

SEABROOK STATION

Fire Protection of Safe Shutdown Capability (10CFR50, Appendix R)

REVISION 9



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INTRODUCTION

General Design Criterion 3, "Fire Protection," of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50 "Licensing of Production and Utilization Facilities" requires that structures, systems and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effects of fires.

Appendix R, "Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979" to 10 CFR Part 50 was issued on November 19, 1980 (45 FR 76602). Paragraph III.G, "Fire Protection of Safe Shutdown Capability," requires that fire damage be limited so that:

- a. One train of systems necessary to achieve and maintain hot shutdown conditions from either the control room or emergency control station(s) is free of fire damage; and
- b. Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours.

This requires each licensee to assess those areas of the plant "...where cables or equipment, including associated non-safety circuits that could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area..." The regulation establishes separation requirements for areas outside of primary containment and inside noninerted containment.

Appendix R, paragraph III.L, "Alternative and Dedicated Shutdown Capability," establishes the following performance goals for the shutdown functions:

- a. The reactivity control function shall be capable of achieving and maintaining cold shutdown reactivity conditions.
- b. The reactor coolant makeup function shall be capable of maintaining the reactor coolant level within level indication in the pressurizer.
- c. The reactor heat removal function shall be capable of achieving and maintaining decay heat removal.
- d. The process monitoring function shall be capable of providing direct readings of the process variables necessary to perform and control the above functions.
- e. The supporting functions shall be capable of providing process cooling, lubrication, etc., necessary to permit operation of the equipment used for Safe Shutdown functions.

Branch Technical Position CMEB 9.5-1 "Guidelines for Fire Protection for Nuclear Power Plants," Rev. 2, July 1981 reiterates the above requirements in Section C.5.b and C.5.c.

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By letters dated March 16, 1981 (from R.L. Tedesco to W.C. Tallman) and September 30, 1981 (from D.G. Eisenhut to W.C. Tallman) the Nuclear Regulatory Commission (NRC) transmitted "Request for Additional Information, Seabrook Station, Units 1 & 2, Fire Protection Program, Power System." This document requested New Hampshire Yankee (NHY) to provide information relative to the equipment and cabling required to achieve and maintain hot and/or cold shutdown. By letter dated July 27, 1982 (from F.J. Miraglia to W.C. Tallman) the NRC transmitted Auxiliary System Branch RAI's. By letter of May 15, 1981 (SBN-160), NHY committed itself to undertaking a comprehensive program to address the concerns identified in the NRC letters. This report and appendix detail the program and the analyses and evaluations emanating from it.

The "Report" is comprised of the following:

1. An "Introduction" section.
2. A "Report Preparation/Maintenance" section which summarizes the program utilized to perform the Safe Shutdown Capability review and to maintain the safe shutdown capability as plant modifications are implemented.
3. Safe Shutdown Capability
 - 3.1 The "Discussion of Bases and Positions" section provides a discussion of the bases and positions established for the review of the safe shutdown performance goals.
 - 3.2 The "Main Control Room Safe Shutdown" Section provides a discussion of the Shutdown Locations, Functions/Systems which satisfy the performance goals; a Safe Shutdown Equipment List; and an analysis and evaluation of each fire area.
 - 3.3 The "Alternative Safe Shutdown Using Remote Safe Shutdown Facilities" discusses the bases and positions established for the review; a review of the Alternative Safe Shutdown capabilities; an Alternative Safe Shutdown Equipment List; and an analysis and evaluation.
 - 3.4 The "Alternative Safe Shutdown - Emergency Feedwater Pumphouse Fire" section discusses the location and shutdown capabilities, and an analysis and evaluation of this fire area.
 - 3.5 The "High-Low Pressure Interfaces" section provides a general discussion, a list of interfaces, a High Low Pressure Interface Safe Shutdown Equipment List and an analysis and evaluation.
 - 3.6 The "Associated Circuits" section provides a definition of associated circuits of concern and a discussion of the methodology used to address the various types of associated circuits.

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3.7 The "Deviations from 10CFR50 Appendix R" section lists all deviations resulting from the shutdown analysis.

The "Appendix" is comprised of the following sections which support the report:

- I. A "P&I Diagrams (Typical)" section which contains photographs of typical marked P&I Diagrams utilized in the review.
- II. A "Schematic Diagrams & Cable Diagrams (Typical)" section which contains copies of typical drawings utilized in the review.
- III. An "Equipment Lists (Tables)" section which contains the tables that list all equipment required for performance of the Safe Shutdown functions.
- IV. A "Raceway Arrangement Drawings (Typical)" section which contains photographs of typical marked raceway drawings utilized in the review.

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REPORT PREPARATION/MAINTENANCE

To establish a methodical course of action and provide guidance to the various organizations required to support the initial development of the Safe Shutdown Capability program, UE&C procedure TP-2 (NHY Procedure 38160) titled "Procedure for Review and Report Preparation for 10 CFR Part 50 Appendix R, Fire Protection of Safe Shutdown Capability" was prepared. The salient points of this procedure are as described in Sections 2.1 to 2.8. As modifications are implemented to the plant, the effect of these modifications to this report must be evaluated. The evaluation process is as described in Section 2.9.

2.1 DETERMINATION OF FIRE AREAS/ZONES

The fire areas/zones are as delineated in "Fire Protection Program Evaluation and Comparison to Branch Technical Position APCSB 9.5-1, Appendix A" or as determined by the Responsible Engineer.

