PSNH

SEABROOK STATION
Engineering Office

Public Service of New Hampshire

New Hampshire Yankee Division

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United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. Vincent S. Noonan, Project Director
PWR Project Directorate No. 5

References: (a) Construction Permits CPPR-135 and CPPR-136, Docket Nos. 50-443 and 50-444
(b) PSNH Letter (SBN-904), dated December 2, 1985, "Fire Protection of Safe Shutdown Capability - Revised Report," J. DeVincentis to G. W. Knighton

Subject: Fire Protection of Safe Shutdown Capability

Dear Sir:

Enclosed please find, as Attachment 1, a copy of revised excerpts from our report entitled, "Fire Protection of Safe Shutdown Capability (10CFR50, Appendix R)." This report was previously sent to the staff for review via Reference (b). These changes will be incorporated into the next revision to the above referenced report.

Also, please find enclosed, as Attachment 2, deviations from 10CFR50, Appendix R (i.e, deviations for doors, emergency lighting, etc.). These deviations supplement those already identified in Reference (b).

If you require any additional information or clarifications regarding the above, please do not hesitate to contact us. We do request that, if at all possible, the above be reviewed and accepted prior to the site audit.

Very truly yours,

John DeVincentis, Director
Engineering and Licensing

Enclosures

cc: Atomic Safety and Licensing Board Service List

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ATTACHMENT 1

Revised Excerpts - 10CFR50, Appendix R Report
Seabrook Station

3.1.6 Safe Shutdown System Boundaries

The Safe Shutdown system process boundaries are established by the following devices:

a. Normally closed manual valve

b. Check valve

c. Electrically operated Safe Shutdown valve

d. Root valve on small instrument lines to non-Safe Shutdown instruments

e. Relief valve

f. Redundant valves on high-low pressure boundaries

g. Boundary valve between a Safe Shutdown process line and a non-Safe Shutdown process line which if it is an incorrect position will not affect the operation of the Safe Shutdown system.

The Safe Shutdown electrical system boundaries are established by the following devices:

h. Isolation device (i.e., coordinated circuit breaker, fuse, transducer, etc.)

i. "Remote Local" selector switch

Cables isolated by "Remote-Local" selector switches or other isolation devices are not included in the review.

3.1.7 Manual Operator Actions

Manual ~~valve actuations~~ operator actions must satisfy the following considerations:

a. Sufficient manpower and time is available to perform all required manual actions.

b. There is accessibility to the equipment to perform the manual action either during or after the fire.

3.1.8 Hot Short Circuits

The review considers the effects of hot short circuits on the following:

a. Energized 120V ac grounded circuits

b. De-energized 120V ac grounded circuits

c. Energized 120V ac ungrounded circuits

d. Energized 125V dc ungrounded circuits

Hot short circuits are not considered for disabled (tripped power supply) 3-phase 480 Volt ac circuits, ungrounded 1-phase 120 Volt ac circuits and ungrounded 125 Volt dc circuits as these would require multiple hot shorts in the correct sequence to cause a device to function. These are considered incredible events.

3.1.9 Disabled (tripped power supply) Equipment

To prevent spurious operations of valves and other equipment which are normally aligned in their Safe Shutdown position, the operators will trip the power supplies to these devices upon reaching the RSS facilities.

3.1.10 Fire Areas

The "Fire Protection Program Evaluation and Comparison to Branch Technical Position APCSB 9.5-1, Appendix A" report establishes fire areas and zones for purposes of fire detection and protection. Although these zones are satisfactory for fire detection and protection, they do not in all cases satisfy Appendix R requirements. To assure that the Appendix R separation requirements are satisfied, zones containing redundant equipment which do not satisfy the requirements are grouped and analyzed to provide assurance that safe shutdown can be achieved. An example of this is containment which has three zones: C-F-1-Z, C-F-2-Z and C-F-3-Z. As there is no 3-hour rated barrier between zones, they have been considered as one fire area. The delineation of the fire areas and zones which have been combined into a fire area is in Section 3.2.7.

3.1.11 Emergency Lighting

Emergency lighting units per Appendix R, Paragraph III J are provided with at least an 8-hour battery powered supply in all areas needed for operation of safe shutdown equipment and in access and egress routes. In areas where actions are required after eight hours and are actions needed during a cooldown, 8-hour battery powered supplied lights are not provided. Repairs per Appendix R III G.1.b, will be implemented to provide required illumination for required cooldown actions.

or diesel generator backed essential lighting is provided

ALYSIS (cont'd)

Fire Analyses (cont'd)

c. Fire Zone PAB-F-1K-Z (cont'd)

2) System Analyses

a) Chemical and Volume Control (CS) System

This zone contains cables routed in conduit for Train A valves CS-LCV-112B and CS-LCV-112D. The Train B cables for their redundant counterpart valves CS-LCV-112C and CS-LCV-112E are routed in barriered conduit in the zone. There is 13' horizontal separation between the conduits containing the redundant cables.

c) Service Water (SW) System

This zone contains cables routed in conduit for Train A valve SW-V4. The Train B cables for its redundant counterpart valve SW-V5 are routed in barriered conduit in the zone. There is 8' horizontal separation between the bar-

b) PAB Air Handling (PAH) System

This zone contains cables routed in conduit to Train A damper PAH-DP-43A. The Train B cables to redundant damper PAH-DP-43B are routed in barriered conduit in the zone. The dampers are located approximately 15' above the floor. The area containing the dampers is a concrete and steel enclosed air plenum with limited access and no combustibles.

These dampers and the fans which they control are not needed unless the main ventilation system is lost due to loss of off-site power or unless the temperature in the PCCW area exceeds 40°C (109°F)

For the PAH system above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the height of the dampers above the floor; the lack of combustibles in the area and the fact that a fire in the area could not cause loss of offsite power, provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. A deviation from Appendix R, paragraph III.G.2. is requested.

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

c. Fire Zone PAB-F-1K-Z (cont'd)

2) System Analyses (Continued)

c-b) Service Water (SW) System (Continued)

riered conduit and the valve. There is 16' horizontal separation between the redundant valves. The valves are located approximately 15' above floor Elevation 53'-0" and 3' above platform Elevation 65'-0.

This zone also contains cables routed in conduit for Train A valve SW-V74. The position of this valve is only important when the Train A cooling tower capabilities are in use at which time the valve should be closed and should remain closed. In the event this valve opens spuriously, the operators can either transfer the Train A service water to the pumphouse or utilize the Train B service water system. This satisfies the safe shutdown requirements.

3) Summary

For the CS system above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the spatial separation between the Train A and Train B conduits; and considering the absence of in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. A deviation from Appendix R, Paragraph III G.2.c "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested.

For the SW system above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the horizontal separation of 8' between conduit and valve and 16' between the valves themselves; the height of the valves from the floor; and considering the absence of in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. A deviation from Appendix R, Paragraph III G.2.c "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested.

d. Fire Zone PAB-F-2A-Z (Tabulation 3.2.7.68)

1) Specific Zone Analysis

This zone at Elevation 25'-0" of the PAB is bounded by concrete floor, ceiling and walls (South and East) and is contiguous to

TABULATION 3.2.7.18

CONDENSATE STORAGE TANK

FIRE AREA: CST-F-1-O

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CO-LT-4096	X	X			
CO-TK-25	X				

B. ANALYSIS

All equipment and cables are Train A. The redundant Train B equipment and cables are in Fire Area EFW-F-1-A.

C. EVALUATION

The Appendix R separation requirements are satisfied.

B. ANALYSIS (Cont'd)

1. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35, RH-V36 and Terminal Boxes EDE-TBX-Y32, EDE-TBX-Y35 (Cont'd)

The provision of a capability to mitigate the spurious operation of the valves outside the fire area satisfies the safe shutdown requirements.

C. EVALUATION

Deviations from the Appendix R, Paragraph III.G.2 separation requirements exist in the containment fan enclosure area and the mechanical penetration area, and have been discussed and analyzed above. A deviation for Appendix R, Paragraph III G.2c, "in addition to a 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested. These deviations are justified based on the analysis and our assertion that additional modifications would not enhance fire protection safety.

m. Containment Pressure Transmitters SI-PT-936, SI-PT-937

Redundant channels of containment pressure instruments and cables are located in proximity. Spurious operation of these channels will initiate containment spray and containment isolation Phase B. The operators will have the capability to terminate these protective actions ~~after 1 minute~~ by use of manual reset ~~and block~~ switches. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-1F-1A-A and CB-F-1B-A).

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

B. ANALYSIS (Cont'd)

i. RHR Isolation Valves RC-V22, RC-V23, RC-V87, RC-V88

Redundant cables associated with the position indicating lights for the RHR isolation valves are contained in this area. Failure of these circuits will not prevent the operators from opening the valves for entry into cold shutdown. Although this indication is desirable, other means are available to confirm RH system operability (e.g. RH Pump Flow).

The safe shutdown requirements are satisfied.

j. RH Pump to Cold Leg Isolation Valves RH-V14, RH-V26

Valves RH-V14 and RH-V26 are normally open valves which are required to remain open for RH systems operation (cold shutdown). These valves and their related cables are in proximity. If either valve spuriously closes, the operators will prevent further spurious operation of redundant valve by tripping the power supply breakers in either the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

k. RH Pump to Hot Leg Isolation Valves RH-V70, RH-V32

Valves RH-V70 and RH-V32 are normally closed valves which are required to remain closed for RH system operation (cold shutdown). These valves and their related cables are in proximity. If either valve opens spuriously ~~closes~~, the operators will prevent further spurious operation of these valves by tripping the power supply breakers in either the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

l. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35, RH-V36 and Terminal Boxes EDE-TBX-Y32, EDE-TBX-Y35.

Cables for the redundant valves RH-V35 and RH-V36 are routed in proximity to one another. Valves RH-V35 and RH-V36 are normally closed and their position is inconsequential during all modes of plant operation with the exception of cooldown below 350° F when the RH system is placed in operation. At that time it is necessary to assure that the valves remain closed. Should one of the valves open spuriously the operators can disable its power supply in either the Train A or Train B switchgear rooms (Fire Areas: CB-F-1A-A or CB-F-1B-A) and manually reposition the valves located in the equipment vaults (Fire Zone RHR-F-4B-Z or RHR-F-2A-Z).

Manual operation of the valves can be delayed as much as 8 hours into the event. Therefore, no fire protection other than the existing separation is needed ~~and no emergency lighting to the valves is provided~~.

B. ANALYSIS

f. (cont'd)

An analysis has shown that a worst case fire caused by burning 5 gallons of heptane between the cooling units can affect potentially one cooling unit.

With the exception of one cable, all Train B cables required for operation of the cooling unit EAH-AC-2B are routed in one-hour, fire-rated barriered conduits. In the event that the unprotected cable is damaged by the fire, the operators can isolate the failed portion of the circuit at the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A) and restart the fans.

The spatial separation, the routing of one train of cables in a conduit with a one-hour, fire-rated barrier, the limited in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

g. Containment Enclosure Return Fans EAH-FN-31A, EAH-FN-31B and Dampers EAH-DP-25A and EAH-DP-25B.

The redundant return fans EAH-FN-31A and EAH-FN-31B are located 20 ft. above the floor and are an integral part of the HVAC ducts (one in each duct).

All Train B cables required for operation of Fan EAH-FN-31B are routed in one-hour, fire-rated barriered conduits.

The spatial separation, the height above the floor, the enclosure of fans in ducts, the routing of one train of cables in a conduit with a one-hour, fire-related barrier, the limited in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

h. Containment Enclosure Return Air Dampers EAH-DP-37A, EAH-DP-37B and Inboard Isolation Dampers PAH-DP-35B, PAH-DP-36B

Redundant dampers EAH-DP-37A, EAH-DP-37B and their related cables are in proximity. The dampers are normally closed and open for safe shutdown. The dampers fail open upon de-energization of their solenoids. If one damper spuriously opens, the operators will recover by tripping the power supply breakers in the Train A and Train B switchgear room (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

ATTACHMENT D

c. Charging Line Isolation Valves CS-V142 and CS-V143

The redundant charging line isolation valves CS-V142 and CS-V143 are located in the same fire area. These valves are normally open and at least one valve is required to be closed for safe shutdown. The functionally redundant valve CS-HCV-182 is not located in this fire area; hence, it can be closed to isolate the normal chargin line.

The Appendix R separation requirements are satisfied.

d. Seal Injection Isolation Valves: CS-V154, CS-V158, CS-V162, CS-V166 and High Head Injection Valves SI-V138, SI-V139

Under normal conditions, the seal injection isolation valves CS-V154, CS-V158, CS-V162 and CS-V166 are utilized for the seal injection flow path. Spurious closure of one of these valves will not prevent safe shutdown. The operators will prevent further spurious operations by tripping the power supply breakers in the Train A Switchgear Room (Fire Area: CB-F-1A-A).

The high head injection valves SI-V138 and SI-V139 are normally closed valves which may be opened to provide a redundant hot standby charging path. If the seal injection path is available, the position of these valves during hot standby is inconsequential.

On cooldown, the operators will either close or maintain closed the high head injection path. If the high head injection path cannot be isolated, a capability is provided to manually align and throttle the charging pumps to the seal injection flow paths.

The safe shutdown requirements are satisfied.

B. ANALYSIS

(See Attachment D)

c. (Cont'd)

valves SI-V138 and SI-V139 are in proximity such that a fire could prevent use of the high head injection flow path. In this event, the operators will utilize the normal charging path through CS-V142 and CS-V143 described above.

For the CS and SI valves, the spatial separation, the routing of redundant cables in a conduit with a one-hour fire-rated barrier, the lack of in situ combustibles except for a limited amount of cables in trays, provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

d. Seal Injection Isolation Valves CS-V154, CS-V158, CS-V162, CS-V166

These valves provide a redundant seal cooling capability when the safety grade thermal barrier cooling system is not available. As discussed above, at least one train of the thermal barrier cooling capabilities is available; hence, the seal injection isolation valves are not required for a fire in this area.

The safe shutdown requirements are satisfied.

e. RC Pump Seal Water Isolation Valve CS-V167

Valve CS-V167 is a normally open valve that should remain open for safe shutdown. Spurious isolation of the Train A valve could result in loss of inventory through the upstream relief valve. This inventory is directed to the PRT and is, therefore, non-recoverable. To preclude this loss of inventory, functionally redundant isolation capability is provided by the RC pump seal return lines by means of Train A valves CS-V10, CS-V28, CS-V44 and CS-V59 and the excess letdown line by means of normally closed, fail closed valves CS-V175 or CS-V176. The cables, controls and equipment required for operation of valves CS-V10, CS-V28, CS-V44, CS-V59, CS-V175 and CS-V176 are not contained in this fire area.

The Appendix R separation requirements are satisfied.

f. Containment Enclosure Cooling Units EAH-AC-2A, EAH-AC-2B; Fans EAH-FN-5A, EAH-FN-5B; Dampers EAH-DP-3A, EAH-DP-3B and Terminal Boxes EDE-TBX-YC3, EDE-TBX-YB3; Pressure switches EAH-PDIS-5767 EAH-PDIS-5768 and Instrument Rack MM-IR-94

The redundant cooling units EAH-AC-2A and EAH-AC-2B are totally enclosed fiberglass insulated steel units which house the motor, fan and cooling coils. The units are separated by 8 ft. of clear space and the fan motors EAH-FN-5A and EAH-FN-5B are approximately 25 ft. apart. During normal operation only one cooling unit is required to operate.

B. ANALYSIS (Cont'd)

2. System/Equipment Analysis

a. Component Cooling Isolation Valves CC-V175, CC-V257, CC-V122, CC-V168

The redundant component cooling containment isolation valves CC-V175, CC-V257, CC-V122 and CC-V168 are located in proximity. These valves are normally open and remain open for safe shutdown. The valves are provided with dual coil solenoids that must be energized to close the valves. The operators can prevent spurious operation by tripping the power supply breakers at the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A). It should be noted, however, that these valves are required to remain operable only for containment entry when manual operation of the safety injection isolation valves SI-V3, SI-V17, SI-V32 and SI-V47 and the reactor coolant - RHR isolation valves RC-V22, RC-V23, RC-V87 and RC-V88 is required. Cables for these valves are not routed through this fire area, hence the valves would be operable from the main control room or the RSS control panels and containment entry would not be required.

The safe shutdown requirments are satisfied.

b. Thermal Barrier Containment Isolation Valves CC-V1101, CC-V1109, CC-V1092, CC-V1095

The redundant thermal barrier containment isolation valves CC-V1101, CC-V1109, CC-V1092, CC-V1095 are located in the same fire area. The redundant valves are in separate fire zones separated by a concrete wall. These valves are normally open and remain open for safe shutdown. The operators will prevent spurious operation of more than one valve by tripping the power supply breakers for these valves at the Train A and Train B switchgear frooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

c. Charging Line Isolation Valves CS-V142, CS-V143 and High Head Injection Valves SI-V138, SI-V139

Under normal operating conditions, charging is accomplished by utilizing the flow path through the series redundant normally open valves CS-V142 (Train A) and CS-V143 (Train B). A spurious closure of either valve would preclude the use of this path. A redundant charging path is available through the parallel redundant normally closed valves SI-V138 (Train A) and SI-V139 (Train B); however these valves are also in this same fire area. The SI-V138, SI-V139 valves and their related cables are separated from the CS-V142, CS-V143 valves by over 30'. The cables to the CS-V142 and CS-V143 valves are routed in conduit with a one-hour fire-rated barrier from the point where they enter the fire area to the valve operator. The valve operator is not protected. In the event of a fire near CS-V142 and CS-V143, the valve SI-V139 would be operable. Redundant

see Attachment D

B. ANALYSIS

1. General Area Analysis

a. Mechanical Penetration (PP-F-XX-Z)

The mechanical penetration area is a Class 1 concrete structure which for Safe Shutdown has a primary purpose of protecting the containment isolation valves for component cooling, charging pumps and RHR. The area is sectioned into compartments, separated by concrete walls, with small openings for access. This configuration would most probably limit a fire caused by transient combustibles to one zone in the area.

The area contains no in situ combustibles with the exception of cable in trays. Only Train A Safe Shutdown cables are routed in trays. All Train B Safe Shutdown cables are in conduits.

Personnel access to the radioactive areas will be limited to operator tours.

Detectors are provided throughout the area.

b. Containment Fan Enclosure Area (CE-F-1-Z)

The containment fan enclosure area is a Class 1 concrete structure which for Safe Shutdown has a primary function of providing protection for the redundant cooling and air handling equipment for the RHR, CBS, SI equipment vaults; the charging pump rooms; and the mechanical penetration area. The area is approximately 112 feet long by 21 feet wide by 29'-6" high with a floor area of 3000 sq. ft. and volume of 90,000 cu. ft.

The in situ combustibles consist of cables in trays and charcoal in filters.

There are a total of seven cable trays which are stacked four high for the Train A trays and three high for the Train B trays. The bottom tray in each stack is an enclosed instrumentation cable tray. The trays are a minimum of 13'-6" above the floor. There is approximately 275 lineal ft. of uncovered cable tray containing a total of 80 cables. With the exception of three cables, the Train B cables for the fans are routed in one-hour, fire-rated barriered conduits from the point where they enter the area to the equipment.

The charcoal filters which contain 1600 lbs. of charcoal each are not required for Safe Shutdown nor are they within 30 ft. of the cooling units.

Detectors are provided throughout the area.

TABULATION 3.2.7.17

MECHANICAL PENETRATION/CONTAINMENT ENCLOSURE FAN AREAS

FIRE AREA: CE-F-1A-Z, PP-F-1A-Z, PP-F-1B-Z, PP-F-2A-Z, PP-F-2B-Z
PP-F-3A-Z, PP-F-3B-Z, PP-F-4B-Z, PP-F-5B-Z

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CC-V175	X	X	CC-V122	X	X
CC-V257	X	X	CC-V168	X	X
CC-V1101	X	X	CC-V1092	X	X
CC-V1109	X	X	CC-V1095	X	X
CS-V142	X	X	CS-V143	X	X
CS-V154	X	X			
CS-V158	X	X			
CS-V162	X	X			
CS-V166	X	X			
CS-V167	X	X			
EAH-PDIS-5767	X	X	EAH-PDIS-5768	X	X
EAH-AC-2A	X		EAH-AC-2B	X	
EAH-FN-5A	X	X	EAH-FN-5B	X	X
EAH-FN-31A	X	X	EAH-FN-31B	X	X
EAH-DP-3A	X	X	EAH-DP-3B	X	X
EAH-DP-25A	X	X	EAH-DP-25B	X	X
EAH-DP-37A	X	X	EAH-DP-37B	X	X
EDE-TBX-YC3	X	X	EDE-TBX-YB3	X	X
MM-IR-94	X	X	MM-IR-94	X	X
RC-V23		X	RC-V22		X
RC-V88		X	RC-V87		X
RH-V14	X	X	RH-V26	X	X
RH-V70	X	X	RH-V32	X	X
RH-V35		X	RH-V36		X
EDE-TBX-Y32	X	X	EDE-TBX-Y35	X	X
SI-V138	X	X	SI-V139	X	X
SI-PT-937	X	X	SI-PT-936	X	X
			PAH-DP-35B	X	X
			PAH-DP-36B	X	X

TABULATION 3.2.7.12

CONTROL BUILDING - EL. 75'-0"

FIRE AREA: CB-F-3B-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CBA-AC-5A		X	CBA-AC-5B		X
CBA-DP-26A	X	X	CBA-DP-26B	X	X
CBA-FN-14A	X	X	CBA-FN-14B	X	X
CBA-FN-36A	X	X	CBA-FN-36B	X	X
CBA-DP-52	X	X			
CBA-PDSH-5305	X	X			
CBA-PDSH-5306	X	X			
MM-CP-152A		X			
MM-CP-153		X			
MM-CP-297A		X	MM-CP-297B		X

B. ANALYSIS

This area contains cables for redundant equipment required for safe shutdown. For a fire in this area, the operators will proceed with a controlled evacuation of the MCR and establishment of control from the RSS facilities.

Details of the systems and equipment required for the alternative safe shutdown utilizing the RSS facilities are contained in Section 3.3.

C. EVALUATION

The use of the RSS facilities satisfies the safe shutdown requirements.

TABULATION 3.2.7.11

CONTROL BUILDING - EL. 75'-0"

FIRE AREA: CB-F-3A-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
Cables for all systems required for Train A Safe Shutdown.			Cables for all systems required for Train B Safe Shutdown.		

B. ANALYSIS

This area contains cables for redundant equipment required for safe shutdown. For a fire in this area, the operators will proceed with a controlled evacuation of the MCR and establishment of control from the RSS facilities.

Details of the systems and equipment required for the alternative safe shutdown utilizing the RSS facilities are contained in Section 3.3.

C. EVALUATION

The use of the RSS facilities satisfies the safe shutdown requirements.

ATTACHMENT C

2. Main Control Room Cooling Equipment CBA-AC-5A, CBA-AC-5B CBA-DP-26A, CBA-DP-26B, CBA-FN-14A, CBA-FN-14B, CBA-FN-36A, CBA-FN-36B

The control building Train B mechanical room - South is a Class 1 area which for safe shutdown has a primary function of providing protection for the Train B air handling equipment for the Train B switchgear rooms and battery rooms. The area is approximately 26 ft. long by 43 ft wide by 23 ft. high with a floor area of 1120 sq. ft. and volume of 25,800 cu. ft.

The in situ combustibles consist of cables in trays.

There are a total of three cable trays which run horizontally and vertically through the area. When stacked the trays run three high with the bottom tray being an enclosed instrument tray. There is approximately 200 ft. of uncovered cable tray containing a total of approximately 50 cables.

Detectors are provided throughout the area.

The cable for the Train A cooling equipment is routed in a conduit and box with a one-hour, fire-rated barrier. The conduit and box are approximately 20 ft. above the floor. There are a total of five cables in tray within 20 ft. horizontal of the barriered conduit. The redundant Train B cables are routed in tray a minimum of 25 ft. from the barriered conduit.

The spatial separation, the height above the floor, the routing of one train of cables in conduit with a one-hour, fire-rated barrier and considering the limited in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. A deviation from Appendix R, Paragraph III.G.2.c "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested

2. See Attachment C

B. ANALYSIS (Cont'd)

3. Excess Letdown Isolation Valve CS-V175

Cables for valve CS-V175 are routed in this fire area. The cables, controls and equipment for functionally redundant valve CS-V176 are not contained in this area and; hence, will be available for safe shutdown.

The Appendix R separation requirements are satisfied.

4. Process Protection Cabinet MM-CP-13

The power cable for the PPC cabinet MM-CP-13 is routed through this fire area. The loss of power to this cabinet will prevent opening of valves RC-V22 and RC-V87. These valves are required to be opened for cooldown below 350°F when the RH System is placed in operation. Should the cable damage be such that valves cannot be operated from the MCR, the affected portion of the circuit can be isolated the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A) and the valves repositioned for safe shutdown.

The safe shutdown requirements are satisfied.

5. Proces Control Cabinet MM-CP-297B

The power cable for PCC cabinet MM-CP-297B is routed through this fire area. The loss of power to this cabinet will result in loss of CST level transmitter FW-PT-4257 and emergency feedwater flow transmitters FWFT-4224-2 and FW-FT-4244-2. The Train A CST level transmitter FW-PT-4252 is not affected by a fire in this area. Additionally, the emergency feedwater flow to two steam generators will be available along with steam generator level for all four steam generators.

The Appendix R separation requirements are satisfied.

6. Reactor Vent Valve RC-FV-2881

A cable for the normally closed, fail closed valve RC-FV-2881 is routed through this fire area. The spurious opening of this valve will not prevent safe shutdown as the operators can shut the functionally redundant normally closed valve RC-V323.

The safe shutdown requirements are satisfied.

C. EVALUATION

~~The safe shutdown requirements and Appendix R separation requirements are satisfied.~~
Deviations from Appendix R, Paragraph III.G.2 separation requirements exist in the control building El. 50'-0" for the CBA system and have been discussed and analyzed above. A deviation from Appendix R, Paragraph III.G.2.c, "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested. These deviations are justified based on the analysis and our assertion that additional modifications would not enhance fire protection safety. For the remainder of the systems affected in this analysis the safe shutdown requirements and the Appendix R separation requirements are satisfied.

TABULATION 3.2.7.10

CONTROL BUILDING - El. 50'-0"

FIRE AREA: CB-F-2C-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CBA-AC-5A		X	CBA-AC-5B		X
			CBA-DP-21B	X	X
			CBA-DP-24D	X	
			CBA-DP-24E	X	
			CBA-DP-24F	X	
CBA-DP-26A		X	CBA-DP-26B		X
CBA-FN-14A		X	CBA-FN-14B		X
			CBA-FN-21B	X	X
			CBA-FN-32	X	X
			CBA-FN-33	X	X
CBA-FN-36A		X	CBA-FN-36B		X
			CBA-PDIS-5559	X	X
			CBA-TIC-5572	X	
			CS-V175		X
			CS-V180		X
			DG-CP-76A		X
			DG-DG-1B		X
			EDE-SWG-6		X
			MM-CP-13		X
			MM-CP-297B		X
			RC-FV-2881		X

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train B safe shutdown equipment and cables. The redundant Train A equipment and cables are located in fire areas CB-F-2B-A and other fire areas.

The Appendix R separation requirements are satisfied.

B. ANALYSIS (Cont'd)

2. Recirculation Damper CBA-DP-52

Cables for damper CBA-DP-52 are routed through this area. This damper is normally closed and is required to remain closed for safe shutdown if only one main control room ventilation fan is operating. In the event of a spurious opening of the damper, the operators will isolate and bleed the air line to the dampers air operator and manually re-~~open~~ close the damper by means of a handwheel. The damper and its air supplies are located in the main control room HVAC equipment and duct area (Fire Area: CB-F-3B-A).

The safe shutdown requirements are satisfied.

3. Process Control Cabinets MM-CP-153, MM-CP-297A

Power cables for DCC cabinets MM-CP-153 and MM-CP-297A are routed through this fire area. The loss of power to these cabinets will result in loss of CST level transmitter CO-LT-4096 and FW-PT-4252 and emergency feedwater flow transmitters FW-FT-4214-2 and FW-FT-4234-2. The Train B CST level transmitter FW-PT-4257 is not affected by a fire in this area. Additionally, the emergency feedwater flow to two steam generators will be available along with steam generator level for all four steam generators.

The Appendix R separation requirements are satisfied.

4. Normal Letdown Isolation Valve RC-LCV-459

Cables for valve RC-LCV-459 are routed in this fire area. The cables, controls and equipment for functionally redundant valve CS-V145 are not contained in this area and; hence, will be available for safe shutdown.

The Appendix R separation requirements are satisfied.

C. EVALUATION

The safe shutdown requirements and Appendix R separation requirements are satisfied.

TABULATION 3.2.7.9

CONTROL BUILDING - El. 50'-0"

FIRE AREA: CB-F-2B-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CBA-AC-5A		X			
CBA-DP-21A	X	X			
CBA-DP-24A	X	X			
CBA-DP-24B	X	X			
CBA-DP-24C	X	X			
CBA-DP-26A		X			
CBA-DP-52		X			
CBA-FN-14A		X			
CBA-FN-19	X	X			
CBA-FN-20	X	X			
CBA-FN-21A	X	X			
CBA-FN-36A		X			
CBA-PDIS-5552	X	X			
CBA-TIC-5571	X				
MM-CP-153		X			
MM-CP-297A		X			
RC-LCV-459		X			

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown equipment and cables. The redundant Train B equipment and cables are located in fire area CB-F-2C-A.

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.8

CONTROL BUILDING - EL. 50'-0"

FIRE AREA: CB-F-2A-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
Cables for all systems required for Train A Safe Shutdown.			Cables for all systems required for Train B Safe Shutdown.		

B. ANALYSIS

This area contains cables for redundant equipment required for safe shutdown. For a fire in this area, the operators will proceed with a controlled evacuation of the MCR and establishment of control from the RSS facilities.

Details of the systems and equipment required for the alternative safe shutdown utilizing the RSS facilities are contained in Section 3.3.

C. EVALUATION

The use of the RSS facilities satisfies the safe shutdown requirements.

TABULATION 3.2.7.7

CONTROL BUILDING - EL. 21'-6"

FIRE AREA: CB-F-1G-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			EDE-D-1D	X	X
			~~EDE-SWG-11D~~		~~X~~

B. ANALYSIS

All equipment and cables are Train B. The redundant Train A equipment and cables are in Fire Area CB-F-1E-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.6

CONTROL BUILDING - EL. 21'-6"

FIRE AREA: CB-F-1F-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			EDE-B-1B	X	X
			~~EDE-SWG-11B~~		~~X~~

B. ANALYSIS

All equipment and cables are Train B. The redundant Train A equipment and cables are in Fire Area CB-F-1D-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.5

CONTROL BUILDING - EL. 21'-6"

FIRE AREA: CB-F-1E-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
EDE-B-1C	X	X			
~~EDE-SWC-11A~~		~~X~~			

B. ANALYSIS

All equipment and cables are Train A. The redundant Train B equipment and cables are in Fire Area CB-F-1F-A, separated from this area by a 3-hour fire wall. G

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.4

CONTROL BUILDING - El. 21'-6"

FIRE AREA: CB-F-1D-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
EDE-B-1C A	X	X			
~~EDE-SWG-11C~~		~~X~~			

B. ANALYSIS

All equipment and cables are Train A. The redundant Train B equipment and cables are in Fire Area CB-F-1C-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

B. ANALYSIS (cont'd)

12 ~~13~~. Atmospheric Relief Valves MS-PV-3002, MS-PV-3004 (cont'd)

This will isolate the faulted air supply but will not preclude operation of the ARV since the redundant air solenoids will still be operational.

The safe shutdown requirements are satisfied.

13 ~~14~~. Reactor Vent Valves RC-FV-2881, RC-V323

Functionally redundant series valves RC-FV-2881 (fail closed) and RC-V-323 are normally closed and remain closed for safe shutdown. The spurious opening of one valve will not prevent safe shutdown. The operators will prevent further spurious operation by disabling the power supply to valves RC-FV-2881 at the disabling panel in the Train B diesel generator room (Fire Area: DG-F-2B-A). and RC-V323

14 ~~15~~. Pressurizer Relief Valves RC-PCV-456B, RC-V124

RC-PCV-456B is normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V124. For all fires **that have the potential to cause spurious opening of the PORV,** the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV by tripping its power supply in Train B diesel generator room (Fire Area: DG-F-2B-A).

The safe shutdown requirements are satisfied.

16. RHR Isolation Valves RC-V22, RC-V87

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling, ~~one of these~~ valves RC-V22 must be opened. This can be accomplished by entry into containment, if required. This manual operation can be delayed as much as 8 hours into the event.

The safe shutdown requirements are satisfied.

17. Safety Injection Pump SI-P-6B

This pump is not required for safe shutdown; however, a fire could cause a spurious start. The operators will terminate operation of SI pump either by tripping and locking out the motor's circuit breaker from the MCR or by removing all power from the 4160V emergency bus E5.

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

4~~5~~. RC Pump Seal Water Isolation Valve CS-V168

Valve CS-V~~-~~168 is a normally open valve which should remain open for safe shutdown. Spurious isolation of the Train B valve could result in RC inventory loss through the upstream relief valves. This inventory is directed to the PRT and is therefore, non-recoverable. To preclude this loss of inventory, redundant isolation capability is provided for the RC pump seal return lines by means of Train A valves CS-V~~-~~10, CS-V~~-~~28, CS-V~~-~~44 and CS-V~~-~~59 and the excess letdown line by means of either normally closed, fail closed valves CS-V~~-~~175 or CS~~-~~V176. The cables, controls and equipment required for the operation of CS-V-10, CS-V~~-~~28, CS-V~~-~~44 and CS-V~~-~~59 are not contained in this fire area. The cables for valves CS-V~~-~~175 and CS-V~~-~~176 are routed in the same trays as the cables for CS-V~~-~~168. To prevent the spurious closure of CS-V-168 or the spurious opening of CS-V~~-~~175 or CS-V~~-~~176, the operators will trip their power supply breakers in the Train B ~~switchgear~~ diesel generator room (Fire Area: ~~CB~~DG-F-~~1~~2B-A).

The safe shutdown requirements are satisfied.

5~~6~~. Excess Letdown Isolation Valves CS-V175 and CS-V176

Cables for functionally redundant fail closed valves CS-V~~-~~175 and CS-V~~-~~176 are routed in proximity. These valves are normally closed and remain closed for safe shutdown. Should either valve spuriously open, the operators will mitigate the spurious operation by disabling the power supply to CS-V~~-~~175 at the disabling panel in the Train B diesel generator room (Fire Area: DG-F-2B-A).

The safe shutdown requirements are satisfied.

6~~7~~. CS- Charging to RC Isolation Valves CS-V~~-~~180 and Charging Pump Test Line Isolation Valve SI-V~~-~~158

Under normal operating conditions, charging is accomplished by utilizing redundant, normally open, fail open valves CS-V~~-~~180 (Train B) or CS-V~~-~~177 (Train A). Spurious closure of CS-V~~-~~180 does not prevent safe shutdown as the CS-V~~-~~177 valve and its associated cables and controls are not contained in this fire area.

On spurious operation of the normally closed, fail closed valves SI-V~~-~~158 (Train B), the operators will maintain the normally closed high head injection path valves SI-V~~-~~138 and SI-V~~-~~139. Charging will then be accomplished utilizing the ~~normal charging closed path as discussed above~~. Seal injection flow path through valves CS-FCV-121, CS-V154, CS-V158, CS-V162 and CS-V166.

The capability to provide charging to the RC System through a minimum of one flow path satisfies the safe shutdown requirements.

The cables, controls and equipment required for operation of these valves are not contained in the fire area.

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train B safe shutdown equipment and cables. The redundant Train A safe shutdown equipment and cables are located in fire area CB-F-1A-A.

The Appendix R separation requirements are satisfied.

2. Containment Spray Pump CBS-P-9B

This pump is not required for safe shutdown, however, a fire could cause a spurious start. The operators will terminate operation of the CBS pump either by tripping and locking out the motor's circuit breaker from MCR or by removing all power from the 4160V emergency Bus E6.

The safe shutdown requirements are satisfied.

3. Component Cooling Water Containment Isolation Valves CC-V122, CC-V168, CC-V176, CC-V251

A fire could cause loss of all PCCW to containment. One train of PCCW is required to maintain containment habitable for manual valve operations. PCCW is also required for cooling the air compressor SA-C-4A which is necessary for instrument air to maintain the in containment PCCW valves open. Should all PCCW be isolated, the operators will immediately trip the Train A air compressor SA-C-4A to preclude operating the compressor without cooling. The operators will then manually reopen the PCCW loop A outboard isolation valves CC-V-122 and CC-V-168 in the mechanical penetration fire area (Fire Zone: PP-F-4B-Z). The air compressor will subsequently be restarted and if the in containment Loop A, Train A valve has closed due to loss of instrument air, it will reopen as pressure in the air system increases. This will reestablish cooling to the air compressor and to the Train A containment structure coolers.

The safe shutdown requirements are satisfied.

4. Charging Pumps to RCS Isolation Valve CS-V143

This valve is a normally open Train B valve whose spurious closure could isolate the normal charging path. In this event, the operators will utilize the high head injection path for charging flow by opening the Train A valve SI-V-138. The cables, controls and equipment required for operation of SI-V-138 are not contained in this fire area.

The safe shutdown requirements are satisfied.

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			SI-FV-2475		X
			SI-FV-2476		X
			SI-FV-2477		X
			SI-FV-2486		X
			SI-P-6B		X
			SI-V17		X
			SI-V47		X
			SI-V139		X
			SI-V158		X
			SW-P-41B		X
			SW-P-41D		X
			SW-V5		X
			SW-V17		X
			SW-V18		X
			SW-V19		X
			SW-V23		X
			SW-V25		X
			SW-V29		X
			SW-V31		X
			SWA-FN-40B		X

A. EQUIPMENT AND CABLFS LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			MS-PV-3002		X
			MS-PV-3004		X
			MS-V86		X
			MS-V88		X
			MS-V90		X
			MS-V92		X
			NI-NE-6691		X
			NI-NM-6691	X	X
			NI-NM-6691J	X	X
			NI-NT-6691	X	X
			PAH-DP-35B		X
			PAH-DP-36B		X
			PAH-DP-43B		X
			PAH-DP-358		X
			PAH-FN-42B		X
			RC-E-10 (Group B)		X
			RC-FV-2881		X
			RC-PCV-456B		X
			RC-V22		X
			RC-V87		X
			RC-V124		X
			RC-V323		X
			RH-FCV-619		X
			RH-HCV-607		X
			RH-P-8B		X
			RH-V26		X
			RH-V32		X
			RH-V36		X
			SA-C-1B		X
			SA-C-4B		X

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			EDE-MCC-615	X	X
			EDE-MCC-621	X	X
			EDE-MCC-622	X	X
		EDE-MM-580	EDE-MCC-631	X	X
		EDE-MM-586	EDE-PP-1B	X	X
			EDE-PP-1D	X	X
			EDE-PP-1F	X	X
			EDE-PP-11F	X	X
		EDE-PP-1111B →	EDE-PP-111B	X	X
			EDE-PP-112B	X	X
			EDE-PP-113B	X	X
			EDE-SWG-6	X	X
			EDE-SWG-11B	X	X
			EDE-SWG-11D	X	X
			EDE-US-61	X	X
			EDE-US-62	X	X
			EDE-US-63	X	X
			EPA-DP-372		X
			EPA-DP-374		X
			EPA-FN-47B		X
			FW-FV-4214B		X
			FW-FV-4224B		X
			FW-FV-4234B		X
			FW-FV-4244B		X
			FW-P-37B		X
			~~FW-PT-4257~~		~~X~~
			IA-AC-10B		X
			IA-D-2B		X
			MM-CP-2		X
			MM-CP-4		X
			MM-CP-13		X
			MM-CP-108B	X	X
		→	MM-CP-152B		X
			MS-CP-183	X	X
			MS-CP-185	X	X
			MM-CP-186B		X
			MM-CP-297B		X

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			CS-V175		X
			CS-V176		X
			CS-V180		X
			CS-V197		X
			CS-V426		X
			CS-V461		X
			CS-V475		X
			DAH-DP-15B		X
			DAH-DP-16B		X
			DAH-FN-25B		X
			DAH-FN-26B		X
			DG-CP-76A		X
			DG-CP-80	X	X
			DG-DG-1B		X
			DG-P-38B		X
			EAH-DP-37B		X
			EAH-FN-5B		X
			EAH-FN-31B		X
			EAH-FN-174B		X
			ED-X-16A		X
			EDE-B-1B	X	X
			EDE-B-1D	X	X
			EDE-BC-1B	X	X
			EDE-BC-1D	X	X
			EDE-CP-228	X	X
			EDE-CP-230	X	X
			EDE-CP-249	X	X
			EDE-I-1B	X	X
			EDE-I-1D	X	X
			EDE-I-1F	X	X
			EDE-MCC-612	X	X
			EDE-MCC-614		X

TABULATION 3.2.7.3

Control Building - El. 21'-6"

FIRE AREA: CB-F-1B-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A				Train B	
Description	Equip.	Cable	Description	Equip.	Cable
			CAH-FN-1A		X
			CAH-FN-1B		X
			CAH-FN-1D		X
			CBA-AC-5B		X
			CBA-DP-21B		X
			CBA-DP-26B		X
			CBA-FN-14B		X
			CBA-FN-21B		X
			CBA-FN-32		X
			CBA-FN-33		X
			CBA-FN-36B		X
			CBS-P-9B		X
			CC-P-11B		X
			CC-P-11D		X
			CC-P-322B		X
			CC-TV-2271-1		X
			CC-TV-2271-2		X
			CC-V122		X
			CC-V168		X
			CC-176		X
			CC-256		X
			CC-272		X
			CC-V1092		X
			CC-V1095		X
			CP-CP-111		X
			CS-LCV-112C		X
			CS-LCV-112E		X
			CS-P-2B		X
			CS-P-3B		X
			CS-V143		X
			CS-V168		X

B. ANALYSIS (cont'd)

17 ~~18~~. Pressurizer Relief Valves RC-PCV-456A, RC-V122 (cont'd)

depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV and the block valve by tripping ~~its~~ their power supply in the Train A diesel generator room (Fire Area: DG-F-2A-A).

The safe shutdown requirements are satisfied.

18 ~~19~~. RHR Isolation Valves RC-V23, RC-V88

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling, ~~one of these~~ valves RC-V88 must be opened. This can be acomplished manually by entry into containment, if required. This manual operation can be delayed as much as 8 hours into the event.

The safe shutdown requirements are satisfied.

19 ~~20~~. Safety Injection Pump SI-P-6A

This pump is not required for safe shutdown; however, a fire could cause a spurious start. The operators will terminate operation of the SI pump either by tripping and locking out the motor's circuit breaker from the MCR or by removing all power from the 4160V emergency bus E5.

The safe shutdown requirements are satisfied.

20 ~~21~~. Cooling Tower Fan SW-F-51A, Pump SW-P-110A, Valves SW-V54, SW-V55, SW-V56, SW-V139, Fans SWA-FN-69 and Dampers SWA-DP-66 and SWA-FN-71

During normal plant operation, the service water pumphouse is utilized for plant cooling. The cooling towers are considered a redundant capability which may be utilized for a limited period of time during the year (e.g., tunnel heat treating). Should a fire occur during this time period the operators can utilize the Train B service water pumphouse capability. The cables, controls and equipment required for the Train B service water pumphouse capability are not contained in this fire area.

The Appendix R separation requirements are satisfied.

21 ~~22~~. Pressurizer Heaters Group C, Group D, Control Group

This equipment is not required for safe shutdown; however, a fire could cause spurious operations. The operators will terminate operation of the pressurizer heaters, either by tripping the heaters' circuit breaker or by tripping off-site power from the control room.

22. Containment Pressure Transmitter SI-PT-937

A cable for one channel of containment pressure instrumentation is routed through this fire area. This channel inputs to 2 out of 3 and 2 out of 4 logics which initiate protective actions. A spurious signal from one channel is not sufficient to initiate the logic and perform the protective action; hence, a failure in this cable will not prevent safe shutdown.

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

14 15. Emergency Feedwater Pump Steam Supply Valve MS-V127

This valve is normally closed and opens for safe shutdown. A spurious closure of this valve could prevent operation of the EFW Turbine. The cables for the Train B motor driven EFW pump FW-P-37B are not routed through this area; hence, the Train B pump would be available for safe shutdown.

The Appendix R separation requirements are satisfied.

15 16. Main Steam Isolation Valve Bypass Valves MS-V204, MS-V205, MS-V206 and MS-V207

Valves MS-V204, MS-V205, MS-V206 and MS-V207 have no redundant counterpart. The valves are normally closed during operation and should remain closed to assure safe shutdown. Should one valve open spuriously, the operators will isolate all feedwater to its respective steam generator and allow the SG to dry out. The operators will prevent further spurious operations by removing power from the 4160V emergency bus E5. This will result in loss of power to MCC's E512 and E521 which power the valves.

The safe shutdown requirements are satisfied.

16 17. Reactor Coolant Pumps RC-P-1A, RC-P-1B, RC-P-1C and RC-P-1D

Cables required for trip of the RC pumps are routed through this fire area. These breakers are tripped from the MCR as an initial operator action; however, fire in this area could prevent this trip. Should this occur the operators will either trip the RC pump circuit breakers locally (Fire Area: NES-F-1A-Z) or by removing power from the RC pump motors by tripping the switching station breakers which supply power to the UAT and RAT, thus causing a loss of offsite power to the station. This trip can be initiated from the MCR as the switching station breaker control circuits are not routed through this fire area.

The safe shutdown requirements are satisfied.

17 18. Pressurizer Relief Valves RC-PCV-456A, RC-V122

RC-PCV-456A is a normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V122. For all fires **that have the potential to cause spurious opening of the PORV,** the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause

B. ANALYSIS (cont'd)

11 ~~12~~. 4160V Switchgear EDE-SWG-5 (cont'd)

Should the capability to trip the power supplies not be available due to prior loss of the dc control power, the operators can remove power by tripping the switching station breakers that supply power to the UAT and RAT causing a loss of offsite power to the station. This trip can be initiated from the MCR as the switching station breaker control circuits are not routed through this fire area. Subsequent to this loss of offsite power, the 4160V emergency switchgear bus E6 and Train B power will be supplied by the Train B diesel generator.

The safe shutdown requirements are satisfied.

12 ~~13~~. Emergency Feedwater Pump Control Valves FW-FV-4214A, FW-FV-4224A, FW-FV-4234A and FW-FV-4244A

These valves are normally open and at least two valves must remain open for safe shutdown. Spurious closure of one valve will not prevent safe shutdown. The operators will prevent further spurious operations by removing power from the 4160V emergency ~~bus~~ bus E5. MCC E515, which powers these valves, is fed from emergency bus E5.

The safe shutdown requirements are satisfied.

13 ~~14~~. Atmospheric Relief Valves MS-PV-3001, MS-PV-3003

Valves MS-PV-3001 and MS-PV-3003 are normally closed valves. A fire would prevent operation of the Train A capabilities provided for opening and closing these valves. However, the fire would not affect the Train B capabilities and the valves will be operable for safe shutdown.

Spurious opening of even one ARV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. Since the ARV's are air operated valves, their spurious operation will be prevented by assuring that these valves are placed in a state such that the initial spurious operation in the air supply will not cause the valve to open. This will be accomplished by procedure as one of the first steps for any fire that can affect the integral ARV air system cables. This action is justifiable since it can be accomplished from the main control room. To prevent a subsequent short that could override the initial action and cause the ARV to open, the affected air solenoids will be de-energized from the disabling panel located in Train A diesel generator room (Fire Area: DG-F-2A-A).

This will isolate the faulted air supply but will not preclude operation of the ARV since the redundant air solenoids will still be operational.

The safe shutdown requirements are satisfied.

CS-V154, CS-V158, CS-V162 and CS-V166

B. ANALYSIS (cont'd)

7 8. RC Pump Seal Injection Isolation Valves CS-V154, CS-V158, CS-V162 and CS-V166 (cont'd)

The Appendix R separation requirements are satisfied.

8 9. CS - Charging to RC Isolation Valves CS-V177, CS-V185

Under normal conditions, charging is accomplished by utilizing redundant normally open fail open valves CS-V177 (Train A) or CS-V180 (Train B). Spurious closure of CS-V177 will not prevent safe shutdown as the CS-V180 valve and its associated cables and controls are not contained in this fire area. Also aligned to the normal charging path is the pressurizer auxiliary spray line which is isolated by Train A valve CS-V185. Spurious opening of this valve will cause uncontrolled pressurizer level changes. Mitigation of this condition can be accomplished by closing the Train B charging pump to RCS isolation valve CS-V143 and utilizing the ~~high head~~ seal injection flow path through valves ~~SI-V139~~. The cables, controls and equipment required for operation of SI-V143 ~~and SI-V139~~ are not contained in this fire area. At least three of the four seal injection valve flow paths will be available following disabling of power supplies. The safe shutdown requirements are satisfied.

9 10. SI-CS Suction Cross Connection Valve CS-V460

Valve CS-V460 is a normally closed Train A valve which is required to remain closed for cooldown. Should this valve open spuriously, the functionally redundant Train B valve CS-V475 can be closed from the MCR. Cables and controls for valve CS-V475 are not located in this fire area.

The Appendix R separation requirements are satisfied.

10 11. Tower Actuation Logic EDE-CP-248

Failures in TA logic cables or equipment could initiate a spurious tower actuation signal which would transfer one train of service water cooling capability from the pumphouse to the cooling towers. The transfer will not interrupt Train A service water nor will it have any impact on Train B service water. This failure does not prevent safe shutdown.

The safe shutdown requirements are satisfied.

11 12. 4160V Switchgear EDE-SWG-5

Although this equipment is not required for safe shutdown for fire in this area, there are many loads powered from it whose spurious operation could affect safe shutdown should they remain powered. For a fire in the Train A switchgear room that has a potential to impact safe shutdown, the operators will trip and lockout all ac power supplies (UAT, RAT, DG) to the bus from the MCR. To assure that breakers cannot spuriously reclose, the dc control power will be disabled at the disabling panel in the Train A diesel generator room (Fire Area DG-F-2A-A).

B. ANALYSIS (cont'd)

4. Reactor Trip Switchgear CP-CP-11 (cont'd)

The safe shutdown requirements are satisfied.

5. Charging Pump ~~Discharge~~ Flow control Valves CS-FCV-121, ~~CS-HCV-182~~ and Flow Transmitter CS-FT-121

Under normal conditions, charging is accomplished by utilizing the control valves ~~CS-HCV-182 and~~ CS-FCV-121 and its associated transmitter. Spurious closure of ~~either~~ this valve could isolate the ~~normal charging~~ seal injection path. In this event the operators will utilize the ~~high~~ head injection path for charging flow by opening the Train B valve SI-V139. The cables, controls and equipment required for operation of SI-V139 are not contained in the fire area. For cooldown, the operators will manually align the charging pump to the seal injection path
The safe shutdown requirements are satisfied.

hot standby

6. RC Pump Seal Water Isolation Valves CS-V10, CS-V28, CS-V44, CS-V59 and CS-V167

Valve CS-V167 is a normally open valve which should remain open for safe shutdown. Spurious isolation of the Train A valve CS-V167 could result in loss of RC inventory through the upstream relief valve. This inventory is directed to the PRT and is therefore, non-recoverable. Additionally, cables for the functionally redundant Train A valves CS-V10, CS-V28, CS-V44 and CS-V59 are routed in proximity. However, the postulated flow rate (12 GPM) coupled with the RCS volume shrink over the cooldown period to 350°F (approximately 5 hours) is within the capabilities of the boric acid tanks. Cooldown below 350°F to cold shutdown can be accomplished using the RWST. Shutdown margin is assured in all phases of this cooldown.

The safe shutdown requirements are satisfied.

7. Charging Pumps to RCS Isolation Valve CS-V142

This valve is a normally open Train A valve whose spurious closure could isolate the normal charging path. In this event the operators will utilize the high head injection path for charging flow by opening the Train B valve SI-V139. The cables, controls and equipment required for operation of SI-V139 are not contained in this fire area.

The safe shutdown requirements are satisfied.

7~~8~~. RC Pump Seal Injection Isolation Valves CS-V154, CS-V158, CS-V162 and CS-V166

These valves provide a redundant RC pump seal cooling capability to the safety grade thermal barrier seal cooling. Cables, controls and equipment required for the Train B thermal barrier seal cooling capability are not contained in this fire area.

Under normal conditions, these valves are utilized for the seal injection flow path. Spurious closure of one valve will not prevent safe shutdown. The operators will prevent further spurious operations by removing power from the 4160V emergency bus E5. MCC E5IL which powers these valves is fed from emergency bus E5

B. ANALYSIS

1. General Systems/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown equipment and cables. The redundant Train B safe shutdown equipment and cables are located in fire area CB-F-1B-A.

The Appendix R separation requirements are satisfied.

2. Containment Spray Pump CBS-P-9A

This pump is not required for safe shutdown, however; a fire could cause a spurious start. The operators will terminate operation of the CBS pump either by tripping and locking out the motor's circuit breaker from the MCR or by removing all power from the 4160V emergency bus E5.

The safe shutdown requirements are satisfied.

3. Component Cooling Water Containment Isolation Valves CC-V57, CC-V121, CC-V175, CC-V257

A fire could cause loss of all PCCW to containment. One train of PCCW is required to maintain containment habitable for manual valve operations. PCCW is also required for cooling the air compressor SA-C-4B which is necessary for instrument air to maintain the in-containment PCCW valves open. Should all PCCW be isolated, the operators will immediately trip the Train B air compressor SA-C-4B to preclude operating the compressor without cooling. The operators will then manually reopen the PCCW Loop B outboard isolation valves CC-V175 and CC-V257 in the mechanical penetration fire area (Fire Zone: PP-F-4B-Z). The air compressor will subsequently be restarted and if the in-containment Loop B, Train B valve has closed due to loss of instrument air, it will reopen as pressure in the air system increases. This will reestablish cooling to the air compressor and to the Train B containment structure coolers.

The safe shutdown requirements are satisfied.

4. Reactor Trip Switchgear CP-CP-111

Redundant trains of cables and equipment are located in proximity. These breakers are tripped from the MCR as an initial operator action; however, a fire in the area of the reactor trip switchgear could prevent operation of both trains of tripping capability. Should this occur the operators can remove power from the reactor trip MG sets by tripping the switching station breakers that supply power to the UAT and RAT causing a loss of offsite power to the station. This trip can be initiated from the MCR as the switching station breaker control circuits are not routed through this fire area. The removal of power from the MG sets will, after a short time delay to allow for coastdown, result in de-energizing the reactor trip solenoids and; hence, insertion of the control rods.

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
RH-FCV-618		X			
RH-HCV-606		X			
RH-P-8A		X			
RH-V14		X			
RH-V35		X			
RH-V70		X			
SA-C-1A		X			
SA-C-4A		X			
SI-FV-2482		X			
SI-FV-2483		X			
SI-FV-2495		X			
SI-FV-2496		X			
SI-P-6A		X			
SI-V3		X			
SI-V32		X			
SI-V138		X			
SI-PT-937		X			
SW-FN-51A		X			
SW-P-41A		X			
SW-P-41C		X			
SW-P-110A		X			
SW-V2		X			
SW-V4		X			
SW-V15		X			
SW-V16		X			
SW-V20		X			
SW-V22		X			
SW-V34		X			
SW-V54		X			
SW-V55		X			
SW-V56		X			
SW-V74		X			
SW-V139		X			
SWA-DP-66		X			
SWA-FN-71		X			
SWA-FN-40A		X			
SWA-FN-64		X			

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
IA-D-2A		X			
IA-AC-10A		X			
MS-PV-3001		X			
MS-PV-3003		X			
MS-V86		X			
MS-V88		X			
MS-V90		X			
MS-V92		X			
MS-V127		X			
MS-V204		X			
MS-V205		X			
MS-V206		X			
MS-V207		X			
MM-CP-1		X			
MM-CP-3		X			
MM-CP-12		X			
MM-CP-108A	X	X			
MM-CP-152		X			
NI-NE-6690		X			
NI-NM-6690	X	X			
NI-NM-6690J	X	X			
NI-NT-6690	X	X			
PAH-DP-35A		X			
PAH-DP-36A		X			
PAH-DP-43A		X			
PAH-DP-357		X			
PAH-FN-42A		X			
RC-E-10 (Group A)		X			
RC-P-1A		X			
RC-P-1B		X			
RC-P-1C		X			
RC-P-1D		X			
RC-PCV-456A		X			
RC-V23		X			
RC-V88		X			
RC-V122		X			
RC-E-10 (Group C,D Control)		X			
MM-CP-153		X			
MM-CP-297A		X			

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
EDE-B-1A		X			
EDE-B-1C		X			
EDE-BC-1A	X	X			
EDE-BC-1C	X	X			
EDE-CP-227	X	X			
EDE-CP-229	X	X			
EDE-CP-248	X	X			
EDE-I-1A	X	X			
EDE-I-1C	X	X			
EDE-I-1E	X	X			
EDE-MCC-511		X			
EDE-MCC-512	X	X			
EDE-MCC-513		X			
EDE-MCC-514		X			
EDE-MCC-515	X	X			
EDE-MCC-521	X	X			
EDE-MCC-522	X	X			
EDE-MCC-523		X			
EDE-MCC-531	X	X			
EDE-PP-1A	X	X			
EDE-PP-1C	X	X			
EDE-PP-1E	X	X			
EDE-PP-11E	X	X			
EDE-PP-111A	X	X			
EDE-PP-112A	X	X			
EDE-PP-113A	X	X			
EDE-PP-121B	X	X			
EDE-SWG-5	X	X			
EDE-SWG-11A	X	X			
EDE-SWG-11C	X	X			
EDE-US-51	X	X			
EDE-US-52	X	X			
EDE-US-53	X	X			
EPA-DP-371		X			
EPA-DP-373		X			
EPA-FN-47A		X			
FW-FV-4214A		X			
FW-FV-4224A		X			
FW-FV-4234A		X			
FW-FV-4244A		X			
~~FW-PT-4252~~		~~X~~			
EDE-MM-578	X	X			
EDE-MM-583	X	X			
EDE-MM-585	X	X			

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CS-LCV-112B		X			
CS-LCV-112D		X			
CS-LT-102		X			
CS-P-2A		X			
CS-P-3A		X			
CS-V10		X			
CS-V28		X			
CS-V44		X			
CS-V59		X			
CS-V142		X			
CS-V154		X			
CS-V158		X			
CS-V162		X			
CS-V166		X			
CS-V167		X			
CS-V177		X			
CS-V185		X			
CS-V196		X			
CS-V460		X			
DAH-DP-15A		X			
DAH-DP-16A		X			
DAH-FN-25A		X			
DAH-FN-26A		X			
DG-CP-75A		X			
DG-CP-79	X	X			
DG-DG-1A		X			
DG-P-38A		X			
EAH-DP-37A		X			
EAH-FN-5A		X			
EAH-FN-31A		X			
EAH-FN-174A		X			
ED-X-16H		X			
ED-BC-28		X			
ED-I-4		X			
ED-SWG-12B		X			
ED-US-11	X	X			
ED-US-23	X	X			

TABULATION 3.2.7.2

CONTROL BUILDING - EL. 21'-6"

FIRE AREA: CB-F-1A-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CAH-FN-1C		X			
CAH-FN-1E		X			
CAH-FN-1F		X			
CBA-AC-5A		X			
CBA-DP-21A		X			
CBA-DP-24A		X			
CBA-DP-24B		X			
CBA-DP-24C		X			
CBA-DP-26A		X			
CBA-FN-14A		X			
CBA-FN-19		X			
CBA-FN-20		X			
CBA-FN-21A		X			
CBA-FN-36A		X			
CBS-P-9A		X			
CC-P-11A		X			
CC-P-11C		X			
CC-P-322A		X			
CC-TV-2171-1		X			
CC-TV-2171-2		X			
CC-V57		X			
CC-V121		X			
CC-V175		X			
CC-V257		X			
CC-V145		X			
CC-V1101		X			
CC-V1109		X			
CO-LT-4096		X			
CP-CP-111	X	X	CP-CP-111	X	X
CS-FT-121		X			
CS-FCV-121		X			
CS-HCV-182		X			
CC-LT-2172-1		X			
CC-LT-2172-2		X			
CC-LT-2172-3		X			
CC-LT-2272-1		X			
CC-LT-2272-2		X			
CC-LT-2272-3		X			

2. Systems Analysis (cont'd)

v. Pressurizer Level Transmitters RC-LT-459, RC-LT-460 (cont'd)

The redundant level transmitters are located 6' above the ~~grating~~ floor at Elevation 0'-0". They are separated by approximately ~~2'-6"~~ 1'-0" horizontally. The Train B transmitter is enclosed in a non combustible radiant energy shield ~~on the top and sides~~ which is protected by a radiant energy shield above Elevation 0'-0" until it. The cable to the Train A transmitter is routed in conduit from the enclosed instrumentation tray located 14' above the grating Elevation 0'-0" to the transmitter. The cable to the Train B transmitter is routed in conduit from the enclosed instrumentation tray located 15' above floor Elevation (-) 26'-0" to the level transmitter. The conduit enters the enclosure formed by the non combustible radiant energy shield. The combustibles in the area are limited to cables in one stack of open trays (3 trays high) between elevations (-) 12'-8" and (-) 7'-4" approximately 13' above floor Elevation (-) 26'-0" and one stack of open trays (4 trays high) between elevations 16'-8" and 20'-8" approximately 16' above grating Elevation 0'-0". for RC-LT-460

The separation, height of the tray off of the floor, and provision of a radiant energy shield ~~and the~~ enclosure of combustibles in the motors provide acceptable fire protection equivalent to the technical requirements of Appendix R.

w. Pressurizer Pressure Transmitters RC-PT-455, RC-~~PP~~PT-456, RC-PT-457, and RC-PT-458

Redundant channels of pressurizer pressure instruments and cables are located in proximity. Spurious operation of two channels will have the capability to initiate ~~a~~ safety injection, and containment isolation phase A signals. The operators will terminate SI after 1 minute by use of the manual reset and block switch and terminate Containment isolation by use of the manual reset switch. All ~~SI~~ ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B Switchgear Rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

x. Reactor Coolant Hot Leg Temperature Elements, RC-TE-413A through RC-TE-443B, IC-TE-1 through IC-TE-58, IC-MM-173 and Terminal Boxes EDE-TBX-X40, EDE-TBX-X48, EDE-TBX-X94

Cables for redundant RC hot leg temperature elements are routed through enclosed trays and conduits from the penetration where they enter containment to the temperature elements. As only one hot leg temperature is required for safe shutdown, any of the TE's can satisfy the safe shutdown requirements. As the TE's are at various locations around the containment, there is a minimum of 20' of separation except for the penetration area. At the Train A penetration area, all hot leg TE cables could fail. This function can also be performed by the

2. Systems Analysis (cont'd)

u. Excore Nuclear Instrumentation NI-NE-6690 and NI-NE-6691 and Terminal Boxes EDE-TBX-XP8, EDE-TBX-XP9 (cont'd)

tive instruments, which are 16' apart. Because of high radiation, the pit is inaccessible during normal operation. Other than the cable in conduit, the fire loading in this area is zero.

The containment is a controlled entry area and the fire loading is very low. The use of transient combustibles is strictly controlled. The minimum of 20' separation and the routing of cables in conduit provide acceptable fire protection in the general containment area. At the entrance to the pit and inside it, the separation, routing of cables in conduit and inaccessability of the pit due to high radiation, provide acceptable protection and provide protection equivalent to the technical requirements of Appendix R.

v. Pressurizer Level Transmitters RC-LT-459, RC-LT-460

Cables for redundant level transmitters are routed in enclosed tray and conduit from the penetration where they enter containment to the level transmitters at Elevation 0'-0". The trays are separated by concrete floor except between Columns 2 and 4, Columns 5 and 6 and Columns 7 and 8 where there is grating.

Between Columns 2 and 4, the Train B trays are a minimum of 8' above floor Elevation (-) 26'-0" and the Train A trays are a minimum of 12' above grating Elevation 0'-0". There is a minimum of 23' vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

Between Columns 5 and 6, the Train B trays are a minimum of 14' above floor Elevation (-) 26'-0" and the Train A trays are a minimum of 18' above grating Elevation 0'-0". There is a minimum of 29' vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in trays: three pints of oil in 15 HP RC drain tank pump motor contributing 56,250 Btu fire load; and five pounds of grease in 3 HP containment sump pump motors contributing 90,000 Btu fire load.

Between Columns 7 and 8, the Train B trays and conduit are a minimum of 14' above floor Elevation (-) 26'-0" and the Train A trays are a minimum of 14' above grating Elevation 0'-0". There is a minimum of 20' of vertical separation betweeen the redundant raceways. The only in situ combustibles at this location are the cables in the trays.

ATTACHMENT B

1. **Pressurizer Relief Valves RC-PCV-456A, RC-PCV-456B, RC-V122 and RC-V124** (cont'd)

RC-PCV-456A is a normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V122. For all fires that operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV and the block valve by tripping their power supplies in the Train A switchgear room (Fire Area: CB-F-1A-A).

RC-PCV-456B is normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V124. For all fires, the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV and the block valve by tripping their power supplies in the Train B switchgear room (Fire Area: CB-F-1B-A)

have the potential to cause spurious opening of the PORV, the

2. Systems Analysis (cont'd)

1. Pressurizer Relief Valves, RC-PCV-456A, RC-PCV-456B, RC-V122 and RC-V124 (cont'd)

Between Columns 5 and 6, the Train B trays are a minimum of 14' above floor Elevation (-) 26'-0" and a maximum of 19' above floor Elevation (-) 26'-0". The Train A trays are a minimum of 18' above the grating Elevation 0'-0". There is a minimum of 24' vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in trays; three pints of oil in 15 HP RC drain tank pump motor contributing 56,250 Btu fire load; and five pounds of grease in 3 HP containment sump pump motors contributing 90,000 Btu fire load.

Between Columns 7 and 8, the Train B trays are a minimum of 13' above floor Elevation (-) 26'-0" and a maximum of 19' above floor Elevation (-) 26'-0". The Train A trays are a minimum of 16' above the grating Elevation 0'-0". There is a minimum of 23' of vertical separation between the redundant trays. The only situ combustibles at this location are th cables in trays.

At the pressurizer, the cables are routed in conduit on opposite outside walls of the pressurizer enclosure with a minimum horizontal separation of approximately 15'. The Train A cables are routed in the area of reactor coolant pump C. Near the top of the pressurizer, the conduits enter the pressurizer cubicle and are routed on opposite sides of the cubicle over to the valves. The redundant valves are separated by 2' on the top of the pressurizer. There are no in situ combustibles at the top of the pressurizer.

Between Columns 2 and 4 and 7 and 8, there is a minimum vertical separation of 23' between Train A and B cables. The Train B cables area minimum of 10' off the floor. The separation, height off the floor and lack of in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

Between Columns 5 and 6, there is a vertical separation of 25' with the lower cables 14' off the floor. The combustibles are in two motors. The separation, height off the floor, and the enlcosure of combustibles in the motors provide acceptable fire protection and provides protection equivalent to the technical requirements of Appendix R.

At the pressurizer, the cables are routed in conduit on opposite sides of the pressurizer cubicle. At the top of the pressurizer where the valves are located, there is no access during operation and there are no in situ combustibles. Adequate fire protection is provided and provides protection equivalent to the technical requirements of Appendix R.

{See Attachment B}

2. Systems Analysis (cont'd)

k. Pressurizer Heaters RC-E-10 and Terminal Boxes EDE-TBX-X44, EDE-TBX-X47 (Continued)

Inside the cubicle, the cables are routed in enclosed wireways up to the point where they are routed to the individual pressurizer heater connections. The heaters are located over 20' above the floor. There are no in situ combustibles in the pressurizer heater cubicle.

The containment is a controlled entry area and the fire loading is very low. The use of transient combustibles is strictly controlled. Where the grating exists, the cables of interest are separated vertically by 25' minimum. The lower set of cables are at least 10' off the floor. This separation and the height of the cable from the floor provide acceptble fire protection and provide protection equivalent to the technical requirement of Appendix R.

At the area near the entrance to the pressurizer cubicle, there is a spatial separation of 6' between the cables of interest. There are no in situ combustibles. Access to this area is extremely limited during power operation. The separation, lack of combustibles and limited access provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

At the entrance to the pressurizer and inside, the case is the same, with the additional factor being the routing of the cables in enclosed wireways up to the point where they are routed to the individual pressurizer heater conditions. The separation, lack of combustibles, limited access and routing of the cables in wireways provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

l. Pressurizer Relief Valves, RC-PCV-456A, RC-PCV-456B, RC-V122 and RC-V124,

Cables for the pressurizer relief valves are routed in trays and conduits from the penetration where they enter containment to the valves on the top of the pressurizer. The trays are separated by a concrete floor except betwen Columns 2 and 4; between Columns 5 and 6; and between Columns 7 and 8 where there is grating.

Between Columns 2 and 4, the Train B cables are routed in trays which are a minimum of 10' above floor Elevation (-) 26'-0". Other trays containing Train B cables are located up to 16' above floor Elevation (-) 26'-0". The Train A cables are routed in trays a minimum of 18' above the grating Elevation 0'-0". There is a minimum of 25' vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

This will permit reopening of SI-V138 or SI-V139 for use of the high head injection path.

2. Systems Analysis (cont'd)

i. CS-Charging to RC Isolation Valves CS-V177, CS-V180, CS-V185, and Charging Pump Test Line Isolation Valves SI-158, SI-159 (cont'd)

through ~~either~~ valves ~~SI-V138 (Train A) or SI-V139 (Train B)~~ CS-V159, CS-V158, CS-V162 and CS-V166 located in Fire Zones PP-F-1B-Z$_A$ and PP-F-5B-Z

On spurious operation of either of the normally closed, fail closed valves SI-V158 (Train B) or SI-V159 (Train A), the operators will isolate the high head injection path by closing SI-V138 and SI-V139. Charging will then be accomplished utilizing the ~~normal charging~~ seal injection path as discussed above. The operators can close SI-V138 and SI-V139 by tripping their power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A). The capability to provide charging to the RC System through a minimum of one flow path satisfies the safe shutdown requirements.

j. Head Vent Valves RC-FV-2881 and RC-V323

Functionally redundant Train B series valves RC-FV-2881 and RC-V323 are normally closed and remain closed for safe shutdown. The spurious opening of one valve will not prevent safe shutdown. The operators will prevent further spurious operation by tripping the power supply breakers for RC-FV-2881 and RC-V323 at the Train B switchgear room (Fire Area: CB-F-1B-A).

k. Pressurizer Heaters RC-E-10 and Terminal Boxes EDE-TBX-X44, EDE-TBX-X47

Cables for the redundant pressurizer heaters are routed through trays from the penetration where they enter containment to the heaters at the pressurizer. The trays are separated by concerete floors and walls from the penetration to a point 20' from the pressurizer except between Columns 2 and 3 where there is grating.

Between Columns 2 and 3, the Train B cables are routed in trays which are a minimum of 10' above floor elevation (-) 26'-0". The Train A cables are routed in trays a minimum of 18' above the grating elevation 0'-0". There is a minimum of 25' vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

In the area near the entrance to the pressurizer cubicle, the Train B trays are 12' above floor Elevation (-) 26'-0. There is a spatial separation of approximately 6' between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

The Train A trays are 8'-4" above the floor and the Train B trays are 18'-6" above the floor at the entrance of the pressurizer cubicle. This is a vertical separation between redundant trays of over 8'.

However, the postulated flow rate (12 GPM) coupled with the RCS volume shrink over the cooldown period to 350°F (approximately 5 hours) is within the capabilities of the boric acid tanks. Cooldown below 350°F to cold shutdown can be accomplished using the RWST. Shutdown margin is assured in all phases of this cooldown.

2. System Analysis (cont'd)

g. RC Pump Seal Water Isolation Valves CS-V10, CS-V28, CS-V44, CS-V59 and CS-V168

Valve CS-V168 is a normally open valve which should remain open for safe shutdown. Spurious isolation of the Train B valve CS-V168 could result in loss of RC inventory through the upstream relief valve. This inventory is directed to the PRT and is therefore, non-recoverable. ~~A review of the losses was made (approximately 12 GPM) from a RC inventory and in addition, during a cooldown, boron losses were considered.~~ The safe shutdown requirements are satisfied

h. Letdown Isolation Valves CS-V175, CS-V176, CS-V145, RC-LCV-459, RC-LCV-460

1) Excess Letdown Line

Functionally redundant Train B series valves CS-V175 and CS-V176 are normally closed and remain closed for safe shutdown. The spurious opening of one valve will not prevent safe shutdown. The operators will prevent further spurious operation by tripping the power supply breakers for CS-V175 and CS-V176 at the Train B switchgear room (Fire Area: CB-F-1B-A).

2) Normal Letdown Line

Funtionally redundant Train A series valves CS-V145, RC-LCV-459 and RC-LCV-460 are normally open and are required to close for safe shutdown. CS-V145 can be closed from the main control room. Should this valve not close due to spurious operation, the operators can close either RC-LCV-459 or RC-LCV-460 by tripping their power supply breakers at the Train A switchgear room (Fire Area: CB-F-1A-A). This will prevent further spurious operation.

The capability to isolate the letdown flow paths and mitigate spurious operations from outside the fire area satisfies the safe shutdown requirements.

i. CS-Charging to RC Isolation Valves CS-V177, CS-V180, CS-V185, and Charging Pump Test Line Isolation Valves SI-158, SI-159

Under normal operating conditions, charging is accomplished by utilizing redundant, normally ~~open~~ closed, fail open valves CS-V177 (Train A) or CS-V180 (Train B). Spurious closure of either valve does not prevent safe shutdown. Also aligned to the normal charging path is the pressurizer auxiliary spray line which is isolated by Train A valve CS-V-185. Spurious opening of this valve will cause uncontrolled pressurizer level changes. Mitigation of this condition will be accomplished by closing either of the charging pump to RCS isolation valves CS-V142 (Train A) or CS-V143 (Train B) located in Fire Zone PP-F-1A-Z and utilizing the ~~high head~~ seal injection flow path

normally open, fail open valve

TABULATION 3.2.7.1

CONTAINMENT

FIRE AREA: C-F-1-Z, C-F-2-Z, C-F-3-Z

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CAH-AC-1C	X		CAH-AC-1A	X	
CAH-FN-1C	X	X	CAH-FN-1A	X	X
CAH-AC-1E	X		CAH-AC-1B	X	
CAH-FN-1E	X	X	CAH-FN-1B	X	X
CAH-AC-1F	X		CAH-AC-1D	X	
CAH-FN-1F	X	X	CAH-FN-1D	X	X
CAH-JV3-43	X	X	CAH-JV7-43	X	X
CAH-JV4-43	X	X	CAH-JV8-43	X	X
CAH-JV5-43	X	X			
CAH-JV6-43	X	X			
CC-FISL-2124	X	X	CC-FISL-2122	X	X
CC-FISL-2223	X	X	CC-FISL-2123	X	X
CC-FISL-2224	X	X	CC-FISL-2222	X	X
CC-E-153A	X		CC-E-153B	X	
CC-P-322A	X	X	CC-P-322B	X	X
CC-V57	X	X	CC-V176	X	X
CC-V121	X	X	CC-V256	X	X
CC-V175		X	CC-V122		X
CC-V257		X	CC-V168		X
CC-FISHL-2147	X	X	CC-FISHL-2247	X	X
CC-FISHL-2248	X	X	CC-FISHL-2148	X	X
CC-V428	X				
CC-V439	X				
			CC-V395	X	
			CC-V438	X	
CC-TK-196	X		CC-TK-196	X	
ED-JX2-42	X	X	ED-JX3-42	X	X
ED-MM-163H	X	X	ED-MM-163E	X	X
ED-PP-8A	X	X	ED-PP-8B	X	X
ED-X-16H	X	X	ED-X-16A	X	X
IA-D-2A	X	X	IA-D-2B	X	X
IA-J97-42	X	X	IA-J98-42	X	X
SA-C-4A	X	X	SA-C-4B	X	X
SA-CP-134A	X	X	SA-CP-134B	X	X

3.2.7 Analysis and Evaluation of Fire Areas (cont'd)

BUILDING	FIRE AREA	FIRE ZONES	TABULATION
Intake & Discharge Structure	SW-F-2-0	-	3.2.7.87
Turbine Building	-	TB-F-1A-Z	3.2.7.88
		TB-F-1C-Z	
		TB-F-2-Z	
		TB-F-3-Z	
Turbine Building	TB-F-1B-A	-	3.2.7.89
Tank Farm		TF-F-1-0	3.2.7.90
Waste Process Building	-	W-F-1A-Z	3.2.7.91
		W-F-1B-Z	
		W-F-1K-Z	
		W-F-2A-Z	
		W-F-2B-Z	
		W-F-2C-Z	
		W-F-2D-Z	
		W-F-2E-Z	

* All primary auxiliary building fire zones containing safe shutdown equipment and/or cables have been combined into one fire area for analysis purposes.

3.2.7 Analysis and Evaluation of Fire Areas

Provided on the following pages is a tabulation of the Safe Shutdown equipment and Safe Shutdown cabling contained in a fire area. The Train A and Train B redundant equipment are depicted, and an "X" is shown in the tabulation if equipment and/or cables are located in the fire area.

If redundant trains of equipment are affected by a fire in the area, an analysis is provided on an area, equipment or system basis for the effects of a fire in this area.

An evaluation is provided as to whether the Appendix R requirements or Safe Shutdown requirements are satisfied. If a deviation from Appendix R requirements exists, this deviation is justified by analysis.

The following fire areas and associated fire zones have been considered in this review:

BUILDING	FIRE AREA	FIRE ZONES	TABULATION
Containment	-	C-F-1-Z, C-F-2-Z, C-F-3-Z	3.2.7.1
Control Building-El. 21'-6"	CB-F-1A-A		3.2.7.2
Control Building-El. 21'-6"	CB-F-1B-A	-	3.2.7.3
Control Building-El. 21'-6"	CB-F-1D-A	-	3.2.7.4
Control Building-El. 21'-6"	CB-F-1E-A	-	3.2.7.5
Control Building-El. 21'-6"	CB-F-1F-A	-	3.2.7.6
Control Building-El. 21'-6"	CB-F-1G-A	-	3.2.7.7
Control Building-El. 50'-0"	CB-F-2A-A	-	3.2.7.8
Control Building-El. 50'-0"	CB-F-2B-A	-	3.2.7.9
Control Building-El. 50'-0"	CB-F-2C-A	-	3.2.7.10
Control Building-El. 75'-0"	CB-F-3A-A	-	3.2.7.11
Control Building-El. 75'-0"	CB-F-3B-A	-	3.2.7.12
Control Building-El. 75'-0"	CB-F-3C-A	-	3.2.7.13
Control Building-EL. 75'-0"	CB-F-4A-A	-	3.2.7.14
Control Building-Stairwell	CB-F-S1-0	-	3.2.7.15
Control Building-Stairwell	CB-F-S2-0	-	3.2.7.16
Containment Fan Encl. Area/ Mechanical Penetration Area	C-F-1-Z, PP-F-1A-Z, PP-F-2A-Z, PP-F-3A-Z, PP-F-1B-Z, PP-F-2B-Z, PP-F-3B-Z, PP-F-4B-Z PP-F-5B-Z		3.2.7.17
Condensate Storage Area	CST-F-1-0		3.2.7.18
Cooling Tower-El. 22'-0"	CT-F-1A-A		3.2.7.19
Cooling Tower-El. 22'-0"	CT-F-1B-A		3.2.7.20
Cooling Tower-El. 22'-0"	CT-F-1C-A		3.2.7.21
Cooling Tower-El. 22'-0"	CT-F-1D-A		3.2.7.22
Cooling Tower-El. 46'-0"	CT-F-2A-A		3.2.7.23
Cooling Tower-El. 46'-0"	CT-F-2B-A		3.2.7.24
Cooling Tower, Fans	CT-F-3-0		3.2.7.25

3.2.6 Safe Shutdown Equipment List (cont'd)

e. The table also delineates the following additional information:

1) P & I Diagram Drawing No.
2) Physical Location Drawing No.
3) Power Supply
4) Electrical Node Number
5) Supporting Control and Instrumentation Equipment
6) Electrical Schematic Drawing No.
7) Electrical Cable Schematic Drawing No.
8) Supporting Systems
9) Remarks

Separate tables are furnished for each of the safe shutdown functions. In several instances a safe shutdown function requires components from several systems to perform its Safe Shutdown function.

In order to simplify the tabulation, the following are not listed: manual valves in the process flow path; mechanical check valves which provide a Safe Shutdown system boundary; normally closed manual valves which provide a Safe Shutdown system boundary; mechanical relief valves; and root valves on small instrument lines. The review of these valves is documented by the marked P & I Diagrams.

Tables are provided for the following functions which satisfy the performance goals stated in Appendix R, Paragraph III.L.2.

Function	Table No.
Decay Heat Removal	3.1.3.1
Reactor Coolant Inventory and Pressure Control	3.1.3.2
Reactivity Control	3.1.3.3
Process Monitoring	3.1.3.4
Safeguard Actuation System	3.1.3.5
Cold Shutdown	3.1.3.6
Service Water	3.1.3.7
Primary Component Cooling Water	3.1.3.8
Containment Building Air Handling	3.1.3.9
Control Building Air Handling	3.1.3.10
Diesel Generator Building Air Handling	3.1.3.11
Containment Enclosure Air Handling	3.1.3.12
Emergency Feedwater Pumphouse Air Handling	3.1.3.13
Primary Auxiliary Building Air Handling	3.1.3.14
Service Water Air Handling	3.1.3.15
Service/Instrument Air	3.1.3.16
Electrical Distribution Emergency	3.1.3.17
Diesel Generators	3.1.3.18

3.2.5 Disabled (tripped power supply) Equipment (cont'd)

f g. Atmospheric relief valves MS-PV-3001, MS-PV-3002, MS-PV-3003 and MS-PV-3004

g h. Main steam isolation valve bypass valves MS-V204, MS-V205, MS-V206 and MS-V207

h i. Reactor coolant valves, RC-V122, RC-V124, RC-V323, RC-FV-2881, RC-LCV-459*, RC-LCV-460*, RC-PCV-456A and RC-PCV-456B

i j. Pressurizer heaters Group C, Group D and Control Group

j k. Reactor coolant pumps RC-P-1A, RC-P-1B, RC-P-1C, RC-P-1D

k l. Residual heat removal valves RH-V14, RH-V26, RH-V32, RH-V35, RH-V36, RH-V70, ~~RH-HCV-606*~~, RH-HCV-607*, ~~RH-FCV-618*~~ and RH-FCV-619*

l m. Safety injection valves SI-V158 and SI-V159

~~n. Safety injection pumps SI-P-6A and SI-P-6B~~

m o. Service water valves ~~SW-V15, SW-V16*~~, SW-V17, SW-V18*, SW-V19, ~~SW-V20,~~ SW-V23, SW-V25, ~~SW-V34,~~ SW-V54

n p. Engineered safety features actuation system logic cabinets

o q. Service water pump permissive logics

Those valves noted with an asterisk (*) fail to their safe shutdown position upon de-energization.

3.2.6 Safe Shutdown Equipment List

Tables that list all equipment, including instrumentation and vital support systems equipment, required to achieve hot and/or cold shutdown from the main control room are provided in Appendix, Section III. The tables provide the following information for each equipment listed:

a. A column which notes whether the equipment is required for hot and/or cold shutdown.

b. A column which defines each equipment's location by fire zone/area.

c. A column which defines each equipment's redundant counterpart.

d. A column which lists each equipment's essential cabling. For each cable's routing by fire zone/area see computer report, "Cables with Associated Fire Zones" in the Appendix, Section V.G (MCR Safe Shutdown Reports).

f. Charging Pumps discharge and bypass valves CS-V210, CS-V219, CS-V220 and CS-V221
d. CVC tank isolation valves CS-LCV-112B and CS-LCV-112C (RSS Panels)

b. Switchgear room fans CBA-FN-19, CBA-FN-20, CBA-FN-32 and CBA-FN-33

3.2.4 Manual Operator Actions

The following equipment may require manual operation outside the MCR.

a. ~~Mechanical room~~ Dampers CBA-DP-24A, CBA-DP-24B, CBA-DP-24C, CBA-DP-24D, CBA-DP-24E, CBA-DP-24F ~~and~~, CBA-DP-52, CBA-DP-26A and CBA-DP-26B

c b. Component cooling water valves ~~CC-V165~~, CC-V122, CC-V168, CC-V175, CC-V257 and CC-V272

e c. RWST suction to charging pump valves CS-LCV-112D and CS-LCV-112E (RSS panel)

g d. Boric acid tank level CS-LT-7464 (RSS panel)

h e. Boric acid tank valves CS-V410, CS-V416, CS-V423, CS-V426, CS-V431, CS-V437, ~~CS-V438,~~ CS-V439 and CS-V442

i f. ~~Train B~~ Diesel generators DG-DG-1A and DG-DG-1B (DG panel)

j g. RHR inlet isolation valves RC-V22, RC-V23, RC-V87 and RC-V88

k h. RHR sampling valves RH-V8 and RH-V44

l i. RH heat exchanger to CS/SI pump isolation valves RH-V35 and RH-V36

m. Secondary Component Cooling Water valves SCC-V318 and SCC-V319

m j. Safety injection accumulator isolation valves SI-V3, SI-V32

o k. Containment enclosure fan EAH-FN-5B (RSS panel)

p l. PAB fans PAH-FN-42B (RSS panel)

q. Control building doors C119, C300, C310, C311 and C312

Equipment CBA-DP-24D, CBA-DP-24E, CBA-DP-24F, CS-V410, CS-V416, CS-V423, CS-V431, CS-V437, CS-V438, CS-V439, CS-V442, RH-V8, ~~and~~ RH-V44 are not electrically operated; hence, they have no cables.

CS-V210, CS-V219, CS-V220, CS-V221

SCC-V318 and SCC-V319

3.2.5 Disabled (tripped power supply) Equipment

The following equipment may require disabling:

~~a. Containment Spray Pumps CBS-P-9A and CBS-P-9B~~

a b. Primary component cooling valves CC-V1092, CC-V1095, CC-V1101 and CC-V1109

b c. Chemical and volume control valves CS-V175, CS-V176, ~~CS-V196~~, CS-V197

CS-V159, CS-V158, CS-V162, CS-V166

c d. Containment enclosure air handling dampers EAH-DP-37A and EAH-DP-37B

d e. Emergency buses EDE-SWG-5 and EDE-SWG-6 (control power)

e f. Emergency Feedwater Control Valves FW-FV-4214A,B; FW-FV-4224A,B; FW-FV-4234A,B and FW-FV-4244A,B

3.2.2.12 Service Water Air Handling (SWA)

Portions of the SWA system are utilized for equipment protection in the SW pump house electrical control rooms. The SWA system includes the fans and dampers required for air handling in these areas.

3.2.2.13 Electrical Distribution Emergency (EDE)

Portions of the EDE system are required to power the various pumps, fans, valves, etc. required for Safe Shutdown. Included in the EDE system are the 4160 Volt ac emergency switchgear, 460 Volt ac emergency motor control centers, the uninterruptible power supplies, 120 Volt ac vital distribution panels, 125 Volt dc batteries, battery chargers, and 125 Volt dc distribution panels.

3.2.2.14 Diesel-Generators (DG)

The diesel-generators provide power to the electrical distribution emergency system upon loss of off-site power. The DG system includes the diesels, generators, control panels, engine-driven auxiliaries, and fuel oil transfer pumps.

3.2.2.15 Safeguard Actuation System

The safeguard actuation system could be actuated, depending on the fire area. A portion of this system is used to deactivate the system for recovery.

3.2.3 Safe Shutdown Function For Cooldown

The following equipment in addition to that which is listed in Section 3.2.2 are necessary for cooldown.

3.2.3.1 Decay Heat Removal

In addition to equipment discussed in Section 3.2.2.2 the steam generator atmospheric relief valves will be used for cooldown until the residual heat removal (RH) system can be used. The residual heat removal system will be the long term heat sink at the end of cooldown. An RH pump will be operated along with various control, manual and motor operated valves.

3.2.3.2 Containment Building Air Handling (CAH)

The CAH system is utilized to maintain habitability of containment for manual operation of the RHR and SI isolation valves. The CAH system includes six containment cooling units and their associated fans.

3.2.3.3 Sample System

For cold shutdown, the operator will draw a manual sample from RH system to verify boron concentration before line-up to RCS. The operator will use manual valves in RH system.

3.2.2.6 Primary Component Cooling Water (CC)

The CC system is utilized to maintain cooling water to the charging pumps, RHR pumps, RHR heat exchangers, containment structure cooling units, containment enclosure cooling units and reactor coolant pumps (RCP) thermal barrier heat exchanger. The PCCW pumps, temperature control valves, RCP thermal barrier cooling pumps, and inboard and outboard containment isolation valves are necessary for system operations.

3.2.2.7 Sampling

Sampling of the reactor coolant system is not required at hot standby and cold shutdown conditions since make-up during cool-down will only be provided to the RCS from the boric acid tanks (two) which are maintained at 4 wt% boric acid. During all phases of cooldown, the core will be maintained at 1.3% subcritical.

~~3.2.2.8 Containment Building Air Handling (CAH)~~

~~The CAH system is utilized to maintain~~ habitability of containment for manual operation of the RHR and SI isolation valves. The CAH system includes six containment cooling units and their associated fans.

3.2.2.8 Diesel-Generator Building Air Handling (DAH)

The DAH system is utilized to maintain long-term habitability and equipment protection for the diesel-generator rooms. The DAH system includes the fans and dampers for air handling in these areas.

3.2.2.9 Containment Enclosure Air Handling (EAH)

The EAH system is utilized to maintain long-term habitability of the mechanical penetration area, and provides equipment cooling in the charging pump rooms. The EAH system includes the coolers, fans, and dampers required for air handling in these areas.

3.2.2.10 Emergency Feedwater Pumphouse Air Handling (EPA)

The EPA system is utilized to maintain long-term habitability and equipment protection in the emergency feedwater pump building. The EPA system includes the fans and dampers required for air handling in this area.

3.2.2.11 Primary Auxiliary Building Air Handling (PAH)

Portions of the PAH system are utilized to maintain long-term habitability and equipment protection in the PCCW area of the primary auxiliary building. The PAH system includes the fans and dampers required for ventilation in this area.

ATTACHMENT A

3.2.2.1 Reactor Coolant (RC) Inventory and Pressure Control

To compensate for miscellaneous RC System leakage, RC pump seal leakage and cooldown volume shrink, portions of the chemical and volume control (CS system including centrifical charging pumps, boric acid transfer pumps, and a borated water supply, either the refueling water storage tank (RWST) or the boric acid tanks (BAT) are used. The injection path to the system will be either through the seal injection flow path or the high head injection flow path. The preferred seal injection path requires that a flow control valve (CS-FCV-121) and that a minimum of two of the four seal injection valves (CS-V154, CS-V158, CS-V162 or CS-V166) be operable. Additionally, it is necessary to isolate the normal charging flow path to the RC system. This can be accomplished by use of any one of three functionally redundant valves (CS-V142, CS-V143 or CS-HCV-182). Should the seal injection path not be operable, the high head injection flow path (SI-V138 or SI-V139) can be utilized initially to maintain hot standby by batch charging from the RWST to maintain pressurizer level. During cooldown as RC system pressure decreases, it is necessary to provide a flow restricted path to prevent charging pump cavitation. This is due to the limited flow capability from the BAT. If the high head injection path cannot be isolated at this time and/or if the flow controlled path through CS-FCV-121 is not operable, a capability is provided to manually align and throttle the charging pumps to the seal injection flow paths. The necessary operator actions and valve alignments are unique for each fire area where these flow paths are affected and are described in the analysis for each area.

RC pump seal cooling is provided by a redundant thermal barrier cooling system. Should the redundant thermal barrier system not be available, the seals will be cooled by the seal injection capability.

The RC system pressure is controlled by use of a portion of the RC system which includes the pressurizer heaters (Group A and B) to increase pressure and the pressurizer power operated relief valves (PORV) which depressurize the RC system by discharging reactor coolant fluid to the pressurizer relief tank (PRT).

3.2.2.2 Reactivity Control

Reactivity for hot standby will be provided by insertion of the control rods. Reactivity conditions required for cold shutdown are provided by a portion of the chemical and volume control (CS) system which includes a centrifugal charging pump taking suction from the BAT's either utilizing the gravity flow path or the boric acid transfer pumps.

3.2.2.3 Decay Heat Removal

The reactor coolant (RC) system temperature is controlled by use of portions of the feedwater (FW) system, the main steam (MS) system, and the steam generator blowdown (SB) system. The main steam safety/relief valves will maintain a heat dump capability. The steam generator water inventory is controlled by operating the emergency feedwater pumps and associated emergency feedwater control valves. Inventory for the emergency feedwater is from the condensate storage tank. Long term water capability exists using a temporary connection between the suction of the emergency feed pumps and the fire protection system. To assure feedwater system capability, the outboard steam generator blowdown valves are closed. To assure main steam system integrity the MSIV's and MSIV bypass valves are maintained closed. Decay heat transfer is made possible by natural convection flow in the RC system.

3.2.2.4 Process Monitoring

Instrumentation is provided at the main control room for monitoring the following process variables:

a. Steam generator emergency feedwater flow
b. Reactor coolant loop hot and cold leg temperatures
c. Steam generator wide-range level
d. Steam generator pressure
e. Pressurizer level
f. Pressurizer pressure
g. Wide-range neutron monitoring (excore)
h. Primary component cooling water temperature
i. Boric acid tank level
j. Condensate storage tank level

3.2.2.5 Service Water

The service water system will supply cooling water to the primary component cooling water system, diesel generators, and if required, fire protection system. Service water supply will be from the service water pumps taking suction from the tunnels to the ocean. If necessary, transfer to the cooling towers utilizing the cooling tower fans, cooling tower pumps and associated motor-operated transfer valves can be accomplished automatically on low service water pump discharge header pressure or manually from the main control room.

f. Primary Auxiliary Building El. 7'-0" Charging Pump Rooms

3.2 MAIN CONTROL ROOM SAFE SHUTDOWN

3.2.1 Main Control Room Safe Shutdown Locations

Safe shutdown will be accomplished with control from the main control room (MCR), utilizing the Safe Shutdown equipment and depending on the location of the fire, a combination of the following locations:

a. Train A Switchgear Room
b. Train B Switchgear Room
c. Diesel Generator Room A
d. Diesel Generator Room B
e. Primary Auxiliary Building El. 25'-0" Boric Acid Storage Tank Area
f. Containment
g. Equipment Vault #1
h. Equipment Vault #2
i. Mechanical Penetration Area
j. Emergency Feedwater Pump Building
k. Condensate Storage Tank
l. Control Room HVAC Equipment and Duct Area
m. Non-Essential Switchgear Room
n. Turbine Building - Air Compressor Area

Actions from the various areas would be of the following types: manual valve actuations, manual damper actuations, tripping of power supplies, opening of doors to provide air flow for cooling, and or manipulation of control switches.

3.2.2 Safe Shutdown Functions for Hot Standby

The following are PWR equipment necessary for hot standby:

3.2.2.1 Reactor Coolant (RC) Inventory and Pressure Control

To compensate for miscellaneous RC system leakage, RC pump seal leakage, and cool-down volume shrink, portions of the chemical and volume control (CS) system including centrifugal charging pumps, boric acid transfer pumps, and a borated water supply, either the refueling water storage tank (RWST) or boric acid tank (BAT), are used. The injection path to the RC System for this supply will be either through the normal charging flow path or the high head injection flow path.

The RC system pressure is controlled by use of a portion of the RC system which includes the pressurizer heaters (Group A and B) to increase pressure and the pressurizer power operated relief valves (PORV) which depressurize the RC system by discharging reactor coolant fluid to the pressurizer relief tank (PRT).

