALARM
64-15 & 16	GROUND RELAY	ALARM
V	VOLTMETER	

GM0 7111
FEEDWATER PURITY MODIFICATIONS

GM0 8428
SUBMERGED ELECTRICAL EQUIPMENT MODIFICATIONS

NOTES

1. I-T-E CIRCUIT BREAKER CO. REFERENCE DWG NO. 33-42124-P-01 & 02 (PP 5905-E6-2 & 3)
2. * INDICATES DUAL SELECTIVE TRIP SETTINGS AS SHOWN IN TABLE

BKR	LONG TIME		SHORT TIME	
	AMP	BAND	AMP	BAND
INCOMING	1600	MAX.	6400	MAX.
TIE	1200	INT.	4800	INT.
MCC FDR	600	INT.	2400	MIN.
MCC FDR	400	MAX.	1600	MIN.

3. 100 (52) 100HP MOTOR WITH 52BHP
4. ** INDICATES LONG TIME TRIP SETTING NOT USED. USE INSTANTANEOUS TRIP SETTING ONLY
5. 3 #1/0(B08) 3 SINGLE CONDUCTOR #1/0 CABLES WITH CABLE CODE B08. CABLE CODES SHOWN FOR CABLES ENTERING CONTAINMENT ONLY.
6. I-T-E GOULD TYPE OD-4, 225 AMP TRIP UNIT REPLACES THE EXISTING TYPE OD-3, 225 AMP TRIP UNIT ON BREAKER 52-1112.
7. I-T-E GOULD TYPE OD-4, 400 AMP TRIP UNIT REPLACES THE EXISTING TYPE OD-3, 400 AMP TRIP UNIT ON BREAKER 52-1214.

9505310007 - 38

THIS DWG. IS SQUG COLOR CODED.

NO	DATE	REVISIONS	BY	APPD
31	2-11-94	ADDED SPARE TO 52-1105 PER DCR 93-0205	ITT	

RE DR	J.L. STERRETT	5/19/83
APP	E.R. LONGMAN	5/19/83
APP	P. LOLICH	5/19/83
APP	D.C. TARSI	5/19/83

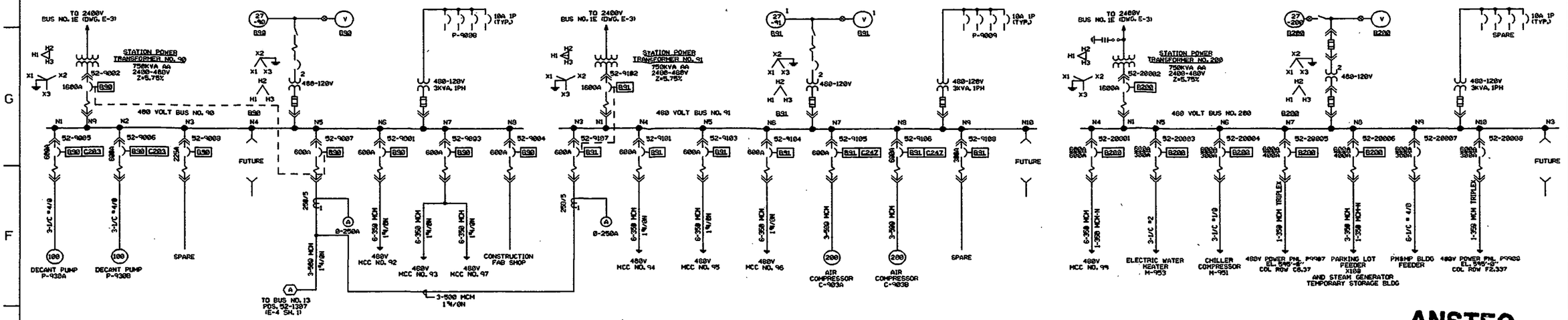
CONSUMERS POWER CO.
ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
JACKSON, MICHIGAN
CAD NO. - WD-11.DGN
CORRECTED TO 2-11-94 REV 31

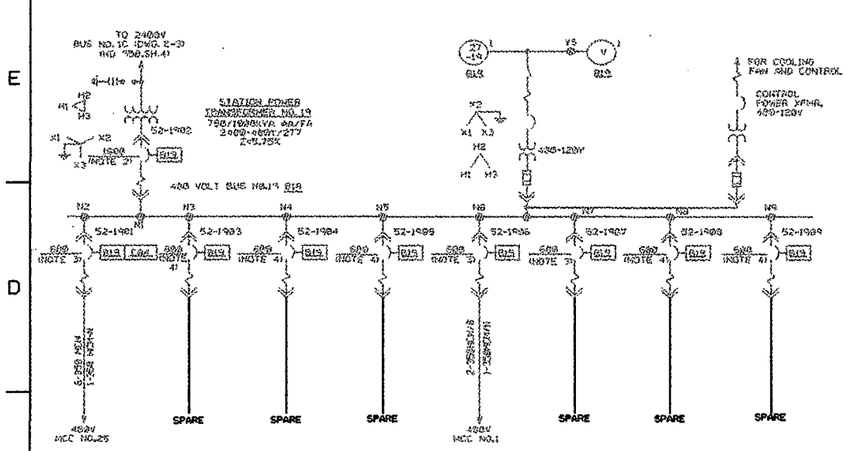
SINGLE LINE METER & RELAY DIAGRAM 480 VOLT LOAD CENTERS

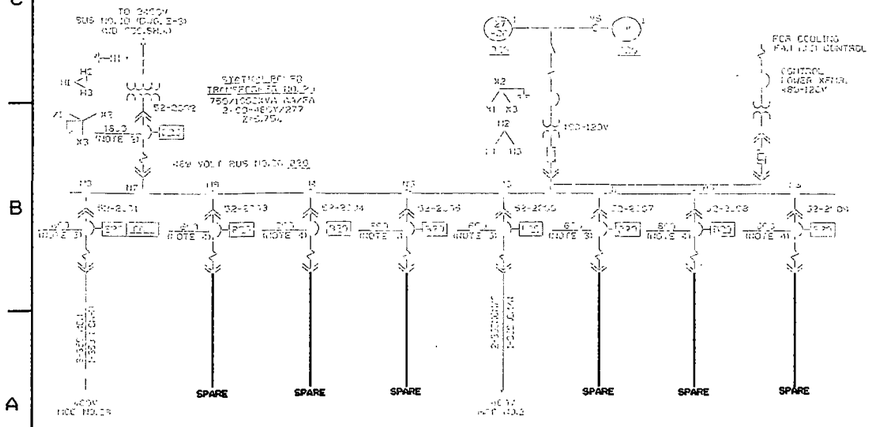
SITE ID.	BECHTEL DRAWING NO.
950	E-4 SH. 1

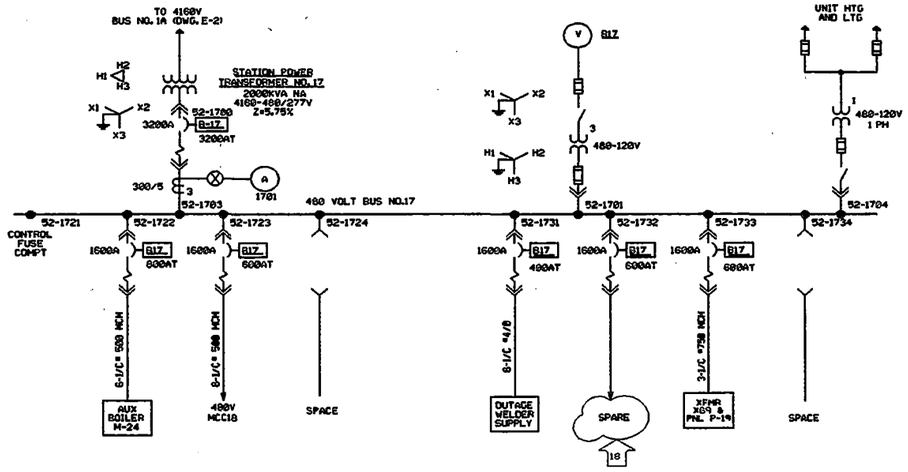
PALISADES PLANT
S. AREA SW. REGION
T SO. HAVEN, 6 MI. SW
WD 950
SHEET 11

WD









NOTES:
1. FOR METER AND RELAY DESCRIPTIONS TABLE ON E-4 SH.1,(WD 950,SH.1D).
2. BREAKERS WITH TRIP COIL SETTINGS OF 600 1000, OR 1600 AMPS AND FURNISHED WITH SHORT TIME AND LONG TIME SETTING RANGES
   SHORT TIME 2,3,4,6,8, OR 10 TIMES THE TRIP COIL SETTING
   LONG TIME 70 TO 100% TRIP COIL SETTING
3. BREAKERS WITH TRIP COIL SETTINGS OF 250 400, OR 800 AMPS AND FURNISHED WITH SHORT TIME AND LONG TIME SETTING RANGES
   SHORT TIME 2,3,4,6,8, OR 10 TIMES THE TRIP COIL SETTING
   LONG TIME 70 TO 100% TRIP COIL SETTING
4. BREAKERS WITH TRIP COIL SETTINGS OF 50,70,100 150, OR 225 AMPS AND FURNISHED WITH INSTANTANEOUS AND LONG TIME SETTING RANGES
   INSTANTANEOUS 4,5,6,8,10, OR 12 TIMES THE TRIP COIL SETTING
   LONG TIME 70 TO 100% TRIP COIL SETTING