2.2 DETERMINATION OF SAFE SHUTDOWN SYSTEMS

The Safe Shutdown systems were determined by considering the minimum performance goals established in Appendix R, Paragraph III.L.2, and utilizing the following sources for guidance:

- 2.2.1 Final Safety Analysis Report - Seabrook Station
- 2.2.2 Fire Protection Program Evaluation and Comparison to Branch Technical Position APCSB 9.5-1, Appendix A
- 2.2.3 Station Operating Procedure No. OS1200.01 "Safe Shutdown and Cooldown from the Main Control Room"
- 2.2.4 Station Operating Procedure No. OS1200.02 "Safe Shutdown and Cooldown from the Remote Safe Shutdown Facilities"
- 2.2.5 United Engineers & Constructors Inc. Engineering
- 2.2.6 Yankee Atomic Electric Co. Engineering
- 2.2.7 New Hampshire Yankee Engineering

2.3 DETERMINATION OF SAFE SHUTDOWN EQUIPMENT

The minimum equipment necessary to perform the Safe Shutdown function was determined by utilizing the following sources:

- 2.3.1 Final Safety Analysis Report - Seabrook Station
- 2.3.2 Fire Protection Program Evaluation and Comparison to Branch Technical Position APCSB 9.5-1, Appendix A
- 2.3.3 Station Operating Procedure No. OS1200.01 "Safe Shutdown and Cooldown from the Main Control Room"

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- 2.3.4 Station Operating Procedure No. OS1200.02 "Safe Shutdown from the Remote Safe Shutdown Facilities"
- 2.3.5 Piping and Instrumentation (P&I) Diagrams
- 2.3.6 United Engineers & Constructors Inc. Engineering
- 2.3.7 Yankee Atomic Electric Co. Engineering
- 2.3.8 New Hampshire Yankee Engineering

Sets of P&I Diagrams and One-Line Diagrams were marked to indicate hot standby equipment and cold shutdown equipment for main control room shutdown and remote safe shutdown. Train A equipment was marked in red, and Train B equipment was marked in green. Photographs of typical marked P&I Diagrams are contained in Appendix Section I.

2.4 DETERMINATION OF SAFE SHUTDOWN CABLES

Considering the equipment defined and utilizing their related electrical schematic diagrams and cable schematics, the cables required for Safe Shutdown were determined. The raceways through which these cables were routed were determined; and then their associated fire area/zone(s) were determined. To document the review, the "10 CFR 50 - Appendix R, Safe Shutdown Equipment List" was prepared from data gathered in this review. Copies of typical schematic diagrams and cable schematics are contained in Appendix Section II. Copies of the safe shutdown equipment lists are contained in Appendix Section III.

2.5 COMPUTER INPUT AND REPORTS

The following data were input to UE&C's "NRC Emergency Shutdown Program NRCESP" Program No. EL-130:

- a. Listing of Raceways and their Associated Fire Zones
- b. Listing of Cables (from Safe Shutdown Equipment Lists)

The following output reports were generated using the NRC Emergency Shutdown Programs:

- c. Listing of Fire Areas/Zones
- d. Safe Shutdown Cables using CASP A Format
- e. Safe Shutdown Raceways and Associated Cables by Fire Zone
- f. Safe Shutdown Raceways and Cables
- g. Cables with Associated Fire Zones

Copies of the input data and output reports were contained in Appendix Section V.

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2.6 DETERMINATION OF SAFE SHUTDOWN RACEWAYS

Utilizing the "Safe Shutdown Raceways and Associated Cables by Fire Zone" computer report, a set of raceway arrangement drawings was marked as follows:

- 2.6.1 Train A raceways, boxes, and termination equipment were marked in red.
- 2.6.2 Train B raceways, boxes, and terminating equipment were marked in green.
- 2.6.3 Equipment which is manually operated or disabled was marked in orange. A "D" was placed beside equipment to be disabled. An "M" was placed beside equipment needed to be manually operated.
- 2.6.4 Rated fire walls and barriers were marked in black.

Photographs of typical marked raceway arrangement drawings are contained in Appendix Section IV.

2.7 ANALYSIS OF RACEWAYS AND EQUIPMENT TO SATISFY APPENDIX R REQUIREMENTS

- 2.7.1 Each fire area/zone that contained Safe Shutdown equipment or cables was reviewed to determine if Appendix R, Paragraph III.G.2 separation requirements were satisfied.
- 2.7.2 If the Appendix R requirements were not satisfied, further analysis was performed to determine the effects of a hot short circuit, short circuit, open circuit, ground or other equipment failure.
- 2.7.3 If the Safe Shutdown function was affected by a hot short circuit, short circuit, open circuit, ground or other equipment failure, then the following analysis to satisfy the Appendix R requirements was provided:
 - 2.7.3.1 Analysis which documented that the in situ and transient combustibles were insufficient to cause a fire which affected the redundant trains of equipment and cables.
 - 2.7.3.2 A three-hour fire barrier or a one-hour barrier and sprinklers between the redundant equipment or cables.
 - 2.7.3.3 Rerouted the redundant cable out of the fire area/zones, or provided twenty feet of separation and sprinklers in the area.
 - 2.7.3.4 Provided an alternative or dedicated safe shutdown equipment or system (See Section 3.3 and 3.4).
 - 2.7.3.5 Requested a deviation from the 10 CFR 50, Appendix R requirements based on the combustibles in the fire area/zone, the spatial separation and the protective measures provided. (See Section 3.7).