SEE ATTACHMENT A

TABULATION 3.2.7.37

DIESEL GENERATOR BUILDING - El. (-) 16'-0"

FIRE AREA: DG-F-1A-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
DG-P-38A	X	X			
DG-S-5A	X				
DG-TK-26A	X				

B. ANALYSIS

All equipment and cables are Train A. The redundant Train B equipment and cables are in Fire Area DG-F-1B-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.38

DIESEL GENERATOR BUILDING - El. (-) 16'-0"

FIRE AREA: DG-F-1B-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			DG-P-38B	X	X
			DG-S-5B	X	
			DG-TK-26B	X	

B. ANALYSIS

All equipment and cables are Train B. The redundant Train A equipment and cables are in Fire Area DG-F-1A-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.39

DIESEL GENERATOR BUILDING - EL. 21'-6"

FIRE AREA: DG-F-21-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CBA-AC-5A		X			
~~CBA-DP-26A~~		~~X~~			
~~CBA-FN-14A~~		~~X~~			
~~CBA-FN-20~~		~~X~~			
CBA-FN-36A		X			
DAH-DP-15A		X			
DAH-DP-16A	X	X			
DAH-FN-25A		X			
DAH-FN-26A	X	X			
DAH-TSHL-5529-1	X	X			
DAH-TSHL-5529-2	X	X			
DAH-TSHL-5529-3	X	X			
DG-CP-36	X	X			
DG-CP-75A	X	X			
DG-CP-75B	X	X			
DG-DG-1A	X	X			
DG-P-38A		X			
DG-TBX-HF7	X	X			
DG-TK-45A	X				
DG-TK-45B	X				
EDE-MCC-511	X	X			
EDE-SWG-5		X			
MM-CP-12		X			
MM-CP-297A		X			
MM-CP-450A	X	X			
RC-LCV-459		X			
RC-PCV-456A		X			
SW-V16		X			
ED-I-4		X			

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown equipment and cables. The redundant Train B equipment and cables are located in fire area DG-F-2B-A.

The Appendix R separation requirements are satisfied.

2. Process Protection Cabinet MM-CP-12

The power cables for the PPC cabinet MM-CP-12 is routed through this fire area. The loss of power to this cabinet will prevent opening of valves RC-V23 and RC-V88. These valves are required to be opened for cooldown below 350°F when the RH System is placed in operation. Should the cable damage be such that valves cannot be operated from the MCR, the affected portion of the circuit can be isolated at the RSS panel in the Train A switchgear room (Fire Area: CB-F-1A-A) and the valves repositioned for safe shutdown.

The safe shutdown requirements are satisfied.

3. Process Control Cabinet MM-CP-297A

The power cable for PCC cabinet MM-CP-297A is routed through this fire area. The loss of power to this cabinet will result in loss of CST level transmitter FW-PT-4252 and emergency feedwater flow transmitters FW-FT-4214-2 and, FW-FT-4234-2. The Train B CST level transmitter FW-PT-4257 is not affected by a fire in this area. Additionally, the emergency feedwater flow to two steam generators will be available along with steam generator level for all four steam generators.

The Appendix R separation requirements are satisfied.

4. Normal Letdown Isolation Valve RC-LCV-459

Cables for valve RC-LC-459 are routed in this fire area. The cables, controls, and equipment for functionally redundant valve CS-V145 are not contained in this area and; hence, will be available for safe shutdown.

The Appendix R separation requirements are satisfied.

B. ANALYSIS (cont'd)

5. Pressurizer Power Operated Relief Valve RC-PCV-456A

RC-PCV-456A is a normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V122. For all **fires that have the potential to cause spurious opening of the PORV,** the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV by tripping its power supply in the Train A switchgear room (Fire Area: CB-F-1A-A).

The safe shutdown requirements are satisfied.

C. EVALUATION

The safe shutdown and Appendix R separation requirements are satisfied.

TABULATION 3.2.7.40

DIESEL GENERATOR BUILDING - EL. 21'-6"

FIRE AREA: DG-F-2B-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A				Train B	
Description	Equip.	Cable	Description	Equip.	Cable
			CBA-AC-5B		X
			~~CBA-DP-26B~~		~~X~~
			~~CBA-FN-14B~~		~~X~~
			CBA-FN-36B		X
			CS-V175		X
			CS-V180		X
			DAH-DP-15B		X
			DAH-DP-16B	X	X
			DAH-FN-25B		X
			DAH-FN-26B	X	X
			DAH-TSHL-5530-1	X	X
			DAH-TSHL-5530-2	X	X
			DAH-TSHL-5530-3	X	X
			DG-CP-37	X	X
			DG-CP-76A	X	X
			DG-CP-76B	X	X
			DG-DG-1B	X	X
			DG-P-38B	X	X
			DG-TBX-HF8	X	X
			DG-TE-45C	X	
			DG-TE-45D	X	
			EDE-MCC-611	X	X
			EDE-SWG-6		X
			MM-CP-13		X
			MM-CP-450B	X	X
			RC-FV-2881		X
			RC-PCV-456B		X
			SW-V18		X

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train B safe shutdown equipment and cables. The redundant Train A equipment and cables are located in fire area DG-F-2A-A and other fire areas.

The Appendix R separation requirements are satisfied.

2. Excess Letdown Isolation Valve CS-V175

Cables for valve CS-V175 are routed in this fire area. The cables, controls and equipment for functionally redundant valve CS-V176 are not contained in this area and; hence, will be available for safe shutdown.

The safe shutdown requirements are satisfied.

3. Process Control Cabinet MM-CP-297B

The power cable for PCC cabinet MM-CP-297B is routed through this fire area. The loss of power to this cabinet will result in loss of CST level transmitter FW-PT-4257 and emergency feedwater flow transmitters FW-FT-4224-2 and, FW-FT-4244-2. The Train A CST level transmitter FW-PT-4252 is not affected by a fire in this area. Additionally, the emergency feedwater flow to two steam generators will be available along with steam generator level for all four steam generators.

The Appendix R separation requirements are satisfied.

4. Reactor Vent Valve RC-FV-2881

A cable for the normally closed, fail closed valve RC-FV-2881 is routed through this fire area. The spurious opening of this valve will not prevent safe shutdown as the operators can trip the power supply to the functionally redundant normally closed valve RC-V323. The breaker for valve RC-V323 is located in the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

3. Process Protection Cabinet MM-CP-13

The power cables for the PPC cabinet MM-CP-13 are routed through this fire area. The loss of power to this cabinet will prevent opening of valves RC-V22 and RC-V87. These valves are required to be opened for cooldown below 350°F when the RH system is placed in operation. Should the cable damage be such that the valves cannot be operated from the MCR, the affected portion of the circuit can be isolated at the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A) and the valves repositioned for safe shutdown.

3.2.105

The safe shutdown requirements are satisfied

B. ANALYSIS (cont'd)

5. Pressurizer Power Operated Relief Valve RC-PCV-456B

RC-PCV-456B is a normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V124. For all fires that have the potential to cause spurious opening of the PORV, the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under this condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV by tripping its power supply in the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

C. EVALUATION

The safe shutdown and Appendix R separation requirements are satisfied.

C. EVALUATION

Deviations from the Appendix R, Paragraph III.G.2 separation requirements exist in the diesel generator building El. 51'-6" for the DAH system and have been discussed and analyzed above. A deviation from Appendix R, Paragraph III G.2c, "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested. These deviations are justified based on the analysis and our assertion that additional modifications would not enhance fire protection safety. For the remainder of the systems affected in this analysis, the safe shutdown requirements and the Appendix R separation requirements are satisfied.

TABULATION 3.2.7.42

DIESEL GENERATOR BUILDING - El. 51'-6"

FIRE AREA: DG-F-3C-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
DG-LS-FLC	X	X			
DG-P-38A		X			
DG-TK-46A	X				
DG-TK-78A	X				

B. ANALYSIS

All equipment and cables are Train A. The redundant Train B equipment and cables are in Fire Area DG-F-3D-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.43

DIESEL GENERATOR BUILDING - El. 51'-6"

FIRE AREA: DG-F-3D-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			DG-LS-FLC	X	X
			DG-P-38B		X
			DG-TK-46B	X	
			DG-TK-78B	X	

B. ANALYSIS

All equipment and cables are Train B. The redundant Train A equipment and cables are in Fire Area DG-F-3C-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.44

DIESEL GENERATOR BUILDING - EL. 51'-6"

FIRE AREA: DG-F-3E-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
DG-F-36A	X				
DG-MM-8A	X				

B. ANALYSIS

There are no safe shutdown cables in this fire area. Only mechanical equipment for DG-A is contained in this fire area. The redundant equipment is contained in fire area DG-F-3F-A.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.49 (cont'd)

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
SI-FV-2495		X			
SI-FV-2496		X			
RH-V#35		X			
FW-FV-4214A		X			
FW-FV-4224A		X			
FW-FV-4234A		X			
FW-FV-4244A		X			
MS-V#86		X			
MS-V#88		X			
MS-V#90		X			
MS-V#92		X			
MS-V#205		X			
MS-V#206		X			
MS-PV-3002		X			
MS-PV-3003		X			
SB-V#1		X			
SB-V#3		X			
SB-V#5		X			
SB-V#7		X			
EAH-FN-174A		X			
EDE-MCC-514		X			
EPA-FN-47A		X			
EPA-DP-371		X			
EPA-DP-373		X			
SW-P-41A		X			
SW-P-41C		X			
SW-V2		X			

TABULATION 3.2.7.49 (cont'd)

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
SW-V22		X			
SW-V44		X			
SW-V63		X			
SW-PT-8272		X			
SW-PT-8273		X			
SW-PT-8274		X			
SWA-FN-40A		X			
FW-LT-501		X			
FW-LT-503		X			
FW-LT-529		X			
FW-LT-548		X			
FW-PT-524		X			
FW-PT-526		X			
FW-PT-534		X			
FW-PT-536		X			
FW-PT-4252		X			
FW-FT-4214-2		X			
FW-FT-4234-2		X			
NI-NE-6690		X			
NI-NT-6690	X	X			
RC-LT-459		X			
RC-PT-405		X			
RC-PT-455		X			
RC-PT-457		X			
RC-TE-413A		X			
RC-TE-423A		X			
RC-TE-433A		X			
RC-TE-443A		X			
SI-PT-935		X			
Electrical Penetrations	X	X			
FW-FT-4224-4		X			
FW-FT-4244-4		X			

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown equipment and cables. The redundant Train B safe shutdown equipment and cables are located in fire area ET-F-1C-A.

The Appendix R safe shutdown requirements are satisified.

2. Component Cooling Water Isolation Valves CC-V*57, CC-V*121, CC-V*175, CC-V*257

Cables associated with the Loop B outboard isolation valves CC-V*175 and CC-V*257 are routed in the same trays as the Loop A inboard isolation valves CC-V*57 and CC-V*121. Failures in these cables could cause total loss of PCCW to containment by initiation of a spurious lo-lo head tank level signal. Loop B PCCW can be re-established by transferring control of valves CC-V*175 and CC-V*257 to local control at the RSS panel in fire area CB-F-1A-A. This removes the lo-lo head tank level isolation function and allows operators to re-open the valves.

The safe shutdown requirements are satisfied.

3. RC Pump Seal Water Isolation Valves CS-V10, CS-V28, CS-V44, CS-V59

The safe shutdown function of these valves is to isolate seal return in the event that valve CS-V168 spuriously closes due to a fire. As cabling for CS-V168 is not routed through this area, the position of these valves is inconsequential and will not prevent safe shutdown.

The safe shutdown requirements are satisfied.

4. Letdown Isolation Valves CS-V*145, RC-LCV-459, RC-LCV-460

Functionally redundant Train A series valves CS-V*145, RC-LCV-459 and RC-LCV-460 are normally open and are required to close for safe shutdown. CS-V*145 can be closed from the main control room. Should this valve not close due to spurious operation, the operators can close either RC-LCV-459 or RC-LCV-460 by tripping their power supply breakers at the Train A switchgear room (Fire Area: CB-F-1A-A). This will prevent further spurious operation.

The safe shutdown requirements are satisfied.

This will permit reopening of SI-V138 or SI-V139 for use of the high head injection path.

B. ANALYSIS (cont'd)

5. CS - Charging to RC Isolation Valves CS-V-177, CS-V-185 and Charging Pump Test Line Isolation Valve SI-V-159

Under normal operating conditions, charging is accomplished by utilizing redundant, normally ~~open~~ closed, fail open valves CS-V-177 (Train A) or CS-V-180 (Train B). Spurious closure of CS-V-177 does not prevent safe shutdown as the CS-V-180 valve and its associated cables and controls are not contained in this fire area. Also aligned to the normal charging path is the pressurizer auxiliary spray line which is isolated by Train A valve CS-V-185. Spurious opening of this valve will cause uncontrolled pressurizer level changes. Mitigation of this condition will be accomplished by closing either of the charging pump to RCS isolation valves CS-V-142 (Train A) or CS-V-143 (Train B) located in Fire Zone PP-F-1A-Z and utilizing the ~~high head~~ seal injection flow path through ~~either~~ valves ~~SI-V-138 (Train A) or SI-V-139 (Train B) located in Fire Zone PP-F-1B-Z.~~ CS-V154, CS-V158, CS-V162 and CS-V166 located in Fire Zones PP-F-1A-Z and PP-F-5B-Z

On spurious operation of the normally closed, fail closed valves SI-V-159 (Train A), the operators will isolate the high head injection path by closing SI-V-138 and SI-V-139. Charging will then be accomplished utilizing the ~~normal charging~~ seal injection path as discussed above. The operators can close SI-V159 by tripping the power supply breaker in the Train A switchgear room (Fire Area: CB-F-1A-A).

The capability to provide charging to the RC System through a minimum of one flow path satisfies the safe shutdown requirements.

6. RHR Isolation Valves RC-V-23, RC-V-88

RHR isolation valves are permanently disabled in the closed position (RC-V88). For entry into RHR shutdown cooling, ~~one of these~~ valves must be opened. These valves are not required for at least 8 hours into the event. This can be accomplished manually by entry into containment, if required.

The safe shutdown requirements are satisfied.

7. Emergency Feedwater Pump Control Valves FW-FV-4214A, FW-FV-4224A, FW-FV-4234A, FW-FV-4244A

These valves are normally open and at least two valves must remain open for safe shutdown. Spurious closure of one valve will not prevent safe shutdown. The operators will prevent further spurious operations by disabling the power supplies to the unaffected valves in the Train A switchgear room (Fire Area: CB-F-1A-A).

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

8. Main Steam Isolation Valves MS-V-86, MS-V-88, MS-V-90, MS-V-92

Failure of the Train A cables will not prevent safe shutdown as the redundant Train B cables required for MSIV closure are routed in Fire Area ET-F-1C-A.

The Appendix R separation requirements are satisfied.

9. Main Steam Isolation Valve Bypass MS-V-205 and MS-V-206

Valves MS-V-205 and MS-V-206 have no redundant counterpart. The valves are normally closed during operation and should remain closed to assure safe shutdown. Should one valve open spuriously, the operators will isolate all feedwater to its respective steam generator and allow the SG to dry out. To prevent further spurious operation, the operators will disable the power supply to the unaffected valve in the Train A switchgear room (Fire Area: CB-F-1A-A).

The safe shutdown requirements are satisfied.

10. Atmospheric Relief Valves MS-PV-3002, MS-PV-3003 and Associated Solenoids

Valves MS-PV-3002 and MS-PV-3003 are normally closed valves. A fire would prevent operation of the Train A capabilities provided for opening and closing these valves. However, the fire would not affect the Train B capabilities and the valves will be operable for safe shutdown.

Spurious opening of even one ARV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalized condition. Since the ARV's are air operated valves, their spurious operation will be prevented by assuring that these valves are placed in a state such that the initial spurious operation in the air supply will not cause the valve to open. This will be accomplished by procedure as one of the first steps for any fire that can affect the integral ARV air system cables. This action is justifiable since it can be acomplished from the main control room. To prevent a subsequent short that could override the initial action and cause the ARV to open, the affected air solenoids will be de-energized from the distribution panels located in Train A switchgear room (Fire Area: CB-F-1A-A).

This will isolate the faulted air supply but will not preclude operation of the ARV since the redundant air solenoids will still be operational.

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

11. Service Water Intake and Discharge Valves SW-V#44, SW-V#63

These valves are normally open and should remain open for safe shutdown. The spurious closue of either valve will cause loss of service water. Should this occur the operator will transfer the service water supply to the cooling towers.

The safe shutdown requirements are satisfied.

12. Tower Actuation Logic Pressure Transmitters SW-PT-8272, SW-PT-8273, SW-PT-8274

Failure in this cable could intiate a spurious tower actuation signal which would transfer one train of service water cooling capability from the pumphouse to the cooling towers. This transfer will not significantly interrupt Train A service Water cooling nor will it have any impact on Train B service water. This failure does not prevent safe shutdown.

The safe shutdown requirements are satisfied.

13. Main Steam Pressure Transmitters FW-PT-524, FW-PT-526, FW-PT-534, FW-PT-536

Redundant channels of main steam pressure ~~instrument~~ and cables are located in proximity. Spurious operation of the channels will initiate and containment isolation phase A safety injection signals. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A). and terminate the containment isolation by use of the manual reset switch

The safe shutdown requirements are satisfied.

14. Steam Generator Level Transmitters FW-LT-501, FW-LT-503, FW-LT-529, FW-LT-548

Cables for transmitters FW-LT-501, FW-LT-503, FW-LT-529, FW-LT-548 are located in the same fire area. A Fire could cause loss of indication for all four steam generators. However, the same fire would not affect the redundant level transmitters FW-LT-502, FW-LT-504, FW-LT-519 and FW-LT-537.

The Appendix R separation requirements are satisfied.

B. ANALYSIS (cont'd)

15. Emergency Feedwater Flow Transmitters FW-FT-4214-2, FW-FT-4234-2, FW-FT-4224-4, FW-FT-4244-4

Failure in this cable could cause spurious closure of one emergency feedwater line. The logic will prevent isolation of additional lines. This leaves three steam generators available for heat removal; hence, safe shutdown is not affected. Although, failure in this cable could also cause loss of flow indication on two emergency feedwater lines, steam generator operability can be monitored by use of SG level indication.

The safe shutdown requirements are satisfied.

16. Condensate Storage Tank Level FW-PT-4252

All cables are Train A. The Train B level transmitter FW-PT-4257 will be available. In addition, the cables for CST level transmitter CO-LT-4096 are not routed through this area.

The safe shutdown requirements are satisfied.

17. Pressurizer Pressure Transmitters RC-PT-455, RC-PT-457

Redundant channels of pressurizer pressure cables are located in proximity. Spurious operation of two channels will initiate a safety injection signal and containment isolation phase A. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All SI ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B Switchgear Rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A) and terminate the containment isolation by use of the manual reset switch.

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

18. Reactor Coolant Temperature Elements RC-TE-413A, RC-TE-423A, RC-TE-433A, RC-TE-443A

All hot leg RC temperature element cables are routed through this area; however, this function can also be performed by the Train B incore thermocouples IC-TE-XX. The cables for these thermocouples are routed through the Train B electrical tunnel (Fire Area: ET-F-1C-A).

The Appendix R separation requirements are satisfied.

C. EVALUATION

The safe shutdown and Appendix R separation requirements are satisfied.

See Attachment E

TABULATION 3.2.7.50

ELECTRICAL TUNNEL

FIRE AREA ET-F-1B-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CAH-FN-1C		X			
CAH-FN-1E		X			
CAH-FN-1F		X			
CC-P-322A		X			
CC-V57		X			
CC-V121		X			
CC-V175		X			
CC-V257		X			
ED-X-16H		X			
IA-D-2A		X			
SA-C-4A		X			
CS-V10		X			
CS-V28		X			
CS-V44		X			
CS-V59		X			
CS-V145		X			
RC-LCV-459		X			
RC-LCV-460		X			
CS-V177		X			
CS-V185		X			
SI-V159		X			
RC-E-10		X			
RC-PCV-456A		X			
RC-V122		X			
RC-V23		X			
RC-V88		X			
SI-V3		X			
SI-V32		X			
SI-FV2482		X			
SI-FV2483		X			

ATTACHMENT E

19. **Pressurizer Relief Valves RC-PCV-456A, RC-V122**

RC-PCV-456A is a normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V122. For all fires that have the potential to cause spurious opening of the PORV, the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV and the block valve by tripping the power supplies in the Train A ~~diesel generator~~ room (Fire Area: ~~DG-F-2A~~-A).

The safe shutdown requirements are satisfied.

20. Containment Pressure Transmitter SI-PT-935

A cable for one channel of containment pressure instrumentation is routed through this fire area. This channel inputs to 2 out of 3 and 2 out of 4 logics which initiate protective actions. A spurious signal from one channel is not sufficient to initiate the logic and perform the protective action; hence, a failure in this cable will not prevent safe shutdown.

The safe shutdown requirements are satisfied.

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
SI-FV-2495		X			
SI-FV-2496		X			
RH-V35		X			
FW-FV-4214A		X			
FW-FV-4224A		X			
FW-FV-4234A		X			
FW-FV-4244A		X			
MS-V127		X			
MS-V86		X			
MS-V88		X			
MS-V90		X			
MS-V92		X			
MS-V204		X			
MS-V205		X			
MS-V206		X			
MS-V207		X			
MS-PV-3001		X			
MS-PV-3002		X			
MS-PV-3003		X			
MS-PV-3004		X			
SB-V1		X			
SB-V3		X			
SB-V5		X			
SB-V7		X			
EAH-FN-174A		X			
EDE-MCC-514		X			
EPA-FN-47A		X			
EPA-DP-371		X			
EPA-DP-373		X			

TABULATION 3.2.7.50 (cont'd)

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
SW-P-41A		X			
SW-P-41C		X			
SW-V2		X			
SW-V22		X			
SW-V44		X			
SW-V63		X			
SW-PT-8272		X			
SW-PT-8273		X			
SW-PT-8274		X			
SWA-FN-40A		X			
FW-LT-501		X			
FW-LT-503		X			
FW-LT-529		X			
FW-LT-548		X			
FW-PT-514		X			
FW-PT-524		X			
FW-PT-526		X			
FW-PT-534		X			
FW-PT-536		X			
FW-PT-544		X			
FW-PT-4252		X			
FW-FT-4214-2		X			
FW-FT-4234-2 4		X			
FW-FT-4234-2		X			
FW-FT-4244-A		X			
NI-NE-6690		X			
RC-LT-459		X			
RC-PT-405		X			
RC-PT-455		X			
RC-PT-457		X			
RC-TE-413A		X			
RC-TE-423A		X			
RC-TE-433A		X			
RC-TE-443A		X			
SI-PT-935		X			
~~SI-PT-937~~		~~X~~			

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown equipment and cables. The redundant Train B safe shutdown equipment and cables are located in fire area ET-F-1C-A.

The Appendix R safe shutdown requirements are satisfied.

2. Component Cooling Water Isolation Valves CC-V57, CC-V121, CC-V175, CC-V257

Cables associated with the Loop B outboard isolation valves CC-V175 and CC-V257 are routed in the same trays as the Loop A inboard isolation valves CC-V57 and CC-V121. Failures in these cables could cause total loss of PCCW to containment by initiation of a spurious lo-lo head tank level signal. Loop B PCCW can be re-established by transferring control of valves CC-V175 and CC-V257 to local control at the RSS panel in fire area CB-F-1A-A. This removes the lo-lo head tank level isolation function and allows operators to re-open the valves.

The safe shutdown requirements are satisfied.

3. RC Pump Seal Water Isolation Valves CS-V10, CS-V28, CS-V44, CS-V59

The safe shutdown function of these valves is to isolate seal return in the event that valve CS-V168 spuriously closes due to a fire. As cabling for CS-V168 is not routed through this area, the position of these valves is inconsequential.

The safe shutdown requirements are satisfied.

4. Letdown Isolation Valves CS-V145, RC-LCV-459, RC-LCV-460

Functionally redundant Train A series valves CS-V145, RC-LCV-459 and RC-LCV-460 are normally open and are required to close for safe shutdown. CS-V145 can be closed from the main control room. Should this valve not close due to spurious operation, the operators can close either RC-LCV-459 or RC-LCV-460 by tripping their power supply breakers at the Train A switchgear room (Fire Area: CB-F-1A-A). This will prevent further spurious operation.

The safe shutdown requirements are satisfied.

5. CS-Charging to RC Isolation Valves CS-V177, CS-V185 and Charging Pump Test Line Isolation Valve SI-V159

Under normal operating conditions, charging is accomplished by utilizing redundant, normally ~~open~~ closed, fail open valves CS-V177 (Train A) or CS-V180 (Train B). Spurious closure of CS-V177 does not prevent safe shutdown as the CS-V180 valve and its associated cables and controls are not con-

This will permit re-opening of SI-V138 or SI-V139 for use of the high head injection path.

B. ANALYSIS (Cont'd)

5. CS- Charging to RC Isolation Valves CS-V177, CS-V185 and Charging Pump Test Line Isolation Valve SI-V159

tained in this fire area. Also aligned to the normal charging path is the pressurizer auxiliary spray line which is isolated by Train A valve CS-V185. Spurious opening of this valve will cause uncontrolled pressurizer level changes. Mitigation of this condition will be accomplished by closing either of the charging pumps to RCS isolation valves CS-V142 (Train A) or CS-V143 (Train B) located in Fire Zone PP-F-1A-Z and utilizing the ~~high head~~ seal injection flow path through either valves ~~SI-V138 (Train A) or SI-V139 (Train B) located in Fire Zone PP-F-1B-Z.~~ CS-V154, CS-V158, CS-V162 and CS-V166 located in Fire Zones PP-F-1A-Z and PP-F-1B-Z.

On spurious operation of the normally closed, fail closed valves SI-V159 (Train A), the operators will isolate the high head injection path by closing SI-V138 and SI-V139. Charging will then be accomplished utilizing the ~~normal charging~~ seal injection path as discussed above. The operators can close SI-V159 by tripping its power supply breaker in the Train A switchgear room (Fire Area CB-F-1A-A).

The capability to provide charging to the RC System through a minimum of one flow path satisfies the safe shutdown requirements.

6. RHR Isolation Valves RC-V23, RC-V88

RHR isolation valves are permanently disabled in the closed position (RC-V88). For entry into RHR shutdown cooling, ~~one of these~~ valves must be opened. These valves are not required for at least 8 hours into the event. This can be accomplished manually by entry into containment, if required.

The safe shutdown requirements are satisfied.

7. Emergency Feedwater Pump Control Valves FW-FV-4214A, FW-FV-4224A, FW-FV-4234A, FW-FV-4244A

These valves are normally open and at least two valves must remain open for safe shutdown. Spurious closure of one valve will not prevent safe shutdown. The operators will prevent further spurious operations by disabling the power supplies to the unaffected valves in the Train A switchgear room (Fire Area CB-F-1A-A).

The safe shutdown requirements are satisfied.

8. Emergency Feedwater Pump Steam Supply Valve MS-V127

This valve is normally closed and opens for safe shutdown. A spurious closure of this valve could prevent operation of the EFW Turbine. The cables for the Train B motor driven EFW pump FW-P-37B are not routed through this area; hence the Train B pump would be available for safe shutdown.

The Appendix R separation requirements are satisfied.

B. Analysis (Cont'd)

9. Main Steam Isolation Valves MS-V86, MS-V88, MS-V90, MS-V92

Failure of the Train A cables will not prevent safe shutdown as the redundant Train B cables required for MSIV closure are routed in Fire Area ET-F-1C-A.

The Appendix R separation requirements are satisfied.

10. Main Steam Isolation Valve Bypass Valves MS-V204, MS-V205, MS-V206, MS-V207

Valves MS-V204, MS-V205, MS-V206 and MS-V207 have no redundant counterpart. The valves are normally closed during operation and should remain closed to assure Safe Shutdown. Should one valve open spuriously, the operators will isolate all feedwater to its respective steam generator and allow the SG to dry out. To prevent further spurious operation, the operators will disable the power supply to the unaffected valve in the Train A Switchgear Room (Fire Area: CB-F-1A-A).

The safe shutdown requirements are satisfied.

11. Atmospheric Relief Valves MS-PV-3001, MS-PV-3002, MS-PV-3003, MS-PV-3004

Valves MS-PV-3001, MS-PV-3002, MS-PV-3003 and MS-PV-3004 are normally closed valves. A fire would prevent operation of the Train A capabilities provided for opening and closing these valves. However, the fire would not affect the Train B capabilities and the valves will be operable for safe shutdown.

Spurious opening of even one ARV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitues an unanalized condition. Since the ARV's are air operated valves, their spurious operation will be prevented by assuring that these valves are placed in a state such that the initial spurious operation in the air supply will not cause the valve to open. This will be accomplished by procedure as one of the first steps for any fire that can affect the integral ARV air system cables. This action is justifiable since it can be accomplished from the main control room. To prevent a subsequent short that could override the initial action and cause the ARV to open, the affected air solenoids will be de-energized from the distribution panel located in Train A switchgear room (Fire Area: CB-F-1A-A).

This will isolate the faulted air supply but will not preclude operation of the ARV since the redundant air solenoids will still be operational.

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

12. Service Water Intake and Discharge Valves SW-V44, SW-V63

These valves are normally open and should remain open for safe shutdown. The spurious closure of either valve will cause loss of service water. Should this occur the operator will transfer the service water supply to the cooling towers.

The safe shutdown requirements are satisfied.

13. Tower Actuation Logic Pressure Transmitters SW-PT-8272, SW-PT-8273, SW-PT-8274

Failure in this cable could initiate a spurious tower actuation signal which would transfer one train of service water cooling capability from the pumphouse to the cooling towers. This transfer will not significantly interrupt Train A service water cooling nor will it have any impact on Train B service water. This failure does not prevent safe shutdown. The safe shutdown requirements are satisfied.

14. Main Steam Pressure Transmitters FW-PT-514, FW-PT-524, FW-PT-526, FW-PT-534, FW-PT-536, FW-PT-544

Redundant channels of main steam pressure ~~instruments and~~ cables are located in proximity. Spurious operation of the channels will initiate safety injection signals. The operators will have the capability to terminate SI after one (1) minute by use of the manual reset and block switch. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear room (Fire Areas CB-F-1A-A and CB-F-1B-A).
The safe shutdown requirements are satisfied.

15. Steam Generator Level Transmitters FW-LT-501, FW-LT-503, FW-LT-529, FW-LT-548

Cables for transmitters FW-LT-501, FW-LT-503, FW-LT-529 and FW-LT-548 are located in the same fire area. A fire could cause loss of indication for all four steam generators. However, the same fire would not affect the redundant level transmitters FW-LT-502, FW-LT-504, FW-LT-519 and FW-LT-537.

The Appendix R separation requirements are satisfied.

B. ANALYSIS (Cont'd)

16. Emergency Feedwater Flow Transmitter FW-FT-4214-2, FW-FT-4234-2

Failure in this cable could cause spurious closure of one emergency feedwater line. The logic will prevent isolation of additional lines. This leaves three steam generators available for heat removal; hence, safe shutdown is not affected. Although failure in this cable could also cause loss of flow indication on two emergency feedwater lines, steam generator operability can be monitored by use of SG level indication.

The safe shutdown requirements are satisfied.

17. Condensate Storage Tank Level FW-PT-4252

All cables are Train A. The Train B level transmitter FW-PT-4257 will be available. In addition, the cables for CST level transmitter CO-LT-4096 are not routed through this area.

The Appendix R separation requirements are satisfied.

18. Pressurizer Pressure Transmitters RC-PT-455, RC-PT-457

Redundant channels of pressurizer pressure cables are located in proximity. Spurious operation of two channels will initiate a safety injection signals. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All SI equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

and containment isolation phase A

and terminate the containment isolation by use of the manual reset switch

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

19. Reactor Coolant Temperature Elements RC-TE-413A, RC-TE-423A, RC-TE-433A, RC-TE-443A

All hot leg RC temperature element cables are routed through this area; however, this function can also be performed by the Train B incore thermocouples IC-TE-XX. The cables for these thermocouples are routed through the Train B electrical tunnel (Fire Area: ET-F-1C-A).

The Appendix R separation requirements are satisfied.

B. ANALYSIS (cont'd)

20. Containment Pressure Transmitters SI-PT-935 ~~and SI-PT-937~~

Redundant channels of containment pressure cables are located in proximity. Spurious operation of these channels will initiate containment spray and containment isolation Phase B. The operators will have the capability to terminate these protective actions after 1 minute by use of manual reset and block switches. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

C. EVALUATION

The safe shutdown and Appendix R separation requirements are satisfied.

A cable for one channel of containment pressure instrumentation is routed through this fire area. This channel inputs to a out of 3 and 2 out of 4 logics which initiate protective actions. A spurious signal from one channel is not sufficient to initiate the logic and perform the protective action; hence, a failure in this cable will not prevent safe shutdown.

The safe shutdown requirements are satisfied

21. **Pressurizer Relief Valves RC-PCV-456B, RC-V124**

RC-PCV-456B is normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V124. For all fires that have the potential to cause spurious opening of the PORV, the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV, by tripping its power supply in Train B ~~diesel generator~~ room (Fire Area: ~~B~~6-F-2~~B~~-A).

The safe shutdown requirements are satisfied.

TABULATION 3.2.7.51

ELECTRICAL TUNNEL

FIRE AREA: ET-F-1C-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A				Train B	
Description	Equip.	Cable	Description	Equip.	Cable
			CAH-FN-1A		X
			CAH-FN-1B		X
			CAH-FN-1D		X
			CC-P-322B		X
			CC-V-122		X
			CC-V-168		X
			CC-V-176		X
			CC-V-256		X
			EDE-MM-584	X	X
			ED-X-16A		X
			IA-D-2B		X
			SA-C-4B		X
			CS-V-168		X
			CS-V-175		X
			CS-V-176		X
			CS-V-180		X
			SI-V-158		X
			RC-FV-2881		X
			RC-V-323		X
			RC-E-10		X
			RC-PP-6B	X	X
			RC-PCV-456B		X
			RC-V-124		X
RC-V23		X	RC-V-22		X
RC-V88		X	RC-V-87		X
			SI-V-17		X
			SI-V-47		X
			SI-FV-2475		X
			SI-FV-2476		X
			SI-FV-2477		X
			SI-FV-2486		X

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A				Train B	
Description	Equip.	Cable	Description	Equip.	Cable
			RH-V-36		X
			FW-FV-4214B		X
			FW-FV-4224B		X
			FW-FV-4234B		X
			FW-FV-4244B		X
			FW-P-37B		X
			MS-V-88		X
			MS-V-90		X
			MS-PV-3002		X
			MS-PV-3003		X
			EAH-FN-174B		X
			EDE-MCC-614		X
			EPA-FN-47B		X
			EPA-DP-372		X
			EPA-DP-374		X
			SW-P-41B		X
			SW-P-41D		X
			SW-V-29		X
			SW-V-31		X
			SW-PT-8282		X
			SW-PT-8283		X
			SW-PT-8284		X
			SWA-FN-40B		X
			FW-LT-502		X
			FW-LT-504		X
			FW-LT-519		X
			FW-LT-537		X
			FW-PT-525		X
			FW-PT-535		X

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A				Train B	
Description	Equip.	Cable	Description	Equip.	Cable
			FW-PT-4257		X
			FW-FT-4214-4		X
			FW-FT-4224-2		X
			FW-FT-4234-4		X
			FW-FT-4244-2		X
			NI-NE-6691		X
			NI-NT-6691	X	X
			RC-LT-460		X
RC-PT-405	X	X	RC-PT-403	X	X
			RC-PT-456		X
			RC-PT-458		X
			IC-TE-XX		X
			RC-TE-413B		X
			RC-TE-423B		X
			RC-TE-433B		X
			RC-TE-443B		X
SI-PT-935	X	X	SI-PT-934	X	X
			Electrical Penetrations	X	X

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train B safe shutdown equipment and cables. The redundant Train A safe shutdown equipment and cables are located in fire area ET-F-1A-A.

The Appendix R separation requirements are satisfied.

2. Component Cooling Water Isolation Valves CC-V-122, CC-V-168, CC-V-176, CC-V-256

Cables associated with the Loop A outboard isolation valves CC-V-122 and CC-V-168 are routed in the same trays as the Loop B inboard isolation valves CC-V-176 and CC-V-256. Failures in these cables could cause total loss of PCCW to containment by initiation of a spurious lo-lo heat tank level signal. Loop A PCCW can be re-established by transferring control of valves CC-V-122 and CC-V-168 to local control at the RSS panel in fire area CB-F-1B-A. This removes the lo-lo head tank level isolation function and allows operators to re-open the valves.

The safe shutdown requirements are satisfied.

3. RC Pump Seal Water Isolation Valve CS-V-168

Valve CS-V-168 is a normally open valve which should remain open for safe shutdown. Spurious isolation of the Train B valve could result in RC inventory loss through the upstream relief valves. This inventory is directed to the PRT and is therefore, non-recoverable. To preclude this loss of inventory, redundant isolation capability is provided for the RC pump seal return lines by means of Train A valves CS-V-10, CS-V-28, CS-V-44 and CS-V-59 and the excess letdown line by means of either normally closed, fail closed valves CS-V-175 or CS-V-176. The cables, controls and equipment required for the operation of CS-V-10, CS-V-28, CS-V-44 and CS-V-59 are not contained in this fire area. The cables for valves CS-V-175 and CS-V-176 are routed in the same trays as the cables for CS-V-168. To prevent the spurious closure of CS-V-168 or the spurious opening of CS-V-175 or CS-V-176, the operators will trip their power supply breakers in the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

4. Letdown Isolation Valves CS-V-175, CS-V-176

Functionally redundant Train B series valves CS-V-175 and CS-V-176 are normally closed and remain closed for safe shutdown. The spurious opening of one valve will not prevent safe shutdown. The operators will prevent further spurious operation by tripping the power supply breakers for CS-V-175 and CS-V-176 at the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

5. CS- Charging to RC Isolation Valves CS-V-180 and Charging Pump Test Line Isolation Valve SI-V-158

Under normal operating conditions, charging is accomplished by utilizing redundant, normally ~~open~~, fail open valves CS-V-180 (Train B) or CS-V-177 (Train A). Spurious closure of CS-V-180 does not prevent safe shutdown as the CS-V-177 valve and its associated cables and controls are not contained in this fire area.

On spurious operation of the normally closed, fail closed valves SI-V-158 (Train B), the operators will isolate the high head injection path by closing SI-V-138 and SI-V-139. Charging will then be accomplished utilizing the ~~normal charging path as discussed above~~. seal injection path. The operators can close SI-V158 by tripping its power supply breaker in the Train B switchgear room (Fire Area: CB-F-1B-A).
The capability to provide charging to the RC System through a minimum of one flow path satisfies the safe shutdown requirements.

6. Head Vent Valves RC-FV-2881 and RC-V-323

Functionally redundant Train B series valves RC-FV-2881 and RC-V-323 are normally closed and remain closed for safe shutdown. The spurious opening of one valve will not prevent safe shutdown. The operators will prevent further spurious operation by tripping the power supply breakers for RC-FV-2881 and RC-V-323 at the Train B switchgear room (Fire Area: CB-F-1B-A).

7. RHR Isolation Valves RC-V-22, RC-V-87 ; RC-V23 RC-V88

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling, ~~one of these~~ valves must be opened. This can be accomplished manually by entry into containment, if required. This manual operation can be delayed as much as 8 hours into the event. (RC-V22 and RC-V23

The safe shutdown requirements are satisfied.

This will permit re-opening of SI-V138 or SI-V139 for use of the high head injection path

B. ANALYSIS (cont'd)

8. Emergency Feedwater Pump Control Valves FW-FV-4214B, FW-FV-4224B, FW-FV-4234B, FW-FV-4244B

These valves are normally open and at least two valves must remain open for safe shutdown. Spurious closure of one valve will not prevent safe shutdown. The operators will prevent further spurious operations by disabling the power supplies to the unaffected valves in the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

9. Main Steam Isolation Valves MS-V~~^~~88, MS-V~~^~~90

Failure of the Train B cables will not prevent safe shutdown as the redundant Train A cables required for MSIV closure are routed in Fire Area ET-F-1A-A.

The Appendix R separation requirements are satisfied.

10. Atmospheric Relief Valves MS-PV-3002, MS-PV-3003

Valves MS-PV-3002 and MS-PV-3003 are normally closed valves. A fire would prevent operation of the Train B capabilities provided for opening and closing these valves. However, the fire would not affect the Train A capabilities and the valves will be operable for safe shutdown.

Spurious opening of even one ARV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. Since the ARV's are air operated valves, their spurious operation will be prevented by assuring that these valves are placed in a state such that the initial spurious operation in the air supply will not cause the valve to open. This will be accomplished by procedure as one of the first steps for any fire that can affect the integral ARV air system cables. This action is justifiable since it can be accomplished from the main control room. To prevent a subsequent short that could override the initial action and cause the ARV to open, the affectd air solenoids will be de-energized from the distribution panel located in Train B switchgear room (Fire Area: CB-F-1B-A).

This will isolate the faulted air supply but will not preclude operation of the ARV since the redundant air solenoids will still be operational.

The safe shutdown requirements are satisfied.

A cable for one channel of main steam pressure instrumentation is routed through this fire area. This channel inputs to 2 out of 3 logics which initiate protective actions. A spurious signal from one channel is not sufficient to initiate the logic and perform the protective action; hence, a failure in this cable will not prevent safe shutdown.

B. ANALYSIS (cont'd)

11. Tower Activation Logic Pressure Transmitters SW-PT-8282, SW-PT-8283, SW-PT-8284

Failure in this cable could initiate a spurious tower actuation signal which would transfer one train of service water cooling capability from the pumphouse to the cooling towers. This transfer will not significantly interrupt Train B service water cooling nor will it have any impact on Train A service water. This failure does not prevent safe shutdown.

The safe shutdown requirements are satisfied.

12. Main Steam Pressure Transmitters FW-PT-525, FW-PT-535

Redundant channels of main steam pressure instruments and cables are located in proximity. Spurious operation of the channels will initiate a safety injection signal. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All SI equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

13. Steam Generator Level Transmitters FW-LT-502, FW-LT-504, FW-LT-519, FW-LT-537

Cables for transmitters FW-LT-502, FW-LT-504, FW-LT-519, FW-LT-537 are located in the same fire area. A fire could cause loss of indication for all four stam generators. However, the same fire would not affect the redundant level transmitters FW-LT-501, FW-LT-503, FW-LT-529 and FW-LT-548.

The Appendix R separation requirements are satisfied.

14. Emergency Feedwater Flow Transmitter FW-FT-4214-4, FW-FT-4224-2, FW-FT-4234-4, FW-FT-4244-2

Failure in this cable could cause spurious closure of one emergency feedwater line. The logic will prevent isolation of additional lines. This leaves three steam generators available for heat removal; hence, safe shutdown is not affected.

Although, failure in this cable could also cause loss of flow indication on two emergency feedwater lines, steam generator operability can be monitored by use of SG level indication.

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

15. Condensate Storage Tank Level FW-PT-4257

All cables are Train B. The Train A level transmitter FW-PT-4252 will be available. In addition, the cables for CST level transmitter CO-LT-4096 are not routed through this area.

The Appendix R separation requirements are satisfied.

16. Reactor Pressure RC-PT-403, RC-PT-405

Redundant reactor pressure instruments and cables are contained in this area. This function can also be performed by functionally redundant pressurizer pressure transmitters RC-PT-455 or RC-PT-457 routed through Fire Area ET-F-1A-A.

The Appendix R separation requirements are satisfied.

17. Pressurizer Pressure Transmitters RC-PT-456, RC-PT-458

Redundant channels of pressurizer pressure cables are located in proximity. Spurious operation of two channels will initiate a safety injection signal and containment isolation phase A. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B Switchgear Rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A). and terminate the containment isolation by use of the manual reset switch. The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

18. Reactor Coolant Temperature RC-TE-413B, RC-TE-423B, RC-TE-433B, RC-TE-443B

All cold leg RC temperature element cables are routed through this area; however, this function can also be performed by the Train A steam generator pressure transmitters FW-PT-514, FW-PT-524, FW-PT-534, FW-PT-544 because cold leg temperature approximated the saturation temperature corresponding to secondary pressure. The cables for these PT's are routed through fire area ET-F-1A-A.

The safe shutdown requirements are satisfied.

C. EVALUATION

The safe shutdown requirements and Appendix R separation requirements are satisfied.

* See Attachment F.

ATTACHMENT F

19. Pressurizer Relief Valves RC-PCV-456B, RC-V124

RC-PCV-456B is normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V124. For all fires that have the potential to cause spurious opening of the PORV, the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV and the block valve by tripping ~~the~~ power supply in Train B ~~diesel generator~~ switchgear room (Fire Area: DG-F-2B-A). their 1B 1A

The safe shutdown requirements are satisfied.

20. Containment Pressure Transmitters SI-PT-934, SI-PT-935

Redundant channels of containment pressure instruments and cables are located in proximity. Spurious operation of these channels will initiate containment spray and containment isolation Phase A and Phase B. The operators will have the capability to terminate ~~these protective actions~~ the SI after 1 minute by use of manual reset and block switches. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-1F-1A-A and CB-F-1B-A).

and terminate the containment spray and containment isolation by use of manual reset switches.

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

TABULATION 3.2.7.52

ELECTRICAL TUNNEL

FIRE AREA: ET-F-1D-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A				Train B	
Description	Equip.	Cable	Description	Equip.	Cable
			CAH-FN-1A		X
			CAH-FN-1B		X
			CAH-FN-1D		X
			CC-P-32[illegible]B		X
			CC-V-122		X
			CC-V-158		X
			CC-V-176		X
			CC-V-256		X
			ED-X-16A		X
			IA-D-2B		X
			SA-C-4B		X
			CS-V-168		X
			CS-V-175		X
			CS-V-176		X
			CS-V-180		X
			SI-V-158		X
			RC-FV-2881		X
			RC-V-323		X
			RC-E-10		X
			RC-PCV-456B		X
			RC-V-124		X
			RC-V-22		X
			RC-V-87		X
			SI-V-17		X
			SI-V-47		X
			SI-FV-2475		X
			SI-FV-2476		X
			SI-FV-2477		X
			SI-FV-2486		X
			SI-PT-934	X	X
			SI-PT-935	X	X
			SI-PT-937	X	X

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A				Train B	
Description	Equip.	Cable	Description	Equip.	Cable
			RH-V-36		X
			FW-FV-4214B		X
			FW-FV-4224B		X
			FW-FV-4234B		X
			FW-FV-4244B		X
			FW-P-37B		X
			MS-V-86		X
			MS-V-88		X
			MS-V-90		X
			MS-V-92		X
			MS-PV-3001		X
			MS-PV-3002		X
			MS-PV-3003		X
			MS-PV-3004		X
			SB-V-9		X
			SB-V-10		X
			SB-V-11		X
			SB-V-12		X
			EAF-FN-174B		X
			EDE-MCC-614		X
			EPA-FN-47B		X
			EPA-DP-372		X
			EPA-DP-374		X
			SW-P-41B		X
			SW-P-41D		X
			SW-V-29		X
			SW-V-31		X
			SW-PT-8282		X
			SW-PT-8283		X
			SW-PT-8284		X
			SWA-FN-40B		X

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			FW-LT-502		X
			FW-LT-504		X
			FW-LT-519		X
			FW-LT-537		X
			FW-LT-515		X
			FW-PT-516		X
			FW-PT-525		X
			FW-PT-535		X
			FW-PT-545		X
			FW-PT-546		X
			FW-PT-4257		X
			FW-FT-4214-4		X
			FW-FT-4224-2		X
			FW-FT-4234-4		X
			FW-FT-4244-2		X
			NI-NE-6691		X
			RC-LT-460		X
			RC-PT-403		X
			RC-PT-456		X
			RC-PT-458		X
			IC-TE-XX		X
			RC-TE-413B		X
			RC-TE-423B		X
			RC-TE-433B		X
			RC-TE-443B		X
			SI-PT-934	X	X
			SI-PT-936	X	X
SI-PT-935	X	X			
SI-PT-937	X	X	MM-CP-2		X

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train B safe shutdown equipment and cables. The redundant Train A safe shutdown equipment and cables are located in fire area ET-F-1A-A.

The Appendix R separation requirements are satisfied.

2. Component Cooling Water Isolation Valves CC-V-122, CC-V-168, CC-V-176, CC-V-256

Cables associated with the Loop A outboard isolation valves CC-V-122 and CC-V-168 are routed in the same trays as the Loop B inboard isolation valves CC-V-176 and CC-V-256. Failures in these cables could cause total loss of PCCW to containment by initiation of a spurious lo-lo heat tank level signal. Loop A PCCW can be re-established by transferring control of valves CC-V-122 and CC-V-168 to local control at the RSS panel in fire area CB-F-1B-A. This removes the lo-lo head tank level isolation function and allows operators to re-open the valves.

The safe shutdown requirements are satisfied.

3. RC Pump Seal Water Isolation Valve CS-V-168

Valve CS-V-168 is a normally open valve which should remain open for safe shutdown. Spurious isolation of the Train B valve could result in RC inventory loss through the upstream relief valves. This inventory is directed to the PRT and is therefore, non-recoverable. To preclude this loss of inventory, redundant isolation capability is provided for the RC pump seal return lines by means of Train A valves CS-V-10, CS-V-28, CS-V-44 and CS-V59 and the excess letdown line by means of either normally closed, fail closed valves CS-V-175 or CS-V-176. The cables, controls and equipment required for the operation of CS-V-10, CS-V-28, CS-V-44 and CS-V-59 are not contained in this fire area. The cables for valves CS-V-175 and CS-V-176 are routed in the same trays as the cables for CS-V-168. To prevent the spurious closure of CS-V-168 or the spurious opening of CS-V-175 or CS-V-176, the operators will trip their power supply breakers in the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

4. Letdown Isolation Valves CS-V-175, CS-V-176

Functionally redundant Train B series valves CS-V-175 and CS-V-176 are normally closed and remain closed for safe shutdown. The spurious opening of one valve will not prevent safe shutdown. The operators will prevent further spurious operation by tripping the power supply breakers for CS-V-175 and CS-V-176 at the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

5. CS - Charging to RC Isolation Valves CS-V-180 and Charging Pump Test Line Isolation Valve SI-V-158

Under normal operating conditions, charging is accomplished by utilizing redundant, normally open, fail open valves CS-V-180 (Train B) or CS-V-177 (Train A). Spurious closure of CS-V-180 does not prevent safe shutdown as the CS-V-177 valve and its associated cables and controls are not contained in this fire area.

On spurious operation of the normally closed, fail closed valves SI-V-158 (Train B), the operators will isolate the high head injection path by closing SI-V-138 and SI-V-139. Charging will then be accomplished utilizing the ~~normal charging~~ path, ~~as discussed above.~~ seal in to this SI-V158 by tripping its power supply breaker in the Train B switchgear room (Fire Area: CB-F-1B-A). The operators shall close
The capability to provide charging to the RC System through a minimum of one flow path satisfies the safe shutdown requirements.

6. Head Vent Valves RC-FV-2881 and RC-V-323

Functionally redundant Train B series valves RC-FV-2881 and RC-V-323 are normally closed and remain closed for safe shutdown. The spurious opening of one valve will not prevent safe shutdown. The operators will prevent further spurious operation by tripping the power supply breakers for RC-FV-2881 and RC-V-323 at the Train B switchgear room (Fire Area: CB-F-1B-A).

7. RHR Isolation Valves RC-V-22, RC-V-87

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling, ~~one of these~~ valves must be opened. This can be accomplished manually by entry into containment, if required. This manual operation can be delayed as much as 8 hours into the event. RC-V22

The safe shutdown requirements are satisfied.

This will permit re-opening of SI-V-158 or SI-V-159 for use of the high head injection path

B. ANALYSIS (cont'd)

8. Emergency Feedwater Pump Control Valves FW-FV-4214B, FW-FV-4224B, FW-FV-4234B, FW-FV-4244B

These valves are normally open and at least two valves must remain open for safe shutdown. Spurious closure of one valve will not prevent safe shutdown. The operators will prevent further spurious operations by disabling the power supplies to the unaffected valves in the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

9. Main Steam Isolation Valves MS-V-4086, MS-V-4088, MS-V-4090, MS-V-4092

Failure of the Train B cables will not prevent safe shutdown as the redundant Train A cables required for MSIV closure are routed in Fire Area ET-F-1A-A.

The Appendix R separation requirements are satisfied.

10. Atmospheric Relief Valves MS-PV-3001, MS-PV-3002, MS-PV-3003, MS-PV-3004

Valves MS-PV-3001, MS-PV-3002, MS-PV-3003, and MS-PV-3004 are normally closed valves. A fire would prevent operation of the Train B capabilities provided for opening and closing these valves. However, the fire would not affect the Train A capabilities and the valves will be operable for safe shutdown.

Spurious opening of even on ARV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. Since the ARV's are air operated valves, their spurious operation will be prevented by assuring that these valves are placed in a state such that the initial spurious operation in the air supply will not cause the valve to open. This will be accomplished by procedure as one of the first steps for any fire that can affect the integral ARV air system cables. This action is justifiable since it can be accomplished from the main control room. To prevent a subsequent short that could override the initial action and cause the ARV to open, the affected air solenoids will be de-energized from the distribution panel located in Train B switchgear room (Fire Area: CB-F-1B-A).

This will isolate the faulted air supply but will not preclude operation of the ARV since the redundant air solenoids will still be operational.

The safe shutdown requirements are satisfied.

B. ANALYSIS (cont'd)

11. Tower Activation Logic Pressure Transmitters SW-PT-8282, SW-PT-8283, SW-PT-8284

Failure in this cable could initiate a spurious tower actuation signal which would transfer one train of service water cooling capability form the pumphouse to the cooling towers. This transfer will not significantly interrupt Train B service water cooling nor will it have any impact on Train A service water. This failure does not prevent safe shutdown.

The safe shutdown requirements are satisfied.

12. Steam Generator Level Transmitters FW-LT-502, FW-LT-504, FW-LT-519, FW-LT-537

Cables for transmitters FW-LT-502, FW-LT-504, FW-LT-519, FW-LT-537 are located in the same fire area. A Fire could cause loss of indication for all four steam generators. However, the same fire would not affect the redundant level transmitters FW-LT-501, FW-LT-503, FW-LT-529 and FW-LT-548.

The Appendix R separation requirements are satisfied.

13. Main Steam Pressure Transmitters FW-PT-515, FW-PT-516, FW-PT-525, FW-PT-535, FW-PT-545, FW-PT-546

Redundant channels of main steam pressure ~~instruments and~~ cables are located in proximity. Spurious operation of the channels will initiate a safety injection signal. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All SI equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

and terminate the containment isolation by use of the manual reset and block switch and containment isolation phase A ESF

The safe shutdown requirements are satisfied.

14. Emergency Feedwater Flow Transmitters FW-FT-4214-4, FW-FT-4224-2, FW-FT-4234-4, FW-FT-4244-2

Failure in this cable could cause spurious closure of one emergency feedwater line. The logic will prevent isolation of additional lines. This leaves three steam generators available for heat removal; hence, safe shutdown is not affected.

Although failure in this cable could also cause loss of flow indication on two emergency feedwater lines, steam generator operability can be monitored by use of SG level indication.

The safe shutdown requirements are satisfied.

A cable for one channel of containment pressure instrumentation is routed through this fire area. This channel inputs to 2 out of 3 and 2 out of 4 logics which initiate protective actions. A spurious signal from one channel is not sufficient to initiate the logic and perform the protective action; hence, a failure in this cable will not prevent safe shutdown
The safe shutdown requirements are satisfied

B. ANALYSIS (cont'd)

15. Condensate Storage Tank Level FW-PT-4257

All cables are Train B. The Train A level transmitter FW-PT-4252 will be available. In addition, the cables for CST level transmitter CO-LT-4096 are not routed through this area.

The Appendix R separation requirements are satisifed.

16. Pressurizer Pressure Transmitters RC-PT-456, RC-PT-458

Redundant channels of pressurizer pressure cables are located in proximity. Spurious operation of two channels will initiate a safety injection signal. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All SI equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B Switchgear Rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

17. Reactor Coolant Temperature RC-TE-413B, RC-TE-423B, RC-TE-433B, RC-TE-443B

All cold leg RC temperature element cables are routed through this area; however, this function can also be performed by the Train A steam generator pressure transmitters FW-PT-514, FW-PT-524, FW-PT534, FW-PT-544 because cold leg temperature approximates the saturation temperature corresponding to secondary pressure. The cables for these PT's are routed through fire area ET-F-1A-A.

The safe shutdown requirements are satisfied.

18. Containment Pressure Transmitters SI-PT-934, SI-PT-935, SI-PT-937

Redundant channels of containment pressure instruments and cables are located in proximity. Spurious operation of these channels will initiate containment spray and containment isolation Phase B. The operators will have the capability to terminate these protective actions after 1 minute by use of manual reset and block switches. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-1F-1A-A and CB-F-1B-A).

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

B. ANALYSIS (Cont'd)

19. Process Protection System Cabinet MM-CP-2

Failure of cable will cause loss of power supply to Channel II process protection system cabinet and related instrumentation. The power supplies to redundant channel PPC are routed through other fire areas and; hence, the PPC's will perform their safe shutdown function.

The Appendix R separation requirments are satisfied.

C. EVALUATION

The safe shutdown requirements and Appendix R separation requirements are satisfied.

20. Pressurizer Relief Valves RC-PCV-456A, RC-V122

RC-PCV-456A is a normally closed, fail closed valve whose cables are in this fire area. The spurious opening of a PORV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. The PORV is supplemented with a normally open, series block valve RC-V122. For all fires that have the potential to cause spurious opening of the PORV, the operators will close the block valve by procedure. This will be the first step in the procedure and can readily be accomplished from the main control room. The promptness of this action is justification for the ability to isolate the block valve prior to any spurious valve operations. Under the condition, the initial short will not cause depressurization. To prevent subsequent spurious operations, the operators will de-energize the PORV by tripping its power supply in the Train B switchgear room (Fire Area: CB-F-1B-A).

TABULATION 3.2.7.53

ELECTRICAL TUNNEL - STAIRWELL

FIRE AREA: ET-F-S1-0

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire area.

C. EVALUATION

The Appendix R separation requirements do not apply to this fire area.

TABULATION 3.2.7.58

East Main Steam and Feedwater Pipe Chase

FIRE AREA: MS-F-1A-Z, MS-F-2A-Z, MS-F-3A-Z, MS-F-4A-Z, MS-F-5A-Z

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
EAH-FN-174A	X	X	EAH-FN-174B	X	X
EAH-TSH-5136	X	X	EAH-TSH-5763	X	X
EDE-MCC-514		X			
FW-PT-524	X	X	FW-PT-535	X	X
FW-PT-526	X	X			
FW-PT-534	X	X	FW-PT-525	X	X
FW-PT-536	X	X			
MM-IR-51A	X	X	MM-IR-51B	X	X
			MS-PY-3002-1,2	X	X
MS-PY-3002-5,6	X	X	MS-PY-3002-3,4	X	X
			MS-PV-3002	X	X
MS-PY-3003-1,2	X	X			
MS-PY-3003-3,4	X	X	MS-PY-3003-5,6	X	X
MS-PV-3003	X	X			
MS-V86		X			
MS-V92		X			
MS-V88	X	X	MS-V88	X	X
MS-V90	X	X	MS-V90	X	X
MS-CP-182	X	X			
MS-CP-184	X	X			
MS-V205	X	X			
MS-V206	X	X			
SW-P-41A		X			
SW-P-41C		X			
SW-V2		X			
SW-V22		X			
SW-V44		X			
SW-V63		X			
SW-PT-8272		X			
SW-PT-8273		X			
SW-PT-8274		X			
SWA-FN-40A		X			

B. Analysis

1. General Area Analysis

The east MS & FW pipe chase is a concrete structure 74'-9" long by 16'-3" wide by 57' high with a floor area of 1220 sq. ft. and a volume of 69,540 cu. ft. The area contains no in situ combustibles other than cables in trays. There is one stack of three cable trays. The bottom tray is an enclosed instrument level tray located approximately 1'-6" above the floor. The other trays are open ladder type trays which are located approximately 10' above the floor. The zone contains approximately 140 lineal ft. of ladder type tray.

Detectors are provided throughout the area.

2. System Analysis

a. Containment Enclosure Ventilation Fans EAH-FN-174A, EAH-FN-174B and Temperature Switches, EAH-TSH-5136, EAH-TSH-5763.

Redundant ventilation fans and related cables are located in proximity. The purpose of these fans is to provide cooling for the Train A MSIV logic cabinets and the main steam pressure instrumentation. The failure of these fans will not prevent safe shutdown as the Train B logic cabinets and the main steam pressure transmitters FW-PT-514 and FW-PT-545 are not in the same fire area. The Train B logic cabinets are in the Train B switchgear room (Fire Area CB-F-1B-A) and the main steam pressure transmitters FW-PT-514 and FW-PT-545 are located in the west main steam and feedwater pipe chase (Fire Zone MSF-1B-Z). These logic cabinets and pressure transmitters will perform their safe shutdown function.

The Appendix R separation requirements are satisfied.

b. 460 Volt Motor Control Center EDE-MCC-514

All cables are Train A. The redundant Train B cables are in Fire Area DCT-F-1B-0.

The Appendix R separation requirements are satisfied.

c. Main Steam Pressure Transmitters FW-PT-524, FW-PT-525, FW-PT-526, FW-PT-534, FW-PT-535, FW-PT-536 and Instrument Racks, MM-IR-51A, MM-IR-51B.

Redundant channels of main steam pressure instruments and cables are located in proximity. Spurious operation of the channels will initiate a safety injection signal. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

and containment isolation phase A

and terminate the containment isolation by use of the manual reset switch

B. Analysis

1. General Area Analysis

The west MS & FW pipe chase is a concrete structure 66'-9" long by 14' wide by 57' high with a floor area of 935 sq. ft. and a volume of 64,700 cu. ft.

The area contains no in situ combustibles and no cables in trays.

Detectors are provided throughout the area.

2. System/Equipment Analysis

a. Main Steam Pressure Transmitters FW-PT-514, FW-PT-515, FW-PT-516, FW-PT-544, FW-PT-545, FW-PT-546 and Instrument Racks, MM-IR-52A, MM-IR-52B.

Redundant channels of main steam pressure instruments and cables are located in proximity. Spurious operation of the channels will initiate a safety injection signal. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch. All SI equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas CB-F-1A-A and CB-F-1B-A).

Additionally main steam line pressure transmitters FW-PT-514 and FW-PT-545 utilized for process monitoring are located in the same fire areas. A fire could cause loss of indication from both main steam line pressure transmitters. However, the same fire would not affect pressure transmiters FW-PT-525 and FW-PT-534 which are functionally redundant and are located in the east main steam and feedwater pipe chase. (Fire Area: MS-3A-Z). These pressure transmitters and their associated atmospheric relief valves MS-PV-3002 and MS-PV-3003 will perform their safe shutdown function.

The safe shutdown requirements and Appendix R separation requirements are satisfied.

b. Atmospheric Relief Valves MS-PV-3001, MS-PV-3004 and Associated Solenoids.

Valves MS-PV-3001 and MS-PV-3004 are normally closed valves. A fire could prevent operation of these valves. However, the same fire would not prevent the operation of valves MS-PV-3002 and MS-PV-3003 which are in the west main steam and feedwater pipe chase (Fire Area: MS-F-1A-Z, MS-F-2A-Z).

B. ANALYSIS (cont'd)

b. Atmospheric Relief Valves MS-PV-3001, MS-PV-3004 and Associated Solenoids

Spurious opening of even one ARV can result in an overcooling condition in the RCS. This coupled with the potential unavailability of SI constitutes an unanalyzed condition. Since the ARV's are air operated valves, their spurious operation will be prevented by assuring that these valves are placed in a state such that the initial spurious operation in the air supply will not cause the valve to open. This will be accomplished by procedure as one of the first steps for any fire that can affect the integral ARV air system cables. This action is justifiable since it can be accomplished from the main control room. To prevent a subsequent short that could override the initial action and cause the ARV to open, the affected air solenoids will be de-energized from the distribution panels located in Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

This will isolate the faulted air supply but will not preclude operation of the ARV since the redundant air solenoids will still be operational.

The safe shutdown requirements are satisfied.

c. Main Steam Isolation Valves (MSIV) MS-V86 and MS-V92

The valves MS-V86 and MS-V92 have no redundant counterpart, but they are supplied with redundant control capabilities. The Train A and Train B conduits are on opposite sides of the west MS & FW pipe chase with a minimum horizontal separation of 10' up to the point that the conduits must run to the valves. The MSIV connection boxes and electrical equipment are located approximately 25' above the floor. The Train B conduits are a minimum of 20' above the floor at the point they are in proximity to the Train A conduits. The Train A and Train B controls are on opposite sides of the MSIV approximately 2' apart.

These valves are closed as an initial operator action. Should an MSIV reopen due to spurious operation (loss of power to both trains), the operators will isolate all feedwater to its respective steam generator and allow the SG to dry out. In the worst case this condition could occur to both MSIV's. The two steam generators and their associated MSIV's in the east main steam and feedwater pipe chase (Fire Area: MS-1A-Z and MS-F-2A-Z) will be available for safe shutdown.

The safe shutdown requirements are satisfied.

TABULATION 3.2.7.61

WEST AIR MAKE-UP PIT

FIRE AREA: MUA-F-2-0

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire area.

C. EVALUATION

The Appendix R separation requirements do not apply to this fire area.

TABULATION 3.2.7.62

NON-ESSENTIAL SWITCHGEAR ROOM

FIRE AREA: NES-F-1A-Z

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
ED-I-4	X	X			
ED-PP-5	X	X			
ED-PP-121B	X	X			
ED-SWG-1	X	X			
ED-SWG-2	X	X			
~~ED-SWG-12B~~		~~X~~			
ED-DS-11		X			
ED-DS-25		X			
EDE-SWG-5		X			
MM-CP-153		X			
RC-P-1A		X			
RC-P-1B		X			
RC-P-1C		X			
RC-P-1D		X			

B. ANALYSIS

Loss of

ED-SWG-12B supplies power to ED-I-4, ED-PP-121B. Loss of ED-SWG-12B, ED-I-4, ED-PP-5, MM-CP-153 will cause loss of CST level instrumentation CO-LT-4096. Redundant equipment is located in fire area EFW-F-1-A.

(ED-SWG-1 and ED SWG-2)

RC Pump Switchgear Control Power ~~(ED-PP-121B)~~ is lost. The RC pump switchgear is located in the fire area. The operator will trip the pumps by tripping offsite power from the control room.

ED-DS-1 and ED-DS-2

Pressurizer Heaters C, D and control group control power ~~(ED-PP-121B)~~ will be lost due to this fire. If the heaters require tripping, an operator will do so manually in the Train A switchgear room (Fire Area: CB-F-1A-A). Redundant heaters are available with control power from the essential DC bus.

The normally closed, fail open charging valve CS-V-177 can fail open due to loss of control power (ED-SWG-12B). This is acceptable.

Auxiliary spray valve (CS-V-185) can fail closed due to loss of power (ED-SWG-12B). This is acceptable. No hot shorts in this fire area would cause the valve to spuriously open.

B. ANALYSIS (cont')

Cables from EDE-SWG-5 ~~is~~ are located in this fire area. Loss of ~~this~~ one cable could cause loss of offsite power which is acceptable since both diesel generators are available.

C. EVALUATION

The safe shutdown requirements are satisfied.

TABULATION 3.2.7.63

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-1A-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			CC-P-11B		X
			CC-P-11D		X
			CC-TE2271		X
			CC-TV-2271-1		X
			CC-TV-2271-2		X
			CC-V122		X
			CC-V168		X
			CC-V1092		X
			CC-V1095		X
CS-E-5A	X		CS-E-5B	X	
CS-FCV-121		X	SI-V139		X
CS-FT-121	X	X			
CS-HCV-182	X	X			
MM-IR-17	X	X	CS-LCV-112C		X
			CS-LCV-112E		X
CS-P-2A		X	CS-P-2B		X
			CS-P-3B		X
			CS-V-143		X
CS-V-196		X	CS-V-197		X
			EAH-DP-37B		X
			EAH-FN-5B		X
			EAH-FN-31B		X
			EDE-SWG-6		X
EDE-MCC-513		X			
			PAH-DP-43B		X
			PAH-DP-358		X
			PAH-FN-42B		X
			RC-V22		X
			RC-V87		X

TABULATION 3.2.7.65

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-1F-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire zone.

C. EVALUATION

The Appendix R separation requirements do not apply to this zone.

TABULATION 3.2.7.66

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-1J-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CC-V175		X			
CC-V257		X			
CS-FCV-121	X	X			
CS-FY-121B	X	X			
CS-V158		X			
CS-V196	X	X	CS-V197	X	X
RC-V023		X			
RC-V088		X			
SI-PT-937		X	SI-PT-936		
SI-V138		X			

B. ANALYSIS

For Analysis, see Primary Auxiliary Building Zone Analysis and Evaluation.

C. EVALUATION

For Evaluation, see Primary Auxiliary Building Zone Analysis and Evaluation.

TABULATION 3.2.7.67

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-1K-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CS-LCV-112B		X	CS-LCV-112C		X
CS-LCV-112D		X	CS-LCV-112E		X
SW-V4	X	X	SW-V5	X	X
SW-V74	X	X			
PAH-DP-43A	X	X	PAH-DP-43B	X	X
PAH-DP-357		X	PAH-DP-35E		X
PAH-FN-42A		X	PAH-FN-42B		X

B. ANALYSIS

For Analysis, see Primary Auxiliary Building Zone Analysis and Evaluation.

C. EVALUATION

For Evaluation, see Primary Auxiliary Building Zone Analysis and Evaluation.

TABULATION 3.2.7.68

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-2A-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CS-LT-102		X	CS-LT-106		X
CS-P-3A		X	CS-P-3B		X
			CS-V-426		X
EAH-DP-37A		X	EAH-DP-37B		X
			EAH-FN-5B		X
EDE-MCC-513		X			
PAH-DP-35A	X	X	PAH-DP-35B		X
PAH-DP-36A		X	PAH-DP-36B		X
PAH-DP-43A		X			
PAH-DP-357		X			
PAH-FN-42A		X			
SW-FN-51A		X			
SW-P-41A		X			
SW-P-41C		X			
SW-P-110A		X			
SW-P-54 V		X			
SW-P-55 V		X			
SW-P-56 V		X			
SW-V139		X			
SWA-DP-66		X			
SWA-FN-64		X			
SWA-FN-71		X			

B. ANALYSIS

For Analysis, see Primary Auxiliary Building Zone Analysis and Evaluation.

C. EVALUATION

For Evaluation, see Primary Auxiliary Building Zone Analysis and Evaluation.

TABULATION 3.2.7.69

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-2B-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CS-LT-102	X	X	CS-LT-106	X	X
CS-P-3A	X	X	CS-P-3B	X	X
			CS-V426	X	X
CS-V410	X		CS-V410	X	
CS-V416	X		CS-V416	X	
CS-V431	X		CS-V423	X	
CS-V437	X		~~CS-V437~~	~~X~~	
~~CS-V438~~	~~X~~		~~CS-V438~~	~~X~~	
CS-V439	X		CS-V439	X	
CS-V442	X		CS-V442	X	
CS-TK-4A	X		CS-TK-4B	X	
PAH-DP-43A		X			
PAH-DP-357		X			
PAH-FN-42A		X			

B. ANALYSIS

For Analysis, see Primary Auxiliary Building Zone Analysis and Evaluation.

C. EVALUATION

For Evaluation, see Primary Auxiliary Building Zone Analysis and Evaluation.

TABULATION 3.2.7.70

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-2C-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CC-LT-2172-1		X	CC-LT-2192-1		X
CC-LT-2172-2		X	CC-LT-2192-2		X
CC-LT-2172-3		X	CC-LT-2192-3		X
CC-LT-2272-1		X	CC-LT-2292-1		X
CC-LT-2272-2		X	CC-LT-2292-2		X
CC-LT-2272-3		X	CC-LT-2292-3		X
CC-P-11A	X	X	CC-P-11B	X	X
CC-P-11C	X	X	CC-P-11D	X	X
CC-TE-2171	X	X	CC-TE-2271	X	X
CC-TV-2171-1	X	X	CC-TV-2271-1	X	X
CC-TV-2171-2	X	X	CC-TV-2271-2	X	X
CC-TY-2171	X	X	CC-TY-2271	X	X
MM-IR-93	X	X			
CC-E-17A	X		CC-E-17B	X	
CS-FT-121		X			
CS-FCV-121		X			
CS-HCV-182		X			
CS-LT-102		X	CS-LT-106		X
CS-LCV-112B		X	CS-LCV-112C		X
CS-LCV-112D		X	CS-LCV-112E		X
CS-P-2A		X			
CS-P-3A		X	CS-P-3B		X
CS-V196		X			
			CS-V426		X
EDE-MCC-513		X			
EAH-DP-37A		X	EAH-DP-37B		X
EAH-FN-5A		X	EAH-FN-5B		X
EAH-FN-3A		X	EAH-FN-3B		X
PAH-DP-35A		X	PAH-DP-35B		X
PAH-DP-36A	X	X	PAH-DP-36B		X
PAH-DP-43A		X	PAH-DP-43B		X
PAH-DP-357	X	X	PAH-DP-358	X	X
PAH-FN-42A	X	X	PAH-FN-42B	X	X
PAH-TSH-5391	X	X	PAH-TSH-5393	X	X

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
SW-FN-51A		X			
SW-P-41A		X			
SW-P-41C		X			
SW-P-110A		X			
SW-V4		X	SW-V5		X
SW-V15		X	SW-V17		X
SW-V16		X	SW-V18		X
SW-V20	X	X	SW-V19	X	X
SW-V34	X	X	SW-V23	X	X
SW-V54		X			
SW-V55		X			
SW-V56		X			
SW-V74		X			
SW-V139		X			
SWA-DP-66		X			
SWA-FN-64		X			
SWA-FN-71		X			

B. ANALYSIS

For Analysis, see Primary Auxiliary Building Zone Analysis and Evaluation.

C. EVALUATION

For Evaluation, see Primary Auxiliary Building Zone Analysis and Evaluation.

TABULATION 3.2.7.71

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-3A-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CC-LT-2172-1	X	X	CC-LT-2192-1	X	X
CC-LT-2172-2	X	X	CC-LT-2192-2	X	X
CC-LT-2172-3	X	X	CC-LT-2192-3	X	X
CC-LT-2272-1		X	CC-LT-2292-1		X
CC-LT-2272-2		X	CC-LT-2292-2		X
CC-LT-2272-3		X	CC-LT-2292-3		X
EDE-TBX-YH4	X	X	EDE-TBX-YH5	X	X
CC-TK-19A	X		CC-TK-19B	X	
CS-LCV-112B		X			
DG-E-42A	X		DG-E-42B	X	
PAH-DP-35A		X			
PAH-DP-36A		X			
PAH-PDIS-5378	X	X			
SW-V4		X	SW-V5		X
SW-V15	X	X	SW-V17	X	X
SW-V16	X	X	SW-V18	X	X

B. ANALYSIS

For Analysis, see Primary Auxiliary Building Zone Analysis and Evaluation.

C. EVALUATION

For Evaluation, see Primary Auxiliary Building Zone Analysis and Evaluation.

TABULATION 3.2.7.72

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-3B-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CC-LT-2272-1	X	X	CC-LT-2292-1	X	X
CC-LT-2272-2	X	X	CC-LT-2292-2	X	X
CC-LT-2272-3	X	X	CC-LT-2292-3	X	X
CS-LCV-112B	X	X	CS-LCV-112C	X	X
PAH-DP-35A		X			
PAH-DP-36A		X			
PAH-PDIS-5377	X	X			

B. ANALYSIS

For Analysis, see Primary Auxiliary Building Zone Analysis and Evaluation.

C. EVALUATION

For Evaluation, see Primary Auxiliary Building Zone Analysis and Evaluation.

TABULATION 3.2.7.73

PRIMARY AUXILIARY BUILDING

FIRE ZONE PAB-F-4-Z

A. EQUIPMENT AND CABLES LOCATED IN THE ZONE

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire zone.

C. EVALUATION

The Appendix R separation requirements do not apply to this zone.

ANALYSIS (cont'd)

2. Zone Analyses

a. Fire Zone PAB-F-1A-Z (Tabulation 3.2.7.63)

1) Specific Zone Analysis

This zone at Elevation 7'-0" and (-) 2'-0" of the PAB is bounded by concrete floors, ceilings and walls with penetrations to other zones. The zone is approximately 140' long by 75' wide by 16' high with a floor area of 5200 sq. ft. and a volume of 81,600 cu ft. ~~No Safe Shutdown equipment are contained in the zone, only Safe Shutdown cables~~. All Train B Safe Shutdown cables are routed in conduit with a one-hour, fire-rated barrier. Combustibles are limited to 2.5 gallons of oil for a fire loading of 375,000 Btu and cables in open trays with a total fire loading of 6000 Btu per sq ft of floor area.

Detectors are provided throughout the zone.

2) System Analyses

a) Primary Component Cooling Water (CC) System

This zone contains cable routed in barriered conduits for temperature element CC-TE-2271; pumps CC-P-11B and and CC-P-11D; and valves CC-TV-2271-1, CC-TV-2272-2, CC-V122, CC-V168, CC-V1092 and CC-1095. This equipment is all Train B. There is no redundant Train A CC system equipment or cables in this fire zone.

b) Chemical and Volume Control (CS) System

This zone contains cables routed in barriered conduits for pumps CS-P-2B and CS-P-3B; and valves CS-LCV-112C, CS-LCV-112E, CS-V143 and CS-V197.

Cables for the Train A pump CS-P-2A which is redundant to pump CS-P-2B are routed in tray and conduit that is 10' above floor Elevation 7'-0" in the area that the pump cables are in proximity.

Cables for the Train A Valves CS-FCV-121 and transmitter CS-FT-121 ~~and CS-HCV-182~~ which provide a redundant charging flow path to valve SI-V139 are routed in tray and conduit in proximity to the barriered conduit containing the cables for SI-V139.

Cables for the Train A valve CS-V196 are routed in tray and conduit in proximity to the barriered conduits containing the cables for the Train B Valve CS-V197.

ANALYSIS (cont'd)

2. Zone Analyses (cont'd)

a. Fire Zone PAB-F-1A-Z (cont'd)

2) System Analyses (cont'd)

c) Containment Enclosure Air Handling (EAH) System

This zone contains cables routed in barriered conduits for damper EAH-DP-37B and fans EAH-FN-5B and EAH-FN-31B. This equipment is all Train B. There is no redundant Train A EAH system equipment or cables in this fire zone.

d) Electrical Distribution - Emergency (EDE) System

This zone contains Train B cables routed in a barriered conduits for the 4160V switchgear EDE-SWG-6. There are no functionally redundant cables in this area. The Train A EDE-MCC-513 cable has functionally redundant cables located in other fire areas.

e) PAB Handling (PAH) System

This zone contains cables routed in barriered conduits for dampers PAH-DP-43B, PAH-DP-358 and fan PAH-FN-42B. This equipment is Train B. There is no redundant Train A PAH system equipment or cables in this fire zone.

f) Reactor Coolant (RC) System

This zone contains cables routed in barriered conduits for valves RC-V22 and RC-V87. The cables are part of the position indicating light circuit for valves that have been permanently disabled. Failures in this circuit will not prevent opening of the valves for cold shutdown.

g) Safety Injection (SI) System

This zone contains cables routed in barriered conduits for valve SI-V139. This equipment is Train B. The redundant cables and euqipment are as discussed in b) above.

h) Service Water (SW) System

This zone contains cables routed in barriered conduits for Train B pumps SW-P-41B and SW-P-41D and valves SW-V5, SW-V17, SW-V18, SW-V19, SW-V23 and SW-V25. Cables for Train A pumps SW-P-41A and SW-P-41C and valve SW-V54, which are redundant to pumps SW-P-41B and SW-P-41D and valve SW-V25 are routed in tray that is 9' above the floor Elevation 7'-0" except at the entrance to the duct bank to the cooling towers where it is 3'-6" above floor Elevation 7'-0". There is approximately 8' of horizontal separation

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

b. Fire Zone PAB-F-1J-Z (cont'd)

2) System Analyses (cont'd)

b) Chemical and Volume Control (CS) System (cont'd)

redundant charging flow path to Train B Valve SI-V139. The redundant Train B cables are routed in barriered conduit in Fire Zone PAB-F-1A-Z and are separated from the Train A cables by concrete floors and walls.

Valve CS-V158 provides a redundant seal cooling capabilities to the safety grade thermal barrier cooling. Cables, controls and equipment for the Train A thermal barrier cooling capability are not contained in the PAB fire area and will be available for safe shutdown.

Redundant valves CS-V196 and CS-V197 are located in the same fire zone and are separated by approximately 3' horizontal separation. These valves are normally open valves that remain open for Safe Shutdown. The spurious closure for one valve will not prevent shutdown. The operators will prevent further spurious operation by tripping the power supply breakers at the Train A or Train B switchgear rooms (Fire Areas: CB-F-1A-A or CB-F-1B-A).

c) Reactor Coolant (RC) System

This zone contains cables routed in tray for the Train A valves RC-V23 and RC-V88. The cables are part of the position indicating light circuit for valves that have been permanently disabled. Faiures in this circuit will not prevent the opening of the valves for cold shutdown.

d) Safety Injection (SI) System

This zone contains cables routed in tray for the Train B valve SI-V139. The tray is a minimum of 10' above floor Elevation (-) 26'-0". Only 6 lineal feet of the tray is in the zone. The redundant Train B cables are routed in barriered conduit above floor Elevation (-) 8'-0" in Fire Zone PAB-F-1A-Z, which is approximately 18'horizontally above the Train A cables with an intervening concrete floor.

(ST-P1-956 and ST-P1-957)

Redundant channels of containment pressure ~~instruments and~~ cables are located in proximity. Spurious operation of these channels will initiate containment spray and containment isolation Phase B. The operators will have the capability to terminate these protective actions ~~after 1 minute~~ by use of manual reset ~~and block~~ switches. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-1F-1A-A and CB-F-1B-A).

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

b. Fire Zone PAB-F-1J-Z (cont'd)

3) Summary (cont'd)

For CC and SI systems above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the height of the Train A an B raceways; and considering the low combustibles loading in the zone provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. A deviation from Appendix R, Paragraph III G.2.c "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested.

For CS system above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; and the low combustibles loading in the area provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. A deviation from Appendix R, Paragraph III G.2.c in additon to 1 hour fire barrier, an automatic fire suppression system shall be installed", is requested.

For RC system above, the Safe Shutdown requirements are satisfied.

c. Fire Zone PAB-F-1K-Z (Tabulation 3.2.7.67)

1) Specific Zone Analysis

This zone between Elevation (-) 6'-0" and roof Elevation 81'-0" of the PAB is bounded by concrete floors, ceilings and walls with penetrations to other zones. The zone is approximately 68' long by 9' wide by 75' high with a floor area of 4,620 sq ft and a volume of 75,370 cu ft.

There is no tray in the zone and all cables are routed in conduit. All Train B Safe Shutdown cables are routed in conduit with a one-hour, fire-rated barrier.

There are no in situ combustibles in the zone.

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

d. Fire Zone PAB-F-2A-Z (Tabulation 3.2.7.68)

1) Specific Zone Analysis

fire zones PAB-F-2B-Z and PAB-F-2C-Z. The northern boundary consists of partial height concrete walls and an 11' wide access passage. The western boundary consists of full height concrete walls and metal partitions. There are penetartions for tray, ducts, and pipes to other fire zones. The zone is approximately 44' long by 39' wide by 26' high with a floor area of 1550 sq ft and a volume of 40,000 cu ft.

No Safe Shutdown equipment is contained in the zone, only Safe Shutdown cables. Combustibles are limited to cables in open trays with a total fire loading of 20,000 Btu per sq ft of floor area. This is classed as a low fire load.

Detectors are provided throughout the zone.

2) System Analyses

a) Chemical and Volume Control (CS) System

This zone contains cables routed in tray and conduit for the redundant boric acid tank level transmitters CS-LT-102 and CS-LT-106. These tank levels are only required once cooldown has been initiated. Should both transmitter cables be damaged by a fire, the operators can utilize the Train B level transmitter CS-PT-7464 whose cable is routed through a one-hour, fire-rated barrier. The indicator for this transmitter is located at the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A).

LT

This zone contains cables routed in tray and conduit for the redundant boric acid pumps CS-P-3A and CS-P-3B and for the valve CS-V426. Should both pumps or the valves be damaged by a fire, the operator will establish a gravity path from the BAT's to the charging pump suction by the repositioning of manual valves in the boric acid pump room (Fire Zone PAB-F-2B-Z). These valves are not required to be operated until boric acid is required for shutdown reactivity. This would be a minimum of three hours.

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

d. Fire Zone PAB-F-2A-Z (Tabulation 3.2.7.68)

2) System Analyses (Cont'd)

b) Containment Enclosure Air Handling (EAH) System

This zone contains cable routed in barriered conduit for the Train B fan EAH-FN-5B. The cables for the redundant Train A fan EAH-FN-5A are routed in trays in fire zone PAB-F-2C-Z. There is approximately 16' horizontal separation between the barriered conduit and the redundant tray.

Cables for redundant normally closed, fail open dampers EAH-DP-37A and EAH-DP-37B are routed in trays and conduits in proximity to one another. Only one of the two dampers is required to open for safe shutdown. To prevent further spurious operation and open the dampers the operators will trip their power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

c) Electrical Distribution Emergency (EDE) System

All cables are Train A. The functionally redundant cables are located in other fire areas.

d) PAB Air Handling (PAH) System

Cables and equipment for redundant dampers PAH-DP-35A, PAH-DP-36A and PAH-DP-35B, PAH-DP-36B are routed in trays and conduits in proximity to one another. These dampers are interlocked with the EAH-DP-37A and EAH-DP-37B such that a failure in their circuitry could prevent closure of the EAH dampers from the MCR. To bypass these spurious signals, the operators will trip the power supply breakers to the EAH-DP-37A and EAH-DP-37B in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

This zone contains cables routed in tray for the Train A fan PAH-FN-42A and damper PAH-DP-44A. The cables for the redundant Train B fan PAH-FN-42B and damper PAH-DP-44B are routed in barriered conduit in fire zone PAB-F-2C-Z. There is greater than 50' of horizontal separation between the tray and the redundant barriered conduit.

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

f. Fire Zone PAB-F-2C-Z (cont'd)

2) System Analyses

a) Primary Component Cooling Water (CC) System

The redundant Primary Component Cooling Water (PCCW) pumps are located in the same fire area. The CC System is configured such that there are two 100% capacity PCCW pumps in each train either of which can be utilized for safe shutdown. The spatial separation between Train A pump CC-P-11A and Train B pump CC-P-11D is in excess of 20' with a metal partition between them. The spatial separation between Train A pump CC-P-11C and Train B pump CC-P-11B is in excess of 20' with a metal partition between them. The cables to the Train B pumps are routed in barriered conduit from the point they enter the PAB to the pump motors. The conduits are barriered in the vicinity of the Train B pumps. The Train B pumps have a spatial separation of 25' from the Train A trays and 15' from the Train B trays.

The redundant PCCW heat exchanger valves CC-TV-2171-1, 2 and and CC-TV-2271-1, 2 and their associated controls and instrument rack MM-IR-93 are located in the same fire area. The cables for the Train B valves CC-TV-2271-1 and CC-TV-2271-2 and the Train B controllers are routed in barriered conduits. The redundant valves are mounted approximately 20' above the floor with a minimum separation of 2'.

The controllers are wall and instrument rack mounted and are separated by aproximately 20'.

The redundant temperature elements CC-TE-2171 and CC-TE-2271 are located in the same fire area. The cable for the Train B temperature element is routed in a barriered conduit. The redundant temperature elements have a horizontal separation of approximately 8' and are mounted on 24" component cooling water pipes approximately 20' above the floor.

Cables for the redundant head tank level transmitters are in proximity. Failures in these cables could initiate a spurious lo-lo-head tank level isolation signal. This in turn would result in closure of the PCCW containment isolation valves. These valves are only required when it is necessary to maintain containment habitable for containment entry to manually operate the RHR isolation valves and the SI accumulator isolation valves. The circuity for these valves is not affected by a fire in this area; hence, they would be operable from the MCR. Therefore, the spurious operation of these transmitters will not prevent safe shutdown.

For cooldown, the operators will manually align the Train B charging pump discharge and bypass values (CS-V219 and CS-V220) to the seal injection flow path and throttle the bypass valves as required.

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

f. Fire Zone PAB-F-2C-Z (cont'd)

2) System Analyses (cont'd)

b) Chemical and Volume Control (CS) System

This zone contains cables in tray required for operation of Train A valves CS-FCV-121 ~~and CS-HCV-182~~, which provides a ~~redundant~~ charging flow path ~~to RCS via B valve SI-V139~~. The redundant Train B cables are routed in barriered conduit in Fire Zone PAB-F-1A-Z and are separated from the Train A cables by concrete floors.

required hot standby

SI-V139

one of the

This zone contains cables routed in tray for the redundant boric acid tank level transmitters CS-LT-102 and CS-LT-106. These tank levels are only required once cooldown has been initiated. Should both transmitter cables be damaged by a fire, the operators can utilize the Train B level transmitter CS-PT-7464 whose cable is routed through a one-hour, fire-rated barrier. The indicator for this transmitter is loacated at the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A).

LT

This zone contains cables routed in tray and conduit for the redundant boric acid pumps CS-P-3A and CS-P-3B and for the valve CS-V426. Should both pumps or the valves be damaged by a fire, the operator will establish a gravity path from the BAT's to the charging pump suction by the repositioning of manual valves in the boric acid pump room (Fire Zone PAB-F-2B-Z). These valves are not required to be operated until boric acid is required for shutdown reactivity. This would be a minimum of three hours.

This zone contains cables routed in tray and conduit for the Train A charging pump CS-P-1A. The cable for the redundant Train B pump CS-P-2B are routed in a barriered conduit in Fire Zone PAB-F-1A-Z.

The zone contains cables routed in tray and conduit for the redundant valves CS-LCV-112B, CS-LCV-112D, CS-LCF-112C and CS-LCV-112E. The cables for valves CS-LCV-112C and CS-LCV-112E are routed in barriered conduits.

This zone contains cables routed in trays for valve CS-V196. The cables for the redundant Train B valve CS-V197 are routed in a barrier conduit in Fire Zone PAB-F-1A-Z.

This zone contains cables in barriered conduit for the charging to RCS isolation value CS-V143. The cables for the redundant value CS-V142 are not contained in this fire area.

(Fire Area : CB-F-1B-A) and restart the fan with the exception of one cable, all

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

f. Fire Zone PAB-F-2C-Z (cont'd)

2) System Analyses (cont'd)

c) Containment Enclosure Air Handling (EAH) System

The cables for the redundant fans EAH-FN-5A and EAH-FN-5B, and EAH-FN-31A and EAH-FN-31B are routed in tray and conduits in the same area. ~~The~~ Train B fan cables are routed in barriered conduits. In the event that the unprotected cable is damaged by the fire, the operators can isolate the failed portion of the circuit at the RSS panel in the Train B switchgear room. The Train B cables are separated from the Train A cables by a minimum of 20' with the exception of the area where the cables for fan EAH-FN-31B must cross the Train A trays to enter the containment enclosure ventilation area. At this location there is suppression and a one-hour, fire-rated barrier around the conduit.

protected

Cables for redundant normally closed, fail open dampers EAH-DP-37A and EAH-DP-37B are routed in trays and conduits in proximity to one another. Only one of the two dampers is required to open for safe shutdown. To prevent further spurious operation and open the dampers the operators will trip their power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

d. Electrical Distribution Emergency (EDE) System

All cables are Train A. The functionally redundant cable are located in other fire areas.

e) PAB Air Handling (PAH) System

Cables and equipment for redundant dampers PAH-DP-35A, PAH-DP-36A, PAH-DP-35B and PAH-DP-36B are routed in trays and conduits in proximity to one another. These dampers are interlocked with the EAH-DP-37A and EAH-DP-37B dampers such that a failure in their circuity could prevent closure of the EAH dampers from the MCR. To bypass these spurious signals, the operators will trip the power supply breakers to the EAH-DP-37A and EAH-DP-37B dampers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

f. Fire Zone PAB-F-2C-Z (cont'd)

2) System Analyses (cont'd)

e) PAB Air Handling (PAH) System

The redundant PAH fans (PAH-FN-42A and PAH-FN-42B) and dampers (PAH-DP-43A, PAH-DP-357, PAH-DP-43B and PAH-DP-358) are in proximity. The fans and dampers are inside separate metal enclosures located approximately 15' above the floor. The Train B fan and damper cables are routed in barriered conduits. There are no cable trays in the vicinity of the fans and dampers. The only in situ combustibles in the vicinity are in the PCCW pumps which are separated from the fans and dampers by greater than 20' horizontally and the monorail crane hoist.

These fans are not needed unless the main ventilation system is lost due to the loss of off-site power or unless the temperature in the immediate area exceeds 40°C (104°F).

The redundant temperature switches PAH-TSH-5391 and PAH-TSH-5393 are located in proximity. Should these switches fail, the operators can isolate the affected portion of the circuit at the RSS facilities in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A) and restart the fans.

f) Service Water (SW) System

This zone contains cables routed in tray for the Train A pumps SW-P-11A and SW-P-11C and valve SW-V54. The redundant Train B pumps and valve cables are routed in a barriered conduit in Fire Zone PAB-F-1A-Z which is separated from this zone by an intervening concrete floor.

The cables for redundant valves SW-V4, SW-V16, SW-V5 and SW-V18, are located in the same fire zone. These valves may be required to reposition to isolate secondary component cooling water or for DG cooling. The Train B valves SW-V5 and SW-V18 cables are routed in barriered conduits and are separated from the Train A cables by greater than 30' horizontally. There are no cable trays or other in situ combustibles in the vicinity of Train B conduits.

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

f. Fire Zone Pab-F-2C-Z (cont'd)

2) System Analyses (cont'd)

f) Service Water (SW) System (Cont'd)

Redundant valves SW-V20, SW-V34 and SW-V19, SW-V23 are located in the same fire zone. Operators for valves SW-V34 and SW-V23 are approximately 5' above floor Elevation 25'-0" and operators for valves SW-V20 and SW-V19 are approximately 10' above floor Elevation 25'-0". The redundant valves are separated by approximately 16' horizontally. There are no cable trays in the vicinity of the valves. The only in situ combustibles in the vicinity are the PCCW pumps which are separated from the Train A valves by greater than 16' horizontally. The valves are in Safe Shutdown position. The operators will prevent spurious operation by tripping the power supply breakers at the Train A and Train B Switchgear Rooms (Fire Area: CB-F-1A-A and CB-F-1B-A).

For the other Train A cables routed in this zone, the redundant cables and equipment are contained in other fire areas.

g) Service Water Air Handling (SWA) System

All cables are Train A. The redundant functionally cables are located in other fire areas.

3) Summary

For the CC system above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the spatial separation; and the provision of the sprinkler system, provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

For the CS System Charging Pumps and the related CS and SI valves above, the routing of the Train B cables in conduit with a one-hour, fire-related barrier and the provision of suppression in the area of the trays and the PCCW pumps, provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

For the CS system boric acid pumps and related valves above, the provision of a manual alignment capability that is not required for a minimum of three hours satisfies the safe shutdown requirements.

ANALYSIS (cont'd)

2. Fire Analyses (cont'd)

f. Fire Zone PAB-F-2C-Z (cont'd)

3) Summary (cont'd)

For the CS system transmitters above, the provision of a redundant transmitter with its cable routed in a one-hour fire-related barrier and the low combustibles loading in the zone, provide acceptable fire protection and provide protection equivvalent to the technical requirements of Appendix R.

For the EAH system fans above, the routing of Train B cables in conduit with a one-hour, fire-rated barrier and the provision of suppression in the area of the trays and the PCCW pumps, provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

For the EAH system dampers above, the safe shutdown requirements are satisfied.

For the PAH dampers above, the safe shutdown requirements are satisfied.

For the PAH fans and related dampers above, the routing of the Train B cables in conduits with a one-hour, fire-rated barrrier; the height of the fans off the floor; the lack of combustibles in the area and the fact that a fire in the area could not cause loss of offsite power, provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

For the PAH temperature switches above, the safe shutdown requirements are satisfied.