ANSTEC APERTURE CARD

Also Available on Aperture Card

9505310007-39

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	CHK	APP
18	4-29-94	REMOVED TEMPORARY CONSTRUCTION POWER PANELS AND SPARED ON DRAWING PER PC-447 AND DCR 94-342	JFH		

SINGLE LINE METER & RELAY DIAGRAM
480 VOLT LOAD CENTER

SITE ID.	BECHTEL DRAWING NO.
950	E-4 (Q) SH. 2

DR	J.L. STERRETT	5/6/83
APP	E.R. LONGMAN	5/6/83
APP	P. LOLICH	5/6/83
APP	D.C. TARSI	5/6/83

CONSUMERS POWER CO.
ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
JACKSON, MICHIGAN
REV
CORRECTED TO 4-29-94 | 18

PALISADES PLANT
S SW AREA REGION
T SOUTH HAVEN, 6MI. SW
WD 950 SHEET 11A

WD-11A.DGN

480 VOLT MOTOR CONTROL CENTER NO. 1

CONTINUED SEE BELOW

SPARE 3 *10 — 52-111 — 2

HIGH PRESS. SEAL OIL BACKUP PUMP P24 — 3 *2 — 25 — 52-113 — 2

LIGHTING PANEL EL-02A — 4 *4 — 52-115 — 52-116 — 3 *6 — 36 KVA

DIESEL GEN. 1-1 AUXILIARIES (SEE NOTE 1)

EMERGENCY T-G BEARING OIL PUMP P27 — 3 *1/0 — 60 — 52-117 — 4

SPARE (SEE NOTE 1) — 52-121

FUEL OIL TRANSFER PUMP P186 — 3 *12 — 3 — 52-123 — 1

CONTROL ROD DRIVE TRANSF. NO.2 X46 — 2 *6 — 15 KVA — 52-125 — 52-126

LIGHTING PANEL L04A — 4 *4 — 3 *4 — X-35 — 41 KVA

L25 — L25A — L25B

BORIC ACID GRAVITY FEED STOP VALVE M02189 — 3 *12 — 2/3 — 52-127 — 1R

ENGINEERED SAFEGUARDS ROOM COOLER V27A — 3 *8 — 20 — 52-131 — 2

ENGINEERED SAFEGUARDS ROOM COOLER V27C — 3 *8 — 20 — 52-133 — 2

HEATING BOILER M-8 — 3 *8

HEATING BOILER FEED WATER P28A, P28B & P28C — 3 *8 — 52-136 — 52-138

HIGH PRESSURE INJECTION VALVE M03007 — 3 *12 — 1 — 52-137 — 1R

LOW PRESSURE INJECTION VALVE M03008 — 3 *12 — 12.8 — 52-141 — 2R — FUZ/B141-2

INSTRUMENT A.C. TRANS. NO. 1 (EX-21) — 3 *2 — FUZ-B145-1 — 30 KVA — 52-145 — 52-146

STATION BATTERY CHARGER NO.1 D15 — 75 KVA

LOW PRESSURE INJECTION VALVE M03010 — 3 *12 — 12.8 — 52-147 — 2R — FUZ/B147-2

HIGH PRESSURE INJECTION VALVE M03013 — 3 *12 — 1 — 52-151 — 1R

480 VOLT MOTOR CONTROL CENTER NO. 1

CONTINUED SEE ABOVE

EAST ENGINEERED SAFE GUARDS ROOM SUMP PUMP P28 — 3 *12 — 1 — 52-155 — 1

HIGH PRESSURE INJECTION VALVE M03011 — 3 *12 — 1 — 52-157 — 1R

VOLUME CONTROL TANK OUTLET VALVE M02887 — 3 *12 — 2/3 — 52-161 — 2R

WEST ENGINEERED SAFEGUARD ROOM SUMP PUMP P73B — 3 *12 — 1 — 52-165 — 1

PRIMARY LOOP SP. COOLING VALVE M03015 — 3 *12 — 2.0 — 52-167 — 1R

SHIELD COOLING PUMP NO.2 P77B — 3 *12 — 7½ — FUZ/B171-1 — 52-171 — 1

S.I.R.W. TANK RECIRC. PUMP P74 — 3 *12 — 1 — 52-173 — 1

TRANS X145 — 3 *10 — 15 KVA — 4 *4 — FREEZE PROTECTION CONTROL PNL. C145

HYDROGEN RECOMBINER M69B — 3*1/0 — 75 KW — 52-175 — 52-176 — 150/30

SPARE — 52-177 — 1R

SPARE — 52-181 — 2

PENETRATION & FAN ROOMS SUPPLY FAN V78 — 3 *10 — 13 — 52-183 — 2

LIGHTING PNL. L06, L06A — 4 *4 — 4 KW — 52-185 — 52-186

STATION BATTERY CHARGER NO. 4 D18 — 3 *2 — 75 KVA

BORIC ACID GRAVITY FEED VALVE M02178 — 3 *12 — 2/3 — 52-187 — 1R

BORIC ACID PUMP P56B — 3 *6 — 30 — 52-191 — 3

SPARE — 52-195 — 52-196

HIGH PRESSURE INJECTION VALVE M03009 — 3 *12 — 1 — 52-197 — 1R

CONTINUED SEE BELOW

ENGINEERED SAFEGUARDS ROOM COOLER V27B — 3 *8 — 20 — 2

PENETRATION & FAN ROOM EXHAUST UNIT FAN V79 — 3 *4 — 16½ — 2

LIGHTING PANEL L29 — 3 *6 — 15 KVA

CHG. PUMP DISCH. TO RED. HDR. STOP VALVE M03072 — 3 *12 — 1 — 1R

ENGINEERED SAFEGUARDS ROOM COOLER V27D — 3 *8 — 20 — 2

SPARE — 52-223

CONTROL ROD DRIVE TRANSF. NO. 1 X45 — 2 *6 — 15 KVA

SPARE — 3 *4 — 3

LIGHTING PANEL L05A

INSTRUMENT AC TRANS NO. 2 (EX-22) — FUZ-B236-1 — 3 *2 — 30 KVA

HIGH PRESSURE INJECTION VALVE M03064 — 3 *12 — 1 — 1R

HIGH PRESSURE INJECTION VALVE M03062 — 3 *12 — 1 — 1R

WEST ENGINEERED SAFEGUARD ROOM SUMP PUMP P73A — 3 *12 — 1

LOW PRESSURE INJECTION VALVE M03012 — 3 *12 — 12.8 — 2R

LOW PRESSURE INJECTION VALVE M03014 — 3 *12 — 12.8 — 2R

EAST ENGINEERED SAFEGUARD ROOM SUMP PUMP P72A — 3 *12 — 1 — 1

HIGH PRESSURE INJECTION VALVE M03066 — 3 *12 — 1 — 1R

HIGH PRESSURE INJECTION VALVE M03068 — 3 *12 — 1 — 1R

CONTINUED SEE ABOVE

295

201

PRI. COOLING PUMPS BACKSTOP OIL PUMPS P83A,B,C & D — 3 *12 — 4½

FREEZE PROTECTION CONTROL PNL. C146 — 4 *4

TRANS. X146 — 3 *10 — 15 KVA — 150/30

TURBINE TURNING GEAR MOTOR NO.2 — 3 *2 — 50 — 3

PRIMARY LOOP S.D. COOLER VALVE M03016 — 3 *12 — 2.0 — 1R

TURNING GEAR PRE-ENGAGEMENT MOTOR K2A — 3/C *10 — 6.4 — 1

TURBINE TURNING GEAR OIL PUMP P26 — 3 *1/0 — 60 — 4

SPARE — 1R

STATION BATTERY CHARGER NO. 3 D17 — 3 *2 — 75 KVA

SPACE

SHIELD COOLING PUMP NO. 1 P77A — 3 *12 — 7½ — 1

SPARE — 2

SPACE

I.G. EMERGENCY AIR SIDE SEAL OIL BACKUP PUMP P23 — 3 *2 — 50 — 3

SPACE

SPARE — 1

HYDROGEN RECOMBINER M69A — 3 *1/0 — 75 KW

SECURITY LIGHTING — 200 AMP FUSED DISCONN. S124 — 100 AMP PANEL

SECURITY VITAL X-ray XMFR — 75 KVA — X-12

ANSTEC APERTURE CARD

Also Available on Aperture Card

9505310007-40

THIS DWG. IS SOUG COLOR CODED.