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2.8 **HIGH-LOW PRESSURE INTERFACES**

A list was prepared of the high-low pressure interfaces and the lines with two or more electrically operated valves which could open and potentially cause a LOCA. A review was performed in the same manner as discussed in Section 2.4 and 2.5 utilizing this list. An analysis and evaluation were then performed. (See Section 3.5)

2.9 **MODIFICATION EVALUATION**

As plant modifications are implemented, their effect on the analysis contained in this report must be evaluated to ensure that the safe shutdown capability in the event of a fire is maintained. This evaluation will consider the UFSAR, this Appendix R Report, Supporting Documentation and the latest issue of design documents. If necessary, appropriate markups of documents will be included in the design change package to reflect any change in the Appendix R safe shutdown analysis.

The UE&C computer programs described in Section 2.5 are no longer available. New computer programs were written to produce the following reports to support the analysis contained in this report and evaluation of modifications:

- a. List of Areas/Zones
- b. List of Raceways and Associated Fire Zones
- c. List of Cables w/Event Indicators
- d. Safe Shutdown Raceways and Associated Cables by Fire Zone
- e. Safe Shutdown Raceways and Cables
- f. Cables with Associated Fire Zones

Copies of these reports are contained in Appendix R supporting documentation.

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SAFE SHUTDOWN CAPABILITY

3.1 Discussion Of Bases And Positions

3.1.1. General

10 CFR Part 50 Appendix R, Paragraph III.G.1 requires that fire damage be limited so that:

- a. One train of systems necessary to achieve and maintain hot standby condition from either the control room or emergency control station(s) is free of fire damage; and
- b. Systems necessary to achieve and maintain cold shutdown from either the control room or emergency control station(s) can be repaired within 72 hours.

Based on requirement "a" above, the design basis of Seabrook Station is that one train of systems necessary to achieve and maintain hot standby from the control room or the emergency control stations (hereafter designated the remote safe shutdown facilities) is free of fire damage.

Under this basis, Appendix R, Paragraph III.G.2 and III.G.3 will apply to the safe shutdown paths controlled from the main control room or the remote safe shutdown facilities. Any deviations from the III.G.2 and III.G.3 criteria will be with respect to the main control room or the remote safe shutdown facilities and is addressed in Sections 3.2.7, 3.3.9, 3.4.3 and in the List of Deviations Section 3.7 of this report. For fires in some areas of plant, alternative shutdown capabilities are provided as discussed in Sections 3.3 and 3.4.

This Section defines the bases and positions utilized in determining and reviewing the shutdown capabilities that will satisfy the requirements of Paragraph III.G. These capabilities can be utilized to safely shut down the reactor in the event of a fire in any area/zone of the plant.

3.1.2 Safe Shutdown

"Safe Shutdown" for purposes of the review is defined as a capability to bring the reactor from a 100 percent power operating condition to a "cold shutdown" condition. Included in this are conditions "hot standby," "hot shutdown," "cold shutdown," and maintenance of "cold shutdown."

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The design basis event for safe shutdown is a postulated fire in a specific fire area/zone with or without the loss of offsite power (LOOP). This design basis was used for the original Appendix R Report preparation. The LOOP was assumed to occur whether the specific fire being analyzed caused it or not. The diesel generators (DGs) were analyzed to both automatically start and load, and not automatically start and load. An engineering evaluation prepared in 2007, documented that this was a conservative design basis since Appendix R does not require an arbitrary LOOP for non-alternate shutdown fire areas/zones (i.e., for shutdown control from the main control room). For future safe shutdown analyses, offsite power can be credited to remain available for non-alternate shutdown fire areas/zones if the cables required to support offsite power are not damaged by the fire (i.e., an arbitrary LOOP need not be assumed). This approach provides greater analysis flexibility.

No other design basis event (e.g. seismic or LOCA) is considered to occur coincident with the fire event.

The safe shutdown functions shall assure the following:

- a. No fuel clad damage.
- b. No rupture of any primary coolant boundary.
- c. No rupture of containment boundary.
- d. Reactor coolant system process variables shall be within those predicted for a loss of normal AC power.
- e. Achievement of cold shutdown conditions within 72 hours and maintenance of cold shutdown conditions thereafter.

3.1.3 Redundancy

To assure a safe shutdown capability pre-fire, two redundant trains (Train A and Train B) of equipment are provided for each safe shutdown function. Each train contains a complete complement of the equipment, cabling, instrumentation and controls necessary to perform the safe shutdown functions.

In several instances a single mechanical equipment is common to both trains (i.e., condensate storage tank, mechanical manual valves, piping, HVAC ducts, etc.).

Single failure is not assumed to occur except to equipment that is damaged by the fire.

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3.1.4 Determination of Safe Shutdown Functions

The safe shutdown functions are determined by considering the performance goals established in Appendix R, Paragraph III.L.2. The systems or portions of systems necessary to satisfy safe shutdown are subsequently determined.

3.1.5 Determination of Safe Shutdown Equipment

Safe shutdown systems are the systems required to achieve the performance goals listed in Section 1. The equipment for these systems can be divided by function as Hot Standby (Reactor tripped and T-Avg above 350°F) and Cold Shutdown (Reactor tripped/and cool down of the Reactor Coolant System T-Avg equal to or below 200°F).

The following criteria are used to determine the equipment required for safe shutdown:

- a. The equipment is required to operate to permit a safe shutdown system to perform its safe shutdown function.
- b. The equipment's maloperation can prevent a safe shutdown system from performing the safe shutdown function.
- c. The equipment is a process or electrical boundary for a safe shutdown system.

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 in an incorrect position will not affect the operation of the Safe Shutdown system.