For the SW system above, the routing of the Train B cables in a conduit with a one-hour, fire-rated barrier; the spatial separation and the provision of the sprinkler system, provide acceptable fire protection and provide protection equivalent to the technical requirement of Appendix R.

For the EDE and SWA systems above, the Appendix R separation requirements are satisifed.

g. Fire Zone PAB-F-3A-Z (Tabulation 3.2.7.71)

1) Specific Zone Analysis

This zone at Elevation 53'-0" of the PAB is bounded by concrete floor, ceiling and walls (North, East and West) and is contigu-

EVALUATION

Deviations from the Appendix R, Paragraph III.G.2 separation requirements exist in the Primary Auxiliary Building fire zones PAB-F-1A-Z, PAB-F-1J-Z, PAB-F-1K-Z, PAB-F-2A-Z, PAB-F-2B-Z, PAB-F-2C-Z, PAB-F-3A-Z and PAB-F-3B-Z. These deviations are justified based on the above analyses and our assertion that additional modifications would not enhance fire protection safety.

TABULATION 3.2.7.74

PRIMARY AUXILIARY BUILDING

FIRE AREA: PAB-F-1C-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CS-P-2A	X	X			
CS-PS-7467	X	X			
CS-V210	X				
CS-V221	X				

B. ANALYSIS

All equipment and cables are Train A. The redundant Train B equipment and cables are in Fire Area PAB-F-1D-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.75

PRIMARY AUXILIARY BUILDING

FIRE AREA: PAB-F-1D-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			CS-P-2B	X	X
			CS-PS-7468	X	X
			CS-V219	X	
			CS-V220	X	

B. ANALYSIS

All equipment and cables are Train B. The redundant Train A equipment and cables are in Fire Area PAB-F-1C-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.76

PRIMARY AUXILIARY BUILDING

FIRE AREA: PAB-F-1E-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CS-FCV-121		X			
CS-FI-121B	X	X			
CS-FT-121		X			

B. ANALYSIS

Cables and equipment necessary for operation of valve CS-FCV-121 are contained in this fire area. This valve is part of the ~~normal charging~~ seal injection flow path. The cables and equipment for valves SI-V-138 and SI-V-139 which are part of the functionally redundant high head injection path are not contained in this fire area; hence they will be available for ~~safe shutdown~~. not standby

C. The Appendix R separation and safe shutdown requirements are satisfied.

For cooldown, the operators will manually align the charging pump discharge and bypass valves (CS-V210, CS-V221 or CS-V219, CS-V220) to the seal injection flow path and throttle the bypass valves as required.

TABULATION 3.2.7.77

PRIMARY AUXILIARY BUILDING

FIRE AREA: PAB-F-1G-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
CC-LT-2172-1		X	CC-LT-2192-1		X
CC-LT-2172-2		X	CC-LT-2192-2		X
CC-LT-2172-3		X	CC-LT-2192-3		X
CC-LT-2272-1		X	CC-LT-2292-1		X
CC-LT-2272-2		X	CC-LT-2292-2		X
CC-LT-2272-3		X	CC-LT-2292-3		X
CC-P-11A		X			
CC-P-11C		X			
CC-TE-2171		X			
CC-TV-2171-1		X			
CC-TV-2171-2		X			
CC-V145		X	CC-V272		X
CC-V175		X			
CC-V257		X			
CC-V1101		X			
CC-V1109		X			
CS-FT-121		X			
CS-FCV-121		X			
CS-HCV-182		X			
CS-LCV-112B		X			
CS-LCV-112D		X			
CS-LT-102		X	CS-LT-106		X
CS-P-2A		X			
CS-P-3A		X			
CS-V142		X			
CS-V154		X			
CS-V158		X			
CS-V162		X			
CS-V166		X			
CS-V167		X			
CS-V196		X			
			CS-V426		X
CS-V460		X	CS-V475		X
			CS-V401		X

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
EAH-DP-37A		X			
EAH-FN-5A		X			
EAH-FN-31A		X			
PAH-DP-35A		X	PAH-DP-35B		X
PAH-DP-36A		X	PAH-DP-36B		X
PAH-DP-43A		X			
PAH-DP-357		X			
PAH-FN-42A		X			
RC-V23		X	RC-V22		X
RC-V88		X	RC-V87		X
RH-FCV-618		X	RH-FCV-619		X
RH-HCV-606		X	RH-HCV-607		X
RH-V14		X	RH-V26		X
RH-V35		X	RH-V36		X
RH-V70		X	RH-V32		X
SI-~~V138~~ PT-937		X	SI-PT-936		X
SI-V138		X			
SW-FN-51A		X			
SW-P-41A		X			
SW-P-41C		X			
SW-P-110A		X			
SW-V4		X			
SW-V15		X			
SW-V16		X			
SW-V20		X			
SW-V34		X			
SW-V54		X			
SW-V55		X			
SW-V56		X			
SW-V74		X			
SW-V139		X			
SWA-DP-66		X			
SWA-FN-64		X			
SWA-FN-71		X			

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown cables. The redundant Train B safe shutdown cables are located in fire area DCT-F-3B-0 and other fire areas.

The Appendix R separation requirements are satisfied.

2. PCCW Head Tank level Transmitters CC-LT-2172-1, 2, 3; CC-LT-2272-1, 2, 3; CC-LT-2192-1, 2, 3, CC-LT-2292-1, 2, 3

Cables for the redundant head tank level transmitters are in proximity. Failures in these cables could initiate a spurious lo-lo-head tank level isolation signal. This in turn would result in closure of the PCCW containment isolation valves. These valves are only required when it is necessary to maintain containment habitable for containment entry to manually operate the RHR isolation valves and the SI accumulator isolation valves. The circuitry for these valves is not affected by a fire in this area; hence, they would be operable from the MCR. Therefore, the spurious operation of these transmitters will not prevent safe shutdown.

The safe shutdwon requirements are satisfied.

3. (See Attachment 9)

4. RHR Heat Exchanger Outlet Valves CC-V145, CC-V272

Cables for redundant valves CC-C145 and CC-V272 are routed in proximity to one another. The valves are normally closed and their position is inconsequential until the plant is cooled down to 350°F and the RH system is placed in operation. At that time, it is necessary to assure that the valve supplying PCCW to the operational RH train is opened. This can be accomplished manually if required in the appropriate equipment vault. Manual operation can be delayed as much as 8 hours into the event.

Therefore, no fire protection other than the existing separation is needed.

The provision of a capability to position the valve outside the fire area satisfies the safe shutdown requirements.

5. Charging Pump Discharge Valves CS-FCV-121 ~~, CS-HCV-182~~

This zone contains cables in tray required for operation of Train A valves CS-FCV-121 ~~and CS-HCV-182~~, which provide ~~a redundant charging~~ one of the flow path ~~to Train B valve SI-V139~~. The redundant Train B cables are located in Fire Area DCT-F-3B-0. (SI-V139)

required hot standby charging

The Appendix R separation requirements are satisfied. and safe shutdown

For cooldown, the operators will manually align the Train B charging pump discharge and bypass valves (CS-V219 and CS-V220) to the seal injection flow path and throttle the bypass valve as required.

B. ANALYSIS (Cont'd)

5. Boric Acid Tank Level Transmitter CS-LT-102, CS-LT-106

This zone contains cables routed in tray for the redundant boric acid tank level transmitters CS-LT-102 and CS-LT-106. These tank levels are only required once cooldown has been initiated. Should both transmitter cables be damaged by a fire, the operators can utilize the Train B level transmitter CS-PT-7464 whose cable is not routed through this fire area. The indicator for this transmitter is located at the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A).

The provision of a redundant transmitter with its cable routed in another fire area satisfies the safe shutdown requirements.

6. Charging Pumps to RCS Isolation Valve CS-V142

This valve is a normally open Train A valve whose spurious closure could isolate the normal charging path. In this event, the operators will utilize the high head injection path for charging flow by opening the Train B valve SI-V139. The cables, controls and equipment required for operation of SI-V139 are not contained in this fire area.

The safe shutdown requirements are satisfied.

7. Seal Injection Isolation Valves CS-V154, CS-V158, CS-V162 and CS-V166

These valves provide a redundant seal cooling capability to the safety grade thermal barrier seal cooling. Cables, controls and equipment required for the Train B thermal barrier seal cooling capability are not contained in this fire area.

The Appendix R separation requirements are satisfied.

8. RC Pump Seal Water Isolation Valve CS-V167

Valve CS-V167 is a normally open valve which should remain open for safe shutdown. Spurious isolation of this Train A valve could result in loss of RC inventory through the upstream relief valve. This inventory is directed to the PRT and is therefore, non-recoverable. To preclude this loss of inventory, functionally redundant isolation capability is provided by the RC pump seal return lines by means of Train A valves CS-V10, CS-V28, CS-V44, and CS-V59 and the excess letdown line by means of normally closed, fail closed valves CS-V175 or CS-V176. The cables, controls and equipment required for operation of valves CS-V10, CS-V28, CS-V44, CS-V59, CS-V175 and CS-V176 are not contained in this fire area.

The Appendix R separation requirements are satisfied.

Under normal conditions, the seal injection isolation valves CS-V154, CS-V158, CS-V162 and CS-V166 are utilized for the seal injection flow path. Spurious closure of one of these valves will not prevent safe shutdown. The operators will prevent further spurious operations by tripping the power supply breakers in the Train A switchgear room (Fire Area: CB-F-1A-A)
The safe shutdown requirements are satisfied.

ATTACHMENT G

3. Component Cooling Water Pumps CC-P-11A, CC-P-11C and Component Cooling Water Containment Isolation Valves CC-V175, CC-V257

A fire could cause loss of all PCCW to containment. It should be noted, however, that these valves are required to remain operable only for containment entry when manual operation of the safety injection isolation valves SI-V3, SI-V17, SI-V32 and SI-V47 and the reactor coolant - RHR isolation valves RC-V22, RC-V23, RC-V87 and RC-V88 is required. Cables for these valves are not routed through this fire area; hence, the valves would be operable from the main control room or the RSS control panels and containment entry would not be required. The safe shutdown requirments are satisfied.

B. ANALYSIS (Cont'd)

9. BAT to Charging Pump Isolation Valve CS-V426

Valve CS-V426 is a normally closed valve which is opened to provide a path from the boric acid tanks to the charging pump suction. This path is required to begin cooldown. In the event that this valve is inoperable, the operators can provide a redundant path by manually positioning valves in the boric acid tank room (Fire Area: PAB-F-2B-Z). The operators can maintain the plant in hot standby for the time required to perform this manual action.

The safe shutdown requirements are satisfied.

10. SI-CS Suction Cross Connection Valves CS-V460, CS-V461, CS-V475

Valves CS-V460, CS-V461 and CS-V475 are located in proximity. Prior to beginning cooldown the normally closed CS-V460 and CS-V461 valves should remain closed or the functionally redundant valve CS-V475 should be closed. The isolation of this path will prevent loss of boric acid tank inventory to the RWST during cooldown. In the event of a spurious valve operation which renders this flow path open, the plant can be maintained in hot standby for as long as 8 hours.

Should the operators desire to initiate the cooldown sooner than 8 hours, a gravity feed can be established from the boric acid tanks to the charging pumps. As the BAT head is lower than that required to return inventory to the RWST, there would be no loss of BAT inventory through this path and the position of these valves would be inconsequential.

The safe shutdown requirements are satisfied.

11. Containment Enclosure Isolation Damper, PAH-DP-35A, PAH-DP-36A, PAH-DP-35B, PAH-DP-36B

Cables for redundant dampers PAH-DP-35A, PAH-DP-36A, PAH-DP-35B and PAH-DP-36B are routed in trays in proximity to one another. These dampers are interlocked with the EAH-DP-37A and EAH-DP-37B dampers such that a failure in their circuity could prevent opening of the EAH dampers from the MCR. To bypass these spurious signals, the operators will trip the power supply breakers to the EAH-DP-37A and EAH-DP-37B dampers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

12. RHR Isolation Valves RC-V22, RC-V23, RC-V87, RC-V88

Redundant cables associated with the position indicating lights for the RHR isolation valves are contained in this area. Failure of these circuits will not prevent the operators from opening the valves for entry into cold shutdown. Although this indication is desirable other means are available to confirm RH system operability (e.g. RH Pump Flow).

The safe shutdown requirements are satisfied.

See Attachment H

B. ANALYSIS (Cont'd)

13. RHR Heat Exchanger Outlet Flow Control and Bypass Flow Control Valves RH-FCV-618, RH-HCV-606, RH-FCV-619, RH-HCV-607

Cables for the redundant flow control valves are routed in proximity. The RH-HCV-606 and RH-HCV-607 valves are normally closed and are required to open whereas the RH-FCV-618 and RH-FCV-619 are normally open and are required to close. These valves are only required to operate when the RH system is placed in operation (cold shutdown). The valves have air operators controlled by dc solenoids. These solenoids when de-energized vent the air from the operators and cause the valves to fail to their safe shutdown position. In the event this positioning cannot be performed in the MCR, the operators will position these valves by tripping the power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

14. RH Pump to Cold Leg Isolation Valves RH-V14, RH-V26

Cables for redundant valves RH-V14 and RH-V26 are routed in proximity. These valves are normally open valves which are required to remain open for RH systems operation (cold shutdown). If one of the valves spuriously closes, the operators will prevent further spurious operation of these valves by tripping the power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

15. RH Pump to Hot Leg Isolation Valves RH-V70, RH-V32

Cables for redundant valves RH-V70 and RH-V32 are routed in proximity. These valves are normally closed valves which are required to remain closed for RH system operation (cold shutdown). If one of the valves spuriously opens, the operators will prevent further spurious operation of these valves by tripping the power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

16. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35, RH-V36

Cables for the redundant valves RH-V35 and RH-V36 are routed in proximity. Valves RH-V35 and RH-V36 are normally closed and their position is inconsequential until the plant is cooled down to 350°F and the RH system is placed in operation. At that time it is necessary to assure that the valves remain closed. Should one of the valves open spuriously the operators can disable its power supply in either the Train A or Train B switchgear rooms (Fire Areas: CB-F-1A-A or CB-F-1B-A) and manually reposition the valves located in the equipment vaults (Fire Zone RHR-F-4B-Z or RHR-F-2A-Z).

ATTACHMENT H

12. RHR Isolation Valves RC-V22, RC-V23, RC-V87, RC-V88

Cables for redundant valves are located in proximity. As the RHR isolation are permanently disabled in the closed position, failures in the cables cannot cause a spurious operation. Valves RC-V87 and RC-V88 are required to be opened for cooldown below 350°F when the RH system is placed in operation. Should the cable damage be such that the valves cannot be operated from the MCR, the affected portion of the circuit can be isolated at the RSS panels in the Train A and Train B switchgear rooms. (Fire Areas: CB-F-1A-A and CB-F-1B-A) and the valves repositioned for safe shutdown.

B. ANALYSIS (Continued)

16. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35, RH-V36 (Cont'd)

Manual operation of the valves can be delayed as much as 8 hours into the event. Therefore, no fire protection other than the existing separation is needed ~~and no emergency lighting to the valves~~ is provided.

The provision of a capability to mitigate the spurious operation of the valves outside the fire area satisfies the safe shutdown requirements.

17. Containment Pressure Transmitters SI-PT-936 SI-PT-937

A cable for one channel of containment pressure instrumentation is routed through this fire area. This channel inputs to 2 out of 3 and 2 out of 4 logics which initiate protective actions. A spurious signal from one channel is not sufficient to initiate the logic and perform the protective action; hence, a failure in this cable will not prevent safe shutdown.

The safe shutdown requirements are satisfied.

C. EVALUATION

The safe shutdown requirements and Appendix R separation requrements are satisfied.

Redundant channels of containment pressure [redacted] cables are located in proximity. Spurious operation of these channels will initiate containment spray and containment isolation Phase B. The operators will have the capability to terminate these protective actions [redacted] by use of manual reset [redacted] switches. All ESF equipment which has been started will be tripped and locked out. To preclude further spurious operations, the operators will disable the engineered safety features logic cabinets in the Train A and Train B switchgear rooms (Fire Areas: CB-1F-1A-A and CB-F-1B-A).

The provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area satisfies the safe shutdown requirements.

TABULATION 3.2.7.78

PRIMARY AUXILIARY BUILDING - Stairwell (N)

FIRE AREA: PAB-F-S1-0

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire area.

C. EVALUATION

The Appendix R separation requirements do not apply to this fire area.

TABULATION 3.2.7.79

PRIMARY AUXILIARY BUILDING - Stairwell (S)

FIRE AREA: PAB-F-S2-0

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire area.

C. EVALUATION

The Appendix R separation requirements do not apply to this fire area.

TABULATION 3.2.7.80

EQUIPMENT VAULT #2

FIRE AREA: RHR-F-1A-Z, RHR-F-1C-Z, RHR-F-2A-Z, RHR-F-3A-Z, RHR-F-4A-Z

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			CC-V272	X	X
			CS-V461		X
			CS-V475		X
			RC-V22		X
RC-V88		X	RC-V87		X
			RH-E-9B	\	
			RH-HCV-607	X	X
			RH-FCV-619	X	X
			RH-P-8B	X	X
			RH-V26		X
			RH-V32		X
RH-V35		X	RH-V36	X	X
			RH-V44	X	

B. ANALYSIS

1. General Systems/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train B safe shutdown equipment and cables. The redundant Train A safe shutdown equipment and cables are located in Vault #1 (Fire Area: RHR-F-1B-Z, RHR-F-1D-Z, RHR-F-2B-Z, RHR-F-3B-Z, RHR-F-4B-Z) or other fire areas.

The Appendix R separation requirements are satisfied.

2. SI-CS Suction Cross Connection Valves CS-V461, CS-V475

Valves CS-V461 and CS-V475 are located in proximity. Prior to beginning cool down the normally closed valve CS-V461 should remain closed or the functionally redundant valve CS-V475 should be closed. The isolation of this path will prevent loss of boric acid tank inventory to the RWST during cool-down. In the event of a spurious valve operation, which renders this flow path open, the plant can be maintained in hot standby for as long as 8 hours.

Should this area be inaccessible due to the fire or should the operators desire to initiate the cooldown sooner than 8 hours, a gravity feed can be established from the boric acid tanks to the charging pumps. As the BAT head is lower than that required to return inventory to the RWST, there would be no loss of BAT inventory through this path and the position of these valves would be inconsequential.

The safe shutdown requirements are satisfied.

3. RHR Isolation Valves RC-V22, RC-V87, RC-V88

Cables, for functionally redundant valves are located in proximity. As the RHR isolation valves are permanently disabled in the closed position, failures in the cables cannot cause a spurious operation. ~~These~~ Valve RC-V22 ~~are~~ required to be opened for cool down below 350°F when the RH System is placed in operation. Should the cable damage be such that valve cannot be operated from the MCR, the affected portion of the circuit can be isolated at the RSS panel in the ~~Redundant~~ Train B Switchgear Room (Fire Area: ~~CB-F-1A and~~ CB-F-1B-A) and the valve repositioned for safe shutdown.

The safe shutdown requirements are satisfied.

B. ANALYSIS (Cont'd)

4. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35 and RH-V36

Cables for the redundant valves RH-V35 and RH-V36 are routed in proximity to one another. Valves RH-V35 and RH-V36 are normally closed and their position is inconsequential during all modes of plant operation with the exception of cooldown below 350°F when the RH System is placed in operation. At that time, it is necessary to insure that the valves remain closed. Should valve RH-V35 open spuriously, the operators can disable its power supply in the Train A Switchgear Room (Fire Area: CB-F-1A-A) and manually reposition the valves located in the Equipment Vault #1 (Fire Zone: RHR-F-4B-Z).

Manual operation of the valve can be delayed as much as 8 hours into the event. Therefore, no fire protection other than the existing separation is needed.

The provision of a capability to mitigate the spurious operation of the valve outside the fire area satisfies the safe shutdown requirements.

TABULATION 3.2.7.81

EQUIPMENT VAULT #1

FIRE AREA: RHR-F-1B-Z, RHR-F-1D-Z, RHR-F-2B-Z, RHR-F-3B-Z, RHR-F-4B-Z

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CC-V-145	X	X			
CC-V-1101		X			
CC-V-1109		X			
CS-V-142		X			
CS-V-154		X			
CS-V-162		X			
CS-V-166		X			
CS-V-167		X			
CS-V-460	X	X	CS-V-475	X	X
			CS-V-461	X	X
RC-V-23		X	RC-V-22		X
RC-V-88					
RH-E-9A	X				
RH-HCV-606	X	X			
RH-FCV-618	X	X			
RH-P-8A	X	X			
RH-V-8	X				
RH-V-14		X			
RH-V-35	X	X	RH-V-36		X
RH-V-70		X			
SI-V-138		X			
MM-IR-14	X	X			

B. ANALYSIS

1. General Systems/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown equipment and cables. The redundant Train B safe shutdown equipment and cables are located in Vault #2 (Fire Area: RHR-F-1A-Z, RHR-F-1C-Z, RHR-F-2A-Z, RHR-F-3A-Z, RHR-F-4A-Z) or other fire areas.

The Appendix R separation requirements are satisfied.

Under normal conditions, the seal injection isolation valves CS-V154, CS-V162 and CS-V166 are utilized for the seal injection flow path, spurious closure of one of these valves will not prevent safe shutdown. The operators will prevent further spurious operations by tripping the power supply breakers in the Train A switchgear room (Fire Area: CB-F-1A-A).

B. ANALYSIS (cont'd)

2. Charging Pumps to RCS Isolation Valve CS-V-142

This valve is a normally open Train A valve whose spurious closure could isolate the normal charging path. In this event, the operators will utilize the high head injection path for charging flow by opening the Train B valve SI-V-139. The cables, controls and equipment required for operation of SI-V-139 are not contained in this fire area.

The safe shutdown requirements are satisfied.

2 3. Seal Injection Isolation Valves CS-V-154, CS-V-162 and CS-V-166

These valves provide a redundant seal cooling capability to the safety grade thermal barrier seal cooling. Cables, controls and equipment required for the Train B thermal barrier seal cooling capability are not contained in this fire area.

The ~~Appendix R separation~~ safe shutdown requirements are satisfied.

3 4. RC Pump Seal Water Isolation Valve CS-V-167

Valve CS-V-167 is a normally open valve which should remain open for safe shutdown. Spurious isolation of this Train A valve could result in loss of RC inventory through the upstream relief valve. This inventory is directed to the PRT and is therefore, non-recoverable. To preclude this loss of inventory, functionally redundant isolation capability is provided by the RC pump seal return lines by means of Train A valves CS-V-10, CS-V-28, CS-V-44, and CS-V-59 and the excess letdown line by means of normally closed, fail closed valves CS-V-175 or CS-V-176. The cables, controls and equipment required for operation of valves CS-V-10, CS-V-28, CS-V-44, CS-V-59, CS-V-175 and CS-V-176 are not contained in this fire area.

The Appendix R separation requirements are satisfied.

4 5. SI-CS Suction Cross Connection Valves CS-V-460, CS-V-461, CS-V-475

Valves CS-V-460, CS-V-461 and CS-V-475 are located in proximity. Prior to beginning cooldown the normally closed CS-V-460 and CS-V-461 valves should remain closed or the functionally redundant valve CS-V-475 should be closed. The isolation of this path will prevent loss of boric acid tank inventory to the RWST during cooldown. In the event of a spurious valve operation which renders this flow path open, the plant can be maintained in hot standby for as long as 8 hours.

Should this area be inaccessable due to the fire or should the operators desire to initiate the cooldown sooner than 8 hours, a gravity feed can be established from the boric acid tanks to the charging pumps. As the BAT head is lower than that required to return inventory to the RWST, there would be no loss of BAT inventory through this path and the position of these valves would be inconsequential.

B. ANALYSIS (Cont'd)

5. RHR Isolation Valves RC-V-22, RC-V-23, RC-V-88

Cables for redundant valves are located in proximity. As the RHR isolation valves are permanently disabled in the closed position, failures in the cables cannot cause a spurious operation. ~~Those~~ Valves ~~are~~ required to be opened for cooldown below 350°F when the RH System is placed in operation. Should the cable damage be such that valves cannot be operated from the MCR, the affected portion of the circuit can be isolated at the RSS panel in the Train A ~~and Train B~~ switchgear rooms (Fire Areas: CB-F-1A-A ~~and CB-F-1B-A~~) and the valves repositioned for safe shutdown.

RC-V88 is the

The safe shutdown requirements are satisfied.

6. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V-35, RH-V-36

Cables for the redundant valves RH-V-35 and RH-V-36 are routed in proximity to one another. Valves RH-V-35 and RH-V-36 are normally closed and their position is inconsequential during all modes of plant operation with the exception of cooldown below 350°F when the RH System is placed in operation.

At that time, it is necessary to assure that the valves remain closed. Should valve RH-V-36 open spuriously, the operators can disable its power supply in the Train B switchgear rooms (Fire Area: CB-F-1B-A) and manually reposition the valves located in the equipment vault #2 (Fire Zone: RHR-F-2A-Z).

Manual operation of the valve can be delayed as much as 8 hours into the event. Therefore, no fire protection other than the existing separation is needed.

The provision of a capability to mitigate the spurious operation of the valves outside the fire area satisfies the safe shutdown requirements.

TABULATION 3.2.7.82

SERVICE WATER PUMP HOUSE

FIRE AREA: SW-F-1A-Z

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire area.

C. EVALUATION

The Appendix R separation requirements do not apply to this fire area.

TABULATION 3.2.7.83

SERVICE WATER PUMP HOUSE

FIRE ZONE: SW-F-1B-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
EDE-MCC-514	X	X			
SW-P-41A		X			
SW-P-41C		X			
SW-PT-8272		X			
SW-PT-8273		X			
SW-PT-8274		X			
SW-V2		X			
SW-V22		X			
SW-V44		X			
SW-V63		X			
~~SWA-TSH-5614-1~~	~~X~~	~~X~~			
SWA-TSH-5614-1	X	X	SWA-TSH-5615-2	X	X
SWA-FN-40A		X	SWA-FN-40B		X

B. ANALYSIS

1. General System/Equipment Analysis

With the exception of the systems/equipment discussed below, a fire in this area will only affect the Train A safe shutdown equipment and cables. The redundant Train B equipment and cables are located in fire area SW-F-1C-A.

The Appendix R separation requirements are satisfied.

2. Service Water Intake and Discharge Valves SW-V44, SW-V63

These valves are normally open and should remain open for safe shutdown. The spurious closure of the intake structure valve SW-V44 will cause loss of service water to the service water pumps. This would cause a loss of pump discharge pressure and generate a "TA" logic signal and a subsequent transfer to the cooling tower. The spurious closure of the discharge structure valve SW-V63 would isolate service water discharge to the discharge transition structure. However, a 24" overflow pipe flow path located in the PAB will overflow service water to the outside and not interfere with safe shutdown.

B. ANALYSIS (Continued)

3. Service Water Pump House Electrical Room Temperature Switches SWA-TSH-5614-1 ~~and~~, SWA-TSH-5615-2

Fans SWA-FN-40A, SWA-FN-40B and

Loss of these temperature switches would cause loss of Train A and B fans. This would result in the loss of Train A and B service water pump ~~switchgear~~ electrical distribution equipment. Should this occur the cooling towers could be placed into service either automatically or manually by the operators.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.84

SERVICE WATER PUMP HOUSE

FIRE AREA: SW-F-1C-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
			EDE-MCC-614	X	X
			SW-P-41B		X
			SW-P-41D		X
			SW-PT-8282		X
			SW-PT-8283		X
			SW-PT-8284		X
			SW-V29		X
			SW-V31		X
SWA-FN-40A		X	SWA-FN-40B		X
SWA-TSH-5614-2	X	X			
			SWA-TSH-5615-1	X	X
			~~SWA-TSH-5615-2~~		~~X~~

B. ANALYSIS

This area contains the Train A electrical room supply fan (SWA-FN-40A) temperature switches whose failure could cause increase in temperature in the Train "A" electrical room. In the event this occurs, the cooling towers will be utilized. This transfer can be initiated from the MCR manually or automatically with Train A tower actuation.

The remainder of equipment and cables are Train B. The redundant Train A equipment and cables are in fire Area SW-F-1B-A, separated from this area by a 3-hour fire wall.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.85

SERVICE WATER PUMP HOUSE

FIRE AREA: SW-F-1D-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
SWA-FN-40A	X	X	SWA-FN-40B	X	X

B. ANALYSIS

Service water pumphouse ~~switchgear~~ electrical rooms fans SWA-FN-40A,B and SWA-FN-40B are in this fire area. They cool the SW electrical control rooms Train A and B. Loss of cooling would cause a heat up in these rooms which may damage ~~switchgear~~ electrical distribution equipment for both trains of the Service Water pumps. ~~both Trains.~~ Loss of the normally operating service water pumps would cause a "TA" actuation signal to transfer the system to the cooling towers which are not affected by the fire. The transfer is not affected by the fire or by the loss of cooling due to the fire.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.86

SERVICE WATER PUMP HOUSE

FIRE ZONE: SW-F-1E-Z

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE ZONE

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
MM-IR-73	X	X	MM-IR-73	X	X
SW-P-41A	X	X	SW-P-41B	X	X
SW-P-41C	X	X	SW-P-41D	X	X
SW-PT-8272	X	X	SW-PT-8282	X	X
SW-PT-8273	X	X	SW-PT-8283	X	X
SW-PT-8274	X	X	SW-PT-8284	X	X
SW-V2	X	X	SW-V29	X	X
SW-V22	X	X	SW-V31	X	X
SW-V44		X			
SW-V63		X			

B. ANALYSIS

A fire in this zone could affect all four service water pumps and their associated discharge valves. Two of the four pumps would normally be operating. A fire in this area will not affect the operability of the cooling tower and its associated fans, pumps and valves for utilization in satisfying Safe Shutdown. Transfer to the cooling towers will be either automatic by a "TA" actuation generated by low discharge service water pump pressure or by manual actuation from the Main Control Room. Automatic transfer is actuated by SW-PT-8272, ~~8273~~ 8273, 8274, 8282, 8283, 8284 which are in this fire zone. Loss of the pressure transmitters or their associated instrument racks due to fire will also cause transfer.

Valves SW-V44 and SW-V63 are normally open and should remain open for safe shutdown. The spurious closure of SW-V44, Service Water Intake Structure Valve, will cause loss of service water to the Service Water Pumps. This would cause loss of Service Water Pump discharge pressure which generates a "TA" signal to transfer the system to the Cooling Towers. The spurious closure of SW-V63 would isolate service water to the Discharge Transition Structure. However, a 24" overflow pipe flow path located in the PAB will overflow Service water to the outside and not interfere with the safe shutdown.

C. EVALUATION

The Appendix R separation requirements are satisfied.

TABULATION 3.2.7.87

INTAKE AND DISCHARGE STRUCTURE

FIRE AREA: SW-F-2-0

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
SW-V44	X	X			
SW-V63	X	X			

B. ANALYSIS

Valves SW-V44, 63 are normally open and should remain open for safe shutdown. The spurious closure of the intake structure valve SW-V44 will cause the loss of service water to the service water pumps. This would cause a loss of pump discharge pressure and generate a "TA" logic signal and a subsequent transfer to the cooling tower. The spurious closure of the discharge structure valve SW-V63 would isolate service water discharge to the discharge transition structure. However, a 24" overflow pipe flow path located in the PAB will overflow service water to the outside and not interfere with safe shutdown.

C. EVALUATION

The safe shutdown requirements are satisfied.

TABULATION 3.2.7.88

TURBINE BUILDING

FIRE AREA: TB-F-1A-Z, TB-F-1C-Z, TB-F-2-Z, TB-F-3-Z

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CBA-DP-24A		X			
CBA-DP-24B		X			
CBA-DP-24C		X			
CO-LT-4096		X			
ED-B-2B		X			
ED-BC-2B	X	X			
ED-I-4		X			
ED-PP-121B		X			
ED-PP-122B		X			
ED-SWG-12B	X	X			
EDE-MCC-523	X	X			
EDE-SWG-5		X	EDE-SWG-6		X
FP-CP-414	X	X			
FP-V497	X				
IA-AC-10A	X	X	IA-AC-10B	X	X
MM-IR-33A	X	X			
SA-C-1A	X	X	SA-C-1B	X	X
SA-CP-133A	X	X	SA-CP-133B	X	X
SA-CP-364	X	X	SA-CP-365	X	X
SA-PS-8501A	X	X	SA-PS-8501B	X	X
SA-PS-8511A	X	X	SA-PS-8511B	X	X
SA-V92	X	X			
SA-V93	X	X			
SA-TK-23A	X		SA-TK-23B	X	
IA-SKD-18A	X		IA-SKD-18B	X	
IA-SKD-19A	X		IA-SKD-19B	X	
IA-TV-8550	X		IA-TV-8560	X	
SY-CP-84	X	X	SY-CP-84	X	X
SY-CP-85	X	X	SY-CP-85	X	X
SY-CP-86	X	X	SY-CP-86	X	X
SY-CP-87	X	X	SY-CP-87	X	X

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
SCC-PCV-7035	X				
SCC-FV-7060	X	X	SCC-FV-7061	X	X
~~SCC-FV-7061~~	~~X~~				
~~IA-TV-8550~~	~~X~~				
~~IA-TV-8560~~	~~X~~				
SCC-TV-7054	X		SCC-TV-7055	X	
~~SCC-TV-7055~~	~~X~~				
SCC-V318	X		SCC-V318	X	
SCC-V319	X		SCC-V319		

B. ANALYSIS

1. Control Building Air Handling (CBA) System (Dampers CBA-DP-24A,B,C and Control Panel FP-CP-414)

All equipment and cables are Train A, the redundant Train B equipment are located in fire area CB-F-2B-A, separated from this area by a 3-hour fire wall. Loss of IA/SA Systems will cause switchgear rooms dampers to fail as is. The operators can cycle the fans to maintain equipment cooling and habitability and will reposition dampers for long term operation.

2. Condensate Storage Tank (CST) Level (CO-LT-4096)

Cables for CO-LT-4096 and its instrument bus (ED-I-4) are located in this fire area. Redundant cable and equipment is located in the EFW Pump House (fire area EFW-F-1-A).

3. ED-BC-2B, ED-B-2B

Loss of these buses could cause loss of RC Pump Control Power. The operator will manually trip the switchgear in the Non-Essential Switchgear Room (Fire Area: NES-F-1-Z). Pressurizer Heaters C, D and control group control power could be lost. If the heaters require tripping, an operator will manually trip them in the Train A Switchgear Room (Fire Area: CB-F-1A-A). Redundant heaters are available with control power from the essential DC buses.

Charging Valve CS-V~~0~~177 will fail open due to loss of control power. This is acceptable.

B. ANALYSIS (cont'd)

3. ED-BC-2B, ED-B-2B (cont'd)

Aux. Spray Valve CS-V185 will fail closed due to loss of power and can not spuriously open since only the power supply to its distribution panel (ED-PP-121B) fails.

4. Electrical Distribution Emergency (EDE) System (4160 Swgr. E5, E6; Control Panels SY-CP-84, 85, 86, 87, and 460V MCC E523)

Redundant equipment and cables for the 4160 switchgear are located in the same fire area. A short circuit in this equipment or cables can cause a trip of the 4160V emergency switchgear E5 and E6 incoming line breakers from the UAT and RAT, resulting in loss of the offsite power supply. Loss of the offsite power supply will require starting of the diesel generators. The emergency buses will be powered from the diesel generators. This is the design base for safe shutdown.

For the 460V MCC's all equipment and cables are Train A, the functionally redundant Train B cables and equipment are located in fire area CB-F-1B-A, separated from this area by a 2-hour fire wall.

5. Instrument Air (IA) System

Redundant equipment and cables for instrument air dryers are located in the same fire area. Dryers IA-AC-10A and IA-AC-10B provide instrument air for the primary component cooling water system containment isolation valves and MCR dampers CBA-DP-26A and CBA-DP-26B. Component cooling water to containment is required to maintain containment habitability. For a fire in this area, containment entry is not required as operators have the capability to operate safety injection accumulator isolation valves SI-V3, SI-V17, SI-V32 and SI-V47 and RHR isolation valves RC-V22, RC-V23, RC-V87 and RC-V88 from the main control room (Fire Area: CB-F-3A-A) or the RSS control panels (Fire Areas: CB-F-1A-A and CB-F-1B-A), separated from this area by a 3-hour fire wall. Therefore, the air dryers are not required for safe shutdown for a fire in this area.

6. Service Air (SA) System

Redundant equipment and cables for the service air system and secondary component cooling system with its tie-in to the Fire Protection System are located in the same fire area. Compressors SA-C-1A and SA-C-1B and their associated equipment provide instrument air for the primary component cooling water system containment isolation valves and MCR dampers CBA-DP-26A and CBA-DP-26B. Component cooling water to containment is required to maintain containment habitability. For a fire in this area, containment entry is not required as operators have the capability to operate safety injection accumulator isolation valves SI-V3, SI-V17, SI-V32 and SI-V47 and RHR isolation valves RC-V22, RC-V23, RC-V87 and RC-V88 from the main control room (Fire Areas: CB-F-3A-A) or the RSS control panels (Fire Areas: CB-F-1A-A and CB-F-1B-A), separated from this area by a 3-hour fire wall. Therefore, the SA and SCC system are not required for safe shutdown for a fire in this area.

The operators have the capability to manually position the MCR dampers in the control room HVAC room (Fire Area: CB-F-3B-A), separated from this area by a 3-hour fire wall.

C. EVALUATION

1. Control Building Air Handling (CBA) System

The Appendix R separation requirements are satisfied.

2. CST Level (CO-LT-4096)

The Appendix R separation requirements are satisfied.

3. ED-BC-2B, ED-B-2B

The Appendix R separation requirements are satisfied.

4. Electrical Distribution Emergency (EDE) System

For the 4160V switchgear, the safe shutdown requirements are satisifed.

For the 460V MCC's, the Appendix R separation requirements are satisfied.

5. Instrument Air (IA) System

The safe shutdown requirements are satisfied.

6. Service Air (SA) System

The safe shutdown requirements are satisfied.

7. Secondary Component Cooling Water (SCC) System

The safe shutdown requirements are satisfied.

7. Secondary Component Cooling Water (SCC) System and Valve FP-V497

Manual valves for realigning the air compressors cooling water supply from secondary component cooling water to the fire lines are contained in this fire area. As the air compressors are not required for a fire in this area, it is not necessary to operate these valves. For fires in other areas of the plant, it will be necessary to transfer cooling if SCC is isolated by closure of valves SW-V4 and SW-V5. The operators will manually reposition valves SCC-V318, SCC-V319 and FP-V497 in the turbine building (Fire Zone TB-F-1A-2).

TABULATION 3.2.7.89

TURBINE BUILDING

FIRE AREA: TB-F-1B-A

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
ED-B-2B	X	X			
~~ED-SWG-12B~~		~~X~~			

B. ANALYSIS

Fire in this area will cause loss of DC power Bus ED-SWG-12B. Loss of this bus will cause loss of CST level instrumentation CO-LT-4096. Redundant equipment is located in fire area EFW-F-1A.

Also RC pump switchgear control power is lost. When the RCP's are required to be tripped (during cooldown) the operator will manually trip them in the non-essential switchgear room (Fire Area: NES-F-1-Z).

Pressurizer Heaters C, D, and control group control power will be lost. An operator, if the heaters require tripping will do so in the Train A switchgear room (Fire Area: CB-F-1A-A). Redundant heaters are available with control power from the essential DC bus.

Charging valve CS-V177 will fail open due to loss of control power. This is acceptable.

The auxiliary spray valve CS-V185 will fail closed due to loss of power. This is acceptable.

C. EVALUATION

The safe shutdown requirements are satisfied.

TABULATION 3.2.71.90

TANK FARM

FIRE AREA: TF-F-1-0

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
CS-LCV-112B		X	CS-LCV-112C		X
CS-LCV-112D	X	X	CS-LCV-112E	X	X

B. ANALYSIS

Redundant valves CS-LCV-112D and CS-LCV-112E are located in the same fire area. These valves would be open for hot standby to provide RWST suction to the charging pumps and would be closed for cooldown. The cables for CVCT isolation valves CSLCV-112B and CS-LCV-112C, are also located in this fire area. These are normally open valves that are closed for safe shutdown. There is an interlock which does not permit reopening of CS-LCV-112B and CS-LCV-112C in the presence of an SI signal complemented by a full open status on CS-LCV-112D and CS-LCV-112E. This is of no consequence since the CVCT isolation valves should be closed for safe shutdown.

A fire in this area will prevent opening the normally closed RWST to charging pump isolation valves from the control room. The normally open CVCT isolation valves may experience a loss of control power. Therefore, to accomplish CVCT isolation, an operator will be dispatched to the RSS panel to isolate the short and close the valves. The operators will then proceed to establish a cooldown from the control room utilizing the BAT for charging.

The RWST can be manually aligned to the charging pump suction when required.

The safe shutdown requirements are satisfied.

C. EVALUATION

The safe shutdown requirements are satisfied.

TABULATION 3.2.7.91

WASTE BUILDING

FIRE AREA: W-F-1A-Z, W-F-1B-Z, W-F-1K-Z, W-F-2A-Z, W-F-2B-Z, W-F-2C-Z, W-F-2D-Z, W-F-2E-Z

A. EQUIPMENT AND CABLES LOCATED IN THE FIRE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

There are no safe shutdown cables or equipment in this fire area.

C. EVALUATION

The Appendix R separation requirements do not apply to this fire area.

3.3 ALTERNATIVE SAFE SHUTDOWN USING REMOTE SAFE SHUTDOWN FACILITIES

3.3.1 General

Remote Safe Shutdown is a design feature which allows plant shutdown from locations other than the main control room in the event of a fire or other condition which requires evacuation of the main control room. The fire areas of concern are the Main Control Room, Control Room HVAC Room, and the Cable Spreading Room. Remote Safe Shutdown contains the necessary complement of systems and equipment required to satisfy the performance goals delineated in Appendix R, Paragraph III.L.2.

3.3.2 Safe Shutdown Control Locations

Normally Safe Shutdown will be accomplished from the main control room, utilizing the Safe Shutdown equipment along with other equipment which may be available to the operators. Upon detection of a fire, the fire brigade will be dispatched to the affected area and a determination will be made as to the severity of the fire. If it is determined that the fire has a potential for impacting Safe Shutdown from the main control room, the operators will proceed with a planned evacuation of the main control room and manning of the Train B remote safe shutdown control panel (MM-CP-108B) and man the following remote safe shutdown (RSS) facilities as necessary:

a. Train A Switchgear Room (MM-CP-108A and various Motor Control Centers (MCC)

b. Diesel Generator Room A

c. Diesel Generator Room B

d. Primary Auxiliary Building El. 53'-0" Primary Component Coolant Water Heat Exchanger Area

e. Primary Auxiliary Building El.25'-0" Boric Acid Tank Area

g. ~~Equipment Vault #1~~ Control Building Mechanical Equipment Rooms - El. 50'-0"

h. Equipment Vault #2

i. Condensate Storage Tank

j. Non-Essential Switchgear Room

f. Primary Auxiliary Building El. 7'-0" Train B Charging Pump Room

See Attachment I

3.3 ALTERNATIVE SAFE SHUTDOWN USING REMOTE SAFE SHUTDOWN FACILITIES (Continued)

3.3.3 Safe Shutdown Functions for Hot Standby

The following are equipment necessary for Hot Standby:

3.3.3.1 Reactor Coolant (RC) Inventory and Pressure Control

To compensate for miscellaneous RC system leakage, RC pump seal leakage, and cooldown volume shrink, portions of the chemical and volume control (CS) system including centrifugal charging pumps, boric acid transfer pumps, and a borated water supply, the Refueling Water Storage Tank. The injection path to the RC System for this supply will be high head injection flow path.

The RC System pressure is controlled by use of the RC system which includes the pressurizer heaters (Group A and B) to increase pressure and pressurizer power operated relief valves (PORV) to depressurize the RC System discharging to the pressurize relief tank (PRT).

3.3.3.2 Reactivity Control

Reactivity for hot standby will be provided by insertion of the control rods. Reactivity conditions required for cold shutdown are provided by a portion of the chemical and volume control (CS) system which includes a centrifugal charging pump taking suction from the BAT's using the boric acid transfer pumps.

3.3.3.3 Decay Heat Removal

The reactor coolant (RC) system temperature is controlled by use of portions of the feedwater (FW) system, the main steam (MS) system, and the steam generator blowdown (SB) system. The main steam safety/relief valves will maintain a heat dump capability. The steam generator water inventory is controlled by operating the emergency feedwater pumps and associated emergency feedwater control valves. Inventory for the emergency feedwater is from the condensate storage tank. Long term water capability exists using a temporary connection between the suction of the emergency feed pumps and the fire protection system. To assure feedwater system capability, the outboard steam generator blowdown valves are closed. To assure main steam system integrity the MSIV's and MSIV bypass are maintained closed. Decay heat transfer is made possible by natural convection flow in the RC System.

3.3.3.4 Process Monitoring

Instrumentation is provided at the Train B Remote Safe Shutdown Control Panel for monitoring the following process variables:

a. Steam generator emergency feedwater flow

b. Reactor coolant loop hot and cold leg temperatures

c. Steam generator wide-range level

3.3.3.4 Process Monitoring (continued)

d. Steam generator pressure

e. Pressurizer level

f. Pressurizer pressure

g. Wide-range neutron monitoring (excore)

h. Primary component cooling water temperature

i. Boric acid tank level

j. Condensate storage tank level (local)

3.3.3.5 Service Water

The Service Water System will supply cooling water to the primary component cooling water system, diesel generators, and if required, fire protection system. Service water supply will be from the service water pumps taking suction from the tunnels to the ocean.

3.3.3.6 Primary Component Cooling Water (CC)

The CC system is utilized to maintain cooling water to the charging pumps, RH pumps, RH heat exchangers, containment enclosure cooling units and reactor coolant pumps (RCP) thermal barrier heat exchanger. The PCCW pumps, temperature control valves, and RCP thermal barrier cooling pumps are necessary for system operations.

3.3.3.7 Sampling

Sampling of the Reactor Coolant System is not required at hot standby and cold shutdown conditions since make-up during cool-down will only be provided to the RCS from the Boric Acid Tanks (two) which are maintained at 4 wt% boric acid. During all phases of cool-down, the core will be maintained at 1.3% subcritical.

3.3.3.8 Diesel-Generator Building Air Handling (DAH)

The DAH system is utilized to maintain long-term habitability and equipment protection for the diesel-generator rooms. The DAH system includes the fans and dampers for air handling in these areas.

3.3.3.9 Containment Enclosure Air Handling (EAH)

The EAH system is utilized to maintain long-term habitability of the mechanical penetration area, and provide equipment cooling in the charging pump rooms. The EAH system includes the coolers, fans, and dampers requird for air handling in these areas.

ATTACHMENT I

3.3.3.1 Reactor Coolant (RC) Inventory and Pressure Control

To compensate for miscellaneous RC System leakage, RC pump seal leakage and cooldown volume shrink, portions of the chemical and volume control (CS system including centrifical charging pumps, boric acid transfer pumps, and a borated water supply, either the refueling water storage tank (RWST) or the boric acid tanks (BAT) are used. The injection path to the system will be either through the seal injection flow path or the high head injection flow path. The preferred seal injection path requires that a flow control valve (CS-FCV-121) and that a minimum of two of the four seal injection valves (CS-V154, CS-V158, CS-V162 or CS-V166) be operable. Additionally, it is necessary to isolate the normal charging flow pach to the RC system. This can be accomplished by use of any one of ~~three~~ two functionally redundant valves (CS-V142, CS-V143 ~~or CS-MOV-182~~). Should the seal injection path not be operable, the high head injection flow path (SI-V138 or SI-V139) can be utilized initially to maintain hot standby by batch charging from the RWST to maintain pressurizer level. During cooldown as RC system pressure decreases, it is necessary to provide a flow restricted path to prevent charging pump cavitation. This is due to the limited flow capability from the BAT. If the high head injection path cannot be isolated at this time and/or if the flow controlled path through CS-FCV-121 is not operable, a capability is provided to manually align and throttle the charging pumps to the seal injection flow paths. The necessary operator actions and valve alignments are unique for each fire area where these flow paths are affected and are described in the analysis for each area.

RC pump seal cooling is provided by a redundant thermal barrier cooling system. Should the redundant thermal barrier system not be available, the seals will be cooled by the seal injection capability.

The RC system pressure is controlled by use of a portion of the RC system which includes the pressurizer heaters (Group A and B) to increase pressure and the pressurizer power operated relief valves (PORV) which depressurize the RC system by discharging reactor coolant fluid to the pressurizer relief tank (PRT).

3.3 ALTERNATIVE SAFE SHUTDOWN USING REMOTE SAFE SHUTDOWN FACILITIES (Continued)

3.3.3.10 Emergency Feedwater Pumphouse Air Handling (EPA)

The EPA system is utilized to maintain long-term habitability and equipment protection in the emergency feedwater pump building. The EPA system includes the fans and dampers required for air handling in this area.

3.3.3.11 Primary Auxiliary Building Air Handling (PAH)

Portions of the PAH system are utilized to maintain long-term habitability and equipment protection in the PCCW area of the primary auxiliary building. The PAH system includes the fans and dampers required for ventilation in this area.

3.3.3.12 Service Water Handling (SWA)

Portions of the SWA system are utilized for equipment protection in the SW pump house electrical control rooms. The SWA system includes the fans and dampers required for air handling in these areas.

3.3.3.13 Electrical Distribution Emergency (EDE)

Portions of the EDE system are required to power the various pumps, fans, valves, etc. required for safe shutdown. Included in the EDE system are the 4160 Volt ac emergency switchgear, 460 Volt ac emergency motor control centers, the uninterruptible power supplies, 120 Volt ac vital distribution panels, 125 Volt dc batteries, battery chargers, and 125 Volt dc distribution panels.

3.3.3.14 Diesel-Generators (DG)

The diesel-generators provide power to the electrical distribution emergency system upon loss of off-site power. The DG system includes the diesel, generators, control panels, engine-driven auxiliaries, and fuel oil transfer pumps.

3.3.3.15 Safeguard Actuation System

The safeguard actuation system could be actuated. A portion of this system is used to deactivate the system for recovery.

3.3.4 Safe Shutdown Functions for Cooldown

The following equipment in addition to that which is listed in Section 3.3.3 are necessary for cooldown.

3.3.4.1 Decay Heat Removal

In addition to equipment discussed in Section 3.3.3.3

The steam generator atmospheric relief valves will be used for cooldown until the residual heat removal (RH) system can be used. The residual heat removal system will be the long term heat sink at the end of cooldown. An RH pump will be operated along with various control, manual and motor operated valves.

3.3.4.2 Sample System

For Cold Shutdown, operator will draw manual sample from RH system to verify Boron concentration before line-up to RCS. The operator will use manual valves in RH system.

3.3.5 Initial Operator Actions

Remote safe shutdown procedures will require that prior to main control room evacuation the reactor, the main steam isolation valves, and the reactor coolant pumps be tripped, thus establishing a hot standby condition. Closure of the pressurizer PORV's block valves and venting of the atmospheric relief valves will be accomplished from the main control board to prevent over cooling situations from either the primary or secondary side of the plant. Additionally, capabilities to trip the four MSIV's, the four RCP's and the pressurizer PORV's and atmospheric relief valves exist outside the main control room. In the time interval required for the operators to evacuate the main control room and man the RSS facilities, decay heat removal is accomplished automatically by the steam generator safety valves. No other function is required initially to maintain a decay heat sink for the reactor. Upon arrival at the RSS facilities, the operators will trip the power supplies for engineered safety features actuation system (ESFAS) logic and cooling tower actuation logic to prevent inadvertent activation of these functions. Control capability will then be transferred to the RSS facilities by means of "Remote-Local" selector switches at the RSS locations. The operators will disable (trip power supply breakers) all equipment which is properly positioned in its Safe Shutdown position or which will fail, upon being de-energized, to its safe shutdown position. Control of the Train B Diesel Generator will be taken and if Loss of Offsite Power (LOOP) occurs, clear and Load EDE-SWG-6 to support safe shutdown. Any recovery actions needed to maintain hot standby or to start a cooldown will be completed as needed if inadvertant safeguard actuation, tower actuation or "HOT SHORT" actuation occurs.

3.3.6 Manual Operator Actions

The following equipment may require manual operation:

1. Mechanical room dampers CBA-DP-24A, CBA-DP-24B, CBA-DP-24C, CBA-DP-24D, CBA-DP-24E and CBA-DP-24F.

2. Component cooling water valves CC-V272.

4. RHR sampling valves ~~RH-V8 and~~ RH-V44.

5. Service Water Valve SW-V17.

The cables for valves CC-V272 and SW-V17 are not included in the review. Equipment CBA-DP-24D, CBA-DP-24E, CBA-DP-24F, ~~RH-V8 and~~ RH-V44, are not electrically operated; hence, they have no cables.

3. Charging pump discharge and bypass valves CS-V219 and CS-V220

4 and CS-V219, CS-V220

3.3 ALTERNATIVE SAFE SHUTDOWN USING REMOTE SAFE SHUTDOWN FACILITIES (Continued)

3.3.7 Disabled (tripped power supply) Equipment

The following equipment will be disabled:

a. Containment Spray Pumps CBS-P-9A and CBS-P-9B

b. Primary component cooling valves CC-V1092, CC-V1095

c. Chemical and volume control valves CS-V167, CS-V168, CS-V175, CS-V176, CS-V154, CS-V158, CS-V162, CS-V166, CS-V460, CS-V461, [redacted]

d. Containment enclosure air handling dampers EAH-DP-37B *

e. Main steam isolation valve bypass valves MS-V204, MS-V205, MS-V206 and MS-V207

f. Reactor coolant valves RC-V323, RC-FV-2881, RC-LCV-459* and RC-LCV-460*

g. Pressurizer heaters Group C, Group D and Control Group

h. Residual heat removal valves RH-V26, RH-V32, [redacted], RH-V36, RH-HCV-607, and RH-FCV-619

i. Steam generator blowdown valves SB-V9*, SB-V10*, SB-V11* and SB-V12*

j. Safety injection valves SI-V158 and SI-V159

k. Safety injection pumps SI-P-6A and SI-P-6B

l. Service water valves SW-V17, SW-V18*, SW-V19, SW-V23, SW-V44 and SW-V63

m. Engineered safety features-actuation system logic cabinets

n. Tower actuation logics

The valves noted with an asterisk (*) fail to their Safe Shutdown position upon de-energization.

o. Main steam atmospheric relief valves MS-PV-3001, MS-PV-3003 (Train B power supply) and MS-PV-3002, MS-PV-3004 (Train A power supply)

3.3 ALTERNATIVE SAFE SHUTDOWN USING REMOTE SAFE SHUTDOWN FACILITIES (Continued)

3.3.8 Safe Shutdown Equipment List

Tables that list all equipment, including instrumentation and vital support systems equipment and vital support systems equipment, required to achieve hot and/or cold shutdown using the RSS locations are provided in Appendix, Section III. The tables provide the following requested information for each equipment listed:

a. A column which notes whether the equipment is required for hot and/or cold shutdown.

b. A column which defines each equipment's location by fire zone/area.

c. A column which defines each equipment's redundant counterpart.

d. A column which lists each equipment's essential cabling.

e. The table also delineates the following additional information:

1) P & I Diagram Drawing No.
2) Physical Location Drawing No.
3) Power Supply
4) Electrical Node Number
5) Supporting Control and Instrumentation Equipment
6) Electrical Schematic Drawing No.
7) Electrical Cable Schematic Drawing No.
8) Supporting Systems
9) Remarks

Separate tables are furnished for each of the Safe Shutdown functions. In several instances a Safe Shutdown function requires components from several systems to perform its Safe Shutdown function.

In order to simplify the tabulation, the following are not listed: manual valves in the process flow path; mechanical check valves which provide a Safe Shutdown system boundary; normally closed manual valves which provide a Safe Shutdown system boundary; mechanical relief valves; and root valves on small instrument lines. The review of these valves is documented by the marked P & I Diagrams.

Tables are provided for the following functions which satsify the performance goals stated in Appendix R, Paragraph III.L.2

Function	Table No.
Decay Heat Removal	3.1.3.1
Reactor Coolant Inventory and Pressure Control	3.1.3.2
Reactivity Control	3.1.3.3
Process Monitoring	3.1.3.4

3.3 ALTERNATIVE SAFE SHUTDOWN USING REMOTE SAFE SHUTDOWN FACILITIES (Continued)

3.3.8 Safe Shutdown Equipment List (Continued)

Function	Table No.
Safeguard Actuation System	3.1.3.5
Cold Shutdown	3.1.3.6
Service Water	3.1.3.7
Primary Component Cooling Water	3.1.3.8
(Deleted)	3.1.3.9
Control Building Air Handling	3.1.3.10
Diesel Generator Building Air Handling	3.1.3.11
Containment Enclosure Air Handling	3.1.3.12
Emergency Feedwater Pumphouse Air Handling	3.1.3.13
Primary Auxiliary Building Air Handling	3.1.3.14
Service Water Air Handling	3.1.3.15
(Deleted)	3.1.3.16
Electrical Distribution Emergency	3.1.3.17
Diesel Generators	3.1.3.18

3.3.9 Analysis and Evaluation of Fire Areas

An evaluation is provided as to whether the Appendix R requirements or Safe Shutdown requirement are satisfied. If a deviation from Appendix R requirements exists, this deviation is justified by Analysis.

The following fire areas are considered:

Building	Fire Area	Tabulation
Control Bldg. - El. 50'-0" Cable Spreading Room	CB-F-2A-A	3.3.9.1
Control Bldg. - El. 75'-0" Main Control Room	CB-F-3A-A	3.3.9.2
Control Bldg. - El. 75'-0" HVAC Equipment & Duct Area	CB-F-3B-A	3.3.9.3

TABULATION 3.3.9.1

CONTROL BUILDING - EL. 50'-0"
CABLE SPREADING ROOM

FIRE AREA: CB-F-2A-A

A. EQUIPMENT AND CABLES LOCATED IN THE AREA

Train A			Train B		
Description	Equip.	Cable	Description	Equip.	Cable
None			None		

B. ANALYSIS

The cable spreading room fire area CB-F-2A-A does not contain any cables or equipment which are required for safe shutdown from the RSS facilities.

A fixed fire suppression system in accordance with Appendix R, Paragraph III.G.3 has been provided.

Detectors are provided throughout the area.

C. EVALUATION

The Appendix R paragraphs III.G.3 and III.L alternative shutdown capability requirements are satisfied.

3.4 ALTERNATIVE SAFE SHUTDOWN - EMERGENCY FEEDWATER PUMPHOUSE FIRE

3.4.1 Main Control Room Safe Shutdown

Safe Shutdown will be accomplished with control from the main control room, utilizing the safe shutdown equipment in the following locations:

a. Non-Essential Switchgear Area

b. Condensate Storage Tank Valve Room (CST)

c. Train A Switchgear Room

d. Train B Switchgear Room

Actions ~~from~~ the additional areaswould be to realign the suction of the Startup Feedpump; Realign the power supply of the Startup Feedpump from Bus ED-SWG-4 to Bus ~~ED~~ EDE-SWG-5. Safe Shutdown will then be performed from the main control room. and trip the power supply breakers for the feedwater flow control valves

3.4.2 Safe Shutdown Equipment List

Tables that list all equipment, including instrumentation and vital support systems equipment, required to achieve hot and/or cold shutdown are provided in Appendix, Section III. The tables provide the following requested information for each equipment listed.

a. A column which notes whether the equipment is required for hot and/or cold shutdown.

b. A column which defines each equipment's location by fire zone/area.

c. A column which defines each equipment's redundant counterpart.

d. A column which lists each equipment's essential cabling.

e. The table also delineates the following additional information:

1) P & I Diagram Drawing No.
2) Physical Location Drawing No.
3) Power Supply
4) Electrical Node Number
5) Supporting Control and Instrumentation Equipment
6) Electrical Schematic Drawing No.
7) Electrical Cable Schematic Drawing No.
8) Supporting Systems
9) Remarks

Separate tables are furnished for each of the Safe Shutdown functions. In several instances a Safe Shutdown function requires components from several systems to perform its Safe Shutdown function.

3.4.2 Safe Shutdown Equipment List (continued)

In order to simplify the tabulation, the following are not listed: manual valves in the process flow path; mechanical check valves which provide a Safe Shutdown system boundary; normally closed manual valves which provide a Safe Shutdown system boundary; mechanical relief valves; and root valves on small instrument lines. The review of these valves is documented by the marked P & I Diagrams.

3.4.3 Analysis and Evaluation of Fire Area EFP-F-1-A, Emergency Feedwater Pump Bldg.

A. EQUIPMENT AND CABLES IN THE FIRE AREA

	Train A			Train B	
Description	Equip.	Cable	Description	Equip.	Cable
FW-FT-4214-2	X	X	FW-FT-4214-4	X	X
FW-FT-4224-2	X	X	FW-FT-4224-2	X	X
FW-FT-4234-2	X	X	FW-FT-4234-4	X	X
FW-FT-4244-2	X	X	FW-FT-4244-2	X	X
FW-FV-4214A	X	X	FW-FV-4214B	X	X
FW-FV-4224A	X	X	FW-FV-4224B	X	X
FW-FV-4234A	X	X	FW-FV-4234B	X	X
FW-FV-4244A	X	X	FW-FV-4244B	X	X

B. ANALYSIS

Redundant emergency feedwater flow control valves and associated flow transmitters which are part of the alternative shutdown capability are located in the fire area. These valves are normally open valves and remain open for the initial phases of Safe Shutdown. Only two steam generators are required to satisfy the Safe Shutdown requirements: hence, only two valves on each of two lines need to be disabled (e.g., FW-FV-4214A, FW-FV-4214B, FW-FV-4224A and FW-FV-4224B). The operators will prevent additional spurious operations by tripping the power supply breakers for these valves in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A). Additional details on the fire protection measures and physical separation are contained in Tabulation 3.2.7.48.

C. EVALUATION

A deviation from the Appendix R, Paragraph III.L.3 requirements exists in the emergency feedwater pump building. This devition is justified based on the analysis and our assertion that additional modifications would not enhance fire protection safety.

3.5 HIGH LOW PRESSURE INTERFACES

3.5.1 List of Interfaces

The following is a list of the high-low pressure interfaces connected to the reactor coolant system (RCS).

3.5.1.1 Chemical and Volume Control System (CS)

a. Excess letdown line

b. Normal letdown line

c. Reactor coolant pumps seal bleedoff lines

3.5.1.2 Residual Heat Removal (RH) System

3.5.1.3 Pressurizer Power Operated Relief Valves (PORV)

3.5.1.4 Reactor Vessel Head Vent

3.5.2 High-Low Pressure Interface Safe Shutdown Equipment List

A list of all high-low pressure interface valves is provided in Appendix, Section III. The table provides the following requested information for each equipment listed:

a. A column which notes whether the equipment is required for hot and/or cold shutdown.

b. A column which defines each equipment's location by fire zones/area.

c. A column which defines each equipment's redundant counterpart.

d. A column which lists each equipment's essential cabling. For each cable's routing by fire zone/area see computer report "Cables with Associated Fire Zones" in The Appendix, Section V.G (High-Low Pressure Interface Reports).

e. The table also delineates the following additional information:

1) P & I Diagram Drawing No.
2) Physical Location Drawing No.
3) Power Supply
4) Electrical Node Number
5) Supporting Control and Instrumentation Equipment
6) Electrical Schematic Drawing No.
7) Electrical Cable Schematic Drawing No.
8) Supporting Systems
9) Remarks

3.5 HIGH-LOW PRESSURE INTERFACES (Continued)

3.5.3 Review and Analysis

A review of each of the lines listed in subsection 3.5.1 is provided to identify lines with two or more electrically operated valves which could open and cause a LOCA.

3.5.3.1 Chemical and Volume Control System

a. Excess letdown line

The high-low pressure interface is downstream of control valve CS-HCV-123. This is a normally closed, fail close diaphragm valve. This valve will be restricted (by use of a mechanical valve stem stop) to a maximum open position (when open) to pass the maximum letdown flow of 25 gpm.

Upstream of CS-HCV-123 are two normally closed, fail close diaphragm valves, CS-V175 and CS-V176. Thus, three electrical hot shorts are required to cause a RCS loss of 25gpm maximum. This flow rate is small compared to the charging pump capability of one pump (150 gpm).

The operators will prevent this limited leakage from the RCS by tripping the 125 Volt dc power supply breaker for valves CS-V175 in the Train B switchgear room. An additional disabling capability exists in the Train B diesel generator room (Fire Area: DG-F-2B-A) should the Primary capability be inaccessible due to a fire in the switchgear room.

b. Normal letdown line

The high-low pressure interface is downstream of parallel valves CS-HCV-189 and CS-HCV-190 (letdown flow control valves). These valves are motor operated drag valves. These valves will be restricted (by use of a mechanical valve stem stop) to a maximum letdown flow of 120 gpm. Upstream of CS-HCV-189 and CS-HCV-190 are fail close diaphragm valves CS-V145, RC-LCV-459, and RC-LCV-460. Thus, three electrical hot shorts are required to cause RCS leakage of 120 gpm maximum. The maximum flow rate is close to the charging pump capability of 150 gpm. This water has several potential flow paths, depending on CVCS mode of operation and failure of equipment in the CVCS due to fire damage. Assuming no loss-of-offsite power, the letdown flow path containment isolation valves will not close (if they close, no interface flow would result). Flow downstream of the letdown flow control valves (CS-HCV-189, 190) would pressurize the low pressure line. If one downstream valve, CS-V149, CS-V150, CS-TCV-381A, B, CS-PCV-131 were to close, the line would pressurize to relief valve (CS-V148) setpoint to 600 psig then CS-V148 would relieve the flow of 120 gpm to the pressurizer relief tank (PRT). This loss would be stopped by tripping one of the dc pilot solenoids for valves RC-LCV-460 or RC-LCV-459 at the 125 Volt dc distribution panels located in A Train and B Train switchgear room. (Fire Areas:

3.5 HIGH-LOW PRESSURE INTERFACES (Continued)

3.5.3.1 Chemical and Volume Control System (Continued)

b. Normal letdown line (continued)

CB-F-1A-A and CB-F-1B-A). Thus, the loss would be stopped and the loss contained in the PRT. If the above mentioned letdown line path is open and valve CS-V282 closes, relief valve CS-V329 will lift (setpoint 300 psig) and discharge to the chemical volume control tank CS-TK-1. Once CS-TK-1 fills and is pressureized to 60 psig, relief valve CS-V243 will discharge to the primary drain tank BRS-TK-66B or A (total tank volume of 8600 gal). The boron recovery system (BRS) is designed to handle letdown flow of 120 gpm. However, if the fire has affected the BRS, the BRS-TK-66B or A (depending on which tank is aligned) would fill to capacity and relief valve BRS-V457 or BRS-V458 would relieve to the floor and equipment drain system sumps.

Through each of the above scenarios, the RCS fluid is contained in the various flow paths, provided the operator, upon control room evacuation, isolates letdown valve RC-LCV-459 at the 125 Volt distribution panels in the A Train switchgear room (Fire Area: CB-F-1A-A). An additional disabling capability exists in the Train A diesel generator room (Fire Area: DG-F-2A-A) should the primary capability be inaccessable due to a fire in the switchgear room.

c. Reactor coolant pumps seal bleedoff lines

The high-low pressure interface is downstream of valves CS-V44 (Loop 3), CS-V59 (Loop 4), CS-V10 (Loop 1), CS-V28 (Loop 2). These valves are fail open diaphram valves. However, these valves are not used for pressure reduction. The RCP seals are the pressure reduction device. If the bleedoff line is isolated downstream of the high/low interface, the pressure would equalize across the seals and pressurize the bleed lines. The low pressure portion of the bleedoff line is protected with relief valves CS-V173, CS-V794, and CS-V250.

Bleedoff from the RCP seals will equal a maximum of 12 GPM either discharging to the Reactor Drain Tank (RDT) if containment isolation valves CS-V-108, 107 (normally open motor operator valves) close or to the charging pump suction. RCS fluid to the RDT is not recoverable but will be made up by flow to the charging suction from BAT.

168
167

3.5.3.2 Residual Heat Removal System

The high-low pressure interface is downstream of motor operated valves (MOV) RV-V23 (Loop 1) and RC-V88 (Loop 4).

Upstream of each MOV is MOV RC-V22 and RC-V87. All four valves are normally closed when the RCS is above RHR design pressure of 600 psig and interlocked to close on RCS pressure above the setpoint of 450 psig.

3.5 HIGH LOW PRESSURE INTERFACES (Continued)

3.5.3.2 Residual Heat Removal System (Continued)

During normal operation these normally closed MOV's will also be deenergized at their respective motor control center, thus there is no possibility of a short circuit, or hot short circuit opening the valves.

3.5.3.3 Pressurizer Power Operated Relief Valves

The high-low pressure interface is downstream of paralleled valves RC-PCV-456A and RCV-PCV-456B. These valves are normally closed, fail closed solenoid operated valves. Upstream of each of these valves are the PORV block valves RC-V122 and RC-V124. These MOV's are normally open.

Since the PORV block valves are normally open MOVs and will be closed for all fires which could cause spurious PORV operation, a hot short to the control logic or power to these valves will not cause PORV blowdown.

The operators will prevent the opening of the solenoid operated valves RC-PCV-456A and RC-PCV-456B by tripping their respective power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A). An additional disabling capability exists in the Train A and Train B diesel generator rooms (Fire Areas: DG-F-2A-A and DG-F-2B-A) respectively should the primary capability be inaccessable due to a fire in the switchgear room.

3.5.3.4 Reactor Vessel Head Vent

The high-low pressure interface is downstream of valve, RC-V323. This is a normally closed MOV. Upstream of RC-V323 is a normally closed, solenoid valve, RC-FV-2881. Between the fail close RCS and head vent system is a flow orifice which limits flow equal to one charging pump capacity of 150 gpm. The head vent system discharges to the pressurizer relief tank. To prevent a short circuit or a hot short from opening normally closed MOV RC-V323 and solenoid RC-FV-2881 the operators will upon control room evacuation disable the valves at the motor control center and 125 volt dc distribution panel in the B Train switchgear room (Fire Area: CB-F-1B-A). An additional disabling capability exists in the Train B diesel generator room (Fire Area: DG-F-2B-A) should the primary capability be inaccessable due to a fire in the switchgear room.

3.5.4 Evaluation

3.5.4.1 Chemical and Volume Control System

a. Excess letdown line

The Safe Shutdown requirements are satisfied.

b. Normal letdown line

The Safe Shutdown requirements are satisfied

3.5 HIGH LOW PRESSURE INTERFACES (Continued)

3.5.4 Evaluation (Continued)

c. Reactor coolant pumps seal bleedoff lines

The Safe Shutdown requirements are satisfied

3.5.4.2 Residual Heat Removal System

The Safe Shutdown requirements are satisfied

3.5.4.3 Pressurizer ~~Relief~~ Power Operated Relief Valves

The Safe Shutdown requirements are satisfied

3.5.4.4 Reactor Vessel Head Vent

The Safe Shutdown requirements are satisfied

SECTION 3.7

DEVIATIONS FROM 10CFR50 APPENDIX R

FIRE AREA	SECTION LOCATED IN REPORT	EQUIPMENT/SYSTEM	TYPE OF DEVIATION FROM APPENDIX
C-F-1-Z/C-F-2-Z/	3.2.7.1 B.2.c	CC-V-57, 121, 176, 256	III.G.2.d
C-F-3-Z	3.2.7.1 B.2.k	Pressurizer Heaters	III.G.2.d
	3.2.7.1 B.2.l	RC-PCV-456A, B	III.G.2.d
	3.2.7.1 B.2.n	SI-V3, SI-FV-2475, 2476	III.G.2.d
	3.2.7.1 B.2.o	SI-V32, SI-FV-2477, 2486	III.G.2.d
	3.2.7.1 B.2.p	SI-V-17, SI-FV-2482, 2483	III.G.2.d
	3.2.7.1 B.2.q	SI-V-47, SI-FV-2495, 2496	III.G.2.d
	3.2.7.1 B.2.u	NI-NE-6690, 6691	III.G.2.d
3.2.7.1.B.2.x	3.2.7.1 B.2.v	RC-LT-459, 460 — RC Hot Leg Temp.	III.G.2.d — III.G.2.d
CB-F-3A-A	3.3.9.2	Control Room/RSS	III.G.3 - Fixed Fire Suppression
CB-F-3B-A	3.3.9.3	HVAC Equipment & Duct Area - Control Room	III.G.3 - Fixed Fire Suppression
CE-F-1A-Z/ PP-F-XX-Z	~~3.2.7.17 B.c~~	~~CS-V142, 143, SI-V-138, 139~~	~~III.G.2.b - Auto Fire Suppression~~ ~~III.G.2.b - Separation 20'~~
	3.2.7.17 B.f	EAH-AC-2A,-2B, EAH-FN-5A, -5B, EAH-DP-3A, -3B	III.G.2.b - Separation 20' III.G.2.c - Auto Fire Suppression
	3.2.7.17 B.g	EAH-FN-31A,-31B, EAH-DP-25A,-25B	III.G.2.b - Separation 20' III.G.2.c - Auto Fire Suppression
DG-F-3A-Z/ DG-F-3B-Z	3.2.7.41 B.2.e	DAH-DP-15A,-15B, DAH-FN-25A,-25B, DAH-FN-26A,-26B	III.G.2.b - Separation 20' III.G.2.c - Auto Fire Suppression
EFP-F-1-A	3.2.7.48	EFW Room	III.G.3 - Fixed Fire Suppression
	3.4.3	EFW Room	III.L.3 - Independence
PAB-F-1A-Z*	3.2.7.63	CC, CS, EAH, PAH, SI, SW	III.G.2.c - Auto Fire Suppress
PAB-F-1J-Z*	3.2.7.66	CC, SI, CS	III.G.2.c - Auto Fire Suppression
PAB-F-1K-Z*	3.2.7.67	CS, SW, PAH.	III.G.2.b - Separation 20' III.G.2.c - Auto Fire Suppression
PAB-F-2A-Z*	3.2.7.68	CS, EAH, PAH, SW	III.G.2.c - Auto Fire Suppression
PAB-F-2B-Z*	3.2.7.69	PAH	III.G.2.c - Auto Fire Suppression
PAB-F-2C-Z*	3.2.7.70	PAH	III.G.2.b - Separation 20'
PAB-F-3A-Z*	3.2.7.71	CS, SW	III.G.2.c - Auto Fire Suppression
PAB-F-3B-Z*	3.2.7.72	CS	III.G.2.c - Auto Fire Suppression

*Denotes Group of Fire Zones which form one Fire Area in PAB. In addition to the deviations requested, a general deviation to the requirements at III.G.2.a is requested for this area.

CB-F-2C-A | 3.2.7.10.B.2 | CBA | III.G.2.c - Auto Fire Suppression

REVISED SHEETS

EQUIPMENT LISTS

MCR & RSS

MASTER COPY

FUNCTION: DECAY HEAT REMOVAL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID FLOW DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-H: SCHEMATIC	ELECTRICAL DRAWING NO 9763-H: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
9	FW-PT-4224-E	Emergency Feedwater Header Flow Valve	202076	B	318708	EFF-F-1-A	X	X	X	-	V2E	FW-84A-52	4609AC Circuit Breaker	B4A	CB-F-1B-A	B4A-V2E	310844		CBA-FW-32	FW-PT-4234-A	
																B4A-V2E/1	B4Ae	B4Ad	CBA-FW-33		
												FW-84A-FU	Fuse	B4A	CB-F-1B-A	E3D-G2J/1		B4Ae	EFA-FW-47A		
												FW-CS-4224-S2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-V2E			EDE-WCC-415		
																B4A-G2J					
												FW-SS-4224-S	Selector Switch	G2J	CB-F-1B-A						
												/W-84A-42/D,C	Motor Starters	B4A	CB-F-1B-A						
												FW-84A-49	Overload Relays	B4A	CB-F-1B-A						
												FW-ZS-4224-S	Valve Position Switch	V2E	EFF-F-1-A						
												FW-E3D-4224S2	Auxiliary Relay	E3D	CB-F-1B-A						
												FW-CS-4224-S1	Control Switch with Indication	P51	CB-F-3A-A	E3D-P51/1					
																P51-G2J/1					
												FW-E3D-X1, X2, X3, X4	Auxiliary Relays	E3D	CB-F-1B-A	E3D-FL2	E3F/1e	E3F/1c			
																E3D-P51/A					
												MH-CF-2978	"B" Train BOP-PCC	FL2	CB-F-3A-A	FL2-GLA		310952			
												FW-FR-4224	Flow Recorder	P56	CB-F-3A-A	P56-FL2		FL2e			
												FW-FT-4224-2	Flow Trans.	GLA	EFF-F-1A-A	P88-FL2					
												FW-FI-4224-2	Flow Indicator	P56	CB-F-3A-A	FL2-GLA					
10	FW-PT-4234-A	Emergency Feedwater Header Flow Valve	20020076	A	318708	EFF-F-1-A	X	X	X	-	V2G	FW-83E-52	4609AC Circuit Breaker	B3E	CB-F-1A-A	B3E-V2G	310844		CBA-FW-39	FW-PT-4234-B	
																B3E-V2G/1	B3Ae	B3Ed	CBA-FW-20		
												FW-83E-FU	Fuse	B3E	CB-F-1A-A	G2G-V2G		B3Ae	EFA-FW-47A		
												FW-CS-4234-A2	Control Switch with Indication	G2G	CB-F-1A-A	E3C-G2G/2			EDE-WCC-515		
												FW-SS-4234-A	Selector Switch	G2G	CB-F-1A-A						
												FW-83E-42/D,C	Motor Starters	B3E	CB-F-1A-A						
												FW-83E-49	Overload Relays	B3E	CB-F-1A-A						
												FW-ZS-4234-A	Valve Position Switch	V2G	EFF-F-1-A						
												FW-E3C-4234A2	Auxiliary Relay	E3C	CB-F-1A-A						
												FW-CS-4234-A1	Control Switch with Indication	P51	CB-F-3A-A	E3C-P51/2					
																P51-G2G/2					
												FW-E3C-X1, X2, X3, X4	Auxiliary Relays	E3C	CB-F-1A-A	E3C-PED	E3E/1e	E3E/1c			
																E3C-P56		310953			
												MH-CF-2974	"A" TB BOP-PCC	PED	CB-F-3A-A	PED-GL3		PEDe			
												FW-FR-4234	Flow Recorder	P86	CB-F-3A-A	P56-PED					
												FW-FT-4234-2	Flow Trans.	GL3	EFF-F-1A-A	P86-PED					
												FW-FI-4234-2	Flow Indicator	P56	CB-F-3A-A						
11	FW-PT-4234-B	Emergency Feedwater Header Flow Valve	202076	B	318708	EFF-F-1-A	X	X	X	-	V2L	FW-84B-52	4609AC Circuit Breaker	B4B	CB-F-1B-A	B4B-V2L	310844		CBA-FW-32	FW-PT-4234-A	
																B4B-V2L/1	B4Be	B4Ce	CBA-FW-33		
												FW-84B-FU	Fuse	B4B	CB-F-1B-A	E3D-G2J/2		B4Be	EFA-FW-47B		
												FW-CS-4234-B2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-V2L			EDE-WCC-415		
																B4B-G2J					
												FW-SS-4234-B	Selector Switch	G2J	CB-F-1B-A						
												FW-84B-42/D,C	Motor Starters	B4B	CB-F-1B-A						
												FW-84B-49	Overload Relays	B4B	CB-F-1B-A						
												FW-ZS-4234-B	Valve Position Switch	V2L	EFF-F-1-A						
												FW-E3D-4234B2	Auxiliary Relay	E3D	CB-F-1B-A						
												FW-CS-4234-B1	Control Switch with Indication	P51	CB-F-3A-A	E3D-P51/2					
																P51-G2J/2					
												FW-E3D-X1, X2, X3, X4	Auxiliary Relays	E3D	CB-F-1B-A	E3D-FL2	E3F/1e	E3F/1c			
																E3D-P51/A		310953			
												FW-FT-4234-A	Flow Trans.	GLA	EFF-F-1A-A	FL2-GLA		FL2e			
												MH-CF-2978	"B" Train BOP-PCC	FL2	CB-F-3A-A						

NOTES:

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

NO	DATE	DESCRIPTION	DRN. BY	CK'D BY	REG. ENG.
5	8/25/81	FIRST ISSUE	MFK		

TABLE WCR 3.1.3.1-3

FUNCTION: DECAY HEAT REMOVAL

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	PIPING & INSTR. DRAWING NO. 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO. 8763-F	FIRE AREA/ ZONE	OPERATING TIME (HOURS) 0-2 HRS	2-24 HRS	1-30 DAYS	LIMITED 30 DAYS	ELEC. MODE
12	FW-FV-4244A	Emergency Feedwater Header Flow Valve	302076	A	310700	E279-F-1-A	X	X	X	-	V2H
13	FW-FV-4244B	Emergency Feedwater Header Flow Valve	302076	B	310700	E279-F-1-A	X	X	X	-	V2H
14	MS-FV-3001	Main Steam Header	302074	A	310589	MS-F-29-I	X	X	X	X	V2H

ITEM NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	ELEC MODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO. 8763-M: SCHEMATIC	CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
12	FW-E37-52	4160VAC Circuit Breaker	E37	CB-F-16-A	E37-V2H	310844 E37a	E37d	CBA-FW-19	FW-FV-4244-B	
	FW-E37-FU	Fuse	E37	CB-F-16-A	E37-V2H/1 E3C-G2G/3		E37a	CBA-FW-20 E7A-FW-476		
	FW-CS-4244-A2	Control Switch with Indication	G2G	CB-F-16-A	G2G-V2H			EDE-MCC-515		
	FW-SS-4234-A	Selector Switch	G2G	CB-F-16-A						
	FW-E37-A2/B,C	Motor Starters	E37	CB-F-16-A						
	FW-E37-A9	Overload Relays	E37	CB-F-16-A						
	FW-ZS-4244-A	Valve Position Switch	V2H	E279-F-1-A						
	FW-E3C-4244AX	Auxiliary Relay	E3C	CB-F-16-A						
	FW-CS-4244-A3	Control Switch with Indication	P51	CB-F-36-A	E3C-P51/3 P51-G2G/3					
	FW-E3C-X1,X2, X3,X4	Auxiliary Relays	E3C	CB-F-16-A	E3C-P58 E3C-P56	E38/1a	E38/1c 310952 P58a			
	FW-FT-4244-A	Flow Trans.	GL3	E279-F-16-A	P58-GL3					
	MR-CP-2794	"A" Train SOP-FOX	P58	CB-F-36-A						
13	FW-B4C-52	4160VAC Circuit Breaker	B4C	CB-F-18-A	B4C-V2H	B4Ca	B4Cd	CBA-FW-32	FW-FV-4244-A	
	FW-B4C-FU	Fuse	B4C	CB-F-18-A	E38-G2J/3		B4Ca	CBA-FW-33		
	FW-CS-4244-B2	Control Switch with Indication	G2J	CB-F-18-A	G2J-V2H B4C-G2J			E7A-FW-475 EDE-MCC-615		
	FW-SS-4234-B	Selector Switch	G2J	CB-F-18-A						
	FW-B4C-A2/B,C	Motor Starters	B4C	CB-F-18-A						
	FW-B4C-A9	Overload Relays	B4C	CB-F-18-A						
	FW-ZS-4244-B	Valve Position Switch	V2H	E279-F-1-A						
	FW-E38-4244B2	Auxiliary Relay	E38	CB-F-18-A						
	FW-CS-4244-B1	Control Switch with Indication	P51	CB-F-36-A	E38-P51/3 P51-G2J/3					
	FW-E38-B1,B2, B3,B4	Auxiliary Relays	E38	CB-F-18-A	E38-FL2 E38-P51/A	E38/1a	E38/1c 310953 FL2a			
	MR-CP-2978	"B" Tr. SOP-FOX	FL2	CB-F-36-A	FL2-GLA					
	FW-FB-4224	Flow Recorder	FB4	CB-F-36	FB4-FL2					
	FW-FT-4244-2	Flow Trans.	GLA	E279-F-16-A	P88-FL2					
	FW-FI-4244-2	Flow Indicator	P54	CB-F-36-A						
14	MS-E27/B-72	125VDC Circuit Breaker	E27	CB-F-16-A DG-F-2A-A CB-F-14-A	G2C-V2H G2C-D5A G2C-D8B	E27/8a	E27/8c 310841 E27/8f	CBA-FW-19 CBA-FW-20 EDE-FY-1136 INST AIR	MS-FV-3002 or MS-FV-3004	
	MS-SS-3001-2	Selector Switch	G5E	MS-F-29-I	P68-G2G/9					
	MS-FV-3001-1	Solenoid Valve	SDA	MS-F-29-I	E27-G5E					
	MS-FV-3001-2	Solenoid Valve	SDA	MS-F-29-I	G2G-G5E					
	MS-FV-3001-3	Solenoid Valve	SDB	MS-F-29-I						
	MS-FV-3001-4	Solenoid Valve	SDB	MS-F-29-I						
	MS-CS-3001-1	Control Switch with Indication	P60	CB-F-36-A						
	MS-CS-3001-2	Control Switch with Indication	G2G	CB-F-16-A						
	MS-SS-3001-1	Selector Switch	G2G	CB-F-16-A						
	MS-ZS-3001-4	Valve Position Switch	V2H	MS-F-29-I						
	MS-CS-3001-1	Control Switch	P60	CB-F-36-A						
	MS-FV-3001-5	Solenoid Valve	SDC	MS-F-29-I	E29-P66	E29/15	310841	EDE-FY-1139		
	MS-FV-3001-6	Solenoid Valve	SDC	MS-F-29-I	P66-SDC					
	MS-E29/15-72	125 VDC Circuit Breaker	E29	CB-F-18-A						

NOTES:

NO.	DATE	DESCRIPTION	DRWN BY	CHK'D BY	PROJ ENG.
1	4/25/85	FIRST ISSUE	MMC	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
RESPONSE STATION

United Engineers

TABLE NCR 3.1.3.1-4

FUNCTION: DECAY HEAT REMOVAL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID NO	TRAIN	PHYSICAL LOCATION	FIRE AREA/ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NOTES	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NOTES	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ZONE	CABLES	ELECTRICAL DRAWING NO 5763-M: SCHEMATIC	ELECTRICAL DRAWING NO 5763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT EQUIPMENT	REMARKS
15	MS-PV-3003	Main Steam Safety or Atmospheric Relief Valve	203074	A	310586	MS-F-2A-I	X	X	X	X	730	MS-SS-3003-2	Selector Switch	G52	DG-F-2A-A CB-F-18-D	G2G-P2G	310841 E27/10r	E27/10u	EHE-PV-1136	MS-PV-3002	
												MS-CS-3003-2	Control Switch with Indication	G2G	CB-F-18-A	G2G-0DE G2G-0DL		E27/10f	CBA-PB-19 CBA-PB-20 INST. AIR	or MS-PV-3004	
												MS-CB-3003-1	Control Switch with Indication	P60	CB-F-36-A	P60-G2G/5 E27-C51/1					
												MS-E27/10-72	125VDC Circuit Breaker	E27	CB-F-16-A	G2G-C51/1					
												MS-SS-3003-1	Selector Switch	G2G	CB-F-18-A						
												MS-ZS-3003-4	Valve Position Switch	730	MS-F-2A-I						
												MS-PT-3003-1	Solenoid Valve	SDE	MS-F-2A-I						
												MS-PT-3003-2	Solenoid Valve	SDE	MS-F-2A-I						
												MS-PT-3003-3	Solenoid Valve	SDL	MS-F-2A-I						
												MS-PT-3003-4	Solenoid Valve	SDL	MS-F-2A-I						
												MS-PT-3003-5	Solenoid Valve	SDH	MS-F-2A-I	E29-P66/1	E29/16		EHE-PV-1130		
												MS-PT-3003-6	Solenoid Valve	SDH	MS-F-2A-I	P66-GDx					
												MS-E29/16-72	125VDC Circuit Breaker	E29	CB-F-19-A						
16	MS-PV-3002	Main Steam Header Atmospheric Relief Valve	203074	B	310586	MS-F-2A-I	X	X	X	X	729	MS-SS-3002-1	Selector Switch	G2J	CB-F-18-A	G2J-P2F	310841 E29/8u	E29/8u	CBA-PB-32	35-PV-3001	
												MS-CS-3002-2	Control Switch with Indication	G2J	CB-F-18-A	G2J-GDC G2J-GDE		E29/8f	CBA-PB-33 EHE-PV-1130 INST. AIR	or MS-PV-3003	
												MS-CB-3002-1	Control Switch with Indication	P60	CB-F-36-A	P66-G2J/1 E29-C51					
												MS-E29/8-72	125VDC Circuit Breaker	E29	CB-F-19-A	G2J-C51					
												MS-SS-3002-2	Selector Switch	G51	DG-F-2B-A CB-F-18-B						
												MS-ZS-3002-8	Valve Position Switch	72F	MS-F-2A-I						
												MS-PT-3002-1	Solenoid Valve	SDG	MS-F-2A-I						
												MS-PT-3002-2	Solenoid Valve	SDG	MS-F-2A-I						
												MS-PT-3002-3	Solenoid Valve	SDB	MS-F-2A-I						
												MS-PT-3002-4	Solenoid Valve	SDB	MS-F-2A-I						
												MS-PT-3002-5	Solenoid Valve	SDJ	MS-F-2A-I	E27-P66	E27/15		EHE-PV-1136		
												MS-PT-3002-6	Solenoid Valve	SDJ	MS-F-2A-I	P66-GDJ					
												MS-CS-3002-1	Control Switch	P66	CB-F-36-A						
												MS-E27/15-72	125VDC Circuit Breaker	E27	CB-F-16-A						
17	MS-PV-3004	Main Steam Header Atmospheric Relief Valve	203074	B	310589	MS-F-2B-I	X	X	X	X	728	MS-SS-3004-1	Selector Switch	G2J	CB-F-18-A	G2J-P2B	310841 E29/10u	E29/10u	EHE-PV-1130	MS-PV-3001	
												MS-CS-3004-2	Control Switch with Indication	G2J	CB-F-18-A	G2J-GDD G2J-GDF		E29/10f	CBA-PB-32 CBA-PB-33 INST. AIR	or MS-PV-3003	
												MS-CS-3004-1	Control Switch with Indication	P66	CB-F-36-A	G2J-C51/1 P66-G2J/3 E29-C51/1					
												MS-E29/10-72	125VDC Circuit Breaker	E29	CB-F-19-A						
												MS-SS-3004-2	Selector Switch	G51	DG-F-2B-A CB-F-18-B						
												MS-ZS-3004-8	Valve Position Switch	728	MS-F-2B-I						
												MS-PT-3004-1	Solenoid Valve	SDB	MS-F-2B-I						
												MS-PT-3004-2	Solenoid Valve	SDB	MS-F-2B-I						
												MS-PT-3004-3	Solenoid Valve	SDE	MS-F-2B-I						
												MS-PT-3004-4	Solenoid Valve	SDE	MS-F-2B-I						
												MS-PT-3004-5	Solenoid Valve	SDF	MS-F-2B-I	E27-P66/1	E27/16		EHE-PV-1136		
												MS-PT-3004-6	Solenoid Valve	SDF	MS-F-2B-I	P66-DEF					
												MS-CB-3004-1	Selector Switch	P60	CB-F-36-A						
												MS-E27/16-72	125 VDC Circuit Breaker	E27	CB-F-16-A						

NOTES:

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	APPD & INC
5	4/25/85	FIRST ISSUE	AMK	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NSR 3.1.3.1-5

FUNCTION: DECAY HEAT REMOVAL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING & INSTR DRAWING NO 8760-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F	FIRE AREA ZONE	NEED FOR HOT SHUTDOWN	NEED FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 8763-sh SCHEMATIC	ELECTRICAL DRAWING NO 8763-sh CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310841				
10	MS-V-86	Main Steam Isolation Valve	202074	A/B	310509	MS-F-29-E	X	X	X	X	EV0 EV1 EV2 EW1	MS-EA7/14-72	125VDC Circuit Breaker	E87	CB-F-16-4	E87-G26	E87/14a	E87/14b	CBA-FB-19 CBA-FB-20 E0E-FF-112A	None	Note 2
												MS-FY-89A-1	Pilot Solenoid	EV1	MS-F-29-E	G26-EV1					
												MS-FY-10A-1	Pilot Solenoid	EV1	MS-F-29-E						
												MS-FY-102A-1	Solenoid Valve	EV1	MS-F-29-E						
												MS-FY-102B-1	Solenoid Valve	EV1	MS-F-29-E						
												MS-G26-E103	Output Relay	G26	MS-F-34-E						
												MS-G26-E104	Output Relay	G26	MS-F-34-E						
												MS-E18/7-52	120VAC Circuit Breaker	E18	CB-F-16-4	E18-G26/1	E18/7a	E18/7b	CBA-FB-19		
																G2G-G26/4	E18/7b	E18/7i	CBA-FB-20		
												MS-G26-PD-101 & 102	120VAC Power	G26	MS-F-34-E	G2G-G26/5	E18/7c	E18/7j	E0E-FF-11E		
																G26-EV0	E18/7d	E18/7k			
												MS-G26-E101	Output Relay	G26	MS-F-34-E	G26-E19					
												MS-G26-E102	Output Relay	G26	MS-F-34-E	G2G-G26/3					
												MS-ZS-V86	Valve Position Switch	EV0	MS-F-29-E						
												MS-EL-3005-1	Valve Position Indicating Light	G2G	CB-F-16-4						
												MS-SS-3005-1	Selector Switch	G2G	CB-F-16-4						
												MS-CP-184	MSIV Logic Cab (Train A)	G26	MS-F-34-E						
												MS-PC1-E-80A	Auxiliary Relay ESPS Test	PC1	CB-F-34-4	F28-G26 G26-EV1/1					
												MS-CS-3065-2	Control Switch	F28	CB-F-34-4	G26-EV0/1					
												MS-CB-PB1A-1	Pushbutton Switch	F77	CB-F-34-4	PC1-G26					
												MS-CS-3065	Control Switch with Indication	F60	CB-F-34-4	F60-G26/1 F57-PC1/E					
												MS-ZS-276-1	Micro Switch Blow Flow	EV1	MS-F-29-E	F77-G26					
												MS-86-8029	Isolation Indication	PC1	CB-F-34-4	F60-G2G/3					
												MS-F57-66346	SPS Auxiliary Relay	F57	CB-F-34-4	F60-G26					
																	310841				
												MS-ZL-V80A-1	Valve Position Indication	F77	CB-F-34-4	F57-G26 G26-E18/1					
												MS-ZL-V9CA-1	ESPS Test Indication	F77	CB-F-34-4	G2A-E13/1					
												MS-ZL-F88TA-1	Blow Flow Indication	F77	CB-F-34-4	F70-G26/1					
												MS-ZL-V88A-1	Valve Position Indication	F77	CB-F-34-4						
												MS-E88/14-72	125VDC Circuit Breaker	E88	CB-F-15-4	E88-G29 G29-EV2	E88/14a	E88/14b	CBA-FB-32 CBA-FB-33 E0E-FF-112B		
												MS-FY-89B-1	Pilot Solenoid	EV2	MS-F-29-E						
												MS-FY-10B-1	Pilot Solenoid	EV2	MS-F-29-E						
												MS-FY-1176-1	Solenoid Valve	EV2	MS-F-29-E						
												MS-FY-117B-1	Solenoid Valve	EV2	MS-F-29-E						
												MS-G29-E103	Output Relay	G29	CB-F-15-4						
												MS-G29-E104	Output Relay	G29	CB-F-15-4						
												MS-E17/7-52	120VAC Circuit Breaker	E17	CB-F-15-4	E17-G29/3 G2J-G29/1	E17/7a E17/7b	E17/7f E17/7g	CBA-FB-32 CBA-FB-33		
												MS-G29-PD-101 & 102	120VAC Power	G29	CB-F-15-4	G29-EW1 G2J-G29	E17/7c	E17/7h E17/7i	E0E-FF-119		
												MS-G29-E101	Output Relay	G29	CB-F-15-4						
												MS-G29-E102	Output Relay	G29	CB-F-15-4						
												MS-ZS-V86	Valve Position Switch	EW1	MS-F-29-E						

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CHK'D BY	APP'D
1	1/82	FIRST ISSUE	DMK	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE (DRAWING NO) P&ID F	TRAIN	PHYSICAL LOCATION (DRAWING NO) ELEV F	FIRE AREA/ ZONE	REQD FOR HOT SHUT DOWN	REQD FOR COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC NOTES	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NOTES	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO: SCHEMATIC	ELECTRICAL DRAWING NO: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	RC-E-10	Reactor Coolant System Pressurizer	805007	A/B	310598	C-F-1-Z			-	-	-	-	-	-	-	-	-	-	-	None	Note 1
2	RC-E-10	Pressurizer Heaters Group A	805007	A	310598	C-F-1-Z	X	X	X	-	M26	RC ABA 52	480VAC Circuit Breaker	ABA	CB-F-1A-A	ABA 607 ABA E07/1	310882		CBA-FW-19 CBA-FW-20	Pressurizer Heaters	-
												RC ABA PV	Pump	ABA	CB-F-1A-A	ABA GB1	ABAa	ABAg	EDE-00-52	Group B	
												RC CB 7310 2	Control Switch with Indication	GB1	CB-F-1A-A	ABA GB1/1 E07 H14	ABAb ABAc	ABAh ABAi			
												RC SB 7310	Selector Switch	GB1	CB-F-1A-A	E07 H14/1					
												EDE-AC1-94 3	Bus Undervoltage Relay	AC3	CB-F-1A-A	E07 H14/2 E07 H14/3					
												RC-ABA 52B 1	Truck Operated Contact	ABA	CB-F-1A-A	E07 H14/4 H14 B67					
												EDE-TBX-X67 (RC BA1)	Terminal Box	B67	C-F-1-E	H14 B67/1					
												RC ABA a,b	Indicating Lights	ABA	CB-F-1A-A	H14 B67/2 H14 B67/3					
												RC-ABA-CT1	Current Transformer (600/5) ØB Bus Side	ABA	CB-F-1A-A	H14 B67/4 H26 B67					
												RC ABA AM	Ammeter	ABA	CB-F-1A-A	H26 B67/1					
												RC ABA CT2	Current Transformer (600/5) ØA, ØC Load Side	ABA	CB-F-1A-A	H26 B67/2 H26 B67/3 H26 B67/4 H26 B67/5					
												RC AC1 WTR	Watt Transducer	AC1	CB-F-1A-A	H26 B67/6					
												RC PP-AA	Distribution Panel	E07	CT-F-1A-A	H26 B67/7 H26 B67/8					
												EDE-MM-90	Electrical Penetration	M14	CT-F-1A-A C-F-2-E	H26 B67/9 H25 B67/A H26 B67/B H26 B67/C H26 B67/D H26 B67/E					
												RC CB 7310 1	Control Switch with Indication	F31	CB-F-3A-A	FB1 HB2 F10 FB1 F10 GB1					
												LTE-439C01 A	Low Level Aux. Relay	FB1	CB-F-3A-A		FP-XHA01				
												LTE-660081	Low Level Aux. Relay				BH125				
												EDE AC1-94 3	Undervoltage Tripping Relay	AC3	CB-F-1A-A						
												SG CP-39	Energ. Power Sequencer	HB2	CB-F-1A-A						
												RC LT-459	Pressurizer Level Transmitter	GM5	C-F-2-E	GM5 H63/1 FA1 H63/1	C509033 C509027	310962 FA1a FA1w	MM CP-1		
												MM CP-1	Process Protection Sys. Cabinet #1	FA1	CB-F-3A-A						
												EDE MM 121	Electrical Penetration	H63	C-F-2-E EE-F-1A-A						
												MM CP-5	Process Control CPPI Cabinet	FA5	CB-F-3A-A						
												RC LT-460	Pressurizer Level Transmitter	GM5	C-F-2-E	GM5 H53/2 FA2 H53/3		310963 FA2c FA3w	MM CP-2		
												EDE MM 111	Electrical Penetration	H55	C-F-1-E EE-F-1C-E						
												MM CP-2	Process Protect. Sys. Cabinet #2	FA2	CB-F-3A-A						
												MM CP-6	Process Control CP #2 Cabinet	FA6	CB-F-3A-A						

NOTES:

1. The equipment is mechanical with no electrical requirement.
2. Air is not needed to position or to repositions the valve for safe shutdown.
3. Electrical conduit plan drawing, 9763 F 310766, is listed only to show the fire zone corresponding to the area where the charging pump oil coolers are located (9763 F 805213 and F 8152145).
4. This valve will permanently disabled by tripping its circuit breaker at the MCC.