NOTES:

1. 52-116A (52-216A) DIESEL GEN. 1-1 (1-2) LUBE OIL HTR BRKR
   52-116B (52-216B) DIESEL GEN. 1-1 (1-2) JACKET WTR HTR BRKR
   52-116C (52-216C) DIESEL GEN. 1-1 (1-2) AIR COMPRESSOR BRKR
   52-116D (52-216D) DIESEL GEN. 1-1 (1-2) LUBE OIL PRIMING PUMP BRKR
   52-116E (52-216E) DIESEL GEN. 1-1 (1-2) CRANKCASE EXHAUSTER BRKR

REFERENCE DRAWINGS
WE-85 SH. 1 SECURITY SYSTEMS II-SECURITY EQUIPMENT ONE LINE DIAGRAM

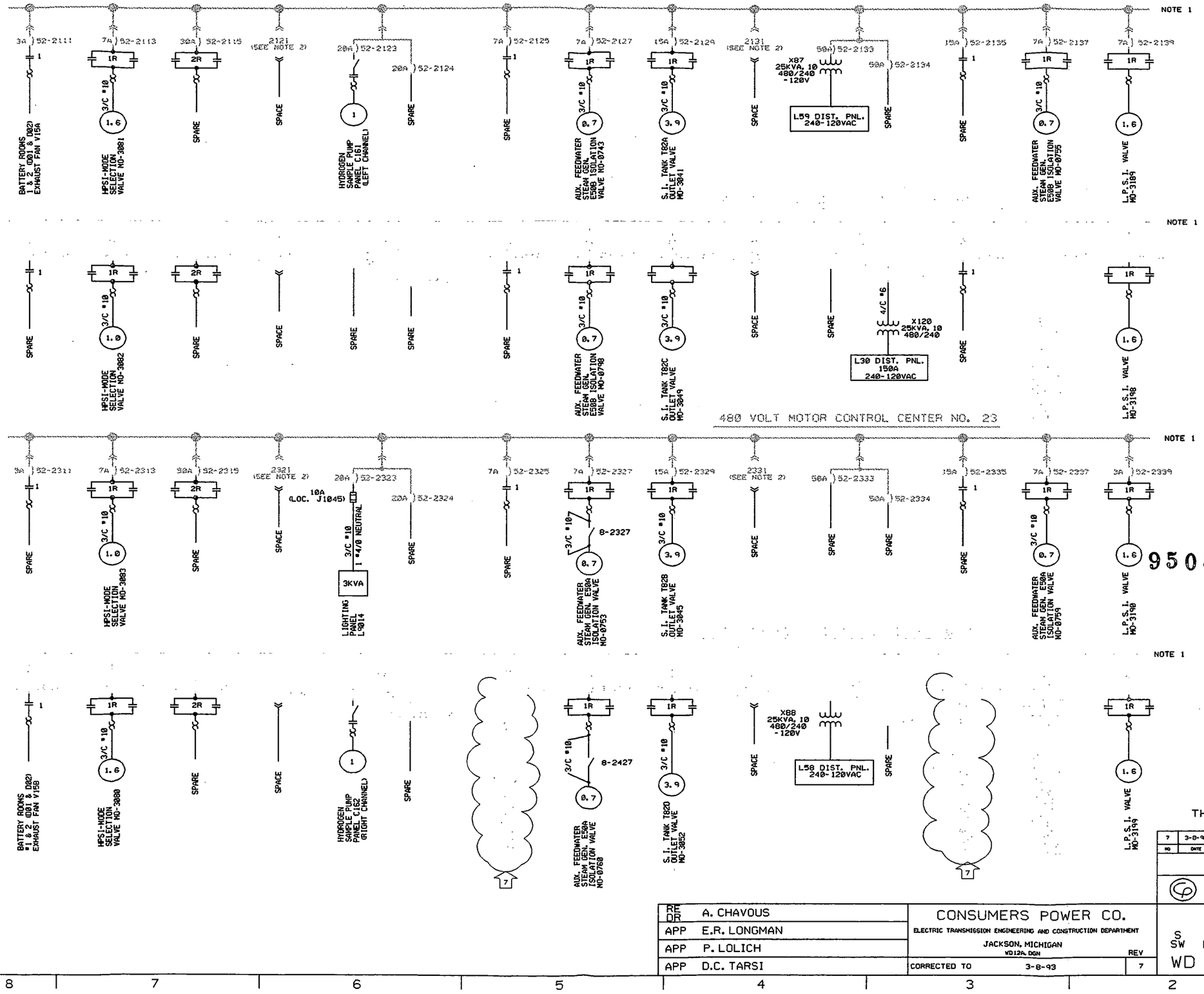
NO	DATE	REVISIONS	BY	APP
41	09/23/94	CORRECTED REV. DATES OF REV. 40 PER DCR 94-676	HDW	

SINGLE LINE METER & RELAY DIAGRAM
480 VOLT MOTOR CONTROL CENTERS

SITE ID. 0950 — BECHTEL DRAWING NO. E-5 SH. 1

DR	A. CHAVOUS	CONSUMERS POWER CO.
APP	E. R. LONGMAN	ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
APP	P. LOLICH	JACKSON, MICHIGAN
APP	D. C. TARSI	WD-12.DGN REV
		CORRECTED TO 9/23/94 — 41

PALISADES PLANT
S SW AREA REGION T SOUTH HAVEN, 6 MI. S. W.
WD 950 SHEET 12



NOTES

1. MCC 22 WILL BE LOCATED INSWGR. RM ID AND MCC'S 21, 23 & 24 WILL BE LOCATED IN THE CABLE SPREADING ROOM. CHANNEL ASSIGNMENT WILL BE AS FOLLOWS: MCC'S 21 & 23-LEFT (RED) MCC'S 22 & 24-RIGHT (GREEN)
2. THIS SPACE IS SUITABLE FOR MOUNTING ONE FEEDER UNIT WITH A MAX-BKR. RATING OF 100A (HORIZONTAL MOUNTING).
3. CPCO. CHANGE NOT PART OF GWO-7502, OR GWO-9062
4. FOR MCC'S 21, 22, 23, & 24 THE TORQUE VALUES ON BOLTED CONNECTIONS SHOULD BE AS FOLLOWS:

BOLT SIZE	RECOMMENDED TORQUE
7/16"	25-40 FT-Lb
1/2"	35-50 FT-Lb
9/16"	45-60 FT-Lb
3/8"	20-30 FT-Lb
1/4"	12-18 FT-Lb

5. REVERSING STARTERS IN MCC UNITS 2127, 2137, 2327, 2337, 2227, 2237, 2427 & 2437 PROCURED UNDER BECHTEL P.O. 12447/059-E-84 (D)
6. FORMERLY E-5 SH. 1A

THIS DWG. IS SQUG COLOR CODED.