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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 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 Spurious Operation

The evaluation of the effects of spurious equipment operation on safe shutdown functions considers the effects of hot short circuits, short circuits, open circuits and grounds.

The effects of hot short circuits are considered 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.

The effects of short circuits, open circuits and grounds are considered for all circuits evaluated for spurious operation.

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The above discussion does not provide all of the criteria used for evaluating spurious component operations during the original Appendix R Report preparation. An engineering evaluation prepared in 2007 reviewed various Seabrook, NRC, and industry documents to re-create the circuit analysis methodology bases used for the fire safe shutdown analyses that was not included in the above discussion. The following documents the added methodology criteria.

The analyses shall consider fire induced damage to any and all unprotected cables in the fire area/zone being analyzed. Each cable failure shall be considered individually, one-at-a-time, and the effects of any spurious operation(s) evaluated. If the effect is unacceptable (ex. loss of inventory), then operator actions, or other corrective actions (see Section 2.7), are specified to mitigate the effects of the spurious operation. If the effect is acceptable, then additional sequential cable failures and resultant spurious operations of same function components must also be considered (ex. spurious opening of other normally closed series valves in a potential diversion flow path). If their effects are unacceptable, then appropriate preventative/disabling operator actions (ex. open a circuit breaker) are specified to prevent the unacceptable condition. Mitigating and preventative/disabling actions that rely on electrical power, ex. MOV operation, can not credit components with unprotected cables in the fire area/zone being analyzed.

The basis described in the previous paragraph is typically referred to in the industry as any-and-all, one-at-a-time.

In addition, it will be assumed that the loss of function from fire damage to unprotected cables within a fire area cable will prevent the effected components from operating to support safe shutdown but any resulting state changes will be evaluated as spurious operations following the above criteria of one-at-a-time. Also, a protective device state change from a short circuit (open a fuse or trip a circuit breaker) will be considered a spurious operation and will be evaluated following the above criteria of one-at-a-time including any end component state changes, ex., loss of control power to a normally energized solenoid operated valve (SOV) would cause the SOV to change state as a spurious operation.

For Seabrook, failure of an individual cable typically only causes spurious operation of one component although there are exceptions where one cable failure can cause spurious operation of multiple components.

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The complete circuit for each equipment tag typically consists of multiple cables routed through many fire zones. It is expected that applying the failure modes to some cables in a circuit may not actually result in a spurious operation of the corresponding equipment. However, it appears that the original safe shutdown analyses conservatively assumed that every cable failure would cause spurious operation of the supported component(s) since there was no evidence found in the original analyses of credit being taken for analyzing specific conductor interactions as the basis for concluding that there was no resulting spurious operation. For future safe shutdown analyses, it is acceptable to use circuit analysis to demonstrate that a fire-induced cable failure can not cause a spurious operation. These circuit analyses should be included in appropriate engineering documents.

Operator actions to mitigate spurious component operation must meet the criteria provided in Section 3.1.7 on manpower, timing and accessibility considering the system effect of the corresponding spurious operation. Preventative/disabling operator actions should be documented in a procedure and be able to be completed in a reasonable time consistent with completion of time critical mitigating actions.

Automatic signals can be credited if their circuits are included in the analysis to ensure that their cables are free of fire damage for the fire areas which credit the signals. Automatic signals with unprotected cables in a fire zone must be analyzed to fail to operate or spuriously operate because of fire-induced cable damage. The automatic signals must also be analyzed to operate as designed if the system conditions caused by the fire (ex. low level, high flow, loss of power, etc.) would initiate the automatic function to ensure that the automatic actuation is not detrimental to safe shutdown.

The review assumes that all conductors within multi-conductor cables would short, open or ground due to a fire. Cable to cable interactions are not considered credible events because of the thermoset cable insulation used at Seabrook Station.

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.

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3.1.10 Fire Areas

The "Fire Protection Program Evaluation and Comparison to Branch Technical Position APCS 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 or diesel generator backed essential lighting (See letter SBN-932, dated January 27, 1986, Deviation No. 10) 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 actions are 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.

3.1.12 Repairs for Cold Shutdown

For cold shutdown, the following equipment will require replacement of control fuses which will be available in the Train B switchgear room.

- a. EAH-FN-31B
- b. RC-V87
- c. RC-V88
- d. RH-P-8B
- e. SI-V17
- f. SI-V47

In the event that emergency bus EDE-SWG-5 is not available, a temporary power connection will be provided from EDE-MCC-621 to the RC-V88 MCC cubicle.

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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. Primary Auxiliary Building El. 7'-0" Charging Pump Rooms
- g. Containment
- h. Equipment Train A Vault (Vault #1)
- i. Equipment Train B Vault (Vault #2)
- j. Mechanical Penetration Area
- k. Emergency Feedwater Pump Building
- l. Condensate Storage Tank
- m. Control Room HVAC Equipment and Duct Area
- n. Non-Essential Switchgear Room
- o. Turbine Building

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, realign power supplies, and/or manipulation of control switches.

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The term “prompt action” refers to an action taken after receipt of a valid fire alarm in the main control room. The term “expeditious action” or “expeditiously” refers to an action taken quickly upon entry into the applicable safe shutdown procedure. These type actions are considered to be completed prior to a spurious operation of the equipment operated by the prompt and expeditious actions. Therefore, no associated timing calculation is required for these actions.

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 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, either the refueling water storage tank (RWST) or the boric acid tanks (BAT) are used. The injection path to the RC 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, the normal charging flow path to the RC system is isolated. 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, e.g., due to spurious closure of a flow path valve (CS-FCV-121) 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. Should SI-V-138 or SI-V-139 spuriously open, the charging pump may have to be stopped to prevent overfill of the pressurizer.