NO	DATE	DESCRIPTION	DRAWN BY	CHKD BY	APPD BY
1	4-5-82	FIRST ISSUE			

IDCNSO - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. S.3.3.2-1

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE DRAWING NO & GRID	TRAIN	PHYSICAL LOCATION DRAWING NO & GRID	FIRE AREA/ ZONE	REQ'D FOR: HOT SHUT DOWN	REQ'D FOR: COLD SHUT DOWN	POWER: ELEC	POWER: AIR	ELEC DIVISION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC DIVISION	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO & GRID: SCHEMATIC	ELECTRICAL DRAWING NO & GRID: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	RC-E-1B	Pressurizer Heaters Group B	865007	B	310598	C-F-1-E	X	X	X	-	N26	RC AHA 52	480VAC Circuit Breaker	ADA	CB-F-1B-A	ADA-E1B	ADA-e	ADA-f	CBA-FW-12	Pressurizer Heaters Group A	
																ADA-E1B/1	ADA-b	ADA-g	CBA-FW-13		
												RC-AHA-FW	Power	ADA	CB-F-1B-A	ADA-G2D	ADA-c	ADA-p	EHE-EW-62		
												RC-CS-7319-2	Control Switch with Indication	G2D	CB-F-1B-A	ADA-G2D/1		ADA-n			
																EHE-N2D					
												RC-SS-7319	Selector Switch	G2D	CB-F-1B-A	EHE-N2D/1					
												EDE-AE1-94-1	Bus Undervoltage Relay	AE1	CB-F-1B-A	EHE-N2D/2					
																EHE-N2D/3					
												RC-ADA-52B-1	Trach Operated Contact	ADA	CB-F-1B-A	EHE-N2D/4					
																N26-B44					
												RC-ADA-L,B	Indicating Lights	ADA	CB-F-1B-A	N2D-B44/1					
												EDE-TB1-X44				N2D-B44/2					
													Terminal Box	B44	C-F-1-E	N2D-B44/3					
												RC-AHA-CT1	Current Transformer (600/5)	ADA	CB-F-1B-A	N2D-B44/4					
													0A Bus Side			N26-B44					
																N26-B44/1					
												RC-ADA-AM	Ammeter	ADA	CB-F-1B-A	N26-B44/2					
												RC-ADA-CT2	Current Transformer (600/5)	ADA	CB-F-1B-A	N26-B44/3					
													0A, 0C Load Side			N26-B44/4					
																N26-B44/5					
												RC-AE1-WSN	Watt Transducer	AE1	CB-F-1B-A	N26-B44/6					
												RC-PP-65	Distribution Panel	EDE	EE-F-1C-A	N26-B44/7					
																N26-B44/8					
												EDE-MM-94	Electrical Penetration	N2D	EE-F-1C-A, C-F-1-E	N26-B44/9					
																N26-B44/A					
												RC-AE1-B1	Auxiliary Relay	AE1	CB-F-1B-A	N26-B44/B					
																N26-B44/C					
																N26-B44/D					
																N26-B44/E					
												RC-CS-7319-1	Control Switch with Indication	F31	CB-F-3A-A	F31-F1U					
																F31-H84					
												EDE-EA1,5	Auxiliary Relays Isolation Cabinet	F1U	CB-F-3A-A	F31-L2D					
																AE1-L2D					
												EDE-AE1-94-1	Undervoltage Tripping Relay	AE1	CB-F-1B-A						
												MG-LP-BU	Energy Power Sequencer	H84	CB-F-1B-A						
																	310966				
																FB2-F59/1	EH9/15a	Eav/15c			
												RC-F59-1B	Fuses	F59	CB-F-3A-A	FB2-F59/2	EH9/15b	EH9/15t			
																	EH9/15c				
												RC-LTT-459C&2	Low Level Aux. Relay	FB2	CB-F-3A-A		EH9/15d				
																	EH9/15e				
												RC-LTT-460&62	Low Level Aux. Relay	FB2	CB-F-3A-A		EH9/15f				
																	EH9/15g				
																	EH9/15h				
																	EH9/15i				
																	FF10001				
																	BB139				
																	310962				
												MM-CP-3	Process Cont. Cab.	PA3	CB-F-3A-A	AM3-AA3/1	C509011	PA1e			
												EDE-MM-121	Electrical Penetration	AA3	C-F-2-E, EE-F-1A-A	PA1-AA3/1	C509017	PA1w			
												MM-CP-1	Process Protection Cabinet #1	PA1	CB-F-3A-A						
												RC-LT-459	Pressurizer Level Transmitter	AM5	C-F-2-E						
												RC-LT-460	Pressurizer Level Transmitter	AM5	C-F-2-E	AM5-AA3/2		PA2e			
																PA2-AA3/3		PA2w			
												EDE-MM-121	Electrical Penetration	AA3	C-F-1-E, EE-F-1C-E						
												MM-CP-2	Process Prot. Sys. Cabinet #2	PA2	CB-F-3A-A						
												MM-CP-4	Process Control CP #2 Cabinet	PA4	CB-F-3A-A						

NOTES

REV NO	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY
0	7-81	ISSUED FOR			

DOCKETED - APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. 3.1.2.1

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE DRAWING NO & GRID	TRAIN	PHYSICAL LOCATION (BUILDING NO & GRID)	FIRE AREA/ ZONE	REQ'D FOR HOT (NORMAL OPERATION)	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NEMA	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NEMA	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO & GRID: SCHEMATIC	ELECTRICAL DRAWING NO & GRID: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
4	BC-V-122	BC 8-IN Pressurizer Relief Isolation Valve	805007	A	310581	C-F-3-E	X	X	X	-	901	BC 897-52-1,2	460VAC Circuit Breakers	897	CB-F-1A-A	897-GB1 897-GB1/1	310682		CBA-FH-19 CBA-FH-20	BC-V-126 or BC-PCV-456A	Pull 18x-156
												BC 897 FU	Fuse	897	LB-F-1A-A	897-H10	897a	897e	EDE MCC-521		
												BC CS 7313-3	Control Switch with Indication	GB1	CB-F-1A-A	897-H15 H10-Y01	897a	897d			
												BC HS 7313	Selector Switch	GB1	CB-F-1A-A	H15-156					
												BC 897-42-1/B,C	Motor Starters	897	CB-F-1A-A	Y01-156					
												BC 897-42-2	Motor Starter	897	LB-F-1A-A						
												BC 897-49-1,2	Overload Relays	897	CB-F-1A-A						
												BC 156	Terminal Box	156	C-F-1-E						
												BC ZS-9122	Valve Position Switch and Valve Open/Close Torque Switches	Y01	C-F-3-E						
												EDE-MH-94	Electrical Penetration	H15	C-F-1-E, EE-F-1A-A						
												EDE-MH-111	Electrical Penetration	H15	C-F-1-E, EE-F-1A-A						
												BC-CS-7313-1	Control Switch with Indication	F31	CB-F-3A-A	EDI-F36 F36-GB1/2					
												BC-TS-61308	Aux. Relays	EDI	CB-F-3A-A	F36-GB1/3					
												BC FU-45828	Back #1								
												BC EDI-R1,R2	Aux. Relays	EDH	CB-F-1A-A						
												EDH-E42/A-52	120VAC Circuit Breaker	E42	CB-F-1A-A	EDH-781	E42/4a	E42/4c			
												BC-EDI-R1,R2	Aux. Relay	EDH	CB-F-1A-A						
5	BC-V-124	BC 8-IN Pressurizer Relief Isolation Valve	805007	B	310581	C-F-3-E	X	X	X	-	902	BC 898-52-1,2	460VAC Circuit Breakers	898	GB-F-1B-A	898-GZ0 898-GZ0/1	898a 898a	898c 898d	CBA-FH-12 CBA-FH-13	BC-V-122 or BC-PCV-456B	
												BC 898-FU	Fuses	898	CB-F-1B-A	898-H13			EDF G-621		
												BC-CS-7314-2	Control Switch with Indication	GZ0	CB-F-1B-A	898-HK1 H13-Y02					
												BC HS 7314	Selector Switch	GZ0	CB-F-1B-A	HK1-X35					
												BC-898-42-1/B,C	Motor Starters	898	CB-F-1B-A	Y02-X35					
												BC 898-42-2	Motor Starter	898	CB-F-1B-A	898-GZ0/2					EDE-18x-136
												BC 898-49-1,2	Overload Relays	898	CB-F-1B-A						
												BC X35	Terminal Box	X35	C-F-1-E						
												BC ZS-9124	Valve Position Switch and Valve Open/Close Torque Switches	Y02	C-F-3-E						
												EDE-MH-91	Electrical Penetration	H15	C-F-1-E, EE-F-1C-A						
												EDE-MH-117	Electrical Penetration	HK1	C-F-1-E, EE-F-1C-A						
												BC-CS-7314-1	Control Switch with Indication	F31	CB-F-3A-A	F31-F10/1 F31-GZ0/5 F31-GZ0/6					

NOTES

NO	DATE	REVISION	DRAWN BY	CHECKED BY	APPROVED BY
1	4-29-83	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. S.E. 1.1.1

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

Item	Component Identification No.	Equipment Description	Piping Line (Drawing No. & Grid)	Train	Physical Location (Drawing No. & Grid)	Fire Area / Zone	Mechanical: Hot Seismic	Mechanical: Cold Seismic	Power: Elec	Power: Air	Elec Diag	Supporting Control and Instrumentation Equipment: Equipment Identification No.	Equipment Description	Elec Diag	Fire Area / Zone	Cables	Electrical Drawing No. (Sys): Schematic	Electrical Drawing No. (Sys): Cable	Supporting Systems	Maintenance Constraints	Remarks
a	BG PCV-456A	BG 6-IN Pressurizer Relief Control Valve	8050017	A	310581	C-F-1-E	X	X	X		LB1	BG RM/19-72	125VDC Circuit Breaker	RM7	CB-F-1A-A	RB1-RAA/A RAA-J3B	RM7/19a	RM7/19b	LBA-FB-19 LBA-FB-20	BG-PCV-456B or BG-V-122	
												BG-LB-456A-2	Control Switch with Indication	LB1	LB-F-1A-A	LB1-J3B LB1-E15			SOE-PP-1126		
												BG-RB-456-A1	Selector Switch	LB1	CB-F-1A-A	CY4-J3B					
												BG-RB-456-A2	Selector Switch	LY4	BG-F-2A-A	RB-J3B					
												BG-J3B-x2	Aux. Relays	J3B	BG-F-2A-A	RB-L03					
												BG PCV-456A-20	Solenoid Operating Coil	LB3	C-F-1-E	RB7-RA4/1 L03-E36					
												BG-ZS-PCV-456A	Valve Position Switch	LB3	C-F-1-E						
												BG-RAA-FU11A12	10 Amp Fuses	RAA	CB-F-1A-A						
												BG E36	Terminal Box	E36	C-F-1-E						SOE-TBX-x36
												Elec. MM 94	Electrical Penetration	M18	C-F-2-E, EI-F-1A-A						
												Elec. MM 111	Electrical Penetration	M13	C-F-1-E, EI-F-1A-A						
												BG-LB-456A-1	Control Switch with Indication	F11	LB-F-3A-A	F3A-LB1/1 F11-F01/3					
												BG PT 403A2, TT 413E3 PT 455E8, PT 474B2	Aux. Relays Aux. Cabinet #1	F01	LB-F-3A-A						
b	BG PCV-456B	6" 6-IN Pressurizer Relief Control Valve	8050017	B	310581	C-F-1-E	X	X	X		LB6	BG RM/19-72	125VDC Circuit Breaker	LB0	LB-F-1B-A	RB6-RAC/3 RAC-J3P	RB0/19a	RB6/19c RB6/19d	LBA-FB-12 LBA-FB-13 SOE-PP-1128	BG-PCV-456A or BG-V-145	
												BG-LB-456B-2	Control Switch with Indication	LZ0	LB-F-1B-A	LZ0-J3P LZ0-E39					
												BG-RB-456-B1	Selector Switch	LZ0	LB-F-1B-A	LZY-J3P					
												BG-RB-456-B2	Selector Switch	LZY	BG-F-2B-A	RZA-J3P					
												BG-J3P-x2	Aux. Relay	J3P	BG-F-2B-A	RZA-L06					
												BG PCV-456B-20	Solenoid Operating Coil	L06	C-F-1-E	RB0-E15 L06-E15					
												BG-ZS-PCV-456B	Valve Position Switch	L06	C-F-1-E						
												BG RAC-FU19A20	10A Fuses	RAC	LB-F-1B-A						SOE-TBX-y36
												BG E15	Terminal Box	E15	C-F-1-E						
												Elec. MM 100	Electrical Penetration	M26	C-F-1-E, EI-F-1C-A						
												Elec. MM 115	Electrical Penetration	M39	C-F-1-E, EI-F-1C-A						
												BG-LB-456B-1	Control Switch with Indication	F11	LB-F-3A-A	F11-E10/2 F11-L20/2					
												BG RA7	Aux. Relays Inc. Cab.	F10	LB-F-3A-A						
												BG RAC-F9 23 & 24	10A. Fuses	RAC	LB-F-1B-A	RAC-L20/1					
c	BG TK-11	Pressurizer Relief Tank	8050017	N/A	310577	C-F-1-E	-	-	-		-	-	-	-	-	-				None	Note 3
d	BG V-121	Reactor Vessel Venting Valve	8050012	B	310581	C-F-1-E	X	X	X		V02					RV9-F11	RV9a RV9d	310082 RV9c		BG-PP-2001	
												BG RV9-42 1,2	Heater	RV9	LB-F-1B-A	RV9-RK1	RV9d				
												BG RV9-49 1,2	Overload Relays	RV8	LB-F-1B-A	F11-RK1/2					
												BG-LB-2001	Control Switch with Indication	F11	LB-F-1A-A	RK1-V02 RK1-V02/1					
												BG V-121	Valve Position and Open/Close Torque Switches	V02	C-F-1-E						
												Elec. MM 91	Electrical Penetration	M13	C-F-1-E EI-F-1C-A						
												Elec. MM 117	Electrical Penetration	M41	C-F-1-E EI-F-1C-A						

Notes:

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY
0	3/15/73	FIRST ISSUE	[illegible]	[illegible]	[illegible]

SEISMIC APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. I.I.1.1.4

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE (DRAWING NO 8763)	TRAIN	PHYSICAL LOCATION (DRAWING NO 8763)	FIRE AREA/ ZONE	REQUIRED HOT SHUTDOWN	REQUIRED COLD SHUTDOWN	POWER 1 E C	POWER A M	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 8763 sh: SCHEMATIC	ELECTRICAL DRAWING NO 8763 sh: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
10	RC-PV-2681	Reactor Vessel Venting Valve	805002	B	310581	C-F-1-E	X	X	X		IR4					P31-GR1	E88/1a	E88/1b			
																P31-GS1	E88/1d	E88/1e			
												RC-CR-2681	Control Switch with Indication	P31	CB-F-3A-A	P31-IA1/1	E88/1f	E88/1g			
																IA1-IR4					
												RC-ES-2681	Interlock Switch	GS1	CB-F-1B-A						
												RC-GR1-87	Aux. Relay	GR1	CB-F-1B-A						
													EDE-CP-349								
												EDE-MM-117	Electrical Penetration	IA1	C-F-1-E						
															RT-F-1C-A						
																	310082				
11	RC-LCV-459	Letdown Isolation Valve	805011	A	310577	C-F-1-E	X	X	X	X	LP9	RC-ES-459	Selector Switch	GS2	RC-F-2A-A	P40-PB1/3	E89/17a	E89/17c		RC-LCV-460	CS-Z3 Position
												RC-CR-459	Control Switch	LR2	C-F-1-E	P40-GS2	E89/17d			CB-V-145	
												RC-CR-459	Control Switch with Indication	P40	CB-F-3A-A	P40-R36					
																GR5-R36/2					
												RC-LY1-459-GR1	Aux. Relay	PB1	CB-F-3A-A	GR5-LR2/1					
													Aux. Back #1			GR5-LP9					
												EDE-MM-112	Electrical Penetration	R36	C-F-2-E	L99-LR2					
															RT-F-1A-A						
12	RC-LCV-460	Letdown Isolation Valve	805011	A	310577	C-F-1-E	X	X	X	X	LP7	RC-CR-460	Control Switch with Indication	P40	CB-F-3A-A	P40-PB1	E89/15b	E89/15d		RC-V-459	CS-Z5 Position
																P40-R36/1	E89/15a	E89/15f		CB-V-145	
												RC-CR-460	Control Switch	LR2	C-F-1-E	P40-R36/3					
												RC-PB1-LY1-460-DB1	Aux. Relay	PB1	CB-F-3A-A	GR4-R36					
													Aux. Back #1			GR4-LR2					
												EDE-MM-112	Electrical Penetration	R36	C-F-2-E	GR4-LP7/1					
															SI-F-1A-A						
13	CH-P-2A	Charging Pump	805012	A	310764	PAB-F-1C-A	X	X	X	-	MI7	CB-A62-52	4160VAC Circuit Breaker	A62	CB-F-1A-A	A62-MI7		310091	CBA-FM-19	CB-P-2B	
																A62-P01			CBA-FM-20		
												CB-CS-3424-2	Control Switch	A62	CB-F-1A-A		A62a	A62b	EAR-FM-56		
												CB-SS-3424	Selector Switch	A62	CB-F-1A-A		A62b		EDE-SWG-5		
												CB-A62-86	Lockout Relay	A62	CB-F-1A-A		A62c				
												CB-A62-52B	Truck Operated Contact	A62	CB-F-1A-A		A62d				
												CB-A62-50/51	Inst/time Over Current Relays 86, 8C	A62	CB-F-1A-A						
												CB-PB-3467	Pressure Switch	P01	PAB-F-1C-A						
												CB-A62-AM	Ammeter	A62	CB-F-1A-A						
												CB-A62-AS	Ammeter Switch	A62	CB-F-1A-A						
												CB-A62-CT	Current Transformer (100/5)	A62	CB-F-1A-A						
												CB-A62-1BI	CT Test Device	A62	CB-F-1A-A						
												CB-A62-47B	Transducer	A62	CB-F-1A-A						
												CB-A62-TD2	Lockout Relay Test Device	A62	CB-F-1A-A						
												CB-A62-X1	Auxiliary Relay	A62	CB-F-1A-A						
												CB-A62-PB	Power	A62	CB-F-1A-A						
												CB-A62-52Z	Timing Relay	A62	CB-F-1A-A						
												CB-A62-G,R,W	Indicating Lights	A62	CB-F-1A-A						
												CB-A62-51GB	Ground Sensor Relay	A62	CB-F-1A-A						
												-5-CB-3424-1	Control Switch with Indication	P41	CB-F-3A-A						
												CB-PB7-86744	Aux. Relay BSPS 'A' CAB	PB7	CB-F-3A-A	A62-P41 A62-P41/2 A62-MB2					
												CB-MB2-RM1	Energ. Power	MB2	CB-F-1A-A	P41-PB7					
												CB-MB2-PB1	Sequencer Pnl								

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	APP'D BY
0	1/345	FIRST ISSUE			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO R 1.1 3.2-5

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE (DRAWING NO 5761 F	TRAIN	PHYSICAL LOCATION (DRAWING NO 5761 F	FIRE AREA/ ZONE	INDICATOR: LOCAL (Yes/No)	INDICATOR: CONTROL ROOM (Yes/No)	POWER: NORMAL	POWER: EMERG	ELEC. BASIS	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC BASIS	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 5761 M: SCHEMATIC	ELECTRICAL DRAWING NO 5761 M: CABLE	SUPPORTING SYSTEMS	REMARKS/ CONTEMPORARY	REMARKS
14	CB-P-2B	Charging Pump	805012	B	310764	PAB-P-1B-A	X	X	X	-	M1B	CB-A82-52	4160VAC Circuit Breaker	A82	CB-P-1B-A	A82-M1B A82-P02	682a 682b 682c 682d	682b	CBA-PM-32 CBA-PM-33 EAB-PM-58 EDE-Bus-6	CB-P-2A	
												CB-CB-7423-2	Control Switch with Indication	A82	CB-P-1B-A						
												CB-SS-7423	Selector Switch	A82	CB-P-1B-A						
												CB-A82-86	Lockout Relay	A82	CB-P-1B-A						
												CB-A82-52M	Truck Operated Contact	A82	CB-P-1B-A						
												CB-A82-50/51	Inst/Time Over-Current Relays #4, #6	A82	CB-P-1B-A						
										-		CB-PS-7468	Pressure Switch	P02	PAB-P-1B-A						
												CB-A82-AM	Ammeter	A82	CB-P-1B-A						
												CB-A82-AS	Ammeter Switch	A82	CB-P-1B-A						
												CB-A82-CT	Current Transformer (100/5)	A82	CB-P-1B-A						
												CB-A82-TM	CF Test Device	A82	CB-P-1B-A						
												CB-A82-ATR	Transducer	A82	CB-P-1B-A						
												CB-A82-T62	Lockout Relay Test Device	A82	CB-P-1B-A						
												CB-A82-81	Auxiliary Relay	A82	CB-P-1B-A						
												CB-A82-FU	Fuses	A82	CB-P-1B-A						
												CB-A82-52Z	Timing Relay	A82	CB-P-1B-A						
												CB-A82-G,R,W	Indicating Lights	A82	CB-P-1B-A						
												CB-A82-51GR	Ground Sensor Relay	A82	CB-P-1B-A						
												CB-CB-7425-1	Control Switch with Indication	P41	CB-P-1A-A	A82-P40/1					
												CB-P80-86HB	Aux. Relay ESFS 'A' CAB	P80	CB-P-1A-A	A82-P40/2 A82-B04					
												CB-B04-BM1	Energ. Power	B0A	CB-P-1B-A	P4B-P80					
												CB-B04-P01	Sequencer Pnl	-							
												CB-A82-02	Auxiliary Relay	A82	CB-P-1B-A						
13	CB-V-142	Charging Line Isolation Valve	805011	A	310769	PP-P-1A-2	X	X	X	-	V12	CB-B82-52	480VAC Circuit Breaker	B82	CB-P-1A-A	B82-G2G B82-G2G/1	882a	882c 8824	CBA-PM-19 CBA-PM-20 EAB-PM-54 EDE-NCC-513	CB-V-143 or ~~CB-V-139~~ CS-HCV-182	
												CB-CB-7410-2	Control Switch with Indication	G2G	CB-P-1A-A	B82-V12 B82-V12/1					
												CB-BB-7418	Selector Switch	G2G	CB-P-1A-A						
												CB-B82-62/U,L	Motor Starters	B82	CB-P-1A-A						
												CB-B82-49	Overload Relay	B82	CB-P-1A-A						
												CB-ZB-V142	Valve Position and Open/Close Torque Switches	V12	PP-P-1A-2						
												CB-B82-FU	Fuse	B82	CB-P-1A-A						
												CB-CB-7410-1	Control Switch with Indication	P41	CB-P-1A-A	P41-P87/1 P41-G2G/1					
												CB-P87-86HA	Aux. Relay ESFS 'A' CAB	P87	CB-P-1A-A	P41-G2G/5					
19	CB-V-141	Charging Line Isolation Valve	805011	B	310769	PP-P-1A-2	X	X	X	-	V11	CB-B87-52	480VAC Circuit Breaker	B87	CB-P-1B-A	B87-G21 B87-G21/1	887a	887c 8874	CBA-PM-33 CBA-PM-35 EAB-PM-52 EDE-NCC-612	CB-V-142 or ~~CB-V-138~~ CV CS-HCV-182	
												CB-CB-7411-2	Control Switch with Indication	G21	CB-P-1B-A	B87-V11 B87-V11/1					
												CB-BB-7411	Selector Switch	G21	CB-P-1B-A						
												CB-B87-62/U,L	Motor Starters	B87	CB-P-1B-A						
												CB-B87-49	Overload Relay	B87	CB-P-1B-A						
												CB-ZB-V143	Valve Position and Open/Close Torque Switches	V11	PP-P-1A-2						
												CB-B87-FU	Fuse	B87	CB-P-1B-A						
												CB-CB-7411-1	Control Switch with Indication	P41	CB-P-1A-A	P4B-P80/1 P4B-G21/2					
												CB-P80-86HB	Aux. Relay ESFS 'A' CAB	P80	CB-P-1A-A	P4B-G21/3					

NOTES:

NO.	DATE	DESCRIPTION	DRWN BY	CHK BY	APP'D
1	7/85	ISSUED FOR			

SEABROOK - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United engineers

TABLE NO. 1.1 1/1

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	P&ID FLOW DRAWING NO. SHT.	TRAIN	PHYSICAL LOCATION (DRAWING NO. SHT.)	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ESSC	POWER NON	ESFAS MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ESSC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO. 310891: SCHEMATIC	ELECTRICAL DRAWING NO. 310891: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
42	1-LCV-1121	WHSE CBS FR-8 to Chg. Pump 2B Isolation Valve	805023	B	301254	FF-F-1-0	X	-	X	-	V65	CB 879-52	480VAC Circuit Breaker	879	CB-F-1B-A	879-G2J	879a	879c	CBA-FN-32	CB-LCV-1120	
												CB-CB-1121E-2	Control Switch with Indication	G2J	CB-F-1B-A	879-V65/1	879d	879f	CBA-FN-33		
												CB 88-1121E	Selector Switch	G2J	CB-F-1B-A	879-V65/2			EDE-NCC-613		
												CB-879-42/A,C	Motor Starters	879	CB-F-1J-A						
												CB-879-49	Overload Relay	879	CB-F-1B-A						
												CB-ZS-LCV-1121E	Valve Position and Open/Close Torque Switches	V65	FF-F-1-0						
												CB-EDU-81	Auxiliary Relay	EDU	CB-F-1B-A						
												CB-879-FU	Fuse	879	CB-F-1B-A						
												CB F80 67018, 66028, 67068	Auxiliary Relays HH-CP-13	F80	CB-F-3A-A	F10-F80/A F10-G2J/2					
												CB-CB-1121E-1	Control Switch with Indication	F10	CB-F-3A-A	F10-G2J/3					
43	01-V-138	Boron Injection Tank Isolation Valve	805010	A	310769	FF-F-1B-E	X	X	X	-	V31	01 B3I-52	480 VAC Circuit Breaker	B3I	CB-F-1A-A	B3I-G2G	310890		CBA-FN-19		
																B3I-G2G/2	B3Ic	B3Ic	CBA-FN-20	01-V-139	
												01-CB-2437-2	Control Switch with Indication	GB1	CB-F-1A-A	B3I-V3I	B3Id		EDE-NCC-521	CS-FCV-121	
																B3I-V3I/1					
												01 88-2437	Selector Switch	GB1	CB-F-1A-A	B3I-V3I/2					
												01-B3I-42/A,C	Motor Starters	B3I	CB-F-3A-A						
												01 B3I-49	Overload Relay	B3I	CB-F-3A-A						
												01-ZS-V138	Valve Position and Open/Close Torque Switches	V3I	FF-F-1B-E						
												01-B3I-FU	Fuse	B3I	CB-F-3A-A						
												01-F87-66024	Auxiliary Relay HH-CP-12	F87	CB-F3A-A	F10-F87 F10-G2G/4					
												01-CB-2437-1	Control Switch with Indication	F10	CB-F-3A-A	F10-G2G/3					
44	01-V-139	Boron Injection Tank Isolation Valve	805010	B	310769	FF-F-1B-E	X	X	X	-	V32	01-B32-52	480 VAC Circuit Breaker	B32	CB-F-1B-A	B32-G2J	B32a	B32c	CBA-FN-32	01-V-138	
																B32-G2J/2	B32d		CBA-FN-33		
												01 CB-2447-2	Control Switch with Indication	G20	CB-F-1B-A	B32-V32			EDE-NCC-621	CS-FCV-121	
																B32-V32/1					
												01 B8-2447	Selector Switch	G20	CB-F-1B-A	B32-V32/2					
												01-B32-42/A,C	Motor Starters	B32	CB-F-1B-A						
												01 B32-49	Overload Relay	B32	CB-F-1B-A						
												01-ZS-V139	Valve Position and Open/Close Torque Switches	V32	FF-F-1B-E						
												01-B32-FU	Fuses	B32	CB-F-1B-A						
												01-F80-66028	Auxiliary Relay HH-CP-13	F80	CB-F-3A-A	F10-F80 F10-G2J/4					
												01-CB-2447-1	Control Switch with Indication	F10	CB-F-3A-A	F10-G2J/3					

NOTES

NO.	DATE	DESCRIPTION	CHK'D	APP'D	DES. ENG.
2	11-5-81	FIRST ISSUE	Lav	[illegible]	DM

TOCKS50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

ISSUED FOR S.E. 1.2-13

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/FLOW DIAGRAM NO AND P	TRAIN	PHYSICAL LOCATION DRAWING NO AND P	FIRE AREA/ ZONE	REQD FOR HOT SHUT (OTHER)	REQD FOR COLD SHUT (OTHER)	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO AND P/N: SCHEMATIC	ELECTRICAL DRAWING NO AND P/N: CABLE	SUPPORTING SYSTEMS	INTERFERENCE / CONTAINMENT	REMARKS
																		310882			
45	RC-E-1B	Pressurizer Heaters Group C	805007	A	310598	C-F-1-E	X	X	X	-	M26	RC-AGA-52	480 VAC Circuit Breaker	AGA	CB-F-1A-A		AGAa	AGAb		None	
												RC-AGA-FB	Fuses	AGA	CB-F-1A-A	F31-FB1/1 AGA-F31	AGAd	AGAe			
												RC-CB-F321	Control Switch with Indication	F31	CB-F-3A-A		AGAf				
												RC-AGA-52M-1	Truck Operated Contact	AGA	CB-F-1A-A						
												RC-AGA-G, R	Indicating Lights	AGA	CB-F-1A-A						
												RC-FB1-LTT-459LEA	High Level Aux. Relay	FB1	CB-F-3A-A						
												PTT-455AGA	Low Press Aux. Relay								
												LTT-460DEA	Low Level Aux. Relay								
												LTT-459LEA	Low Level Aux. Relay								
												RC-FB1-LTT-459GEA	Low Level Aux. Relay	FB1	CB-F-3A-A		FF-M001 BR. 125				
												RC-FB1-LTT-460DEA	Low Level Aux. Relay								
												RC-FB1-LTT-459CB1	Low Level Aux. Relay								
												RC-FB1-LTT-460DB1	Low Level Aux. Relay								
																		310883			
46	RC-E-1D	Pressurizer Heaters Group D	805007	A	310598	C-F-1-E	X	-	X	-	M26	RC-AM5-52	480VAC Circuit Breaker	AM5	CB-F-1A-A	F31-FB2/2	AM5a	AM5d		None	
												RC-AM5-FB	Fuses	AM5	CB-F-1A-A	AM5-F31	AM5b	AM5e			
												RC-AM5-52M-1	Truck Operated Contact	AM5	CB-F-1A-A		AM5f				
												RC-AM5-G,R	Indicating Lights	AM5	CB-F-1A-A						
												RC-CB-F322	Control Switch with Indication	F31	CB-F-3A-A						
												RC-FB2-PTT-455 GEB	Low Pressure Auxiliary Relay	FB2	CB-F-3A-A						
												RC-FB2-LTT-459 CEB	Low Level Auxiliary Relay								
												RC-FB2-LTT-459 EEB	High Level Auxiliary Relay								
												RC-FB2-LTT-460 DEB	Low Level Auxiliary Relay								
												RC-FB2-LTT-460 HBJ	Low Level Auxiliary Relay	FB2	CB-F-3A-A		FF-M001				
												RC-FB2-LTT-459 GBJ	Low Level Auxiliary Relay				BR. 129				
																		310900			
47	CBS-P-1A	Containment Spray Pump	805021	A	310781	AAB-F-18-E	X	-	X	-	M13	CBS-A61-52	4160 VAC Circuit Breaker	A61	CB-F-1A-A		A61a	A61b		None	
												CBS-A61-AM	Ammeter	A61	CB-F-1A-A	A61-F20/2	A61c	A61d			
												CBS-A61-AS	Ammeter Switch	A61	CB-F-1A-A	A61-BR9	A61h				
												CBS-A61-50/51	Overcurrent Relay	A61	CB-F-1A-A	A61-M13 F30-FB7/1					DeLete
												CBS-A61-CT	Current Transformer (100/5)	A61	CB-F-1A-A	HB2-BR9					
												CBS-CB-2X00	Control Switch with Indication	F30	CB-F-3A-A						
												CBS A0J-52B	Auxiliary Relay Contact	A0J	CB-F-3A-A						

NOTES:

REV NO	DATE	DESCRIPTION	DRN BY	CHD BY	APP'D
	7/84	Initial Issue	[illegible]	[illegible]	[illegible]

IDCOR - APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 1.1.1.1.14

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PARTICIPANT (DRAWING NO SHT)	TRAIN	PHYSICAL LOCATION (DRAWING NO SHT)	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NOTE	SUPPORTING AND CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NOTE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO: SCHEMATIC	ELECTRICAL DRAWING NO: CABLE	SUPPLYING SYSTEMS	INTERCONNECTED EQUIPMENT	REMARKS
42	CBS-P-9A (Continued)											CBS FB7-8644A	Auxiliary Relay NI-CP-12	FB7	CB-F-3A-A						
												CBS HM2-BMU	Emergency Power Sequence Relay	HM2	CB-F-1A-A						
												CBS HM9 BMJ, LBB	Emergency Power Sequence Relay	HM9	CB-F-1A-A						
												CBS A53-94-1B	Tripped Relay	A53	CB-F-1A-A						
43	CBS-P-9B	Containment Spray Pump	805023	B	310761	RHR-F-1A-E	X	-	X	-	M14	CBS-AB1-52	4160VAC Circuit Breaker	AB1	CB-F-1B-A		AB1a	AB1b		None	
												CBS AB1-AM	Ammeter	AB1	CB-F-1B-A	AB1-F30/1	AB1c	AB1d			
												CBS AB1-AB	Ammeter Switch	AB1	CB-F-1B-A	AB1-F30/2	AB1b				DELETE
												CBS AB1-50/51	Overcurrent Relay	AB1	CB-F-1B-A	AB1 BMD AB1 HM5 F30-190/1					
												CBS AB1-CT1	Current Transformer (100/5)	AB1	CB-F-1B-A	BBA BMD					
												CBS-CB-2J01	Control Switch with Indication	F30	CB-F-3A-A						
												CBS-HM4-BMU	Emergency Power Sequence Relay	HM4	CB-F-1B-A						
												CBS-HM0-BMJ LBB	Emergency Power Sequencer Relay	HM0	CB-F-1B-A						
												CBS A1M 52B	Mechanical Operated Relay	A1M	CB-F-3A-A						
												CBS A73 94-1B	Tripped Relay	A73	CB-F-1B-A						
												CBS FB0-8644B	Auxiliary Relay NM-CP-12	FB0	CB-F-3A-A						
44	SI-P-6A	Safety Injection Pump	805010	A	310761	RHR-F-2B-E		X	X	-	M19	SI-A56-52	4160VAC Circuit Breaker	A56	CB-F-1A-A	A56-F10	A56a	A56b 310890 A56d		None	
												SI-A56-AM	Ammeter	A56	CB-F-1A-A	A56-F10/2	A56b				
												SI-A56-AB	Ammeter Switch	A56	CB-F-1A-A	A56 BM2					DELETE
												SI-A56-50/51	Overcurrent Relay	A56	CB-F-1A-A, A54 HM9 F10-F87/2						
												SI-A53-94-1A	Tripping Relay	A53	CB-F-1A-A						
												SI-A56 (51) CT	Current Transformer (100/5)	A56	CB-F-1A-A						
												SI-LB-2449	Control Switch with Indication	F10	CB-F-3A-A						
												SI-F87-8681A	Signal Actuating Output Relay	F87	CB-F-3A-A						
												SI HM9 BMJ, BC1	Emergency Power Sequencer Relay	HM9	CB-F-1A-A						

NOTES

NO	DATE	DESCRIPTION	DRN BY	CHD BY	APP'D
0	11/15/83	FIRST ISSUE			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

United engineers

TABLE RHR 3.1.1.2-13

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PID DRAWING NO	TRAIN	PHYSICAL LOCATION DRAWING NO	FIRE AREA/ ZONE	REQD FOR HOT SHUTDOWN	REQD FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC DIVISION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC DIVISION	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO: SCHEMATIC	ELECTRICAL DRAWING NO: CABLE	SUPPLEMENTAL SYSTEMS	REQUIREMENT COUNTERPART	REMARKS
50	01-P-68	Safety Injection	805010	B	310761	RHR-P-26-I		X	X	-	N10	01-A76-52	4160VAC Circuit Breaker	A76	CB-P-1B-A	A76-P10	A76a A76c	A76b A76d		Note	DELETE
												01-A76-AM	Ammeter	A76	CB-P-1B-A	A76-P10/2	A76b				
												01-A76-AB	Ammeter Switch	A76	CB-P-1B-A	A76-P80					
												01-A76-50/51	Overcurrent Relay	A76	CB-P-1B-A	A76-N10 P10-P80/1					
												01-A73-94-1A	Tripping Relay	A73	CB-P-1B-A						
												01-A76-CT1 CT	Current Transformer (100/5)	A76	CB-P-1B-A						
												01-CB-2459	Control Switch with Indication	P10	CB-P-3A-A						
												01-P80-8A100	Signal Actuating Output Relay	P80	CB-P-3A-A						
												01-N8N 8N1, 8N2	Emergency Power Sequencer Relay	N8N	CB-P-1B-A						
51	01-PV-2682	Accumulator TK-9B	805009	A	310576	C-P-1-I	-	X	X		V1B	01-B4A-FB	Fuse	B4A	CB-P-1A-A	B4C-GB1/2	310890				
	01-PV-2683	Relief Valves	805009	A	310576	C-P-1-I	-	X	X		V3C	01-BE-2682	Selector Switch	GB1	CB-P-1A-A	B4A-GB1/3	B27/3a	B27/7b	X3E-PP-111A		
												01-CB-2682-1	Control Switch with Indication	P20	CB-P-3A-A	P20-GB1/4	B27/3c	B27/7d			
																P20-GB1/5	B27/7f	B27/7g		01-V-17	
	01-PV-2695	Accumulator TK-9D	805009	A	310577	C-P-1-I	-	X	X		V3F					P20-GB1/6	B27/7h				
	01-PV-2696	Relief Valves	805009	A	310577	C-P-1-I	-	X	X		V3G	01-CB-2682-2	Control Switch with Indication	GB1	CB-P-1A-A	GB1-N15/6				01-V-47	
												01-CB-2683	Control Switch with Indication	GB1	CB-P-1A-A	GB1-N15/7 GB1-N15/8 N36/9					
												01-CB-2695-1	Control Switch with Indication	P20	CB-P-3A-A	GB1-N16/7 N15-V1B					
												01-CB-2695-2	Control Switch with Indication	GB1	CB-P-1A-A	N15-V3C N16-V3F					
												01-CB-2696	Control Switch with Indication	P20	CB-P-3A-A	N16-V3G					
												EMC-NM-111	Electrical Penetration	N15	C-P-2-I EE-P-1A-A						
												EMC-NM-112	Electrical Penetration	N16	C-P-2-I EE-P-1A-A						
52	01-PV-2673	Accumulator TK-9A	805009	B	310576	C-P-1-I	-	X	X		V2E	01-B4C-FB	Fuse	B4C	CB-P-1B-A	B2H-B4C/3	B30/3a	B30/7b	X3E-PP-111B	01-V-3	
	01-PV-2674	Relief Valves	805009	B	310576	C-P-1-I	-	X	X		V3A	01-BE-2673	Selector Switch	G20	CB-P-1B-A	B4C-G20/1	B30/3c	B30/7d			
												01-CB-2673-1	Control Switch with Indication	P20	CB-P-3A-A	P20-G20/4	B30/7f	B30/7g			
																P20-G20/5	B30/7h			01-V-32	
	01-PV-2677	Accumulator TK-9C	805009	B	310577	C-P-1-I	-	X	X		V3D	01-CB-2673-2	Control Switch with Indication	G20	CB-P-1B-A	P20-G20/6 G20-N19/6					
	01-PV-2686	Relief Valves	805009	B	310577	C-P-1-I	-	X	X		V3E	01-CB-2676	Control Switch with Indication	P20	CB-P-3A-A	G20-N19/7 G20-N61/5					
												01-CB-2677-1	Control Switch with Indication	P20	CB-P-3A-A	G20-N61/6 N19-V2E					
												01-CB-2677-2	Control Switch with Indication	G20	CB-P-1B-A	N19-V3A N61-V3D					
												01-CB-2686	Control Switch with Indication	P20	CB-P-3A-A	N61-V3E					
												EMC-NM-115	Electrical Penetration	N19	C-P-1-I EE-P-1C-A						
												EMC-NM-117	Electrical Penetration	N61	C-P-1-I EE-P-1C-A						

NOTES:

2	2-28-83	FINAL ISSUE	[illegible]	[illegible]	[illegible]
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

INCLUDES APPENDIX B
BASE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United engineers

TABLE NO. 3.1.1.2.1b

FUNCTION REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE (DRAWING NO SHEET)	TRAIN	PHYSICAL LOCATION (DRAWING NO SHEET)	FIRE AREA/ ZONE	ALIGNED (NOT REQUIRED OPERATION)	ALIGNED (CHANGE STATE)	POWER ELEC	POWER AIR	ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO SYSTEM: SCHEMATIC	ELECTRICAL DRAWING NO SYSTEM: CABLE	INTERFACING SYSTEMS	REQUIREMENT (CONCEPTUAL)	REMARKS
53	CS-V-475	01-CS-P-6A Suction Cross Connection Valve	805010	B	310761	RHR-P-2B-E	-	X	X	-	V12	CB-946-52 CB-946-GPT CB-946-62 CB-946-49 CB-946-FB CB-CR-2470	480VAC Circuit Breakers Control Power Transformer Starter Overload Relays Fuse Control Switch with Indication	946 946 946 946 946 F10	CB-P-1B-A CB-P-1B-A CB-P-1B-A CB-P-1B-A CB-P-1B-A CB-P-3A-A	946-952 946-952/1 946-952/2 946 F10 946 F10/1	310891 946a 946c	EHK-HCC-612	None		
54	CS-FT-121 CS-FCV-121	Pressurizer Level Control - Flow	805012	A	310763 310762	PAB-P-3A-E PAB-P-3J-E	X X	X X	X X	- X	614 B82	CS-PWT-121 CS-FT-121B CB-FT-121A CB-FC-121 CB-FCV-121 CB-FCV-121A CB-FA-121 CB-FT-121C CB-FB-121A/B CB-FI-121A CB-FY-121B	Power Supply Flow Indicator Square Root Extractor Controller Driver (Auto) Driver (Man) Manual/Auto Control Station Relays Comparator Flow Indicator I/D Converter	FA7 B62 FA7 FA7 FA7 FA7 F41 FA7 FA7 F41 B82	CB-P-3A-A PAB-P-3E-A CB-P-3A-A CB-P-3A-A CB-P-3A-A CB-P-3A-A CB-P-3A-A CB-P-3A-A CB-P-3A-A CB-P-3A-A PAB-P-3J-E	FA7-B1E FA7-B62 F41-FA7 FA7-FA7 FA7-B82	F.P.55121 310960 Sh. 33 FA7a Sh. 34 Sh. 35	RM-CP-1 EB-PP-3C Inst. Air	B1-V-139	
55	B1-V-150	Charging Pump Test Line Isolation Valve	805010	B	310577	C-P-1-E	-	X	X	X	189	B1-CR-2416 EHK-HM-115 B1-V-150-1MC, 3MC & 4MC Switches B1-FY-2416	Control Switch with Indication Electrical Penetration Valve Position Switches Solenoid Valve	F76 H39 L89 GE5	CB-P-3A-A C-P-1-E ET-P-1C-A C-P-1-E C-P-1-E	F76-B39/5 GE5-B39/7 GE5-L89	310890 E88/3f E88/3d E88/3a E88/3a E88/3h E88/3g			None		
56	B1-V-159	Charging Pump Test Line Isolation Valve	805010	A	310577	C-P-1-E	-	X	X	X	190	B1-CR-2406 EHK-HM-11 B1-FY-2406 B1-V-159-1MC & 1MC	Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switches	F26 H36 GE5 L90	CB-P-3A-A C-P-2-E ET-P-1A-A C-P-2-E C-P-2-E	F26-H36/5 GE5-B36/4 GE5-H36/5 GE5-L90	E89/4d E89/4g E89/4e E89/4h E89/4b E89/4i E89/4c E89/4j E89/4k			None		
57	CS-MCV-182	Charging Line Control Valve	805h. *	A	310763	PAB-P-3A-E	X	X	X	X	-	EHK-EM9-52 CB-F41-FB CB-F41-SW CB-FY-182 CB-MC-182 HM-SQ-77/A CS-MC-182	120VAC Circuit Breaker Fuse On/Off Switch I/P Converter Manual Controller Power Supply	E89 F41 F41 GP5 F41 F41	CB-P-3A-A CB-P-3A-A CB-P-3A-A PAB-P-3A-E CB-P-3A-A CB-P-3A-A	F40-GP5 EH9-F20/2	310960 310891 E89/1 F41c 3/0106 EN9 B EN9 b	EHK-PP-1E INST AIR	(B1-V-139) CS-V-149		

NOTES

NO	DATE	DESCRIPTION	MADE BY	CHKD BY	APPD ENG
2	12/5/80	FINAL ISSUE	[illegible]	[illegible]	[illegible]
1	DATE	DESCRIPTION	MADE BY	CHKD BY	APPD ENG

LOCKTITE - APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
EC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 3.1.3.2-17

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE DRAWING NO & GRID	TRAIN	PHYSICAL LOCATION DRAWING NO & GRID	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ESSC	POWER NON	ESSC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ESSC MODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO & GRID: SCHEMATIC	ELECTRICAL DRAWING NO & GRID: CABLE	SUPPLY TRAIN SYSTEM	REMARKS	REMARKS
																	310891					
58	CB-V-177	Charging to RC System Isolation Valve	805011	A	310577	C-F-1-E	X	X	X	X	L96	EB-E89-72 CB-E4F-F85, 6, 7 & 8 CS-CB-7413 E48-MM-112 CB-FT-7413 CB-ZS-L96	125VDC Circuit Breaker Fuses Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switches	E89 E4F P41 M36 GE5 L96	CB-F-1A-A CB-F-1A-A CB-F-3A-A C-F-2-E E2-F-1A-A C-F-1-E C-F-1-E	E89-E4F/1 E4F-F98 P41-M36/3 GE5-M36/6 GE5-M36/7 GE5-L96/1 F31-M36/2 F30-M36 GA4-M36/4 GE4-M35/3 GA5-M35/3 F30-M35/3	E89/3a E89/3b E89/3c	E89/3a E89/3f E89/3g	EB-FF-1228	CB-V-180	
																	310891					
59	CB-V-134	RC Pump 1B Seal Injection Isolation Valve	805011	A	310769	FF-F-5B-E	X	X	X	-	V14	CS-CB-7409-1 CB-CB-7409-2 CS-BB-7409 CB-B77-42/C CB-B77-49 CB-ZS-V134	Control Switch with Indication Control Switch with Indication Selector Switch Motor Starter Overload Relays Valve Position and Torque Switch	P41 B77 B77 B77 B77 V14	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A FF-F-5B-E	B77-V14/1 B77-V14/2 B77-P41 B77-P41/1	B77a	B77c	CBA-FW-19 CBA-FW-20 EAH-FW-5A		
																	310891					
60	CB-V-150	RC Pump 1C Seal Injection Isolation Valve	805011	A	310769	FF-F-5B-E	X	X	X	-	V17	CS-CB-7408-1 CB-CB-7408-2 CS-BB-7408 CS-B76-42/B, C CB-B76-49 CB-ZS-V150	Control Switch with Indication Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position and Torque Switches	P41 B76 B76 B76 B76 V17	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A FF-F-5B-E	B76-V17/1 B76-V17/2 B76-P41 B76-P41/1	B76a	B76c	CBA-FW-19 CBA-FW-20 EAH-FW-5A		
61	CB-V-162	RC Pump 1B Seal Injection Isolation	805011	A	310769	FF-F-1A-E	X	X	X	-	V16	CB-CB-7407-1 CB-CB-7407-2 CS-BB-7407 CB-B75-42/B, C CB-B75-49 CB-ZS-V162	Control Switch with Indication Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position and Torque Switches	P41 B75 B75 B75 B75 V16	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A FF-F-1A-E	B75-V16/1 B75-V16/2 B75-P41 B75-P41/1	B75a	B75c	CBA-FW-19 CBA-FW-20 EAH-FW-5A		
62	CB-V-186	RC Pump 1A Seal Injection Isolation Valve	805011	A	310769	FF-F-1A-E	X	X	X	-	V15	CB-CB-7406-1 CB-CB-7406-2 CB-BB-7406 CB-B74-42/B, C CB-B74-49 CB-ZS-V186	Control Switch with Indication Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position and Torque Switches	P41 B74 B74 B74 B74 V15	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A FF-F-1A-E	B74-V15/1 B74-V15/2 B74-P41 B74-P41/1	B74a	B74c	CBA-FW-19 CBA-FW-20 EAH-FW-5A		

NOTES

SOURCE - APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 3.1.1.2-18

FUNCTION: REACTIVITY CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/FLOW DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	NEEDED FOR HOT SHUTDOWN	NEEDED FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-V: SCHEMATIC	ELECTRICAL DRAWING NO 9763-V: CAB.I	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	CS-TE-4A	Boric Acid Storage Tank	805014	A/B	310766	PAB-F-2B-I	-	-	-	-	-	-	-	-	-	-	-	-	-	CS-TE-4B	Note 1
2	CS-TE-4B	Boric Acid Storage Tank	805014	A/B	310766	PAB-F-2B-I	-	-	-	-	-	-	-	-	-	-	-	-	-	CS-TE-4A	Note 1
3	CS-V-410	Boric Acid Tank 4A Outlet Valve	805014	A/B	310766 805216 805229	PAB-F-2B-I	-	M	-	-	-	-	-	-	-	-	-	-	-	CS-V-416 CS-V-426	Notes 1,2,3
4	CS-V-416	Boric Acid Tank 4B Outlet Valve	805014	A/B	310766 805216	PAB-F-2B-I	-	M	-	-	-	-	-	-	-	-	-	-	-	CS-V-410 CS-V-426	Notes 1,2,3
5	CS-V-423	Boric Acid Recirculation Valve	805014	A	310766 805216 805230	PAB-F-2B-I	-	M	-	-	-	-	-	-	-	-	-	-	-	CS-V-431 CS-V-426	Notes 1,2,3
6	CS-V-431	Boric Acid Recirculation Valve	805014	B	310766 805216 805230	PAB-F-2B-I	-	M	-	-	-	-	-	-	-	-	-	-	-	CS-V-423 CS-V-426	Notes 1,2,3
7	CS-V-437	Boric Acid Transfer Pump's Suction Cross-over Line Isolation Valve	805014	A/B	310766 805216	PAB-F-2B-I	-	M	-	-	-	-	-	-	-	-	-	-	-	CS-V-426	Notes 1,2,3
8	CS-V-439	Charging Pump Isolation Valve	805014	A/B	310766 805216 805229	PAB-F-2B-I	-	M	-	-	-	-	-	-	-	-	-	-	-	CS-V-426	Notes 1,2,3
9	CS-V-442	Charging Pump Isolation Valve	805014	A/B	310766 805216 805229	PAB-F-2B-I	-	M	-	-	-	-	-	-	-	-	-	-	-	CS-V-426	Notes 1,2,3
10	CS-P-3A	Boric Acid Transfer Pump	805014	A	310766	PAB-F-2B-I	-	E	E	-	MA3	CS-BBB-52 CS-BBB-CPT	4609AC CKT BKR Control Transformer	BBB	CB-F-1A-A	BBB-PA1 BBB-MA3 BBB-MA3/1	BBBa	BBBc	CB6-FB-19 CB6-FB-20 BDE-MCC-512	CB-P-3B	
												CS-BBB-62	Starter	BBB	CB-F-1A-A						
												CS-BBB-49	Overload Relay	BBB	CB-F-1A-A						
												CS-MA3-49	Overload	MA3	PAB-F-2B-I						
												CS-BBB-FD	Fuse	BBB	CB-F-1A-A						
												CS-BB-7435	Selector Switch	BBB	CB-F-1A-A						
												CS-CS-7435-2	Control Switch with Indication	BBB	CB-F-1A-A						
												CS-CS-7435-1	Control Switch with Indication	PA1	CB-F-3A-A						
												CS-FB1-MOTE-5	Aux. Relay Rack 1	FB1	CB-F-3A-A						
												CS-ECB-B1	Aux. Relay	ECB	CB-F-1A-A	ECB FB1 FB1	BA0/8a	BA0/8b			
												EDE-BA0/B-52	120VAC Circuit Breaker	BA0	CB-F-1A-A						
												CS-ECB-B1	Aux. Relay	ECB	CB-F-1A-A						

NOTES

1. Equipment is mechanical with no electrical requirement.
2. CS-V-423, 410, 416, 431, 437, 438, 439, 442, are non-electrically operated valves and will be manually positioned as required to provide their reactivity control function during safe shutdown.
3. Electrical conduit plan drawing, 9763-F-310766, listed only to show fire zone correlation reference to primary auxiliary building area covered by piping Drawings 9763-F-805216, 805229, 805230, where valves CS-V-410, 416, 423, 431, 437, 438, 439, 442, are identified in plan and section.

REV	DATE	DESCRIPTION	DWN. BY	CHD BY	RES ENG.
0	11/25/80	FIRST ISSUE	MFE		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
REACTIVITY CONTROL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE MCR 3.1.3.3-1

FUNCTION: REACTIVITY CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID 1-LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING AND CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING AND CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING AND CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING AND CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO. 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO. 9763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
11	CS-P-3B	Boric Acid Transfer Pump	805014	B	310766	PAB-F-2B-I	-	X	X	-	M4A	CB-889-52	4600VAC CKT BKR	B89	CB-F-1B-A	B89-P48	B89a	B89c	CBA-PB-32	CS-P-3A	
												CB-B89-CPT	Control Transformer	B89	CB-F-1B-A	B89-M4A B89-M4A/1			CBA-PB-33 EBE-MCC-612		
												CS-B89-42	Starter	B89	CB-F-1B-A	P48-P70					
												CS-B89-49	Overload Relay	B89	CB-F-1B-A						
												CS-M4A-49	Overload	B89	CB-F-1B-A						
												CS-BS-7436	Selector Switch	B89	CB-F-1B-A						
												CB-CS-7436-2	Control Switch with Indication	M4A	PAB-F-2B-2						
												CB-CS-7436-1	Control Switch with Indication	P41	CB-F-3A-A						
												CB-PTO-SA1	Aux. Relay TBO CAB	ETO	CB-F-3A-A						
																		310891			
12	CS-V-426	Boric Acid P-5 to Chg. Pps. Isolation Valve	805014	B	310766	PAB-F-2B-I	-	X	X		V8A	CB-894-52	460 Volt CKT BKR	B94	CB-F-1B-A	B94-V8A	B94a	B94c	CBA-PB-32	CS-P-4B	
												CB-894-CPT	Control Transformer	B94	CB-F-1B-A	B94-V8A/1 B94-V8A/2			CBA-PB-33 EBE-MCC-612	CS-P-4A CS-P-4C	
												CS-894-42	Starter	B94	CB-F-1B-A	B94-P48				CS-P-4J	
												CS-894-49	Overload Relay	B94	CB-F-1B-A	B94-P48/1				CS-P-4J	
												CS-894-FU	Fuse	B94	CB-F-1B-A					CS-P-4H	
												CS-BS-7437	Selector Switch	B94	CB-F-1B-A					CS-P-4H	
												CS-CS-7437-2	Control Switch with Indication	B94	CB-F-1B-A					CS-P-4G	
												CB-CS-7437-1	Control Switch	P41	CB-F-2A-A						
13	CS-V-4H	Batching Tank Outlet Ive	805014	A/B	310766 805216	PAB-F-2B-I	-	X	-	-	-	-	-	-	-	-	-	-	-	None	Notes 1,2,3
																		310944			
14	CF-CF-111	Reactor Trip Bkg. CAB 1		B	310442	CB-F-1A-A	X	-	X		RD2	CF-CS-6611-1	Control Switch	P42	CB-F-2A-A	E94-RD2	RD2a	RD2d	EBE-PP-1118	CF-CF-111 Train A	
												CB-CS-6601-1	Control Switch with Indication	P42	CB-F-2A-A	P10-RD2 P48-RD2/1	RD2b				
												CF-CS-6601-2	Control Switch with Indication	P10	CB-F-2A-A	P48-RD2					
												BI-CS-2471-1	Control Switch	P10	CB-F-2A-A						
												BI-CS-2471-2	Control Switch	P50	CB-F-2A-A						
												CF-ZL-6601-3	Indicator Light	P42	CB-F-2A-A						
												CF-ZL-6601-6	Indicator Light	P42	CB-F-2A-A						
																		310944			
15	CF-CF-111	Reactor Trip Bkg. CAB 2		A	310442	CB-F-1A-A	X	-	X		RD3	CF-CS-6611-1	Control Switch	P42	CB-F-2A-A	E93-RD3	RD3a	RD3f	EBE-PP-1114	CF-CF-111 Train B	
												CB-CS-6601-1	Control Switch	P42	CB-F-2A-A	P10-RD3 P42-RD3/1	RD3b				
												CF-CS-6601-2	Control Switch with Indication	P10	CB-F-2A-A	P42-RD3					
												BI-CS-2471-1	Control Switch	P10	CB-F-2A-A						
												BI-CS-2471-3	Control Switch	P50	CB-F-2A-A						
												CF-ZL-6601-4	Indicator Light	P10	CB-F-2A-A						
												CF-ZL-6601-5	Indicator Light	P42	CB-F-2A-A						

NOTES

NO.	DATE	DESCRIPTION	DWN. BY	CKD BY	MES. SY.
1	11/13/85	FINAL ISS. I	MFK	MLyn	GVS

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
REACTIVITY CONTROL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCR 2.1.3.2

FUNCTION: PROCESS MONITORING

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	REDUNDANCE GROUP	TRAIN	PHYSICAL LOCATION (BUILDING)	TIME AREA/ ZONE	REQUIRED: UNIT (NORMAL)	REQUIRED: UNIT (EMERGENCY)	POWER: TYPE	POWER: AMPS	ELEC. DIAG.	SAFETY-RELATED INTERFACE EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SAFETY-RELATED INTERFACE EQUIPMENT: EQUIPMENT DESCRIPTION	SAFETY-RELATED INTERFACE EQUIPMENT: ELEC. DIAG.	SAFETY-RELATED INTERFACE EQUIPMENT: TIME AREA/ ZONE	CABLE	ELECTRICAL ENVIRONMENTAL SPECS: QUALIFICATION	ELECTRICAL ENVIRONMENTAL SPECS: AGING	SEPARATION CRITERIA	REMARKS
1	RI-RE-6690	Intermediate Range Thermal Neutron Flux Monitoring Detector	-	A	310565	C-F-1-E	X	X	E	-	QU5	RI-E16/11-52	120 VAC Circuit Breaker	E18	CB-F-1A-1		310943		CRA-FN-19 CRA-FP-10	RI-RE-6691	
												RI-E18/14-52	120 VAC Circuit Breaker	E18	CB-F-1A-A	E18/11a	E18/11b E18/11c	EDE-FS-11E		
												RI-E18/15-52	120 VAC Circuit Breaker	E12	CB-F-1A-A					
												RI RI-6690-1&2	Excore Wide Range Thermal Neutron Flux Indicators	P10	CB-F-3A-A					
												RI RT 6690	Excore Wide Range Transmitter	E10	CB-F-1A-A					
												RI RM 6690	Excore Wide Range Signal Processor	QC1	CB-F-1A-A					
												RI RM 6690-1	Excore Wide Range Signal Processor	Q10	CB-F-1A-A					
												EDE-TBX-XP8	Expansion Box							
												RI XP8	Junction Box	XP8	C-F-1-E					
												EIC RM 116	Electrical Penetration	M40	C-F-2-E EE-F-1A-A					
												RI-E18/16-52	120 VAC Circuit Breaker	E18	CB-F-1A-A					
												RI RM 6690-1	Excore Neutr. Flux Shutdown Monitor	P42	CB-F-3A-A					
2	RI RE 6691	Intermediate Range Thermal Neutron Flux Monitoring Detector	-	B	310565	C-F-1-E	X	X	E	-	QU7	RI-E17/11-52	120 VAC Circuit Breaker	E17	CB-F-1B-A		310943		CRA-FN-33 CRA-FN-33	RI-RE-6690	
												RI-E17/14-52	120 VAC Circuit Breaker	E17	CB-F-1B-A	E17/11a	E17/11b E17/11c	EDE-FP-11F		
												RI-E17/15-52	120 VAC Circuit Breaker	E17	CB-F-1B-A					
												RI RI-6691-3,4	Excore Wide Range Thermal Neutron Flux Indicators	G2E	CB-F-1B-A					
												RI RT 6691	Excore Wide Range Transmitter	E01	CB-F-1B-A					
												RI RM 6691	Excore Wide Range Signal Processor	Q00	CB-F-1B-A					
												RI RM 6691-1	Excore Wide Range Signal Processor	Q11	CB-F-1B-A					
												EDE-TBX-XP9	Expansion Box							
												RI XP9	Junction Box	XP9	C-F-1-E					
												EIC RM 97	Electrical Penetration	M21	C-F-1-2, EE-F-1C-A					
												RI-E17/1*-52	120 VAC Circuit Breaker	E17	CB-F-1B-A					
												RI RM 6691-1	Excore Neutr. Flux Shutdown Monitor	P42	CB-F-3A-A					
												RI RI 6691-1,2	Excore Wide Range Thermal Neutron Flux Indicators	P20	CB-F-3A-A					

NOTES:

REV.	DATE	DESCRIPTION	BY	CHK'D	APP'D
2	11/7/85	ANNUAL UPDATE	DMFA		

IE(3)/50 - APPENDIX K
SAFE SHUTDOWN EQUIPMENT LIST
PROCESS MONITORING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 1.1.3.4-1

FUNCTION: PROCESS MONITORING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PROCESS LINE DRAWING NO & GRID	TRAIN	PHYSICAL LOCATION DRAWING NO & GRID	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT-DOWN	REQ'D FOR COLD SHUT-DOWN	POWER ELEC	POWER AUX	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO & GRID: SCHEMATIC	ELECTRICAL DRAWING NO & GRID: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPARTS	REMARKS
																		310942				
3	CB-LT-102	CB-TE-4A Boric Acid Tank Level	805014	A	310766	FAB-F-2B-E	-	X	X	-	RJJ	CB-LI-102 MM-CP-1	Level Indicator Process Prot. System Cabinet (PCC) #1	PA1 PA1	CB-F-3A-A CB-F-3A-A	PA1-RJJ PA7-PA1		PA1a PA1d	MM-CP-1	CB-LT-106	
4	RC-TE-413A	RC Loop 1 Wide Range Hot Leg Temp.	805003	A	310582	C-F-1-E	X	X	X	-	TRJ	RC-TI-413A RC-TR-413A MM-CP-1 GDE-TBX-X40	Temp Indicator Temp Recorder PPC #1 TERM. Box	PA1 PA1 PA1 X40	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-E	TRJ-B40 BM4-B40/1 PA1-BM4/3 PA7-PA1/1		PA1r PA1v	MM-CP-1	IC-TR-88	
5	RC-TE-443A	RC Loop 4 Wide Range Hot Leg Temp.	805006	A	310583	C-F-1-E	X	X	X	-	TBU	RC-TI-443A MM-CP-1 GDE-TBX-X46	Temp Indicator PPC #1 TERM Box	PA1 PA1 X40	CB-F-3A-A CB-F-3A-A C-F-1-E	TBU-B40 BM4-B40/1 PA1-BM4/3 PA7-PA1/3		PA1r PA1v PA1y	MM-CP-1	IC-TR-88	
6	RC-PT-405	RC Loop 1 Wide Range Hot Leg Press	805002	A	310694	ET-F-1C-A	X	X	X	-	PJB	RC PI-405-1 RC PR 405 MM-CP-1 RC PI 405A-1 RC PI 405-2 RC PI-405A-2	Press. Indicator Press. Recorder PPC #1 Press. Indicator Press. Indicator Press. Indicator	PA8 PA1 PA1 PA8 P10 P10	CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	PA1-PJB/1 PA7-PA1/3 PA7-PA1/3 P10-PA7 P10-PA7/1		PA1r PA1v PA1w PA1x	MM-CP-1	RC-PT-401	
7	RC-TE-423A	RC Loop 2 Wide Range Hot Leg Temp.	805004	A	310582	C-F-1-E	X	X	X	-	TBR	RC-TI-423A MM-CP-1 GDE-TBX-X48	Temp. Indicator PPC #1 TERM. Box	PA1 PA1 X48	CB-F-3A-A CB-F-3A-A C-F-1-E	TBR-B48 BM5-B48 PA1-BM5/3 PA7-PA1/1		PA1r PA1a PA1w	MM-CP-1	IC-TR-88	
8	RC-TE-433A	RC Loop 3 Wide Range Hot Leg Temp.	805005	A	310583	C-F-1-E	X	X	X	-	TBY	RC-TI-433A RC-TR-433A MM-CP-1 GDE-TBX-X94	Temp. Indicator Temp. Recorder PPC #1 TERM. Box	PA1 PA1 PA1 X94	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-E	BM5-E94 TB9-E94 PA1-BM5/3 PA7-PA1/3		PA1r PA1a PA1w PA1y	MM-CP-1	IC-TR-88	
9	RC-LT-459	RC-E-1B Pres. Level	805007	A	310579	C-F-2-E	X	X	X	-	GM5	RC-LI-459A RC-LR-459A MM-CP-1	Level Indicator Level Recorder PPC #1	P31 P40 PA1	CB-F-3A-A CB-F-3A-A CB-F-3A-A	GM5-BM5/1 PA1-BM5/1 P38-PA1/1		PA1a PA1w PA1w	MM-CP-1	RC-LT-460	
10	CB-LT-106	CB-TE-4B Boric Acid Tank	805014	B	310766	FAB-F-2B-E	-	X	X	-	RJD	CB-LI-106 MM-CP-2	Level Indicator PPC #2	PA1 PA2	CB-F-3A-A CB-F-3A-A	PA2-RJD P4B-PA2		PA2a PA2d	MM-CP-2	CB-LT-102	
11	RC-TE-423B	RC Loop 2 Wide Range Cold Leg Temp.	805004	B	310582	C-F-1-E	X	X	X	-	TCJ	RC TI-423B MM-CP-2 EDE-TBX-X52	Level Indicator PPC #2 TERM. Box	PA1 PA2 X52	CB-F-3A-A CB-F-3A-A C-F-1-E	TCJ-B52 BM5-B52/1 P4B-PA2/1 PA2-BM5/6		PA2r PA2a PA2w PA2x	MM-CP-2	PM-PT-524	

NOTES

REV	DATE	DESCRIPTION	APPD	CHKD	ENGR

EQLFB1G APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
PRIMARY MONITORING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. 3.11.1-2

FUNCTION PROCESS MONITORING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE DRAWING NO 9763 F	ITEM/S	PHYSICAL LOCATION (DRAWING) NO 9763 F	FIRE AREA/ ZONE	REQUIRED HOT SHUT DOWN	REQUIRED COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC. MODE	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DIAGRAMS NO 9763 M: BLOCK/SCHEMATIC	ELECTRICAL DIAGRAMS NO 9763 M: CABLE	SUPPLYING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
11	RC-TE-4130	RC Loop 1 Wide Range Cold Leg Temp.	805003	B	310583	C-F-1-E	X	X	X	-	TC1	RC-TI-4130 RC-TR-4130 MM-CP-2 EDE-TBX-X14	Temp. Indicator Temp. Recorder PCC #2 TERM Box	P41 P41 PA2 X14	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-E	TC1-E14 N55-E14 PA8-PA2/1 PA2-N55/6	310943 PA2r PA2s PA2w PA2x		MM-CP-2	PW-PT-514	
13	RC-TE-4138	RC Loop 3 Wide Range Cold Leg Temp.	805005	B	310581	C-F-1-E	X	X	X	-	TC1	RC-TI-4138 RC-TR-4138 MM-CP-2 EDE-TBX-X69	Temp. Indicator Temp. Recorder PCC #2 TERM. BOX	P41 P41 PA2 X69	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-E	TC1-E69 N55-E69 PA2-N55/7 PA8-PA2/3	PA2r PA2t PA2y PA2z		MM-CP-2	PW-PT-536	
14	RC-TE-4438	RC Loop 4 Wide Range Cold Leg Temp.	805006	B	310583	C-F-1-E	X	X	X	-	TCA	RC-TI-4438 MM-CP-2 EDE-TBX-X38	Temp. Indicator PCC #2 TERM. Box	P41 PA2 X38	CB-F-3A-A CB-F-3A-A C-F-1-E	TCA-E38 N55-E38 PA2-N55/7 PA8-PA2/3	PA2r PA2t PA2g PA2z		MM-CP-2	PW-PT-544	
15	RC-PT-401	RC Loop A Wide Range Hot Leg Press.	805002	B	310694	RT-F-3C-A	X	X	X	-	P76	RC-PI-401-1 RC-PR-403 MM-CP-4 RC-PI-403A-1 RC-PI-401-2 RC-PI-403A-2	Press. Indicator Press. Recorder PCC #4 Press. Indicator Press. Indicator Press. Indicator	P41 P41 PA4 P41 P20 P20	CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3F	P76-P76/1 P48-PA4/3 P48-PA4	310942 PA4r PA4w		MM-CP-4	RC-PT-405	
16	RC-LT-460	RC-E-10 PRZR Level	805007	B	310579	C-F-3-E	X	X	X	-	LM5	RC-LI-460A MM-CP-2	Level Indicator PCC #2	P31 PA2	CB-F-3A-A CB-F-3A-A	GM5-N55/2 PA2-N55/3 P39-PA2/1	PA2r PA2w		MM-CP-2	RC-LT-459	
17	CO-LT-4096	CO-TK-25 Cond. Storage Tank Level	202077	A	310820	CS-F-1-B	-	X	X	-	B53	CO-LI-4096 MM-CP-153 MM-CP-153	Level Indicator BOP - Process Control Cabinet BOP - Process Control Cabinet	P61 PJ7 PJ8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	PJ7-B53 P66-PJ8	310953 PJ7g PJ7f		MM-CP-153	FW-PT-4252 FW-PT-4257	
18	FW-FT-4214-2	RC-E-11A Emer. FW Header Flow	202076	A	310708	EFP-F-1-A	X	X	X	-	GL3	FW-FI-4214-2 FW-FR-4214 MM-CP-297A	Flow Indicator Flow Recorder BOP - Process Control Cabinet	P51 P86 P80	CB-F-3A-A CB-F-3A-A CB-F-3A-A	P48-GL3 P16-P80 P86-P80	310952 P80a		MM-CP-297A	FW-PT-4234-2 FW-PT-4244-2 FW-LT-519	
19	FW-FT-4234-2	RC-E-11B Emer. FW Header Flow	202076	B	310706	EFP-F-1-A	X	X	X	-	GL4	FW-FI-4234-2 FW-FR-4234 MM-CP-297B	Flow Indicator Flow Recorder BOP-PCC	P51 P86 PL2	CB-F-3A-A CB-F-3A-A CB-F-3A-A	PL2-GL4 P16-PL2 P88-PL2	PL2a		MM-CP-297B	FW-PT-4214-2 FW-PT-4236-2 FW-LT-519	

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	APPD BY
		FIRST ISSUE	RWE		

SDCFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
PROCESS MONITORING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 3.5.1-1

FUNCTION: PROCESS MONITORING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE DRAWING NO & GRID	TRAIN	PHYSICAL LOCATION DRAWING NO & GRID	FIRE AREA/ ZONE	REQUIRED: NOT Safety Grade	REQUIRED: Safety Grade	POWER: ELEC.	POWER: AIR	ELEV. NOMIN.	SUPERVISING LOCATION AND DESTINATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPERVISING LOCATION AND DESTINATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPERVISING LOCATION AND DESTINATION EQUIPMENT: ELEC. PANEL	SUPERVISING LOCATION AND DESTINATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL CHANNELING SYSTEM: SCHEMATIC	ELECTRICAL CHANNELING SYSTEM: CABLE	SUPERVISING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
20	FW-FT-4234-2	BC-E-11C Emer. FW Header Flow	202076	A	310708	EFP-P-1-A	X	X	X	-	GL3	FW-FI-4234-2 FW-FR-4234 MM-CP-257A	Flow Indicator Flow Recorder DOP-PCC	P51 P86 P40	CB-P-36-A CB-P-36-A CB-P-36-A	P40-GL3 P56-P86 P86-P40	310943	P40a	MM-CP-257A	FW-FT-4234-3 FW-FT-4244-3 FW-LT-537	
21	FW-FT-4244-2	BC-E-11D Emer. FW Header Flow	202076	B	310708	EFP-P-1-A	X	X	X	-	GL4	FW-FI-4244-2 FW-FR-4234 MM-CP-257B	Flow Indicator Flow Recorder DOP-PCC	P51 P86 P13	CB-P-36-A CB-P-36-A CB-P-36-A	P13-GL4 P56-P13 P86-P13		P13a	MM-CP-257B	FW-FT-4234-2 FW-FT-4234-3 FW-LT-548	
22	FW-LT-501	BC-E-11A Stm. Gen. Wide Range Level	805003	A	310576	C-P-1-E	X	X	X	-	R10	FW-LI-501 MM-CP-1 FW-RR-501	Level Indicator PPC #1 Recorder	P51 PA1 P51	CB-P-36-A CB-P-36-A CB-P-36-A	PA1-BA4 P56-PA1/A BA4-B1D P56-PA1/3 P56-PA1	310943	PA1k PA1l PA1m	MM-CP-1	FW-LT-502 FW-LT-504 FW-LT-519	
23	FW-LT-502	BC-E-11B Stm. Gen. Wide Range Level	805004	B	310576	C-P-1-E	X	X	X	-	R18	FW-LI-502 MM-CP-2 FW-RR-502	Level Indicator PCC #2 Recorder	P51 PA2 P51	CB-P-36-A CB-P-36-A CB-P-36-A	PA2-B53 B53-B1E P56-PA2/1		PA2k PA2l PA2m	MM-CP-2	FW-LT-501 FW-LT-503 FW-LT-529	
24	FW-LT-503	BC-E-11C Stm. Gen. Wide Range Level	805005	A	310577	C-P-1-E	X	X	X	-	R1F	FW-LI-503 MM-CP-3 FW-RR-503	Level Indicator PCC #3 Recorder	P51 PA3 P51	CB-P-36-A CB-P-36-A CB-P-36-A	PA1-BA7/1 P56-PA1/2 BA7-B1F		PA3k PA3l	MM-CP-1	FW-LT-502 FW-LT-506 FW-LT-537	
25	FW-LT-504	BC-E-11D Stm. Gen. Wide Range Level	805006	B	310577	C-P-1-E	X	X	X	-	R1G	FW-LI-504 MM-CP-4 FW-RR-504	Level Indicator PCC #4 Recorder	P51 PA4 P51	CB-P-36-A CB-P-36-A CB-P-36-A	P56-PA4 PA4-B52/1 B52-B1G		PA4k PA4l	MM-CP-4	FW-LT-501 FW-LT-503 FW-LT-548	
26	FW-PT-514	BC-E-11A Stm. Gen. Steam Press.	202074	A	310589	MS-P-1B-E	X	X	X	-	GL6	FW-PI-3162 MM-CP-1	Press. Indicator PCC #1	P51 PA1	CB-P-36-A CB-P-36-A	PA1-GL6 P56-PA1		PA1k PA1l PA1m	MM-CP-1	FW-PT-525 FW-PT-545 FW-PT-515	
27	FW-PT-525	BC-E-11B Stm. Gen. Steam Press.	202074	B	310586	MS-P-3A-E	X	X	X	-	GL5	FW-PI-525A MM-CP-3	Press. Indicator PCC #2	P51 PA2	CB-P-36-A CB-P-36-A	PA2-GL5 P56-PA2/1	310942 PA2l PA2m	PA2k	MM-CP-2	FW-PT-514 FW-PT-536 FW-PT-526	
28	FW-PT-536	BC-E-11C Stm. Gen. Steam Press.	202074	A	310586	MS-P-3A-E	X	X	X	-	GL5	FW-PI-536A MM-CP-1	Press. Indicator PCC #1	P51 PA1	CB-P-36-A CB-P-36-A	PA1-GL5 P56-PA1		PA1k PA1l PA1m	MM-CP-1	FW-PT-52[illegible] FW-PT-[illegible]45 FW-PT-535	

NOTES

REV NO	DATE	DESCRIPTION	MADE BY	CHKD BY	APPD BY
		ISSUE FOR	MMA	[illegible]	[illegible]

IOLP650 - APPENDIX B
RAIN ADDITIONS EQUIPMENT LIST
PROCESS MONITORING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United engineers

TABLE NO. 3.3.3-6

FUNCTION: PROCESS MONITORING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	FIELD LINE DRAWING NO & GRID	TRAIN	PHYSICAL LOCATION DRAWING NO & GRID	FIRE AREA/ ZONE	REQ'D FOR HOT Short (Hours)	REQ'D FOR COLD Shut (Days)	POWER EMERG	POWER NOR	SEISMIC CAT	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MECH	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO & GRID: SCHEMATIC	ELECTRICAL DRAWING NO & GRID: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
46	IC-TE-30	Incore Temp. C-9 Core Grid Loc K-1		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9/0	310965 P97g 310181 J40m J40r		HH-CP-4868		
47	IC-TE-31	Incore Temp. A-6 Core Grid Loc D-13		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9/3	310965 P97g 310181 J40m J40r		HH-CP-4868		
48	IC-TE-32	Incore Temp. D-4 Core Grid Loc L-13		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9/0	310965 P97g 310181 J40m J40s		HH-CP-4868		
49	IC-TE-34	Incore Temp. F-2 Core Grid Loc N-2		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9/0	310965 P97g 310181 J40m J40t		HH-CP-4868		
50	IC-TE-37	Incore Temp. F-8 Core Grid Loc P-9		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9 (B) U	310965 P97g 310181 J40m J40t		HH-CP-4868		
51	IC-TE-38	Incore Temp. A-2 Core Grid Loc K-2		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9	310965 P97g 310181 J40m J40r		HH-CP-4868		
52	IC-TE-39	Incore Temp. A-7 Core Grid Loc B6		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9/3	310965 P97g 310181 J40m J40r		HH-CP-4868		
53	IC-TE-40	Incore Temp. E-3 Core Grid Loc P-14		B	310501	C-9-2-E	X	X	X		IEEE	HH-CP-4868	BYLlo/HELB Cabinet	P97	CB-9-3A-A	P97-H54 H54-HH9/H	310965 P97g 310181 J40m J40u		HH-CP-4868		

NOTES

NO	DATE	DESCRIPTION	BY	APP'D	DATE
0		FIRST ISSUE	BMA		9/8/79

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
PROCESS MONITORING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 3.3.3.4-7

FUNCTION: PROCESS MONITORING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPELINE (DRAWING NO) GRID F	TRAIN	PHYSICAL LOCATION (DRAWING NO) GRID F	FIRE AREA/ ZONE	REQ'D FOR SAFE SHUTDOWN	REQ'D FOR POST ACCIDENT	POWER ELEC.	POWER AUX.	ELEC. TRAIN	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC. TRAIN	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO (P&ID): SCHEMATIC	ELECTRICAL DRAWING NO (P&ID): CABLE	SUPPORTING SYSTEMS	EQUIPMENT LOCATION (DRAWING NO)	REMARKS
54	IC-TE-61	Incore Temp. B-5 Core Grid Loc N-4		B	310501	CB-F-3A-A	X	X	X		1HP9	HH-CP-4868	HVLIa/HELB Cabinet	P97	CB-F-3A-A	P97-N54 N54-1HP9/E	310965 P97g 310181 J40m J40o		HH-CP-4868		
55	IC-TE-63	Incore Temp. E-5 Core Grid Loc N-13		B	310501	CB-F-3A-A	X	X	X		1HP9	HH-CP-4868	HVLIa/HELB Cabinet	P97	CB-F-3A-A	P97-N54 N54-1HP9/L	310965 P97g 310181 J40n J40o		HH-CP-4868		
56	IC-TE-67	Incore Temp. F-7 Core Grid Loc A-9		B	310501	CB-F-3A-A	X	X	X		1HP9	HH-CP-4868	HVLIa/HELB Cabinet	P97	CB-F-3A-A	P97-N54 N54-1HP9/J	310965 P97g 310181 J40n J40r		HH-CP-4868		
57	IC-TE-50	Incore Temp. B-6 Core Grid Loc N6		B	310501	CB-F-3A-A	X	X	X		1HP9	HH-CP-4868	HVLIa/HELB Cabinet	P97	CB-F-3A-A	P97-N54 N54-1HP9/J	310965 P97g 310181 J40n J40r		HH-CP-4868		
58	IC-TE-52	Incore Temp. F-6 Core Grid Loc L-15		B	310501	CB-F-3A-A	X	X	X		1HP9	HH-CP-4868	HVLIa/HELB Cabinet	P97	CB-F-3A-A	P97-N54 N54-1HP9/B	310965 P97g 310181 J40n J40t		HH-CP-4868		
59	IC-TE-57	Incore Temp. F-3 Core Grid Loc B-3		B	310501	CB-F-3A-A	X	X	X		1HP9	HH-CP-4868	HVLIa/HELB Cabinet	P97	CB-F-3A-A	P97-N54 N54-1HP9/B	310965 P97g 310181 J40n J40t		HH-CP-4868		
60	IC-TE-58	Incore Temp. C-6 Core Grid Loc B-11		B	310501	CB-F-3A-A	X	X	X		1HP9	HH-CP-4868	HVLIa/HELB Cabinet	P97	CB-F-3A-A	P97-N54 N54-1HP9/A	310965 P97g 310181 J40n J40r		HH-CP-4868		
61	HH-CP-4868	HVLIB/HELB Incore Temp. Disp.		B	310501	CB-F-3A-A	X	X	X		P97	BL 88-7315-4 ESK-PP-11F	Plasma Display Distr. Pnl.	P74 B1T	CB-F-3A-A CB-F-1B-A	P97-P74 B11-P74	310965 B1T/1B		SAE-PP-11F		

NOTES

REV NO	DATE	DESCRIPTION	BY	CHK	APP'D
		FINAL ISSUE	BPA		

SEABROOK - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
PROCESS MONITORING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. 3.1.1.A.R

FUNCTION: SAFEGUARD ACTUATION SYSTEM																						
ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID & LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQ'D FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO 9763-W		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT SHUT DOWN	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE		SCHEMATIC	CABLE			
16	FW-PT-515	Protection Set II/ Steam Generator Loop 1 - Safety Injection	202074	B	310589	NS-F-1B-I	X	-	X	-	GZ6	NH-CP-2	Process Protection Cabinet #2	FA2	CB-F-3A-A	FA2-GZ6 FA2-FB5 FA2-FB8	9763-C-509015 9763-C-509047 9763-C-509048		NH-CP-2 NH-CP-12 NH-CP-13		
												NH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-3A-A		310942	FA2b FA2b FA2e FA2i				
												NH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-3A-A							
17	FW-PT-516	Protection Set IV/ Steam Generator Loop 1 - Safety Injection	202074	B	310589	NS-F-1B-I	X	-	X	-	PB3	NH-CP-4	Process Protection Cabinet #4	FA4	CB-F-3A-A	FA4-PB3 FA4-FB5/1 FA4-FB8/1	9763-C-509021 9763-C-509047 9763-C-509048		NH-CP-4 NH-CP-12 NH-CP-13		
												NH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-3A-A		310942	FA4b FA4b FA4e FA4i				
												NH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-3A-A							
18	FW-PT-524	Protection Set I/ Steam Generator Loop 2 - Safety Injection	202074	A	310586	NS-F-3A-I	X	-	X	-	GL5	NH-CP-1	Process Protection Cabinet #1	FA1	CB-F-3A-A	FA1-GL5 FA1-FB5 FA1-FB8	9763-C-509013 9763-C-509047 9763-C-509048		NH-CP-1 NH-CP-12 NH-CP-13		
												NH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-3A-A		310942	FA1b FA1b FA1e FA1i				
												NH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-3A-A							
19	FW-PT-525	Protection Set II/ Steam Generator Loop 2 - Safety Injection	202074	B	310586	NS-F-3A-I	X	-	X	-	GZ4	NH-CP-2	Process Protection System Cabinet #2	FA2	CB-F-3A-A	FA2-GZ4 FA2-FB5 FA2-FB8	9763-C-509016 9763-C-509047 9763-C-509048		NH-CP-2 NH-CP-12 NH-CP-13		
												NH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-3A-A		310942	FA2b FA2b FA2e FA2i				
												NH-CP-18	Solid State Protection System Cab.	FB8	CB-F-3A-A							
20	FW-PT-526	Protection Set III/ Steam Generator Loop 2 - Safety Injection	202074	A	310586	NS-F-3A-I	X	-	X	-	PB1	NH-CP-3	Process Protection System Cabinet #3	FA3	CB-F-3A-A	FA3-PB1 FA3-FB5/1 FA3-FB8/1	9763-C-509021 9763-C-509047 9763-C-509048		NH-CP-3 NH-CP-12 NH-CP-13		
												NH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-3A-A		310942	FA3b FA3b FA3e FA3i FA3f				
												NH-CP-13	Solid State Protection System Cabinet	FB8								

NOTES

REV	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
0	11/80	FIRST ISSUE	JBC		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SAFEGUARD ACTUATION SYSTEM

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NO 3.1.3.5-1

FUNCTION: SAFEGUARD ACTUATION SYSTEM

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQD FOR HOT SHUT DOWN	REQD FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-W: SCHEMATIC	ELECTRICAL DRAWING NO 9763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
21	FW-PT-534	Protection Set I/ Steam Generator Loop 3 - Safety Injection	202074	A	310586	MS-F-36-I	X	-	X	-	GL5	MH-CP-1	Process Protection System Cabinet #1	FA1	CB-F-36-A	FA1-GL5 FA1-FB5/2 FA1-FB8/2	9763-C-509014 9763-C-509047 9763-C-509048	MH-CP-1 MH-CP-12 MH-CP-13			
												MH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-36-A		310942 FA1b				
												MH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-36-A		FA1b FA1e FA1f FA11				
22	FW-PT-535	Protection Set II/ Steam Generator Loop 3 - Safety Injection	202074	B	310586	MS-F-36-I	X	-	X	-	GL6A	MH-CP-2	Process Protection System Cabinet #2	FA2	CB-F-36-A	FA2-GL4 FA2-FB5/2 FA2-FB8/2	9763-C-509015 9763-C-509047 9763-C-509048	MH-CP-2 MH-CP-12 MH-CP-13			
												MH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-36-A		310942 FA2b				
												MH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-36-A		FA2b FA2e FA2f FA21				
23	FW-PT-536	Protection Set III/ Steam Generator Loop 3 - Safety Injection	202074	A	310586	MS-F-36-I	X	-	X	-	FB2	MH-CP-3	Process Protection System Cabinet #3	FA3	CB-F-36-A	FA3-FB2 FA3-FB5/1 FA3-FB8/1	9763-C-509021 9763-C-509047 9763-C-509048	MH-CP-3 MH-CP-12 MH-CP-13			
												MH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-36-A		310942 FA3b				
												MH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-36-A		FA3b FA3e FA3f FA31				
24	FW-PT-544	Protection Set I/ Steam Generator Loop 4 - Safety Injection	202074	A	310589	MS-F-18-I	X	-	X	-	GL6	MH-CP-1	Process Protection System Cabinet #1	FA1	CB-F-36-A	FA1-GL6 FA1-FB5/2 FA1-FB8/2	9763-C-509014 9763-C-509047 9763-C-509048	MH-CP-1 MH-CP-12 MH-CP-13			
												MH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-36-A		310942 FA1b				
												MH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-36-A		FA1b FA1e FA1f FA11				
25	FW-PT-545	Protection Set II/ Steam Generator Loop 4 - Safety Injection	202074	B	310589	MS-F-18-I	X	-	X	-	GL6	MH-CP-2	Process Protection System Cabinet #2	FA2	CB-F-36-A	FA2-GL6 FA2-FB5/2 FA2-FB8/2	9763-C-509016 9763-C-509047 9763-C-509048	MH-CP-2 MH-CP-12 MH-CP-13			
												MH-CP-12	Solid State Protection System Cabinet	FB5	CB-F-36-A		310942 FA2b				
												MH-CP-13	Solid State Protection System Cabinet	FB8	CB-F-36-A		FA2b FA2e FA2f FA21				

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	APPD ENG
1	2-1-83	FIRST ISSUE	TRC		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SAFEGUARD ACTUATION SYSTEM

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NO R 3.1.3.5-1

FUNCTION: SAFEGUARD ACTUATION SYSTEM

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID 1-LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO 9763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
26	FW-PT-546	Protection Set IV/ Steam Generator Loop 4 - Safety Injection	202074	B	310586	MS-F-18-2	X	-	X	-	PS4	MH-CP-4	Process Protection System Cabinet #4	PA4	CB-F-3A-A	PA4-PS4 PA4-PB5/1 PA4-PB8/1	9763-C-509021 9763-C-509047 9763-C-509048	MH-CP-4 MH-CP-12 MH-CP-13		
												MH-CP-12	Solid State Protection System Cabinet	PB5	CB-F-3A-A		310942 PA4b PA4h			
												MH-CP-13	Solid State Protection System Cabinet	PB8	CB-F-3A-A		PA4e PA4i			
27	SI-PT-934	Protection Set IV, Containment Pressure - P Signal Containment Isolation Phase B Actuation, Safety Injection Actuation, Containment Spray Actuation	-	B	310694 (310765)	IC ET-F-19-A	X	-	X	-	PB5	MH-CP-4	Process Protection System Cabinet #4	PA4	CB-F-3A-A	PA4-PB5 PA4-PB5/1 PA4-PB8/1	9763-C-509022 9763-C-509048 310942	MH-CP-4 MH-CP-12 MH-CP-13	-	
												MH-CP-12	Solid State Protection System Cabinet	PB5	CB-F-3A-A		PA4a PA4b PA4d			
												MH-CP-13	Solid State Protection System Cabinet	PB8	CB-F-3A-A		PA4e			
28	SI-PT-935	Protection Set III Containment Pressure - P Signal Containment Isolation Phase B Actuation, Safety Injection Actuation, Containment Spray Actuation	-	A	310694 (310765)	IC ET-F-19-A	X	-	X	-	PB6	MH-CP-3	Process Protection System Cabinet #3	PA3	CB-F-3A-A	PA3-PB6 PA3-PB5/1 PA3-PB8/1	9763-C-509022 9763-C-509048 310942	MH-CP-3 MH-CP-12 MH-CP-13	-	
												MH-CP-12	Solid State Protection System Cabinet	PB5	CB-F-3A-A		PA3a PA3b PA3d			
												MH-CP-13	Solid State Protection System Cabinet	PB8	CB-F-3A-A		PA3e PA3f			
29	SI-PT-936	Protection Set II Containment Pressure - P Signal Containment Isolation Phase B Actuation, Safety Injection Actuation, Containment Spray Actuation	-	B	310769	FP-F-48-2	X	-	X	-	PB7	MH-CP-2	Process Protection System Cabinet #2	PA2	CB-F-3A-A	PA2-PB7 PA2-PB5/2 PA2-PB8/2	9763-C-509022 9763-C-509048 310942	MH-CP-2 MH-CP-12 MH-CP-13	-	
												MH-CP-12	Solid State Protection System Cabinet	PB5	CB-F-3A-A		PA2a PA2b PA2d			
												MH-CP-13	Solid State Protection System Cabinet	PB8	CB-F-3A-A		PA2e PA2f			
30	SI-PT-937	Protection Set I Containment Pressure - P Signal Containment Isolation Phase B Actuation, Containment Spray Actuation	-	A	310769	ET-F-1D-A	X	-	X	-	PB8	MH-CP-1	Process Protection System Cabinet #1	PA1	CB-F-3A-A	PA1-PB8 PA1-PB5/2 PA1-PB8/2	9763-C-509022 9763-C-509048 310942	MH-CP-1 MH-CP-12 MH-CP-13	-	
												MH-CP-12	Solid State Protection System Cabinet	PB5	CB-F-3A-A		PA1a PA1b PA1d			
												MH-CP-13	Solid State Protection System Cabinet	PB8	CB-F-3A-A		PA1e PA1f			

NOTES

REV	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
5	4/15/85	FIRST ISSUE	JBC	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SAFEGUARD ACTUATION SYSTEM

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCR 3.1.3.5-7

FUNCTION: COLD SHUTDOWN

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID & LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER E.S.C.	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO 9763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																		310887			
1	RH-P-8A	Residual Heat Removal Pump	805008	A	310761	RHR-P-1B-I	-	X	X	-	M11	RH-A57-52	4160 VAC Circuit Breaker	A57	CB-P-1A-A	A57-M11	A57a	A57g	CBA-PB-19	RH-P-8B	
																A57-F20/1, A57-F20/2	A57b		CBA-PB-20		
												RHR-A57-FU	Fuses	A57	CB-P-1A-A		A57c		EAB-PB-36		
												RH-CS-2467-3	Control Switch	A57	CB-P-1A-A	A57-HB9	A57d		EAB-PB-31A		
												RH-SS-2467	Selector Switch	A57	CB-P-1A-A	F20-F57			EDE-EMC-5		
												EDE-A53-94-1A	Bus Under Voltage Relay	A53	CB-P-1A-A						
												RH-A57-G,R,W	Indicating Lights	A57	CB-P-1A-A						
												RH-A57-86	Lockout Relay	A57	CB-P-1A-A						
												RH-A57-52R	Truck Operated Contact	A57	CB-P-1A-A						
												RH-A57-50/51	Inst/Time Over-Current Relays 8A, 8C	A57	CB-P-1A-A						
												RH-A57-51GR	Ground Sensor Relay	A57	CB-P-1A-A						
												RH-A57-AM	Ammeter	A57	CB-P-1A-A						
												RH-A57-AS	Ammeter Switch	A57	CB-P-1A-A						
												RH-A57-CT	Current Transformers (75/5)	A57	CB-P-1A-A						
												RH-A57-TDI	CT Test Device	A57	CB-P-1A-A						
												RH-A57-ATR	Transducer	A57	CB-P-1A-A						
												RH-A57-TDJ	Lockout Relay Test Device	A57	CB-P-1A-A						
												RH-A57-52Z	Time Delay Relay	A57	CB-P-1A-A						
												RH-CS-2467-1	Control Switch with Indication	F20	CB-P-3A-A						
												RH-HB9-PRJ	Energ. Power Sequencer Rel.	HB9	CB-P-1A-A						
												RH-E-601A	SI Signal Actuating Output Relay	F07	CB-P-3A-A						
2	RH-P-8B	Residual Heat Removal Pump	805008	B	310761	RHR-P-1C-I	-	X	X	-	M13	RH-A77-52	4160 VAC Circuit Breaker	A77	CB-P-1B-A	A77-M12	A77a	A77g	CBA-PB-32	RH-P-8A	
																A77-F20/1	A77b		CBA-PB-33		
												RHR-A77-FU	Fuses	A77	CB-P-1B-A	A77-F20/3	A77c		EAB-PB-58		
												RH-CS-2468-3	Control Switch	A77	CB-P-1B-A	A77-HB0	A77d		EAB-PB-31B		
												RH-SS-2468	Selector Switch	A77	CB-P-1B-A	F20-F80			EDE-EMC-6		
												EDE-A73-94-1A	Bus Under Voltage Relay	A53	CB-P-1B-A						
												RH-A77-G,R,W	Indicating Lights	A77	CB-P-1B-A						
												RH-A77-86	Lockout Relay	A77	CB-P-1B-A						
												RH-A77-52R	Truck Operated Contact	A77	CB-P-1B-A						
												RH-A77-50/51	Inst/Time Over-Current Relays 8A, 8C	A77	CB-P-1B-A						
												RH-A77-51GR	Ground Sensor Relay	A77	CB-P-1B-A						
												RH-A77-AM	Ammeter	A77	CB-P-1B-A						
												RH-A77-AS	Ammeter Switch	A77	CB-P-1B-A						
												RH-A77-CT	Current Transformers (75/5)	A77	CB-P-1B-A						
												RH-A77-TDI	CT Test Device	A77	CB-P-1B-A						
												RH-A77-ATR	Transducer	A77	CB-P-1B-A						
												RH-A77-TDJ	Lockout Relay Test Device	A77	CB-P-1B-A						
												RH-A77-52Z	Time Delay Relay	A77	CB-P-1B-A						

NOTES

1. This equipment is mechanical with no electrical requirements.

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
COLD SHUTDOWN

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

NO	DATE	DESCRIPTION	DRWN BY	CKD BY	APP'D
0	09-01-83	FIRST ISSUE	MFK		

TABLE NCR 3.1.3.6-1

FUNCTION: COLD SHUTDOWN

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID 11 and DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	NEED FOR (Plant Shutdown)	NEED FOR (Cold Shutdown)	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO 9763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
	RH-P-1B (Continued)											RH-CS-2448-1	Control Switch with Indication	F20	CB-F-3A-A						
												RH-RMO-P1L	Reactor. Power Sequencer Rel.	RMO	CB-F-1B-A						
												RH-E-6018	SI Signal Actuating Output Relay	F90	CB-F-3A-A						
																	9763-M-310887				
3	RH-V-34	RH-P-8A to Cold Isolation Valve	805008	A	310760	FH-F-1A-Z	-	X	X	-	962	RH-857-52	460 VAC Circuit Breaker	857	CB-F-1A-A	857-962 852-F20	857a	857c	CBA-FH-19 CBA-FH-20	RH-V-35	
												RH-CS-2461	Control Switch	F20	CB-F-3A-A						
												RH-ZL-2461-3	Pilot Light	F20	CB-F-3A-A						
												RH-857-42	Motor Starter	857	CB-F-1A-A						
												RH-857-49	Thermal Overload	857	CB-F-1A-A						
												RH-ZS-914	Position Switch	962	FP-F-1A-Z						
4	RH-V-26	RH-P-8B to Cold Leg Isolation Valve	805006	B	310769	FP-F-1B-Z	-	X	X	-	968	RH-865-52	460 VAC Circuit Breaker	865	CB-F-1B-A	865-968 865-F20	865a	865c	CBA-FH-32 CBA-FH-33	RH-V-16	
												RH-CS-2462	Control Switch	F20	CB-F-3A-A						
												RH-ZL-2462-3	Pilot Light	F20	CB-F-3A-A						
												RH-865-42	Motor Starter	865	CB-F-1B-A						
												RH-865-49	Thermal Overload	865	CB-F-1B-A						
												RH-ZS-968	Position Switch	968	FP-F-1B-Z						
5	RH-V-25	RH-E-9A to Charging Pump Isolation Valve	805008	A	310761	RHR-F-4B-Z	-	X	X	-	953	RH-859-52	460 VAC Circuit Breaker	859	CB-F-1A-A	949-953 949-958 859-949 859-F20 859-F20/1 859-836 836-925 859-953/1 859-953/2 925-927 859-932	859a	859c	CBA-FH-19 CBA-FH-20	None	
												RH-CS-2465	Control Switch with Indication	F20	CB-F-3A-A						
												RH-859-42	Motor Starter	859	CB-F-1A-A						
												RH-ZS-935	Position Switch	953	RHR-F-4B-Z						
												SI-ZS-958	Isolation Valve	958	RHR-F-2A-Z						
												SI-ZS-950	Isolation Valve	949	RHR-F-2B-Z						
												SI-ZS-993	Isolation Valve	957	RHR-F-2B-Z						
												CBS-ZS-915	Cont. Sump Iso. Valve	935	FP-F-1A-Z						
												RC-ZS-923	RHR Ldn. and Inlet Iso. Valve	925	C-F-1-Z						
												RC-ZS-927	RHR Ldn. and Inlet Iso. Valve	927							
												RH-859-49	Thermal Overload Relay	85	CB-F-1A-A						
												EDE-TBX-Y32	TERM. BOX	Y32	PRF-1A-Z						
6	RH-V-36	RH-E-9B to SI Pump Isolation Valve	805008	B	310761	RHR-F-2A-Z	-	X	X	-	954	RH-866-52	460 VAC Circuit Breaker	866	CBA-F-1B-A	949-957/1 957-958 866-957 866-954/2 866-954/1 866-F20 866-F20/1 866-935 866-839 839-926 926-928	866a	866c	CBA-FH-32 CBA-FH-33	None	
												RH-CS-2466	Control Switch with Indication	F20	CB-F-3A-A						
												RH-866-42	Motor Starter	866	CB-F-1B-A						
												RH-866-49	Thermal Overload	866	CB-F-1B-A						
												954-ZS-936	Position Switch	954	RHR-F-2A-Z						
												SI-ZS-950	Isolation Valve	949	RHR-F-2B-Z						
												SI-ZS-958	Isolation Valve	958	RHR-F-2A-Z						
												SI-ZS-993	Isolation Valve	957	RHR-F-2B-Z						
												CBS-ZS-914	Cont. Sump Iso. Valve	936	FP-F-1B-Z						
												RC-ZS-957	RHR Ldn. and Inlet Iso. Valve	926	C-F-1-Z						
												RC-ZS-958	RHR Ldn. and Inlet Iso. Valve	928	C-F-1-Z						
												EDE-TBX-Y36	TERM. BOX	Y35	FP-F-1B-Z						

NOTES

2. Electrical conduit plan drawing 9763-F-310761 is listed to show fire zone corresponding to the location of the RHR pump oil cooler which is identified in drawing 9763-F-805020.