NO	DATE	REVISIONS	BY	SNGR
7	3-8-93	REVISED 52-2425 & 52-2435 PER FC-939 & DCR-93-223	ITT	

SINGLE LINE METER & RELAY DIAGRAM
480 VOLT MOTOR CONTROL CENTERS

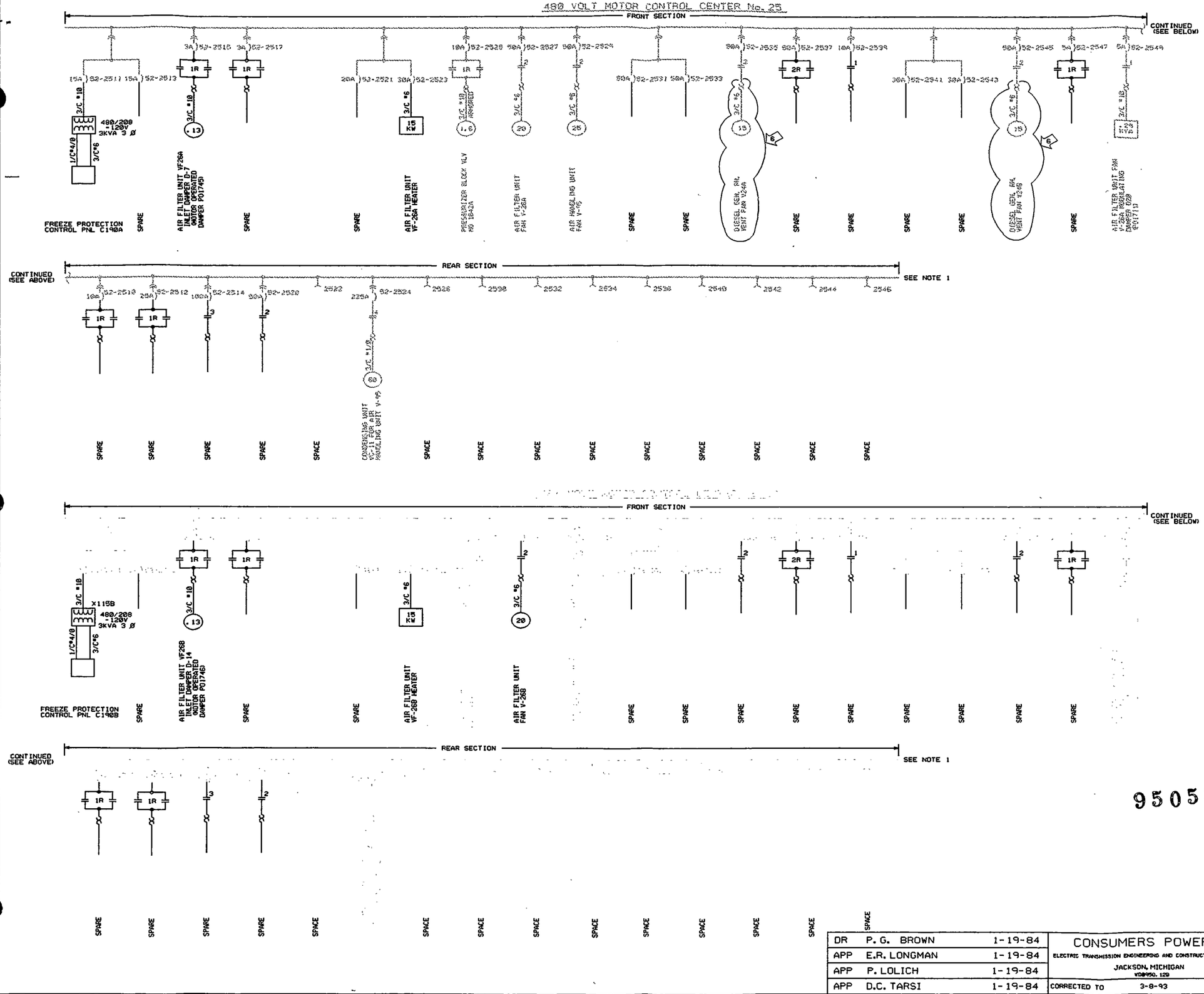
SITE ID.	BECHTEL DRAWING NO.
0950	E-5 SH. 5B

DR	A. CHAVOUS
APP	E.R. LONGMAN
APP	P. LOLICH
APP	D.C. TARSI

CONSUMERS POWER CO.
ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
JACKSON, MICHIGAN
WD12A.DGN
CORRECTED TO 3-8-93 REV 7

PALISADES PLANT

S	AREA	T
SW	REGION	SOUTH HAVEN, 6 MI. SW
WD 950		SHEET 12A



ANSTEC APERTURE CARD

Also Available on Aperture Card

NOTES:

1. MCC'S 25 & 26 ARE LOCATED IN THE ELECTRICAL EQUIPMENT ROOM OF THE AUXILIARY BUILDING ADDITION. CHANNEL ASSIGNMENT WILL BE AS FOLLOWS:
   MCC 25 - LEFT
   MCC 26 - RIGHT

9505310007-42

THIS DWG. IS SOUG COLOR CODED

NO	DATE	REVISIONS	BY	APP
6	3-8-93	REVISED 52-2535 & 52-2545 PER FC-939 & DCR 93-223	RLR	

SINGLE LINE METER & RELAY DIAGRAM
480 VOLT MOTOR CONTROL CENTERS

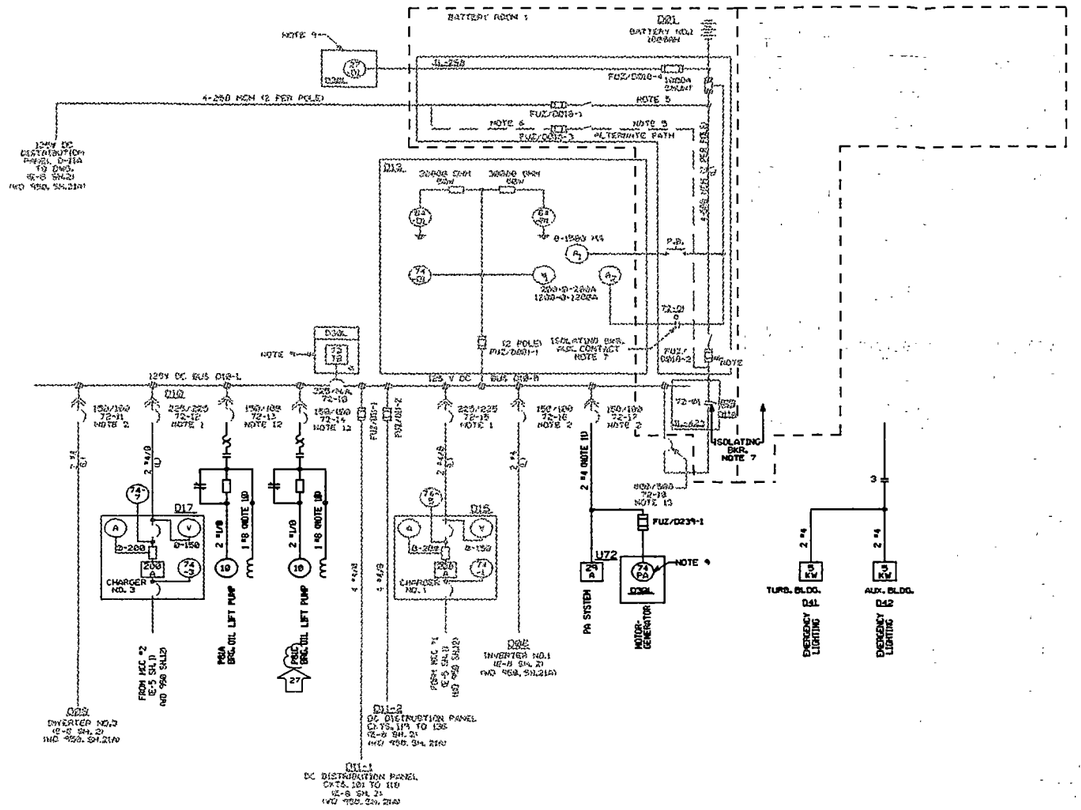
SITE ID.	BECHTEL DRAWING NO.
950	E-5 (Q) SH. 5C

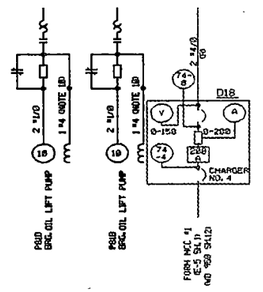
DR	P. G. BROWN	1-19-84
APP	E.R. LONGMAN	1-19-84
APP	P. LOLICH	1-19-84
APP	D.C. TARSI	1-19-84

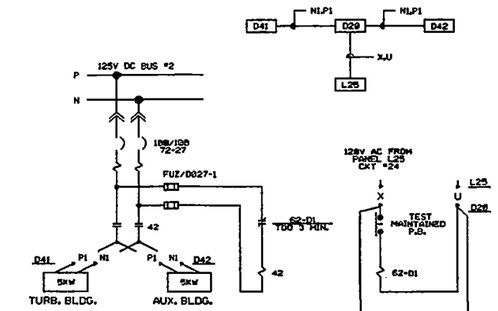
CONSUMERS POWER CO.
ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
JACKSON, MICHIGAN
WD8950, 129

CORRECTED TO 3-8-93 REV 6

PALISADES PLANT
S. AREA T
SW. REGION SOUTH HAVEN, 6MI. S. W.
WD 950 SHEET 12B







NOTES:

1. BREAKERS WITH THERMAL MAGNETIC TRIP.
2. BREAKERS WITH ADJUSTABLE MAGNETIC TRIP ONLY.
3. BREAKERS WITH ADJUSTABLE MAGNETIC TRIP ONLY. STARTERS WITH THERMAL OVERLOAD ELEMENTS USED FOR ALARM ONLY, SET AT 115% MOTOR FULL LOAD CURRENT.
4. (L) INDICATES CIRCUITS ROUTED IN LEFT HAND CHANNEL & (R) INDICATES CIRCUITS ROUTED IN RIGHT HAND CHANNEL SEPARATED FROM EACH OTHER.
5. FUSES HOOK-STICK OPERATED.
6. ALTERNATE BY PASS POSITION FOR 380A FUSES.
7. NON-AUTOMATIC SHUNT TRIP BREAKER WITH AUXILIARY CONTACTS. BREAKER TRIPPED FROM D-11A D-21A).
8. EQUIPMENT WITHIN DOTTED LINE IS LOCATED IN BATTERY ROOM. FOR MORE INFORMATION ON JL258 AND JL254 SEE DWG. E-624, SHTS. 20B & 20A.
9. RELAYS AND AUXILIARY SWITCHES USED TO MONITOR BREAKER LINE LPS. FOR MORE INFORMATION SEE FC-498 AND SCHEMES D239 AND D240 ON DWG. E-138 SH.2.
10. MIN. OF TWENTY-FIVE (25) FEET OF CONDUCTOR FROM STARTER IS 1/C #4 AWG., #4 AWG. SPLICED TO #8 AWG.
11. RECONDUCTORED WITH 2-1/C #4 AWG.
12. BREAKERS WITH THERMAL MAGNETIC TRIPS. STARTER WITH THERMAL OVERLOAD ELEMENTS USED FOR ALARM ONLY. SET @ 115% MOTOR FULL LOAD CURRENT.
13. BREAKER WITH THERMAL TRIP.