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. On a long term basis, seal injection will be restored. The reactor coolant pumps (RCPs) are stopped from the main control board. Circuit analysis shows that the RCPs can not spuriously restart due to fire-induced cable damage.

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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).

Considering worst case scenarios for spurious actuation of affected equipment, the required times for operator actions regarding RC inventory and pressure control for safe shutdown from the main control room are provided below:

<u>Action</u>	<u>Time</u>
Close PORV block valve	Prompt
Isolate letdown	15 minutes
Swap charging pump suction from VCT to RWST	15.4 minutes. Should SI-V138, SI-V139, or CS-HCV-182 spuriously open, this action must be completed no later than 5.0 minutes following letdown line isolation.
Trip RCPs	10 minutes
Open a PORV to reduce pressurizer pressure in the event of spurious pressurizer heater operation or trip pressurizer heaters	23 minutes
Start a charging pump, or open a high head safety injection valve SI-V-138 or SI-V-139 if normal charging pump path is not available	31.1 minutes
Isolate charging flow, except for seal injection	35.4 minutes
Trip spuriously operating containment building spray pumps	46 minutes
Trip spuriously operating SI pump	< 4 hours, prior to commencement of plant cooldown
Isolate the potential diversion path from the BAT to the RWST, or align BAT for gravity feed.	<4 hours, prior to commencement of plant cooldown
Align BAT for makeup source	<4 hours, prior to commencement of plant cooldown

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3.2.2.2 Reactivity Control

Reactivity for hot standby at normal operating temperature (not) is provided by insertion of the control rods. Reactivity conditions required for cooldown and maintaining cold shutdown are provided by a portion of the chemical and volume control (CV) 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. During cooldown, the borated water source must be the BAT volume until expanded, at which time the RWST would be aligned. If gravity feed from the BAT is used, the RWST must be isolated.

Considering worst case scenarios for spurious actuation of affected equipment, the required times for operator actions regarding reactivity control for safe shutdown from the main control room are provided below:

<u>Action</u>	<u>Time</u>
Trip the Reactor	Expediently
Provide borated water from the BATs, via boric acid transfer pump or gravity feed	<4 hours, prior to commencement of plant cooldown
Isolate boric acid flow diversion path	<4 hours, prior to commencement of plant cooldown

3.2.2.3 Decay Heat Removal

The reactor coolant (RC) system temperature is controlled by use of portions of the feedwater (FW) system and the main steam (MS) system. The main steam safety/relief valves will maintain a heat dump capability. The steam generator water inventory is controlled by operating the motor driven emergency feedwater pump, the start-up feedwater pump, and associated 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 turbine driven emergency feed pump and the fire protection system but is not required to meet Appendix R requirement. This temporary connection back feeds to the CST which supplies water to the startup feedwater pump and the motor driven emergency feedwater pump. To assure main steam system integrity the MSIV's and MSIV bypass valves are maintained closed. The MSIV bypass valves are normally locked closed and depowered with breakers locked open to preclude spurious opening. Decay heat transfer is made possible by natural convection flow in the RC system.

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Considering worst case scenarios for spurious actuation of affected equipment, the required times for operator actions regarding decay heat removal for safe shutdown from the main control room are provided below:

<u>Action</u>	<u>Time</u>
Isolate the MSIVs	Expeditiously following a reactor trip
Place the mode selector switches for the ASDVs to the closed position	Prompt
Gain Control of excessive Emergency Feedwater Flow	20 minutes
Start motor driven EFW pump or startup feedwater pump to preclude steam generator dry out – normal power operation	39 minutes
Start motor driven EFW pump or startup feedwater pump to preclude steam generator dry out – low power operation	75 minutes
Time to bypass the startup feed pump low suction trip	4 hours
Time allotted for operator actions to preclude emptying CO tank to accommodate RHR Cut-in, and ultimately achieve cold safe shutdown within 72 hours	9 hours; 4 hours at hot standby plus 5 hours cooldown to RHR Cut-in

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

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- 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. If a manual transfer to the cooling tower is in effect and a loss of offsite power occurs, cooling tower operation automatically resumes upon restoration of electrical power.

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 to the shutdown margin greater than or equal to the limit specified in the Core Operating Limits Report (COLR).

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.

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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, and the hydrogen analyzer and electrical room. 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.

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 unit substations and motor control centers, the uninterruptible power supplies, the static transfer switches, 120 Volt ac vital distribution panels, 125 Volt dc batteries, battery chargers, and 125 Volt dc distribution panels.

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3.2.2.14 Diesel-Generators (DG)

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

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.

3.2.2.16 Service Air (SA) and Instrument Air (IA)

Portions of the SA and IA systems are required for air operated valves and dampers necessary for safe shutdown.

3.2.2.17 Control Building Air Handling (CBA)

The CBA system is used to maintain Control Building habitability and equipment protection. The CBA system is comprised of a non-safety related chilled water system that can be aligned to either safety related air handling unit and two redundant safety related chilled water systems, which are aligned to their corresponding safety related air handling units. Each chilled water system includes its own packages chiller and circulating pumps. The air handling units include cooling coils (safety related and non-safety related), fans, dampers. Fires that could disable either safety related train of Control Room cooling are discussed in applicable fire area analysis.