3. Electrical conduit plan drawings 9763-F-310761 and 9763-F-310762 are listed to show fire zone corresponding to the location of the RHR heat exchanger which is identified in drawings 9763-F-805202 and F-805203.

4. Electrical conduit plan drawing 9763-F-310761 is listed corresponding to the location of the RHR sampling valve which is identified in drawing 9763-F-805301

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	REVISION
3	9/25/81	FINAL ISSUE	[illegible]	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
COLD SHUTDOWN

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. 3.1.3.6-7

FUNCTION: COLD SHUTDOWN

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-W: SCHEMATIC	ELECTRICAL DRAWING NO 9763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	9763-W-310887				
7	RH-V-32	RHR PP to Hot Leg Isolation Valve	805008	B	310769	PP-F-1A-I	-	X	X	-	V-1	RH-B58-52 RH-CS-2660 RH-EL-2660-3 RH-B58-42 RH-B58-49 RH-V51-P32	460 VAC Circuit Breaker Control Switch Pilot Light Motor Starter Thermal Overload Position Switch	B58 F20 F20 B58 B58 V51	CB-F-1B-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A PP-F-1A-I	B58-V51 B58-F20	B58-a	B58-c	CBA-PB-32 CBA-PB-33	None	
8	RH-V-70	RHR to Hot Leg Isolation Valve	805008	A	310769	PP-F-1A-I	-	X	X	-	V84	RH-D90-52 RH-CS-2679 RH-EL-2679-3 RH-D90-42 RH-D90-49 RH-V84-P70	460 VAC Circuit Breaker Control Switch Pilot Switch Motor Starter Thermal Overload Position Switch	D90 F20 F20 D90 D90 V84	CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A PP-F-1A-I	D90-V84/1 D90-F20	D90-a	D90c	CBA-PB-19 CBA-PB-20	None	
9	RH-HCV-606 RH-FCV-618	RH-E-9A Outlet Flow Control Valve and Bypass Flow Control Valve	805008	A	310761	RHR-F-4A-I	-	X	X	X	L08 L83	RC-CS-618 RC-CS-606 RC-FY-618-1 RC-HY-606-1	Control Switch Control Switch E-9A RC Bypass Solenoid Valve E-9A Outlet Valve	F20 F20 V43 GE8	CB-F-3A-A CB-F-3A-A RHR-F-4A-I RHR-F-4[illegible]-I	F20-GE8 F20-V43	E87/2a E87/2a	E87/3c E87/3d E87/3f	CBA-PB-19 CBA-PB-20 EDE-PP-1127A	RH-HCV-607 RH-FCV-619	
																	9763-W-310887				
10	RH-HCV-607 RH-FCV-619	RH-E-9B Outlet Flow Control Valve and Bypass Flow Control Valve	805008	B	310761	RHR-F-4A-I	-	X	X	X	L09 L84	RC-CS-619 RC-CS-607 RC-FY-619-1 RC-HY-607-1	Control Switch Control Switch E-9B RC Bypass Valve Solenoid E-9B Outlet Valve Solenoid	F20 F20 V44 G79	CB-F-3A-A CB-F-3A-A RHR-F-4A-I RHR-F-4A-I	F20-G79 F20-V44	E88/2a E88/2a	E88/3c E88/3d E88/3f	CBA-PB-32 CBA-PB-33 EDE-PP-1128	RH-HCV-606 RH-FCV-618	
																	310882				
11	RC-V-22	RHR Inlet Isolation Valve	805003	B	310582	C-F-1-I	-	X	X	-	V27	RC-B54-52-1,2 RC-B54-FU RC-CS-7302-2 RC-SS-7302 RC-B54-42-1/D,C RC-B54-42-2 RC-B54-49-1,2 EDE-MM-100 RC-ZS-7302B RC-EL-2793-1 EDE-MM-115 RC-CS-7303-1 RC-EL-7303-1 RP-ZS-24654	460 VAC Circuit Breakers Fuse Control Switch With Indication Selector Switch Motor Starters Motor Starter Overload Relays Electrical Penetration Valve Position and Open/Close Torque Switches Pilot Light Electrical Penetration Control Switch with Indication Pilot Light Valve Position Limit Switch	B54 B54 G2J G2J B54 B54 B54 B24 V27 G2J E39 F20 F20 V53	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-I, EY-F-1C-A C-F-1-I CB-F-1B-A C-F-1-I, EY-F-1C-A CB-F-3A-A CB-F-3A-A RHR-F-1B-I	B54-G2J B54-G2J/1 B54-B39 B54-B24 B24-V27 B39-V27 F20-G2J F20-FP9/2 B54-V53 BAJ-EDD/1 BAJ-G2J G2J-B39/6 B39-V27/1 B39-V26/3 G20-DD0 EDD-G20/1 F20-G2J/2	B54c	B54c B54d	EDE-HCC-621 CBA-PB-32 CBA-PB-33 CAB-PB-16 CAB-PB-18 CAB-PB-1D	RC-V-88	

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
0	8 20 85	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
COLD SHUTDOWN

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCR 3.1.3.6-3

FUNCTION: COLD SHUTDOWN

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID & LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F	FIRE AREA ZONE	REQ'D FOR (HOT SHUT DOWN)	REQ'D FOR (COLD SHUT DOWN)	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 8763-W: SCHEMATIC	ELECTRICAL DRAWING NO 8763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
	BC-V-22 (Continued)											BC-E-7348	PSC Actuating Aux. Relay	P79	CB-F-16-A	P26-G20/4					
												PC-E-7356	PSC Actuating Aux. Relay and Open/Close Torques Switches	P79	CB-F-16-A						
												BC-CS-2896-2	Control Switch with Indication	G20	CB-F-18-A						
												BC-SS-2896	Selector Switch	G20	CB-F-18-A						
												BC-ZS-PV-2896	Valve Position Switch	180	PV-F-18-2						
												BC-E80-R1	Auxiliary Relay	E80	CB-F-18-A						
												BC-CS-7302-1	Control Switch with Indication	P70	CB-F-16-A						
												BC-CS-7310-1	Control Switch with Indication	P70	CB-F-16-A						
												BC-CS-2896-1	Control Switch with Indication	P29	CB-F-16-A						
												BC-PT-403	Wide Range Pressure Transmitter	P76	RT-F-1C-A	P66-P76/1 P66-P58	C-509036	310942 P66r P66e P66h P66a	NH-CF-4 NH-CF-13		
												NH-CF-4	Process Protection System Cabinet #4	P66	CB-F-16-A						
												NH-CF-13	Solid State Protection Sys. Output #2 Cabinet	P79	CB-F-16-A						
																		310882			
12	BC-V-23	RHR Inlet Isolation Valve	005003	A	310576	C-F-1-2	X	X	X	-	925	BC-853-52-1,2	460 VAC Circuit Breakers	853	CB-F-16-A	853-G26 853-G2C/1	853a	853c 853d	RHR-MOV-521	BC-V-87	
												BC-853-F9	Fuse	853	CB-F-16-A	853-R36			CB4-F9-19 CB4-F9-20		
												BC-CS-7303-2	Control Switch With Indication	G2C	CB-F-16-A	853-R19 R36-925/2			CA8-F9-1C CA8-F9-1E		
												BC-SS-7303	Selector Switch	G2C	CB-F-16-A	R19-925			CA8-F9-1F		
												BC-IL-7303-1	Pilot Light	G2C	CB-F-16-A	P20-G2C					
												BC-853-42-1/D,C	Motor Starters	853	CB-F-16-A	P20-F9/2					
												BC-853-42-2	Motor Starter	853	CB-F-16-A	853-953					
												BC-853-49-1,2	Overload Relays	853	CB-F-16-A						
												EHE-MM-95	Electrical Penetration	R19	C-F-2-2, RT-F-16-A						
												BC-ZS-922	Valve Position and Open/Close Torque Switches	922 V26	C-F-1-2						
												EHE-MM-112	Electrical Penetration	R36	C-F-2-2, RT-F-16-A						
												BC-CS-7303-1	Control Switch with Indication	P20	CB-F-16-A						
												BC-IL-7303-2	Pilot Light	P20	CB-F-16-A						
												BB-ZS-953	Valve Position Switch	953	RHR-F-18-2						
												BC-P79-E-736A	PSC Actuating Aux. Relay	P79	CB-F-16-A						
												BC-P79-E-7356	PSC Actuating Aux. Relay	P79	CB-F-16-A						

NOTES

NO	DATE	DESCRIPTION	BY	CHKD BY	APP'D
1	4-17-81	FIRST ISSUE			

10CFR50 APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
COLD SHUTDOWN

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TASLIST REV 3.1.3.6-4

FUNCTION: SERVICE WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-F: SCHEMATIC	ELECTRICAL DRAWING NO 9763-F: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
15	SW-V19	Service Water Discharge to Sea Isolation Valve	805019	B	310765	PAB-F-2C-I	X	X	X	-	VB3	SW-DAA-52	4600VAC Circuit Breaker	DAA	CB-F-1B-A	DAA-VB3/1	DAAa	DAAr	CBA-FW-32	SW-V20	
																DAA-VB3/2			CBA-FW-33		
												SW-CS-6172	Control Switch with Indication	F71	CB-F-3A-A	DAA-F71					
																DAA-CH0					
												SW-DAA-42	Motor Starter	DAA	CB-F-1B-A						
												SW-DAA-49	Thermal Overload	DAA	CB-F-1B-A						
												SW-CH0-BTB-2	Twr. Act. Sig. Aux. Relay	CH0	CB-F-1B-A						
												SW-VB3-V19	Position Switch	VB3	PAB-F-2C-I						
																	9763-46-301107				
16	SW-V20	Service Water Discharge to Sea Isolation Valve	805019	A	310765	PAB-F-2C-I	X	X	X	-	VBA	SW-DAB-52	4600VAC Circuit Breaker	DAB	CB-[illegible]-A	E.B-VBA	DAAa	DABc	CBA-FW-19	SW-V19	
																DAA-VBA/1			CBA-FW-20		
												SW-CS-6162	Control Switch with Indication	F72	CB-F-3A-A	DAB-VBA/2			EDE-HCC-512		
																DAB-F72					
												SW-DAB-42	Motor Starter	DAB	CB-F-1A-A	DAB-CH9					
												SW-DAB-49	Thermal Overload	DAB	CB-F-1A-A						
												SW-CH9-BTA-2	Twr. Act. Sig. Aux. Relay	CH9	CB-F-1A-A						
												SW-VBA-V20	Position Switch	VBA	PAB-F-2C-I						
17	SW-V23	Service Water to Cooling Tower Isolation Valve	805019	B	310765	PAB-F-2C-I	X	X	X	-	VB5	SW-DA5-52	4600VAC Circuit Breaker	DA5	CB-F1B-A	DA5-VB5/1	DA5a	DA5c	CBA-FW-32	SW-V24	
																DA5-VB5/2			CBA-FW-33		
												SW-CS-6171	Control Switch with Indication	F71	CB-F-3A-A	DA5-F71					
																DA5-F71/1					
												SW-DA5-42	Motor Starter	DA5	CB-F-1B-A	DA5-CH0					
												SW-DA5-49	Thermal Overload	DA5	CB-F-1B-A						
												SW-CH0-BTB-2	Twr. Act. Sig. Aux. Relay	CH0	CB-F-1B-A						
												SW-VB5-V23	Position Switch	VB5	PAB-F-2C-I						
18	SW-V25	Cooling Tower Pump Discharge Valve	805019	B	310717	CT-F-2B-A	X	X	X	-	VH8	SW-CQ7-52	4600VAC Circuit Breaker	CQ7	CT-F-1C-A	Cu7-G2E		301107	CBA-FW-32	SW-V24	
																CQ7-VH8/1			CBA-FW-33		
												SW-CS-6174-2	Control Switch with Indication	G2E	CB-F-1B-A	CQ7-VH8/2	CQ7c	CQ7c	EDE-HCC-641		DELETE
																F71-G2E					
												SW-88-6174	Selector Switch	G2E	CB-F-1B-A	A1A-G2E					
												SW-CQ7-42/0,C	Motor Starters	CQ7	CT-F-1C-A	G2E-CH0					
												SW-CQ7-49	Overload Relay	CQ7	CT-F-1C-A	EE7-G2E					
												SW-ES-V25	Valve Position Switch and Valve Open/Close Torque Switches	VH8	CT-F-2B-A	G2E-CH0/3					
												SW-CQ7-FB	Fuse	CQ7	CT-F-1C-A						
												SW-CS-6174-1	Control Switch with Indication	F71	CB-F-3A-A						
												SW-A0A-52E	Mech. Operated Switch	A0A	CB-F-1B-A						
												SW-CH0-BTB1	Tower Actuation Sig. Aux. Relay	CH0	CB-F-1B-A						
																		301107			
												SW-ES-V25	Position Switch	VH8	CT-F-2B-A	CH0-VH8	E20/1a	E20/1b			Note 4
												SW-CH8-BV25	Aux. Relay	CH8	CB-F-1B-A						

NOTES:

NO	DATE	DESCRIPTION	DWN. BY	CHK'D BY	RES. ENG.
0	7/83	FIRST ISSUE	WHE	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SERVICE WATER SYSTEM

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCB 3.1.3.7-7

FUNCTION: SERVICE WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/ISOMETRIC DRAWING NO 5763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 5763-F	FIRE AREA/ ZONE	NEED FOR HOT SHUT DOWN	NEED FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC. NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 5763-M: SCHEMATIC	ELECTRICAL DRAWING NO 5763-M: CABLE	SUPPORTING SYSTEMS	* REDUNDANT COUNTERPART	REMARKS
																	301107				
19	SW-934	Service Water to Cooling Tower Outlet Valve	805019	A	310765	FAB-F-2C-2	X	X	X	-	936	SW-DA9-52	4609AC Circuit Breaker	DA9	CB-F-1A-A	DA9-936 DA9-936/1 DA9-936/3	DA9a	DA9c	CBA-FW-19 CBA-FW-20 EDE-HCC-512	SW-923	
												SW-CS-6161	Control Switch with Indication	F72	CB-F-3A-A	DA9-F72 DA9-F72/1					
												SW-DA9-42	Motor Starter	DA9	CB-F-1A-A						
												SW-DA9-49	Thermal Overload	DA9	CB-F-1A-A	DA9-GM9					
												SW-GM9-8TA-2	Twr. Act. Sig. Aux. Relay	GM9	CB-F-1A-A						
												SW-ZS-936	Position Switch	936	FAB-F-2C-2						
																	301106				
20	SW-944	Service Water Unit 1 Pump Intake Valve	805033	A	301037	SW-F-2-0	X	X	X	-	941	SW-C05-52	4609AC Circuit Breaker	C05	SW-F-1B-A	C05-941/1 C05-941/3	C05a E15/4j	C05c E15/4k	SWA-FW-40A	None	
												SW-CS-6131	Control Switch with Indication	F70	CB-F-3A-A	C05-F72/1	E15/4a E15/4j	E15/4e E15/4k			
												SW-C05-42	Motor Starter	C05	SW-F-1B-A						
												SW-C05-49	Thermal Overload	C05	SW-F-1B-A						
												SW-432-T-2-6027	Aux. to Heat Treat. Sw.	EF5	SW-F-1B-A	EF5-970	E15/4b				
												SW-432-BT-2-6027	Aux. to Heat Treat. Sw.	EF5	SW-F-1B-A						
												SW-ZS-944	Position Switch	941	SW-F-2-0						
21	SW-934	Cooling Tower Pump Discharge Valve	805019	A	301717	CT-F-2B-A	X	X	X	-	945	SW-CP8-52	4609AC Circuit Breaker	CP8	CT-F-1D-A	CP8-G28 CP6-945	CP8a	CP8c	CBA-FW-19 CBA-FW-20	SW-923	
												SW-CS-6164-2	Control Switch with Indication	G28	CB-F-1A-A	CP8-945/1 CP8-945/2			EDE-HCC-513		
												SW-BS-6164	Selector Switch	G28	CB-F-1A-A	F72-G28					
												SW-CP8-42/0,C	Motor Starters	CP8	CT-F-1D-A	A172-G28					
												SW-CP8-49	Overload Relay	CP8	CT-F-1D-A	G28-GM9/1					
												SW-ZS-934	Valve Position Switch and Valve Open/Close Torque Switches	945	CT-F-2B-A	G28-GM9/5 E06-G28					
												SW-CP8-F8	Fuse	CP8	CT-F-1D-A						
												SW-CS-6164-1	Control Switch with Indication	F72	CB-F-3A-A						
												SW-A102-52S	Mech. Operated Switch	A102	CB-F-1A-A						
												SW-GM9-8TA1	Tower Actuation Sig. Aux. Relay	GM9	CB-F-1A-A						
																	301107				
												SW-ZS-934	Position Switch	945	CT-F-2B-A	GM9-945	E27/1a	E27/1b			Note A
												SW-GM9-8934	Aux. Relay	GM9	CB-F-1A-A						
22	SW-963	Service Water Discharge Valve to Intake	805033	A	301037	SW-F-2-0	X	X	X	-	960	SW-CS-6252	Control Switch with Indication	F71	CB-F-3A-A	BE3-960/1 BE3-960/3	BE3a	BE3c	SWA-FW-40A	None	
												SW-BE3-42	Motor Starter	BE3	SW-F-1B-A	BE3-F72/1					
												SW-432-T-2-6027	Aux. to Heat Treat. Sw.	EF5	SW-F-1B-A						
																	301106				
												SW-432-BT-2-6027	Aux. to Heat Treat. Sw.	EF5	SW-F-1B-A	EF5-F70	E15/4a E15/4j	E15/4k			
												SW-ZS-963	Position Switch	960	SW-F-2-0		E15/4b	E15/4e			

NOTES

NO	DATE	DESCRIPTION	DRN BY	CKD BY	RES ENG
0	4.29.85	FIRST ISSUE	BMC		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SERVICE WATER SYSTEM

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

FUNCTION: SERVICE WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/I-LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO 9763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
	SW-FB-516 (Continued)											SW-AV4-51GS	Ground Sensor Relay	AV4	CB-F-1A-A						
												SW-AV4-86	Lockout Relay	AV4	CB-F-1A-A						
												SW-AV4-CT	Current Transformers 5:5	AV4	CB-F-1A-A						
												SW-AV4-TDI	Test Device	AV4	CB-F-1A-A						
												SW-AV4-AM	Ammeter	AV4	CB-F-1A-A						
												SW-AV4-AS	Ammeter Switch	AV4	CB-F-1A-A						
												SW-AV4-G,R,W	Indicating Lights	AV4	CB-F-1A-A						
												SW-AV4-ATR	Transducer	AV4	CB-F-1A-A						
												SW-AV4-TD2	Lockout Relay Test Device	AV4	CB-F-1A-A						
												SW-AV4-52R	Time Delay Relay	AV4	CB-F-1A-A						
												SW-CS-6285-1	Control Switch	F72	CB-F-3A-A						
												SW-BB2-RMO	E.P.S. Manual Override Relay (E-32)	BB2	CB-F-1A-A						
27	SW-V74	Loop A Disch to CLG Tower	805019	A	310765	PAB-F-1E-Z	X	X	X	-	VH2	SW-B2B-52	460 VAC Circuit Breaker	B2B	CB-F-1A-A	F72-FB7/1 B2B-F72	X28a	301107 B58c	EDE-MCC-512	SW Pump House	
												SW-CS-8271	Control Switch with Indication	F72	CB-F-1A-A	B2B-F72/1 B2B-GM9					
												SW-B2B-42	Motor Starter	B2B	CB-F-1A-A	B2B-VHC					
												SW-GM9-BTA	Tower Actuation Sig. Aux. Relay	GM9	CB-F-1A-A	B2B-VH2/1 B2B-VH2/2					
												SW-ZS-V74	Position Switch	VH2	PAB-F-1E-Z						
28	SW-V55	CLG TWR FP A Test/Bypass	805019	A	301717	CT-F-2B-A	X	X	X	-	VH6	SW-CP9-52	460 VAC Circuit Breaker	CP9	CT-F-1D-A	F72-GM9/3 CP9-F72	CP9a	301107 CP9c	EDE-MCC-513	SW Pump House	
												SW-CS-6166	Control Switch with Indication	F72	CB-F-1A-A	CP9-F72/1 CP9-VH6					
												SW-CP9-42	Motor Starter	CP9	CT-F-1D-A	CP9-VH6/1					
												SW-GM9-BTA-1	Tower Actuation Sig. Aux. Relay	GM9	CB-F-1A-A	CP9-VH6/2					
												SW-ZS-V55	Position Switch	VH6	CT-F-2B-A						
												SW-CP9-49	Thermal Overload	CP9	CT-F-1D-A						
29	SW-V56	CLG TWR Loop A Test Recirc.		A	301717	CT-F-2B-A	X	X	X	-	VH7	SW-CP8-52	460 VAC Circuit Breaker	CP8	CT-F-1D-A	CP8-F72	CP8a	301107 CP8c	EDE-MCC-513	SW Pump House	
												SW-CS-6165	Control Switch with Indication	F72	CB-F-1A-A	CP8-F72/1 A02-F72/3					
												SW-CP8-42	Motor Starter	CP8	CT-F-1D-A	A02-VH5/3 VH5-VH7					
												SW-ZS-V54	Position Switch	VH5	CT-F-2B-A	CP8-VH7					
												SW-ZS-V56	Position Switch	VH7	CT-F-2A-A	CP8-VH7/1					
												SW-A02-52R	Mech. Operated Switch	A02	CB-F-1A-A	CP8-VH7/2					
												SW-CP8-49	Thermal Overload	CP8	CT-F-1D-A						

NOTES

REV	DATE	DESCRIPTION	DWN BY	CK'D BY	RES ENG
0	6/85	FIRST ISSUE	BAF-L	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SERVICE WATER SYSTEM

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NO. 3.3.3.7-1

FUNCTION: SERVICE WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PENETRATION [illegible] NO	TRAIN	PHYSICAL LOCATION DRAWING NO 5763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 5763-F: SCHEMATIC	ELECTRICAL DRAWING NO 5763-F: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	301107				
30	SW-V139	Cooling Tower Spray By-Pass Recirc V139	[illegible] 1	4	301717	CT-F-3-0	X	X	X	-	V3Q	SW-C3D-52	460 VAC Circuit Breaker	C3D	CT-F-1D-A	C3D-V3Q C3D-V3Q/1 C3D-V3Q/3 C3D-F72	C30a	C30c	EDC-HCC-513	SW Pump House	
												SW-CS-6168	Control Switch with Indication	F72	CB-F-1A-A						
												SW-C3D-42	Motor Starter	C3D	CT-F-1D-B						
												SW-ZS-V139	Position Switch	V3Q	CT-F-3-C						
												SW-C3D-49	Thermal Overload	C3D	CT-F-1D-A						

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CK'D BY	MES ENG
0	12/77	FIRST ISSUE	MFS		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SERVICE WATER SYSTEM

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

[illegible]

FUNCTION: PRIMARY COMPONENT COOLING WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID FLOW DRAWING NO (M-)	P TRAIN	PHYSICAL LOCATION DRAWING NO (B761-)	FIRE AREA/ ZONE	REQD FOR HOT SHUT DOWN	REQD FOR COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC NEMA	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NEMA	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO (B761-): SCHEMATIC	ELECTRICAL DRAWING NO (B761-): CABLE	SUPPORTING SYSTEMS	MECHANICAL EQUIPMENT	REMARKS
16	CC-TV-2271-2	Primary Component Cooling Water Heat Exchanger E-17B Temperature Control Valve	805016	B	110765	PAB-F-2C-2	X	X	X	X	1PU	CC-E/H/1-72	125VDC Circuit Breaker	B2U	CB-F-1B-A	B2U-GZ0	310895		CBA-FN-32	CC-TV-2271-2	
																GN0-GZ0/5	B2U/3e	B2U/3e	CBA-FN-33		
												CC-BS-2271	Selector Switch	GZ0	CB-F-1B-A			B2U/3d	PAB-FN-42b		
												CC-GN0-R1	Auxiliary Relay	GN0	CB-F-1B-A	GZ0-MP0/1			EWC-PP-1134		
												CC-GN0-R2	Auxiliary Relay	GN0	CB-F-1B-A	GZ0-MP0/1			(Cbl. 3 & 10		
												CC-TY-2271-2	Pilot Solenoid	B12	PAB-F-2C-2	GN0-GZ0/5					
												CC-ZL-2271-6	Valve Position Indicating Lights	GZ0	CB-F-1B-A	B2U-GN0/6 GZ0-B12					
												CC-ZS-1V-2271-2	Valve Position Switch	MP0	PAB-F-2C-2						
												CC-BS-2271	Selector Switch	GZ0	CB-F-1B-A	GZ0-Q60	310895	310952	CBA-FN-32		
												CC-HIC-2271	Auto/Manual Controller with Indicator	GZ0	CB-F-1B-A		6C	FJ4j FJ41 FJ4m	CBA-FN-33 PAB-FN-42b Instrument Air PM-CP-1528		
												CC-HJY-2271	E/P Converter	GZ0	CB-F-1B-A						
												CC-EY-2271	E/I Converter	GZ0	CB-F-1B-A						
												CC-TY-2271-5	I/P Converter	Q60	PAB-F-2C-2						
												CC-CS-2271	Control Switch	FJ0	CB-F-3A-A						
												CC-E-6398	Prot. Sys. Relay	FB0	CB-F-3A-A	FJ1-GZ0/3					
												CC-GN0-R1	Aux. Relay	GN0	CB-F-1B-A	FJ1-GZ0/4					
												CC-ZL-2271-2	Indicating Lights	FJ0	CB-F-3A-A	FJ4-TH8/1					
												CC-TE-2271	Temp. Element	TH8	PAB-F-2C-2	FJ4-GZ0/3					
												CC-TYY-2271-2	PCCW Loop "B" Relay	FJ4	CB-F-3A-A	FJ0-FJ4/1					
												CC-TK-2271	Manual Controller	FJ0	CB-F-3A-A						
												CC-TI-2271-1	Temp. Indicator	FJ0	CB-F-3A-A						
												PM CP-1528	BOP-PCC	FJ4	CB-F-3A-A						
17	CC-E-17A	Primary Component Cooling Water Heat Exchanger	805010 805019	A	110765 805217	PAB-F-2C-2 PAB-F-3A-2	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	CC-E-17B	Note 1 & 3
18	CC-E-17B	Primary Component Cooling Water Heat Exchanger	805016 805019	B	110765 805217	PAB-F-2C-2 PAB-F-3A-2	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	CC-E-17A	Note 1 & 3
19	CC-V-143	RH & SA Return Header Isolation Valve V-143	804981	A	110763	RHR-3B-2	-	X	X	-	V7B	CC-B12-52	480VAC Circuit Breaker	B12	CB-F-1A-A	B12-FJ0	310895	B12e	EAH-FN-5A EAH-FN-31A MCC-512	CC-V-272	
												CC-CS-2144	Control Switch with Indication	FJ0	CB-F-3A-A	FJ0-F87/1 B12-V7B					
												CC-B12-43	Motor Starter	B12	CB-F-1A-A	B12-V7B/1					
												CC-B12-49	Thermal Overload	B12	CB-F-1A-A	B12-V7B/2					
												CC-V7B-V143	Position Switch	V7B	RHR-F-3B-2						
												CC-F87-B634A	Containment Iso. Aux. Relay	F87	CB-F-3A-A						
20	CC-V-272	RH & SB Return Header Isolation Valve V-272	804982	B	110763	RHR-F-3A-2	-	X	X	-	V72	CC-B1B-52	480VAC Circuit Breaker	B1B	CB-F-1A-A	B1B-FJ0	310895	B1Bc	EAH-FN-5B EAH-FN-31B MCC-E-612	CC-V-143	
												CC-CS-2144	Control Switch with Indication	FJ0	CB-F-3A-A	FJ1-F80/3 B1B-V72					
												CC-B1B-43	Motor Starter	B1B	CB-F-1B-A	B1B-V72/1					
												CC-B1B-49	Thermal Overload	B1B	CB-F-1B-A	B1B-V72/2					
												CC-V72-V272	Position Switch	V72	RHR-F-3A-2						
												CC-F80-B627B	Containment Iso. Aux. Relay	F80	CB-F-3A-A						

NOTES

NO	DATE	DESCRIPTION
2	4-79	FINAL ISSUE
1		

SEABROOK APPENDIX B
DATA SUBMITTAL EQUIPMENT LIST
PRIMARY COMPONENT COOLING WATER

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. 1.1.1.6.9

FUNCTION: PRIMARY COMPONENT COOLING WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID (LINE DRAWING NO) SHEET	TRAIN	PHYSICAL LOCATION (DRAWING NO) SHEET	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC INDEX	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO SHEET N: SCHEMATIC	ELECTRICAL DRAWING NO SHEET N: CABLE	SUPPORTED SYSTEMS	REDUNDANT COUNTERPART	REMARKS
21	CC-P-3226	Thermal Barrier PCCW Recirc. Pump	806976	A	310576	C-F-1-E	X	X	X	-	H1B	CC-B4H-52-1,2	480VAC Circuit Breaker	B4H	CB-F-1A-A	B4H H1B			CBA-FH-19	CC-P-3228	
																H1B-H1B	B4Ha	B4Hc	CBA-FH-20		
												CC-CB-2077-2	Control Switch with Indication	G2G	CB-F-1A-A	B4H-GB1		B4Hd	EDE-MCC-515		
												CC-SS-2077	Selector Switch	G2G	CB-F-1A-A						
												CC-B4H-43	Motor Starter	B4H	CB-F-1A-A						
												CC-B4H-49	Overload Relay	B4H	CB-F-1A-A						
												EDE-HH-94	Electrical Penetration	H1B	C-F-2-E, ET-F-1A-A						
												CC-B4H-FU	Fuse	B4H	CB-F-1A-A						
												CC-CB-2077-1	Control Switch with Indication	F3D	CB-F-3A-A	F3D-FB2/2 F3D-GB1/A					
												CC-FSY-21756	Flow Relay	FB2	CB-F-3A-A						
22	CC-P-3228	Thermal Barrier PCCW Recirc. Pump	806976	B	310577	C-F-1-E	X	X	X	-	H1E	CC-B4Q-52-1,2	480VAC Circuit Breaker	B4Q	CB-F-1B-A	B4Q H15	B4Qa	B4Qc	CBA-FH-32	CC-P-3226	
																H15-H1E		B4Qd	CBA-FH-33		
												CC-CB-2078-2	Control Switch with Indication	G2J	CB-F-1B-A	B4Q-G2D			EDE-MCC-615		
												CC-SS-2078	Selector Switch	G2J	CB-F-1B-A						
												CC-B4Q-43	Motor Starter	B4Q	CB-F-1B-A						
												CC-B4Q-49	Overload Relay	B4Q	CB-F-1B-A						
												EDE-HH-91	Electrical Penetration	H15	C-F-1-E, ET-F-1C-A						
												CC-B4Q-FU	Fuse	B4Q	CB-F-1B-A						
												CC-CB-2078-1	Control Switch with Indication	F3D	CB-F-3A-A	F3D-FL2 F3D-GE0/B					
												CC-FSY-21758	Flow Relay	FL2	CB-F-3A-A						
23	CC-E-1536	Thermal Barrier Heat Exchanger	806976	A	310576	C-F-1-E	X	X	-	-	-	-	-	-	-	-	-	-	-	CC-E-1538	Note 1
24	CC-E-1538	Thermal Barrier Heat Exchanger	806976	B	310577	C-F-1-E	X	X	-	-	-	-	-	-	-	-	-	-	-	CC E-1536	Note 1
25	CC-V-1101	Thermal Barrier HX CC-E-1536 Isolation Valve	806976	A	310769	PP-F-3A-E	X	X	X	-	V25	CC-B4E-52	480VAC Circuit Breaker	B4E	CB-F-1A-A	B4E V25/1		310895	CBA-FH-19	CC-V-1092	
																B4E-F29	B4Ea	B4Ec	CBA-FH-20		
												CC-CB-2073	Control Switch with Indication	F29	CB-F-3A-A	B4E-F29/1		B4Ed			
												CC-B4E-43	Motor Starter	B4E	CB-F-1A-A						
												CC-B4E-49	Thermal Overload	B4E	CB-F-1A-A						
												CC-V2B-V1101	Position Switch	V25	PP-F-3A-E						
26	CC-V-1109	Thermal Barrier HX CC-E-1536 Isolation Valve	806976	A	310769	PP-F-3A-E	X	X	X	-	V2T	CC-B4L-52	480VAC Circuit Breaker	B4L	CB-F-1A-A	B4L V2T/1	B4La	B4Lc	CBA-FH-19	CC-V-1093	
																B4L-F29		B4Ld	CBA-FH-20		
												CC-CB-2074	Control Switch with Indication	F29	CB-F-3A-A	B4L-F29/1					
												CC-B4L-43	Motor Starter	B4L	CB-F-1A-A						
												CC-B4L-49	Thermal Overload	B4L	CB-F-1A-A						
												CC-V2T-V1109	Position Switch	V2T	PP-F-3A-E						
27	CC-V-1092	Thermal Barrier HX CC-E-1538 Isolation Valve	806976	B	310769	PP-F-4B-E	X	X	X	-	V2V	CC-B4P-52	480VAC Circuit Breaker	B4P	CB-F-1B-A	B4P V2V/1	B4Pa	B4Pc	CBA-FH-32	CC-V-1101	Note 2
																B4P-F20		B4Pd	CBA-FH-33		
												CC-CB-2075	Control Switch with Indication	F29	CB-F-3A-A	B4P-F20/1					
												CC-B4P-43	Motor Starter	B4P	CB-F-1B-A						
												CC-B4P-49	Thermal Overload	B4P	CB-F-1B-A						
												CC-V2V-V1092	Position Switch	V2V	PP-F-4B-E						

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	APPD ENG
0	7/15/81	FIRST ISSUE	MWA		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
PRIMARY COMPONENT COOLING WATER

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. S.1.1.R 10

FUNCTION PRIMARY COMPONENT COOLING WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID (LOCATION DRAWING NO & GRID)	TRAIN	PHYSICAL LOCATION (DRAWING NO & GRID)	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO (SYSTEM): SCHEMATIC	ELECTRICAL DRAWING NO (SYSTEM): CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
28	CC-V-1095	Thermal Barrier NE CC-E-135B Isolation Valve	804976	B	310769	FP-F-48-E	X	X	X	-	V20	CC-B48-52 CC-CS-2076 CC-B48-42 CC-B48-40 CC-V20-V1095	480VAC Circuit Breaker Control Switch with Indication Motor Starter Thermal Overload Position Switch	B4R F29 B4R B4R V20	CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A FP-F-48-E	B4R-V20/1 B4R-F20 B4R-F20/1	B4Rc	B4Rc B4Rd	CBA-FN-32 CBA-FN-33	CC-V-1109	Note 2
29	CC-V-428	RC-P-1A Thermal Barrier Isolation Valve	804976	A	310570	C-F-2-E	X	X	X	-	V74	CC-B16-52-1	480VAC Circuit Breaker	B16	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 2
30	CC-V-438	RC-P-1C Thermal Barrier Isolation Valve	804976	B	310571	C-F-2-E	X	X	X	-	V76	CC-B16-52-1	480VAC Circuit Breaker	B16	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 2
31	CC-V-439	RC-P-1D Thermal Barrier Isolation Valve	804976	A	310579	C-F-2-E	X	X	X	-	V76	CC-B17-52-1	480VAC Circuit Breaker	B17	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 2
32	CC-V-195	RC-P-1B Thermal Barrier Isolation Valve	804976	B	310570	C-F-2-E	X	X	X	-	V69	CC-B15-52-1	480VAC Circuit Breaker	B15	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 2
33	CC-TK-19B	Thermal Barrier Loop Head Tank	804976	A/B	310581 805193	C-F-3-E	X	X	-	-	-	-	-	-	-	-	-	-	-	None	Note 1 & 4
34	CC-TK-19A	Primary Component Cooling Water Head Tank	805018	A	310767	PAB-F-3A-E	X	X	-	-	-	-	-	-	-	-	-	-	-	CC-TK-19B	Note 1
35	CC-TK-19B	Primary Component Cooling Water Head Tank	805016	B	310767	PAB-F-3A-E	X	X	-	-	-	-	-	-	-	-	-	-	-	CC-TK-19A	Note 1
36	CC-LI-2172-1 CC-LI-2172-T CC-LI-2172-3	Head Tank CC-TK-19A Level	805018	A	310767	PAB-F-3A-E	X	X	X	-	BU3 BU1 BU2	MK CP-1532A EDE-TBx-YN4	BUF-PDC TERM. Box	PJ1 YN4	CB-F-3A-A PAB-F-3A-E	PJ1-TB4 BC5-TB4 BU1-TB4 BU2-TB4		310952 PJ1g PJ1j			
36	CC-LT-2172-1 CC-LI-2172-2	Head Tank CC-TK-19B Level	805016	A	310768	PAB-F-3B-E	X	X	X		BLA BU1	MK CP-1532A EDE-TBx-YN4	BUF-PDC TERM Box	PJ1 YN4	CB-F-3A-A PAB-F-3A-E	PJ1-TB4/1 BLA-TB4 BU1-TB4 BUA-TB4					

NOTES

REV NO	DATE	DESCRIPTION	MADE BY	CHKD BY	APPD BY
1	1/1/85	FIRST ISSUE	MAPA	Ltyl	CWL

IOLB850 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
PRIMARY COMPONENT COOLING WATER

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

United engineers

TABLE NO 3.3.1.R.11

FUNCTION: PRIMARY COMPONENT COOLING WATER

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE (DRAWING NO GRID)	TRAIN	PIPING LOCATION (DRAWING NO GRID)	FIRE AREA/ ZONE	MODE FOR (FIRST SHUT DOWN)	MODE FOR (LAST SHUT DOWN)	POWER ELEC	POWER AIR	ELEC BASIS	BATTERIES CONTROL AND INSTRUMENTATION EQUIPMENT: IDENTIFICATION NO	BATTERIES CONTROL AND INSTRUMENTATION EQUIPMENT: DESCRIPTION	BATTERIES CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC BASIS	BATTERIES CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO (GRID): SCHEMATIC	ELECTRICAL DRAWING NO (GRID): CABLE	BATTERIES SYSTEMS	REMARKS/ LIMITS/IMPACT	REMARKS
36	CC-LT-2272-1 (Continued)										BVA						310965				
												CC-B42/10-52	120VAC Circuit Breaker	B42	CB-F-1A-A	EP4-PJ1	B42/10a	B42/10c	EDE-MCC-521		
												CC-LTY-2172-1,2,3	Level Relay	PJ1	CB-F-3A-A	EP4-PJ1/1 B4E-EP4 B4E-N36/1		B42/10d			
												CC-LTY-2272-1,2,3	Level Relay	PJ1	CB-F-3A-A	N36-B4P GP8-N36					
												CC-BYY-2172-1LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2172-2LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2172-3LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2272-1LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2272-2LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2272-3LL	Aux. Relay	EP4	CB-F-1A-A						
												MM CP-152A	BKR PCC	PJ1	CB-F-3A-A						
												EDE-MM-502	Fuse Panel	B4E	BT-F-1A-A						
												EDE-MM-113	Electrical Penetration	B36	C-F-2-E BT-F-1A-A						
												CC-F18HE-2147	Flow Switch	B4P	C-F-2-E						
												CC-F18HE-2268	Flow Switch	GP8	C-F-2-E						
																	310895				
												MM CP-14	Safeguards Cabinet	PC1	CB-F-3A-A	EP4-GB9 PC1-GB9/1	B87/10a B87/10b	B87/10d B87/10a B87/10f			
												CC-BYY-2172-1LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2172-2LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2172-3LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2272-1LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2272-2LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-BYY-2272-3LL	Aux. Relay	EP4	CB-F-1A-A						
												CC-ATA-LIA1	Cat. Iso. Relay	GM9	CB-F-1A-A						
												CC-ATA-LIB1	Cat. Iso. Relay	GM9	CB-F-1A-A						
																	310952				
37	CC-LT-2192-1	Head Tank CC-Tk-19A Level	805018	B	310767	PAB-F-3A-E	X	X	X	-	BA1	MM CP-1528	BKR-PCC	PJ4	CB-F-3A-A	PJ4-YH5		PJ4J PJ4I			
												EDE-TBX-YH6	TERM. Box	YH5	PAB-F-3A-E	BE1-YH5 BW5-YH5 BW6-YH5					
											BW5										
	CC-LT-2192-2										BW6										
	CC-LT-2192-3																				
	CC-LT-2292-1	Head Tank CC-Tk-19B Level	805016	B	310768	PAB-F-3B-E	X	X	X		BB2	MM CP-1529	BKR-PCC	PJ4	CB-F-3A-A	PJ4-YH5/1 BB2-YH5 BW7-YH5 BW8-YH5					
												EDE-TBX-YH6	TERM. Box	YH5	PAB-F-3A-E						
	CC-LT-2292-2										BW7										
	CC-LT-2292-3										BW8										
																	310615				
												CC-E50/6-52	120VAC Circuit Breaker	E50	CB-F-1B-A	EE1-PJ4 EAJ-E00/1	E50/6a E50/6d	E50/6c E50/6a	EDE-MCC-621		
												CC-LTY-2192-1,2,3	Level Relay	PJ4	CB-F-3A-A	E50-E4J/1 EE1-PJ4/1					
												CC-LTY-2292-1,2,3	Level Relay	PJ4	CB-F-3A-A	EDD-M41 M41-B4Q					
												CC-BYY-2192-1LL	Aux. Relay	EE1	CB-F-1B-A	(GR) M41					
												CC-BYY-2192-2LL	Aux. Relay	EE1	CB-F-1B-A	GM5					
												CC-BYY-2192-3LL	Aux. Relay	EE1	CB-F-1B-A						
												CC-BYY-2292-1LL	Aux. Relay	EE1	CB-F-1B-A						
												CC-BYY-2292-2LL	Aux. Relay	EE1	CB-F-1B-A						
												CC-BYY-2292-3LL	Aux. Relay	EE1	CB-F-1B-A						

NOTES

REV NO	DATE	DESCRIPTION	DRAWN BY	CHKD BY	APPD BY
10	11/15/85	INITIAL ISSUE	BMA	KGJ	TFX

IDCOR - APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
PRIMARY COMPONENT COOLING WATER

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 3.1.1.B.12

FUNCTION: CONTROL BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 8763-M: SCHEMATIC	ELECTRICAL DRAWING NO 8763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310926				
15	CBA-CP-177	Control Room A/C Unit-A Control Panel	614128	A	310444	CB-F-38-A	X	X	X	-	GB1	CBA-ACA-52	4160VAC Circuit Breaker	ACA	CB-F-16-A	ACA-GB1 ACA-BB2	ACAa ACAa	ACAb ACAf	EBE-HS-52 INST. AIR	CBA-CP-178	
												BG-CP-79	Emergency Power Sequencer	BB2	CB-F-16-A	G52-GB1 G52-GB1/1					
												CBA-CP-459A	C.R. HVAC System Refrig. Cil. Pal.	G52	BG-F-36-E	GB1-BB6 GB1-BB6/1					
												CBA-AC-5A	Compressor	BB6	BG-F-36-E	GB1-BB6/2					
												CBA-FN-14A	Evap. Fan	BB1	CB-F-38-A	GB1-BB1					
												CBA-FN-36A	Condenser Fan	BGB	CB-F-38-A	GB1-BB1/1 GB1-BGB					
												CBA-DP-26A	Damper	BG1	CB-F-38-A	GB1-BGB/1					
												CBA-F38-CB-3	Main Control Board Sect. CB-3	F38	CB-F-36-A	F38-GB1 F38-GB1/1 GB1-BG1					
16	CBA-CP-178	Control Room A/C Unit-B Control Panel	614128	B	310444	CB-F-38-A	X	X	X	-	GB2	CBA-ABA-52	4160VAC Circuit Breaker	ABA	CB-F-18-A	ABA-GB2 ABA-BBA	ABAa ABAa	ABAb ABAf	EBE-HS-62 INST. AIR	CBA-CP-177	
												BG-CP-46	Emergency Power Sequencer	BBA	CB-F-18-A	G6C-GB2 G6C-GB2/1					
												CBA-CP-459B	CR. HVAC System Refrig. Cil. Pal.	G6C	BG-F-38-E	GB2-BB7 GB2-BB7/1					
												CBA-AC-5B	Compressor	BB7	BG-F-38-E	GB2-BB7/2					
												CBA-FN-14B	Evap. Fan	BB3	CB-F-38-A	GB2-BB2					
												CBA-FN-36B	Compressor Fan	BB1	CB-F-38-A	GB2-BB3/1 GB2-BG2					
												CBA-DP-26B	Damper	BG2	CB-F-38-A	F37-GB2					
												CBA-F37-CB-3	Main Control Board Sect. CB-3	F37	CB-F-36-A	F37-GB2/1 GB2-BB1 GBC-BB1/1					
17	CBA-DP-52	Control Building Recirc. Air Damper	614128	A	310444	CB-F-38-A	X	X	X	X	GB2	CBA-CS-5303	Control Switch	F36	CB-F-36-A	GMB-P64	E16/29a	E16/29c			Note 3
												CBA-PDSB-5305	Pressure Diff. Switch	P64	CB-F-38-A	GMB-GB2 F36-GMB	E16/29e	E16/29d E16/29h			
												CBA-PDSB-5306	Pressure Diff. Switch	P65	CB-F-38-A	GMB-P65	E16/29g				

NOTES

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	4/15/85	FIRST ISSUE	MFR		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
CONTROL BUILDING AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE MCB 3.1.3.10-5

FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO. 5763-F-	TRAIN	PHYSICAL LOCATION DRAWING NO. 5763-F-	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC. NODE
1	DAB-FN-25A	DG-1A Room Supply Air Fan	604096	A	310525	DG-F-3A-E	X	X	X	-	B37
2	DAB-DP-15A	DG-1A Room Supply Air Damper	604096	A	310525	DG-F-3A-E	X	X	X	X	U97
3	DAB-DP-16A	DG-1A Room Return Air Damper	604096	A	310526	DG-F-2A-A	X	X	X	X	U99

SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT

EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC. NODE	FIRE AREA/ ZONE
DAB-B01-52	4160VAC Circuit Breaker	B01	CB-F-1A-A
DAB-CS-5529	Control Switch	B01	CB-F-1A-A
DAB-ZL-5529-1	Fan Indicating Lights	B01	CB-F-1A-A
DAB-ZL-5529-2	Damper DP-15A Indicating Light	B01	CB-F-1A-A
DAB-FIAB-5529	Flow Switch	SA8	DG-F-3A-E
DAB-TSHL-5529-1	Temperature Switch	T2H	DG-F-2A-A
DAB-TSHL-5529-2	Temperature Switch	T2F5	DG-F-2A-A
DAB-ZS-DP-15A	Damper 15A Position Switch	U97	DG-F-3A-E
DAB-ZS-DP-16A	Damper 16A Position Switch	U99	DG-F-2A-A
DAB-EXM-52	Auxiliary Relay	EXM	CB-F-1A-A
DG-C29-G2B	DG-1A High Speed Relay	C29	DG-F-2A-A
DG-SR2-SR8	ESF Permit Auxiliary Relay	SR2	CB-F-1A-A
DG-SR2-P8J	ESF Permit Auxiliary Relay	SR2	CB-F-1A-A
DG-SR2-S8J	ESF Permit Auxiliary Relay	SR2	CB-F-1A-A
DAB-B01-62	Motor Starter	B01	CB-F-1A-A
DAB-B01-62X	Motor Starter Auxiliary Relay	B01	CB-F-1A-A
DAB-B01-49	Overload Relays	B01	CB-F-1A-A
DAB-B01-F8	Fuse	B01	CB-F-1A-A
DAB-DP-15A-2S	Damper Pilot Solenoid	U97	DG-F-3A-E
DAB-DP-16A-2S	Damper Pilot Solenoid	U99	DG-F-2A-A

EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC. NODE	FIRE AREA/ ZONE
DAB-B01-52	4160VAC Circuit Breaker	B01	CB-F-1A-A
DAB-EXM-52	Auxiliary Relay	EXM	CB-F-1A-A
DAB-DP-15A-2S	Pilot Solenoid	U97	DG-F-3A-E
DAB-B01-F8	Fuse	B01	CB-F-1A-A
DAB-TSHL-5529-2	Temperature Switch	T2F5	DG-F-2A-A

EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC. NODE	FIRE AREA/ ZONE
DAB-B01-52	4160VAC Circuit Breaker	B01	CB-F-1A-A
DAB-EXM-52	Auxiliary Relay	EXM	CB-F-1A-A
DAB-DP-16A-2S	Pilot Solenoid	U99	DG-F-2A-A
DAB-B01-F8	Fuse	B01	CB-F-1A-A
DAB-TSHL-5529-2	Temperature Switch	T2F5	DG-F-2A-A

CABLES
B01-M37/1 B01-G29 B01-SR2 B01-S40 B01-T2F5 B01-T2H B01-U97 B01-U99/1
B01-U97
B01-U99/1

ELECTRICAL DRAWING NO 5763-M- SCHEMATIC	ELECTRICAL DRAWING NO 5763-M- CABLE
310928	
B01a	B01c B01d
B01a	B01c B01d
B01a	B01c B01d

SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
EHE-MCC-521	DAB-FN-25B	
EHE-MCC-521	DAB-DP-15B	Note 1
EHE-MCC-521	DAB-DP-16B	Note 1

NOTES

1. Air is not required for support as damper fails open.

REV NO	DATE	DESCRIPTION	DWN BY	CKD BY	ENG ENG.
	4/25/84	FIRST ISSUE	BMF		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATOR BUILDING AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE MCR 3.1.3.11-1

FUNCTION DIESEL GENERATOR BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO 8763-F-	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F-	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 8763-M: SCHEMATIC	ELECTRICAL DRAWING NO 8763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310928				
4	DAB-DP-158	DG-1B Room Supply Air Fan	604896	B	310525	DG-F-2B-E	X	X	X	-	E30	DAB-B02-52	4160VAC Circuit Breaker	B02	CB-F-1B-A	B02E-E30/1 B02E-EB0	B02a	B02e B02d	EHE-HCC-621	DAB-FU-25A	
												DAB-CS-5530	Control Switch	B02	CB-F-1B-A	B02-G30					
												DAB-EL-5530-1	Fan Indicating Lights	B02	CB-F-1B-A	B02-EB4 B02-EA1					
												DAB-EL-5530-2	Damper DP-158 Indicating Light	B02	CB-F-1B-A	B02-TSP EB0-TP6					
												DAB-FIBB-5530	Flow Switch	EA1	DG-F-2B-A	B02-DP8					
												DAB-TSHL-5530-1	Temperature Switch	TSP	DG-F-2B-A	B02-DP0/b					
												DAB-TSHL-5530-2	Temperature Switch	TP6	DG-F-2B-A						
												DAB-ZS-DP-158	Damper 158 Position Switch	DP8	DG-F-3B-E						
												DAB-ZB-DP-168	Damper 168 Position Switch	DP0	DG-F-2B-A						
												DAB-EE3-82	Auxiliary Relay	EE3	CB-F-1B-A						
												DAB-B02-FU	Fuse	B02	CB-F-1B-A						
												DG-G30-HSS	DG-1B High Speed Relay	G30	DG-F-3B-A						
												DG-EBA-4286	EPS Permit Auxiliary Relay	EBA	CB-F-1B-A						
												DG-EBA-PB1	EPS Permit Auxiliary Relay	EBA	CB-F-1B-A						
												DG-EBA-GB1	EPS Permit Auxiliary Relay	EBA	CB-F-1B-A						
												DAB-B02-42	Motor Starter	B02	CB-F-1B-A						
												DAB-B02-42X	Motor Starter Auxiliary Relay	B02	CB-F-1B-A						
												DAB-B02-49	Overload Relays	B02	CB-F-1B-A						
												DAB-DP-158-2D	Damper Pilot Solenoid	DP8	DG-F-3B-E						
												DAB-DP-168-2D	Damper Pilot Solenoid	DP0	DG-F-2B-A						
5	DAB-DP-158	DG-1B Room Supply Air Damper	604896	B	310525	DG-F-3B-E	X	X	X	X	DP8	DAB-B02-52	4160VAC Circuit Breaker	B02	CB-F-1B-A	B02-DP8	B02a	B02e B02d	EHE-HCC-621	DAB-DP-15A	Note 1
												DAB-EE3-82	Auxiliary Relay	EE3	CB-F-1B-A						
												DAB-DP-158-2D	Pilot Solenoid	DP8	DG-F-3B-E						
												DAB-B02-FU	Fuse	B02	CB-F-1B-A						
												DAB-TSHL-5530-2	Temperature Switch	TP6	DG-F-2B-A						
6	DAB-DP-168	DG-1B Room Return Air Damper	604896	B	310526	DG-F-2B-A	X	X	X	X	DP0	DAB-B02-52	4160VAC Circuit Breaker	B02	CB-F-1B-A	B02-DP0/1	B02a	B02e B02d	EHE-HCC-621	DAB-DP-16A	Note 1
												DAB-EE3-82	Auxiliary Relay	EE3	CB-F-1B-A						
												DAB-DP-168-2D	Pilot Solenoid	DP0	DG-F-2B-A						
												DAB-B02-FU	Fuse	B02	CB-F-1B-A						
												DAB-TSHL-5530-2	Temperature Switch	TP6	DG-F-2B-A						

NOTES

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
00	9/24/82	FIRST ISSUE	[illegible]	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATOR BUILDING AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCR 3.1.3.11-2

FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PARTIAL LINE DRAWING NO 8953-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8953-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC MODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 8953-W: SCHEMATIC	ELECTRICAL DRAWING NO 8953-W: CABLE	SUPPORTED SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310928				
7	DAB-FN-26A	DG-1A Room Return	604096	A	310525	DG-F-2A-A	X	X	X	-	039	DAB-DG3-52	460VAC Circuit Breaker	DG3	CB-F-1A-A	DG3-G39/1 DG3-G40 DG3-GF9 DG3-T3P	903a	903e 903d	ESE-MCC-521	DAB-FN-26B	
												DAB-DG1-42X	Motor Starter Auxiliary Relay	DG1	CB-F-1A-A 50-2						
												DAB-FIAB-5529	Flow Indicating Switch	DA8	DG-F-2A-A						
												DAB-DG3-42	Motor Starter	DG3	CB-F-1A-A						
												DAB-DG3-42X	Motor Starter Auxiliary Relay	DG3	CB-F-1A-A						
												DAB-DG3-49	Overload Relays	DG3	CB-F-1A-A						
												DAB-IL-5529-3	Fan Indicating Lights	DG3	CB-F-1A-A						
												DAB-IL-5529-4	Damper DP-16A Lights	DG3	CB-F-1A-A						
												DAB-IS-DP-16A	Damper Position Switch	DP9	DG-F-2A-A						
												DAB-TSHL-5529-3	Temperature Switch	T3P	DG-F-2A-A						
												DAB-DG3-F9	Fuse	DG3	CB-F-1A-A						
8	DAB-FN-26B	DG-1B Room Return Air Fan	604096	B	310525	DG-F-2B-A	X	X	X	-	040	DAB-DG4-52	460VAC Circuit Breaker	DG4	CB-F-1B-A	DG4-G40/1 DG4-G41 DG4-GF9 DG4-T3Q	DG4a	DG4c DG4d	ESE-MCC-621	B 7-FN-26A	
												DAB-DG2-42X	Motor Starter Auxiliary Relay	DG2	CB-F-1B-A 52-2						
												DAB-FIBB-5530	Flow Indicating Switch	DA9	DG-F-2B-A						
												DAB-DG4-42	Motor Starter	DG4	CB-F-1B-A						
												DAB-DG4-42X	Motor Starter Auxiliary Relay	DG4	CB-F-1B-A						
												DAB-DG4-49	Overload Relays	DG4	CB-F-1B-A						
												DAB-IL-5530-3	Fan Indicating Lights	DG4	CB-F-1B-A						
												DAB-IL-5530-4	Damper DP-16B Indicating Light	DG4	CB-F-1B-A						
												DAF-IS-DP-16B	Damper Position Switch	DP8	DG-F-2B-A						
												DAB-TSHL-5530-3	Temperature Switch	T3Q	DG-F-2B-A						
												DAB-DG4-F9	Fuse	DG4	CB-F-1B-A						

NOTES

REV. #	DATE	DESCRIPTION	DWN. BY	CKD. BY	P.E. ENG.
1	4/24/86	FIRST ISSUE			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATOR BUILDING AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCB 3.1.3.11-3

FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PID/P&ID DRAWING NO SPEC-F	TRAIN	PHYSICAL LOCATION DRAWING NO SPEC-F	FIRE AREA/ ZONE	REQD FOR HOT SHUT DOWN	REQD FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA-ZONE	CABLES	ELECTRICAL DRAWING NO SPEC-M: SCHEMATIC	ELECTRICAL DRAWING NO SPEC-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	EAS-FN-5A	Containment Enclosure Cooler AC-2A Fan	604108 604116	A	310766	CE-F-1-A	X	X	X	-	nB0	EAB-AF5-52	4809 AC Circuit Breaker	AF5	CB-F-1A-A	AF5-G2R	310932		EAB-FN-31A	EAB-FN-5B	
												EAB-AF5-G, R	Indicating Lights	AF5	CB-F-1A-A	AF5-G2E/1	AF5a	AF5a	EHE-GS-52		
												EAB-CS-5767-2	Control Switch with Indication	G2R	CB-F-1A-A	AF5-nB0	AF5b		Primary Component Cooling Water		
												EAB-SS-5767	Selector Switch	G2R	CB-F-1A-A	AF5-YC3	AF5f				
												EAB-ZL-5767-2	Outlet Damper Position Lights	G2R	CB-F-1A-A	LA1-YC3					
												EAB-ZS-DP-36	Damper Position Switch	LA1	CE-F-1 (B) (N)						
												EAB-AF5-AM	Ammeter	AF5	CB-F-1A-A						
												EAB-AF5-CT	Current Transformer (200/5)	AF5	CB-F-1A-A						
												EHE-AC3-94-3	Bus Undervoltage Relay	AC3	CB-F-1A-A						
												EAB-AF5-52B-1	Truck Operated Contact	AF5	CB-F-1A-A						
												EOE-TB1-YC3 (EAB-YC3-TB)	Terminal Box	YC3	CE-F-1 (A) (N)						
												EAB-AF5-F	Fuses	AF5	CB-F-1A-A						
												EAB-CS-5767-1	Control Switch with Indication	F36	CB-F-3A-A	F36-G2R F36-G2R/1					
												DG-EB2-BB1	EPS Permit Auxiliary Relay	BB2	CB-F-1A-A	G2L-YC3 AF5-BB2					
												DG-BB-2-PB1	EPS Permit Auxiliary Relay	BB2	CB-F-1A-A						
												DG-BB2-BBD	EPS Permit Auxiliary Relay	BB2	CB-F-1A-A						
												EAB-PB1B-5767	Discharge Pressure Switch	G2L	CE-F-1 (B) (N)						
												EAB-ZL-5767-1	Outlet Damper Position Lights	F36	CB-F-3A-A						
2	EAB-FN-5B	Containment Enclosure Cooler AC-2B Fan	604108 604116	B	310765	CE-F-1 (A) (N)	X	X	X	-	nB1	EAB-AF9-52	4809 AC Circuit Breaker	AF9	CB-F-1B-A	AF9-G2E	AF9a	AF9a	EAB-FN-31B	EAB-FN-5A	
												EAB-AF9-G, R	Indicating Lights	AF9	CB-F-1B-A	AF9-G2E/1	AF9b		EHE-GS-62		
												EAB-CS-5768-2	Control Switch with Indication	G2E	CB-F-1B-A	AF9-nB1	AF9f		Primary Component Cooling Water		
												EAB-SS-5768	Selector Switch	G2E	CB-F-1B-A	AF9-YB3					
												EAB-ZL-5768-2	Outlet Damper Position Lights	G2E	CB-F-1B-A	LA2-YB3					
												EAB-ZS-DP-38	Damper Position Switch	LA2	CE-F-1 (B) (N)						
												EAB-AF9-AM	Ammeter	AF9	CB-F-1B-A						
												EAB-AF9-CT	Current Transformer (200/5)	AF9	CB-F-1B-A						
												EHE-AE3-94-3	Bus Undervoltage Relay	AE3	CB-F-1B-A						
												EAB-AF9-52B-1	Truck Operated Contact	AF9	CB-F-1B-A						
												EOE-TB1-YB3 (EAB-YB3-TB)	Terminal Box	YB3	CE-F-1 (A) (N)						
												EAB-AF9-F9	Fuses	AF9	CB-F-1B-A						
												EAB-CS-5768-1	Control Switch with Indication	F37	CB-F-3A-A	F37-G2E F37-G2E/1					
												DG-BB4-BB1	EPS Permit Auxiliary Relay	BB4	CB-F-1B-A	G2L-YB3 AF9-BB4					
												DG-BB4-PB1	EPS Permit Auxiliary Relay	BB4	CB-F-1B-A	AF9-G2E/2					
												DG-BB4-BBD	EPS Permit Auxiliary Relay	BB4	CB-F-1B-A						
												EAB-PB1B-5768	Discharge Pressure Switch	G2L	CE-F-1 (B) (N)						
												EAB-ZL-5768-1	Outlet Dampers Position Lights	F37	CB-F-3A-A						
												EAB-AE3-B1	Auxiliary Relay	AE3	CB-F-1B-A						

NOTES

1. Equipment is mechanical with no electrical requirements.
2. Air and electrical power are not required for support as damper fails open.

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	MGR ENG
1	4/85	FIRST ISSUE	Cav	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
CONTAINMENT ENCL. AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

TABLE NCR 3.1.3.12-1

FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO 9763-F-	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F-	FIRE AREA/ ZONE	NEED FOR HOT SHUT DOWN	NEED FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO 9763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310932				
3	EAB-FN-31A	Containment Enclosure Return Fan "A"	606108 606116	A	310765	CE-F-1-G	-	X	X	-	985	EAB-BB2-52	4609 AC Circuit Breaker	BB2	CB-F-1A-A	BB2-0B5 BB2-PQ2	BB2c	BB2c	ESE-SCC-513	EAB-FN-319	
												EAB-BB2-FU	Fuse	BB2	CB-F-1A-A						
												EAB-CS-[illegible]59-2	Control Switch	BB2	CB-F-1A-A						
												EAB-S28-[illegible], R	S..dicating Lights	BB2	CB-F-1A-A						
												EAB-BP-5769	Selector Switch	BB2	CB-F-1A-A						
												EAB-EL-5769-1	Inlet Damper Position Lights	BB2	CB-F-1A-A						
												EAB-BB2-41	Motor Starter	BB2	CB-F-1A-A						
												EAB-B22-42X	Motor Starter Auxiliary Relay	BB2	CB-F-1A-A						
												EAB-BB2-49	Overload Relays	BB2	CB-F-1A-A						
												EAB-ZS-DP-25A	Damper Position Switch	PQ2	CE-F-1-G						
												EAB-CS-5769-1	Control Switch with Indication	F36	CB-F-3A-A	BB2-F36 BB2-F36/1					
												EAB-EL-5769-1	Inlet Damper Position Lights	F36	CB-F-3A-A	AF5-BB2 BB2-BB2					
												EG-BB2-EMD	EPS Permit Auxiliary Relay	BB2	CB-F-1A-A						
												EAB-AF5-52A	4809 AC CKT BKR Auxiliary Switch	AF5	CB-F-1A-A						
4	EAB-FN-31B	Containment Enclosure Return Fan "B"	606108 606116	B	310765	CE-F-1-G	-	X	X	-	877	EAB-BC1-52	4609 AC Circuit Breaker	BC1	CB-F-1B-A	BC1-0L7 BC1-PQ3	BC1c	BC1c	ESE-SCC-612	EAB-FN-31A	
												EAB-BC1-FU	Fuse	BC1	CB-F-1B-A						
												EAB-CS-5770-2	Control Switch	BC1	CB-F-1B-A						
												EAB-BC1-G, R	Indicating Lights	BC1	CB-F-1B-A						
												EAB-BP-5770	Selector Switch	BC1	CB-F-1B-A						
												EAB-EL-5770-2	Inlet Damper Position Lights	BC1	CB-F-1B-A						
												EAB-BC1-41	Motor Starter	BC1	CB-F-1B-A						
												EAB-BC1-42X	Motor Starter Auxiliary Relay	BC1	CB-F-1B-A						
												EAB-BC1-49	Overload Relays	BC1	CB-F-1B-A						
												EAB-ZS-DP-25B	Damper Position Switch	PQ3	CE-F-1-G						
												EAB-CS-5770-1	Control Switch with Indication	F37	CB-F-3A-A	BC1-F37 BC1-F37/1					
												EAB-EL-5770-1	Inlet Damper Position Lights	F37	CB-F-3A-A	AF9-BC1 BC1-BBA					
												EG-BBA-EMD	EPS Permit Auxiliary Relay	BBA	CB-F-1B-A						
												EAB-AF9-52A	4809 AC CKT BKR Auxiliary Switch	AF9	CB-F-1B-A						
5	EAB-DP-37A	Containment Recl. Return Air Damper	606108	A	310766	CE-F-1-G	X	X	X	X	967	EAB-DP-36A	Exhaust Damper Position Switch	V80	EAB-F-2C-X	GB9-967 F36-GB9 GB9-V80 GB9-V88	EB7/17c	EB7/17c	-	EAB-DP-37B	Note 7
												EAB-DP-35A	Supply Damper Position Switch	V88	EAB-F-2A-X						
												EAB-GB9-B1	Auxiliary Relay	GB9	CB-F-1A-A						
												EAB-DP-37A-SO	Pilot Solenoid	967	CE-F-1-G						
												EAB-EL-5771	Return Air Damper Position Lights	F36	CB-F-3A-A						
												EAB-ZS-DP-37A	Return Air Damper Position Switches	967	CE-F-1-G						

NOTES

REV NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	RES ENG
00	87/05	FIRST ISSUE			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
CONTAINMENT ENCL. AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

TABLE NCR 3.1.3.12-2

FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PEID/1-LINE DRAWING NO 5763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 5763-F-	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 5763-M: SCHEMATIC	ELECTRICAL DRAWING NO 5763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310932				
6	EAB-BF-37B	Containment Encl. Return Air Damper	604108	B	310766	CE-F-1-(6) NE	X	X	X	X	V48	EAB-BF-36B EAB-BF-35B EAB-GHO-R1 EAB-BF-37B-2B EAB-ZL-5773 EAB-ZS-BF-37B	Exhaust Damper Position Switch Supply Damper Position Switch Auxiliary Relay Pilot Solenoid Return Air Damper Position Lights Return Air Damper Position Switches	V91 V89 GHO V48 F37 V48	CE-F-1-(7) NE EAB-F-2C-2 CE-F-1-(8) NE EAB-F-2A-2 CB-F-1B-A CE-F-1-(5) NE CB-F-3A-A CE-F-1-(4) NE	GHO-V48 F37-GHO GHO-V91 GHO-V89	SH8/17e	SH8/17e		EAB-BF-37A	Note 2
7	EAB-BF-3A	Containment Encl. Cooler AC-3A Damper	604108	A	310766	CE-F-1-(4) NE	X	X	-	-	LA1	-	-	-	-	-	-	-	-	EAB-BF-3B	Note 3
8	EAB-BF-3B	Containment Encl. Cooler AC-3B Damper	604108	B	310766	CE-F-1-(4) NE	X	X	-	-	LA2	-	-	-	-	-	-	-	-	EAB-BF-3A	Note 3
9	EAB-FN-174A	MS & PAPC Analyzer Room Exhaust Fan	604178	A	310586	MS-F-4A-E	X	X	X	-	MA7	EAB-88C-52 EAB-88C-FU EAB-CS-5136 EAB-88C-42 EAB-88C-49 EAB-TSB-5136	4160V AC Circuit Breaker Fuse Control Switch with Indication Motor Starter Overload Relays Temp. Switch	88C 88C 88C 88C 88C 85G	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A MS-F-4A-E	88C-MA7 88C-85G	88Ce	88Ce	CBA-FN-19 CBA-FN-20 ESE-MCC-515	EAB-FN-174B	
																	310932				
10	EAB-FN-174B	MS & PAPC Analyzer Room Exhaust Fan	604178	B	310586	MS-F-4A-E	X	X	X	-	MA8	EAB-88E-52 EAB-88E-42 EAB-88E-49 EAB-CS-5763 EAB-TSB-5763 EAB-88E-FU	4160V VAC Circuit Breaker Starter Overload Relays Control Switch with Indication Temp. Switch Fuse	88E 88E 88E 88E 85B 88E	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A MS-F-4A-E CB-F-1B-A	88E-MA8 88E-85B	88Ae	88Ae	ESE-MCC-615 CBA-FN-[illegible] CBA-FN-33	EAB-FN-174A	

NOTES

REV NO	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
	6/9/81	FIRST ISSUE			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
CONTAINMENT ENCL. AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

TABLE NCE 3.1.3.12-3

FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PSID/P&ID DRAWING NO	TRAIN	PHYSICAL LOCATION DRAWING NO	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	ELEC MODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 9763-W: SCHEMATIC	ELECTRICAL DRAWING NO 9763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310930				
11	PAB-DP-35A	CE Outbd. Isc.	604108	A	310766	PAB-F-2A-2	X	X	X	X	VH8	PAB-BA2/B-52	120 VAC Circuit Breaker	BA2	CB-F-12-A	EPA-P36 EPA-P36/1	BA2/Ba	BA2/Bac			Note 2
	PAB-DP-36A	Dampers	604108	A	310765	PAB-F-2A-2 2C	X	X	X	X	VH8	PAB-P37-86318	Ann Relay NH-CP-13	P37	CB-F-36-A	EPA-P06 P36-P37					
												PAB-CS-5370	Control Switch	P36	CB-F-36-A	P36-VH8 P36-VH8/1					
												PAB-EL-5370-1	Indicating Lights	P36	CB-F-36-A	P36-VH8 P36-VHC.					
												PAB-EL-5370-2	Indicating Lights	P36	CB-F-36-A	P85-P06					
												PAB-EPA-T9	Time Relay Relay EIR-NCC-8521	EPA	CB-F-16-A						
												PAB-PDIS-5377	Pressure Diff. Switch	P85	PAB-F-3B-I						
												PAB-PDIS-5378	Pressure Diff. Switch	P86	PAB-F-36-I						
					CB-F-1-Z																
12	PAB-DP-35B	CE Inbd. Isc.	604108	B	310766	PAB-F-2A-2	X	X	X	X	VH9	PAB-B50/B-52	120 VAC Circuit Breaker	B50	CB-F-18-A	B23-P37/3 P37-P98	B50/Ba	B50/Bc			Note 2
	PAB-DP-36B	Dampers	604108	B	310765	PAB-F-2A-2	X	X	X	X	VF1	PAB-CS-5371	Control Switch	P37	CB-F-36-A	P37-VF1 P37-VH9					
					CB-F-1-Z							PAB-EL-5371-1	Indicating Lights	P37	CB-F-36-A	P37-VH9/1					
												PAB-EL-5371-2	Indicating Lights	P37	CB-F-36-A						
												PAB-P98-86318	Ann. Relay NH-CP-13	P98	CB-F-36-A						
												PAB-EE3-81	Ann. Relay EIR-NCC-8621	EE3	CB-F-18-A						
												PAB-EE3-82	Ann. Relay EIR-NCC-8621	EE3	CB-F-18-A						

NOTES

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
1	8/1/85	FIRST ISSUE			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
CONTAINMENT ENCL. AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCR 3.1.2.12-4

FUNCTION PRIMARY AUXILIARY BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PERIPHERAL DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING CO 8763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE
1	PAB-FN-42A	PAB Auxiliary Supply Fan "A"	604108	A	318765	PAB-F-2C-E	X	X	X	-	M61
2	PAB-DP-43A	PAB Auxiliary Fan Supply Damper	604108	A	318765	PAB-F-1G-E	X	X	X	X	D05
3	PAB-DP-357	PAB Auxiliary Fan Exhaust Damper	604108	A	318766	PAB-F-2C-E	X	X	X	X	D07
4	PAB-FN-42B	PAB Auxiliary Supply Fan "B"	604108	B	318765	PAB-F-2C-E	X	X	X	-	M62

EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ ZONE
SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT			
PAB-BP6-52	4609VAC Circuit Breaker	BP6	CB-F-1A-A
PAB-CS-5391-2	Control Switch	BP6	CB-F-1A-A
PAB-IL-5391-4	Fan Indicating Lights	BP6	CB-F-1A-A
PAB-SS-5391	Selector Switch	BP6	CB-F-1A-A
PAB-EDI-R1	Damper Auxiliary Relay	EDI	CB-F-1A-A
PAB-ZS-DP-43A	Damper Position Switch	D05	PAB-F-1G-E
PAB-ZS-DP-357	Damper Position Switch	D07	PAB-F-2C-E
PAB-BP6-43	Motor Starter	BP6	CB-F-1A-A
PAB-BP6-49	Overload Relays	BP6	CB-F-1A-A
PAB-DP-43A-2D	Pilot Solenoid	D05	PAB-F-1G-E
PAB-DP-357-2D	Pilot Solenoid	D07	PAB-F-2C-E
PAB-IL-5391-5	Damper DP-43A Position Lights	BP6	CB-F-1A-A
PAB-IL-5391-6	Damper DP-357 Position Lights	BP6	CB-F-1A-A
PAB-BP6-FB	Fuse	BP6	CB-F-1A-A
PAB-CS-5391-1	Control Switch	F36	CB-F-3A-A
PAB-IL-5391-1	Fan Indicating Lights	F36	CB-F-3A-A
PAB-TSH-5391	Temp. Switch High	TY3	PAB-F-2C-E
PAB-BP6-52	4609VAC Circuit Breaker	BP6	CB-F-1A-A
PAB-BP6-FB	Fuse	BP6	CB-F-1A-A
PAB-EDI-R1	Damper Auxiliary Relay	EDI	CB-F-1A-A
PAB-DP-43A-2D	Pilot Solenoid	D05	PAB-F-1G-E
PAB-BP6-52	4609VAC Circuit Breaker	BP6	CB-F-1A-A
PAB-BP6-FB	Fuse	BP6	CB-F-1A-A
PAB-EDI-R1	Damper Auxiliary Relay	EDI	CB-F-1A-A
PAB-DP-357-2D	Pilot Solenoid	D07	PAB-F-2C-E
PAB-BP7-52	4609VAC Circuit Breaker	BP7	CB-F-1B-A
PAB-CS-5393-2	Control Switch	BP7	CB-F-1B-A
PAB-IL-5393-4	Fan Indicating Lights	BP7	CB-F-1B-A
PAB-SS-5393	Selector Switch	BP7	CB-F-1B-A
PAB-EDD-R1	Damper Auxiliary Relay	EDD	CB-F-1B-A
PAB-ZS-DP-43B	Damper Position Switch	D06	PAB-F-1G-E
PAB-ZS-DP-358	Damper Position Switch	D08	PAB-F-2C-E
PAB-IL-5393-5	Damper DP-43B Position Lights	BP7	CB-F-1B-A
PAB-DP-43B-2D	Pilot Solenoid	D06	PAB-F-1G-E
PAB-E3D-R2	Auxiliary Relay	E3D	CB-F-1B-A

CABLES	ELECTRICAL DRAWING NO 8763-M SCHEMATIC	ELECTRICAL DRAWING NO 8763-M CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
BP6-M61 BP6-EDI BP6-BC5 BP6-BC7 BC5-BC7 BP6-BC5/1	310930 BP6a	BP6c BP6d	CBA-FB-19 CBA-FB-20 EDE-HCC-512	PAB-FN-42B	
BP6-M63 EDI BP6-BC5 BP6-BC7 BC5-BC7 BP6-BC5/1	BP6a	BP6c BP6d	CBA-FB-19 CBA-FB-20 EDE-HCC-512	PAB-DP-43B	Note 1
BP6-M63 EDI BP6-BC5 BP6-BC7 BC5-BC7	BP6a	BP6c	CBA-FB-19 CBA-FB-20 EDE-HCC-512	PAB-DP-358	Note 1
BP7-M62 BP7-BC6 BP7-BC8 BC6-BC8 BP7-E3B/1	BP7a	BP7c	CBA-FB-32 CBA-FB-33 EDE-HCC-611	PAB-FN-42A	

NOTES

1. Air and electrical power are not required for support as damper fails open.

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	4/15/85	FIRST ISSUE	MZ		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
PAB AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE HCE 3.1.3.14-1

FUNCTION: PRIMARY AUXILIARY BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING-LINE DRAWING NO SPEC-F-	TRAIN	PHYSICAL LOCATION DRAWING NO SPEC-F-	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR C/D SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC MODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO SPEC-F- SCHEMATIC	ELECTRICAL DRAWING NO SPEC-F- CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
	PAB-FN-43B (Continued)											PAB-DP-358-20	Pilot Solenoid	9GB	PAB-F-2C-I						
												PAB-DF7-43	Motor Starter	DF7	CB-F-1B-A						
												PAB-DF7-49	Overload Relays	DF7	CB-F-1B-A						
												PAB-DF7-FU	Fuses	DF7	CB-F-1B-A						
												PAB-IL-5393-6	Damper DP-358 Position Lights	DF7	CB-F-1B-A						
												PAB-CS-5393-1	Control Switch	F37	CB-F-3A-A	DF7-F37					
												PAB-IL-5393-1	Fan Indicating Lights	F37	CB-F-3A-A	DF7-F37/1 DF7-T94					
												PAB-TSE-5393	Temp. Switch High	T94	PAB-F-2C-I						
5	PAB-DP-43B	PAB Auxiliary Fan Supply Damper	604108	B	368765	PAB-F-1K	X	X	X	X	9GB	PAB-DF7-52	460VAC Circuit Breaker	DF7	CB-F-1B-A	DF7-9GB	310930		CBA-FN-32 CBA-FN-33 EDE-NCC-612	PAB-DP-43A	Note: 1
												PAB-DF7-FU	Fuses	DF7	CB-F-1B-A	DF7-9GB 9GB-DGB	DF7a	DF7c			
												PAB-E3D-B1	Damper Auxiliary Relay	E3D	CB-F-1B-A	DF7-E3D/1					
												PAB-DP-43B-20	Pilot Solenoid	9GB	PAB-F-2C-I						
												PAB-E3D-B2	Auxiliary Relay	E3D	CB-F-1B-A						
6	PAB-DP-35B	PAB Auxiliary Fan Exhaust Damper	604108	B	368966	PAB-F-2C-I	X	X	X	X	9GB	PAB-DF7-52	460VAC Circuit Breaker	DF7	CB-F-1B-A	DF7-9GB DF7-9GB	DF7a	DF7c	CBA-FN-32 CBA-FN-33 EDE-NCC-612	PAB-DP-35T	Note: 5
												PAB-DF7-FU	Fuses	DF7	CB-F-1B-A	9GB-9GB					
												PAB-E9D-B1	Damper Auxiliary Relay	E9D	CB-F-1B-A	DF7-E3D/1					
												PAB-DP-35B-20	Pilot Solenoid	9GB	PAB-F-2C-I						
												PAB-E3D-B2	Auxiliary Relay	E3D	CB-F-1B-A						

NOTES

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	11/87	FIRST ISSUE	BWR	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
PAB AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NCR 3.1.3.14-2

FUNCTION: SERVICE WATER AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/LINE DRAWING NO 9763-F-	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F-	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 9763-W: SCHEMATIC	ELECTRICAL DRAWING NO 9763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	SWA-PM-40A	Service Water Pump House Train "A" Switchgear Room Supply Fan	604452	A	301139	SW-F-1B-A	X	X	X	-	8.30	SWA-CB5-52	4160VAC Circuit Breaker	CB5	SW-F-1B-A	CB5-8J0	301115		SBE-MCC-514	SWA-PM-40B	
																CB5-G2H/1					
												SWA-CB5-42	Motor Starter	CB5	SW-F-1B-A	CB5-G2H	CB5a	CB5c			
												SWA-CB5-49	Overload Relays	CB5	SW-F-1B-A						
												SWA-CS-5614-2	Control Switch with Indication	G2H	CB-F-1A-A						
												SWA-SS-5614	Selector Switch	G2H	CB-F-1A-A						
												SWA-CB5-PH	Fuse	CB5	SW-F-1B-A	F36-G2H/2					
												SWA-CS-5614-1	Control Switch with Indication	F36	CB-F-3A-A	CB5-TV7					
																CB5-TV9					
												SWA-TSH-5614-1	Temperature Switch	TV7	SW-F-1B-A						
												SWA-TSH-5614-2	Temperature Switch	TV9	SW-F-1C-A						
2	SWA-PM-40B	Service Water Pump House Train "B" Switchgear Room Supply Fan	604453	B	301139	SW-F-1B-A	X	X	X	-	ME1	SWA-CB0-52	4160VAC Circuit Breaker	CB0	SW-F-1C-A	CB0-8E1	CB0a	CB0c	SBE-MCC-614	SWA-PM-40A SWA-PM-64 SWA-PM-71	
																CB0-G2E/1					
												SWA-CB0-42	Motor Starter	CB0	SW-F-1C-A	CB0-G2E					
												SWA-CB0-49	Overload Relays	CB0	SW-F-1C-A						
												SWA-CS-5615-2	Control Switch with Indication	G2E	CB-F-1B-A						
												SWA-SS-5615	Selector Switch	G2E	CB-F-1B-A						
												SWA-CB0-PH	Fuse	CB0	SW-F-1C-A	F37-G2E/2					
												SWA-CS-5615-1	Control Switch with Indication	F37	CB-F-3A-A	F37-G2E/C					
																CB0-TV8					
												SWA-TSH-5615-1	Temperature Switch	TV8	SW-F-1B-A	CB0-G2E/3					
												SWA-TSH-5615-2	Temperature Switch	TV0	SW-F-1B-A						
																	9763-W-501115				
3	SWA-PM-64	Service Water Clg. Twr. Bsgt. Rm. Supply Fan	604139	A	301717	CT-F-1B-A	X	X	X	-	HV1	SWA-CQ0-52	4160VAC Circuit Breaker	CQ0	CT-F-1B-A	CQ0-8W1	CQ0a	CQ0c CQ0d	SBE-MCC-513	SWA-PM-40B	
																CQ0-8W1/3					
												SWA-CQ0-43	Motor Starter	CQ0	CT-F-1B-A	CQ0-8W1/3					
												SWA-CQ0-49	Overload Relay	CQ0	CT-F-1B-A	CQ0-F36					
												SWA-CS-5669	Control Switch	F36	CB-F-[illegible]	EH6-T59					
												SWA-ZL-5669	Indicating Light	F36	CB-F-[illegible]	EH6-F36/1					
												SWA-CQ0-PH	Fuse	CQ0	CT-F-1B-A						
												SWA-TSH-5669	Temperature Switch	T59	CT-F-1B-A						
												SWA-FY-5669-1	Solenoid Valve	HV1	CT-F-[illegible]						
												SWA-FY-5669-2	Solenoid Valve	HV1	CT-F-[illegible]						
												SWA-ZP-66	Position Switch	HV1	CT-F-[illegible]						
												SWA-EH6-R1	Aux. Relay	EH6	CT-F-1B-A						

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
0	4/29/87	FIRST ISSUE	MFK	[illegible]	

10C7850 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SERVICE WATER AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

TABLE NCR 3.1.3.13-1

FUNCTION: SERVICE WATER AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO SY83-F	TRAIN	PHYSICAL LOCATION DRAWING NO SY83-F-	FIRE AREA/ ZONE	NEED FOR (NOT just DOWN)	NEED FOR (CAN'T just DOWN)	POWER ELEC	POWER AIR	ELEC. NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO SY83-M: SCHEMATIC	ELECTRICAL DRAWING NO SY83-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
4	SWA-SF-66	Service Water Clg. Twr. Bsmt. Sm. Supply Damper	604139	A	301717	CT-F-2B-A	X	X	X	-	SW1	SWA-CQB-52	4609AC Circuit Breaker	CQB	CT-F-1B-A	CQB-SW1	CQ0a	CQ0c	EBE-MCC-513	SWA-FW-409	
																CQB-SW1/1		CQ04	INST. AIR		
												SWA-CQB-41	Motor Starter	CQB	CT-F-1B-A	CQB-SW1/3					
												SWA-CQB-49	Overload Relay	CQB	CT-F-1B-A	CQB-F36					
												SWA-CS-5669	Control Switch	F36	CB-F-3A-A	EB6-T5Y					
												SWA-EL-5669	Indicating Light	F36	CB-F-3A-A	EB6-F36/1					
												SWA-CQB-FU	Fuse	CQB	CT-F-1B-A						
												SWA-TSH-5669	Temperature Switch	T5Y	CT-F-1B-A						
												SWA-FY-5669-1	Solenoid Valve	SW1	CT-F-2B-A						
												SWA-FY-5669-2	Solenoid Valve	SW1	CT-F-2B-A						
												SWA-DP-66	Position Switch	SW1	CT-F-2B-A						
												SWA-EB6-RJ	Aux. Relay	EB6	CT-F-1B-A						
3	SWA-FB-71	Service Water Tower Roof Exhaust Fan	604139	A	301717	CT-F-2B-A	X	X	X	-	SW2	SWA-CRJ-52	4609AC Circuit Breaker	CRJ	CT-F-1B-A	CRJ-SW2	CRJa	CRJc	EBE-MCC-513	SWA-FW-408	
																CRJ-F36					
												SWA-CRJ-42	Motor Starter	CRJ	CT-F-1B-A	CRJ-T5Y					
												SWA-CRJ-49	Overload Relay	CRJ	CT-F-1B-A						
												SWA-CS-5667	Control Switch with Indication	F36	CB-F-3A-A						
												SWA-TSH-5667	Temperature Switch	T5Y	CT-F-2B-A						
												SWA-CRJ-FU	Fuse	CRJ	CT-F-1B-A						

NOTES

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	83 01	FIRST ISSUE	MHK		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SERVICE WATER AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NCR 3.1.3.15-2