METER AND RELAY TABLE

DEVICE	DESCRIPTION	MFGR./TYPE	FUNCTION
62-D1	TIMER FOR EMCY. LIGHTS	ADLAKE	CONTROL
64-D1	DC BUS 1 GRND DETECTOR	WESTON #705.5-0-5MA	ALARM
64-D2	DC BUS 2 GRND DETECTOR	WESTON #705.5-0-5MA	ALARM
64-R1	DC BUS 1 GRND RECORDER	ESTERLINE ANGUS MODEL A601C	GRD CURRENT MONITORING
64-R2	DC BUS 2 GRND RECORDER	ESTERLINE ANGUS MODEL A601C	GRD CURRENT MONITORING
64-1	PREF. AC BUS 1 GRND DET	ELECTRONIC DEVICE	ALARM
64-2	PREF. AC BUS 2 GRND DET	ELECTRONIC DEVICE	ALARM
64-3	PREF. AC BUS 3 GRND DET	ELECTRONIC DEVICE	ALARM
64-4	PREF. AC BUS 4 GRND DET	ELECTRONIC DEVICE	ALARM
74-D1	DC BUS 1 LOSS OF V RELAY	POTTER & BRUMFIELD KRP11DG	ALARM
74-D2	DC BUS 2 LOSS OF V RELAY	POTTER & BRUMFIELD KRP11DG	ALARM
A	AMMETER	WESTINGHOUSE 241	INDICATION
V	VOLTMETER	WESTINGHOUSE 241	INDICATION
F	FREQUENCY METER	J.B.T.	INDICATION
74-1	CHARGER 1 AC UNDER VOLTAGE RELAY	ELECTRONIC DEVICE	ALARM
74-2	CHARGER 2 AC UNDER VOLTAGE RELAY	ELECTRONIC DEVICE	ALARM
74-3	CHARGER 3 AC UNDER VOLTAGE RELAY	ELECTRONIC DEVICE	ALARM
74-4	CHARGER 4 AC UNDER VOLTAGE RELAY	ELECTRONIC DEVICE	ALARM
27-1	PREF. AC BUS 1 UNDER V RELAY	ELECTRONIC DEVICE	ALARM
27-2	PREF. AC BUS 2 UNDER V RELAY	ELECTRONIC DEVICE	ALARM
27-3	PREF. AC BUS 3 UNDER V RELAY	ELECTRONIC DEVICE	ALARM
27-4	PREF. AC BUS 4 UNDER V RELAY	ELECTRONIC DEVICE	ALARM
27-5	INSTR. AC BUS UNDER V RELAY		
A_1	MILLIAMMETER	SIGMA LUMIGRAPH #278	INDICATION
A_2	AMMETER	WESTINGHOUSE KX 241	INDICATION
V_1	VOLTMETER	WESTINGHOUSE KX 241	INDICATION
74-5	CHARGER #1 DC UNDERVOLTAGE RELAY	POTTER & BRUMFIELD KRP11DG	ALARM
74-6	CHARGER #2 DC UNDERVOLTAGE RELAY	POTTER & BRUMFIELD KRP11DG	ALARM
74-7	CHARGER #3 DC UNDERVOLTAGE RELAY	POTTER & BRUMFIELD KRP11DG	ALARM
74-8	CHARGER #4 DC UNDERVOLTAGE RELAY	POTTER & BRUMFIELD KRP11DG	ALARM

9505310007-43

THIS DWG. IS SOUG COLOR CODED.

NO	DATE	REVISIONS	BY	APP
27	4-8 94	REVISED PUMP DESIGNATION TO P8IC FOR BREAKER 72-14 PER DCR 94-317	JFM	

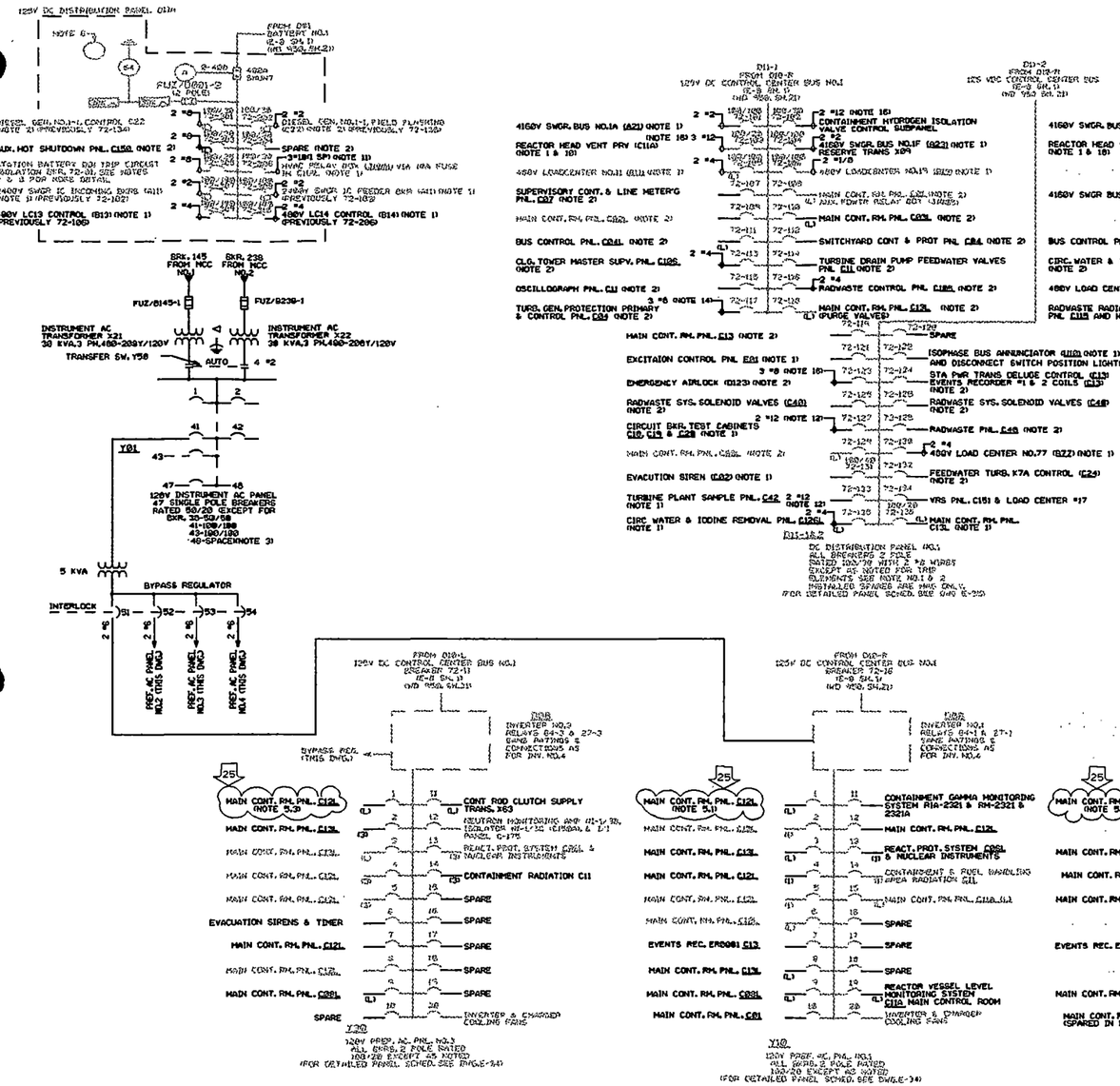
SINGLE LINE METER & RELAY DIAGRAM
125V DC
120V INSTRUMENT & PREFERRED AC SYSTEM

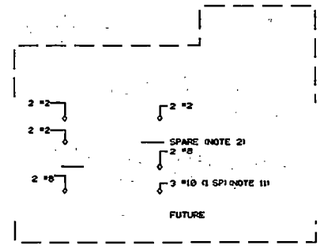
SITE ID.	BECHTEL DRAWING NO.
950	E-8 SH. 1