3.2.2.18 Communication

The Gaitronics or radio systems are used to announce the fire event and dispatch the fire brigade. The Gaitronics system is also used to provide a fire alarm. For shutdown from the main control room (MCR), most of the operator actions are actually performed in the MCR where face-to-face communication would be used. When field actions are required, an operator would: a) be dispatched to take the required action, b) go to the field and take the action, and c) then return to the MCR and report the action completed. No other communication methods are credited for shutdown controlled from the main control room. Radios and Gaitronics are not credited but would be used as additional means of communication, if not damaged by the fire.

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3.2.3 Safe Shutdown Function for Cooldown

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

3.2.3.1 Decay Heat Removal

In addition to equipment discussed in Section 3.2.2.3, 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. Also, the startup feedpump low suction pressure trip must also be bypassed prior to commencing cooldown.

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.

3.2.4 Manual Operator Actions

The following equipment may require manual operation outside the MCR.

- a. Control Building dampers CBA-DP-24A, CBA-DP-24B, CBA-DP-24C, CBA-DP-24D, CBA-DP-24E, CBA-DP-24F, CBA-DP-52, CBA-DP-26A, CBA-DP-26B.
- b. Switchgear room fans CBA-FN-19, CBA-FN-20, CBA-FN-32 and CBA-FN-33.
- c. Component cooling water valves CC-V122, CC-V168, CC-V175, CC-V257 and CC-V272
- d. CVC tank isolation valves CS-LCV-112B and CS-LCV-112C (RSS Panels).
- e. RWST suction to charging pump valves CS-LCV-112D and CS-LCV-112E (RSS panel)

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- f. Charging pumps discharge and bypass valves CS-V210, CS-V219, CS-V220 and CS-V221.
- g. Boric acid tank level CS-LT-7464 (RSS panel)
- h. Boric acid tank valves CS-V410, CS-V416, CS-V423, CS-V426, CS-V431, CS-V437, CS-V439, CS-V442 and CS-V1207
- i. Diesel generators DG-DG-1A and DG-DG-1B (DG panels)
- j. RHR inlet isolation valves RC-V22, RC-V23, RC-V87 and RC-V88
- k. RHR sampling valves RH-V8 and RH-V44
- l. RH heat exchanger to CS/SI pump isolation valves RH-V35 and RH-V36
- m. Not used.
- n. Safety injection accumulator isolation valves SI-V3, SI-V32
- o. PAB fans PAH-FN-42A and PAH-FN-42B (RSS panels)
- p. Control building doors C119, C300, C310, C311 and C312.
- q. Start-up feedpump low suction pressure trip bypass switch (FW-CS-4233).
- r. Realign the suction of the start-up feedpump (CO-V-142).
- s. Realign the power supply of the start-up feedpump from Bus ED-SWG-4 to Bus EDE-SWG-5 (if not already aligned to Bus EDE-SWG-5).
- t. Not used

Equipment CBA-DP-24D, CBA-DP-24E, CBA-DP-24F, CS-V210, CS-V219, CS-V220, CS-V221, CS-V410, CS-V416, CS-V423, CS-V431, CS-V437, CS-V439, CS-V442, CS-V1207, CO-V142, RH-V8 and RH-V44 are not electrically operated; hence, they have no cables.

3.2.5 Disabled (tripped power supply) Equipment

The following equipment may require disabling:

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

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- b. Chemical and volume control valves CS-FCV-110A, -111A, -110B, -111B CS-V154, CS-V158, CS-V162, CS-V166, CS-V175, CS-V176, CS-V196 and CS-V197
- c. Not used.
- d. Emergency buses EDE-SWG-5 and EDE-SWG-6 (control power)
- e. Emergency Feedwater Control Valves FW-FV-4214A,B; FW-FV-4224A,B, FW-FV-4234A,B and FW-FV-4244A,B
- f. Atmospheric relief valves MS-PV-3001, MS-PV-3002, MS-PV-3003 and MS-PV-3004
- g. Not used.
- h. 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. Pressurizer heaters Group C, Group D and Control Group
- j. Reactor coolant pumps RC-P-1A, RC-P-1B, RC-P-1C, RC-P-1D
- k. Residual heat removal valves RH-V14, RH-V26, RH-V32, RH-V35, RH-V36, RH-V70, RH-HCV-607* and RH-FCV-619*
- l. Safety injection valves SI-V158 and SI-V159
- m. Service water valves SW-V15, SW-V16*, SW-V18*, SW-V19, SW-V20, SW-V23, SW-V25, SW-V34 and SW-V54
- n. Engineered safety features actuation system logic cabinets
- o. Service water pump permissive logics

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

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3.2.6 Safe Shutdown Equipment List

Tables that list all equipment, including instrumentation and vital support systems equipment, required to achieve hot standby or cold shutdown from the main control room are provided in Appendix III. However, analysis can be also provided to justify not listing components and cables in Appendix III. The tables provide the following information for each equipment listed:

- a. A column which notes whether the equipment is required for hot standby 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" (Main Control Room Safe Shut-down).
- 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.

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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.