FUNCTION: INSTRUMENT/SERVICE AIR

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO (SYS)-F	TRAIN	PHYSICAL LOCATION DRAWING NO (SYS)-F	FIRE AREA-ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	S.SC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC MODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO (SYS)-M: SCHEMATIC	ELECTRICAL DRAWING NO (SYS)-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT EQUIP/SPART	REMARKS
11	SA-AC-188	Instrument Air Dryer (Skid 188)	302106	B	310328	TB-F-1A-E	X	X	X	-	MF2	SA-C74-52	4600VAC Circuit Breaker	C74	CB-F-1B-A	C74-MF2 MF2-SBA	310864		CBA-FW-32 CBA-FW-33 EHE-HCC-631 Secondary Component Cooling Water	SA-CA-104	
												SA-MF2-SAF	Safety Switch	MF2	TB-F-1A-E		C74a C74c	C74a			
12	SA-TV-8560	Air Dryer SA-E-109B Condenser Receiver SCCW Inlet Temp. Control Valve	302095	B	310328	TB-F-1A-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Note 2
13	SA-C-4A	Containment Air Compressor 4A (Skid 16-A) With Control Panel	500323	A	310574	C-F-2-E	X	X	X	-	M38 (SA4)	SA-B03-52-1,2	4600VAC Circuit Breaker	B03	CB-F-1A-A	B03-F71 B03-F71/1 B03-SB2 B03-B19 B03-B36/1 B03-B36/2 SA-B36 SA-B36/1 B19-M38	310863	B03a B03c B03d	EHE-HCC-531 Primary Component Cooling Water CAB-FW-1C CAB-FW-18 CAB-FW-19 CAB-FW-19 CAB-FW-20	SA-C-4B	
												SA-B03-FU	Fuse	B03	CB-F-1A-A						
												SA-CS-8531	Control Switch with Indication	F71	CB-F-1A-A						
												SA-SB2-E21(*HR9)	EPS Permit Aux. Relay	SB2	CB-F-1A-A						
												SA-B03-62	Motor Starter	B03	CB-F-1A-A						
												SA-B03-49	Overload Relays	B03	CB-F-1A-A						
												SA-CS-4A-T	Control Switch Load-Unload	GAA	C-F-2-E						
												SA-CS-4A-PB	Reset Push Button	GAA	C-F-2-E						
												SA-PS-4A-1	Press. Switch Lube Oil	GAA	C-F-2-E						
												SA-PS-4A-2	Press. Switch Air Header	GAA	C-F-2-E						
												SA-TS-4A-1	Temp. SW. Compr. Outlet Air	GAA	C-F-2-E						
												SA-S-4A	Compressor Shut-down Relay	GAA	C-F-2-E						
												SA-SV-4A	Loading Solenoid	GAA	C-F-2-E						
												SA-TR1-4A	Compr. Loading Time Delay Relay	GAA	C-F-2-E						
												SA-TR2-4A	Compr. Auto Stop Time Delay Relay	GAA	C-F-2-E						
												SA-TR3-4A	Compr. Auto Restart Time Delay Rel.	GAA	C-F-2-E						
												EHE-HBH-95	Electrical Penetration	B19	C-F-2-E, SY-F-1A-A						
												EHE-HBH-112	Electrical Penetration	B36	C-F-2-E, SY-F-1A-A						

NOTES

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	4/15/85	FIRST ISSUE	MFK		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
INSTRUMENT AIR

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

TABLE HCR 3.1.3.16-3

FUNCTION: INSTRUMENT/SERVICE AIR

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PSID/1-LINE DRAWING NO. 9763-F-	TRAIN	PHYSICAL LOCATION DRAWING NO. 9763-F-	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC MODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO 9763-M: CABLE	SUPPORTED SYSTEMS	REDUNDANT COUNTERPART	REMARKS
16	SA-C-4B	Containment Air Compressor 2B (Skid 16B) With Control Panel	500323	B	310570	C-F-2-E	X	X	X	-	(M5) M39	4SA-095-52-1,2	460VAC Circuit Breakers	B95	CB-F-1B-A	B95-F71	310863		EDE-HCC-631	SA-C-4A	
																B95-F71/1	B95a	B95a	Primary Component Cooling Water CAB-FH-1A CAB-FH-1B CAB-FH-1D CBA-FH-32 CBA-FH-33		
												SA-095-FU	Fuse	B95	CB-F-1B-A	B95-B84		B95d			
												SA-CS-8541	Control Switch with Indication	F71	CB-F-3A-A	B95-B24					
																B95-B39/1					
												SA-B84-K21(EB9)	EPS Permit Aux. Relay	B84	CB-F-1B-A	B95-B39/2					
																G45-B39					
												SA-095-42	Motor Starter	M95	CB-F-1B-A	G45-B39/1					
												SA-095-49	Overload Relays	B95	CB-F-1D-A	B24-M39					
												SA-CS-48-T	Control Switch Load-Unload	G45	C-F-2-E						
												SA-CS-48-PB	Reset Push - Button	G45	C-F-2-E						
												SA-PS-48-1	Press Switch Lube Oil	G45	C-F-2-E						
												SA-PS-48-2	Press Switch Air Header	G45	C-F-2-E						
												SA-TS-48-1	Temp. SW. Compr. Outlet Air	G45	C-F-2-E						
												SA-K-4B	Compressor Shutdown Relay	G45	C-F-2-E						
												SA-SV-4B	Loading Solenoid	G45	C-F-2-E						
												SA-TR1-4B	Compr. Loading Time Delay Relay	G45	C-F-2-E						
												SA-TR2-4B	Compr. Auto Stop Time Delay Relay	G45	C-F-2-E						
												SA-TR3-4B	Compr. Auto Restart Time Delay Relay	G45	C-F-2-E						
												EDE-HH-100	Electrical Penetration	B24	C-F-1-E, ET-F-1C-A						
												EDE-HH-115	Electrical Penetration	B39	C-F-1-E, ET-F-1C-A						
15	1A-B-2A	Containment Instrument Air Dryer 2A	500323	A	310570	C-F-2-E	X	X	X	-	EP3	1A-EN9/3-52	120VAC Circuit Breaker	EN9	C-F-2-E	EN9-J97	310864		ED-FP-4A	1A-B-2B	
																BAE-B36	EN9/3a	EN9/3b	CAB-FH-1C CAB-FH-1E CAB-FH-1F		
												1A-EP3-CS1	On Off Switch	EP3	C-F-2-E	BAE-B52					
												1A-EP3-L1	Power On Light	EP3	C-F-2-E	EP3-J97					
												1A-EP3-R1	Starting Relay	EP3	C-F-2-E	B36-J97					
												1A-EP3-C1	Capacitor	EP3	C-F-2-E						
												1A-EP3-T1	Motor High Temp. Cutout	EP3	C-F-2-E						
												1A-EB2-K21(EB9)	EPS Permit Aux. Relay	EB2	CB-F-1A-A						
												1A-BAE-FB71,35	30 A. Fuses	BAE	ET-F-1A-A						
												EDE-HH-111	Electrical Penetration	B36	ET-F-1A-A, C-F-2-E						
												1A-J97-42	Contactor	J97	C-F-2-E						
16	1A-B-2B	Containment Instrument Air Dryer 2B	500323	B	310570	C-F-2-E	X	X	X	-	EP4	1A-EN0/1-52	120VAC Circuit Breaker	EN0	C-F-1-E	EN0-J98			ED-FP-3B	1A-B-2A	
																BAG-BB4	EN0/1a	EN0/1b	CAB-FH-1A CAB-FH-1B CAB-FH-1D		
												1A-EP4-CS1	On-Off Switch	EP4	C-F-2-E	BAG-B39					
												1A-EP4-L1	Power On Light	EP4	C-F-2-E	BP4-J98					
												1A-EP4-R1	Starting Relay	EP4	C-F-2-E	B39-J98					
												1A-EP4-C1	Capacitor	EP4	C-F-2-E						
												1A-EP4-T1	Motor High Temp. Cutout	EP4	C-F-2-E						
												1A-EBA-K21(EB9)	EPS Permit Aux. Relay	EBA	CB-F-1B-A						
												1A-BAG-FB1,3	30A, Fuses	BAG	ET-F-1C-A						
												EDE-HH-115	Electrical Penetration	B39	C-F-1-E, ET-F-1C-A						
												1A-J98-42	Contactor	J98	C-F-2-E						

NOTES

REV	DATE	DESCRIPTION	DWN BY	CKD BY	NES ENG
0	11/5/85	FIRST ISSUE	JMYE	11/5/85	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
INSTRUMENT AIR

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NCR 3.1.3.16-4

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING AND INSTRUMENT DRAWING NO SHEET -	TRAIN	PHYSICAL LOCATION DRAWING NO SHEET	FIRE AREA/ ZONE	REQUIRED HOT SHUTDOWN	REQUIRED COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC. CLASS	SUPPORTING SYSTEMS AND SUPPORTED EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING SYSTEMS AND SUPPORTED EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING SYSTEMS AND SUPPORTED EQUIPMENT: ELEC CLASS	SUPPORTING SYSTEMS AND SUPPORTED EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DIAGRAMS NO: SCHEMATIC	ELECTRICAL DIAGRAMS NO: CABLE	SUPERVISORY SYSTEMS	REMEMBRANCE COUNTERPART	REMARKS
25	EME-PP-11A	Vital Instrument Bus	310043	A	310442	CB-F-1A-A	X	X	X	-	E10	EME-BUS/11-52	120VAC Circuit Breaker	BU9	CB-F-1A-A	B10-BU9	301a B10a	301b	CBA-FM-19 CBA-FM-20 EME-PP-11E	EME-PP-11F	
26	EB-E-16B	480-120/240V Containment Lighting Transformer	310036	A	310581	C-F-3-E	X	X	X	-	EN2	EME-BY1-52-1 EME-BY1-52-2 EME-MM-101	440VAC Circuit Breaker 440VAC Circuit Breaker Electrical Penetration	BY1 BY1 B25	CB-F-1A-A CB-F-1A-A C-F-2-E, EI-F-1A-A	BY1-B25 BN2-B25	310104 BY1a	BY1b	CBA-FM-19 CBA-FM-20 EME-MCC-531 CAB-FM-1C CAB-FM-1E CAB-FM-1F	EB-E-16A	
27	EB-PP-8A	120/240V Distribution Panel	310036	A	310579	C-F-23	X		X	-	EN9	EB-E-16B EB-EN9-52 EB-JB2-42 EB-BY5-52	Containment Lighting Transformer 250VAC Circuit Breaker (Main) Lighting Contactor Lighting Panel 250VAC Circuit Breaker (Main)	EN2 EN9 JB2 BY5	C-F-3-E C-F-2-E C-F-2-E C-F-2-E	EN9-BN2 BY5-JB3 BN2-JB3	310104 EN9a 310106	BY1b	CAB-FM-1C CAB-FM-1E CAB-FM-1F EB-E-16B	EB-PP-8B	
28	Deleted																				
29	EME-BC-1A	125VDC Battery Charger	310043	A	310442	CB-F-1A-A	X	X	X	-	EB5	EME-BB1-52 EME-BB1-43 EME-BB1-43X BU-BN2-BN9(EN9) EME-BB1/1-52 EME-BB1-FU	440VAC Circuit Breaker Contactor Auxiliary Relay BPS Relay 440VAC Circuit Breaker-Incoming Feed Fuse	BB1 BB1 BB1 BN2 BB5 BB1	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	BB1-BN2 BB1-BB5	310107 BB1a BB1b BB1c	BB1f	CBA-FM-19 CBA-FM-20 EME-MCC-512	EME-BC-1B	
30	EME-B-1A	125VDC Battery	310043	A	310442	CB-F(1B)A		X	X	-	E04	EME-JJ5-FB-1,2, 3 & 4 EME-JJ5-SH EME-JJ5-ATR	1600A Fuse 1000A, 100MV Shunt Transducer	JJ5 JJ5 JJ5	CB-F-1A-A CB-F-1A-A CB-F-1A-A	BP4-JJ5 BP4-JJ5/1	BB1a BB1b BB1a	BB1f	CBA-FM-19 CBA-FM-20 CBA-FM-21A EME-BC-1A EME-BMU-11A	EME-B-1B	

NOTES:

NO	DATE	DESCRIPTION	DRAWN BY	CHKD BY	APP'D BY
0	11/85	ISSUED	BLP	BMP	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. S.E.S.17-11

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	POSITIVE LINE DRAWING NO SHEET	TRAIN	PHYSICAL LOCATION DRAWING NO SHEET	FIRE AREA/ ZONE	NEED FOR HOT SHUT DOWN	NEED FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 8953 M SCHEMATIC	ELECTRICAL DRAWING NO 8953 M CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPARTS	REMARKS
																	310107				
31	EHE-EMG-11A	125VDC Switchboard Auxiliary Buses 120VAC and 125VDC	310043	A	310443	CB-F-1A-A	X	X	X	-	DH1	EHE-DH5/1-72	125VDC Circuit Breaker	DH5	CB-F-1A-A	DH3-J75	D01a	D01f	CBA-FW-19	EHE-EMG-11B	
																DH3-J75/1	D01b		CBA-FW-20		
												EHE-DLA-72	125VDC Circuit Breaker	DLA	CB-F-1A-A	DH2-D65	D01c		EHE-EMG-11A		
												EHE-DH2-72	125VDC Circuit Breaker	DH2	CB-F-1A-A	DH1-J75/1	5a		EHE-R-1A		
												EHE-DH3-72	125VDC Circuit Breaker	DH3	CB-F-1A-A	D1V-J75			EHE-DC-1A		
												EHE-DH1-FU-163	125 VDC 15A Fuses	DH1	CB-F-1A-A				EHE-PP-1E		
												EHE-DH1-27UL	Undervoltage Relay	DH1	CB-F-1A-A						
												EHE-DH1-27ULL	Undervoltage Relay	DH1	CB-F-1A-A						
												EHE-DH1-VM	DC Voltmeter	DH1	CB-F-1A-A						
												EHE-DH1-VTD	Voltage Transducer	DH1	CB-F-1A-A						
												EHE-DH1-D40	Diodes	DH1	CB-F-1A-A						
												EHE-DH1-SS	Selector Switch	DH1	CB-F-1A-A						
												EHE-DH1-AMY	Ammeter Relay	DH1	CB-F-1A-A						
																	310105				
												EHE-EH5/5-52	120VAC Circuit Breaker	EH5	CB-F-1A-A	DH1-E89	E89a	E89b			
												EHE-DH1-62UL	Timing Relay	DH1	CB-F-1A-A						
												EHE-DH1-62ULL	Timing Relay	DH1	CB-F-1A-A						
												EHE-DH2-72	Breaker Operated Contact	DH2	CB-F-1A-A						
												EHE-DH2-72DTC	Circuit Breaker Shut Trip Coil	DH2	CB-F-1A-A						
												EHE-J75-ATD	Current Transducer	J75	CB-F-1A-A						
												EHE-DH1-52	120VAC Inc. Feed Circuit Breaker	DH1	CB-F-1A-A						
												EHE-DH1-F9	120VAC 15 A Fuses	DH1	CB-F-1A-A						
32	EHE-PP-111A	125VDC Distribution Panel	310043	A	310443	CB-F-1A-A	X	X	X	-	E93	EHE-DH5-72	125VDC Circuit Breaker	DH5	CB-F-1A-A	DH1-E93	D01a	D01f	CBA-FW-19	EHE-PP-111B	
																			CBA-FW-20		
																			EHE-EMG-11A		
												EHE-E93-72	125VDC Circuit Breaker (Main)	E93	CB-F-1A-A		E93a				
33	EHE-PP-112A	125VDC Distribution Panel	310043	A	310443	CB-F-1A-A	X	X	X	-	E87	EHE-DH5-72	125VDC Circuit Breaker	DH5	CB-F-1A-A	DH2-E87	D01a	D01f	CBA-FW-19	EHE-PP-112B	
																			CBA-FW-20		
																			EHE-EMG-11A		
												EHE-E87-72	125VDC Circuit Breaker (Main)	E87	CB-F-1A-A		E87a				

NOTES

NO	DATE	DESCRIPTION	DRAWN BY	CHKD BY	APP'D BY
2	4.25.85	SHEET NUMB	JBC	BHP	TJS

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE R6.8.3.1.3.17-15

FUNCTION ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	POWER LINE (DRAWING NO. 8763 F)	TRAIN	PHYSICAL LOCATION (DRAWING NO. 8763 F)	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR CON'D RUN OF PLANT	POWER ELEC	POWER AIR	ELEC INDEX	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC INDEX	SUPPLYING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO. 8763 M: SCHEMATIC	ELECTRICAL DRAWING NO. 8763 M: CABLE	SUPPLEMENTAL SYSTEMS	REDUNDANT COUNTERPARTS	REMARKS
36	EME-PP-113A	125VDC Distribution Panel	310042	A	310443	CB-F-1A-A	X	X	X	-	82T	EME-DH0-72	125VDC Circuit Breaker	DH0	CB-F-1A-A	DH0-82T	310107 DH1a DH1b	310107 DH1f	CBA-FN-19 CBA-FN-20 EME-DWG-11A	EME-PP-113B	
												EME-82T-72	125VDC Circuit Breaker (Main)	82T	CB-F-1A-A		82Ta				
35	EME-DWG-5	4160V DWGR 125VDC Control Bus		A	310443	CB-F-1A-A	X	X	X	-	A53	EME-E93/1-72	125VDC Circuit Breaker	E93	CB-F-1A-A	A53-E93	E93a	E93b	CBA-FN-19 CBA-FN-20 EME-PP-111A	EME-DWG-6	
												EME-A53-8	125VDC Circuit Breaker (Main)	A53	CB-F-1A-A		310103 5a, 5f, 5g, 5h				
36	EME-ME-51	480V Unit Substation 125VDC Control Bus		A	310443	CB-F-1A-A	X	X	X	-	AB3	EME-E93/2-72	125VDC Circuit Breaker	E93	CB-F-1A-A	AB3-E93	310107 E93a	E93b	CBA-FN-19 CBA-FN-20 EME-PP-111A	EME-ME-61	
												EME-AB3-8	125VDC Circuit Breaker (Main)	AB3	CB-F-1A-A		310103 5a				
37	EME-ME-52	480V Unit Substation 125VDC Control Bus		A	310443	CB-F-1A-A	X	X	X	-	AC3	EME-E93/3-72	125VDC Circuit Breaker	E93	CB-F-1A-A	AC3-E93	310107 E93a	E93b	CBA-FN-19 CBA-FN-20 EME-PP-111A	EME-ME-62	
												EME-AC3-8	125VDC Circuit Breaker (Main)	AC3	CB-F-1A-A		310103 5a				
38	EME-ME-53	480V Unit Substation 125VDC Control Bus		A	310443	CB-F-1A-A	X	X	X	-	AF3	EME-E93/4-72	125VDC Circuit Breaker	E93	CB-F-1A-A	AF3-E93	310107 E93a	E93b	CBA-FN-19 CBA-FN-20 EME-PP-111A	EME-ME-63	
												EME-AF3-8	125VDC Circuit Breaker (Main)	AF3	CB-F-1A-A		310103 5a				
39	DG-CP-75A	Diesel Generator 1A Control Panel Cubicle 3 125VDC Supply	310010 310042	A	310534	DG-F-2A-A	X	X	X	-	G10	EME-DH9-72	125VDC Circuit Breaker	DH9	CB-F-1A-A	DH9-G10	310102 DH9a	DH9b	DAS-FN-25A DAR-FN-26A EME-DWG-11A	DG-CP-76A	
												DG-G10-72	125VDC Circuit Breaker (Main)	G10	DG-F-2A-A		310107 DH1a		CBA-FN-19 CBA-FN-20		
40	ED-ME-11	480V Unit Substation 125VDC Control Bus	310002 310011	A	310443	CB-F-1A-A	X	X	X	-	AG3	EME-E97/13-72	125VDC Circuit Breaker (Main)	E97	MES-F-1A-E	AG3-E97	310107 E97a	E97b	EME-AG1-E-4A CBA-FN-19 CBA-FN-20	ED-ME-23	
												EME-AG3-72	125VDC Circuit Breaker	AG3	CB-F-1A-A		310103 5a				
41	ED-ME-23	480V Unit Substation 125VDC Control Bus	310002 310011	B	310443	CB-F-1A-A	X	X	X	-	AH3	EME-E97/14-72	125VDC Circuit Breaker	E97	MES-F-1A-E	AH3-E97	310107 E97a	E97b	EME-AH1-E-4F CBA-FN-19 CBA-FN-20	ED-ME-11	
												EME-AH3-72	125VDC Circuit Breaker	AH3	CB-F-1A-A		310103 5h				

NOTES

REV. NO.	DATE	DESCRIPTION	DRAWN BY	CHKD BY	APP'D BY
0	12/15	ISSUED FOR	JBE	AHF	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. 3.1.3.12-15

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE (DRAWING) NO & GRID #	TRAIN	PHYSICAL LOCATION (DRAWING) NO & GRID #	FIRE AREA/ ZONE	REQUIRED HOT SHUT DOWN	REQUIRED COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC INDEX	SUPPORTING CONTROL AND DISTRIBUTION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND DISTRIBUTION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND DISTRIBUTION EQUIPMENT: ELEC INDEX	SUPPORTING CONTROL AND DISTRIBUTION EQUIPMENT: FIRE AREA/ ZONE	CABLES	DETAILING (DRAWING) NO & GRID #: DESIGNATION	DETAILING (DRAWING) NO & GRID #: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPARTS	REMARKS
42	EME-BUS-6	4160V Bus 6 UAT Incoming Line Bays	310000	B	310642	CB-F-18-A	X	X	X	-	A71	EME-A71-52	4160V Circuit Breaker	A71	CB-F-19-A	A71-G19		310102	CBA-PN-32	EEE-BUS-5	
																A71-G19/1	A71a	A71b	CBA-PN-33	UAT	
												EME-CS-9719-2	Control Switch	A71	CB-F-19-A	A71-G20	A71b	A711	EB-X-20		
												EME-CS-9719-3	Control Switch with Indication	G19	BG-F-28-A	A71-BB0	A71c	A71k	EME-PP-1110		
																GA6 G80/5	A71d		DAR-PN-256		
												EME-A71-G,R,W	Indicating Lights	A71	CB-F-19-A	A71-G19/1	A71e		DAR-PN-268		
																A71-G19/3					
												EME-BS-9717	Selector Switch	G19	BG-F-28-A	A71-G84					
												EME-BS-9719	Selector Switch	G19	BG-F-28-A	GA0-G83/5					
												EME-A71-52B	Truck Operated Contact	A71	CB-F-19-A	GC5-G1A/5					
																A71-G59					
												EME-A71-FU	Fuses	A71	CB-F-19-A	A71-G59/1					
												EME-A71-CT1	Current Transformers (2000/5)	A71	CB-F-19-A	G19-BB0					
																F81-G19/B					
												EME-A71-TB-1	CT Test Device	A71	CB-F-19-A	F81-G19/C					
												EME-A71-AM	Ammeter	A71	CB-F-19-A	F81-G19/E					
												EME-A71-AS	Ammeter Switch	A71	CB-F-19-A	G19-BB4					
												EME-A71-ATR	Transducer	A71	CB-F-19-A	F81-G19/A					
												EME-A71-CT2	Current Transformers (4000/5)	A71	CB-F-19-A						
												EME-A87-PT	Potential Transformer	A87	CB-F-19-A						
												EME-A71-TB-3	PT Test Device	A71	CB-F-19-A						
												EME-A71-VM	Voltmeter	A71	CB-F-19-A						
												EME-A71-86	Lockout Relay	A71	CB-F-19-A						
												EME-A74-52B	Mech. Operated Contact	A74	CB-F-19-A						
												EME-A72-52B	Mech. Operated Contact	A72	CB-F-19-A						
												BG-w2B-25Y1	Auxiliary Sync Check Relay	C36	BG-F-28-A						
												EME-A73-25B	Synchronizing Check Relay	A73	CB-F-19-A						
												EME-BS-9719-1	Selector Switch	G5Y	BG-F-28-A						
												EME-CS-9717-3	Control Switch	G19	BG-F-28-A						
												EME-BNS-9737-2	Synchronizing Switch	G18	BG-F-28-A						
												EME-A72-86	Lockout Relay	A72	CB-F-19-A						
												EME-A89-86B	Lockout Relay	A89	CB-F-19-A						
												EB-86B8/2/1X-1	Lockout Relay	GA0	TB-F-1C-E						
												EB-86-2/3/52	Lockout Relay	GA6	TB-F-1C-E						
												EB-86AB/3/1X-2A	Lockout Relay	GA8	TB-F-1C-E						
												EB-86AB/3/1X-2B	Lockout Relay	GA8	TB-F-1C-E						
												EB-86BF-2/3/52/TG1	Lockout Relay	GA9	TB-F-1C-E						
												EB-86GT/3/TG-1	Lockout Relay	GA9	TB-F-1C-E						
												EB-86-1/3/52	Lockout Relay	GB0	TB-F-1C-E						
												EB-86BF-2/2B	Lockout Relay	GB3	TB-F-1C-E						
												EB-86BF-2/2E	Lockout Relay	GB4	TB-F-1C-E						
												EB-86AF/2/1X-2A	Lockout Relay	GC3	TB-F-1C-E						
												EB-86AF/2/1X-2B	Lockout Relay	GC3	TB-F-1C-E						
												EB-86BF-1/3/52/TG1	Lockout Relay	GC9	TB-F-1C-E						
												EB-86BF/2/1X-1	Lockout Relay	GCA	TB-F-1C-E						
												EB-86BF-1/2B	Lockout Relay	GC6	TB-F-1C-E						
												EB-86BF-1/2E	Lockout Relay	GC7	TB-F-1C-E						
												BG-BB0-BN0	EPS Auxiliary Relay	BB0	CB-F-19-A						
												EME-A71-3	Interposing Relay for DVFD Lockout Relays	A71	CB-F-19-A						
												EME-A71-TB-2	Lockout Relay Test Device (A71-86)	A71	CB-F-19-A						
												EME-A71-TB-4	Interposing Relay Test Device (A71-3)	A71	CB-F-19-A						
												EME-CS-9719-4	Control Switch	F81	CB-F-36-A						

NOTES:

REV NO	DATE	DESCRIPTION	DRWN BY	CHK'D BY	APP'D BY	M & E APP'D
0	12/8/83	FIRST ISSUE	[illegible]	AHP	[illegible]	

ISOMAP - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers & Constructors

TABLE NO. S.1.3.17-16

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PGEE/I LINE DRAWING NO 8763 F-	TRAIN	PHYSICAL LOCATION DRAWING NO 8763 F-	FIRE AREA/ ZONE	NEED FOR HOT SHUT DOWN (Y/N)	NEED FOR COLD SHUT DOWN (Y/N)	POWER ELEC	POWER AUX	ELEC NUM	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NUM	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 8763 M: SCHEMATIC	ELECTRICAL DRAWING NO 8763 M: CABLE	SUPPORTING SYSTEMS	ENVIRONMENT CHARACTERISTICS	REMARKS
44	EME-SWG-6 (Continued)											EME-A72-62	Time Delay Relay	A72	CB-F-18-A						
												EME-A72-3	Interposing Relay for SWYD Lockout Relays	A72	CB-F-18-A						
												EME-A72-TD-2	Lockout Relay Test Device (A72-86)	A72	CB-F-18-A						
												EME-A72-TD-4	Interposing Relay Test Device (A72-3)	A72	CB-F-18-A						
												EME-SME-9737-1	Sync. Sw.	PB1	CB-F-34-A						
												EME-CB-9717-1	Control Sw. with Indicating Light	PB1	CB-F-34-A						
												EME-A73-62X2	Aux. Latch Rly.	A73	CB-F-18-A						
												EME-A73-25A	Synchronizing Check Relay	A73	CB-F-18-A						
												EME-A73-27BB-1	Residual Under-voltage Relay	A73	CB-F-18-A						
												EME-A73-27BB-2	Residual Under-voltage Relay	A73	CB-F-18-A						
												EME-A72-62X	Aux. Relay	A72	CB-F-18-A						
												ED-8688/2/12-36	Lockout Relay	GA7	TB-F-1C-E						
												ED-86-2/2/62	Lockout Relay	GB7	TB-F-1C-E						
												ED-86-1/2/62	Lockout Relay	GCD	TB-F-1C-E						
												ED-86BP/2/12-36	Lockout Relay	GC1	TB-F-1C-E						
												ED-86BP/2/12-38	Lockout Relay	GB6	TB-F-1C-E						
												ED-8688/2/12-38	Lockout Relay	GB7	TB-F-1C-E						
												ED-GA7-TD-2	Lockout Relay Test Device (8688/2/12-36)	GA7	TB-F-1C-E						
												ED-GB7-TD-2	Lockout Relay Test Device (86-2/2/62)	GB7	TB-F-1C-E						
												ED-GCD-TD-2	Lockout Relay Test Device (86-1/2/62)	GCD	TB-F-1C-E						
												ED-GC1-TD-2	Lockout Relay Test Device (86BP/2/12-36)	GC1	TB-F-1C-E						
												ED-GB6-TD-2	Lockout Relay Test Device (86BP/2/12-38)	GB6	TB-F-1C-E						
												ED-GB7-TD-2	Lockout Relay Test Device (8688/2/12-38)	GB7	TB-F-1C-E						
												EME-A72-51	Time Over-current Relays ØA, ØB, ØC	A72	CB-F-18-A						
												EME-A72-51GN	Ground Sensor Relay	A72	CB-F-18-A						
45	EME-SWG-6	4160V Bus 6A 1&T PT Compartment	310008	B	310462	CB-F-18-A	E	E	E	-	A73	EME-A73-PT	Potential Transformer	A73	CB-F-18-A	A73-A62	310102		CBA-FW-32	EME-SWG-5	
																A73-G19	A73a A73d		CBA-FW-33	UGT-PT	
												EME-A73-VM	Voltmeter	A73	CB-F-18-A	A73-SB4	A73a		EME-SWG-6		
												EME-A73-VS	Voltmeter Switch	A73	CB-F-18-A	A82-A87	A73b		EME-PP-1110		
												EME-A73-TD-2	PT-Test Device	A73	CB-F-18-A	A87-SB6			DAM-FW-350		
												EME-A73-VTS-1	Voltage Transducer	A73	CB-F-18-A	AW2-SB6 (AB)-G19/5			DAM-FW-348		F81
												EME-A73-VTS-2	Voltage Transducer	A73	CB-F-18-A	A73-V80					
												EME 68-9719	Selector Switch	G19	DG-F-18-A						
												EME SME-9737-2	Synchronizing Switch	G18	DG-F-18-A						

NOTES:

NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	APP'D BY
0	2/15/85	ISSUED UNDER	PBC	ANP	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

unitil engineers

TABLE 10.R 3.1.1.17.19

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	POWER LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AUX	ELEC INDEX
45	EME-EMD-6 (Continued)										

SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO 9763-W		SUPPLANTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC INDEX	FIRE AREA/ ZONE		SCHEMATIC	CABLE			
EME-A73-25B	Synchronizing Check Relay	A73	CB-F-1B-A						
EME-A73-25S	Synchronizing Check Relay	A73	CB-F-1B-A						
EME-A74-52B	Mech. Operated Contact	A74	CB-F-1B-A						
EME-A73-27B-1	Instantaneous Undervoltage Relay	A73	CB-F-1B-A						
EME-A73-27B-2	Instantaneous Undervoltage Relay	A73	CB-F-1B-A						
EME-A73-TB-3	N.V. Relays Test Switch	A73	CB-F-1B-A						
EME-A73-27B-1	Instantaneous Undervoltage Relay	A73	CB-F-1B-A						
EME A73-27B-1-DES	Resistor	A73	CB F-1B-A						
EME-A73-27B-2	Instantaneous Undervoltage Relay	A73	CB-F-1B-A						
EME-A73-27B-2-DES	Resistor	A73	CB-F-1B-A						
EME-A73-TB-4	N.V. Relays Test Switch	A73	CB-F-1B-A						
EME-A72-27BB-1,7	Residual Under-Voltage Relay	A72	CB-F-1B-A						
EME-A73-62B	Time Delay Relay	A73	CB-F-1B-A						
EME-A73-62B-DES	Resistor	A73	CB-F-1B-A						
EME-A73-TB-6	Test Switch EME-62B	A73	CB-F-1B-A						
EME-A73-62BX-1	Auxiliary Relay	A73	CB-F-1B-A						
EME-A73-62BX	Auxiliary Latch Relay	A73	CB-F-1B-A						
EME-A71-52B	Mech. Operated Contact	A71	CB-F-1B-A						
EME-AW3-96-5	Undervoltage Tripping Relay	AW3	CB-F-1B-A						
EME-A72-27/59X1	Under/Over Voltage Auxiliary Relay	A73	CB-F-1B-A						
EME-AP8-96-4	Undervoltage Tripping Relay	AP8	CB-F-1B-A						
EME-BB4-BMD	EPB Auxiliary Relay	BB4	CB-F-1B-A						
EME-A73-96-14	Undervoltage Tripping Relay	A73	CB-F-1B-A						
EME-A73-96-1B	Undervoltage Tripping Relay	A73	CB-F-1B-A						
EME-A73-96-2	Undervoltage Tripping Relay	A73	CB-F-1B-A						
EME-AB3-96-3	Undervoltage Tripping Relay	AB3	CB-F-1B-A						
EME-BB6-96-6	Tripping Relay	BB6	CB-F-1B-A						
EME-A73-FB	10AMP Fuses	A73	CB-F-1B-A						
EME-A73-62B	Time Delay Relay	A73	CB-F-1B-A						
EME-A73-62B-DES	Resistor	A73	CB-F-1B-A						
EME-A73-TB-3	Test Switch Relay 62B	A73	CB-F-1B-A						
EME-A73-62BX	Auxiliary Relay	A73	CB-F-1B-A						
EME-BAB-9737-1	Sync. Sw.	FB1	CB-F-3A-A						
EME-A73-FB	3A Fuse	A73	CB-F-1B-A						
EME-FB0-86098	86 Dig. Act. Aux. Relay	FB0	CB-F-3A-A						

NOTES:

REV	DATE	DESCRIPTION	DRWN BY	CHK'D BY	APP'D BY
0	7/27/77	FIRST ISSUE	RC	DWF	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. 3.1.1.17.2B

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/ISI LINE DRAWING NO (FSAR)	TRAIN	PHYSICAL LOCATION (DRAWING NO (FSAR))	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN (10 HRS)	REQ'D FOR COLD SHUTDOWN (72 HRS)	POWER 1E EDG	POWER AUX	ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO (FSAR M): SCHEMATIC	ELECTRICAL DRAWING NO (FSAR M): CABLE	SUPPLYING SYSTEMS	REDUNDANT EQUIPMENT	REMARKS
92	EME-BUS-11B	125VDC Switchboard Auxiliary Buses 120VAC and 125VDC	310042	B	310442	CB-F-1B-A	X	X	X	-	DQ7	EME-BUS/2-72	125VDC Circuit Breaker	BUS	CB-F-1B-A	DQ7-J7B/1		310107			
												EME-DL7-72	125VDC Circuit Breaker	DL7	CB-F-1B-A	DQ9-J7B DQ8-J7B/1 DQ8-BB5	B02a B02b B02c	B02f	CBA-FH-32 CBA-FH-33 EME-BC-1B	EME-BUS-11C	
												EME-DQ8-72	125VDC Circuit Breaker	DQ8	CB-F-1B-A	D12-J7B	3d		EME-B-1B		
												EME-DQ9-72	125VDC Circuit Breaker	DQ9	CB-F-1B-A			310105			
												EME-DQ0-72	125VDC Circuit Breaker	DQ0	CB-F-1B-A	DQ7-EM0	EE3a	EM0b			
												EME-DQ7-FU-1A2	Fuse	DQ7	CB-F-1B-A						
												EME-DQ7-27BL	Undervoltage Relay	DQ7	CB-F-1B-A						
												EME-DQ7-VM	DC Voltmeter	DQ7	CB-F-1B-A						
												EME-DQ7-VTR	Voltage Transducer	DQ7	CB-F-1B-A						
												EME-DQ7-D1D	Diodes	DQ7	CB-F-1B-A						
												EME-DQ7-SF	Selector Switch	DQ7	CB-F-1B-A						
												EME-DQ7-AMY	Ammeter Relay	DQ7	CB-F-1B-A						
												EME-DQ7-27BLA	Undervoltage Relay	DQ7	CB-F-1B-A						
												EME-EM0/6-52	120VAC Circuit Breaker	EM0	CB-F-1B-A						
												EME-DQ7-62BL	Timing Relay	DQ7	CB-F-1B-A						
												EME-DQ7-62BLA	Timing Relay	DQ7	CB-F-1B-A						
												EME-DQ8-72	Breaker Operated Contact	DQ8	CB-F-1B-A						
												EME-DQ8-72DTC	Circuit Breaker Shunt Trip Coil	DQ8	CB-F-1B-A						
												EME-J7B-ATR	Current Transducer	J7B	CB-F-1B-A						
												EME-DQ7-52	120VAC Inc. Feed Circuit Breaker	DQ7	CB-F-1B-A						
												EME-DQ7-FU	120VAC 15A Fuses	DQ7	CB-F-1B-A						
93	EME-BC-1B	125VDC Battery Charger	310042	B	310443	CB-F-1A-A	X	X	X	-	BB8	EME-B62-52	460VAC Circuit Breaker	B62	CB-F-1B-A	B62-BB6 B62-BBA	B02a B02b	310107 B03f	CBA-FH-19 CBA-FH-20 EME-NCC-E621	EME-BC-1C	
												EME-B62-42	Contactor	B62	CB-F-1B-A						
												EME-B62-42X	Aux. Relay	B62	CB-F-1B-A						
												BC-BBA-BB9	EPS Relay	BBA	CB-F-1B-A						
												EME-B88/1-52	460VAC Circuit Breaker-Incoming Feed	B88	CB-F-1B-A						
												EME-B62-FU	Fuse	B62	CB-F-1B-A						
94	EME-B-1B	125VDC Battery	310042	B	310442	CB-F-1B-A	X	X	X	-	BV7	EME-J7B-FU-1,2, 3, & 4	1600A Fuses	J7B	CB-F-1B-A	BV7-J7B	B02a	310107 B02f	CBA-FH-32	EME-B-1C	
												EME-J7B-BB	1000A, 100mV Shunt	J7B	CB-F-1B-A	BV7-J7B/1	B02a	B07f	CBA-FH-33		
												EME-J7B-ATR	Transducer	J7B	CB-F 1B-A						

NOTES

REV NO	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPROVED BY
	1985	INITIAL ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NEW 3.1.1.17-11

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO & GRID P	POWER	PHYSICAL LOCATION DRAWING NO & GRID P	FIRE AREA/ ZONE	REQD FOR HOT SHUT DOWN	REQD FOR COLD SHUT DOWN	POWER 1 E/G	POWER A/R	ELEC DIVISION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT (DRAWING & GRID)	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC DIVISION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO & GRID: MECHANICAL	ELECTRICAL DRAWING NO & GRID: ELECTRICAL	SUPPORTING SYSTEMS	REDUNDANT EQUIPMENT	REMARKS
																	310105				
95	ED-I-4	Uninterruptible Power Supply	310054	A	310292	MEB-F-1A-E	X	X	X	-	EB7 EB8	EDE-EB3-52	460VAC Circuit Breaker	EB3	EG-F-2A-A	EB1-EB6/1 EB7-EB8 EB2-EB6/1 EB2-EB8 EB3-EB2	EB1a EB3b	EB3c	ED-BUC-128		
												EDE-EB2-72	±25VDC Circuit Breaker	EB2	TB-F-1A-E						
												EDE-EB6-52	460VAC Inc. Line Breaker	EB6	MEB-F-1A-E						
												EDE-EB6-72	125VDC Inc. Line Breaker	EB6	MES-F-1A-E						
												EDE-EB7-52	120VAC Output Breaker	EB7	MES-F-1A-E						
												EDE-EB3-43	Contactor	EB3	EG-F-2A-A						
												EDE-EB3-43X	Aux. Relay	EB3	EG-F-2A-A						
												EDE-EB3-FB	2A Fuse	EB3	EG-F-2A-A						
												EG-HB2-HB9	EPB Relay	HB2	CB-F-1A-A						
																	310105				
96	EB-PP-5	Non-Vital Instrument Bus	310054	A	310292	MEB-F-1A-E	X	X	X	-	EJ9	EDE-EJ9-52	120VAC Inc. Line Breaker	EJ9	MEB-F-1A-E	EJ9-EB7	EB3a	EB3c	ED-1-4		
																	310107				
97	EB-BC-26	125VDC Battery Charger	310059	A	310328	TB-F-1A-E	X	X	X	-	HB4	EDE-CW3-52	460VAC Circuit Breaker	CW3	-	CW3-HB4 CW3-HB2	CW3a CW3b	CW3f	ED-MUC-6321		
												EDE-CW3-43	Contactor	CW3	-						
												EDE-CW3-42X	Aux. Relay	CW3	-						
												EG-HB2-HB9	EPB Relay	HB2	CB-F-1A-A						
												EDE-HBA-52	460VAC Circuit Breaker-Inc. Feed	HBA	TB-F-1A-E						
												EDE-CW3-FB	Fuse	CW3	-						
																	310107				
98	EB-B-28	125VDC Battery	310059	A	310328	TB-F-1B-A	X	X	X	-	HB3	EDE-DHB-SH	1500A, 100 MV Shunt	DHB	TB-F-1A-E	DHB-HB3 NSE DHB-HB3/1	CW3a	CW3f			
												EDE-DHB-ATR	Transducer	DHB	TB-F-1A-E						

NOTES

REV NO	DATE	DESCRIPTION	DRAWN BY	CHKD BY	APP'D
0	4/86	FIRST ISSUE	Lmc	RHP	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE NO. S.1.1.17.35

FUNCTION DIESEL GENERATORS

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PARTIAL LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ ZONE	CABLEG	ELECTRICAL DRAWING NO 9763-W: SCHEMATIC	ELECTRICAL DRAWING NO 9763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	DG-DG-1A	Diesel Generator 1A	202101 202102 202103 310010	A	310524	DG-F-2A-A	X	X	X	X	BA1	DG-C8-9510-2	Control Switch (Pushbutton)	QB7	DG-F-2A-A	A54-G06/5	310057		CBA-FB-19	DG-DG-	
																A54-G29	893/8a	893/8o	CBA-FB-10		
												DG-C8-9511	Control Switch (Pushbutton)	QB7	DG-F-2A-A	G06-G29	893/8b	893/8p	DAR-FB-154		
																G06-G29/1	893/8d		DAR-FB-266		
												DG-C8-9512-3	Control Switch (Pushbutton)	QB7	DG-F-2A-A	G06-B02	893/8e		XDC-FP-111A		
																G06-G29/3	893/8c		D/G Starting Air		Q07
												DG-C8-9512-4	Control Switch (Pushbutton)	QB7	DG-F-2A-A	G29	893/8f				
																G29-G29/1	893/8g				
												DG-C8-9517-2	Control Switch (Pushbutton)	QB7	DG-F-2A-A						
												DG-C8-9518-2	Control Switch (Pushbutton)	QB7	DG-F-2A-A						
												EBK-88-9700	Selector Switch	QB6	DG-F-2A-A						
												DG-G29-OP3	Oil Pressure Relay	G29	DG-F-2A-A						
												DG-G29-CR1	Ready for Auto Start Relay	G29	DG-F-2A-A						
												DG-G29-4A	Start Relay	G29	DG-F-2A-A						
												DG-G29-T2A	Cranking Time Control Time Relay Relay	G29	DG-F-2A-A						
												DG-G29-ER1	Emergency Start Relay	G29	DG-F-2A-A						
												DG-G10-TSR1	Test Start Relay	G10	DG-F-2A-A						
												DG-G10-TSR2	Test Start Relay	G10	DG-F-2A-A						
												DG-FY-AS1	Air Start Solenoid Valve	G29	DG-F-2A-A						
												DG-G29-OP3	Oil Pressure Relay	G29	DG-F-2A-A						
												DG-G29-CR2	Ready for Auto Start Relay	G29	DG-F-2A-A						
												DG-G29-4B	Start Relay	G29	DG-F-2A-A						
												DG-G29-T2B	Cranking Time Control Time Relay Relay	G29	DG-F-2A-A						
												DG-G29-ER2	Emergency Start Relay	G29	DG-F-2A-A						
												DG-FY-AS2	Air Start Solenoid Valve	G29	DG-F-2A-A						
												DG-G29-OP4	Oil Pressure Relay	G29	DG-F-2A-A						
												DG-G29-5E	Emergency Stop Relay	G29	DG-F-2A-A						
												DG-G29-5	Normal Stop Relay	G29	DG-F-2A-A						
												DG-G29-5A	Shutdown Relay	G29	DG-F-2A-A						
												DG-FY-SD0	Shutdown Solenoid Valve	G29	DG-F-2A-A						
												DG-FY-ACO	Air Supply Cut-off Solenoid Valve	G29	DG-F-2A-A						
												DG-FY-CSV-A	Jacket Coolant Aux. Valves Solenoid	G29	DG-F-2A-A						
												DG-G29-T3A	Alarm Set Time Relay Relay	G29	DG-F-2A-A						
												DG-G29-TS	Engine Velocity Transmitter	G29	DG-F-2A-A						
												DG-FY-ISV-A	Intercooler Aux. Valves Solenoid	G29	DG-F-2A-A						
												DG-G29-SG	Signal Generator	G29	DG-F-2A-A						
												DG-G29-HSR	High Speed Relay	G29	DG-F-2A-A						
												DG-G29-LSR	Low Speed Relay	G29	DG-F-2A-A						
												DG-G29-ASR	Starting Air Shutoff Relay	G29	DG-F-2A-A						
												DG-G29-1PC	Coolant Pump Control Relay	G29	DG-F-2A-A						
												DG-G29-BDR	Barring Device Relay	G29	DG-F-2A-A						
												DG-G29-ASA	Air Start Relay	G29	DG-F-2A-A						
												DG-G29-ASB	Air Start Relay	G29	DG-F-2A-A						

NOTES

1. Equipment is mechanical with no electrical requirements.
2. Electrical conduit plan drawing 9763-F-310524 is listed only to show the fire zone corresponding to the location of this equipment in the diesel generator building as identified in 9763-F-20226 3.
3. Electrical conduit plan drawing 9763-F-310762 is listed only to show fire zone corresponding to the location of this equipment in the primary auxiliary building as identified in 9763-F-805217.
4. This equipment is located in the diesel generator skid DG-SKD-7A.
5. This equipment is located in the diesel generator skid DG-SKD-17A.
6. This equipment is located in the diesel generator skid DG-SKD-7B.

NO	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	APPD & DATE
2	4-15-83	FINAL ISSUE	MVK	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO 3.1.3.16-1

FUNCTION: DIESEL GENERATORS

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO SPEC-F	TRAIN	PHYSICAL LOCATION DRAWING NO SPEC-F	FIRE AREA/ ZONE	REQ'D FOR HOT (MAIN DOWN)	REQ'D FOR COLD (MAIN DOWN)	POWER ELEC	POWER AIR	ELEC HOUR	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC HOUR	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO SYSTEM: SCHEMATIC	ELECTRICAL DRAWING NO SYSTEM: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
	DG-EC-1A (Continued)											E-6036	Prot System Relay	P87	CB-F-3A-A	P80-P87					
												EDE-CS-9510-1	Control Switch	P80	CB-F-3A-A	P80-C006/5					
												EDE-CS-9517-1	Control Switch	P80	CB-F-3A-A	P80-C06/5					
												EDE-CS-9510-1	Control Switch	P80	CB-F-3A-A	P80-C07/5					
												E-6084	Prot System Output Relay	P87	CB-F-3A-A	P80-C07/8 P80-C07/6					
												EDE-CS-9512-1	Control Switch	P80	CB-F-3A-A						
												EDE-CS-9512-2	Control Switch	P80	CB-F-3A-A						
												EDE-EL-9576	Monitoring Ckt. Indicating Light	G07	DG-F-2A-A						
												DG-G29-TACH	Tachometer	G29	DG-F-2A-A						
												DG-G29-SFR	Start Failure Relay	G29	DG-F-2A-A						
												DG-EL-1LI	Monitoring Ckt. Indicating Light								
												DG-G29-EMR	Engine Trouble Shutdown Relay	G29	DG-F-2A-A						
												DG-G29-EOR	Engine Overspeed Relay	G29	DG-F-2A-A						
												EDE-A69-BLA	DI Signal Lockout Relay	A69	CB-F-1A-A						
												DG-G29-OTR	High Oil Temperature Relay	G29	DG-F-2A-A						
												DG-G29-CTR	High Coolant Temperature Relay	G29	DG-F-2A-A						
												EDE-A54-TR2	Test Device	A54	CB-F-1A-A						
												EDE-A69-TR2	Test Device	A69	CB-F-1A-A						
												DG-G29-EST	Emergency Start Time Delay Relay	G29	DG-F-2A-A						
												DG-G29-ESX	Emergency Start Aux. Relay	G29	DG-F-2A-A						
												DG-G29-SA1	Air Pressure Aux. Relay	G29	DG-F-2A-A						
												DG-G29-SA2	Air Pressure Aux. Relay	G29	DG-F-2A-A						
												DG-G29-CF3	Power Available Relay	G29	DG-F-2A-A						
												DG-G29-CF1	Power Available Relay	G29	DG-F-2A-A						
												DG-G29-CF2	Power Available Relay	G29	DG-F-2A-A						
												DG-G29-CF5	Power Available Relay	G29	DG-F-2A-A						
												DG-G29-OP1	Oil Pressure Relay	G29	DG-F-2A-A						
												DG-G29-FPL	Fuel Pressure Relay	G29	DG-F-2A-A						
												DG-G29-CPL	Jacket Coolant Pressure Relay	G29	DG-F-2A-A						
												DG-G29-IPL	Intercooler Pressure Relay	G29	DG-F-2A-A						
												DG-PS-OPLI	Oil Low Pressure Switch	G29	DG-F-2A-A						
												DG-PS-FPLA	Fuel Low Pressure Switch	G29	DG-F-2A-A						
												DG-PS-CPLA	Jacket Coolant Low Pressure Switch	G29	DG-F-2A-A						
												DG-PS-IPLA	Intercooler Low Pressure Switch	G29	DG-F-2A-A						
												DG-G29-GVR	Generator Vib. Detector Switch Reset Coil	G29	DG-F-2A-A						

NOTES

7. This equipment is located in the diesel generator skid DG-SKD-1FC
8. The pneumatic control diagram of this equipment is shown in the DG air cooler water control loop diagram 9763-M-506403.
9. The pneumatic control diagram of this equipment is shown in the diesel engine jacket cooling water control loop diagram 9763-M-506405.
10. The pneumatic control diagram of this equipment is shown in the DG air cooler water control loop diagram 9763-M-506403.
11. The pneumatic control diagram of this equipment is shown in the DG diesel engine jacket cooling water loop diagram 9763-M-506406.

NO	DATE	DESCRIPTION	DRWN BY	CKD BY	MGR ENG
1	8/25/83	FIRST ISSUE	JMP	[illegible]	[illegible]

LOCATION - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 3.1.3.18-2

FUNCTION: DIESEL GENERATORS

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/FLOW DIAGRAM NO. SPEC'D	TRAIN	PHYSICAL LOCATION DRAWING NO. SPEC'D	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC INDEX	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC INDEX	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO. SPEC'D: SCHEMATIC	ELECTRICAL DRAWING NO. SPEC'D: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
10	DG-E-41A	Lube Oil Heat Exchanger	302102	A	310524	DG-F-2A-A	X	X	-	-	EA2	-	-	-	-	-	-	-	-	DG-E-41A	Note 164
11	DG-TE-46A	Diesel Generator 1A Component Cooling Water Expansion Tank	302103	A	310525	DG-F-3A-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TE-46A	Note 1
12	DG-E-42A	Diesel Generator 1A Component Cooling Water Heat Exchanger	302103 305819	A	310767 805213	PAB-F-3A-E	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	DG-E-42A	Note 163
13	DG-P-121A	Engine Driven Jacket Coolant Pump	302107	A	310524	DG-F-2A-A	X	X		-	EA2	-	-	-	-	-	-	-	-	DG-P-121A	Note 164
14	DG-P-231A	Engine Driven Air Coolant Pump	302103	A	310524	DG-F-2A-A	X	X	-	-	EA2	-	-	-	-	-	-	-	-	DG-P-231A	Note 164
15	DG-PV-7A-2	Lube Oil Cooler Diff. Pressure Control Valve	302103	A	310524	DG-F-2A-A	X	X	-	X	EA1	DG-PT-7A-3	Pressure Relay Pneumatic Transmitter	EA1	DG-F-2A-A	-	-	-	DAH-FH-25A DAH-FH-26A D/G Starting Air	DG-PV-7B-2	Note 8
												DG-PT-7A-4	Pressure Relay Pneumatic Transmitter	EA1	DG-F-2A-A						
												DG-PDT-7A-7	Diff. Pressure Transmitter	EA1	DG-C-2A-A						
												DG-PDC-7A-3	Diff. Pressure Controller	EA1	DG-F-2A-A						
16	DG-TCV-7A-2	Air Cooler Coolant Temp. Control Valve	302103	A	310524	DG-F-2A-A	X	X	-	X	EA1	DG-TT-7A-2	Temperature Transmitter	EA1	DG-F-2A-A	-	-	-	DAH-FH-25A DAH-FH-26A D/G Starting Air	DG-TCV-7B-2	Note 8
												DG-TC-7A-2	Temperature Controller	EA1	DG-F-2A-A						
17	DG-PV-7A-1	Jacket Coolant Diff. Pressure Control Valve	302103	A	310524	DG-F-2A-A	X	X	-	X	EA1	DG-PT-7A-1	Pressure Relay Pneumatic Transmitter	EA1	DG-F-2A-A	-	-	-	DAH-FH-25A DAH-FH-26A D/G Starting Air	DG-PV-7B-1	Note 9
												DG-PT-7A-2	Pressure Relay Pneumatic Transmitter	EA1	DG-F-2A-A						
												DG-PDT-7A-1	Diff. Pressure Transmitter	EA1	DG-F-2A-A						
												DG-PDC-7A-1	Diff. Pressure Controller	EA1	DG-F-2A-A						

NOTES

REV NO	DATE	DESCRIPTION	DRWN BY	CHKD BY	MEG ENG
0	8/15/81	FIRST ISSUE	BWK		

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TABLE NO. 3.1.3.18-17

FUNCTION: DIESEL GENERATORS

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/ LINE DRAWING NO SHEET	TRAIN	PHYSICAL LOCATION DRAWING NO SHEET	FIRE AREA/ ZONE	NEED FOR HOT SHUT DOWN	NEED FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC DIVISION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC DIVISION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO SHEET NO: SCHEMATIC	ELECTRICAL DRAWING NO SHEET NO: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
38	DG-TCV-7A-1	Air Cooler Coolant Temp. Control Valve	302103	A	310534	DG-F-2A-A	X	X	-	X	DA1	DG-TT-7A-1 DG-TC-7A-1	Temperature Transmitter Temperature Controller	DA1 DA1	DG-F-2A-A DG-F-2A-A	-	-	-	DAH-FN-25A DAH-FN-26A D/G Starting Air	DG-TCV-7B-1	Note 9
39	DG-F-64A	Lube Oil Filter	302102	A	310534	DG-F-2A-A	X	X	-	-	DA1	-	-	-	-	-	-	-	-	DG-F-64B	Note 164
40	DG-F-23A	Lube Oil Duplex Filter	302102	A	310534	DG-F-2A-A	X	X	-	-	DA1	-	-	-	-	-	-	-	-	DG-F-23B	Note 164
41	DG-S-4A	Lube Oil Strainer	302102	A	310534	DG-F-2A-A	X	X	-	-	DA1	-	-	-	-	-	-	-	-	DG-S-4B	Note 164
42	DG-S-85A	Lube Oil Sump Suction Strainer	302102	A	310534	DG-F-2A-A	X	X	-	-	DA1	-	-	-	-	-	-	-	-	DG-S-85B	Note 164
43	DG-S-5A	Fuel Oil Storage Tank Duplex Strainer	302102	A	310534 302264	DG-F-1A-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-S-5B	Note 162
44	DG-S-6A	Fuel Oil Day Tank Duplex Strainer	302102	A	310534	DG-F-2A-A	X	X	-	-	DA1	-	-	-	-	-	-	-	-	DG-S-6B	Note 164
45	DG-F-65A	Fuel Oil Duplex Filter	302102	A	310534	DG-F-2A-A	X	X	-	-	DA1	-	-	-	-	-	-	-	-	DG-F-65B	Note 164
46	DG-TK-110A	Fuel Oil Accumulator Tank	302102	A	310534	DG-F-2A-A	X	X	-	-	DA1	-	-	-	-	-	-	-	-	DG-TK-110B	Note 164
47	DG-PV-7B-2	Lube Oil Cooler Diff. Pressure Control Valve	302103	B	310534	DG-F-2B-A	X	X	-	X	DA2	DG-PT-7B-3 DG-PT-7B-4 DG-PDT-7B-2 DG-PDC-7B-2	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Diff. Pressure Transmitter Diff. Pressure Controller	DA2 DA2 DA2 DA2	DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A	-	-	-	DAH-FN-25B DAH-FN-26B D/G Starting Air	DG-PV-7A-2	Note 10
48	DG-TCV-7B-2	Air Cooler Coolant Temp. Control Valve	302103	B	310534	DG-F-2B-A	X	X	-	X	DA2	DG-TT-7B-2 DG-TC-7B-2	Temperature Transmitter Temperature Controller	DA2 DA2	DG-F-2B-A DG-F-2B-A	-	-	-	DAH-FN-25B DAH-FN-26B D/G Starting Air	DG-TCV-7A-2	Note 10

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CKD BY	APD & DTE
1	8/7/85	FIRST ISSUE	MMSK	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE NO R 1.1.1.10-18

RSS

FUNCTION: DECAY HEAT REMOVAL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PEDCO-LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA-ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONT HOL AND INSTRUMENTATION EQUIPMENT IDENTIFICATION NO	SUPPORTING CONT HOL AND INSTRUMENTATION EQUIPMENT DESCRIPTION	SUPPORTING CONT HOL AND INSTRUMENTATION ELEC NODE	SUPPORTING CONT HOL AND INSTRUMENTATION FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-W SCHEMATIC	ELECTRICAL DRAWING NO 9763-W CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	CD-TK-25	Condensate Storage Tank	202077	A/B	317248	CST-F-1-0	X	X	-	-	-	-	-	-	-	-	-	-	-	-	Note 3
2	FW-P-37A	Emergency Feed Pump	202076	A	318708	EFP-F-1-A	X	X	-	-	820	-	-	-	-	-	-	-	EPA-FW-47A	FW-P-37B	Note 3
3	FW-TD-2	Emergency Feed Pump Turbine	202076	A	318708	EFP-F-1-A	X	X	-	-	820	-	-	-	-	-	-	-	EPA-FW-47A	FW-P-37B	Note 3
4	MS-V127	Emergency Feedwater Pump Steam Supply Valve	202076	A	310589	MS-F-28-E	X	X	X	X	889	MS-S87/13-72	125VDC Circuit Breaker	S87	CB-F-16-A	S87-G2G/1 G2G-089	310841		EDE-FP-1112A CBA-FW-19	FW-P-37B	Note 4
												MS-V127-20	Pilot Solenoid	889	MS-F-28-E		S87/13a	S87/13c	CBA-FW-20		
												MS-ZS-V127	Valve Position Switch	889	MS-F-28-E						
												MS-CS-3066-2	Control Switch with Indication	G2G	C2-F-16-A						
												MS-SS-3066	Selector Switch	G2G	CB-F-16-A						
5	FW-P-37B	Emergency Feed Pump	202076	B	310708	EFP-F-1-A	X	X	X	-	814	FW-A-80-52	4160VAC Circuit Breaker	A80	CB-F-15-A	A80-814	310844		CBA-FW-32 CBA-FW-33 EPA-FW-47B EDE-SWG-6	FW-P-37A	
												FW-A-80-FU	Fuses	A80	CB-F-15-A		A80a	A80b			
												FW-CS-4255-2	Control Switch	A80	CB-F-15-A		A80b				
												FW-SS-4255	Selector Switch	A80	CB-F-15-A		A80c				
												EDE-A73-94-1B	Bus Under Voltage Relay	A73	CB-F-15-A		A80d				
												FW-A80-86	Lockout Relay	A80	CB-F-15-A						
												FW-A80-52B	Truck Operated Contact	A80	CB-F-15-A						
												FW-A80-50/51	Inst/Time over-current Relays 0A, 0C	A80	CB-F-15-A						
												FW-A80-AM	Ammeter	A80	CB-F-15-A						
												FW-A80-AS	Ammeter Switch	A80	CB-F-15-A						
												FW-A80-CT	Current Transformers (200/5)	A80	CB-F-15-A						
												FW-A80-TB1	CT Test Device	A80	CB-F-15-A						
												FW-A80-ATB	Transducer	A80	CB-F-15-A						
												FW-A80-TB2	Lockout Relay Test Device	A80	CB-F-15-A						
												FW-A80-G,R,W	Indicating Lights	A80	CB-F-15-A						
												FW-A80-52X	Time Delay Relay	A80	CB-F-15-A						
												FW-A80-51GS	Ground Sensor Relay	A80	CB-F-15-A						
6	FW-FV-4214A	Emergency Feedwater Header Flow Valve	202076	A	318708	EFP-F-1-A	X	X	X	-	921	FW-A39-52	460VAC Circuit Breaker	A39	CB-F-12-A	A39-921 A39-921E/1 E3C-G2G G2G-921E	A39a	A39d A39a	CBA-FW-19 CBA-FW-20 EPA-FW-47A EDE-MCC-515	FW-FV-4214-B	
												FW-A39-FU	Fuse	A39	CB-F-12-A						
												FW-CS-4214-A2	Control Switch with Indication	G2G	CB-F-12-A						
												FW-SS-4214-A	Selector Switch	G2G	CB-F-12-A						
												FW-A39-42/0,C	Motor Starters	A39	CB-F-12-A						
												FW-A39-49	Overload Relays	A39	CB-F-12-A						
												FW-ZS-4214-A	Valve Position Switch	921	EFP-F-1-A						
												FW-E3C-4214A2	Auxiliary Relay	E3C	CB-F-16-A						

NOTES

1. The equipment is mechanical with no electrical requirement.
2. During normal operation, this equipment is in its safe shutdown position. To prevent spurious operation, the valve will be disabled at the appropriate control location.
3. Disabling the valve at the appropriate control location will reposition it for safe shutdown.
4. Air is not needed to position or to reposition the valve for safe shutdown.
5. The review of this valve was conducted with the assumption that it will be closed from the control room prior to evacuation and that a fire will not reset its logic before the operator could man the remote shutdown station and throw the "Remote-Local" switches to "Local". It's cables and supporting controls were listed to analyze the possibility of the valve re-opening after the isolation switch has been positioned to "Local".

NO.	DATE	DESCRIPTION	DRAWN BY	CKD BY	MES ENG.
0	11/85	FIRST ISSUE	MPK	WJC	MES

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.1.3.1-1

FUNCTION: DECAY HEAT REMOVAL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PEDIGREE LINE DRAWING NO SYSD-F	TRAIN	PHYSICAL LOCATION DRAWING NO SYSD-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO SYSD-M: SCHEMATIC	ELECTRICAL DRAWING NO SYSD-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310844				
7	FW-FV-4214A	Emergency Feedwater Header Flow Valve	202076	B	310708	EFF-F-1-A	X		E	-	V2J	FW-B3E-52	4600VAC Circuit Breaker	B3E	CB-F-1B-A	B3E-V2J B3E-V2J/1	B3Ea	B3Ed B3Ec	CBA-FW-32 CBA-FW-33	FW-FV-4214-A	
												FW-B3E-FU	Fuse	B3E	CB-F-1B-A	E3D-G2J			EPA-FW-47B		
												FW-CS-4214-B2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-V2J B3E-G2J			EDE-NCC-615		
												FW-BS-4214-B	Selector Switch	G2J	CB-F-1B-A						
												FW-B3E-42/B,C	Motor Starters	B3E	CB-F-1B-A						
												FW-B3E-49	Overload Relays	B3E	CB-F-1B-A						
												FW-ZS-4214-B	Valve Position Switch	V2J	EFF-F-1-A						
												FW-E3D-4214-B2	Auxiliary Relay	E3D	CB-F-1B-A						
8	FW-FV-4224A	Emergency Feedwater Header Flow Valve	202076	A	310708	EFF-F-1-A	X		E	-	V2F	FW-B3W-52	4600VAC Circuit Breaker	B3W	CB-F-1A-A	B3W-V2F B3W-V2F/1	B3Wa	B3Wd B3We	CBA-FW-19 CBA-FW-20	FW-FV-4224-B	
												FW-B3W-FU	Fuse	B3W	CB-F-1A-A	E3C-G2G/1			EPA-FW-47A		
												FW-CS-4244-A2	Control Switch with Indication	G2G	CB-F-1A-A	G2G-V2F			EDE-NCC-515		
												FW-BS-4224-A	Selector Switch	G2G	CB-F-1A-A						
												FW-B3W-42/B,C	Motor Starters	B3W	CB-F-1A-A						
												FW-B3W-49	Overload Relays	B3W	CB-F-1A-A						
												FW-ZS-4224-A	Valve Position Switch	V2F	EFF-F-1-A						
												FW-E3C-4224A2	Auxiliary Relay	E3C	CB-F-1A-A						
9	FW-FV-4234A	Emergency Feedwater Header Flow Valve	202076	B	310708	EFF-F-1-A	X		E	-	V2E	FW-B4A-52	4600VAC Circuit Breaker	B4A	CB-F-1B-A	B4A-V2E B4A-V2E/1	B4Aa	B4Ad B4Ac	CBA-FW-32 CBA-FW-33	FW-FV-4234-A	
												FW-B3W-FU	Fuse	B4A	CB-F-1B-A	E3D-G2J/1			EPA-FW-47B		
												FW-CS-4234-B2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-V2E B4A-G2J			EDE-NCC-615		
												FW-BS-4234-B	Selector Switch	G2J	CB-F-1B-A						
												FW-B4A-42/B,C	Motor Starters	B4A	CB-F-1B-A						
												FW-B4A-49	Overload Relays	B4A	CB-F-1B-A						
												FW-ZS-4234-B	Valve Position Switch	V2E	EFF-F-1-A						
												FW-E3D-4234B2	Auxiliary Relay	E3D	CB-F-1B-A						
10	FW-FV-4234A	Emergency Feedwater Header Flow Valve	2002076	A	310708	EFF-F-1-A	X		E	-	V2G	FW-B3E-52	4600VAC Circuit Breaker	B3E	CB-F-1A-A	B3E-V2G B3E-V2G/1	B3Ea	B3Ed B3Ec	CBA-FW-19 CBA-FW-20	FW-FV-4234-B	
												FW-B3E-FU	Fuse	B3E	CB-F-1A-A	G2C-V2G			EPA-FW-47A		
												FW-CS-4234-A2	Control Switch with Indication	G2G	CB-F-1A-A	E3C-G2G/2			EDE-NCC-515		
												FW-BS-4214-A	Selector Switch	G2G	CB-F-1A-A						
												FW-B3E-42/B,C	Motor Starters	B3E	CB-F-1A-A						
												FW-B3E-49	Overload Relays	B3E	CB-F-1A-A						
												FW-ZS-4234-A	Valve Position Switch	V2G	EFF-F-1-A						
												FW-E3C-4234A2	Auxiliary Relay	E3C	CB-F-1A-A						
11	FW-FV-4234B	Emergency Feedwater Header Flow Valve	202076	B	310708	EFF-F-1-A	X		E	-	V2L	FW-B4B-52	4600VAC Circuit Breaker	B4B	CB-F-1B-A	B4B-V2L B4B-V2L/1	B4Ba	B4Bd B4Bc	CBA-FW-32 CBA-FW-33	FW-FV-4234-A	
												FW-B4B-FU	Fuse	B4B	CB-F-1B-A	E3D-G2J/2			EPA-FW-47B		
												FW-CS-4234-B2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-V2L B4B-G2J			EDE-NCC-615		
												FW-BS-4214-B	Selector Switch	G2J	CB-F-1B-A						
												FW-B4B-42/B,C	Motor Starters	B4B	CB-F-1B-A						
												FW-B4B-49	Overload Relays	B4B	CB-F-1B-A						
												FW-ZS-4234-B	Valve Position Switch	V2L	EFF-F-1-A						
												FW-E3D-4234B2	Auxiliary Relay	E3D	CB-F-1B-A						

NOTES:

REV	DATE	DESCRIPTION	DRWN BY	CKD BY	ENG. APP.
0	1-25-83	FIRST ISSUE	AMK	JSC	JSK

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RTS 3.1.3.1-2

FUNCTION: DECAY HEAT REMOVAL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT* EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT* EQUIPMENT DESCRIPTION	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT* FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-W SCHEMATIC	ELECTRICAL DRAWING NO 9763-W CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
12	FW-PV-4244-A	Emergency Feedwater Header Flow Valve	202076	A	310708	EFP-F-1-A	X	X	X	-	V2M	FW-B3Y-52	4160VAC Circuit Breaker	B3Y	CB-F-1A-A	B3Y-V2M B3Y-V2M/1	B3Ya	B3Yd B3Ye	CBA-FW-19 CBA-FW-20 EFA-FW-47A EDE-MCC-515	FW-PV-4244-B	
												FW-B3Y-FU	Fuse	B3Y	CB-F-1A-A	E3C-G2C/3					
												FW-CS-4244-A2	Control Switch with Indication	G2C	CB-F-1A-A	G2C-V2M					
												FW-SS-4234-A	Selector Switch	G2C	CB-F-1A-A						
												FW-B3Y-42/0,C	Motor Starters	B3Y	CB-F-1A-A						
												FW-B3Y-49	Overload Relays	B3Y	CB-F-1A-A						
												FW-ZS-4244-A	Valve Position Switch	V2M	EFP-F-1-A						
												FW-E3C-4244A2	Auxiliary Relay	E3C	CB-F-1A-A						
13	FW-PV-4244-B	Emergency Feedwater Header Flow Valve	202076	B	310708	EFP-F-1-A	X	X	X	-	V2N	FW-B4C-52	4160VAC Circuit Breaker	B4C	CB-F-1B-A	B4C-V2N B4C-V2N/1	B4Ca	B4Cd B4Ce	CBA-FW-32 CBA-FW-33 EFA-FW-47B EDE-MCC-615	FW-PV-4244-A	
												FW-B4C-FU	Fuse	B4C	CB-F-1B-A	E3D-G2J/3					
												FW-CS-4244-B2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-V2N B4C-G2J					
												FW-SS-4234-B	Selector Switch	G2J	CB-F-1B-A						
												FW-B4C-42/0,C	Motor Starters	B4C	CB-F-1B-A						
												FW-B4C-49	Overload Relays	B4C	CB-F-1B-A						
												FW-ZS-4244-B	Valve Position Switch	V2N	EFP-F-1-A						
												FW-E3D-4244B2	Auxiliary Relay	E3D	CB-F-1B-A						
14	MS-PV-3001	Main Steam Header Atmospheric Relief Valve	202074	A/B	310589	MS-F-2B-2	X	X	X	X	V2H	MS-BIC-3001	Auto/Manual Controller with Indicator	G2G	CB-F-1A-A	G2G-GL6	310841 G3Ga	310953 FJ71	CBA-FW-19 CBA-FW-20 HH-DQ-5868 HH-DQ-5869 INST. AIR	MS-PV-3002 or MS-PV-3004	E27
												MS-BQY-3001	Mixing Amplifier	G2E	CB-F-1A-A						
												MS-BY-3001	Signal Converter	G2E	CB-F-1A-A						
												MS-SS-3001	Selector Switch	G2G	CB-F-1A-A						
												MS-CS-3001-2	Control Switch with Indication	G2G	CB-F-1A-A						
												MS-PY-3001	I/P Converter	GL6	MS-F-1B-2						
												MS-E2Y/8-72	125VDC Circuit Breaker	E2Y	CB-F-1A-A	G2G-V2H G2G-GD6A	310841		EDE-PP-1136 CBA-FW-19		
												MS-CS-3001-2	Control Switch with Indication	G2G	CB-F-1A-A	G2G-GD8 E2Y-G5E G2G-G5E	E2Y/8a	E2Y/8n E2Y/8f	CBA-FW-20		
												MS-SS-3001-1	Selector Switch	G2G	CB-F-1A-A						
												MS-ZS-3001-A	Valve Position Switch	V2H	MS-F-2B-2						
												MS-PY-3001-1	Solenoid Valve	GDA	MS-F-2B-2						
												MS-PY-3001-2	Solenoid Valve	GDA	MS-F-2B-2						
												MS-PY-3001-3	Solenoid Valve	GDB	MS-F-2B-2						
												MS-PY-3001-4	Solenoid Valve	GDB	MS-F-2B-2						
												MS-SS-3001-2	Selector Switch	G5E	DG-F-2A-A						
15	MS-PV-3003	Main Steam Header Atmospheric Relief Valve	202074	A/B	310586	MS-F-2A-2	X	X	X	X	V2Q	MS-BIC-3003	Auto/Manual Controller with Indicator	G2G	CB-F-1A-A	G2G-GL5	310841 G3Ga	310953 FJ71	CBA-FW-19 CBA-FW-20 HH-DQ-5868 HH-DQ-5869 INST. AIR	MS-PV-3002 or MS-PV-3004	
												MS-BQY-3003	Mixing Amplifier	G2E	CB-F-1A-A						
												MS-BY-3003	Signal Converter	G2E	CB-F-1A-A						
												MS-SS-3003-1	Selector Switch	G2G	CB-F-1A-A						
												MS-CS-3003-2	Control Switch with Indication	G2G	CB-F-1A-A						
												MS-PY-3003	I/P Converter	GL5	MS-F-3A-2						
												MS-SS-3003-2	Selector Switch	G5E	DG-F-2A-A						
												MS-E2Y/10-72	125VDC Circuit Breaker	E2Y	CB-F-1A-A	G2G-V2Q G2G-GDE G2G-GDL E2Y-G5E/1 G2G-G5E/1	310841 E2Y/10a	E2Y/10n E2Y/10f	EDE-PP-1136 CBA-FW-19 CBA-FW-20		
												MS-CS-3003-2	Control Switch with Indication	G2G	CB-F-1A-A						

NOTES:

NO	DATE	DESCRIPTION	DWN BY	CKD BY	ENG APP
1	1/85	FIRST ISSUE	MPK	HJC	CDB

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE RSS 7.1.3.1-1

FUNCTION: DECAY HEAT REMOVAL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING-LINE DRAWING NO SPEC-F	TRAIN	PHYSICAL LOCATION DRAWING NO SPEC-F	FIRE AREA/ ZONE	NEED FOR HOT SHUTDOWN	NEED FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO SPEC-F: SCHEMATIC	ELECTRICAL DRAWING NO SPEC-F: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
15	MS-PV-3003 (Continued)											MS-SS-3003	Selector Switch	C2G	CB-F-1A-A						
												MS-ZS-3003-A	Valve Position Switch	V7Q	MS-F-2A-I						
												MS-PY-3003-1	Solenoid Valve	SDE	MS-F-2A-I						
												MS-PY-3003-2	Solenoid Valve	SDF	MS-F-2A-I						
												MS-PY-3003-3	Solenoid Valve	SDL	MS-F-2A-I						
												MS-PY-3003-4	Solenoid Valve	SDL	K3-F-2A-I						
16	MS-PV-3002	Main Steam Header Atmospheric Relief Valve	202074	A/B	310586	MS-F-2A-I	X	X	X	X	V2P	MS-RIC-3002	Auto/Manual Controller with Indicator	G2J	CB-F-1B-A	G2J-G2A	G2Ja	F.34d	CBA-FW-32 CBA-FW-33 MM-DQ-5866 MM-DQ-5867 INST AIR	MS-PV-3001 or MS-PV-3003	
												MS-HQY-3002	Mixing Amplifier	G2O	CB-F-1B-A						
												MS-BY-3002	Signal Converter	G2O	CB-F-1B-A						
												MS-SS-3002	Selector Switch	G2J	CB-F-1B-A						
												MS-CS-3002-2	Control Switch with Indication	G2J	CB-F-1B-A						
												MS-PY-3002	I/P Converter	G2A	MS-F-3A-I		310841				
												MS-E2B/8-72	125VDC Circuit Breaker	E2B	CB-F-1B-A	G2J-V2P G2J-GDG	E2B/8a	E2B/8a	EDE-PP-1139 CBA-FW-32		
												MS-CS-3002-2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-GDB E2B-C5Y G2J-C5Y		E2B/8f	CBA-FW-33		
												MS-SS-3002-1	Selector Switch	G2J	CB-F-1B-A						
												MS-ZS-3002-B	Valve Position Switch	V2P	MS-F-2A-I						
												MS-PY-3002-1	Solenoid Valve	SDG	MS-F-2A-I						
												MS-PY-3002-2	Solenoid Valve	SDG	MS-F-2A-I						
												MS-PY-3002-3	Solenoid Valve	SDB	MS-F-2A-I						
												MS-PY-3002-4	Solenoid Valve	SDB	MS-F-2A-I						
17	MS-V-3004	Main Steam Header Atmospheric Relief Valve	202074	A/B	310589	MS-F-2B-I	X	X	X	X	V2R	MS-RIC-3004	Auto/Manual Controller with Indicator	G2J	CB-F-1B-A	G2J-G2A	G2Ja	F.34d	CBA-FW-32 CBA-FW-33 MM-DQ-5866 MM-DQ-5867 INST AIR	MS-PY-3001 or MS-PY-3003	
												MS-HQY-3004	Mixing Amplifier	G2O	CB-F-1B-A						
												MS-BY-3004	Signal Converter	G2O	CB-F-1B-A						
												MS-SS-3004	Selector Switch	G2J	CB-F-1B-A						
												MS-CS-3004-2	Control Switch with Indication	G2J	CB-F-1B-A						
												MS-PY-3004	I/P Converter	G2A	MS-F-1B-I		310841				
												MS-E2B/10-72	125VDC Circuit Breaker	E2B	CB-F-1B-A	G2J-V2R G2J-GDD G2J-GDE	E2B/10a	E2B/10a E2B/10f	EDE-PP-1139 CBA-FW-32 CBA-FW-33		
												MS-CS-3004-2	Control Switch with Indication	G2J	CB-F-1B-A	E2B-C5Y & 8Y/1 G2J-C5Y & 6Y/1					
												MS-SS-3004-1	Selector Switch	G2J	CB-F-1B-A						
												MS-ZS-3004-B	Valve Position Switch	V2R	MS-F-2B-I						
												MS-CY-3004-1	Solenoid Valve	SDD	MS-F-2B-I						
												MS-PT-3004-2	Solenoid Valve	SDD	MS-F-2B-I						
												MS-PT-3004-3	Solenoid Valve	SDE	MS-F-2B-I						
												MS-PT-3004-4	Solenoid Valve	SDE	MS-F-2B-I						
												MS-SS-3004-2	Selector Switch	C5Y	DC-F-2B-A						

NOTES

REV	DATE	DESCRIPTION	DWN BY	CKD BY	MES ENG
0	4/83	FIRST ISSUE	BMY	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DECAY HEAT REMOVAL

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE REF 3.1.3.1-6

FUNCTION REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/ISOMETRIC DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NOTE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 8763-F: SCHEMATIC	ELECTRICAL DRAWING NO 8763-F: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	RC-E-10	Reactor Coolant System Pressurizer	805007	A/B	310598	C-F-1-E	-	-	-	-	-	-	-	-	-	-	-	-	-	Same	Note 1
2	RC-E-10	Pressurizer Heaters Group A	805007	A	310598	C-F-1-E	X	X	X	-	N26	RC-AB4-52	480VAC Circuit Breaker	AB4	CB-F-1A-A	AB4-EE07 AB4-EE07/1	310887		CBA-FH-19 CBA-FH-20	Pressurizer Heaters Group B	-
												RC-AB4-FU	Fuses	AB4	CB-F-1A-A	AB4-CB1	AB4a	AB4g	EDE-05-52		
												RC-CS-7318-2	Control Switch with Indication	CB1	CB-F-1A-A	AB4-CB1/1 EG3-B14	AB4b AB4c				
												RC-SS-7318	Selector Switch	CB1	CB-F-1A-A	EG7-B14/1					
												EDE-AC3-94-3	Bus Undervoltage Relay	AC3	CB-F-1A-A	EG3-B14/2 EG7-B14/3					
												RC-AB4-52B-1	Truck Operated Contact	AB4	CB-F-1A-A	EG7-B14/4 B14-B47					
												EDE-FJAX-X47 (RC-B47)	Terminal Box	B47	C-F-1-E	B14-B47/1					
												RC-AB4-G,R	Indicating Lights	AB4	CB-F-1A-A	B14-B47/2 B14-B47/3					
												RC-AB4-CT1	Current Transformer (600/5) 8B Bus Side	AB4	CB-F-1A-A	B14-B47/4 N26-B47 N26-B47/1					
												RC-AB4-AM	Ammeter	AB4	CB-F-1A-A	N26-B47/2					
												RC-AB4-CT2	Current Transformer (600/5) ØA, ØC Load Side	AB4	CB-F-1A-A	N26-B47/3 N26-B47/4 N26-B47/5					
												RC-AC3-WTR	Watt Transducer	AC3	CB-F-1A-A	N26-B47/6					
												RC-PP-4A	Distribution Panel	E07	ET-F-1A-A	N26-B47/7 N26-B47/8					
												EDE-MDH-90	Electrical Penetration	B14	ET-F-1A-A C-F-2-E	N26-B47/9 N26-B47/A N26-B47/B N26-B47/C N26-B47/D N26-B47/E					
3	RC-E-10	Pressurizer Heaters Group B	805007	B	310598	C-F-1-E	X	X	X	-	N26	RC-AB4-52	480VAC Circuit Breaker	AB4	CB-F-1B-A	AB4-EE08 AB4-EE08/1	AB4a	AB4f	CBA-FH-32 CBA-FH-33	Pressurizer Heaters Group A	
												RC-AB4-FU	Fuses	AB4	CB-F-1B-A	AB4-GZ0	AB4b AB4c		EDE-05-62		
												RC-CS-7319-2	Control Switch with Indication	GZ0	CB-F-1B-A	AB4-GZ0/1 AE3-GZ0					
												RC-SS-7319	Selector Switch	GZ0	CB-F-1B-A	EG8-B20					
												EDE-AE3-94-3	Bus Undervoltage Relay	AE3	CB-F-1B-A	EG8-B20/1 EG8-B20/2					
												RC-AB4-52B-1	Truck Operated Contact	AB4	CB-F-1B-A	EG8-B20/3 EG8-B20/4					
												RC-AB4-G,R	Indicating Lights	AB4	CB-F-1B-A	B20-B44 B20-B44/1					
												EDE-FJBX-X49 (RC-B44)	Terminal Box	B44	C-F-1-E	B20-B44/2					
												RC-AB4-CT1	Current Transformer (600/5) 8B Bus Side	AB4	CB-F-1B-A	B20-B44/3 B20-B44/4 N26-B44					
												RC-AB4-AM	Ammeter	AB4	CB-F-1B-A	N26-B44/1					
												RC-AB4-CT2	Current Transformer (600/5) ØA, ØC Load Side	AB4	CB-F-1B-A	N26-B44/2 N26-B44/3 N26-B44/4					
												RC-AE3-WTR	Watt Transducer	AE3	CB-F-1B-A	N26-B44/5					
												RC-PP-4B	Distribution Panel	E08	ET-F-1C-A	N26-B44/6 N26-B44/7					
												EDE-MDH-94	Electrical Penetration	B20	ET-F-1C-A, C-F-1-E	N26-B44/8 N26-B44/9 N26-B44/A N26-B44/B N26-B44/C N26-B44/D N26-B44/E					
												RC-AE3-R1	Auxiliary Relay	AE3	CB-F-1B-A						

NOTES

1. The equipment is mechanical with no electrical requirement.
2. During normal operation, the valve is in its safe shutdown position. To prevent spurious operation, this equipment will be disabled at the appropriate control location.
3. Disabling the valve at the appropriate control location will reposition it for safe shutdown.
4. Air is not needed to position or to reposition the valve for safe shutdown.
5. This equipment will be permanently disabled by tripping out its circuit breaker at the MCC.
6. During normal operation, the valve is in its hot shutdown position. To prevent spurious operation, this equipment will be disabled at the appropriate control location. For cold shutdown, the valve will be energized for repositioning.

NO	DATE	DESCRIPTION	DWN BY	CKD BY	MES ENG
0	2/15	FIRST ISSUE	[illegible]	[illegible]	

LOCFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

TABLE RSS 3.1.3.2-1

FUNCTION REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	FLOW DIAGRAM NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQD FOR HOT SHUT DOWN	REQD FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-V SCHEMATIC	ELECTRICAL DRAWING NO 9763-V CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
4	BC-V-122	BC-E-10 Pressurizer Relief Isolation Valve	805007	A	310581	C-F-3-E	X	X	X	-	Y01	BC-Y07-52-1,2 BC-Y07-F0 BC-CS-7313-2 BC-SS-7313 - BC-Y07-42-1/0,C BC-Y03-42-2 BC-Y07-49-1,2 BC-E56 BC-ZS-V122 EDE-HM-94 EDE-HM-111	4160VAC Circuit Breakers Fuse Control Switch with Indication Selector Switch Motor Starters Motor Starter Overload Relays Terminal Box Valve Position Switch and Valve Open/Close Torque Switches Electrical Penetration Electrical Penetration	Y07 Y07 GB1 GB1 Y07 Y07 Y07 E56 Y01 B18 B35	CB-Y-1A-A CB-Y-1A-A CB-Y-1A-A CB-Y-1A-A CB-Y-1A-A CB-Y-1A-A CB-Y-1A-A C-Y-3-E C-Y-3-E C-Y-2-E, ET-Y-1A-A C-Y-3-E, ET-Y-1A-A	Y07-GB1 Y07-GB1/1 Y07-B18 Y07-B35 B18-Y01 B35-E56 Y01-E56	310883 Y07c Y07c	Y07c	CBA-FW-19 CBA-FW-20 EDE-MCC-521	BC-V-124 BC-PCV-456A	4DE-18X-X56
5	BC-V-134	BC-E-10 Pressurizer Relief Isolation Valve	805007	B	310581	C-F-3-E	X	X	X	-	Y02	BC-Y08-52-1,2 BC-Y08-F0 BC-CS-7314-2 BC-SS-7314 BC-Y08-42-1/0,C BC-Y08-42-2 BC-Y08-49-1,2 BC-E35 BC-ZS-V134 EDE-HM-91 EDE-HM-117	4160VAC Circuit Breakers Fuse Control Switch with Indication Selector Switch Motor Starters Motor Starter Overload Relays Terminal Box Valve Position Switch and Valve Open/Close Torque Switches Electrical Penetration Electrical Penetration	Y08 Y08 GZ0 GZ0 Y08 Y08 Y08 E35 Y02 B15 BA1	CB-Y-1B-A CB-Y-1B-A CB-Y-1B-A CB-Y-1B-A CB-Y-1B-A CB-Y-1B-A CB-Y-1B-A C-Y-3-E C-Y-3-E C-Y-1-E, ET-Y-1C-A C-Y-1-E, ET-Y-1C-A	Y08-GZ0 Y08-GZ0/1 Y08-GZ0/3 Y08-B35 Y08-BA1 B15-Y02 BA1-E35 Y02-E35	310882 Y08c Y08c	Y08c	CBA-FW-33 CBA-FW-33 EDE-MCC-421	BC-V-123 BC-PCV-456B	8DE-18X-X35
6	BC-PCV-456A	BC-E-10 Pressurizer Relief Control Valve	805007	A	310581	C-F-3-E	X	X	X		LD3	BC-E87/19-72 BC-CB-456A-2 BC-SS-456-A1 BC-SS-456-A2 BC-J3H-42 BC-PCV-456A-20 BC-ZS-PCV-456A BC-BAA-FU31612 BC-E56 EDE-HM-94 EDE-HM-111	125VDC Circuit Breaker Control Switch with Indication Selector Switch Selector Switch Aux. Relay Solenoid Operating Coil Valve Position Switch 30 Amp Fuses Terminal Box Electrical Penetration Electrical Penetration	E87 GB1 GB1 G58 J3H LD3 LD1 BAA E56 B18 B35	CB-Y-1A-A CB-Y-1A-A CB-Y-1A-A DC-Y-2A-A DC-Y-2A-A C-Y-3-E C-Y-3-E CB-Y-1A-A C-Y-3-E C-Y-2-E, ET-Y-1A-A C-Y-2-E, ET-Y-1A-A	E87-BAA/4 BAA-J3H GB1-J3H GB1-B35 G58-J3H B18-J3H B18-LD3 B35-E56/2 LD3-E56	E87/19c	E87/19c	CBA-FW-19 CBA-FW-20 EDE-PP-1124	BC-PCV-456B BC-V-122	8DE-18X-X56

NOTES

7. The Solid State Protection Cabinet will be disabled at the appropriate control location to prevent the output logic from initiating spurious operation of various valves and pumps.

8. This group of pressurizer heaters will be disabled at the appropriate control location to prevent spurious operation.

9. Electrical conduit plan drawing, 9763-F-310764, is listed only to show the fire zone corresponding to the area where the charging pump oil coolers are located (9763-F-805213 and -F-815214).

10. Reactor Coolant Pumps will be tripped prior to main control room evacuation or they can be tripped in Non-Essential Switchgear Room, if required.

11. This equipment will be disabled by tripping and racking-out its circuit breaker at the switchgear.

NO	DATE	DESCRIPTION	DWN BY	CHD BY	RES ENG
0	8/82	FIRST ISSUE	CJM	TLC	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.1.3.7-1

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID & LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION, DRAWING NO 8763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO 8763-W: SCHEMATIC	ELECTRICAL DRAWING NO 8763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310882				
7	BC-PCV-4568	RE-E-10 Pressurizer Relief Control Valve	805007	B	310581	C-F-3-E	X	X	X		LDA	BC-EB8/19-72 BC-CS-4568-3 BC-SS-436-B1 BC-SS-436-B3 BC-JJP-42 BC-PCV-4568-2D BC-ZS-PCV-4568 BC-BAC-PB1B630 BC-JJS EDE-4BH-100 EDE-4BH-139 BC-BAC-PB2B634	125VDC Circuit Breaker Control Switch with Indication Selector Switch Selector Switch Aux. Relay Solenoid Operating Coil Valve Position Switch 30A Fuses Terminal Box Electrical Penetration Electrical Penetration 30A Fuses	EB8 GZO GZO GSY JJP LDA LDA BAC JJS BZ4 B39 BAC	CB-F-1*-A CB-F-1B-A CB-F-1B-A BC-F-2B-A BC-F-2B-A C-F-3-E C-F-3-E CB-F-1B-A C-F-3-E C-F-1-E, ET-F-1C-A C-F-1-E, ET-F-1C-A CB-F-1B-A	EB8-BAC/7 BAC-GZO/2 BAC-JJP GZO-JJP GZO-B39 GSY-JJP BZ4-JJP BZ4-LDA B39-JJS LDA-JJS	EB8/19a	EB8/19c	CBA-FN-32 CBA-FN-33 EDE-PP-1128	BC-PCV-4566 BC-V-124	EDE-1B1-JJS
8	BC-TE-11	Pressurizer Relief Tank	805007	A/B	310577	C-F-1-E	X	X	-	-	-	-	-	-	-	-	-	-	-	None	Note 1
9	BC-V-323	Reactor Vessel Venting Valve	805002	B	310581	C-F-3-E	X	X	X	-	VBA	BC-BV9-52-1	460VAC Circuit Breaker	BV9	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	BC-PV-2881	Note 2
10	BC-PV-2881	Reactor Vessel Venting Valve	805002	B	310581	C-F-3-E	X	X	X		VDA	BC-EB8/1-72 BC-SS-2881	125VDC Circuit Breaker Selector Switch	EB8 GSY	CB-F-1B-A BC-F-2B-A	-	-	-	CBA-FN-32 CBA-FN-33 DAB-FN-25B DAB-FN-26B	BC-V-323	Note 2
11	BC-LCV-459	Letdown Isolation Valve	805011	A	310577	C-F-1-E	X	X	X	X	L99	BC-EB9/17-72 BC-SS-459	125VDC Circuit Breaker Selector Switch	EB9 GSE	CB-F-1A-A BG-F-2A-A	-	-	-	CBA-FB-19 CBA-FB-20 DAB-FB-25A DAB-FB-26A	BC-LCV-460	Note 3
12	BC-LCV-460	Letdown Isolation Valve	805011	A	310577	C-F-1-E	X	X	X	X	L97	BC-EB9/1-72	125VDC Circuit Breaker	EB9	CB-F-1A-A	-	-	-	CBA-FB-19 CBA-FB-20	BC-LCV-459	Note 3
2A	CS-V143	ONE-130	805011	B	310769	PP-F-1A-E	X	X	X	-	V11	CS-B87-52 CS-CS-7V11-2 CS-SS-7V11 CS-B37-42A/C CS-B37-49 CS-ZS-143 CS-B87-FU	480V CKT BKR CONTROL SW SELECTOR SW STARTER OVERLOAD POSITION SW FUSES	B87 G2J G2J B87 B87 V11 B87	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PP-F-1A-E CB-F-1B-A	B87-G2J B87-G2J/1 B87-V11 B87-V11/1	310891 B87A	B87C B87d	CBA-FN-32 CBA-FN-33 EAN-FN-BB EDE-AC-L12	None	

NOTES:

REV	DATE	DESCRIPTION	DRWN BY	CKD BY	ENG APP
0	8/84	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TAF F 855 3.1.3.7-3

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	PIPING-LINE DRAWING NO. 5763-F	TRAIN	PHYSICAL LOCATION DRAWING NO. 5763-F	FIRE AREA ZONE	REQ'D FOR HOT (HOT SHUTDOWN)	REQ'D FOR COLD (COLD SHUTDOWN)	POWER ELEC.	POWER AUX.	ELEC. NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC. NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO. 5763-M: SCHEMATIC	ELECTRICAL DRAWING NO. 5763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
13	CS-P-2A	Charging Pump	805012	A	310764	FAB-F-1C-A	X	X	X	-	M17	CS-A62-52	4160VAC Circuit Breaker	A62	CB-F-1A-A	A62-M17 A62-P01	310891		CBA-FW-19 CBA-FW-20	CS-P-2B	
												CS-CS-7424-2	Control Switch	A62	CB-F-1A-A		A62a	A67b	EAB-FW-5A		
												CS-SS-7424	Selector Switch	A62	CB-F-1A-A		A62b		EDE-SWG-5		
												CS-A62-86	Lockout Relay	A62	CB-F-1A-A		A62c				
												CS-A62-52B	Truck Operated Contact	A62	CB-F-1A-A		A67d				
												CS-A62-50/51	Inst/Time Over Current Relays 0A, 0C	A62	CB-F-1A-A						
												CS-PS-7467	Pressure Switch	P01	FAB-F-1C-A						
												CS-A62-AM	Ammeter	A62	CB-F-1A-A						
												CS-A62-AS	Ammeter Switch	A62	CB-F-1A-A						
												CS-A62-CT	Current Transformer (100/5)	A62	CB-F-1A-A						
												CS-A62-TD1	CT Test Device	A62	CB-F-1A-A						
												CS-A62-ATS	Transducer	A62	CB-F-1A-A						
												CS-A62-TD2	Lockout Relay Test Device	A62	CB-F-1A-A						
												CS-A62-X1	Auxiliary Relay	A62	CB-F-1A-A						
												CS-A62-F9	Fuses	A62	CB-F-1A-A						
												CS-A62-52Z	Timing Relay	A62	CB-F-1A-A						
												CS-A62-G,R,W	Indicating Lights	A62	CB-F-1A-A						
												CS-A62-51GS	Ground Sensor Relay	A62	CB-F-1A-A						
14	CS-P-2B	Charging Pump	805012	B	310764	FAB-F-1B-A	X	X	X	-	M18	CS-A82-52	4160VAC Circuit Breaker	A82	CB-F-1B-A	A82-M18 A82-P02	A82a	A82b	CBA-FW-32 CBA-FW-33	CS-P-2A	
												CS-CS-7425-2	Control Switch	A82	CB-F-1B-A		A82c		EAB-FW-5B		
												CS-SS-7425	Selector Switch	A82	CB-F-1B-A		A82d		EDE-SWG-6		
												CS-A82-86	Lockout Relay	A82	CB-F-1B-A						
												CS-A82-52B	Truck Operated Contact	A82	CB-F-1B-A						
												CS-A82-50/51	Inst/Time Over-Current Relays 0A, 0B	A82	CB-F-1B-A						
												CS-PS-7468	Pressure Switch	P02	FAB-F-1B-A						
												CS-A82-AM	Ammeter	A82	CB-F-1B-A						
												CS-A82-AS	Ammeter Switch	A82	CB-F-1B-A						
												CS-A82-CT	Current Transformer (100/5)	A82	CB-F-1B-A						
												CS-A82-TD1	CT Test Device	A82	CB-F-1B-A						
												CS-A82-ATS	Transducer	A82	CB-F-1B-A						
												CS-A82-TD2	Lockout Relay Test Device	A82	CB-F-1B-A						
												CS-A82-X1	Auxiliary Relay	A82	CB-F-1B-A						
												CS-A82-F9	Fuses	A82	CB-F-1B-A						
												CS-A82-52Z	Timing Relay	A82	CB-F-1B-A						
												CS-A82-G,R,W	Indicating Lights	A82	CB-F-1B-A						
												CS-A82-51GS	Ground Sensor Relay	A82	CB-F-1B-A						
												CS-A82-X2	Auxiliary Relay	A82	CB-F-1B-A						

NOTES:

REV	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG.
0	2 MAR	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers & Constructors Inc.