CONSUMERS POWER CO.
PLANT MODIFICATIONS AND MISCELLANEOUS PROJECTS DEPARTMENT
JACKSON, MICHIGAN
WD-ZLDON

CORRECTED TO	REV
4-8-94	27

PALISADES PLANT
S. AREA
SW. REGION
SO. HAVEN, 6 MI. SW
WD 950
SHEET 21





NOTES

1. BREAKERS WITH THERMAL MAGNETIC TRIP.
2. BREAKERS WITH ADJUSTABLE MAGNETIC TRIP ONLY.
3. FOR DETAILED PANEL SCHEDULE, SEE DWG. E-29
4. (L) INDICATES CIRCUITS ROUTED IN LEFT HAND CHANNEL & (R) INDICATES CIRCUITS ROUTED IN RIGHT HAND CHANNEL SEPARATED FROM EACH OTHER.
5. (1) CHANNEL 1 (2) CHANNEL 2 (3) CHANNEL 3 (4) CHANNEL 4 } CIRCUITS OF THE FOUR CHANNELS MUST BE SEPARATED FROM EACH OTHER.
6. CAUTION THIS PUSHSUTTON DISCONNECTS STATION BATTERY D01 FROM DC DISTRIBUTION PANEL D1S.
7. CAUTION THIS PUSHSUTTON DISCONNECTS STATION BATTERY D02 FROM DC DISTRIBUTION PANEL D2D.
8. NON-AUTOMATIC SHUT TRIP BREAKER 72-01 (72-02) TRIPPED FROM D1A (D2A) WITH AUXILIARY CONTACTS.
9. FOR METER AND RELAY TABLE, SEE DWG. E-8 SH.1, AND 950, SH.21)
10. FOR MORE INFORMATION SEE FACILITY CHANGE (FC-467).
11. FIRST (20) FEET OF CIRCUIT CONDUCTOR FROM PANEL IS 3-1/C #6 AWG.
12. FIRST THIRTY (30) FEET OF CIRUIT CONDUCTOR FROM PANEL IS 2-1/C #8 AWG.
13. FIRST SIXTY (60) FEET OF CIRCUIT CONDUCTOR FROM PANEL IS 2-1/C #8 AWG.
14. FIRST THIRTY-FIVE (35) FEET OF CIRCUIT CONDUCTOR FROM PANEL IS 3/C #8 AWG.
15. FIRST TWENTY (20) FEET OF CIRCUIT CONDUCTOR FROM PANEL IS 3/C #10 AWG.
16. ENTIRE LENGTH OF CONDUCTOR TO BE 3/C = AWG.

* FUZ ID IS THE SAME AS ITS SCHEME *

9505310007-44

THIS DWG. IS SOUG COLOR CODED.

REF. DRAWING
E-18 SH.1 & 2

NO	DATE	REVISIONS	BY	APP
25	10-17-94	REV. Y10, Y30, Y40, BREAKER 1 & Y20, BREAKERS 1, 12 & 13 PER DCR-94-0022(BPR)	JGD	

SINGLE LINE METER & RELAY DIAGRAM
125V DC
120V INSTRUMENT & PREFERRED AC SYSTEM

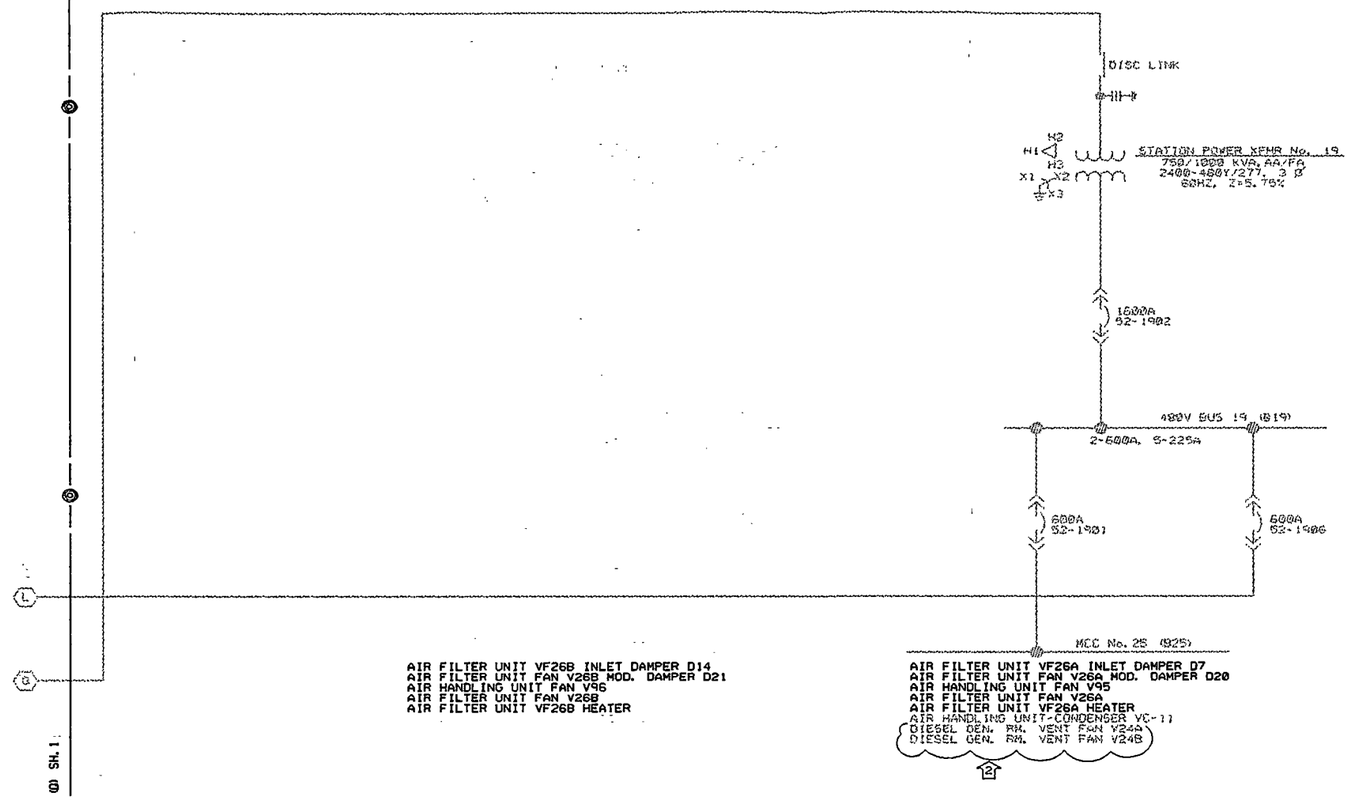
SITE ID.	BECHTEL DRAWING NO.
950	E-8 SH. 2

RE DR	J.L. STERRETT	5/16/83
APP	E.R. LONGMAN	5/16/83
APP	P. LOLICH	5/16/83
APP	D.C. TARSI	5/16/83

CONSUMERS POWER CO.
ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
JACKSON, MICHIGAN
VD-21A.DGN

CORRECTED TO	10-17-94	REV 25

PALISADES PLANT
S. AREA
SW. REGION
WD 950
T
SO. HAVEN, 6 MI. SW
SHEET 21A



9505310007-45

THIS DWG. IS SQUG COLOR CODED.