<u>Function</u>	<u>Table No.</u>
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

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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:

<u>Building</u>	<u>Fire Area</u>	<u>Fire Zones</u>	<u>Tabulation</u>
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
Intentionally left blank			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

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<u>Building</u>	<u>Fire Area</u>	<u>Fire Zones</u>	<u>Tabulation</u>
Containment Fan Encl. Area and Containment Annulus/ Mechanical Penetration Area		CE-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
Intentionally left blank			3.2.7.19
Intentionally left blank			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
Intentionally left blank			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
Duct Bank-ET to SW	DCT-F-1A-0	-	3.2.7.26
Duct Bank-ET to SW	DCT-F-1B-0	-	3.2.7.27
Duct Bank-PAB to CT	DCT-F-2A-0	-	3.2.7.28
Duct Bank-PAB to CT	DCT-F-2B-0	-	3.2.7.29
Duct Bank-CB to PAB	DCT-F-3B-0	-	3.2.7.30
Duct Bank-East MUA	DCT-F-4A-0	-	3.2.7.31
Duct Bank-East MUA	DCT-F-4B-0	-	3.2.7.32
Duct Bank-West MUA	DCT-F-5A-0	-	3.2.7.33
Duct Bank-West MUA	DCT-F-5B-0	-	3.2.7.34
Duct Bank-SWPH to CW	DCT-F-6-0	-	3.2.7.35
Duct Bank-TB to CST	DCT-F-7-0	-	3.2.7.36
Diesel Gen. Bldg.-El(-)16'-0"	DG-F-1A-A	-	3.2.7.37
Diesel Gen. Bldg.-El (-)16'-0"	DG-F-1B-A	-	3.2.7.38
Diesel Gen. Bldg.-El 21'-6"	DG-F-2A-A	-	3.2.7.39

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<u>Building</u>	<u>Fire Area</u>	<u>Fire Zones</u>	<u>Tabulation</u>
Diesel Gen. Bldg.-El 21'-6"	DG-F-2B-A	-	3.2.7.40
Diesel Gen. Bldg.-El 51'-6"	-	DG-F-3A-Z DG-F-3B-Z	3.2.7.41
Diesel Gen. Bldg.-El 51'-6"	DG-F-3C-A	-	3.2.7.42
Diesel Gen. Bldg.-El 51'-6"	DG-F-3D-A	-	3.2.7.43
Diesel Gen. Bldg.-El 51'-6"	DG-F-3E-A	-	3.2.7.44
Diesel Gen. Bldg.-El 51'-6"	DG-F-3F-A	-	3.2.7.45
Diesel Gen. Bldg.-Stairwell	DG-F-S1-0	-	3.2.7.46
Diesel Gen. Bldg.-Stairwell	DG-F-S2-0	-	3.2.7.47
Emer. Feedwater Pump Bldg.	EFP-F-1-A	-	3.2.7.48
Electrical Tunnel	ET-F-1A-A	-	3.2.7.49
Electrical Tunnel	ET-F-1B-A	-	3.2.7.50
Electrical Tunnel	ET-F-1C-A	-	3.2.7.51
Electrical Tunnel	ET-F-1D-A	-	3.2.7.52
Electrical Tunnel Stairwell	ET-F-S1-0	-	3.2.7.53
Fire Pump House	FPH-F-1A-A	-	3.2.7.54
Fire Pump House	FPH-F-1B-A	-	3.2.7.55
Fire Pump House	FPH-F-1C-A	-	3.2.7.56
Fuel Storage Bldg.-El 51'-6"	FSB-F-1-A	-	3.2.7.57
East Mainsteam & Feedwater Pipe Chase	-	MS-F-1A-Z MS-F-2A-Z MS-F-3A-Z MS-F-4A-Z MS-F-5A-Z	3.2.7.58
West Mainsteam & Feedwater Pipe Chase	-	MS-F-1B-Z MS-F-2B-Z MS-F-3B-Z	3.2.7.59
East Air Make-Up Pit	MUA-F-1-0	-	3.2.7.60
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<u>Building</u>	<u>Fire Area</u>	<u>Fire Zones</u>	<u>Tabulation</u>
Non-Essential Swgr. Room	-	NES-F-1A-Z	3.2.7.62
Primary Auxiliary Building - El. 7'-0"	-	PAB-F-1A-Z	3.2.7.63*
		PAB-F-1B-Z	3.2.7.64*
Primary Auxiliary Building - El. 7'-0"	-	PAB-F-1F-Z	3.2.7.65*
Primary Auxiliary Building - El. 7'-0"	-	PAB-F-1J-Z	3.2.7.66*
Primary Auxiliary Building - El. 7'-0"	-	PAB-F-1K-Z	3.2.7.67*
Primary Auxiliary Building - El. 25'-0"	-	PAB-F-2A-Z	3.2.7.68*
Primary Auxiliary Building - El. 25'-0"	-	PAB-F-2B-Z	3.2.7.69*
Primary Auxiliary Building - El. 25'-0"	-	PAB-F-2C-Z	3.2.7.70*
Primary Auxiliary Building - El. 53'-0"	-	PAB-F-3A-Z	3.2.7.71*
Primary Auxiliary Building - El. 53'-0"	-	PAB-F-3B-Z	3.2.7.72*
Primary Auxiliary Building - El. 81'-0"	-	PAB-F-4-Z	3.2.7.73*
Primary Auxiliary Building - El. 7'-0"	PAB-F-1C-A	-	3.2.7.74
Primary Auxiliary Building - El. 7'-0"	PAB-F-1D-A	-	3.2.7.75
Primary Auxiliary Building - El. 7'-0"	PAB-F-1E-A	-	3.2.7.76
Primary Auxiliary Building - Electrical Chase	PAB-F-1G-A	-	3.2.7.77
Primary Auxiliary Building - Stairwell	PAB-F-S1-0	-	3.2.7.78