TABLE RSL 3.1.3.1-4

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F	FIRE AREA ZONE	NEED FOR HOT SHUTDOWN	NEED FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT DESCRIPTION	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 8763-H SCHEMATIC	ELECTRICAL DRAWING NO 8763-H CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	31089:				
15	BC-P-1A	Reactor Coolant Pump	805003	A	310576 310582 310578	C-F-1-E C-F-1-E C-F-2-E	X	-	X	-	M01	BC-A05-52	13.8kV AC Circuit Breaker	A05	MES-F-1A-E	-	-	-	-	None	Note 10
16	BC-P-1B	Reactor Coolant Pump	805004	A	310576 310582 310576	C-F-1-E C-F-1-E C-F-2-E	X	-	X	-	M02	BC-A20-52	13.8kV AC Circuit Breaker	A20	MES-F-1A-E	-	-	-	-	None	Note 10
17	BC-P-1C	Reactor Coolant Pump	805005	A	310577 310583 310579	C-F-1-E C-F-1-E C-F-2-E	X	-	X	-	M03	BC-A09-52	13.8kV AC Circuit Breaker	A09	MES-F-1A-E	-	-	-	-	None	Note 10
18	BC-P-1D	Reactor Coolant Pump	805006	A	310577 310583 310579	C-F-1-E C-F-1-E C-F-2-E	X	-	X	-	M04	BC-A24-52	13.8kV AC Circuit Breaker	A24	MES-F-1A-E	-	-	-	-	None	Note 10
19	BC-V-22	BC-E-11A Hot Leg-RHR Isolation Valve	805003	B	310582	C-F-1-E	X	X	X	-	V27	BC-B54-52-1	4600VAC Circuit Breaker	B54	CB-F-1B-A	-	-	-	CBA-FW-32 CBA-FW-33	BC-V-23	Note 5 & 6
20	BC-V-23	BC-E-11A Hot Leg-RHR Isolation Valve	805003	A	310576	C-F-1-E	X	X	X	-	V25	BC-B53-52-1	4600VAC Circuit Breaker	B53	CB-F-1A-A	-	-	-	CBA-FW-19 CBA-FW-20	BC-V-22	Note 5 & 6
21	BC-V-87	BC-E-11B Hot Leg-RHR Isolation Valve	805006	B	310582	C-F-1-E	X	X	X	-	V26	BC-B61-52-1	4600VAC Circuit Breaker	B61	CB-F-1B-A				CBA-FW-32 CBA-FW-33	BC-V-87	Note 5 & 6
22	BC-V-88	BC-E-11B Hot Leg-RHR Isolation Valve	805006	A	310577	C-F-1-E	X	X	X	-	V28	BC-B62-52-1	4600VAC Circuit Breaker	B67	CB-F-1A-A				CBA-FW-19 CBA-FW-20	BC-V-88	Note 5 & 6
																	310890				
23	B1-V-3	Accumulator TK-9A Outlet Isolation Valve	805009	A	310576	C-F-1-E	-	X	X	-	V30	B1-B35-5-1,2 B1-B35-FU B1-CS-2403-2 B1-BB-2403 B1-ZL-2403-6 B1-B35-42/0,C B1-B35-49 B1-ZS-93 EQE-MOV-95 EQE-MOV-112	4600VAC Circuit Breakers Fuse Control Switch with Indication Selector Switch Pilot Light Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Electrical Penetration Electrical Penetration	B35 B35 GB1 GB1 GB1 B35 B35 V30 B19 B36	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-E C-F-2-E, ET-F-1A-A C-F-2-E, ET-F-1A-A	B35-GB1 B35-B19 B35-B36 B19-V30 B36-V30	B35a	B35c	CBA-FW-19 CBA-FW-20 EQE-MCC-522	None	
												B1-E89/9-52 B1-CS-2403-2 B1-BB-2403 B1-ZS-93 B1-BAB-FU7&8 EQE-MOV-112	120 VAC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 AMP Fuses Electrical Penetration	E89 GB1 GB1 V30 BAB B36	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-E CB-F-1A-A C-F-2-E ET-F-1A-A	GB1-B35/5 GB1-B36/6 B35-V61/1 B36-V30/1 BAB-E89 BAB-GB1	E89/9a	E89/9b	CBA-FW-19 CBA-FW-20 EQE-PP-1E		

NOTES

NO	DATE	DESCRIPTION	DRN BY	CKD BY	RES ENG
1	4/25/86	FIRST ISSUE	CJR	DJS	CVS

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE 8S5 3.1.3.2-1

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID 1-LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	REQUIRED FOR HOT SHUTDOWN	REQUIRED FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-W: SCHEMATIC	ELECTRICAL DRAWING NO 9763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	510890				
24	RI-V-17	Accumulator TK-9B Outlet Isolation Valve	805809	B	310576	C-F-1-I	-	X	X	-	960	RI-B36-52-1,2	460VAC Circuit Breakers	B36	CB-F-1B-A	B36-G20 B36-B15 B36-BA1	B36a	B36c	CBA-FN-32 CBA-FN-33 EDE-MCC-422	None	
												RI-B36-FU	Fuse	B36	CB-F-1B-A						
												RI-CS-2413-2	Control Switch with Indication	G20	CB-F-1B-A	B15-960 BA1-960					
												RI-SS-2413	Selector Switch	G20	CB-F-1B-A						
												RI-ZL-2413-4	Pilot Light	G20	CB-F-1B-A						
												RI-B36-42/0,C	Motor Starters	B36	CB-F-1B-A						
												RI-B36-49	Overload Relay	B36	CB-F-1B-A						
												RI-ZS-917	Valve Position and Open/Close Torque Switches	960	C-F-1-I						
												EDE-MM-91	Electrical Penetration	B15	C-F-1-I, ET-F-1C-A						
												EDE-MM-117	Electrical Penetration	BA1	C-F-1-I, ET-F-1C-A						
												RI-EBD/9-52	120VAC Circuit Breaker	EBD	CB-F-1B-A	G20-B39/5 G20-BA1/4	EBD/9a	EBD/9b	CBA-FN-32 CBA-FN-33		
												RI-CS-2413-2	Control Switch with Indication	G20	CB-F-1B-A	B39-942/1 BA1-940/1			EDE-PP-19		
												RI-SS-2413	Selector Switch	G20	CB-F-1B-A	(E3A)-EBD					
												RI-ZS-917	Valve Position and Open/Close Torque Switches	960	C-F-1-I	(E3A)-G20					
												RI-EAJ-FU760	30 AMP Fuses	EAJ	CB-F-1B-A						
												EDE-MM-117	Electrical Penetration	BA1	C-F-1-I, ET-F-1C-A						
25	RI-V-32	Accumulator TK-9C Outlet Isolation Valve	805809	A	310577	C-F-1-I	-	X	X	-	961	RI-B37-52-1,2	460VAC Circuit Breakers	B37	CB-F-1A-A	B37-GB1	B37a	B37c	CBA-FN-19	None	
												RI-B37-FU	Fuse	B37	CB-F-1A-A	B37-B18			CBA-FN-20		
												RI-CS-2423-2	Control Switch with Indication	GB1	CB-F-1A-A	B37-B35 B18-961 B35-961			EDE-MCC-522		
												RI-SS-2423	Selector Switch	GB1	CB-F-1A-A						
												RI-ZL-2423-4	Pilot Light	GB1	CB-F-1A-A						
												RI-B37-42/0,C	Motor Starters	B37	CB-F-1A-A						
												RI-B37-49	Overload Relay	B37	CB-F-1A-A						
												EDE-MM-94	Electrical Penetration	B18	C-F-2-I, ET-F-1A-A						
												EDE-MM-111	Electrical Penetration	B35	C-F-2-I, ET-F-1A-I						
												RI-ZS-932	Valve Position and Open/Close Torques Switches	961	C-F-1-I						
												RI-EBB/9-52	120VAC Circuit Breakers	EBB	CB-F-1A-A	GB1-B35/5 GB1-B36/6	EBB/9a	EBB/9b	CBA-FN-19 CBA-FN-20		
												RI-CS-2423-2	Control Switch with Indication	GB1	CB-F-1A-A	B35-961/1 B36-939/1			EDE-PP-1E		
												RI-SS-2423	Selector Switch	GB1	CB-F-1A-A	EAB-EBB					
												RI-ZS-C32	Valve Position and Open/Close Torque Switches	961	C-F-1-I	EAB-GB1					
												RI-EAB-FU765	30A Fuses	EAB	CB-F-1A-A						
												EDE-MM-111	Electrical Penetration	B35	C-F-2-I, ET-F-1A-A						

NOTES:

NO	DATE	DESCRIPTION	DWN BY	CHKD BY	NSS ENG.
1	8/5/81	FIRST ISSUE	CJM	WJC	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
RC INVENTORY AND PRESSURE CTRL.

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION
United Engineers

TAB.3 RSS 3.1.3.7-6

FUNCTION: PROCESS MONITORING

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	P&ID/FLOW DIAGRAM NO. & SHT. #	TRAIN	PHYSICAL LOCATION (DRAWING NO. & SHT. #)	FIRE AREA/ ZONE	REQUIRED: HOT SHUTDOWN	REQUIRED: COLD SHUTDOWN	POWER: ELEC.	POWER: AUX.	ELEC. MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC. MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO. & SHT. #: SCHEMATIC	ELECTRICAL DRAWING NO. & SHT. #: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
11	CD-LIBL-4052	Condensate Storage Tank Level Indicator	302077	A B	310248 509066	(Aer) CST-F-1A	-	E	-	-	B10	-	-	-	-	-	-	-	-	-	Note 1

NOTES

REV. NO.	DATE	ITEM/PAGE	BY	CHK'D	APP'D
	8/21/85	FINAL ISSUE			

IPE USO - APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
PROCESS MONITORING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United engineers

TABLE B55 3.1.4-1

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY — SAFEGUARDS ACTUATION

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PEID/1-LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA ZONE	NEED FOR HOT SHUT DOWN	NEED FOR C.S. SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-10: SCHEMATIC	ELECTRICAL DRAWING NO 9763-10: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	NH-CP-13	Solid State Prot. System Cabinet (Train A Load Group)	-	A	310501	CB-F-36-A	X	X	X	-	FP6	PSC-881/11-52	120 VAC Circuit Breaker	E01	CB-F-1A-A	-	-	-	CBA-FW-19 CBA-FW-20 DAB-FW-25A DAB-FW-26A	None	Note 1
												NH-88-5807	Selector Switch	G5E	BC-F-2A-A						
2	NH-CP-13	Solid State Prot. System Cabinet (Train B Load Group)	-	B	310501	CB-F-36-A	X	X	X	-	FP9	PSC-882/11-52	120 VAC Circuit Breaker	E02	CB-F-1B-A	-	-	-	CBA-FW-32 CBA-FW-33 DAB-FW-25B DAB-FW-26B	None	Note 1
												NH-88-5808	Selector Switch	G5T	BC-F-2B-A						

NOTES:

1. The Solid State Protection Cabinet will be disabled at the appropriate control location to prevent the output logic from initiating spurious operation of various valves and pumps.

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	7/1	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
SAFEGUARD ACTUATION SYSTEM

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE REF 3.3.3-1

FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PEDIGREE LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 8763-U: SCHEMATIC	ELECTRICAL DRAWING NO 8763-U: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	DAB-FN-25A	DG-1A Room Supply Air Fan	604096	A	310525	DG-F-3A-I	X	X	X	-	837	DAB-B01-52	4607VAC Circuit Breaker	B01	CB-F-1A-A	B01-B37/1 B01-G29	310928		SSE-HCC-521	DAB-FN-25B	
												DAB-CS-5529	Control Switch	B01	CB-F-1A-A	B01-GS2	B01a	B01c			
												DAB-IL-5529-1	Fan Indicating Lights	B01	CB-F-1A-A	B01-S40 B01-T75					
												DAB-IL-5529-2	Damper DP-15A Indicating Light	B01	CB-F-1A-A	B01-T85					
												DAB-FISB-5529	Flow Switch	S40	DG-F-1A-A	B01-077					
												DAB-TSHL-5529-1	Temperature Switch	T8H	DG-F-2A-A	B01-079/1					
												DAB-TSHL-5529-2	Temperature Switch	T75	DG-F-2A-A						
												DAB-ZS-DP-15A	Damper 15A Position Switch	077	DG-F-3A-I						
												DAB-ZS-DP-16A	Damper 16A Position Switch	079	DG-F-2A-A						
												DAB-EDH-82	Auxiliary Relay	EDH	CB-F-1A-A						
												DG-G29-8SR	DG-1A High Speed Relay	G29	DG-F-2A-A						
												DG-SR2-8SR	EPS Permit Auxiliary Relay	SR2	CB-F-1A-A						
												DG-SR2-PR2	EPS Permit Auxiliary Relay	SR2	CB-F-1A-A						
												DG-SR2-SR2	EPS Permit Auxiliary Relay	SR2	CB-F-1A-A						
												DAB-B01-43	Motor Starter	B01	CB-F-1A-A						
												DAB-B01-43X	Motor Starter Auxiliary Relay	B01	CB-F-1A-A						
												DAB-B01-49	Overload Relays	B01	CB-F-1A-A						
												DAB-B01-FN	Fuse	B01	CB-F-1A-A						
												DAB-DP-15A-2D	Damper Pilot Solenoid	077	DG-F-3A-I						
												DAB-DP-16A-2D	Damper Pilot Solenoid	079	DG-F-2A-A						
2	DAB-DP-15A	DG-1A Room Supply Air Damper	604096	A	310525	DG-F-3A-I	X	X	X	X	077	DAB-B01-52	4607VAC Circuit Breaker	B01	CB-F-1A-A	B01-077	B01a	B01c	EDE-HCC-521	DAB-DP-15B	Note 1
												DAB-EDH-82	Auxiliary Relay	EDH	CB-F-1A-A						
												DAB-DP-15A-2D	Pilot Solenoid	077	DG-F-3A-I						
												DAB-B01-FD	Fuse	B01	CB-F-1A-A						
												DAB-TSHL-5529-2	Temperature Switch	T75	DG-F-2A-A						
3	DAB-DP-16A	DG-1A Room Return Air Damper	604096	A	310526	DG-F-2A-A	X	X	X	X	079	DAB-B01-52	4607VAC Circuit Breaker	B01	CB-F-1A-A	B01-079/1	B01a	B01c	EDE-HCC-521	DAB-DP-16B	Note 1
												DAB-EDH-82	Auxiliary Relay	EDH	CB-F-1A-A						
												DAB-DP-16A-2D	Pilot Solenoid	079	DG-F-2A-A						
												DAB-B01-FN	Fuse	B01	CB-F-1A-A						
												DAB-TSHL-5529-2	Temperature Switch	T75	DG-F-2A *						

NOTES:

1. Air is not required for support as damper fails open.

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
1	11/22/88	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATOR BUILDING AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.1.3.11-1

FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO SH3-P-	TRAIN	PHYSICAL LOCATION DRAWING NO SH3-P-	FIRE AREA ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO. SH3-M- SCHEMATIC	ELECTRICAL DRAWING NO. SH3-M- CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																		310928			
4	DAB-FN-25B	DG-1B Room Supply Air Fan	604096	B	310525	DG-F-3B-E	X	X	X	-	838	DAB-B02-52	4609AC Circuit Breaker	B0E	CB-F-1B-A	B02-838/1 B02-E80	B02a	B02c	EDE-MCC-621	DAB-FN-25A	
												DAB-CS-5530	Control Switch	B02	CB-F-1B-A	B02-G30					
												DAB-IL-5530-1	Fan Indicating Lights	B02	CB-F-1B-A	B02-BB- B02-S41					
												DAB-IL-5530-2	Damper DP-15B Indicating Light	B02	CB-F-1B-A	B02-T9P E80-T96					
												DAB-F18B-5530	Flow Switch	S41	DG-F-2B-A						
												DAB-TSHL-5530-1	Temperature Switch	T9P	DG-F-2B-A	B02-DP8 B02-DP0/1					
												DAB-TSHL-5530-3	Temperature Switch	T96	DG-F-2B-A						
												DAB-ES-DP-15B	Damper 15B Position Switch	DP8	DG-F-3B-E						
												DAB-ZS-DP-16B	Damper 16B Position Switch	DP0	DG-F-2B-A						
												DAB-EE3-B2	Auxiliary Relay	EE3	CB-F-1B-A						
												DAB-B02-F9	Fuse	B02	CB-F-1B-A						
												DG-G30-B5B	DG-1B High Speed Relay	G30	DG-F-2B-A						
												DG-EBA-KB8	EPS Permit Auxiliary Relay	EBA	CB-F-1B-A						
												DG-EBA-P2I	EPS Permit Auxiliary Relay	EBA	CB-F-1B-A						
												DG-EBA-EBJ	EPS Permit Auxiliary Relay	EBA	CB-F-1B-A						
												DAB-B0E-A2	Motor Starter	B0E	CB-F-1B-A						
												DAB-B02-A2E	Motor Starter Auxiliary Relay	B02	CB-F-1B-A						
												DAB-B02-A9	Overload Relays	B07	CB-F-1B-A						
												DAB-DP-15B-2B	Damper Pilot Solenoid	DP8	DG-F-3B-E						
												DAB-DP-16B-2B	Damper Pilot Solenoid	DP0	DG-F-2B-A						
5	DAB-DP-15B	DG-1B Room Supply Air Damper	604096	B	310525	DG-F-3B-E	X	X a	X	X	DP8	DAB-B02-52	4609AC Circuit Breaker	B0E	CB-F-1B-A	B02-DP8	B02a	B02c	EDE-MCC-621	DAB-DP-15A	Note 1
												DAB-EE3-B2	Auxiliary Relay	EE3	CB-F-1B-A						
												DAB-DP-15B-2B	Pilot Solenoid	DP8	DG-F-3B-E						
												DAB-B02-F9	Fuse	B02	CB-F-1B-A						
												DAB-TSHL-5530-2	Temperature Switch	T96	DG-F-2B-A						
6	DAB-DP-16B	DG-1B Room Return Air Damper	604096	B	310524	DG-F-2B-A	X	X	X	X	DP0	DAB-B02-52	4609AC Circuit Breaker	B0E	CB-F-1B-A	B02-DP0/1	B02a	B02c	EDE-MCC-621	DAB-DP-16A	Note 1
												DAB-EE3-B2	Auxiliary Relay	EE3	CB-F-1B-A						
												DAB-DP-16B-2B	Pilot Solenoid	DP0	DG-F-2B-A						
												DAB-B02-F9	Fuse	B02	CB-F-1B-A						
												DAB-TSHL-5530-2	Temperature Switch	T96	DG-F-2B-A						

NOTES

REV	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
0	8/31/85	FIRST ISSUE	DMF	WJC	KSB

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATOR BUILDING AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE BSS 3.1.3.11-7

FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	PIPING LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-P	FIRE AREA/ ZONE	REQ'D FOR HOT SHUTDOWN	REQ'D FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 8763-W: SCHEMATIC	ELECTRICAL DRAWING NO 8763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
7	BAR-FH-264	DG-1A Room Return	604096	A	310525	DG-F-2A-A	X	X	X	-	839	BAR-803-52	4600VAC Circuit Breaker	803	CB-F-1A-A	803-839/1 803-840 803-DF9 803-T3P	3109.1 803a	803c	EBE-MCC-521	BAR-FH-268	
												BAR-801-42Z	Motor Starter Auxiliary Relay	801	CB-F-1A-A						
												BAR-F15B-5529	Flow Indicating Switch	840	DG-F-2A-A						
												BAR-803-42	Motor Starter	803	CB-F-1A-A						
												BAR-803-42Z	Motor Starter Auxiliary Relay	803	CB-F-1A-A						
												BAR-803-49	Overload Relays	803	CB-F-1A-A						
												BAR-ZL-5539-3	Fan Indicating Lights	803	CB-F-1A-A						
												BAR-ZL-5529-4	Damper DP-16A Lights	803	CB-F-1A-A						
												BAR-ZS-DP-16A	Damper Position Switch	DF9	DG-F-2A-A						
												BAR-TSHL-5529-3	Temperature Switch	T3P	DG-F-2A-A						
												BAR-803-F9	Fuse	803	CB-F-1A-A						
8	BAR-FH-269	DG-1B Room Return Air Fan	604096	B	310525	DG-F-2B-A	X	X	X	-	840	BAR-804-52	4600VAC Circuit Breaker	804	CB-F-1B-A	804-840/1 804-841 804-DF8 804-T3Q	804a	804c	EBE-MCC-621	BAR-FH-266	
												BAR-802-42Z	Motor Starter Auxiliary Relay	802	CB-F-1B-A						
												BAR-F15B-5530	Flow Indicating Switch	841	DG-F-2B-A						
												BAR-804-42	Motor Starter	804	CB-F-1B-A						
												BAR-804-42Z	Motor Starter Auxiliary Relay	804	CB-F-1B-A						
												BAR-804-49	Overload Relays	804	CB-F-1B-A						
												BAR-ZL-5530-3	Fan Indicating Lights	804	CB-F-1B-A						
												BAR-ZL-5530-4	Damper DP-16B Indicating Lights	804	CB-F-1B-A						
												BAR-ZS-DP-16B	Damper Position Switch	DF8	DG-F-2B-A						
												BAR-TSHL-5530-3	Temperature Switch	T3Q	DG-F-2B-A						
												BAR-804-F8	Fuse	804	CB-F-1B-A						

NOTES:

NO	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	11/75/04	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATOR BUILDING AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.1.3.11-1

FUNCTION CONTAINMENT ENCLOSURE AIR HANDLING

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	P&ID/FLOW DIAGRAM NO. 9763-F	TRAIN	PHYSICAL LOCATION (DRAWING NO. 9763-F	FIRE AREA/ ZONE	NEED FOR HOT SHUTDOWN	NEED FOR COLD SHUTDOWN	POWER ELEC.	POWER AIR	ELEC. NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC. NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO. 9763-M: SCHEMATIC	ELECTRICAL DRAWING NO. 9763-M: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	EAR-FN-5A	Containment Enclosure Cooler AC-2A Fan	604108 604116	A	310766	CE-F-1 (5) N	X	X	X	-	MB0	EAR-AF5-52	480V AC Circuit Breaker	AF5	CB-F-1A-A	AF5-G2H AF5-G2H/1 AF5-MB0 AF5-YC3 LA1-YC3	310932 AF5a AF5b AF5f	AF5a	EAR-FN-31A EDE-05-57 Primary Component Cooling Water	EAR-FN-5B	
												EAR-AF5-G, H	Indicating Lights	AF5	CB-F-1A-A						
												EAR-CS-5763-2	Control Switch with Indication	G2H	CB-F-1A-A						
												EAR-HS-5763	Selector Switch	G2H	CB-F-1A-A						
												EAR-ZL-5763-2	Outlet Damper Position Lights	G2H	CB-F-1A-A						
												EAR-ZS-DP-3A	Damper Position Switch	LA1	CE-F-1 (6) N						
												EAR-AF5-AH	Ammeter	AF5	CB-F-1A-A						
												EAR-AF5-CT	Current Transformer (200/5)	AF5	CB-F-1A-A						
												EHE-AC3-94-3	Bus Undervoltage Relay	AC3	CB-F-1A-A						
												EAR-AF5-52H-1	Truck Operated Contact	AF5	CB-F-1A-A						
												EAR-YC1-TB	Terminal Box	YC3	CE-F-1 (4)						
												EAR-AF5-FH	Fuses	AF5	CB-F-1A-A						
2	EAR-FN-5B	Containment Enclosure Cooler AC-2B Fan	604108 604116	B	310766	CE-F-1 (5) N	X	X	X	-	MB1	EAR-AF9-52	480V AC Circuit Breaker	AF9	CB-F-1B-A	AF9-G2K AF9-G2K/1 AF9-G2K/2 AF9-MB1 AF9-YB3 LA2-YB3	AF9a AF9b AF9f	AF9a	EAR-FN-31B EDE-05-62 Primary Component Cooling Water	EAR-FN-5A	
												EAR-AF9-G, H	Indicating Lights	AF9	CB-F-1B-A						
												EAR-CS-5768-2	Control Switch with Indication	G2K	CB-F-1B-A						
												EAR-HS-5768	Selector Switch	G2K	CB-F-1B-A						
												EAR-ZL-5768-2	Outlet Damper Position Lights	G2K	CB-F-1B-A						
												EAR-ZS-DP-3B	Damper Position Switch	LA2	CE-F-1 (6) N						
												EAR-AF9-AH	Ammeter	AF9	CB-F-1B-A						
												EAR-AF9-CT	Current Transformer (200/5)	AF9	CB-F-1B-A						
												EHE-AE3-94-3	Bus Undervoltage Relay	AE3	CB-F-1B-A						
												EAR-AF9-52H-1	Truck Operated Contact	AF9	CB-F-1B-A						
												EAR-YB3-TB	Terminal Box	YB3	CE-F-1 (4)						
												EAR-AF9-FH	Fuses	AF9	CB-F-1B-A						
												EAR-AE3-K1	Auxiliary Relay	AE3	CB-F-1B-A						
3	EAR-FN-31A	Containment Enclosure Return Fan "A"	604108 604116	A	310765	CE-F-1 (5) N	-	X	X	-	MB5	EAR-BB2-52	480V AC Circuit Breaker	BB2	CB-F-1A-A	BB2-MB5 BB2-YQ2	BB2a	BB2c	EDE-HCC-512	EAR-FN-31B	
												EAR-BB2-FH	Fuse	BB2	CB-F-1A-A						
												EAR-CS-5760-2	Control Switch	BB2	CB-F-1A-A						
												EAR-BB2-G, H	Indicating Lights	BB2	CB-F-1A-A						
												EAR-HS-5760	Selector Switch	BB2	CB-F-1A-A						
												EAR-ZL-5760-2	Inlet Damper Position Lights	BB2	CB-F-1A-A						
												EAR-BB2-42	Motor Starter	BB2	CB-F-1A-A						
												EAR-BB2-42X	Motor Starter Auxiliary Relay	BB2	CB-F-1A-A						
												EAR-BB2-49	Overload Relays	BB2	CB-F-1A-A						
												EAR-ZS-DP-25A	Damper Position Switch	YQ2	CE-F-1 (5) N						

NOTES

1. Equipment is mechanical with no electrical requirements.
2. Air and electrical power are not required for support as damper fails open.
3. Dampers EAR-DP-37A and EAR-DP-37B will be manually disabled by tripping their breakers.

NO.	INITIALS	FIRST ISSUE	DRWN BY	CKD BY	RES ENG.
	DATE	DESCRIPTION			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
CONTAINMENT ENCL. AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

FSAR ESS 3.7.3.12-1

FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	PENETRATION (DRAWING NO. 9763-F)	TRAIN	PHYSICAL LOCATION (DRAWING NO. 9763-F)	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL (DRAWING NO. 9763-H): SCHEMATIC	ELECTRICAL (DRAWING NO. 9763-H): CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
4	EAR-FN-319	Containment Enclosure Return Fan "B"	604108 604116	B	310765	CE-F-1 (A) (N)	-	X	X	-	BJ7	EAR-BC1-52	4609 AC Circuit Breaker	BC1	CB-F-1B-A	BC1-BJ7 BC1-FQ3	BC1a (2104)	BC1c	EDE-HCC-612	EAR-FN-31A	
												EAR-BC1-FU	Fuse	BC1	CB-F-1B-A						
												EAR-CS-5770-2	Control Switch	BC1	CB-F-1B-A						
												EAR-BC1-G, R	Indicating Lights	BC1	CB-F-1B-A						
												EAR-SS-5770	Selector Switch	BC1	CB-F-1B-A						
												EAR-ZL-5770-2	Inlet Damper Position Lights	BC1	CB-F-1B-A						
												EAR-BC1-42	Motor Starter	BC1	CB-F-1B-A						
												EAR-BC1-42X	Motor Starter Auxiliary Relay	BC1	CB-F-1B-A						
												EAR-BC1-49	Overload Relays	BC1	CB-F-1B-A						
												EAR-ZS-DP-258	Damper Position Switch	FQ3	CE-F-1 (B) (N)						
5	EAR-DP-37A	Containment Encl. Return Air Damper	604108	A	310764	CE-F-1 (A) (N)	X	X	X	X	967	EAR-EB7/17-72	125V DC Circuit Breaker	EB7	CB-F-1A-A	-	-	-	-	EAR-DP-37B	Notes 2&3
6	EAR-DP-37B	Containment Encl. Return Air Damper	604108	B	310766	CE-F-1 (B) (N)	X	X	X	X	968	EAR-EB8/17-72	125V DC Circuit Breaker	EB8	CB-F-1B-A	-	-	-	-	EAR-DP-37A	Notes 2&3
7	EAR-DP-36	Containment Encl. Cooler AC-26 Damper	604108	A	310766	CE-F-1 (D) (N)	X	X	-	-	LA1	-	-	-	-	-	-	-	-	EAR-DP-38	Note 1
8	EAR-DP-38	Containment Encl. Cooler AC-28 Damper	604108	B	310766	CE-F-1 (C) (N)	X	X	-	-	LA2	-	-	-	-	-	-	-	-	EAR-DP-36	Note 1
9	EAR-FN-174A	MS & FWPC Analyzer Room Exhaust Fan	604178	A	310586	ME-F-4A-E	X	X	X	-	MA7	EAR-BBC-52	4609 AC Circuit Breaker	BBC	CB-F-1A-A	BBC-MA7 BBC-B5G	BBCa	BBCc	CBA-FN-19 CBA-FN-20 EDE-HCC-515	EAR-FN-174B	
												EAR-BBC-FU	Fuse	BBC	CB-F-1A-A						
												EAR-CS-5136	Control Switch with Indication	BBC	CB-F-1A-A						
												EAR-BBC-42	Motor Starter	BBC	CB-F-1A-A						
												EAR-BBC-49	Overload Relays	BBC	CB-F-1A-A						
												EAR-TSH-5136	Temp. Switch	B5G	ME-F-4A-2						
10	EAR-FN-174B	MS & FWPC Analyzer Room Exhaust Fan	604178	B	310586	ME-F-4A-E	X	X	X	-	MB8	EAR-BBE-52	4609 AC Circuit Breaker	BBE	CB-F-1B-A	BBE-MB8 BBE-B5B	BBEa	BBEc	CBA-FN-32 CBA-FN-33 EDE-HCC-615	EAR-FN-174B	
												EAR-BBE-FU	Fuse	BBE	CB-F-1B-A						
												EAR-CS-5763	Control Switch with Indication	BBE	CB-F-1B-A						
												EAR-BBE-42	Motor Starter	BBE	CB-F-1B-A						
												EAR-BBE-49	Overload Relays	BBE	CB-F-1B-A						
												EAR-TSH-5736	Temp. Switch	B5B	ME-F-4A-2						

NOTES:

REV	DATE	DESCRIPTION	DRWN BY	CHKD BY	RES ENG
0	11/15/85	FIRST ISSUE	BMF	DJS	CGB

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
CONTAINMENT ENCL. AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.3.3.1-1

FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE AIR HANDLING

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	FSAR/P&ID (DRAWING NO. 9763-F)	TRAIN	PHYSICAL LOCATION (DRAWING NO. 9763-F)	FIRE AREA/ZONE	NEED FOR HOT SHUTDOWN	NEED FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ZONE	CABLES	ELECTRICAL DRAWING NO. 9763-W: SCHEMATIC	ELECTRICAL DRAWING NO. 9763-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	EFA-FW-47A	Emergency Feedwater Pump Bowse Intake Fan	604161	A	310708	EFP-F-1-A	X	X	X	-	MLS	EFA-B87-52	4609AC Circuit Breaker	B87	CB-F-1A-A	B87-MLS B87-UN3 B87-996	310927 B87a	B87c B87d	CBA-FW-19 CBA-FW-20 EDE-HCC-512	EFA-FW-47B	
												EFA-B87-FU	Fuse	B87	CB-F-1A-A						
												EFA-CS-5430-1	Control Switch	B87	CB-F-1A-A						
												EFA-IL-5430-4	Fan Indicating Lights	B87	CB-F-1A-A						
												EFA-SS-5430	Selector Switch	B87	CB-F-1A-A						
												EFA-ECB-8887	Damper Auxiliary Relay	ECB	CB-F-1A-A						
												EFA-ZS-DP-373	Damper Position Switch	ZR3	EFP-F-1-A						
												EFA-ZS-DP-371	Damper Position Switch	996	EFP-F-1-A						
												EFA-IL-5430-5	Damper DP-373 Position Lights	B87	CB-F-1A-A						
												EFA-IL-5430-6	Damper DP-371 Position Lights	B87	CB-F-1A-A						
												EFA-B87-62	Motor Starter	B87	CB-F-1A-A						
												EFA-B87-49	Overload Relays	B87	CB-F-1A-A						
2	EFA-DP-373	Emergency Feedwater Pumphouse Exhaust Damper	604161	A	310708	EFP-F-1-A	X	X	X	X	ZR3	EFA-B87-FU	Fuse	B87	CB-F-1A-A	B87-ZR3	B87a	B87c B87d	CBA-FW-19 CBA-FW-20 EDE-HCC-512	EFA-DP-374	Note: 1
												EFA-ECB-8887	Auxiliary Relay	ECB	CB-F-1A-A						
												EFA-DP-373-20	Pilot Solenoid	ZR3	EFP-F-1-A						
3	EFA-FW-47B	Emergency Feedwater Pumphouse Intake Fan	604161	B	310708	EFP-F-1-A	X	X	X	-	MLS	EFA-BC7-52	4609AC Circuit Breaker	BC7	CB-F-1B-A	BC7-MLS BC7-UN4 BC7-997	BC7a	BC7c BC7d	CBA-FW-32 CBA-FW-33 EDE-HCC-612	EFA-FW-47A	
												EFA-BC7-FU	Fuse	BC7	CB-F-1B-A						
		EFA-IL-5431-4	Fan Indicating Lights	BC7	CB-F-1B-A																
												EFA-SS-5431	Selector Switch	BC7	CB-F-1B-A						
												EFA-EDD-EBC7	Damper Auxiliary Relay	EDD	CB-F-1B-A						
												EFA-ZS-DP-374	Damper Position Switch	UNA	EFP-F-1-A						
												EFA-ZS-DP-372	Damper Position Switch	997	EFP-F-1-A						
												EFA-BC7-62	Motor Starter	BC7	CB-F-1B-A						
												EFA-BC7-49	Overload Relays	BC7	CB-F-1B-A						
												EFA-IL-5431-5	Damper DP-374 Position Lights	BC7	CB-F-1B-A						
												EFA-IL-5431-6	Damper DP-372 Position Lights	BC7	CB-F-1B-A						
												EFA-CS-5431-2	Control Switch	BC7	CB-F-1B-A						
												EFA-EDD-81	Auxiliary Relay	EDD	CB-F-1B-A						
4	EFA-DP-374	Emergency Feedwater Pumphouse Exhaust Damper	604161	B	310708	EFP-F-1-A	X	X	X	X	UNA	EFA-BC7-FU	Fuse	BC7	CB-F-1B-A	BC7-UNA	BC7a	BC7c BC7d	CBA-FW-32 CBA-FW-33 EDE-HCC-612	EFA-DP-373	Note: 1
												EFA-EDD-BBC7	Auxiliary Relay	EDD	CB-F-1B-A						
												EFA-DP-374-20	Pilot Solenoid	UNA	EFP-F-1-A						
												EFA-EDD-81	Auxiliary Relay	EDD	CB-F-1B-A						

NOTES:

1. Are is not required for support as damper fails open.

2	11/15/84	FIRST ISSUE	MFK	[illegible]	[illegible]
1	[illegible]	DESCRIPTION	DRWN BY	CHKD BY	APPD BY

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
EMERG. FW PMPHSE. AIR HANDLING

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.1.3.13-1

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	FEED-LINE DRAWING NO 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 9763-F	FIRE AREA/ ZONE	NEED FOR HOT SHUT DOWN	NEED FOR COLD SHUT DOWN	POWER ELEC	POWER AUX	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT DESCRIPTION	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 9763-U SCHEMATIC	ELECTRICAL DRAWING NO 9763-U CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310102				
7	EDE-SWG-5	41609 Feed to 4809 Elec EDE-2-56 for Substation Box EDE-08-51	310007	A	310642	CB-F-1A-A	X	X	X	-	A55	EDE-A55-52	41609 Circuit Breaker	A55	CB-F-1A-A	A55-481	A55a	A55g	CBA-PB-19	EDE-SWG-6	
																	A55b		CBA-PB-20	EDE-2-5C	
												EDE-A55-FB	Fuses	A55	CB-F-1A-A		A55c		EDE-PP-111A	EDE-05-61	
												EDE-CS-8706	Control Switch	A55	CB-F-1A-A		A55d		EDE-SWG-5		
												EDE-A55-G,R,W	Indicating Lights	A55	CB-F-1A-A						
												EDE-SS-8706	Selector Switch	A55	CB-F-1A-A						
												EDE-A55-52B	Truck Operated Contact	A55	CB-F-1A-A						
												EDE-A55-86	Lockout Relay	A55	CB-F-1A-A						
												EDE-A55-TBB	Lockout Relay Test Device	A55	CB-F-1A-A						
												EDE-A55-50/51	Inst/Time Overcurrent Relays 0A, 0B, 0C	A55	CB-F-1A-A						
												EDE-A55-CT	Current Transformers (300/5)	A55	CB-F-1A-A						
												EDE-A55-AB	Ammeter	A55	CB-F-1A-A						
												EDE-A55-AS	Ammeter Switch	A55	CB-F-1A-A						
												EDE-A55-ATR	Current Transducer	A55	CB-F-1A-A						
												EDE-A55-TBH	CT Test Device	A55	CB-F-1A-A						
												EDE-A55-51GB	Ground Sensor Relay	A55	CB-F-1A-A						
8	EDE-SWG-5	41609 Feed to 4809 Elec EDE-2-58 for Substation Box EDE-08-52	310007	A	310642	CB-F-1A-A	X	X	X	-	A63	EDE-A63-52	41609 Circuit Breaker	A63	CB-F-1A-A	A63-4C1	A63a	A63g	CBA-PB-19	EDE-SWG-6	
																	A63b		CBA-PB-20	EDE-2-5D	
												EDE-A63-FB	Fuses	A63	CB-F-1A-A		A63c		EDE-PP-111A	EDE-05-62	
												EDE-CS-8703	Control Switch	A63	CB-F-1A-A		A63d		EDE-SWG-5		
												EDE-A63-G,R,W	Indicating Lights	A63	CB-F-1A-A						
												EDE-SS-8703	Selector Switch	A63	CB-F-1A-A						
												EDE-A63-52B	Truck Operated Contact	A63	CB-F-1A-A						
												EDE-A63-86	Lockout Relay	A63	CB-F-1A-A						
												EDE-A63-TBB	Lockout Relay Test Device	A63	CB-F-1A-A						
												EDE-A63-50/51	Inst/Time Overcurrent Relays 0A, 0B, 0C	A63	CB-F-1A-A						
												EDE-A63-CT	Current Transformers (300/5)	A63	CB-F-1A-A						
												EDE-A63-AB	Ammeter	A63	CB-F-1A-A						
												EDE-A63-AS	Ammeter Switch	A63	CB-F-1A-A						
												EDE-A63-ATR	Current Transducer	A63	CB-F-1A-A						
												EDE-A63-TBH	CT Test Device	A63	CB-F-1A-A						
												EDE-A63-51GB	Ground Sensor Relay	A63	CB-F-1A-A						

NOTES

NO	DATE	DESCRIPTION	DWN BY	CKD BY	REG ENG
1	4/15/85	FIRST ISSUE	[illegible]	[illegible]	

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE RSS 3.1.3.17-9

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	FEEDER LINE DRAWING NO. (SYS) F	TRAIN	PHYSICAL LOCATION DRAWING NO. (SYS) F	FIRE AREA/ ZONE	NEED FOR HOT SHUTDOWN	NEED FOR COLD SHUTDOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA/ ZONE	CABLES	ELECTRICAL DRAWING NO. (SYS)-# SCHEMATIC	ELECTRICAL DRAWING NO. (SYS)-# CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
																	310103				
9	EDE-ED-54	4809 Bus 51 Unit Substation	310013	A	310442	CB-F-1A-A	X	X	X	-	AB2	EDE-AB2-52	4809AC Circuit Breaker	AB2	CB-F-1A-A		AB2a	AB2b	CBA-FW-19 CBA-FW-20	EDE-09-61	
												EDE-X-54	6160-4809 Distribution Transformer	AB1	CB-F-1A-A				EDE-X-54		
												EDE-AB3-FU	Fuses	AB3	CB-F-1A-A						
												EDE-AB1-LA	6KV Lightning Arrestors (3)	AB1	CB-F-1A-A						
												EDE-AB2-CT	Current Transformers (2000/5)	AB2	CB-F-1A-A						
												EDE-AB3-AM	Ammeter	AB3	CB-F-1A-A						
												EDE-AB3-AS	Ammeter Switch	AB3	CB-F-1A-A						
10	EDE-ED-52	4809 Bus 52 Unit Substation	310013	A	310442	CB-F-1A-A	X	X	X	-	AC2	EDE-AC2-52	4809AC Circuit Breaker	AC2	CB-F-1A-A		AC2a	AC2b	CBA-FW-19 CBA-FW-20	EDE-09-62	
												EDE-X-58	6160-4809 Distribution Transformer	AC1	CB-F-1A-A				EDE-X-58		
												EDE-AC3-FU	Fuses	AC3	CB-F-1A-A						
												EDE-AC1-LA	6KV Lightning Arrestors (3)	AC1	CB-F-1A-A						
												EDE-AC2-CT	Current Transformers (2000/5)	AC2	CB-F-1A-A						
												EDE-AC3-AM	Ammeter	AC3	CB-F-1A-A						
												EDE-AC3-AS	Ammeter Switch	AC3	CB-F-1A-A						
																	310103				
11	EDE-ED-51	4809 Feed to 4609 Motor Control Center 513	310013	A	310442	CB-F-1A-A	X	X	X	-	AB6	EDE-AB6-52	4809AC Circuit Breaker	AB6	CB-F-1A-A	AB6-810 AB6-810/1	AB6	AB6	CBA-FW-19 CBA-FW-20 EDE-09-51	EDE-09-61 EDE-MCC-612	
12	EDE-ED-51	4809 Feed to 4609 Motor Control Center 514	310013	A	310442	CB-F-1A-A	X	X	X	-	AB4	EDE-AB4-52	4809AC Circuit Breaker	AB4	CB-F-1A-A	AB4-C11	AB4	AB4	CBA-FW-19 CBA-FW-20 EDE-09-51	EDE-09-61 EDE-MCC-614	
13	EDE-ED-51	4809 Feed to 4609 Motor Control Center 515	310013	A	310442	CB-F-1A-A	X	X	X	-	AB8	EDE-AB8-51	4809AC Circuit Breaker	AB8	CB-F-1A-A	AB8 (ESC) B40 AB8 (ESC/1) B40/	AB8	AB8	CBA-FW-19 CBA-FW-20 EDE-09-51	EDE-09-61 EDE-MCC-615	
14	EDE-ED-52	4809 Feed to 4609 Motor Control Center 521	310013	A	310442	CB-F-1A-A	X	X	X	-	AC8	EDE-AC8-52	4809AC Circuit Breaker	AC8	CB-F-1A-A	AC8-813 AC8-813/1	AC8	AC8	CBA-FW-19 CBA-FW-20 EDE-09-52	EDE-09-62 EDE-MCC-621	
15	EDE-ED-52	4809 Feed to 4609 Motor Control Center 522	310013	A	310442	CB-F-1A-A	X	X	X	-	AW9	EDE-AW9-52	4809AC Circuit Breaker	AW9	CB-F-1A-A	AW9-812 AW9-CB1/1	AW9a AW9b	AW9c	CBA-FW-19 CBA-FW-20	EDE-09-62 EDE-MCC-622	
												EDE-CS-9787-2	Control Switch with Indication	CB1	CB-F-1A-A	AW9-CB1	AW9c		EDE-09-52		
												EDE-BS-9787	Selector Switch	CB1	CB-F-1A-A						
												EDE-AW9-52B	Truck Operated Contact	AW9	CB-F-1A-A						
												EDE-AW9-FU	Fuses	AW9	CB-F-1A-A						

NOTES:

NO.	DATE	DESCRIPTION	DWN BY	CKD BY	RES ENG
0	4-85	FIRST ISSUE			

10CFR50 - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
ELECTRICAL DISTRIBUTION EMERGENCY

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.1.3.17-10

FUNCTION: DIESEL GENERATORS

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	P&ID & LINE DRAWING NO. 9763-F	TRAIN	PHYSICAL LOCATION DRAWING NO. 9763-F	FIRE AREA/ ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	ELEC MODE	FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO. 9763-F: SCHEMATIC	ELECTRICAL DRAWING NO. 9763-F: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
1	DG-DG-1A	Diesel Generator 1A	302101 302102 302103 310010	A	310524	DG-F-2A-A	X	X	X	X	BAI	DG-CS-9510-2	Control Switch (Pushbutton)	GD7	DG-F-2A-A	A54-GD6/5, E93-G29/1 A54-G29 GD6-G29 GD6-G29/3 GD6-BB2 GD6-G29/2 (307)-G29 907	310857 E93/8a E93/8b E93/8c E93/8d E93/8e E93/8f E93/8g	E93/8m	CBA-FW-19 CBA-FW-20 DAH-FW-25A DAH-FW-26A EDE-PP-111A D/G Starting Air	DG-DG-1B	
												DG-CS-9511	Control Switch (Pushbutton)	GD7	DG-F-2A-A						
												DG-CS-9512-3	Control Switch (Pushbutton)	GD7	DG-F-2A-A						
												DG-CS-9512-4	Control Switch (Pushbutton)	GD7	DG-F-2A-A						
												DG-CS-9517-2	Control Switch (Pushbutton)	GD7	DG-F-2A-A						
												DG-CS-9518-2	Control Switch (Pushbutton)	GD7	DG-F-2A-A						
												EDE-ES-9700	Selector Switch	GD6	DG-F-2A-A						
												DG-G29-GP2	Oil Pressure Relay	G29	DG-F-2A-A						
												DG-G29-CR1	Ready for Auto Start Relay	G29	DG-F-2A-A						
												DG-G29-4A	Start Relay	G29	DG-F-2A-A						
												DG-G29-T2A	Cranking Time Control Time Delay Relay	G29	DG-F-2A-A						
												DG-G29-ES1	Emergency Start Relay	G29	DG-F-2A-A						
												DG-G10-TSR1	Test Start Relay	G10	DG-F-2A-A						
												DG-G10-TSR2	Test Start Relay	G10	DG-F-2A-A						
												DG-FY-AS1	Air Start Solenoid Valve	G29	DG-F-2A-A						
												DG-G29-GP3	Oil Pressure Relay	G29	DG-F-2A-A						
												DG-G29-CR2	Ready for Auto Start Relay	G29	DG-F-2A-A						
												DG-G29-4B	Start Relay	G29	DG-F-2A-A						
												DG-G29-T2B	Cranking Time Control Time Delay Relay	G29	DG-F-2A-A						
												DG-G29-ES2	Emergency Start Relay	G29	DG-F-2A-A						
												DG-FY-AS2	Air Start Solenoid Valve	G29	DG-F-2A-A						
												DG-G29-GP4	Oil Pressure Relay	G29	DG-F-2A-A						
												DG-G29-SE	Emergency Stop Relay	G29	DG-F-2A-A						
												DG-G29-5	Normal Stop Relay	G29	DG-F-2A-A						
												DG-G29-5A	Shutdown Relay	G29	DG-F-2A-A						
												DG-FY-SD6	Shutdown Solenoid Valve	G29	DG-F-2A-A						
												DG-FY-ACO	Air Supply Cutoff Solenoid Valve	G29	DG-F-2A-A						
												DG-FY-CSV-A	Jacket Coolant Aux. Valves Solenoid	G29	DG-F-2A-A						
												DG-G29-T3A	Alarm Set Time Delay Relay	G29	DG-F-2A-A						
												DG-G29-TS	Engine Velocity Transmitter	G29	DG-F-2A-A						
												DG-FY-189-A	Intercooler Aux. Valves Solenoid	G29	DG-F-2A-A						
												DG-G29-SG	Signal Generator	G29	DG-F-2A-A						
												DG-G29-HSR	High Speed Relay	G29	DG-F-2A-A						
												DG-G29-LSR	Low Speed Relay	G29	DG-F-2A-A						
												DG-G29-ASR	Starting Air Shutoff Relay	G29	DG-F-2A-A						
												DG-G29-1PC	Coolant Pump Control Relay	G29	DG-F-2A-A						
												DG-G29-BDR	Barring Device Relay	G29	DG-F-2A-A						
												DG-G29-ASA	Air Start Relay	G29	DG-F-2A-A						
												DG-G29-ASB	Air Start Relay	G29	DG-F-2A-A						

NOTES

1. Equipment is mechanical with no electrical requirements.
2. Electrical conduit plan drawing 9763-F-310524 is listed only to show the fire zone corresponding to the location of this equipment in the diesel generator building as identified in 9763-F-302765.
3. Electrical conduit plan drawing 9763-F-310767 is listed only to show fire zone corresponding to the location of this equipment in the primary auxiliary building as identified in 9763-F-805217.
4. This equipment is located in the diesel generator skid DG-SED-2A.
5. This equipment is located in the diesel generator skid DG-SED-17A.
6. This equipment is located in the diesel generator skid DG-SED-7B.

NO.	DATE	DESCRIPTION	DRAWN BY	CKD BY	RES ENG.
1	10 15 85	FIRST ISSUE			

10CFR50 RSS - APPENDIX B
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers

TABLE RSS 3.1.3.1B-1

FUNCTION: DIESEL GENERATORS

ITEM NO.	EQUIPMENT IDENTIFICATION NO.	EQUIPMENT DESCRIPTION	PIPING LINE (DRAWING) NO. SPEC-P	TRAIN	PHYSICAL LOCATION (DRAWING) NO. SPEC-P	FIRE AREA-ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO.	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL (DRAWING) NO. SPEC-W: SCHEMATIC	ELECTRICAL (DRAWING) NO. SPEC-W: CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
	DG-EG-1A (Continued)											EIE-ZL-0574	Monitoring Ckt. Indicating Light	C07	EG-F-2A-A						
												EG-G29-TACH	Tachometer	G29	EG-F-2A-A						
												EG-G29-SFR	Start Failure Relay	G29	EG-F-2A-A						
												EG-ZL-ILI	Monitoring Ckt. Indicating Light								
												EG-G29-EOR	Engine Trouble Shutdown Relay	G29	EG-F-2A-A						
												EG-G29-EOR	Engine Overspeed Relay	G29	EG-F-2A-A						
												EIE-A69-ELA	EI Signal Lockout Relay	A69	CB-F-1A-A						
												EG-G29-OTR	High Oil Temperature Relay	G29	EG-F-2A-A						
												EG-G29-CTR	High Coolant Temperature Relay	G29	EG-F-2A-A						
												EIE-A54-TDR	Test Device	A54	CB-F-1A-A						
												EIE-A69-TDR	Test Device	A69	CB-F-1A-A						
												EG-G29-EST	Emergency Start Time Delay Relay	G29	EG-F-2A-A						
												EG-G29-ESR	Emergency Start Aux. Relay	G29	EG-F-2A-A						
												EG-G29-SAR	Air Pressure Aux. Relay	G29	EG-F-2A-A						
												EG-G29-SAR	Air Pressure Aux. Relay	G29	EG-F-2A-A						
												EG-G29-CF3	Power Available Relay	G29	EG-F-2A-A						
												EG-G29-CF1	Power Available Relay	G29	EG-F-2A-A						
												EG-G29-CF2	Power Available Relay	G29	EG-F-2A-A						
												EG-G29-CF5	Power Available Relay	G29	EG-F-2A-A						
												EG-G29-OPI	Oil Pressure Relay	G29	EG-F-2A-A						
												EG-G29-FPL	Fuel Pressure Relay	G29	EG-F-2A-A						
												EG-G29-CPL	Jacket Coolant Pressure Relay	G29	EG-F-2A-A						
												EG-G29-IPL	Intercooler Pressure Relay	G29	EG-F-2A-A						
												EG-PS-OPLI	Oil Low Pressure Switch	G29	EG-F-2A-A						
												EG-PS-FPLA	Fuel Low Pressure Switch	G29	EG-F-2A-A						
												EG-PS-CPLA	Jacket Coolant Low Pressure Switch	G29	EG-F-2A-A						
												EG-PS-IPLA	Intercooler Low Pressure Switch	G29	EG-F-2A-A						
												EG-G29-GVR	Generator Vib. Detector Switch Reset Coil	G29	EG-F-2A-A						
												EG-G29-EVR	Engine Vib. Detector Switch Reset Coil	G29	EG-F-2A-A						
												EG-G29-OPC	Oil Pump Cont. Relay	G29	EG-F-2A-A						
												EG-G29-FPC	Aux. Fuel Oil Pump Ctl. Relay	G29	EG-F-2A-A						

NOTES

7. This equipment is located in the diesel generator skid EG-SKD-17B.

8. The pneumatic control diagram of this equipment is shown in the EG air cooler water control loop diagram 9763-M-506403.

9. The pneumatic control diagram of this equipment is shown in the diesel engine jacket cooling water control loop diagram 9763-M-506404.

10. The pneumatic control diagram of this equipment is shown in the EG air cooler water control loop diagram 9763-M-506405.

11. The pneumatic control diagram of this equipment is shown in the EG diesel engine jacket cooling water loop diagram 9763-M-506406.

NO.	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
0	9 15 85	FIRST ISSUE	CJM	RLLC	[illegible]

10CFR50 .55S - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

United Engineers

TABLE RSS 3.1.3.18-2

FUNCTION: DIESEL GENERATORS

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID & LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION (DRAWING NO 8763-F	FIRE AREA-ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: ELEC MODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT: FIRE AREA ZONE	CABLES	ELECTRICAL (DRAWING NO 8763-H): SCHEMATIC	ELECTRICAL (DRAWING NO 8763-H): CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
28	DG-TK-102A	Lub Oil Reservoir	202102	B	310524	DG-F-28-A	X	X	-	-	BAJ	-	-	-	-	-	-	-	-	DG-P-102A	Note 166
29	DG-P-228A	Engine Driven Rocker Arm Lube Pump	202102	B	310524	DG-F-28-A	X	X	-	-	BAJ	-	-	-	-	-	-	-	-	DG-P-228A	Note 166
30	DG-E-413	Lube Oil Heat Exchanger	202103	B	310524	DG-F-28-A	X	X	-	-	BAJ	-	-	-	-	-	-	-	-	DG-E-413	Note 166
31	DG-TK-466A	Diesel Generator 1B Component Cooling Water Expansion Tank	202103	B	310525	DG-F-30-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TK-466A	Note 1
32	DG-E-423	Diesel Generator 1B Component Cooling Water Heat Exchanger	202103 805019	B	310767 805217	PAB-F-3A (30) E	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	DG-E-423A	Note 163
33	DG-P-121A	Engine Driven Jacket Coolant Pump	202103	B	310524	DG-F-28-A	X	X		-	BAJ	-	-	-	-	-	-	-	-	DG-P-121A	Note 166
34	DG-P-231A	Engine Driven Air Coolant Pump	202103	B	310524	DG-F-28-A	X	X	-	-	BAJ	-	-	-	-	-	-	-	-	DG-P-231A	Note 166

NOTES:

NO	DATE	DESCRIPTION	DRWN BY	CKD BY	RES ENG
1	4/25/85	FIRST ISSUE	[illegible]	[illegible]	[illegible]

10CFR50 RSS - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO OF NEW HAMPSHIRE
SEABROOK STATION
united engineers

TABLE RSS 3.1.3.18-17

FUNCTION — DIESEL GENERATORS

ITEM NO	EQUIPMENT IDENTIFICATION NO	EQUIPMENT DESCRIPTION	P&ID-LINE DRAWING NO 8763-F	TRAIN	PHYSICAL LOCATION DRAWING NO 8763-F	FIRE AREA ZONE	REQ'D FOR HOT SHUT DOWN	REQ'D FOR COLD SHUT DOWN	POWER ELEC	POWER AIR	ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT — EQUIPMENT IDENTIFICATION NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT — EQUIPMENT DESCRIPTION	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT — ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT — FIRE AREA ZONE	CABLES	ELECTRICAL DRAWING NO 8763-W — SCHEMATIC	ELECTRICAL DRAWING NO 8763-W — CABLE	SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
35	DG-PV-7A-2	Lube Oil Cooler Diff. Pressure Control Valve	202103	A	310524	DG-F-2A-A	X	X	–	X	BAI	DG-PT-7A-3	Pressure Relay Pneumatic Transmitter	BAI	DG-F-2A-A	–	–	–	DAR-FW-25A DAR-FW-26A D/G Starting Air	DG-PV-7B-2	Note 8
												DG-PT-7A-4	Pressure Relay Pneumatic Transmitter	BAI	DG-F-2A-A						
												DG-PDT-7A-2	Diff. Pressure Transmitter	BAI	DG-F-2A-A						
												DG-PDC-7A-2	Diff. Pressure Controller	BAI	DG-F-2A-A						
36	DG-TCV-7A-2	Air Cooler Coolant Temp. Control Valve	202103	A	310524	DG-F-2A-A	X	X	–	X	BAI	DG-TT-7A-2	Temperature Transmitter	BAI	DG-F-2A-A	–	–	–	DAR-FW-25A DAR-FW-26A D/G Starting Air	DG-TCV-7B-2	Note 8
												DG-TC-7A-2	Temperature Controller	BAI	DG-F-2A-A						
37	DG-PV-7A-1	Jacket Coolant Diff. Pressure Control Valve	202103	A	310524	DG-F-2A-A	X	X	–	X	BAI	DG-PT-7A-1	Pressure Relay Pneumatic Transmitter	BAI	DG-F-2A-A	–	–	–	DAR-FW-25A DAR-FW-26A D/G Starting Air	DG-PV-7B-1	Note 9
												DG-PT-7A-2	Pressure Relay Pneumatic Transmitter	BAI	DG-F-2A-A						
												DG-PDT-7A-1	Diff. Pressure Transmitter	BAI	DG-F-2A-A						
												DG-PDC-7A-1	Diff. Pressure Controller	BAI	DG-F-2A-A						
38	DG-TCV-7A-1	Air Cooler Coolant Temp. Control Valve	202103	A	310524	DG-F-2A-A	X	X	–	X	BAI	DG-TT-7A-1	Temperature Transmitter	BAI	DG-F-2A-A	–	–	–	DAR-FW-25A DAR-FW-26A D/G Starting Air	DG-TCV-7B-1	Note 9
												DG-TC-7A-1	Temperature Controller	BAI	DG-F-2A-A						
39	DG-F-6AA	Lube Oil Filter	202102	A	310524	DG-F-2A-A	X	X	–	–	BAI	–	–	–	–	–	–	–	–	DG-F-6AB	Note 164
40	DG-F-23A	Lube Oil Duplex Filter	202102	A	310524	DG-F-2A-A	X	X	–	–	BAI	–	–	–	–	–	–	–	–	DG-F-23B	Note 164
41	DG-S-4A	Lube Oil Strainer	202102	A	310524	DG-F-2A-A	X	X	–	–	BAI	–	–	–	–	–	–	–	–	DG-S-4B	Note 164
42	DG-S-85A	Lube Oil Sump Suction Strainer	202102	A	310524	DG-F-2A-A	X	X	–	–	BAI	–	–	–	–	–	–	–	–	DG-S-85B	Note 164

NOTES

NO	DATE	DESCRIPTION	DRWN BY	CKD BY	MES ENG
0	8/5/81	FIRST ISSUE			

10CFR50 RSS - APPENDIX R
SAFE SHUTDOWN EQUIPMENT LIST
DIESEL GENERATORS

PUBLIC SERVICE CO. OF NEW HAMPSHIRE
SEABROOK STATION

united engineers & constructors inc.

TABLE RSS 3.3.3.18-1F

REVISED SHEETS

CABLE LISTS

MCR & RSS

MASTER COPY

UNITED ENGINEERS & CONSTRUCTORS INC.

PROGRAM: NRCESP

PROGRAM NO.: EL-130

NRC EMERGENCY SHUTDOWN PROGRAM

REVISION NO. 2.0 (JAN 83)

RUN ID: RUN DATE: 11/24/85

CASE ID : SAFE SHUTDOWN FROM 00000070
MAIN CONTROL ROOM

PROJECT:

SUBMITTED BY: T P STANFORD

EXT.:

DEPARTMENT:

APPROXIMATE LOADING STATISTICS

CP SECONDS = 1.95 IO SECONDS = 2.00

CORE ALLOCATED = 80 K WORDS

CABLE	CABLE DESCRIPTION
AA4-BF0	EDE-MCC-614
AB3-E93	EDE-US-51 (DC BUS)
AB4-E07	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB4-E07/1	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB4-G81	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB4-G81/1	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB5-B09	EDE-US-51 MCC-511
AB5-B09/1	EDE-US-51 MCC-511
AB6-B10	EDE-MCC-512
AB6-B10/1	EDE-MCC-512
AB8-B12	EDE-MCC-531
AB8-B12/1	EDE-MCC-531
AC2-AF2	EDE-SWG-5 (BUS E5 UAT PT COMPT)
AC3-E93	EDE-US-52 (DC BUS)
AC4-GU1	CBA-AC-5A FN-14A FN-36A & DP-26A
AC4-HR2	CBA-AC-5A FN-14A FN-36A & DP-26A
AC5-GN0	CAH-FN-1A
AC5-G2K	CAH-FN-1A
AC5-G2K/1	CAH-FN-1A
AC5-H13	CAH-FN-1A
AC5-H13/1	CAH-FN-1A
AC6-GN9	CAH-FN-1E
AC6-G2H	CAH-FN-1E
AC6-G2H/1	CAH-FN-1E
AC6-H07	CAH-FN-1E
AC6-H07/1	CAH-FN-1E
AC7-GN9	CAH-FN-1F
AC7-G2H	CAH-FN-1F
AC7-G2H/1	CAH-FN-1F
AC7-H07	CAH-FN-1F
AC7-H07/1	CAH-FN-1F
AC8-B13	EDE-MCC-521
AC8-B13/1	EDE-MCC-521
AD3-E94	EDE-US-61 (DC BUS)
AD4-E08	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD4-E08/1	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD4-GZ0	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD4-GZ0/1	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD6-B16	EDE-MCC-612
AD6-B16/1	EDE-MCC-612
AD8-B18	EDE-MCC-631
AD8-B18/1	EDE-MCC-631
AE2-AF7	EDE-SWG-6 (BUS E6 UAT PT COMPT)
AE3-E94	EDE-US-62 (DC BUS)
AE3-GZ0	RC-E-10 PRSRZR HTRS BACK-UP [illegible] B
AE4-GU2	CBA-AC-5B FN-14B FN-36B & DP-26B
AE4-HR4	CBA-AC-5B FN-14B FN-36B & DP-26B
AE5-GN0	CAH-FN-1B
AE5-G2K	CAH-FN-1B
AE5-G2K/1	CAH-FN-1B
AE5-H13	CAH-FN-1B

CABLE	CABLE DESCRIPTION
AE5-H13/1	CAH-FN-1B
AE6-GN0	CAH-FN-1D
AE6-G2K	CAH-FN-1D
AE6-G2K/1	CAH-FN-1D
AE6-HO9	CAH-FN-1D
AE6-HO9/1	CAH-FN-1D
AE7-GN9	CAH-FN-1C
AE7-G2H	CAH-FN-1C
AE7-G2H/1	CAH-FN-1C
AE7-HO8	CAH-FN-1C
AE7-HO8/1	CAH-FN-1C
AE8-B19	EDE-MCC-621
AE8-B19/1	EDE-MCC-621
AF2-ED4	EDE-SWG-5 (BUS E5 UAT PT COMPT)
AF3-E93	EDE-US-53 (DC BUS)
AF4-C99	EDE-MCC-523
AF4-C99/1	EDE-MCC-523
AF5-BB2	EAH-FN-31A
AF5-G2H	EAH-FN-5A
AF5-G2H/1	EAH-FN-5A
AF5-HR2	EAH-FN-5A
AF5-M80	EAH-FN-5A
AF5-YC3	EAH-FN-5A
AF7-EE6	EDE-SWG-6 (BUS E6 UAT PT COMPT)
AF8-E94	EDE-US-83 (DC BUS)
AF9-BC1	EAH-FN-31B
AF9-G2K	EAH-FN-5B
AF9-G2K/1	EAH-FN-5B
AF9-G2K/2	EAH-FN-5B
AF9-HR4	EAH-FN-5B
AF9-M81	EAH-FN-5B
AF9-YB3	EAH-FN-5B
AG3-E97	ED-US-11 (DC)
AG4-F31	RC-E-10 PRESSURIZER HEATERS (GROUP C)
AM3-E97	ED-US-23 (DC)
AM5-F31	RC-E-10 PRSRZR HTR GP D
AQ3-CR6	SW-V-2
AQ3-F72/1	SW-P-41A
AQ3-F72/2	SW-P-41C
AQ3-GN9	SW-P-41A
AQ3-GN9/1	EDE-CP-248TA
AQ3-HR2	SW-P-41C
AQ3-N81	SW-P-41A
AQ3-VL3	SW-P-41A
AQ4-CR7	SW-V-22
AQ4-F72/1	SW-P-41C
AQ4-F72/2	SW-P-41A
AQ4-GN9	SW-P-41C
AQ4-HR2	SW-P-41A
AQ4-N83	SW-P-41C
AQ4-VL5	SW-P-41C
AM4-F31	RC-E-10 PRESSURIZER HEATERS CONTROL GROUP

CABLE	CABLE DESCRIPTION
AR3-C51	SW-V-29
AR3-F71/1	SW-P-41B
AR3-F71/3	SW-P-41B SW-P-41D
AR3-GN0	SW-P-41B
AR3-GN0/1	EDE-CP-249TA
AR3-HR4	SW-P-41D
AR3-N82	SW-P-41B
AR3-VL4	SW-P-41B
AR4-C52	SW-V-31
AR4-F71/1	SW-P-41D
AR4-GN0	SW-P-41D
AR4-HR4	SW-P-41B
AR4-N84	SW-P-41D
AR4-VL8	SW-P-41D
AU2-F72/1	SW-P-110A
AU2-F72/2	SW-P-110A
AU2-F72/3	SW-V-56
AU2-GN9	SW-P-110A
AU2-G2H	SW-V-54
AU2-HR9	SW-P-110A
AU2-NG4	SW-P-110A
AU2-VM5	SW-P-110A
AU2-VM5/1	SW-P-110A
AU2-VM5/3	SW-V-56
AU6-G2K	SW-V-28
AV4-F72/1	SW-FN-51A
AV4-F72/2	SW-FN-51A
AV4-HR2	SW-FN-51A
AV4-NG6	SW-FN-51A
AW0-D13	EDE-MCC-622
AW0-GZ0	EDE-MCC-622
AW0-GZ0/1	EDE-MCC-622
AW2-EE6	EDE-SWG-6 (BUS E6 UAT PT COMPT)
AW9-D12	EDE-MCC-522
AW9-G81	EDE-MCC-522
AW9-G81/1	EDE-MCC-522
AX8-B4D	EDE-MCC-515
AX8-B4D/1	EDE-MCC-515
AX9-B4E	EDE-MCC-615
AX9-B4E/1	EDE-MCC-615
A03-E97	13.8 KV BUS 1 DC
A05-F31/2	RC-P-1A
A09-F36/2	RC-P-1C
A18-E97	13.8 KV BUS 2 DC
A20-F31/2	RC-P-1B
A24-F31/2	RC-P-1D
A51-GB4	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G07	EDE-SWG-5 (BUS E5 UAT INC BREAKER)
A51-G07/1	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G07/2	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G07/3	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
AV6-C14	EDE (U5-51) MCC-513

CABLE	CABLE DESCRIPTION	
A51-G10	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)	
A51-G5X	EDE-SWG-5 (BUS E5 UAT INC BREAKER)	
A51-G5X/1	EDE-SWG-5 (BUS E5 UAT INC BREAKER)	
A51-HR1	DG-CP-79	
A51-HR9	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)	
A52-F80	EDE-SWG-5 (BUS E5 UAT INC BREAKER)	RAT
~~A52-F80/1~~	~~EDE-SWG-5 (BUS E5 UAT INC BREAKER)~~	
A52-G87	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
A52-G07/1	EDE-SWG-5 (BUS E5 UAT INC BREAKER)	RAT
A52-G07/2	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
A52-G07/3	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
A52-G07/4	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
A52-G10	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
A52-G5X	EDE-SWG05 (BUS E5 RAT INC BREAKER)	
A52-G5X/1	EDE-SWG-5 (BUS E5 RAT INC BREAKER)	
A52-HR1	DG-CP-79	
A52-HR2	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
A52-HR9	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
A53-AC2	EDE-SWG-5 (BUS E5 UAT PT COMPT)	
A53-E93	EDE-SWG-5 (DC BUS)	
A53-F87	EDE-SWG-5 (UAT-PT)	
A53-F80	EDE-SWG-5 (BUS E5 UAT PT COMPT)	DELETE
A53-G07	EDE-SWG-5 (BUS E5 UAT PT COMPT)	
A53-HR1	DG-CP-79	
A53-HR2	EDE-SWG-5 (BUS E5 UAT PT COMPT)	
A54-F87	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-F80	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-F80/1	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-G06/2	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-G06/3	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-G06/4	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-G06/5	DG-DG-1A	
A54-G07	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-G07/1	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-G07/2	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-G07/4	DG-DG-1A	
A54-G10/1	DG-DG-1A	
A54-G29	DG-DG-1A	
A54-HN0	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A54-HR1	DG-CP-79	
A54-HR9	EDE-SWG-5 (BUS E5 DG-1A INCOMING BREAKER)	
A55-A81	EDE-US-51	
A55-F80/1	EDE-US-51	
A56-F10	SI-P-6A	
A56-F10/2	SI-P-6A	
A56-HR9	SI-P-6A	
A57-F20/1	RH-P-8A	
A57-F20/2	RH-P-8A	
A57-HR9	RH-P-8A	
A57-M11	RH-P-8A	
A58-F30/1	CC-P-11A	

CABLE	CABLE DESCRIPTION	
A58-F30/2	CC-P-11A	
A58-F30/3	CC-P-11A	
A58-HR9	CC-P-11A	
A58-M05/1	CC-P-11A	
A59-F30/1	CC-P-11C	
A59-F30/2	CC-P-11C	
A59-F30/3	CC-P-11C	
A59-HR9	CC-P-11C	
A59-M07/1	CC-P-11C	
A60-AF1	EDE-US-53	
A60-F80/1	EDE-US-53	
A61-F20/1	CBS-P-9A	
A61-F20/2	CBS-P-9A	
A61-HR9	CBS-P-9A	
A62-F41	CS-P-2A	
A62-F41/2	CS-P-2A	
A62-HR2	CS-P-2A	
A62-M17	CS-P-2A	
A62-P01	CS-P-2A	
A63-AC1	EDE-US-52	
A63-F80/1	EDE-US-52	
A69-G06	DG-DG-1A	
A69-G10	DG-DG-1A	
A69-HN0	DG-DG-1A	
A71-GB4	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
A71-G19	EDE-SWG-6 (BUS E6 UAT INC BREAKER)	
A71-G19/1	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
A71-G19/2	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
A71-G19/3	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
A71-G20	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
A71-G5Y	EDE-SWG-6 (BUS E6 UAT INC BREAKER)	
A71-G5Y/1	EDE-SWG-6 (BUS E6 UAT INC BREAKER)	
A71-HR0	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
A71-HR3	DG-CP-80	
A72-F81	EDE-SWG-6 (BUS E6 RAT INC BREAKER)	
A72-GB7	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
A72-G19	EDE-SWG-6 (BUS E6 RAT INC BREAKER)	
A72-G19/1	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
A72-G19/2	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
A72-G19/3	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
A72-G20	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
A72-G5Y	EDE-SWG-6 (BUS E6 (UA) INC BREAKER)	RAT
A72-G5Y/1	EDE-SWG-6 (BUS E6 (UA) INC BREAKER)	RAT
A72-HR0	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
A72-HR3	DG-CP-80	
A72-HR4	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
A73-AE2	EDE-SWG-6 (BUS E6 UAT PT COMPT)	
A73-E94	EDE-SWG-6 (DC BUS)	
A73-FB0	EDE-SWG-6 (UAT-PT)	
A73-G19	EDE-SWG-6 (BUS E6 UAT PT COMPT)	
A73-HR3	DG-CP-80	

CABLE	CABLE DESCRIPTION
A73-HR4	EDE-SWG-6 (BUS E6 UAT PT COMPT)
A74-FB0	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-F81	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-F81/1	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-G18/2	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-G18/3	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-G18/4	EDE-SWG-6 (DG INC. LINE VOLTAGE CONTROL)
A74-G18/7	DG-DG-1B
A74-G18/8	EDE-SWG-6 (DG-1B INC)
A74-G19	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-G19/1	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-G19/2	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-G19/4	DG-DG-1B
A74-G20/1	DG-DG-1B
A74-G30/6	DG-DG-1B
A74-HP1	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-HR0	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
A74-HR3	DG-CP-80
A75-AD1	EDE-US-61
A75-F81/1	EDE-US-61
A76-F10	SI-P-6B
A76-F10/2	SI-P-6B
A76-HR0	SI-P-6B
A77-F20/1	RH-P-8B
A77-F20/2	RH-P-8B
A77-HR0	RH-P-8B
A77-M12	RH-P-8B
A78-F31	CC-P-11B
A78-F31/1	CC-P-11B
A78-F31/2	CC-P-11B
A78-HR0	CC-P-11B
A78-M06/1	CC-P-11B
A79-F31	CC-P-11D
A79-F31/1	CC-P-11D
A79-F31/2	CC-P-11D
A79-HR0	CC-P-11D
A79-M08/1	CC-P-11D
A80-F66/1	FW-P-37B
A80-F66/2	FW-P-37B
A80-HR4	FW-P-37B
A80-N14	FW-P-37B
A81-F20/1	CBS-P-9B
A81-F20/2	CBS-P-9B
A81-HR0	CBS-P-9B
A82-F48/1	CS-P-2B
A82-F48/2	CS-P-2B
A82-HR4	CS-P-2B
A82-M18	CS-P-2B
A82-P02	CS-P-2B
A83-AE1	EDE-US-62
A83-F81/1	EDE-US-62

CABLE	CABLE DESCRIPTION
A89-G18	DG-DG-1B
A89-G20	DG-DG-1B
A89-HP1	DG-DG-1B
A90-AF6	EDE-US-63
A90-F81/1	EDE-US-63
A94-C11	EDE-MCC-514
BB2-F36	EAH-FN-31A
BB2-F36/1	EAH-FN-31A
BB2-HR2	EAH-FN-31A
BB2-ND5	EAH-FN-31A
BB2-VQ2	EAH-FN-31A
BB7-F36	EPA-FN-47A EPA-DP-371 EPA-DP-373
BB7-F36/1	EPA-FN-47A EPA-DP-371 EPA-DP-373
BB7-F36/2	EPA-FN-47A EPA-DP-371 EPA-DP-373
BB7-NL8	EPA-FN-47A EPA-DP-371 EPA-DP-373
BB7-UH3	EPA-FN-47A EPA-DP-371 EPA-DP-373
BB7-VV6	EPA-FN-47A EPA-DP-371 EPA-DP-373
BC1-F37	EAH-FN-31B
BC1-F37/1	EAH-FN-31B
BC1-HR4	EAH-FN-31B
BC1-NJ7	EAH-FN-31B
BC1-VQ3	EAH-FN-31B
BC7-F37	EPA-FN-47B EPA-DP-372 EPA-DP-374
BC7-F37/1	EPA-FN-47B EPA-DP-372 EPA-DP-374
BC7-F37/2	EPA-FN-47B EPA-DP-372 EPA-DP-374
BC7-NL9	EPA-FN-47B EPA-DP-372 EPA-DP-374
BC7-UH4	EPA-FN-47B EPA-DP-372 EPA-DP-374
BC7-VV7	EPA-FN-47B EPA-DP-372 EPA-DP-374
BE4-BM7	DG-P-38A
BE5-BP7	DG-P-38B
BF6-ED1	PAH-FN-42A PAH-DP-43A PAH-DP-357
BF6-F36	PAH-FN-42A
BF6-F36/1	PAH-FN-42A
BF6-M61	PAH-FN-42A
BF6-TY3	PAH-FN-42A
BF6-UG5	PAH-FN-42A PAH-DP-43A PAH-DP-357
BF6-UG5/1	PAH-FN-42A PAH-DP-43A
BF6-UG7	PAH-FN-42A PAH-DP-357 PAH-DP-43A
BF7-E3D/1	PAH-FN-42B PAH-DP-43B PAH-DP-358
BF7-F37	PAH-FN-42B
BF7-F37/1	PAH-FN-42B
BF7-M62	PAH-FN-42B
BF7-TY4	PAH-FN-42B
BF7-UG6	PAH-FN-42B PAH-DP-43B PAH-DP-358
BF7-UG8	PAH-FN-42B PAH-DP-43B PAH-DP-358
BK4-G4P	CBA-DP-24A CBA-DP-24B CBA-DP-24C
BK4-HR2	CBA-DP-24A CBA-DP-24B CBA-DP-24C
BK4-N26	CBA-DP-24A CBA-DP-24B CBA-DP-24C
BL3-HR4	CBA-FN-32
BL3-NH3	CBA-FN-32
BL3-P99	CBA-FN-32

CABLE	CABLE DESCRIPTION	
BL4-HR4	CBA-FN-33	
BL4-NH5	CBA-FN-33	
BL5-N33	CBA-FN-21B	
BL5-VV4	CBA-FN-21B	CBA-DP-21B
BL5-VV4/1	CBA-FN-21B	CBA-DP-21B
BL6-HR2/1	CBA-FN-19	
BL6-N34/2	CBA-FN-19	
BL6-P95/1	CBA-FN-19	
BL7-HR2	CBA-FN-20	
BL7-N30/2	CBA-FN-20	
BL8-N32	CBA-FN-21A	
BL8-VV5	CBA-FN-21A	CBA-DP-21A
BL8-VV5/1	CBA-FN-21A	CBA-DP-21A
BM7-N75	DG-P-38A	
BM7-RT8	DG-P-38A	
BP7-N76	DG-P-38B	
BP7-RU1	DG-P-38B	
BR3-HR2	ED-I-4	
BR3-H59/1 H58/1	ED-I-4	
BV9-F31	RC-V-323	
BV9-H41	RC-V-323	
BX8-F72	SW-V-74	
BX8-F72/1	SW-V-74	
BX8-GN9	SW-V-74	
BX8-VM2	SW-V-74	
BX8-VM2/1	SW-V-74	
BX8-VM2/2	SW-V-74	
BY1-H25	ED-X-16H	
BY2-F30	CC-V-145	
BY2-F30/1	CC-V-145	
BY2-V78	CC-V-145	
BY2-V78/1	CC-V-145	
BY2-V78/2	CC-V-145	
BY8-F31	CC-V-272	
BY8-F31/1	CC-V-272	
BY8-V72	CC-V-272	
BY8-V72/1	CC-V-272	
BY8-V72/2	CC-V-272	
BO1-G29	DAH-FN-25A	
BO1-HR2	DAH-FN-25A	
BO1-N37/1	DAH-FN-25A	
BO1-S40	DAH-FN-25A	
BO1-TP5	DAH-FN-25A	
BO1-T8N	DAH-FN-25A	
BO1-UF7	DAH-FN-25A	DAH-DP-15A
BO1-UF9/1	DAH-FN-25A	DAH-DP-16A
BO2-EDO	DAH-FN-25B	
BO2-G30	DAH-FN-25B	
BO2-HR4	DAH-FN-25B	
BO2-N38/1	DAH-FN-25B	
BO2-S41	DAH-FN-25B	

CABLE	CABLE DESCRIPTION
B02-T8P	DAH-FN-25B
B02-UF0/1	DAH-FN-25B DAH-DP-16B
B02-UF8	DAH-FN-25B DAH-DP-15B
B03-N39/1	DAH-FN-26A
B03-S40	DAH-FN-26A
B03-T3P	DAH-FN-26A
B03-UF9	DAH-FN-26A
B04-N40/1	DAH-FN-26B
B04-S41	DAH-FN-26B
B04-T3Q	DAH-FN-26B
B04-UF0	DAH-FN-26B
B1X-F60	MS-V-204
B1X-VU6/1	MS-V-204
B1Y-F60	MS-V-205
B1Y-VU7/1	MS-V-205
B1Z-F60	MS-V-206
B1Z-VU8/1	MS-V-206
B2A-F60	MS-V-207
B2A-VU9/1	MS-V-207
B3V-V2E	FW-FV-4214-A
B3V-V2E/1	FW-FV-4214-A
B3W-V2F	FW-FV-4224-A
B3W-V2F/1	FW-FV-4224-A
B3X-V2G	FW-FV-4234-A
B3X-V2G/1	FW-FV-4234-A
B3Y-V2H	FW-FV-4244-A
B3Y-V2H/1	FW-FV-4244-A
B3Z-G2J	FW-FV-4214B
B3Z-V2J	FW-FV-4214-B
B3Z-V2J/1	FW-FV-4214-B
B31-G2G	SI-V-138
B31-G2G/2	SI-V-138
B31-V31	SI-V-138
B31-V31/1	SI-V-138
B31-V31/2	SI-V-138
B32-G2J	SI-V-139
B32-G2J/2	SI-V-139
B32-V32	SI-V-139
B32-V32/1	SI-V-139
B32-V32/2	SI-V-139
B35-G81	SI-V-3
B35-H19	SI-V-3
B35-H36	SI-V-3
B36-GZO	SI-V-17
B36-H15	SI-V-17
B36-H41	SI-V-17
B37-G81	SI-V-32
B37-H18	SI-V-32
B37-H35	SI-V-32
B38-GZO	SI-V-47
B38-H24	SI-V-47

CABLE	CABLE DESCRIPTION	
B38-H39	SI-V-47	
B4A-G2J	FW-FV-4224B	
B4A-V2K	FW-FV-4224-B	
B4A-V2K/1	FW-FV-4224-B	
B4B-G2J	FW-FV-4234B	
B4B-V2L	FW-FV-4234-B	
B4B-V2L/1	FW-FV-4234-B	
B4C-G2J	FW-FV-4244B	
B4C-V2M	FW-FV-4244-B	
B4C-V2M/1	FW-FV-4244B	
B4K-F29	CC-V-1101	
B4K-F29/1	CC-V-1101	
B4K-V2S	CC-V1101	DELETE
B4K-V2S/1	CC-V-1101	
B4L-F29	CC-V-1109	
B4L-F29/1	CC-V-1109	
B4L-V2T	CC-V1109	DELETE
B4L-V2T/1	CC-V-1109	
B4M-G81	CC-P-322A	
B4M-H18	CC-P-322A	
B4N-F20	CC-V-1095	
B4N-F20/1	CC-V-1095	
B4N-V2U	CC-V-1095	DELETE
B4N-V2U/1	CC-V-1095	
B4P-F20	CC-V-1092	
B4P-F20/1	CC-V-1092	
B4P-V2V	CC-V-1092	DELETE
B4P-V2V/1	CC-V-1092	
B4Q-G20	CC-P-322B	
B4Q-H15	CC-P-322B	
B44-F10	CS-V-460	
B44-V59/1	CS-V-460	
B44-V59/2	CS-V-460	
B45-F10	CS-V-461	
B45-V60/1	CS-V-461	
B45-V60/2	CS-V-461	
B46-F10	CS-V-475	
B46-F10/1	CS-V-475	
B46-V52	CS-V-475	
B46-V52/1	CS-V-475	
B46-V52/2	CS-V-475	
B50-G2G	CS-LCV-112B	
B50-G2G/1	CS-LCV-112B	
B50-VE4	CS-LCV-112B	
B50-VE4/1	CS-LCV-112B	
B50-VE4/2	CS-LCV-112B	
B50-VE6	CS-LCV-112B	
B53-G2G	RC-V-23	
B53-G2G/1	RC-V-23	
B53-H19	RC-V-23	
B53-H36	RC-V-23	

CABLE	CABLE DESCRIPTION
B94-V04/1	CS-V-426
B94-V04/2	CS-V-426
B97-G81	RC-V-122
B97-G81/1	RC-V-122
B97-H18	RC-V-122
B97-H35	RC-V-122
B98-GZO	RC-V-124
B98-GZO/1	RC-V-124
B98-GZO/2	RC-V-124
B98-H15	RC-V-124
B98-H41	RC-V-124
CPO-F72	SW-V-56
CPO-F72/1	SW-V-56
CPO-VM7	SW-V-56
CPO-VM7/1	SW-V-56
CPO-VM7/2	SW-V-56
CP8-G2H	SW-V-54
CP8-VM5	SW-V-54
CP8-VM5/1	SW-V-54
CP8-VM5/2	SW-V-54
CP9-F72	SW-V-55
CP9-F72/1	SW-V-55
CP9-VM6	SW-V-55
CP9-VM6/1	SW-V-55
CP9-VM6/2	SW-V-55
CQO-F36	SWA-FN-64 SWA-DP-66
CQO-NW1	SWA-FN-64 SWA-DP-66
CQO-NW1/2	SWA-FN-64 SWA-DP-66
CQO-NW1/3	SWA-FN-64 SWA-DP-66
CQ7-G2K	SW-V-25
CQ7-VM8/1	SW-V-25
CQ7-VM8/2	SW-V-25
CRO-G2K	SWA-FN-40B
CRO-G2K/1	SWA-FN-40B
CRO-G2K/2	SWA-FN-40B
CRO-NK1	SWA-FN-40B
CRO-TV8	SWA-FN-40B
CRO-TWO	SWA-FN-40B
CR1-F36	SWA-FN-71
CR1-NW2	SWA-FN-71
CR1-T5T	SWA-FN-71
CR5-G2H	SWA-FN-40A
CR8-G2H/1	SWA-FN-40A
CR5-NJO	SWA-FN-40A
CR5-TV7	SWA-FN-40A
CR5-TW9	SWA-FN-40A
CR6-VL3	SW-V-2
CR6-VL3/1	SW-V-2
CR7-VL5	SW-V-22
CR7-VL5/1	SW-V-22
CS1-VL4	SW-V-29

CABLE	CABLE DESCRIPTION
CS1-VL4/1	SW-V-29
CS2-VL6	SW-V-31
CS2-VL6/1	SW-V-31
CU5-F72/1	SW-V-44
CU5-VM1/1	SW-V-44
CU5-VM1/3	SW-V-44
CW3-HR2	ED-BC-28
CW3-HS4	ED-SWG-12B BC-28
C3D-F72	SW-V-139
C3D-V3Q	SW-V-139
C3D-V3Q/1	SW-V-139
C3D-V3Q/3	SW-V-139
C68-HF1	IA-AC-10A
C69-F71	SA-C-1B
C69-J2G	SA-C-1B
C69-NC7	SA-C-1B
C74-HF2	IA-AC-10B
C75-F71	SA-C-1A
C75-J2F	SA-C-1A
C75-NC6	SA-C-1A
DA1-HR4	EDE-BC-1B
DA1-HR6	EDE-BC-1B
DA2-GNO	SW-V-5
DA2-G2K	SW-V-5
DA2-G2K/1	SW-V-5
DA2-G2K/2	SW-V-5
DA2-HR4	SW-V-5
DA2-VQ1	SW-V-5
DA2-VQ1/1	SW-V-5
DA3-F71	SW-V-17
DA3-GNO	SW-V-17
DA3-VN2/1	SW-V-17
DA4-F71	SW-V-19
DA4-GNO	SW-V-19
DA4-VN3/1	SW-V-19
DA4-VN3/2	SW-V-19
DA5-F71	SW-V-23
DA5-F71/1	SW-V-23
DA5-GNO	SW-V-23
DA5-VN5/1	SW-V-23
DA5-VN5/2	SW-V-23
DA6-GN9	SW-V-4
DA6-G2H	SW-V-4
DA6-G2H/1	SW-V-4
DA6-G2H/2	SW-V-4
DA6-HR2	SW-V-4
DA6-VPO	SW-V-4
DA6-VPO/1	SW-V-4
DA7-F72	SW-V-15
DA7-GN9	SW-V-15
DA7-VN1/1	SW-V-15

CABLE	CABLE DESCRIPTION
DA8-F72	SW-V-20
DA8-GN9	SW-V-20
DA8-VN4	SW-V-20
DA8-VN4/1	SW-V-20
DA8-VN4/2	SW-V-20
DA9-F72	SW-V-34
DA9-F72/1	SW-V-34
DA9-GN9	SW-V-34
DA9-VN6	SW-V-34
DA9-VN6/1	SW-V-34
DA9-VN6/2	SW-V-34
DB1-HR2	EDE-BC-1A
DB1-HR5	EDE-BC-1A
DB2-HR4	EDE-BC-1D
DB2-HR8	EDE-BC-1D
DD3-HF5/1	EDE-I-1E
DD5-HF6/1	EDE-I-1F
DM0-E2T	EDE-PP-113A
DM1-EH9	EDE-SWG-11A — SWG-11A
DM1-J75/1	
DM2-HR5	EDE-SWG-11A
DM3-J75	EDE-SWG-11A
DM3-J75/1	EDE-SWG-11A
DM5-E93	EDE-PP-111A
DM6-HE1	1-I-1A UPS
DM7-HF5/1	EDE-I-1E
DM8-E87	EDE-PP-112A
DM9-G10	DG-DG-1A DG-CP-75A
DN0-HF6/1	EDE-I-1F
DN3-EH0	EDE-SWG-11B
DN3-J76/1	EDE-SWG-11B
DN4-HR6	EDE-SWG-11B
DN5-J76	EDE-SWG-11B
DN5-J76/1	EDE-SWG-11B
DN7-E94	EDE-PP-111B
DN8-HE2	1-I-1B UPS
DN9-E88	EDE-PP-112B
(DP0-EN8)	ED-SWG-12B DELETE
DP1-G20	DG-DG-1B DG-CP-76A
DP2-E2U	EDE-PP-113B
DP5-EH9	EDE-SWG-11C
DP5-J77/1	EDE-SWG-11C
DP6-HR7	EDE-SWG-11C
DP7-J77	EDE-SWG-11C
DP7-J77/1	EDE-SWG-11C
DP9-HE3	1-I-1C UPS
DQ1-E97	ED-SWG-12B PP-121B
DQ3-E89	ED-SWG-12B PP-122B
DQ7-EH0	EDE-SWG-11D
DQ7-J78/1	EDE-SWG-11D
DQ8-HR8	EDE-SWG-11D
DQ9-J78	EDE-SWG-11D

CABLE	CABLE DESCRIPTION
DQ9-J78/1	EDE-SWG-11D
DR1-HE4	1-I-1D UPS
DR2-HS8	ED-I-4 UPS
DS6-E2O	ED-SWG-12B
DS7-HS4	ED-SWG-12B
DS8-HS5	ED SWG-12B B-2B
DS8-HS5/1	ED SWG-12B B-2B
DZ3-F72/1	SW-V-63
DZ3-VQO/1	SW-V-63
DZ3-VQO/3	SW-V-63
DO5-H2O	ED-X-16A
D23-HE4	1-I-1D UPS
D26-HE2	1-I-1B UPS
D27-HE1	1-I-1A UPS
D3O-HE3	1-I-1C UPS
D88-HR2	EDE-BC-1C
D88-HR7	EDE-BC-1C
D9O-F2O	RH-V-7O
D9O-VB4/1	RH-V-7O
D93-F71	SA-C-4A
D93-F71/1	SA-C-4A
D93-HR2	SA-C-4A
D93-H19	SA-C-4A
D93-H36/1	SA-C-4A
D93-H36/2	SA-C-4A
D95-F71	SA-C-4B
D95-F71/1	SA-C-4B
D95-HR4	SA-C-4B
D95-H24	SA-C-4B
D95-H39/1	SA-C-4B
D95-H39/2	SA-C-4B
EC8-FB1	CS-P-3A
EC8-G81	RC-V-23 RC-V-88 RC-V-2894 DELETE
EDO-GZO/1	RC-V-22 RC-V-87
EDO-H41	CC-V-176 CC-V-256 CC-V-122 CC-V-168
EDO-TP6	DAH-FN-25B
ED1-FB1	RC-V-122
ED1-F38	RC-V-122
ED6-F36/1	SWA-FN-64 SWA-DP-66
ED6-G2H	SW-V-54
ED6-T5V	SWA-FN-64 SWA-DP-66
ED8-F71	SA-V-92 SA-V-93
ED8-GZ9/1	SA-V-92 SA-V-93
ED8-J2F	SA-C-1A
ED8-UMO	SA-V-92 SA-V-93
ED8-UM9	SA-V-92 SA-V-93
EE3-FJ4	CC-V-176 CC-V-256 CC-V-122 CC-V-168
EE3-FJ4/1	CC-V-176 CC-V-256 CC-V-122 CC-V-168
EE3-FJ4/2	EDE-CP-249TA
EE3-F37/3	PAH-DP-35B PAH-DP-36B
EE3-GNO	CC-V-176 CC-V-256 CC-V-122 CC-V-168