NO	DATE	REVISIONS	BY	APP
2	3-8-93	ADDED DIESEL GEN. RM. VENT FAN V24A & B PER FC-939 & DCR 93-223	ITT	

PLANT SINGLE LINE DIAGRAM

SITE ID.	BECHTEL DRAWING NO.
950	E-1 (Q) SH. 3

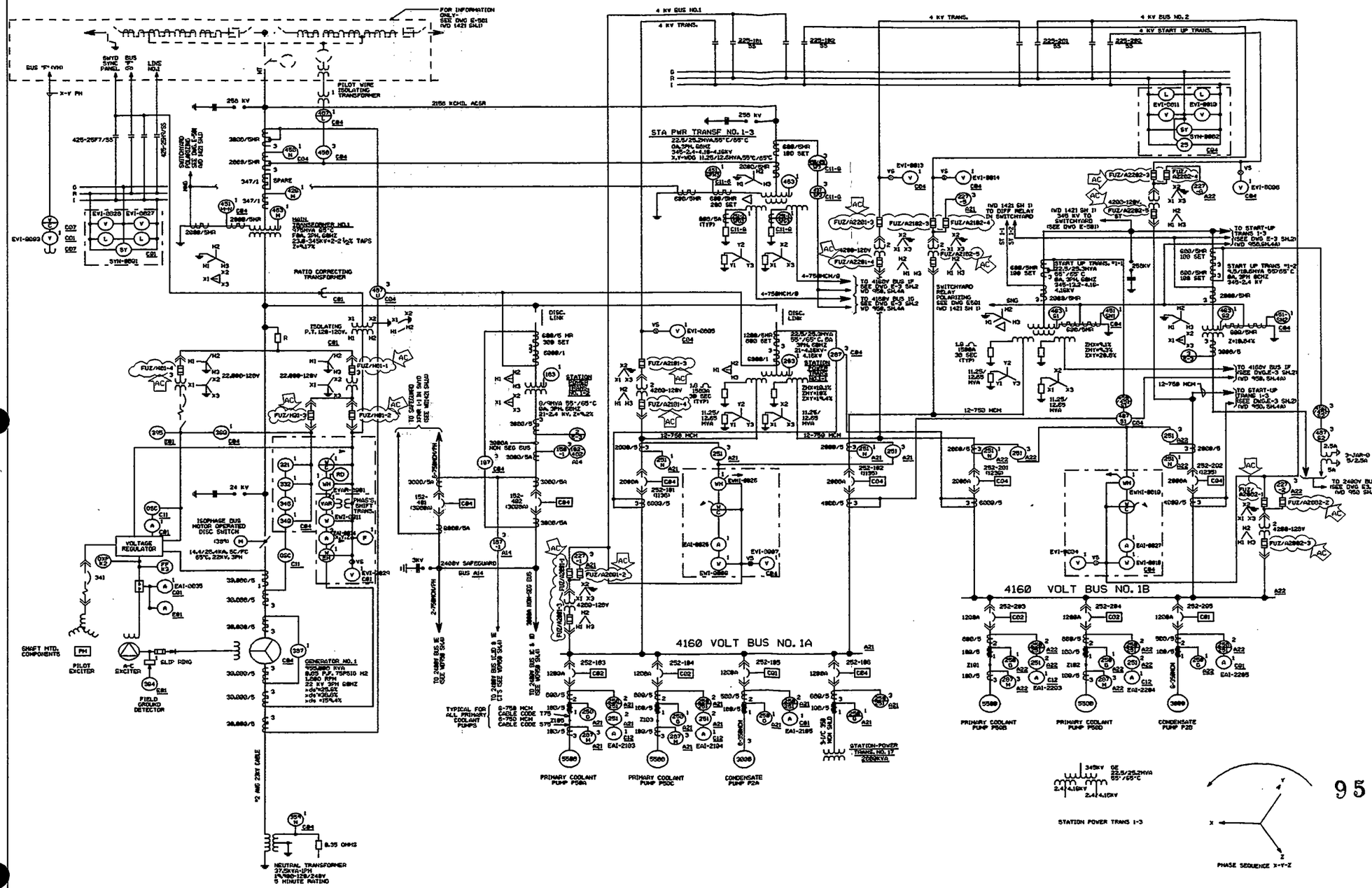
DR	P. G. BROWN	1-18-84
APP	E.R. LONGMAN	1-18-84
APP	P. LOLICH	1-18-84
APP	D.C. TARSI	1-18-84

CONSUMERS POWER CO.
ELECTRIC TRANSMISSION ENGINEERING AND CONSTRUCTION DEPARTMENT
JACKSON, MICHIGAN
WD-2A.DGN

CORRECTED TO 3-8-93 REV 2

PALISADES PLANT
S. AREA T
SW. REGION SO. HAVEN, 6 MI. SW
WD 950 SHEET 2A

PB3012684



METER AND RELAY TABLE

DEVICE	DESCRIPTION	FUNCTION
187	STA. POWER TRANS. #1-2 DIFFERENTIAL RELAY	TRIP GEN. LOCKOUT RELAY
163	STA. POWER TRANS. #1-2 SUDDEN PRESS RELAY	TRIP GEN. LOCKOUT RELAY
51 & 51N	STA PWR TRANSFORMER #17 PHASE & NEUTRAL OVERCURRENT RELAYS	TRIP ASSOC. TRANS. CKT. BKR. 252-185
227-5 & 6	4160V STANDBY SOURCE UNDERVOLTAGE RELAY	ALARM & BUS TRANSFER
227-1 & 2	4160V BUS UNDERVOLTAGE RELAY	LOAD SHEDDING
25B/251	4160V MOTOR OVERCURRENT RELAY	TRIP ASSOCIATED MOTOR CKT. BKR.
251	4160V PHASE OVERCURRENT RELAY	TRIP ASSOCIATED FDR. CKT. BKR.
251N	4160V GROUND OVERCURRENT RELAY	TRIP ASSOCIATED FDR. CKT. BKR.
263	STA. POWER TRANS. #1-1 SUDDEN PRESS. RELAY	TRIP GEN. LOCKOUT RELAY
287	STA. POWER TRANS. #1-1 DIFFERENTIAL RELAY	TRIP GEN. LOCKOUT RELAY
287M	4160V MOTOR DIFF. RELAY	TRIP ASSOCIATED MOTOR CKT. BKR.
321	GENERATOR DISTANCE BACK-UP RELAY	TRIP GEN. INDIRECT TRIP LOCKOUT RELAY
332	GENERATOR ANTI-MOTORING RELAY	TRIP GEN. INDIRECT TRIP LOCKOUT RELAY
340	GENERATOR LOSS OF FIELD RELAY	TRIP GEN. LOCKOUT RELAY
346	GEN. NEGATIVE PHASE SEQUENCE RELAY	TRIP GEN. INDIRECT TRIP LOCKOUT RELAY
2580	4160V FDR. GROUND OVERCURRENT RELAY	TRIP ASSOCIATED MOTOR CKT. BKR.
395	GEN VOLTS/HERTZ RELAY	TRIP REGULATOR
259N	GEN. NEUTRAL OVERVOLTAGE RELAY	TRIP GEN. LOCKOUT RELAY
368	VOLTAGE BALANCE RELAY	TRIP VOLTAGE REGULATOR
359E	GEN. FIELD OVERVOLTAGE RELAY	ALARM
307	GENERATOR DIFFERENTIAL RELAY	TRIP GEN. LOCKOUT RELAY
376	GEN. FIELD OVERCURRENT RELAY	OPERATES BASE ADJUSTER
264	GEN. FIELD GROUND RELAY	ALARM
426M	MAIN TRANSFORMER TEMP. SW.	PUMP & FAN CONTROL
403 S1 & S2	START UP TRANS. SUDDEN PRESS. RELAY	TRIPS START UP TRANS. LOCKOUT RELAY
463M	MAIN TRANS. SUDDEN PRESS. RELAY	TRIP GEN. LOCKOUT RELAY
451MN	MAIN TRANS. GROUND O.C. RELAY	TRIP GEN. LOCKOUT RELAY
451 SN1 & SN2	STARTUP TRANS. GROUND O.C. RELAY	TRIPS START UP TRANS. LOCKOUT RELAY
49751	STARTUP TRANS. #1-1 DIFF. RELAY	TRIPS START UP TRANS. LOCKOUT RELAY
49752	STARTUP TRANS. #1-2 DIFF. RELAY	TRIPS START UP TRANS. LOCKOUT RELAY
407U	UNIT DIFFERENTIAL RELAY	TRIP GEN. LOCKOUT RELAY
487L	345KV LINE PILOT WIRE DIFF.	TRIP GEN. LOCKOUT RELAY
45D	345KV LINE OVERCURRENT RELAY	INTERLOCKS 487L
45DN	345KV LINE NEUTRAL O.C. RELAY	INTERLOCKS 487L
25	SYNCHRO-CHECK RELAY	
A	AMMETER	
F	FREQUENCY METER	
L	LAMP	
VS	VOLTMETER SWITCH	
SY	SYNCHROSCOPE	
V	VOLTMETER	
VAR	VARMETER	
SS	SYNCHRONIZING SWITCH	
W	WATTMETER	
W/C	WATT TRANSDUCER (GEN. NET WATTS)	
WH	WATTHOUR METER (WITH CONTACT FOR TOTALIZING)	
RD	PRINTING DEMAND METER	
TR	TOTALIZING RELAY	
OSC	OSCILLOGRAPH	
W/EH	WATT TRANSDUCER (EH SYSTEM)	
450/451 S1 & S2	START UP TRANSFORMER O.C. RELAY	TRIPS START UP TRANS. LOCKOUT RELAY
V/C	VOLT TRANSDUCER	
458/451 SP3	STA. PWR. XFMR. #1-3 PHASE OVERCURRENT RELAYS	TRIP PRIMARY LOCKOUT (385P)
463	STA. PWR. XFMR. #1-3 SUDDEN PRESSURE RELAYS	TRIP PRIMARY LOCKOUT (385P)
487 SP3	STA. PWR. XFMR. #1-3 CURRENT DIFFERENTIAL RELAYS	TRIP BACK-UP LOCKOUT (385B)
451 SPN3	STA. PWR. XFMR. #1-3 HIGH-SIDE NEUT. GRD. RELAY	TRIP BACK-UP LOCKOUT (385B)
251-1,-2 SPG3	STA. PWR. XFMR. #1-3 LOW-SIDE NEUT. GRD. RELAYS	TRIP BACK-UP LOCKOUT (385B)
107-1	SAFEGUARD FEEDER CURRENT DIFFERENTIAL RELAY	TRIP 486 & 482 BKR INIT IC.ID & TE BUS LOAD TRIPS TO 4KV PWR 1-2, INITIATES DATALOGGER
150-1	2488V SAFEGUARD BUS BKR 152-402 BREAKER FAILURE OVERCURRENT RELAY	WITH 1ST1 OPERATION & BKR 152-402 CLOSED, INITIATES TIME DELAY RELAY 152-462
162-482	2488V SAFEGUARD BUS BKR 152-402 BREAKER FAILURE TIME DELAY RELAY	TRIPS PRIMARY LOCKOUT (385P) AFTER 0.5 SECONDS INITIATES DATALOGGER

NOTES

THE NUMBER ABOVE THE LINE IS THE MATCH CIRCLE NUMBER, AND THE NUMBER BELOW THE LINE INDICATES THE DRAWING ON WHICH THE CIRCUIT CONTINUES. NO NUMBER BELOW THE LINE INDICATES THAT THE CIRCUIT IS CONTINUED ON THE SAME DRAWING.