CABLE	CABLE DESCRIPTION
EE3-GN0/1	EDE-CP-249TA
EE6-J2G	SA-C-18
EE7-G2K	SW-V-25
EF4-FJ1	CC-V-175 CC-V-257 CC-V-57 CC-V-121
EF4-FJ1/1	CC-V-175 CC-V-257 CC-V-57 CC-V-121
EF4-FJ1/2	EDE-CP-248TA
EF4-F36	PAH-DP-35A PAH-DP-36A
EF4-F36/1	PAH-DP-35A PAH-DP-36A
EF4-GN9	CC-V-57 CC-V-121 CC-V-175 CC-V-257
EF4-GN9/1	EDE-CP-248TA
EF4-PD6	PAH-DP-35A PAH-DP-36A
EF5-F70	SW-V-44 SW-V-63
EH0-FJ4	MM-CP-152B
EH0-FL2	MM-CP-297B
EH9-E20/2 EH0-HF6/1	EDE-PP-1F CS-HC-182
EH9-FJ1	MM-CP-152A
EH9-FK0	MM-CP-297A
EH9-HF5/1	EDE-PP-1E
EJ9-FJ7	CO-LT-4096 MM-CP-153 DELETE
EJ9-HS7	ED-I-4 UPS PP-5
EM0-EX6	ED-PP-8B
EM0-J98	1A-D-2B
EM9-EN2	ED-PP-8A
EM9-J97	1A-D-2A
EN2-H28	ED-X-16H
EN2-JX2	ED-PP-8A
EN7-HS7	ED-I-4 UPS DELETE
ER1-JX3	ED-PP-8B
EV5-JX2	ED-PP-8A
EX6-H20	ED-X-16A
EX6-JX3	ED-PP-8B
EO1-EH5	1-I-1A UPS DELETE
EO1-FA1	MM-CP-1
EO1-G5X	MM-CP-12
EO1-HE1	1-I-1A UPS EDE-PP-1A
EO2-FA2	MM-CP-2
EO2-G5Y	MM-CP-13
EO2-HE2	1-I-1B UPS EDE-PP-1B
EO3-FA3	MM-CP-3
EO3-HE3	1-I-1C UPS EDE-PP-1C
EO4-FA4	MM-CP-4
EO4-HE4	1-I-1D UPS EDG-PP-1D
EO7-H14	RC-E-10 PRESSURIZER HEATERS (GROUP A)
EO7-H14/1	RC-E-10 PRESSURIZER HEATERS (GROUP A)
EO7-H14/2	RC-E-10 PRESSURIZER HEATERS (GROUP A)
EO7-H14/3	RC-E-10 PRESSURIZER HEATERS (GROUP A)
EO7-H14/4	RC-E-10 PRESSURIZER HEATERS (GROUP A)
EO8-H20	RC-E-10 PRESSURIZER HEATERS (GROUP B)
EO8-H20/1	RC-E-10 PRESSURIZER HEATERS (GROUP B)
EO8-H20/2	RC-E-10 PRESSURIZER HEATERS (GROUP B)
EO8-H20/3	RC-E-10 PRESSURIZER HEATERS (GROUP B)

CABLE	CABLE DESCRIPTION	
E08-H20/4	RC-E-10 PRESSURIZER HEATERS (GROUP B)	
E1S-EH9	EDE-PP-11E	
E1S-F42	NI-NE-6690	
E1S-GX6/1	MS-V-86 MS-V-92	
E1S-GX7/1	MS-V-88 MS-V-90	
E1S-KDO	NI-NE-6690	
E1S-QC1	NI-NE-6990	
E1S-QIO	NI-NE-6990	
E1T-EHO	EDE-PP-11F	
E1T-FT4	MM-CP-486B ICTE	
E1T-F48	NI-NE-6691	
E1T-GX8/3	MS-V-88 MS-V-90	
E1T-GX9/3	MS-V-86 MS-V-92	
E1T-KD1	NI-NE-6691	
E1T-QDO	NI-NE-6691	
E1T-QJ1	NI-NE-6691	
E2T-E4H	CC-V-57 CC-V-121	
E2T-E4H/2	SI-FV-2482 SI-FV-2483 SI-FV-2495 SI-FV-2496	
E2T-F6O	MS-PV-3002 (A TRAIN)	
E2T-F8O/1	MS-PV-3004 (A TRAIN)	
E2T-GX7	MS-V-88	
E2T-GX7/1	MS-V-90	
E2T-G2G	CC-V-175 CC-V-257	
E2T-G5X	MS-PV-3001	
E2T-G5X/1	MS-PV-3003	
E2T-G81	CC-TV-2171-1 CC-TV-2171-2	
E2U-E4C	CC-V-176 CC-V-256	
E2U-E4C/3	SI-FV-2475 SI-FV-2476 SI-FV-2477 SI-FV-2486	
E2U-F6O	MS-PV-3001(BTRAIN)	DELETE
E2U-F66	MS-PV-3001	
E2U-F66/1	MS-PV-3003	
E2U-GNO/1	SW-P-41B SW-P-41D	DELETE
E2U-GNO/6	CC-TV-2271-1 & 2	
E2U-GX8	MS-V-88	
E2U-GX8/1	MS-V-90	
E2U-GZO	CC-TV-2271-1 CC-TV-2271-2	
E2U-GZO/2	CC-V-122 CC-V-168	
E2U-G5Y	MS-PV-3002	
E2U-G5Y/1	MS-PV-3004	
E3C-FKO	FW-FV-4214A FW-FV-4224A FW-FV-4234A FW-FV-4244A	
E3C-F51	FW-FV-4214-A	
E3C-F51/1	FW-FV-4224-A	
E3C-F51/2	FW-FV-4234-A	
E3C-F51/3	FW-FV-4244-A	
E3C-F56	FW-FV-4214A, 4224A, 4234A, 4244A	
E3C-G2G	FW-FV-4214-A	
E3C-G2G/1	FW-FV-4224-A	
E3C-G2G/2	FW-FV-4234-A	
E3C-G2G/3	FW-FV-4244-A	
E3D-FL2	FW-FV-4214B FW-FV-4224B FW-FV-4234B FW-FV-4244B	
E3D-F51	FW-FV-4214-B	

CABLE	CABLE DESCRIPTION
E3D-F51/1	FW-FV-4224-B
E3D-F51/2	FW-FV-4234-B
E3D-F51/3	FW-FV-4244-B
E3D-F51/4	FW-FV-4214B, 4224B, 4234B, 4244B
E3D-G2J	FW-FV-4214-B
E3D-G2J/1	FW-FV-4224-B
E3D-G2J/2	FW-FV-4234-B
E3D-G2J/3	FW-FV-4244-B
E4A-J3M	RC-PCV-456A
E4C-GZO/1	SI-FV-2475 SI-FV-2476 SI-FV-2477 SI-FV-2486
E4C-GZO/2	RC-PCV-456B
E4C-G2J	CC-V-176 CC-V-256
E4C-J3P	RC-PCV-456B
E4D-F48	CS-V-180
E4E-EF4	CC-V-57 CC-V-121 CC-V-175 CC-V-257
E4E-HR2	IA-D-2A
E4E-H36	IA-D-2A
E4E-H36/3	CC-V-57 CC-V-121 CC-V-175 CC-V-257
E4E-H36/4	CAH-FN-1C, 1E, 1F
E4F-F38	CS-V-10, 28, 44, 59, 177 & 185
E4G-HR4	IA-D-2B
E4G-H39	IA-D-2B
E4G-H39/1	CAH-FN-1A, 1B, 1C 1D DELETE
E4G-H41/1	CAH-FN-1A CAH-FN-1B CAH-FN-1D
E4H-EH9	SI-V-3 SI-V-32
E4H-EH9/1	RC-V-23 RC-V-88
E4H-G2G	RC-V-23 RC-V-88
E4H-G81	SI-V-3 SI-V-32
E4H-G81/1	CC-V-57 CC-V-121
E4H-G81/2	SI-FV-2482 SI-FV-2483 SI-FV-2495 SI-FV-2496
E4H-H3B	CAH-FN-1C CAH-FN-1E CAH-FN-1F
E4J-EDO/1	CC-V-176 CC-V-256 CC-V-122 CC-V-168
E4J-EHO	SI-V-17 SI-V-47
E4J-EHO/1	RC-V-22 RC-V-87
E4J-GZO	SI-V-17 SI-V-47
E4J-G2J	RC-V-22 RC-V-87
E45-E4E	CAH-FN-1C CAH-FN-1E CAH-FN-1F
E45-E4H	CAH-FN-1C CAH-FN-1E CAH-FN-1F
E50-E4J/1	CC-V-176 CC-V-256 CC-V-122 CC-V-168
E53-E4G	CAH-FN-1A CAH-FN-1B CAH-FN-1D
E53-E4G/1	CAH-FN-1A CAH-FN-1B CAH-FN-1D
E87-E4A/4	RC-PCV-456A
E87-GX6	MS-V-86
E87-GX6/1	MS-V-92
E87-G2G/1	MS-V-127
E88-E4C/7	RC-PCV-456B
E88-GX9	MS-V-86
E88-GX9/1	MS-V-92
E89-E4F/1	CS-V-10, 28, 44, 59, 177,& 185
E93-G29/1	DG-DG-1A
E93-HD3	CP-CP-111

CABLE	CABLE DESCRIPTION	
E94-G30/1	DG-DG-1B	
E94-H02	CP-CP-111	
E95-E4D	CS-V-180	
FA1-FB5	RC-PT-455,FW-PT-514 & 524(SAFEGD SYS:SI)	
FA1-FB5/2	SI-PT-937,FW-PT-534 & 544(SAFEGD SYS:CONT SP,ISOL PH B,SI) RC-V23 RC-V88	
FA1-FB8	RC-PT-455,FW-PT-514 & 524(SAFEGD SYS:SI)	
FA1-FB8/2	SI-PT-937,FW-PT-534 & 544(SAFEGD SYS:CONT SP,ISOL PH B,SI)	
FA1-GL5	FW-PT-524 & 534(SAFEGD SYS:SI)	
FA1-GL6	FW-PT-514 & 544(SAFEGD SYS:SI)	
FA1-H44	FW-LT-501	
FA1-H44/3	RC-TE-413A RC-TE-443A	
FA1-H45	FW-LT-529	
FA1-H45/1	RC-PT-455(SAFEGD SYS:SI),RC-E-10 PRSRZR HTR GP A,B(C,D), RC-LT-459	DELETE
FA1-H45/2	RC-TE-423A RC-TE-433A	
FA1-P78/1	RC-PT-405 RC-V-23 & 88	
FA1-P88	SI-PT-937(SAFEGD SYS:CONT SP ISOL PH B)	
FA1-RJ7	CS-LT-102	
FA2-FB5	RC-PT-456,FW-PT-515 & 525(SAFEGD SYS:SI)	
FA2-FB5/2	SI-PT-936,FW-PT-535 & 545(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
FA2-FB8	RC-PT-456,FW-PT-515 & 525(SAFEGD SYS:SI)	
FA2-FB8/2	SI-PT-936,FW-PT-535 & 545(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
A2-GZ4	FW-PT-525 & 535(SAFEGD SYS:SI)	
FA2-GZ6	FW-PT-515 & 545(SAFEGD SYS:SI)	
FA2-H55	FW-LT-502 FW-LT-519	
FA2-H55/2	RC-LT-460	DELETE
FA2-H55/3	RC-PT-456(SAFEGD SYS:SI),RC-E-10 PRSRZR HTR GP A,B,C,D, RC-LT-460	DELETE
FA2-H55/6	RC-TE-423B RC-TE-413B	
FA2-H55/7	RC-TE-433B RC-TE-443B	
FA2-P87	SI-PT-936(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
FA2-RJ0	CS-LT-106	
FA3-FB5	RC-PT-457(SAFEGD SYS:SI)	
FA3-FB5/1	SI-PT-935,FW-PT-526 & 536(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
FA3-FB8	RC-PT-457(SAFEGD SYS:SI)	
FA3-FB8/1	SI-PT-935,FW-PT-526 & 536(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
FA3-H47/1	FW-LT-503 FW-LT-548	
FA3-H47/3	RC-PT-457(SAFEGD SYS:SI)	
FA3-PS1	FW-PT-526(SAFEGD SYS:SI)	
FA3-PS2	FW-PT-536(SAFEGD SYS:SI)	
FA3-P86	SI-PT-935(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
FA4-FB5	RC-PT-458(SAFEGD SYS:SI)	
FA4-FB5/1	SI-PT-934,FW-PT-516 & 546(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
FA4-FB8	RC-PT-458(SAFEGD SYS:SI) RC-V22 RC-V87	
FA4-FB8/1	SI-PT-934,FW-PT-516 & 546(SAFEGD SYS:CONT SP,SI,ISOL PH B)	
FA4-H52	FW-LT-537	
FA4-H52/1	FW-LT-504	
FA4-H52/2	RC-PT-458(SAFEGD SYS:SI)	
FA4-PS3	FW-PT-516(SAFEGD SYS:SI)	
FA4-PS4	FW-PT-546(SAFEGD SYS:SI)	
FA4-P76/1	RC-V-87 RC-PT-403 RC-V-22	
FA4-P85	SI-PT-934(SAFEGD SYS:CONT SP,ISOL PH B)	
FA7-S1E	CS-FT-121 CS-FCV-121	

CABLE	CABLE DESCRIPTION
FA7-S42	CS-FT-121 CS-FCV-121
FA7-S82	CS-FCV-121
FB0-FC2/E	MS-V-86 MS-V-92
FB0-FC2/F	MS-V-88 MS-V-90
FB0-FC2/9	CS-V-168
FB0-GX8	MS-V-88 MS-V-90
FB0-GX9	MS-V-86 MS-V-92
FB0-GZO	CC-V-122 CC-V-168
FB0-G2J	CC-V-256 CC-V-176
FB0-HR3	DG-CP-80
FB0-HR4	FW-P-378
FB1-HR2	RC-E-10 PRSRZR HTRS BACKUP GP A
FB2-FS9/1	RC-E-10 PRESSURIZER HEATERS (GROUP B)
FB2-FS9/2	RC-E-10 PRESSURIZER HEATERS (GROUP B)
FB7-FC1/E	MS-V-86 MS-V-92
FB7-FC1/F	MS-V-88 MS-V-90
FB7-FC1/9	CS-V-167
FB7-GX6	MS-V-86 MS-V-92
FB7-GX7	MS-V-88 MS-V-90
FB7-G2G	CC-V-175 CC-V-257
FB7-G81	CC-V-121 CC-V-57
FB7-HR1	DG-CP-79
FB7-VU6	MS-V-204
FB7-VU7	MS-V-205
FB7-VU8	MS-V-208
FB7-VU9	MS-V-207
FC1-GN9/1	CC-V-57 CC-V-121 CC-V-175 CC-V-257
FC1-GX6	MS-V-86 MS-V-92
FC1-GX7	MS-V-88 MS-V-90
FC1-GX7/1	MS-V-88 MS-V-90
FC1-G2G	CC-V-175 CC-V-257
FC1-G2G/1	CC-V-175 CC-V-257
FC1-G81	CC-V-121 CC-V-57
FC1-G81/1	CC-V-121 CC-V-57
FC2-GNO/2	CC-V-176 CC-V-256 CC-V-122 CC-V-168
FC2-GX8	MS-V-88 MS-V-90
FC2-GX9	MS-V-86 MS-V-92
FC2-GZO	CC-V-122 CC-V-168
FC2-GZO/1	CC-V-122 CC-V-168
FC2-G2J	CC-V-256 CC-V-176
FC2-G2J/2	CC-V-256 CC-V-176
FF8-G5X	MM-CP-12
FF9-G5Y	MM-CP-13
FJ1-GRO	EDE-CP-248TA SW-PT-8272,8273 & 8274
FJ1-YH4	CC-LT-2172-1 CC-LT-2172-2 CC-LT-2172-3
FJ1-YH4/1	CC-LT-2272-1 CC-LT-2272-2 CC-LT-2272-3
FJ4-GRO	SW-PT-8282,8283 & 8284 (TA LOGIC) EDE-CP-249TA
FJ4-GZO/3	CC-TV-2271-1 CC-TV-2271-2
FJ4-TM8/1	CC-TE-2271
FJ4-YH5	CC-LT-2192-1 CC-LT-2192-2 CC-LT-2192-3
FJ4-YH5/1	CC-LT-2292-1 CC-LT-2292-2 CC-LT-2292-3

CABLE	CABLE DESCRIPTION
FJ7-R53	CO-LT-4096
FKO-GL3	FW-FV-4214A,4224A,4234A,4244A,FW-FT-4214-2,4234-2,4224-4 & 4244-4
FKO-P1G	FW-PT-4252
FKO-TMO	CC-TE-2171 CC-TV-2171-1 CC-TV-2171-2
FKO-GB1/1	
FL2-GL4	FW-FV-4214B,4224B,4234B,4244B,FW-FT-4224-2,4244-2,4214-4 & 4234-4
FL2-P1F	FW-PT-4257
F10-FBO	SI-V-139
F10-FBO/1	SI-P-6B
F10-FBO/4	CS-LCV-112E
F10-FBO/7	SI-V-174 DELETE
F10-FB6	CONT ISOL PH A RESET,CONT ISOL PH B RESET MM-CP-12
F10-FB6/1	CONT ISOL PH A ACTUATE,SAF INJECT ACTUATE,SAF INJECT RESET & BLOCK MM-CP-12
F10-FB6/2	CONT SPRAY ACTUATE,CONT ISOL PH B ACTUATE MM-CP-12
F10-FB6/3	CONT SPRAY RESET MM-CP-12
F10-FB7	SI-V-138
F10-FB7/2	SI-P-6A
F10-FB7/4	CS-LCV-112D
F10-FB7/5	CONT ISOL PH A RESET,CONT ISOL PH B RESET,SAF INJECT RESET & BLOCK MM-CP-12
F10-FB7/7	CONT SPRAY RESET MM-CP-12
F10-FB9	SAF INJECT ACTUATE, CONT ISOL PH A MM-CP-13
F10-F47	RC-PT-405
F10-F47/1	RC-PT-405
F10-F50	CONT SPRAY ACTUATE,CONT ISOL PH B ACTUATE MM-CP-12
F10-F50/1	CONT ISOL PH A ACTUATE,SAF INJECT ACTUATE MM-CP-12
F10-F51	SAF INJECT ACTUATE, CONT ISOL PH A MM-CP-13
F10-G2G/2	CS-LCV-112D
F10-G2G/3	CS-LCV-112D
F10-G2G/4	SI-V-138
F10-G2G/5	SI-V-138
F10-G2J/2	CS-LCV-112E
F10-G2J/3	CS-LCV-112E
F10-G2J/4	SI-V-139
F10-G2J/5	SI-V-139
F10-HD2	CP-CP-111
F10-HD3	CP-CP-111
F10-QC1	NI-NE-6690
F20-FBO	RH-P-8B
F20-FBO/8	CONT ISOL PH A RESET,CONT ISOL PH B RESET,SAF INJECT RESET & BLOCK MM-CP-13
F20-FBO/H	CONT SPRAY RESET MM-CP-13
F20-FBO/1	CBS-P-9B
F20-FBO/6	SI-V-17
F20-FBO/7	SI-V-47
F20-FB7	RH-P-8A
F20-FB7/1	CBS-P-9A
F20-FB7/5	SI-V-3
F20-FB7/6	SI-V-32
F20-FB9	CONT SPRAY ACTUATE,CONT ISOL PH B ACTUATE MM-CP-13
F20-FB9/1	CONT ISOL PH A ACTUATE,CONT ISOL PH A RESET MM-CP-13
F20-FB9/2	CONT ISOL PH B RESET,SAF INJECT RESET & BLOCK MM-CP-13
F20-FB9/3	CONT SPRAY RESET MM-CP-13
F20-FF8/2	RC-V-23

CABLE	CABLE DESCRIPTION
F20-FF8/3	RC-V-88
F20-FF9/1	RC-V-87
F20-FF9/2	RC-V-22
F20-F51	CONT SPRAY ACTUATE,CONT ISOL PH B ACTUATE MM-CP-13
F20-F51/2	CONT ISOL PH A ACTUATE MM-CP-13
F20-F60	MS-V-204
F20-F60/1	MS-V-205
F20-F60/2	MS-V-206
F20-F60/3	MS-V-207
F20-GKO	RH-FCV-618 RC-HCV-606
F20-GX6	MS-V-86 MS-V-92
F20-GX6/1	MS-V-86 MS-V-92
F20-GX7	MS-V-88 MS-V-90
F20-GX7/1	MS-V-88 MS-V-90
F20-GZO	SI-V-17, 47
F20-GZO/1	SI-V-17
F20-GZO/2	SI-V-47
F20-GZO/4	SI-FV-2475 SI-FV-2476 SI-FV-2477 SI-FV-2486
F20-GZO/5	SI-FV-2475 SI-FV-2476 SI-FV-2477 SI-FV-2486
F20-GZO/6	SI-FV-2475 SI-FV-2476 SI-FV-2477 SI-FV-2486
F20-G2G	RC-V-23
F20-G2G/1	RC-V-88
F20-G2G/2	RC-V-23,RC-V-88
F20-G2J	RC-V-22
F20-G2J/1	RC-V-87
F20-G2J/2	RC-V-22,RC-V-87
F20-G81	SI-V-3 SI-V-32
F20-G81/1	SI-V-3 SI-V-32 DELETE
F20-G81/2	SI-V-32
F20-G81/4	SI-FV-2482 SI-FV-2483 SI-FV-2495 SI-FV-2496
F20-G81/5	SI-FV-2482 SI-FV-2483 SI-FV-2495 SI-FV-2496
F20-G81/6	SI-FV-2482 SI-FV-2483 SI-FV-2495 SI-FV-2496
F20-QOO	NI-NE-6691
F20-U7W	RH-FCV-619,RH-HCV-607
F20-VW3	RH-FCV-618 RH-HCV-606
F20-VW4	RH-FCV-619 RH-HCV-607
~~F26-FBO/3~~	~~RH-V-28~~
F26-FBO/4	SB-V-9 SB-V-10 SB-V-11
F26-FBO/5	SB-V-12
F26-GZO/4	RC-V-22 RC-V-87
F26-H36/5	SI-V-159
F26-H39/9	SI-V-158
F26-UM4	SB-V-9
F26-UM5	SB-V-10
F26-UM6	SB-V-11
F26-UM7	SB-V-12
F26-U6V	SB-V-9
F26-U6W	SB-V-10
F26-U6X	SB-V-11
F26-U6Y	SB-V-12
F28-H36/4	SB-V-1 SB-V-3 SB-V-5

CABLE	CABLE DESCRIPTION
F28-H36/5	SB-V-1 SB-V-3 SB-V-5
F28-H36/6	SB-V-5 SB-V-7
F29-G81/2	RC-V-23 RC-V-88 RC-FV-2894
F30-FB0/4	CC-V-256 CC-V-176
F30-FB0/5	CC-V-122 CC-V-168
F30-FB7/1	CC-V-145
F30-FB7/5	CC-V-121 CC-V-57
F30-FB7/6	CC-V-175 CC-V-257
F30-FJ4/1	CC-TV-2271-1 CC-TV-2271-2
F30-FK0/2	CC-P-322A
F30-FK0/3	CC-TV-2171-1 CC-TV-2171-2
F30-FK0/4	CC-TE-2171
F30-FL2	CC-P-322B
F30-GZ0/6	CC-V-122 CC-V-168
F30-GZ0/7	CC-V-122 CC-V-168
F30-GZ0/8	CC-P-322B
F30-GZ0/9	CC-V-122 CC-V-168
F30-G2G	CC-V-175 CC-V-257
F30-G2G/1	CC-V-175 CC-V-257
F30-G2G/5	CC-V-175 CC-V-257
F30-G2J	CC-V-256 CC-V-176
F30-G2J/1	CC-V-256 CC-V-176
F30-G2J/6	CC-V-256 CC-V-176
F30-G81/A	CC-P-322A
F30-G81/8	CC-V-121 CC-V-57
F30-G81/6	CC-TV-2171-1 & 2
F30-G81/7	CC-TV-2171-1 & 2
F30-G81/8	CC-V-121 CC-V-57
F30-G81/9	CC-V-121 CC-V-57 CC-V272
F31-FB0/3	RC-E-10 PRESSURIZER HEATERS (GROUP C)
F31-FB1/3	RC-E-10 PRESSURIZER HEATERS (GROUP D)
F31-FB2/2	RC-E-10 PRSRZR HTRS BACKUP GP B
F31-FT0	RC-V-124
F31-FT0/1	RC-PCV-456B
F31-FT0/2	RC-FV-2881
F31-GN0	RC-E-10 PRSRZR HTRS BACKUP GP B
F31-GZ0	RC-PCV-456B
F31-GZ0/2	CC-TV-2271-1 & 2
F31-GZ0/3	CC-TV-2271-1 & 2
F31-GZ0/4	RC-V-124
F31-GZ0/5	RC-V-124
F31-GZ0/6	RC-FV-2881
F31-G5Y	RC-E-10 PRSRZR HTRS BACKUP GP B
F31-HR4	CS-V-177, 185, 10, 28, 44, 59
F31-H36/2	RC-FV-2881
F31-H41/1	RC-V-323
F31-H41/2	PAH-DP-35A PAH-DP-36A
F36-FB7	CAH-FN-1C
F36-FB7/4	CAH-FN-1E
F36-FB7/5	CAH-FN-1F
F36-FB7/6	CBA-DP-52
F36-GN8	RC-E-10 PRESSURIZER HEATERS CONTROL GROUP
F31-FB1/4	

CABLE	CABLE DESCRIPTION	
F36-GN9	EAH-DP-37A	
F36-G2H	EAH-FN-5A	
F36-G2H/A	CAH-FN-1C	
F36-G2H/B	CAH-FN-1C	
F36-G2H/1	EAH-FN-5A	
F36-G2H/2	SWA-FN-40A	
F36-G2H/3	CAH-FN-1E	
F36-G2H/4	CAH-FN-1E	
F36-G2H/5	CAH-FN-1E	
F36-G2H/6	CAH-FN-1F	
F36-G2H/7	CAH-FN-1F	
F36-G2H/8	CAH-FN-1F	
F36-G2H/9	CAH-FN-1C	
F36-TU9	EPA-FN-47A	
F36-VN0	PAH-DP-35A PAH-DP-36A	
F36-VN0/1	PAH-DP-35A PAH-DP-36A	
F36-VN8	PAH-DP-35A PAH-DP-36A	
F36-VN8/1	PAH-DP-35A PAH-DP-36A	
F37-FB0	PAH-DP-35B PAH-DP-36B	
F37-FB0/1	CAH-FN-1A	
F37-FB0/2	CAH-FN-1B	
F37-FB0/3	CAH-FN-1D	
F37-GN0	EAH-DP-37B	
F37-GU2	CBA-AC-5B FN-14B FN-36B & DP-26B	
F37-GU2/1	CBA-AC-5B FN-14B FN-36B & DP-26B	
F37-G2K	EAH-FN-5B	
F37-G2K/A	CAH-FN-1A	
F37-G2K/B	CAH-FN-1A	
F37-G2K/C	SWA-FN-40B	
F37-G2K/1	EAH-FN-5B	
F37-G2K/2	SWA-FN-40B	
F37-G2K/3	CAH-FN-1B	
F37-G2K/4	CAH-FN-1B	
F37-G2K/5	CAH-FN-1B	
F37-G2K/6	CAH-FN-1D	
F37-G2K/7	CAH-FN-1D	
F37-G2K/8	CAH-FN-1D	
F37-G2K/9	CAH-FN-1A	
F37-TU0	EPA-FN-47B	
F37-VN9	PAH-DP-35B PAH-DP-36B	
F37-VN9/1	PAH-DP-35B PAH-DP-36B	
F37-VP1	PAH-DP-35B PAH-DP-36B	
F38-FA1	RC-PT-455	DELETE
F38-FA1/1	RC-LT-459	
F38-FB1	RC-E-10 PRSRZR HTRS BACKUP GP A	
F38-FB1/1	RC-V-122	DELETE
F38-FB1/2	RC-PCV-456A	
F38-GU1	CBA-AC-5A FN-14A FN-36A & DP-26A	
F38-GU1/1	CBA-AC-5A FN-14A FN-36A & DP-26A	
F38-G81	RC-E-10 PRSRZR HTRS BACKUP GP A	
F38-G81/1	RC-V-122 RC-PCV-456A	DELETE

CABLE	CABLE DESCRIPTION
F38-G81/2	RC-V-122
F38-G81/3	RC-V-122
F38-H35/2	CS-V-28 & 44
F38-H35/3	CS-V-10, 28, 44, 59, 177
F38-H36	CS-V-10, 28, 44, 59, 177
F39-FA2/1	RC-LT-460
F39-FJ4/4	CC-TE-2271
F40-FB1	RC-LCV-460
F40-FB1/1	CS-V-145
F40-FB1/2	RC-LCV-459
F40-FB6	SI-CS-2488(SAFEGD SYS: RC-E-10 PRSRZR PRESSURE, SI BLOCK-RESET)
F40-FB7	CS-LCV-112B
F40-GP5	CS-HCV-182
F40-G2G	CS-LCV-112C
F40-G2G/1	CS-LCV-112B
F40-G5X	RC-LCV-459
F40-H36	RC-LCV-459
F40-H36/1	RC-LCV-460
F40-H36/2	CS-V-145
F40-H36/3	RC-LCV-460
F41-FA7	CS-FCV-121
F41-FB7	CS-P-2A
F41-FB7/1	CS-V-142
F41-FB7/2	CS-V-196
F41-FC1	CS-V-167
F41-FK0	CS-V-196
F41-G2G/4	CS-V-142
F41-G2G/5	CS-V-142
F41-H36/3	CS-V-177, 10, 28, 44, 59
F42-HD3	CP-CP-111
F42-HD3/1	CP-CP-111
F42-QC1	NI-NE-6690
F47-FA1	CS-LT-102
F47-FA1/1	RC-TE-413A RC-TE-423A
F47-FA1/2	RC-PT-405 RC-TE-433A RC-TE-443A
F47-FA1/3	RC-PT-405
F47-FA7	CS-FCV-121 CS-PT-121
F48-FA2	CS-LT-106
F48-FA2/1	RC-TE-423B RC-TE-413B
F48-FA2/2	RC-TE-433B RC-TE-443B
F48-FA4	RC-PT-403
F48-FA4/2	RC-PT-403
F48-FB0	CS-P-2B
F48-FB0/1	CS-LCV-112C
F48-FB0/2	CS-V-197
F48-FB0/3	CS-V-143
F48-FB9/2	SI-CS-2498(SAFEGD SYS: RC-E-10 PRSRZR PRESSURE, SI BLOCK-RESET)
F48-FC2	CS-V-168
F48-FL2	CS-V-197
F48-FT0	CS-P-3B
F48-G2J/2	CS-V-143

CABLE	CABLE DESCRIPTION
F48-G2J/3	CS-V-143
F48-G2J/4	CS-LCV-112C
F48-G2J/5	CS-LCV-112C
F48-G5Y	CS-V-175 CS-V-180
F48-HD2	CP-CP-111
F48-HD2/1	CP-CP-111
F48-H39/1	CS-V-176
F48-H39/2	CS-V-175 & 180
F48-H39/3	CS-V-175 & 180
F48-QDO	NI-NE-6691
F51-FB6	SI-CS-2480(SAFEGD SYS:STEAMLINE SI BLOCK-RESET)
F51-FB9	SI-CS-2490(SAFEGD SYS:STEAMLINE SI BLOCK-RESET)
F51-GX8	MS-V-88 MS-V-90
F51-GX9	MS-V-86 MS-V-92
F51-G2G	FW-FV-4214-A
F51-G2G/1	FW-FV-4224-A
F51-G2G/2	FW-FV-4234-A
F51-G2G/3	FW-FV-4244-A
F51-G2J	FW-FV-4214-B
F51-G2J/1	FW-FV-4224-B
F51-G2J/2	FW-FV-4234-B
F51-G2J/3	FW-FV-4244-B
F56-FA1	FW-LT-501 FW-PT-534 FW-LT-529 FW-PT-514 FW-PT-524 FW-PT-544
F56-FA1/3	FW-LT-501
F56-FA1/4	FW-LT-501
F56-FA2/1	FW-LT-502 FW-PT-525 FW-PT-545 FW-LT-519 FW-PT-515 FW-PT-535
F56-FA3/2	FW-LT-503 FW-LT-548
F56-FA4	FW-LT-504 FW-LT-537
F56-FKO	FW-FV-4214A, 4234A & FW-FT-4214-2, 4234-2
F56-FKO/1	FW-PT-4252
F56-FL2	FW-FV-4224B, 4244B & FW-FT-4224-2, 4244-2
F56-FL2/1	FW-PT-4257
F60-FB7	MS-V-127
F60-FB7/1	MS-V-204
F60-FB7/2	MS-V-205
F60-FB7/3	MS-V-206
F60-FB7/4	MS-V-207
F60-GX6	MS-V-86 MS-V-92
F60-GX6/1	MS-V-86 MS-V-92
F60-GX7	MS-V-88 MS-V-90
F60-GX7/1	MS-V-88 MS-V-90
F60-G2G/B	MS-PV-3003
F60-G2G/2	MS-V-86 MS-V-92
F60-G2G/5	MS-V-88 MS-V-90
F60-G2G/8	MS-V-127
F60-G2G/9	MS-PV-3001
F60-G2J	MS-PV-3002 MS-PV-3004 (A TRAIN)
F66 F60 UOC	MS-PV-3001 (B TRAIN)
F60-UOF	MS-PV-3004 (A TRAIN)
F60-UOJ	MS-PV-3002 (A TRAIN)
F66 F60 UOM	MS PV-3003 (B TRAIN)

CABLE	CABLE DESCRIPTION
F60-U89	MS-V-127
F60-VU6	MS-V-204
F60-VU7	MS-V-205
F60-VU8	MS-V-206
F60-VU9	MS-V-207
F66-FJ8	CO-LT-4096
F66-G2J/1	MS-PV-3002
F66-G2J/3	MS-PV-3004
F71-FB0	SW-V-5
F71-GN0	EDE-CP-2491A
F71-GN0/1	SW-V-18
F71-GN0/5	SW-V-18
F71-G18	SW-V-18
F71-G2K	SW-V-25
F71-G2K/3	SW-V-5
F71-G2K/5	SW-V-5
F71-J2F	SA-C-1A
F71-J2F/1	SA-C-1A
F71-J2F/2	SA-C-1A
F71-J2G	SA-C-1B
F71-J2G/1	SA-C-1B
F72-FB7	SW-V-4
F72-FB7/1	SW-V-74
F72-GN9	EDE-CP-2481A
F72-GN9/1	SW-V-16
F72-GN9/3	SW-V-55
F72-GN9/5	SW-V-16
F72-G06	SW-V-16
F72-G2H	SW-V-54
F72-G2H/3	SW-V-4
F72-G2H/5	SW-V-4
F77-GX6	MS-V-86 MS-V-92
F77-GX7	MS-V-88 MS-V-90
F77-GX8	MS-V-88 MS-V-90
F77-GX9	MS-V-86 MS-V-92
F80-FB7	DG-DG-1A
F80-G06/1	EDE-SWG-5 (BUS E5 DG-1A INC. BREAKER)
F80-G06/3	DG-DG-1A
F80-G06/4	DG-DG-1A
F80-G06/5	DG-DG-1A
F80-G06/6	DG-DG-1A
F80-G06/7	DG-DG-1A
F80-G06/8	DG-DG-1A
F80-G06/9	DG-DG-1A
F80-G07	EDE-SWG-5 (BUS E5 UAT INC BREAKER)
F80-G07/A	EDE-SWG-5 (BUS E5 UAT INC BREAKER)
F80-G07/B	DG-DG-1A (EDE-SWG-5 (BUS E5 RAT INC BREAKER)) DG-CP-75A
F80-G07/C	EDE-SWG-5 (BUS E5 UAT INC BREAKER)
F80-G07/D	EDE-SWG-5 RAT
F80-G07/F	DG-DG-1A
F80-G07/G	DG-DG-1A
F80-G07/H	EDE-SWG-5 UAT
F80-G07/J	EDE-SWG-5 RAT

CABLE	CABLE DESCRIPTION
F80-G07/1	DG-DG-1A DG-CP-75A
F80-G07/4	EDE-SWG-5 (BUS E5 RAT INC BREAKER)
F80-G07/5	EDE-SWG-5 (BUS E5 UAT PT COMPT)
F80-G07/7	DG-DG-1A
F80-G07/8	DG-DG-1A
F80-G07/9	DG-DG-1A
F80-G10	DG-DG-1A
F80-G10/1	DG-DG-1A
F80-G81	EDE (US-52) MCC-522
F80-HR1	DG-CP-79
F81-F80	DG-DG-1B
F81-GZ0	EDE (US-62) MCC-622
F81-G18	DG-DG-1B
F81-G18/1	DG-DG-1B
F81-G18/3	DG-DG-1B
F81-G18/4	DG-DG-1B
F81-G18/5	DG-DG-1B
F81-G18/6	DG-DG-1B
F81-G18/7	DG-DG-1B
F81-G18/8	DG-DG-1B
F81-G19	DG-DG-1B
F81-G19/A	EDE-SWG-6 (BUS E6 UAT INC BREAKER)
F81-G19/B	EDE-SWG-6 (BUS E6 RAT INC BREAKER)
F81-G19/C	EDE-SWG-6 (BUS E6 UAT INC BREAKER)
F81-G19/E	DG-DG-1B
F81-G19/F (F81-G19/G)	DG-DG-1B — EDE-SWGG-UAT
F81-G19/1 (F81-G19/H)	DG-CP-76A — EDE-SWGG-RAT
F81-G19/4	EDE-SWG-6 (BUS E6 RAT INC BREAKER)
F81-G19/5	EDE-SWG-6 (BUS E6 UAT PT COMPT)
F81-G19/6	EDE-SWG-6 (BUS E6 UAT INC BREAKER)
F81-G19/7	DG-DG-1B
F81-G19/8	DG-DG-1B
F81-G19/9	DG-CP-76A DG-DG-1B
F81-G20	DG-DG-1B
F81-G20/1	DG-DG-1B
F81-HR3/3	DG-CP-80
F86-FK0	FW-FV-4214A, 4234A FW-FT-4214-2, 4234-2
F88-FL2	FW-FV-4224B, 4244B FW-FT-4224-2, 4244-2
F97-FT4	MM-CP-486B IC-TE
F97-H54	MM-CP-486B IC-TE
GA0-GB3/4	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
GA0-GB3/5	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)
GA4-H36/4	CS-V-10,28,44,59 & 177
GA4-LA6/1	CS-V-10
GA5-H35/3	CS-V-10,28,44,59 & 177
GA5-LA7/1	CS-V-28
GA6-GB0/4	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
GA6-GB0/5	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)
GA7-GB7/4	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
GA7-GB7/5	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)
GC1-GC0/4	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)

CABLE	CABLE DESCRIPTION
GC1-GC0/5	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
GC4-GC8/4	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
GC4-GC8/5	EDE-SWG-6 (BUS E6 UAT INC. BREAKER)
GE4-H35/3	CS-V-10,28,44,59 & 177
GE4-H36	RC-LCV-460
GE4-H36/1	CS-V-145
GE4-LA8/1	CS-V-44
GE4-LF7/1	RC-LCV-460
GE4-LF7/2	CS-V-145
GE4-LH2 ~ GE5-H36/2	RC-LCV-459 ~ RC-LCV-460
GE5-H36/4	SI-V-159
GE5-H36/5	SI-V-159
GE5-H36/6	CS-V-10,28,44,59 177 & 185
GE5-H36/7	CS-V-177, 185, 10, 28, 44, 59
GE5-H36/8	CS-V-145
GE5-H39/1	CS-V-175 & 180
GE5-H39/2	CS-V-180
GE5-H39/5	CS-V-176
GE5-H39/7	SI-V-158
GE5-LA5/1	CS-V-176
GE5-LA9/1	CS-V-59
GE5-LH2/1	RC-LCV-459
GE5-LH2/3	CS-V-145
GE5-L89	SI-V-158
GE5-L90	SI-V-159
GE5-L95/1	CS-V-175 & 180
GE5-L96/1	CS-V-177
GE5-L97/1	CS-V-180
GE5-L98/1	CS-V-185
GE5-L99	RC-LCV-459
GE5-L99/1	CS-V-145
GE6-GE7/4	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
GE6-GE7/5	EDE-SWG-6 (BUS E6 RAT INC. BREAKER)
GE9-H45	FW-LT-529
GF8-H36	CC-V-57 CC-V-121 CC-V-175 CC-V-257
GF8-H47	FW-LT-548
GN0-GZ0/5	CC-TV-2271-1 CC-TV-2271-2
GN0-GZ0/6	CC-V-122 & CC-V-168
GN0-GZ0/8	CC-V-122 & CC-V-168
GN0-GZ0/9	CC-TV-2271-1 & 2
GN0-UK7	SW-V-18
GN0-VM8	SW-P-41B SW-P-41D SW-V-25
GN0-VN9	EAH-DP-37B
GN0-VP1	EAH-DP-37B
GN0-V68	EAH-DP-37B
GN5-H41	CC-V-176 CC-V-256 CC-V-122 CC-V-168
GN5-H45/1	RC-LT-459 RC-E-10 PRESSURIZER HTR GROUP A,B,C,D
GN5-H45/2	RC-PT-455
GN5-H47/3	RC-PT-457(SAFEGD SYS:SI)
GN5-H52	FW-LT-537
GN5-H52/1	RC-PT-458(SAFEGD SYS:SI)

CABLE	CABLE DESCRIPTION
GN5-H55/2	RC-E-10 PRSRZR HTR GP A,B,C,D & RC-LT-460
GN5-H55/5	RC-PT-456(SAFEGD SYS:S1)
GN8-P64	CBA-DP-52
GN8-P65	CBA-DP-52
GN8-UH2	CBA-DP-52
GN9-UK6	SW-V-16
GN9-VM5	SW-P-41A SW-V-54 SW-P-41C
GN9-VN0	EAH-DP-37A
GN9-VN8	EAH-DP-37A
GN9-V67	EAH-DP-37A
GU1-HK6	CBA-AC-5A
GU1-HK6/1	CBA-AC-5A
GU1-HK6/2	CBA-AC-5A
GU1-NG0	CBA-FN-36A
GU1-NG0/1	CBA-FN-36A
GU1-N21	CBA-AC-5A FN-14A FN-36A DP-26A
GU1-N21/1	CBA-AC-5A FN-14A FN-36A DP-26A
GU1-UG1	CBA-AC-5A FN-14A FN-36A DP-26A
GU2-HK7	CBA-AC-5B
GU2-HK7/1	CBA-AC-5B
GU2-HK7/2	CBA-AC-5B
GU2-NH1	CBA-FN-36B
GU2-NH1/1	CBA-FN-36B
GU2-N22	CBA-AC-5B FN-14B FN-36B DP-26B
GU2-N22/1	CBA-AC-5B FN-14B FN-36B DP-26B
GU2-UG2	CBA-AC-5B FN-14B FN-36B DP-26B
GX6-ZV0	MS-V-88 MS-V-92
GX6-ZV0/1	MS-V-86 MS-V-92
GX6-ZV1	MS-V-86
GX6-ZV1/1	MS-V-86 MS-V-92
GX6-ZX3	MS-V-92
GX6-ZX3/1	MS-V-86 MS-V-92
GX6-Z1B	MS-V-86 MS-V-92
GX6-Z1B/1	MS-V-86, MS-V-92
GX7-ZW0	MS-V-88 MS-V-90
GX7-ZW0/1	MS-V-88 MS-V-90
GX7-ZW3	MS-V-88
GX7-ZW3/1	MS-V-88 MS-V-90
GX7-ZW5	MS-V-88 MS-V-90
GX7-ZW5/1	MS-V-88 MS-V-90
GX7-ZW8	MS-V-90
GX7-ZW8/1	MS-V-88 MS-V-90
GX8-ZW4	MS-V-88
GX8-ZW4/1	MS-V-88 MS-V-90
GX8-ZW6	MS-V-88 MS-V-90
GX8-ZW6/1	MS-V-88 MS-V-90
GX8-ZW9	MS-V-88 MS-V-90
GX8-ZW9/2	MS-V-88 MS-V-90
GX8-ZX1	MS-V-88 MS-V-90
GX8-ZX1/2	MS-V-88 MS-V-90
GX9-ZV2	MS-V-86

CABLE	CABLE DESCRIPTION
GX9-ZV2/1	MS-V-86 MS-V-92
GX9-ZW1	MS-V-86 MS-V-92
GX9-ZW1/1	MS-V-86 MS-V-92
GX9-Z1A	MS-V-92
GX9-Z1A/1	MS-V-86 MS-V-92
GX9-Z1C	MS-V-86 & 92
GX9-Z1C/1	MS-V-86 MS-V-92
GZO-H39	RC-PCV-456B
GZO-H39/5	SI-V-17 SI-V-47
GZO-H39/6	SI-FV-2475 SI-FV-2476
GZO-H39/7	SI-FV-2475 SI-FV-2476
GZO-H41/4	SI-V-17 SI-V-47
GZO-H41/5	SI-FV-2477 SI-FV-2486
GZO-H41/6	SI-FV-2477 SI-FV-2486
GZO-J3P	RC-PCV-456B
GZO-O6O	CC-TV-2271-1 CC-TV-2271-2
GZO-UI2	CC-TV-2271-1 CC-TV-2271-2
GZO-UP9/1 — GZO-UPO/1	CC-TV-2271-1 CC-TV-2271-2 — CC-TV-2271-1 CC-TV-2271-2
GZO-UZ1	CC-V-122 CC-V-168
GZO-UZ2	CC-V-122 CC-V-168
GZO-U8U	RC-V-22 RC-V-87
GO6-G29	DG-DG-1A
GO6-G29/1	DG-DG-1A
GO6-G29/2	DG-DG-1A
GO6-G29/4	DG-DG-1A
GO6-G29/5	DG-DG-1A
GO6-G29/6	DG-DG-1A
GO6-G29/7	EDE-SWG-5 (BUS E5 DG-1A INC BREAKER)
GO6-HF7	DG-DG-1A
GO6-HR2	DG-DG-1A
GO7-G29	DG-DG-1A
GO7-HR2	EDE-SWG-5 (BUS E5 UAT INC BREAKER)
GO7-HR9 — G1W-J75	EDE-SWG-11A — EDE-SWG5-UAT
G1X-J76	EDE-SWG-11B
G1Y-J77	EDE-SWG-11C
G1Z-J78	EDE-SWG-11D
G10-G29	DG-DG-1A
G18-G30	DG-DG-1B
G18-G30/1	DG-DG-1B
G18-G30/2	DG-DG-1B
G18-G30/4	DG-DG-1B
G18-G30/5	DG-DG-1B
G18-G30/6	DG-DG-1B
G18-G30/7	EDE-SWG-6 (BUS E6 DG-1B INC BREAKER)
G18-G30/8	DG-DG-1B
G18-HF8	DG-DG-1B
G18-HR4	DG-DG-1B
G19-G30	DG-DG-1B
G19-G30/6 — G19-HR0	DG-DG-1B — EDE-SWG6-UAT
G19-HR4	EDE-SWG-6 (BUS E6 UAT INC BREAKER)
G2G-GN9	CC-V-175 CC-V-257

CABLE	CABLE DESCRIPTION
G2G-GN9/3	CC-V-175 CC-V-257
G2G-GX6/3	MS-V-86 MS-V-92
G2G-GX6/4	MS-V-86 MS-V-92
G2G-GX6/5	MS-V-86 MS-V-92
G2G-GX7/3	MS-V-88 MS-V-90
G2G-GX7/4	MS-V-88 MS-V-90
G2G-GX7/5	MS-V-88 MS-V-90
G2G-G5X	MS-PV-3001
G2G-G5X/1	MS-PV-3003
G2G-HR2/6	MS-V-127
G2G-H36/8	RC-V-23 RC-V-88
G2G-UZ3	CC-V-175 CC-V-257
G2G-UZ4	CC-V-175 CC-V-257
G2G-UOA	MS-PV-3001 (A TRAIN)
G2G-UOB	MS-PV-3001 (A TRAIN)
G2G-UOK	MS-PV-3003 (A TRAIN)
G2G-UOL	MS-PV-3003 (A TRAIN)
G2G-U89	MS-V-127
G2G-V2E	FW-FV-4214A
G2G-V2F	FW-FV-4224-A
G2G-V2G	FW-FV-4234-A
G2G-V2H	FW-FV-4244-A
G2G-V2N	MS-PV-3001
G2G-V2Q	MS-PV-3003
G2H-GN9/1	SW-V-54
G2H-GN9/5	SW-V-54
G2H-HR2	CAH-FN-1E
G2H-HR2/1	CAH-FN-1E
G2H-HR2/2	CAH-FN-1F
G2H-HR2/3	CAH-FN-1F
G2H-HR2/4	CAH-FN-1C
G2H-HR2/5	CAH-FN-1C
G2H-H35	CAH-FN-1C
G2H-H35/1	CAH-FN-1C
G2H-H36	CAH-FN-1E
G2H-H36/1	CAH-FN-1E
G2H-H36/2	CAH-FN-1F
G2H-H36/3	CAH-FN-1F
G2H-QC1	NI-NE-6690
G2J-GNO/2	CC-V-256 CC-V-176
G2J-GNO/3	CC-V-256 CC-V-176
G2J-GX8	MS-V-88 MS-V-90
G2J-GX8/1	MS-V-88 MS-V-90
G2J-GX9	MS-V-86 MS-V-92
G2J-GX9/1	MS-V-86 MS-V-92
G2J-G5Y	MS-PV-3002
G2J-G5Y/1	MS-PV-3004
G2J-H39	CC-V-176 CC-V-256
G2J-H39/1	CC-V-256 CC-V-176
G2J-H39/6	RC-V-22 RC-V-87
G2J-UOD	MS-PV-3004 (B TRAIN)

CABLE	CABLE DESCRIPTION
G2J-U0E	MS-PV-3004 (B TRAIN)
G2J-U0G	MS-PV-3002 (B TRAIN)
G2J-U0H	MS-PV-3002 (B TRAIN)
G2J-V2J	FW-FV-4214-B
G2J-V2K	FW-FV-4224-B
G2J-V2L	FW-FV-4234-B
G2J-V2M	FW-FV-4244-B
G2J-V2P	MS-PV-3002
G2J-V2R	MS-PV-3004
G2K-GNO	SW-V-25
G2K-GNO/3	SW-V-25
G2K-HR4/2	CAH-FN-1A
G2K-HR4/3	CAH-FN-1B
G2K-HR4/4	CAH-FN-1D
G2K-HR4/5	CAH-FN-1B
G2K-HR4/6	CAH-FN-1D
G2K-HR4/7	CAH-FN-1A
G2K-H39	CAH-FN-1D
G2K-H39/1	CAH-FN-1D
G2K-H41	CAH-FN-1A
G2K-H41/1	CAH-FN-1A
G2K-H41/2	CAH-FN-1B
G2K-H41/3	CAH-FN-1B
G2K-QDO	NI NE-6691
G2L-YB3	EAH-FN-5B
G2L-YC3	EAH-FN-5A
G2O-G3O	DG-DG-1B
G4P-V1A	CBA-DP-24A CBA-DP-24B CBA-DP-24C
G4P-V1B	CBA-DP-24A CBA-DP-24B CBA-DP-24C
G4P-V1C	CBA-DP-24A CBA-DP-24B CDA-DP-24C
G41-J2F	SA-C-1A
G41-J2F/1	SA-C-1A
G42-J2G	SA-C-1B
G42-J2G/1	SA-C-1B
G44-H36	SA-C-4A
G44-H36/1	SA-C-4A
G45-H39	SA-C-4B
G45-H39/1	SA-C-4B
G5X-J3M	RC-PCV-456A
G5Y-J3P	RC-PCV-456B
G5Z-GU1	CBA-AC-5A CBA-FN-36A
G6C-GU2	CBA-AC-5B CBA-FN-36B
G6C-GU2/1	CBA-AC-5B CBA-FN-36B
G81-GN9/A	CC-TV-2171-1 CC-TV-2171-2
G81-GN9/B	CC-V-121 & CC-V-57
G81-GN9/D	CC-V-121 & CC-V-57
G81-G2M	CC-TV-2171-1 CC-TV-2171-2
G81-G2M/2	CC-TV-2171-1 CC-TV-2171-2
G81-H35	RC-PCV-456A
G81-H35/5	SI-V-3 SI-V-32
G81-H35/6	SI-FV-2482 SI-FV-2483

G5Z-GU1/1 — CBA-AC-5A CBA-FN-36A

RSS

CABLE LIST

UNITED ENGINEERS & CONSTRUCTORS INC.

PROGRAM: NRCESP

PROGRAM NO.: EL-130

NRC EMERGENCY SHUTDOWN PROGRAM

REVISION NO. 2.0 (JAN 83)

RUN ID: RUN DATE: 11/24/85

CASE ID : ALTERNATE SAFE SHUTDOWN 00000010
FROM REMOTE SHUTDOWN FACILITIES

PROJECT:

SUBMITTED BY: T P STANFORD

EXT.:

DEPARTMENT:

APPROXIMATE LOADING STATISTICS

CP SECONDS = 1.98 IO SECONDS = 2.00

CORE ALLOCATED = 80 K WORDS

REPORT A LISTING OF FIRE AREAS/ZONES — PAGE: 1 — 24NOV8

(FOR SELECTED CABLES ONLY)

FIREZONE NO.
C -F- 1 -Z
C -F- 2 -Z
C -F- 3 -Z
CB -F- 1A-A
CB -F- 1B-A
CB -F- 1F-A
CB -F- 1G-A
CB -F- 2A-A
CB -F- 2B-A
CB -F- 2C-A
CC -F- 1 -Z
CT -F- 1G-A
CT -F- 1O-A
CT -F- 3B-A
DCT-F- 1A-D
DCT-F- 1B-D
DCT-F- 2A-D
DCT-F- 2B-D
DCT-F- 3B-D
DG -F- 1A-A
DG -F- 1B-A
DG -F- 2A-A
DG -F- 2B-A
DG -F- 3A-Z
DG -F- 3B-Z
DG -F- 3C-A
DG -F- 3O-A
DG -F- 1 -A
ET -F- 1A-A
ET -F- 1B-A
ET -F- 1G-A
ET -F- 1O-A
MS -F- 1A-Z
MS -F- 1B-Z
MS -F- 2A-Z
MS -F- 2B-Z
MS -F- 3A-Z
MS -F- 3B-Z
MS -F- 4A-Z
MS -F- 5A-Z
NES-F- 1A-Z
PAB-F- 1A-Z
PAB-F- 1G-A
PAB-F- 1O-A
PAB-F- 1G-A
PAB-F- 1J-Z
PAB-F- 1K-Z
PAB-F- 2A-Z
PAB-F- 2B-Z

CABLE	CABLE DESCRIPTION
AA4-BF0	EDE-MCC-614
AB3-E93	EDE-US-51 (DC BUS)
AB4-E07	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB4-E07/1	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB4-G81	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB4-G81/1	RC-E-10 PRESSURIZER HEATERS (GROUP A)
AB6-B10	EDE-MCC-512
AB6-B10/1	EDE-MCC-512
AC2-AF2	EDE-SWG-5 (BUS E5 MONITORING)
AC3-E93	EDE-US-52 (DC BUS)
AC8-B13	EDE-MCC-521
AC8-B13/1	EDE-MCC-521
AD3-E94	EDE-US-61 (DC BUS)
AD4-E08	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD4-E08/1	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD4-GZ0	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD4-GZ0/1	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AD6-B18	EDE-MCC-612
AD6-B18/1	EDE-MCC-612
AE2-AF7	EDE-SWG-6 (BUS E6 MONITORING)
AE3-E94	EDE-US-62 (DC BUS)
AE3-GZ0	RC-E-10 PRESSURIZER HEATERS (GROUP B)
AE8-B19	EDE-MCC-621
AE8-B19/1	EDE-MCC-621
AF3-ED4	EDE-SWG-5 (BUS E5 MONITORING)
AF5-G2H	EAH-FN-5A
AF5-G2H/1	EAH-FN-5A
AF5-M80	EAH-FN-5A
AF5-YC3	EAH-FN-5A
AF7-EE6	EDE-SWG-6 (BUS E6 MONITORING)
AF9-G2K	EAH-FN-5B
AF9-G2K/1	EAH-FN-5B
AF9-G2K/2	EAH-FN-5B
AF9-M81	EAH-FN-5B
AF9-YB3	EAH-FN-5B
AQ3-CR6	SW-V-2
AQ3-GN8	SW-P-41A
AQ3-N81	SW-P-41A
AQ3-VL3	SW-P-41A
AQ4-CR7	SW-V-22
AQ4-GN9	SW-P-41C
AQ4-N83	SW-P-41C
AQ4-VL5	SW-P-41C
AR3-CS1	SW-V-29
AR3-GN0	SW-P-41B
AR3-N82	SW-P-41B
AR3-VL4	SW-P-41B
AR4-CS2	SW-V-31
AR4-GN0	SW-P-41D
AR4-N84	SW-P-41D
AR4-VL6	SW-P-41D

CABLE	CABLE DESCRIPTION
AW0-D13	EDE-MCC-822
AW0-GZ0	EDE-MCC-822
AW0-GZ0/1	EDE-MCC-822
AW2-EE8	EDE-SWG-6 (BUS E6 MONITORING)
AW9-D12	EDE-MCC-822
AW9-G81	EDE-MCC-822
AW9-G81/1	EDE-MCC-822
AX8-B4D	EDE-MCC-818
AX8-B4D/1	EDE-MCC-818
AX9-B4E	EDE-MCC-818
AX9-B4E/1	EDE-MCC-818
A51-GB4	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G07	EDE-SWG-5 (BUS E5 SYNC, AND UAT INC. LINE MONITORING)
A51-G07/1	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G07/2	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G07/3	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G10	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A51-G5X	EDE-SWG-5 (BUS E5 UAT INC BREAKER)
A51-G5X/1	EDE-SWG-5 (BUS E5 UAT INC BREAKER)
A51-HR9	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)
A52-GB7	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
A52-G07/1	EDE-SWG-5 (BUS E5 SYNC. AND RAT INC. LINE MONITORING)
A52-G07/2	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
A52-G07/3	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
A52-G07/4	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
A52-G10	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
A52-G5X	EDE-SWG05 (BUS E5 RAT INC BREAKER)
A52-G5X/1	EDE-SWG-5 (BUS E5 RAT INC BREAKER)
A52-HR2	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
A52-HR9	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)
A53-AC2	EDE-SWG-5 (BUS E5 MONITORING)
A53-E63	EDE-SWG-5 (DC BUS)
A53-G07	EDE-SWG-5 (BUS E5 SYNC, AND MONITORING)
A53-HR2	EDE-SWG-5 (BUS E5 MONITORING)
A54-G06/2	EDE-SWG-5 (BUS E5 DG INC. BREAKER)
A54-G06/3	EDE-SWG-5 (BUS E5 DG INC. BREAKER)
A54-G06/4	EDE-SWG-5 (DG INC. LINE VOLTAGE CONTROL)
A54-G06/5	DG-DG-1A
A54-G07	EDE-SWG-5 (BUS E5 SYNC. AND DG INC. LINE MONITORING)
A54-G07/1	EDE-SWG-5 (BUS E5 DG INC. BREAKER)
A54-G07/2	EDE-SWG-5 (BUS E5 DG INC. BREAKER)
A54-G10/1	DG-DG-1A
A54-G29	DG-DG-1A
A54-HN0	EDE-SWG-5 (BUS E5 DG INC. BREAKER) DG-DG-1A
A55-AB1	EDE-US-51
A57-M11	RH-P-8A
A58-M05/1	CC-P-11A
A59-M07/1	CC-P-11C
A62-M17	CS-P-2A
A62-P01	CS-P-2A
A63-AC1	EDE-US-62

CABLE	CABLE DESCRIPTION
A69-G08	DG-DG-1A
A69-G10	DG-DG-1A
A69-HN0	DG-DG-1A
A71-GB4	EDE-SWG-8 (BUS E8 UAT INC. BREAKER)
A71-G19	EDE-SWG-8 (BUS E8 SYNC. AND UAT INC. LINE MONITORING)
A71-G19/1	EDE-SWG-8 (BUS E8 UAT INC. BREAKER)
A71-G19/2	EDE-SWG-8 (BUS E8 UAT INC. BREAKER)
A71-G19/3	EDE-SWG-8 (BUS E8 UAT INC. BREAKER)
A71-G20	EDE-SWG-8 (BUS E8 UAT INC. BREAKER)
A71-G5Y	EDE-SWG-8 (BUS E8 UAT INC BREAKER)
A71-G5Y/1	EDE-SWG-8 (BUS E8 UAT INC BREAKER)
A71-HR0	EDE-SWG-8 (BUS E8 UAT INC. BREAKER)
A72-GB7	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
A72-G19	EDE-SWG-8 (BUS E8 SYNC. AND RAT INC. LINE MONITORING)
A72-G19/1	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
A72-G19/2	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
A72-G19/3	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
A72-G20	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
A72-G5Y	EDE-SWG-8 (BUS E8 (UAT) INC BREAKER) RAT
A72-G5Y/1	EDE-SWG-8 (BUS E8 (UAT) INC BREAKER) RAT
A72-HR0	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
A72-HR4	EDE-SWG-8 (BUS E8 RAT INC. BREAKER)
A73-AE2	EDE-SWG-8 (BUS E8 MONITORING)
A73-E94	EDE-SWG-8 (DC BUS)
A73-G19	EDE-SWG-8 (BUS E8 SYNC. AND MONITORING)
A73-HR4	EDE-SWG-8 (BUS E8 MONITORING)
A74-G18/2	EDE-SWG-8 (BUS E8 DG INC. BREAKER)
A74-G18/3	EDE-SWG-8 (BUS E8 DG INC. BREAKER)
A74-G18/4	EDE-SWG-8 (DG INC. LINE VOLTAGE CONTROL)
A74-G18/7	DG-DG-1B
A74-G18/8	EDE-SWG-8
A74-G19	EDE-SWG-8 (BUS E8 SYNC. AND DG INC. LINE MONITORING)
A74-G19/1	EDE-SWG-8 (BUS E8 DG INC. BREAKER)
A74-G19/2	EDE-SWG-8 (BUS E8 DG INC. BREAKER)
A74-G20/1	DG-DG-1B
A74-G30/8	DG-DG-1B
A74-HP1	EDE-SWG-8 (BUS E8 DG INC. BREAKER) DG-DG-1B
A75-AD1	EDE-US-61
A77-M12	RH-P-8B
A78-M08/1	CC-P-11B
A79-M08/1	CC-P-11D
A80-N14	FW-P-37B
A82-M18	CS-P-1B 2B
A82-P02	CS-P-1B 2B
A83-AE1	EDE-US-62
A89-G18	DG-DG-1B
A89-G20	DG-DG-1B
A89-HP1	DG-DG-1B
A94-C11	EDE-MCC-514
BB2-ND5	EAH-FN-31A
BB2-VQ2	EAH-FN-31A

CABLE		CABLE DESCRIPTION				
BB7-NL8		EPA-FN-47A	EPA-DP-371	EPA-DP-373		DELETE
BB7-UH3		EPA-FN-47A	EPA-DP-371	EPA-DP-373		DELETE
BB7-VV6		EPA-FN-47A	EPA-DP-371	EPA-DP-393		DELETE
BC1-NJ7		EAH-FN-31B				
BC1-VQ3		EAH-FN-31B				
BC7-NL9		EPA-FN-47B	EPA-DP-372	EPA-DP-374		DELETE
BC7-UH4		EPA-FN-47B	EPA-DP-372	EPA-DP-374		DELETE
BC7-VV7		EPA-FN-47B	EPA-DP-372	EPA-DP-374		DELETE
BE4-BM7		DG-P-38A				
BE5-BP7		DG-P-38B				
BF6-ED1		PAH-FN-42A	PAH-DP-43A	PAH-DP-357		
BF6-M61		PAH-FN-42A	PAH-DP-43A	PAH-DP-357		DELETE
BF6-UG5		PAH-FN-42A	PAH-DP-43A	PAH-DP-357		
BF6-UG5/1		PAH-FN-42A	PAH-DP-43A	PAH-DP-357		DELETE
BF6-UQ7		PAH-FN-42A	PAH-DP-43A	PAH-DP-357		
BF7-E30/1		PAH-FN-42B	PAH-DP-43B	PAH-DP-358		
BF7-M62	42B	PAH-FN-42B	PAH-DP-43B	PAH-DP-358		DELETE
BF7-UG6	42B	PAH-FN-42B	PAH-DP-43B	PAH-DP-358		
BF7-UG8	42B	PAH-FN-42B	PAH-DP-43B	PAH-DP-358		
BK4-Q4P		CBA-DP-24A	CBA-DP-24B	CBA-DP-24C		
BK4-HR2		CBA-DP-24A	CBA-DP-24B	CBA-DP-24C		
BK4-N26		CBA-DP-24A	CBA-DP-24B	CBA-DP-24C		
BL3-HR4		CBA-FN-32				
BL3-NH3		CBA-FN-32				
BL3-P99		CBA-FN-32				
BL4-HR4		CBA-FN-33				
BL4-NH5		CBA-FN-33				
BL5-N33		CBA-FN-21B	CBA-DP-21B			
BL5-VV4		CBA-FN-21B	CBA-DP-21B			
BL5-VV4/1		CBA-FN-21B	CBA-DP-21B			
BL6-HR3/1		CBA-FN-19				
BL6-N28/2		CBA-FN-19				
BL6-P95/1		CBA-FN-19				
BL7-HR2		CBA-FN-20				
BL7-N30/2		CBA-FN-20				
BL8-N32		CBA-FN-21A	CBA-DP-21A			
BL8-VV5		CBA-FN-21A	CBA-DP-21A			
BL8-VV5/1		CBA-FN-21A	CBA-DP-21A			
BM7-N75		DG-P-38A				
BM7-RT8		DG-P-38A				
BP7-N76		DG-P-38B				
BP7-RU1		DG-P-38B				
BQ1-G29		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ1-HR2		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ1-N37/1		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ1-S40		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ1-TP5		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ1-T8N		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ1-UF7		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ1-UF9/1		DAH-FN-25A	DAH-DP-15A	DAH-DP-16A		DELETE
BQ2-ED0		DAH-FN-25B	DAH-DP-15B	DAH-DP-16B		DELETE

CABLE	CABLE DESCRIPTION			
B02-G3O	DAH-FN-25B	DAH-DP-15B	DAH-DP-16B	DELETE
B02-HR4	DAH-FN-25B	DAH-DP-15B	DAH-DP-16B	DELETE
B02-N38/1	DAH-FN-25B	DAH-DP-15B	DAH-DP-16B	DELETE
B02-S41	DAH-FN-25B	DAH-DP-15B	DAH-DP-16B	DELETE
B02-T8P	DAH-FN-25B	DAH-DP-15B	DAH-DP-16B	DELETE
B02-UFO/1	DAH-FN-25B	DAH-DP-15B	DAH-DP-16B	DELETE
B02-UF8	DAH-FN-25B	DAH-DP-15B	DAH-DP-16B	DELETE
B03-N39/1	DAH-FN-26A	DAH-DP-16A		
B03-S40	DAH-FN-26A	DAH-DP-16A		
B03-T3P	DAH-FN-26A	DAH-DP-16A		
B03-UF9	DAH-FN-26A	DAH-DP-16A		DELETE
B04-N40/1	DAH-FN-26B	DAH-DP-16B		
B04-S41	DAH-FN-26B	DAH-DP-16B		
B04-T3Q	DAH-FN-26B	DAH-DP-16B		
B04-UFQ	DAH-FN-26B	DAH-DP-16B		
B3V-V2E	FW-FV-4214A			
B3V-V2E/1	FW-FV-4214A			
B3W-V2F	FW-FV-4224A			
B3W-V2F/1	FW-FV-4224A			
B3X-V2G	FW-FV-4234A			
B3X-V2G/1	FW-FV-4234A			
B3Y-V2H	FW-FV-4244A			
B3Y-V2H/1	FW-FV-4244A			
B3Z-G2J	FW-FV-4214B			
B3Z-V2J	FW-FV-4214B			
B3Z-V2J/1	FW-FV-4214B			
B31-G2Q	SI-V-138			
B31-G2Q/2	SI-V-138			
B31-V31	SI-V-138			
B31-V31/1	SI-V-138			
B31-V31/2	SI-V-138			
B32-G2J	SI-V-139			
B32-G2J/2	SI-V-139			
B32-V32	SI-V-139			
B32-V32/1	SI-V-139			
B32-V32/2	SI-V-139			
B35-G81	SI-V-3			
B35-H19	SI-V-3			
B35-H36	SI-V-3			
B36-GZO	SI-V-17			
B36-H15	SI-V-17			
B36-H41	SI-V-17			
B37-G81	SI-V-32			
B37-H18	SI-V-32			
B37-H35	SI-V-32			
B38-GZO	SI-V-47			
B38-H24	SI-V-47			
B38-H39	SI-V-47			
B4A-G2J	FW-FV-4224B			
B4A-V2K	FW-FV-4224B			
B4A-V2K/1	FW-FV-4224B			

CABLE	CABLE DESCRIPTION
B4B-G2J	FW-FV-4234B
B4B-V2L	FW-FV-4234B
B4B-V2L/1	FW-FV-4234B
B4C-G2J	FW-FV-4244B
B4C-V2M	FW-FV-4244B
B4C-V2M/1	FW-FV-4244B
B4M-G01	CC-P-322A
B4M-H18	CC-P-322A
B4Q-G2Q	CC-P-322B
B4Q-H15	CC-P-322B
B5O-G2Q	CS-LCV-112B
B5O-G2Q/1	CS-LCV-112B
B5O-VE4	CS-LCV-112B
B5O-VE4/1	CS-LCV-112B
B5O-VE4/2	CS-LCV-112B
B53-G2Q	RC-V-23
B53-G2Q/1	RC-V-23
B53-H19	RC-V-23
B53-H36	RC-V-23
B54-G2J	RC-V-22
B54-G2J/1	RC-V-22
B54-H24	RC-V-22
B54-H39	RC-V-22
B61-G2J	RC-V-87
B61-G2J/1	RC-V-87
B61-H24	RC-V-87
B61-H39	RC-V-87
B62-G2Q	RC-V-88
B62-G2Q/1	RC-V-88
B62-H19	RC-V-88
B62-H36	RC-V-88
B78-G2Q	CS-LCV-112D
B78-G2Q/1	CS-LCV-112D
B78-VE6	CS-LCV-112D
B78-VE6/1	CS-LCV-112D
B78-VE6/2	CS-LCV-112D
B79-G2J	CS-LCV-112E
B79-G2J/1	CS-LCV-112E
B79-VE5	CS-LCV-112E
B79-VE5/1	CS-LCV-112E
B79-VE5/2	CS-LCV-112E
B8C-LRO	EAH-FN-174A DELETE
B8C-M4T	EAH-FN-174A
B8C-S5G	EAH-FN-174A
B8E-M4U	EAH-FN-174B
B8E-S5H	EAH (TSH-5736) FN-174B
B83-G2U	CS-LCV-112C
B83-G2J/1	CS-LCV-112C
B83-VE7	CS-LCV-112C
B83-VE7/1	CS-LCV-112C
B83-VE7/2	CS-LCV-112C

CABLE	CABLE DESCRIPTION	
B87-G2J	CS-V143	
B87-G2J/1	CS-P-3A	
B87-V11	CS-P-3A	
B87-V11/1	CS-P-3B	
B89-M44	CS-P-3B	
B89-M44/1	CS-V426	
B94-V04	CS-V426	
B94-V04/1	CS-V426	
B94-V04/2	RC-V-122	
B97-G81	RC-V-122	
B97-G81/1	RC-V-122	
B97-H18	RC-V-122	
B97-H35	RC-V-124	
B98-GZO	RC-V-124	
B98-GZO/1	RC-V-124	
B98-GZO/2	RC-V-124	
B98-H15	RC-V-124	
B98-H41	SW-V-54	
CP8-G2H	SW-V-54	
CP8-VM5	SW-V-54	
CP8-VM5/1	SW-V-54	
CP8-VM5/2	SW-V-25	
CQ7-G2K	SW-V-25	
CQ7-VM8	SW-V-25	
CQ7-VM8/1	SW-V-25	
CQ7-VM8/2	SWA-FN-40B	
CRO-G2K	SWA-FN-40B	
CRO-G2K/1	SWA-FN-40B	
CRO-G2K/2	SWA-FN-40B	
CRO-NK1	SWA-FN-40B	DELETE
CRO-SK2	SWA-FN-40A	
CR5-G2H	SWA-FN-40A	
CR5-G2H/1	SWA-FN-40A	
CR5-NJO	SW-V-2	
CR6-VL3	SW-V-2	
CR6-VL3/1	SW-V-22	
CR7-VL5	SW-V-22	
CR7-VL5/1	SW-V-29	
CS1-VL4	SW-V-29	
CS1-VL4/1	SW-V-31	
CS2-VL6	SW-V-31	
CS2-VL6/1	EDE-BC-1B	
DA1-HR4	EDE-BC-1B	
DA1-HR6	SW-V-5	
DA2-G2K	SW-V-5	
DA2-G2K/1	SW-V-5	
DA2-G2K/2	SW-V-5	
DA2-VQ1	SW-V-5	
DA2-VQ1/1	SW-V-4	
DA6-G2H	SW-V-4	
DA6-G2H/1	SW-V-4	
DA6-G2H/2	SW-V-4	
DA6-VPO		

CABLE	CABLE DESCRIPTION	
DA8-VP0/1	SW-V-4	
DB1-HR2	EDE-BC-1A	
DB1-HR5	EDE-BC-1A	
DD3-HF5/1	EDE-I-1E	
DD5-HF6/1	EDE-I-1F	
DM0-E2T	EDE-PP-113A	
DM1-EH9	EDE-SWG-11A	
DM1-J75/1	EDE-SWG-11A	
DM2-HR5	EDE-SWG-11A (EDE-B-1A)	DELETE
DM3-J75	EDE-SWG-11A (EDE-B-1A)	DELETE
DM3-J75/1	EDE-SWG-11A (EDE-B-1A)	DELETE
DM5-E93	EDE-PP-111A	
DM7-HF5/1	EDE-I-1E	
DM8-E87	EDE-PP-112A	
DM9-G10	DG-CP-75A DG-DG-1A	
DN0-HF6/1	EDE-I-1F	
DN3-EH0	EDE-SWG-11B	
DN3-J76/1	EDE-SWG-11B	
DN4-HR6	EDE-SWG-11B (EDE-B-1B)	DELETE
DN5-J76	EDE-SWG-11B (EDE-B-1B)	DELETE
DN5-J76/1	EDE-SWG-11B (EDE-B-1B)	DELETE
DN7-E94	EDE-PP-111B	
DN9-E88	EDE-PP-111B	
DP1-G20	DG-CP (75B) 76A DG-DG-1B	
DP2-E2U	EDE-PP-113B	
EC8-G81	RC-V-23 RC-V-88 (RC-V-289A)	DELETE
ED0-G20/1	RC-V-22 RC-V-87 (RC-V-289A)	DELETE
ED0-TP6	DAH-FN-25B (DAH-DP-15B) (DAH-DP-16B)	DELETE
EH0-G2J	MM-CP-108B CONTROL INSTRUMENTS	
EH0-HF6/1	EDE-PP-1F	
EH9-G2G	MM-CP-108A CONTROL INSTRUMENTS	
EH9-HF5/1	EDE-PP-1E	
E07-H14	RC-E-10 PRESSURIZER HEATERS (GROUP A)	
E07-H14/1	RC-E-10 PRESSURIZER HEATERS (GROUP A)	
E07-H14/2	RC-E-10 PRESSURIZER HEATERS (GROUP A)	
E07-H14/3	RC-E-10 PRESSURIZER HEATERS (GROUP A)	
E07-H14/4	RC-E-10 PRESSURIZER HEATERS (GROUP A)	
E08-H20	RC-E-10 PRESSURIZER HEATERS (GROUP B)	
E08-H20/1	RC-E-10 PRESSURIZER HEATERS (GROUP B)	
E08-H20/2	RC-E-10 PRESSURIZER HEATERS (GROUP B)	
E08-H20/3	RC-E-10 PRESSURIZER HEATERS (GROUP B)	
E08-H20/4	RC-E-10 PRESSURIZER HEATERS (GROUP B)	
E1S-EH8	EDE-PP-11E	
E1S-GX6/1	MS-V-86 MS-V-92	
E1S-GX7/1	MS-V-88 MS-V-90	
E1S-G2H	MM-CP-108A RECORDERS	
E1S-KD0	NI-NE-6690	
E1S-QC1	NI-NE-6990	
E1S-QI0	NI-NE-6990	
E1T-EH0	EDE-PP-11F	
E1T-GX8/3	MS-V-88 MS-V-90	

	CABLE	CABLE DESCRIPTION	
	E1T-GX8/3	MS-V-88 MS-V-92	
	E1T-G2K	MM-CP-1088 RECORDERS	
	E1T-KD1	NI-NE-6691	
	E1T-QDO	NI-NE-6691	
	E1T-QJ1	NI-NE-6691	
	E2T-E4H/2	SI-FV-2482,2483,2495 & 2496	
	E2T-GN8/3	SW-P-41A SW-P-41C	DELETE
	E2T-GX7	MS-V-88 MS-V-90	DELETE
	E2T-GX7/1	MS-V-90	
E2T-G5X	E2T-G2G/3	MS-PV-3001	
E2T-G5X/1	E2T-G2G/4	MS-PV 3003	
	E2T-G81	CC-TV-2171-1 CC-TV-2171-2	
	E2U-E4C/3	SI-FV-2475,2476,2477 & 2486	
	E2U-GNO/1	SW-P-41B SW-P-41D	DELETE
	E2U-GNO/8	CC-TV-2271-1 & 2	
	E2U-GX8	MS-V-88 MS-V-90	DELETE
	E2U-GX8/1	MS-V-90	
	E2U-GZO	CC-TV-2271-1 CC-TV-2271-2	
E2U-G5Y	E2U-G2J/3	MS-PV-3002	
E2U-G5Y/1	E2U-G2J/4	MS-PV-3004	
	E3C-G2G	FW-FV-4214A	
	E3C-G2G/1	FW-FV-4224A	
	E3C-G2G/2	FW-FV-4234A	
	E3C-G2G/3	FW-FV-4244A	
	E3D-G2J	FW-FV-4214B	
	E3D-G2J/1	FW-FV-4224B	
	E3D-G2J/2	FW-FV-4234B	
	E3D-G2J/3	FW-FV-4244B	
	E4A-J3M	RC-PCV-456A	
	E4C-GZO/1	SI-FV-2475,2476,2477 & 2486	
	E4C-GZO/2	RC-PCV-456B	
	E4C-J3P	RC-PCV-456B	
	E4H-EH9	SI-V-3 SI-V-32	
	E4H-EH9/1	RC-V-23 RC-V-88 RC-FV-2894	DELETE
	E4H-G2G	RC-V-23 RC-V-88 RC-FV-2894	DELETE
	E4H-G81	SI-V-3 SI-V-32	
	E4H-G81/2	SI-FV-2482,2483,2495 & 2496	
	E4J-EHO	SI-V-17 SI-V-47	
	E4J-EHO/1	RC-V-22 RC-V-87 RC-V-2896	DELETE
	E4J-GZO	SI-V-17 SI-V-47	
	E4J-G2J	RC-V-22 RC-V-87 RC-V-2896	DELETE
	E87-E4A/4	RC-PCV-456A	
	E87-GX6	MS-V-86 MS-V-92	DELETE
	E87-GX6/1	MS-V-92	
	E87-G2G/1	MS-V-127	
	E88-E4C/7	RC-PCV-456B	
	E88-GX9	MS-V-86 MS-V-92	DELETE
	E88-GX9/1	MS-V-92	
	E93-G29/1	DG-DG-1A	
	E94-G3O/1	DG-DG-1B	
	GAO-GB3/4	EDE-SWG-5 (BUS E5 UAT INC. BREAKER)	

CABLE		CABLE DESCRIPTION	
GA0-GB3/8		EDE-SWG-8 (BUS E8 UAT INC. BREAKER)	
GA8-GB0/4		EDE-SWG-5 (BUS E5 UAT INC. BREAKER)	
GA8-GB0/5		EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
GA7-GB7/4	E5	EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
GA7-GB7/5		EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
GC1-GC0/4		EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
GC1-GC0/5		EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
GC4-GC8/4		EDE-SWG-5 (BUS E5 UAT INC. BREAKER)	
GC4-GC8/5		EDE-SWG-6 (BUS E6 UAT INC. BREAKER)	
GE8-GE7/4		EDE-SWG-5 (BUS E5 RAT INC. BREAKER)	
GE8-GE7/5		EDE-SWG-6 (BUS E6 RAT INC. BREAKER)	
GL4-GZ0/1		FW-FT-4224-5 FW-FT-4244-5	
GN0-GZ0/8		CC-TV-2271-1 CC-TV-2271-2	
GN0-GZ0/9		CC-TV-2271-1 & 2	
GN0-VM8		SW-P-41B (SW-P-41D)	DELETE
GN9-VM5		SW-P-41A (SW-P-41C)	DELETE
GX8-ZV0		MS-V-92 MS-V-86	
GX6-ZV1		MS-V-86 (MS-V-92)	DELETE
GX8-ZX3		(MS-V-86) MS-V-92	DELETE
GX8-Z1B		MS-V-86 MS-V-92	
GX7-ZW0		MS-V-88 MS-V-90	
GX7-ZW3		MS-V-88 (MS-V-90)	DELETE
GX7-ZW5		MS-V-90 MS-V-88	
GX7-ZW8		(MS-V-88) MS-V-90	DELETE
GX8-ZW4		MS-V-88 (MS-V-90)	DELETE
GX8-ZW6		MS-V-90 MS-V-88	
GX8-ZW9		(MS-V-88) MS-V-90	DELETE
GX8-ZX1		MS-V-88 MS-V-90	
GX9-ZV2		MS-V-86 (MS-V-92)	DELETE
GX9-ZW1		MS-V-92 MS-V-86	
GX9-Z1A		(MS-V-86) MS-V-92	DELETE
GX9-Z1C		MS-V-86 MS-V-92	
GZØ GZ0-H39/7		SI-FV-2478	
GZO-GZ4		MS-PT-3174	
GZO-GZ6		MS-PT-3179	
GZO-H39		RC-PCV-4568	
GZO-H39/5		SI-V-17 SI-V-47	
GZO-H39/6		SI-FV-2476 & 2476	
GZO-H41/4		SI-V-17 SI-V-47	
GZO-H41/5		SI-FV-2477 & 2486	
GZO-H41/6		SI-FV-2486	
GZO-H55		FW-LT-4320 FW-LT-4340	
GZO-H55/1		RC-LT-7333 RC-PT-7335	
GZO-H55/2		RC-TE-9407 RC-TE-9411	
GZO-U3P		RC-PCV-4568	
GZO-Q60		CC-TV-2271-1 CC-TV-2271-2	
GZO-T2Z		CC-TE-2297	
GZO-U12		CC-TV-2271-1 CC-TV-2271-2	
GZO-UP0/1		CC-TV-2271-1 CC-TV-2271-2	
GZO-UP9/1		CC-TV-2271 CC-TV-2271-2	
GZO-U8U		RC-V-22 RC-V-87 (RC-FV-2896)	DELETE

CABLE	CABLE DESCRIPTION
G06-G29	DG-DG-1A
G06-G29/1	DG-DG-1A
G06-G29/2	DG-DG-1A
G06-G29/4	DG-DG-1A
G06-G29/5	DG-DG-1A
G06-G29/6	DG-DG-1A
G06-G29/7	EDE-SWG-5 (BUS E5 DG INC. BREAKER)
G06-HF7	DG-DG-1A
G06-HR2	DG-DG-1A
G07-G29	DG-DG-1A
G10-G29	DG-DG-1A
G18-G30	DG-DG-1B
G18-G30/1	DG-DG-1B
G18-G30/2	DG-DG-1B
G18-G30/4	DG-DG-1B
G18-G30/5	DG-DG-1B
G18-G30/6	DG-DG-1B
G18-G30/7	EDE-SWG-6 (BUS E6 DG INC. BREAKER)
G18-G30/8	DG-DG-1B
G18-HF8	DG-DG-1B
G18-HR4	DG-DG-1B
G19-G30	DG-DG-1B
G19-G30/6	DG-DG-1B
G2G-GL5	MS-PV-3001 (3)
G2G-GL8	MS-PV-3003 (1) — MS-PV-3001
G2G-GX6/3	MS-V-86 — MS-PV-3003
G2G-GX6/4	MS-V-86 MS-V-92
G2G-GX6/5	MS-V-86 MS-V-92
G2G-GX7/3	MS-V-88 MS-V-90
G2G-GX7/4	MS-V-88 MS-V-90
G2G-GX7/5	MS-V-88 MS-V-90
G2G-HJ6/8	RC-V-23 RC-V-88 (RC-FV-2893) DELETE
G2G-U0A	MS-FV-3001
G2G-U0B	MS-FV-3001
G2G-U0K	MS-FV-3003
G2G-U0L	MS-FV-3003
G2G-U8B	MS-V-127
G2G-V2E	FW-FV-4214A
G2G-V2F	FW-FV-4224A
G2G-V2G	FW-FV-4234A
G2G-V2H	FW-FV-4244A
G2G-V2M	FW-FV-4244B
G2G-V2N	MS-PV-3001
G2G-V2Q	MS-PV-3003
G2H-GL5/1	MS-PT-3178
G2H-GL6	MS-PT-3173
G2H-GN9/5	SW-V-54
G2H-H44	FW-FT-4310
G2H-H45	FW-LT-4330
G2H-H45/1	RC-PT-7336
G2H-QC1	NI-NE-8980

G25-G5X
G29-G5X/1
MS-V-92

CABLE	CABLE DESCRIPTION	
G2H-BJ8	CS-LT-7446	
G2H-T3A	CC-TE-2197	
G2J-GX8	MS-V-88 MS-V-90	
G2J-GX8/1	MS-V-88 MS-V-90	
G2J-GX9	MS-V-86 MS-V-92	
G2J-GX9/1	MS-V-86 MS-V-92	
G2J-G24	MS-PV-3002	
G2J-G26	MS-PV-3004	
G2J-H39/8	RC-V-22 RC-V-87 RC-FV-2896	
G2J-U0D	MS-FV-3004	
G2J-U0E	MS-FV-3004	
G2J-U0G	MS-FV-3002	
G2J-U0H	MS-FV-3002	
G2J-V2J	FW-FV-4214B	
G2J-V2K	FW-FV-4224B	
G2J-V2L	FW-FV-4234B	
G2J-V2P	MS-PV-3002	
G2J-V2R	MS-PV-3004	
G2K-GNC/8	SW-V-25	
G2K-QDO	NI-NE-6691	
G2K-RJ9	CS-LT-7464	
G2O-G3O	DG-DG-1B	
G4P-V1A	CBA-DP-24A CBA-DP-24B CBA-DP-24C	
G4P-V1B	CBA-DP-24A CBA-DP-24B CBA-DP-24C	
G4P-V1C	CBA-DP-24A CBA-DP-24B CDA-DP-24C	
G5X-J3M	RC-PCV-456A	
G5Y-J3P	RC-PCV-456B	
G81-GL3	FW-FT-4214-5 FW-FT-4234-5	
G81-GN9/A	CC-TV-2171-1 CC-TV-2171-2	
G81-G2M	CC-TV-2171-1 CC-TV-2171-2	
G81-G2M/2	CC-TV-2171-1 CC-TV-2171-2	
G81-H35	RC-PCV-456A	
G81-H35/5	SI-V-3 SI-V-32	
G81-H35/6	SI-FV-2482 & 2483	
G81-H35/7	SI-FV-2483	
G81-H36/A	SI-FV-2496	
G81-H36/8	SI-V-3 SI-V-32	
G81-H36/9	SI-FV-2495 & 2496	
G81-H44	RC-TE-9408	
G81-H44/1	RC-TE-9410	
G81-H45	RC-LT-7334	
G81-J3M	RC-PCV-456A	
G81-UN6/1	CC-TV-2171-1 CC-TV-2171-2	
G81-UN7/1	CC-TV-2171-1 CC-TV-2171-2	
G81-U8T	RC-V-23 RC-V-88 RC-FV-2894	
HV4-J75	EDE-SWG-11A EDE-B-1A	DELETE
HV4-J75/1	EDE-SWG-11A EDE-B-1A	DELETE
HV5-J76	EDE-SWG-11B EDE-B-1B	DELETE
HV5-J76/1	EDE-SWG-11B EDE-B-1B	DELETE
H14-X47	RC-E-10 PRESSURIZER HEATERS (GROUP A)	
H14-X47/1	RC-E-10 PRESSURIZER HEATERS (GROUP A)	

G2J-G5Y → MS-PV-3002
G2J-G5Y/1 → MS-PV-3004

CABLE	CABLE DESCRIPTION
M26-X47/8	RC-E-10 PRESSURIZER HEATERS (GROUP A)
M26-X47/9	RC-E-10 PRESSURIZER HEATERS (GROUP A)
QC1-Q10	NI-NE-6690
QD0-QJ1	NI-NE-6691
QO5-XP8	NI-NE-6690
QO7-XP9	NI-NE-6691
UG8-UG7	PAH-FN-42A PAH-DP-43A PAH-DP-357
UG8-UG9	PAH-FN-42B PAH-DP-43B PAH-DP-358
VO1-X56	RC-V-122
VO2-X35	RC-V-124

TOTAL NUMBER OF UNIQUE CABLES FOUND - 724

TOTAL NUMBER OF CABLE RECORDS READ - 29140

ATTACHMENT 2

Fire Protection of Safe Shutdown Capability - Additional Deviations From 10CFR50, Appendix R

Deviation Nos. 1 through 7

See Reference (b), Attachment A

Deviation No. 8

A deviation is requested from the requirement that door assemblies have Underwriters Laboratory labels. Single leaf door assemblies (3'-0" x 7'-0"), provided under Specification 24-13, are certified by Southwestern Laboratories to have a 3-hour fire rating, in accordance with ASTM E152-81, "Fire Tests of Door Assemblies."

This request is based on our assertion that a door assembly being certified by a nationally recognized laboratory using standard test methods constitutes a level of protection equivalent to obtaining a door assembly with an Underwriters Laboratory label.

Deviation No. 9

A deviation is requested to exclude the water supply demands of nonsafety-related area suppression systems when considering the capacity of the fire water tanks per Appendix A to Branch Technical Position (BTP) APCSB 9.5-1. The flow rate calculation is based upon 500 gpm for manual hose stream plus the largest design demand of a safety-related sprinkler or deluge system for two hours. The largest system is in a Diesel Generator Room of 1,291 gpm. This equates 215,000 gallons supplied from our 300,000 gallon fire water tanks.

The demand of the nonsafety-related area systems can be disregarded because:

1. These systems protect nonvital equipment and the plant can complete a safe shutdown due to a fire in those areas.

2. These systems are not relied upon to prevent communication of the fire from the nonsafety to safety-related areas.

Deviation No. 10

A deviation from the requirement of 10CFR50, Appendix R, III.J, for 8-hour battery-powered emergency lighting is requested for a limited number of Remote Safe Shutdown (RSS) equipment locations. Emergency lighting for these limited areas is provided by fluorescent fixtures powered from the Emergency Electrical Distribution System (diesel generator) following a loss of off-site power, as discussed in the following paragraphs.

ATTACHMENT 2

Fire Protection of Safe Shutdown Capability - Additional Deviations From 10CFR50, Appendix R
(Continued)

A. Control Room (Fire Area CB-F-3A-A)

Eight-hour battery-powered emergency lighting is provided for access/egress route illumination and for the fire detection annunciator panel.

Diesel generator powered lighting is provided for illumination of the Main Control Board (MCB) face and of Control Switches CBA-CS-5300-1, CBA-CS-5301-1, and CBA-CS-5302, which are located on the rear of MCB Section C. Lighting for these locations is powered from both diesel generators in an "A and/or B" logic such that adequate illumination is provided by either train. The diesel generator engine rooms are separated from each other by a 3-hour rated fire barrier. Power from each diesel generator is routed to separate switchgear rooms (A and B), separated from each other and from each diesel generator engine room by 3-hour rated fire barriers. Power from each switchgear room is routed via embedded conduit on opposite sides of the Control Building to Train A and Train B essential lighting panels within the Control Room complex Computer Room. Therefore, at least one train of power will be available for Control Room MCB emergency lighting for any postulated fire outside the Control Room complex.

The two essential lighting panels are physically separated by less than 20 feet within the Computer Room. A total-flooding Halon Suppression System with automatic detection is provided in the Computer Room, and the Control Room complex is continuously manned. A postulated computer room fire could disable both essential lighting panels. In the event the Halon Suppression System fails to extinguish the fire, the Control Room staff will proceed with a planned, orderly Control Room evacuation, and man the RSS control panels; emergency lighting for the access/egress route(s) to the RSS facilities from the Control Room is provided by 8-hour battery-powered lights. Appendix R requirements are, therefore, satisfied.

B. Switchgear Room A (Fire Area CB-F-1A-A)

Eight-hour battery-powered emergency lighting is provided for all RSS control locations and access/egress routes thereto, with the exception of EDE-MCC-512, EDE-MCC-515, and EDE-MCC-521, which are illuminated by fluorescent fixtures powered by the Train B Emergency Electrical Distribution System (Diesel Generator B). The power feed to these fixtures is confined to Switchgear Rooms A and B which are separated from each other and from each diesel generator engine room by 3-hour rated

ATTACHMENT 2

Fire Protection of Safe Shutdown Capability - Additional Deviations From 10CFR50, Appendix R
(Continued)

fire barriers. Therefore, Switchgear Room A lighting will not be disabled by a fire outside the switchgear rooms and diesel generator engine rooms. Access to these MCCs is not required for a postulated fire in either Switchgear Room or Diesel Generator Room. Therefore, Appendix R requirements for emergency lighting are satisfied.

C. Switchgear Room B (Fire Areas CB-F-1B-A)

Eight-hour battery-powered emergency lighting is provided for all RSS control locations and access/egress routes thereto, with the exception of EDE-MCC-612, EDE-MCC-621 and EDE-MCC-622, which are illuminated by fluorescent fixtures powered by the Train B Emergency Electrical Distribution System (Diesel Generator B). The power feed to these fixtures is confined to Switchgear Room B which is separated from Diesel Generator B Engine Room by a 3-hour rated fire barrier. Therefore, Switchgear Room B lighting will not be disabled by a fire outside the room and Diesel Generator B Engine Room. Access to these MCCs is not required for a postulated fire within the Switchgear Room or the Diesel Generator B Engine Room. Therefore, Appendix R requirements for emergency lighting are satisfied.

Except for the limited locations discussed above, all other control locations required for RSS are illuminated by 8-hour battery-powered lights. A deviation against the requirements of 10CFR50, Appendix R, III.J, is, therefore, requested based upon our assertion that the lighting provided for these areas satisfied the intent of the requirements, and that further modification will not enhance emergency lighting or safe shutdown capability.

Deviation No. 11

A deviation from BTP APCSB 9.5-1, Appendix A (i.e., requirement that "door openings should be protected with equivalent rated doors, frames, and hardware that have been tested and approved by a nationally recognized laboratory") is requested for three, double leaf, 3-PSI pressure/3-hour fire-rated doors; C-200, C-204, and P-409. The double leaf door assembly is not a tested assembly. The identical door in a single leaf configuration is a tested and approved assembly. The astragal on these fire/pressure doors are similar to the astragal on the fire/bullet resistant double leaf doors provided by the same manufacturer.

The two point (top and bottom) manual latching mechanism for the inactive leaf of these doors consists of a one-inch diameter pin with a 3/4 inch throw. This latch assembly is designed for the pressure requirements of the door; 3 PSI.

ATTACHMENT 2

Fire Protection of Safe Shutdown Capability - Additional Deviations From 10CFR50, Appendix R
(Continued)

It is our contention that this deviation is justified based on our assertion that the door leaves, frame, astragal and active leaf latch assembly are similar to those approved by a nationally recognized laboratory, and that the inactive leaf latching assembly will provide equivalent latching to a fire-rated latch.

Deviation No. 12

A deviation from the requirement for UL listed 3-hour fire damper assemblies is requested for Damper 1-DAH-DP-163 and 164 and 1-CBA-DP-131. These dampers are multiple section-type dampers and are of a size not tested by UL (i.e., not commercially available tested assembly). However, it should be noted that the sub-units or sections used have been independently tested and UL certified.

Damper 1-CBA-DP-131 is made up from nine sections/units (two rows, three columns) and is approximately 95" X 59-1/2" in size. Dampers 1-DAH-DP-163, and 164 are made up from four sections of 20" x 36" each.

In lieu of testing these unique damper configurations, an analysis was performed to determine the ability of these assemblies to withstand thermal and mechanical loads associated with fire endurance and hose stream testing as described in UL 555, "Standard of Safety by Underwriters Laboratories," for a 3-hour fire rating. These conditions are:

1. A jet force resulting from the impact of a water stream delivered through a 2-1/2" hose with a 1-1/8" nozzle, with a pressure of 45 psi at the nozzle base, positioned 20 feet from the damper, and

2. A maximum temperature of 1940^{o}F (1060^{o}C) is reached during the 3-hour fire test.

The displacements and stresses calculated for the temperature and jet load conditions described above are in compliance with UL Standard 555.

This request is based on our assertion that determining the acceptability of these multiple section-type fire damper assemblies by analysis, constitutes a level of protection equivalent to a UL labeled damper, if one was commercially available.