9505310007-46

THIS DWG. IS SOUG COLOR CODED.

AC	10/28/93	ADDED FUSE #'S PER DCR 93-1298	ITT	
NO	DATE	REVISIONS	BY	APP

SINGLE LINE METER & RELAY DIAGRAM
GENERATOR & 4160V SYSTEM

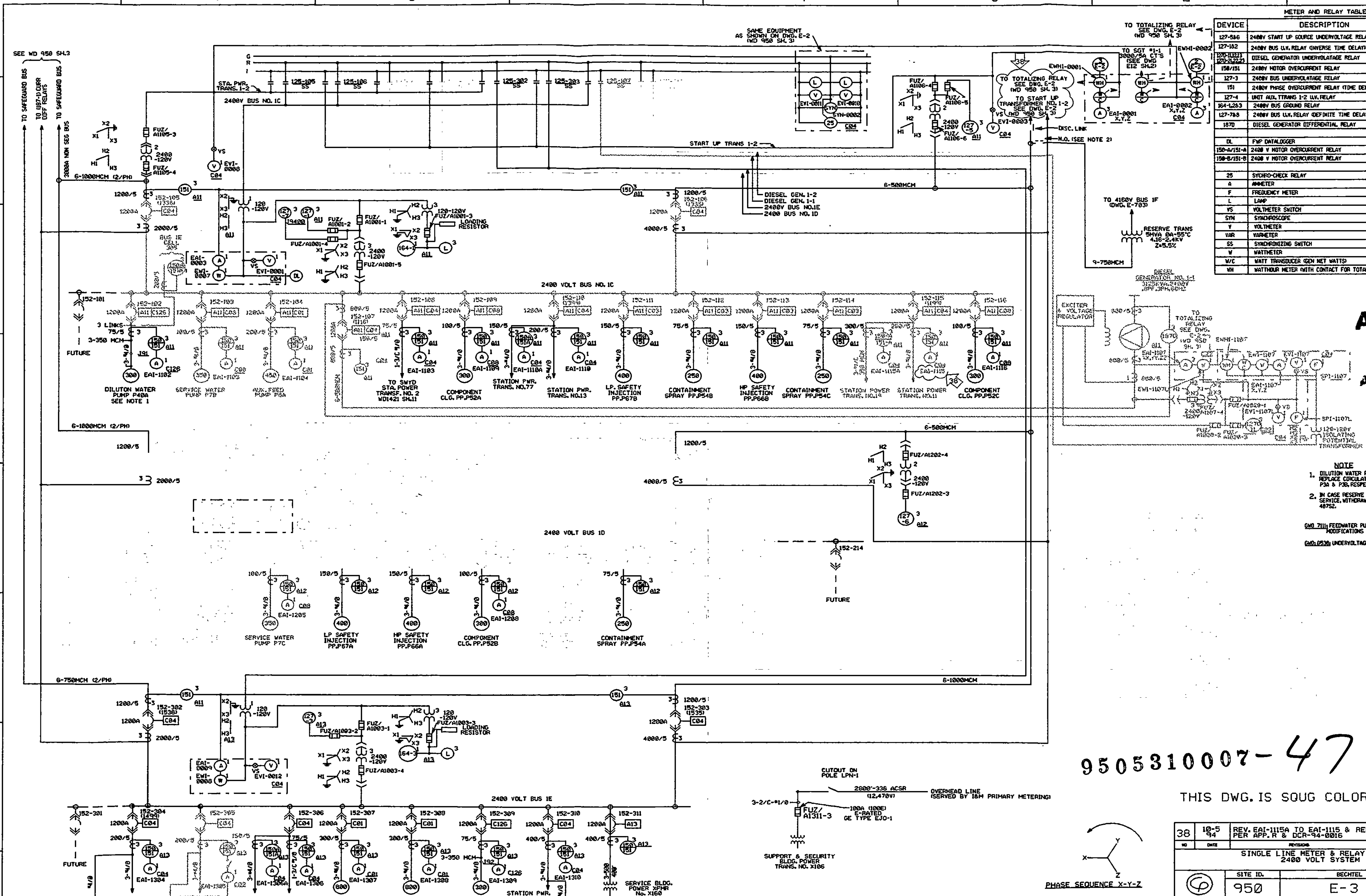
	SITE ID.	BECHTEL DRAWING NO.
CP	0950	E-2

PALISADES PLANT

S SW AREA REGION — T SOUTH HAVEN, 6 MI. S. W.

WD 950 — SHEET 3

RE DR	E.E. MCCANN	8/30/83	CONSUMERS POWER CO.
APP	E.R. LONGMAN	8/30/83	PLANT MODIFICATIONS AND MISCELLANEOUS PROJECTS DEPARTMENT
APP	P. LOLICH	8/30/83	JACKSON, MICHIGAN WD-3.DGN
APP	D.C. TARSI	8/30/83	REV CORRECTED TO 10-28-93 AC



ANSTEC APERTURE CARD

Also Available on Aperture Card

METER AND RELAY TABLE

DEVICE	DESCRIPTION	FUNCTION
127-5&6	2400V START UP SOURCE UNDERVOLTAGE RELAY	ALARM & BUS TRANSFER
127-1&2	2400V BUS U.V. RELAY (INVERSE TIME DELAY)	ALARM, LOADSHED, TRIP INC. BKRS&D.G.START
127D-11,12,13 127D-21,22,23	DIESEL GENERATOR UNDERVOLATAGE RELAY	GEN INCOMING BKRS AUTO-CLOSE
150/151	2400V MOTOR OVERCURRENT RELAY	TRIP ASSOCIATED FDR. CIRCUIT BKR.
127-3	2400V BUS UNDERVOLATAGE RELAY	ALARM
151	2400V PHASE OVERCURRENT RELAY (TIME DELAY)	TRIP ASSOCIATED MOTOR CKT. BKR.
127-4	UNIT AUX. TTRANS 1-2 U.V. RELAY	NOT USED
164-1,2&3	2400V BUS GROUND RELAY	ALARM
127-7&8	2400V BUS U.V. RELAY (DEFINITE TIME DELAY)	ALARM, LOADSHED, TRIP INC. BKRS&D.G.START
187D	DIESEL GENERATOR DIFFERENTIAL RELAY	TRIP DIESEL GEN.
DL	FWP DATALOGGER	BUS 1C & 1D VOLTS
150-A/151-A	2400 V MOTOR OVERCURRENT RELAY	TRIP ASSOC. FDR BKR (LOAD CNTR BUS OVER CUR)
150-B/151-B	2400 V MOTOR OVERCURRENT RELAY	TRIP ASSOC. FDR BKR (LOAD CNTR BUS OVER CUR)
25	SYCHRO-CHECK RELAY	
A	AMMETER	
F	FREQUENCY METER	
L	LAMP	
VS	VOLTMETER SWITCH	
SYN	SYNCHROSCOPE	
V	VOLTMETER	
VAR	VARMETER	
SS	SYNCHRONIZING SWITCH	
W	WATTMETER	
W/C	WATT TRANSDUCER (GEN NET WATTS)	
WH	WATTHOUR METER (WITH CONTACT FOR TOTALIZING)	

NOTE

1. DILUTION WATER PUMPS P40A & P40B REPLACE CIRCULATING WATER PUMPS P3A & P3B, RESPECTIVELY.
2. IN CASE RESERVE TRANSFORMER IS IN SERVICE, WITHDRAW DIFFERENTIAL RELAY 487S2.

GWO 7111: FEEDWATER PURITY MODIFICATIONS

GWO 0530: UNDERVOLTAGE MODIFICATION

9505310007-47

THIS DWG. IS SQUG COLOR CODED.

NO	DATE	REVISIONS	BY	APP
38	10-5-94	REV. EAI-1115A TO EAI-1115 & REF. DWGS. PER APP. R & DCR-94-0016	JGD	

SINGLE LINE METER & RELAY DIAGRAM
2400 VOLT SYSTEM

WD-4.DGN

SITE ID.	BECHTEL DRAWING NO.
950	E-3 SH. 1

DR J. L. STERRETT	4 /27/83	CONSUMERS POWER CO.
APP E. R. LONGMAN	4 /27/83	PLANT MODIFICATIONS AND MISCELLANEOUS PROJECTS DEPARTMENT
APP P. LOLICH	4 /27/83	JACKSON, MICHIGAN
APP D. C. TARSI	4 /27/83	CORRECTED TO 10-5-94

REV 38

PALISADES PLANT

S SW AREA REGION SOUTH HAVEN, T 6 MI. S. W.

WD 950 SHEET 4