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<u>Building</u>	<u>Fire Area</u>	<u>Fire Zones</u>	<u>Tabulation</u>
Primary Auxiliary Building - Stairwell	PAB-F-S2-0	-	3.2.7.79
Equipment Vault-Train B (Vault 2)	-	RHR-F-1A-Z RHR-F-1C-Z RHR-F-2A-Z RHR-F-3A-Z RHR-F-4A-Z	3.2.7.80
Equipment Vault-Train A (Vault 1)	-	RHR-F-1B-Z RHR-F-1D-Z RHR-F-2B-Z RHR-F-3B-Z RHR-F-4B-Z	3.2.7.81
Circulating Water Pump House		SW-F-1A-Z	3.2.7.82
Service Water Pump House	SW-F-1B-A		3.2.7.83
Service Water Pump House	SW-F-1C-A		3.2.7.84
Service Water Pump House	SW-F-1D-A		3.2.7.85
Service Water Pump House		SW-F-1E-Z	3.2.7.86
Intake & Discharge Structure	SW-F-2-0		3.2.7.87
Turbine Building		TB-F-1A-Z TB-F-1C-Z TB-F-2-Z TB-F-3-Z	3.2.7.88
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 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	3.2.7.91

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

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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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-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-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

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Containment

Fire Area: C-F-1-Z, C-F-2-Z, C-F-3-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CC-V121	x	x	CC-V256	x	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-8B	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
CS-V10	x	x	CS-V168	x	x
CS-V28	x	x			
CS-V44	x	x			
CS-V59	x	x			
CS-V177	x	x			
CS-V185	x	x	CS-V175	x	x
			CS-V176	x	x

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Containment

Fire Area: C-F-1-Z, C-F-2-Z, C-F-3-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CS-V145	x	x			
RC-LCV-459	x	x			
RC-LCV-460	x	x			
			RC-FV-2881	x	x
			RC-V323	x	x
RC-E-10	x	x	RC-E-10	x	x
EDE-TBX-X47	x	x	EDE-TBX-X44	x	x
RC-E-11A	x		RC-E-11B	x	
RC-E-11C	x		RC-E-11D	x	
RC-P-1A	x				
RC-P-1B	x				
RC-P-1C	x				
RC-P-1D	x				
RC-PCV-456A	x	x	RC-PCV-456B	x	x
RC-V122	x	x	RC-V124	x	x
EDE-TBX-X56	x	x	EDE-TBX-X35	x	x
RC-TK-11	x		RC-TK-11	x	
RC-V23	x	x	RC-V22	x	x
RC-V88	x	x	RC-V87	x	x
SI-V3	x	x	SI-FV-2475	x	x
			SI-FV-2476	x	x
SI-V32	x	x	SI-FV-2477	x	x
			SI-FV-2486	x	x

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Containment

Fire Area: C-F-1-Z, C-F-2-Z, C-F-3-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SI-FV-2482	x	x	SI-V17	x	x
SI-FV-2483	x	x			
SI-FV-2495	x	x	SI-V47	x	x
SI-FV-2496	x	x			
			SI-V158	x	x
SI-V159	x	x			
RH-V35		x	RH-V36		x
SB-V1	x	x			
SB-V3	x	x			
SB-V5	x	x			
SB-V7	x	x			
FW-LT-501	x	x	FW-LT-519	x	x
FW-LT-503	x	x	FW-LT-537	x	x
FW-LT-529	x	x	FW-LT-502	x	x
FW-LT-548	x	x	FW-LT-504	x	x
NI-NE-6690	x	x	NI-NE-6691	x	x
EDE-TBX-XP8	x	x	EDE-TBX-XP9	x	x
RC-LT-459	x	x	RC-LT-460	x	x
RC-PT-455	x	x	RC-PT-456	x	x
RC-PT-457	x	x	RC-PT-458	x	x
RC-TE-413A	x	x	IC-TE-XX	x	x
RC-TE-423A	x	x			
RC-TE-433A	x	x			

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Containment

Fire Area: C-F-1-Z, C-F-2-Z, C-F-3-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
RC-TE-443A	x	x	IC-MM-173	x	x
EDE-TBX-X40	x	x			
EDE-TBX-X48	x	x			
EDE-TBX-X94	x	x			
			RC-TE-413B	x	x
			RC-TE-423B	x	x
			RC-TE-433B	x	x
			RC-TE-443B	x	x
			EDE-TBX-X14	x	x
			EDE-TBX-X86	x	x
			EDE-TBX-X52	x	x
			EDE-TBX-X69	x	x
Electrical Penetrations	x	x	Electrical Penetrations	x	x
MM-IR-1	x	x			
MM-IR-2	x	x			
MM-IR-3	x	x			
MM-IR-4	x	x	MM-IR-4	x	x
MM-IR-6	x	x			
MM-IR-8	x	x			
MM-IR-7A	x	x	MM-IR-7A	x	x

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B. Analysis

1. General Area Analysis

The following protective measures are inherent in the existing containment design:

- a. The significant in situ combustibles are limited to the reactor coolant pump lubricating oil, hydraulic snubbers, cables in trays, and EPDM rubber (debris interceptor trim).
- b. An oil collection system is provided for the reactor coolant pumps.
- c. Each hydraulic snubber contains 3.5 gallons of a high flash point, high auto ignition point silicon-based hydraulic fluid. The snubbers are designed to withstand an SSE without failure. Even if leaks were to develop, studies performed at Factory Mutual Research Corporation have shown that a heat flux of 16 kW/M² is necessary to ignite a high flash point hydraulic fluid similar to the silicon based fluid. It would require the introduction of a transient combustible to containment to provide this heat flux.
- d. Containment is inaccessible during normal operation with the exception of operator tours. Because of this, transient combustibles are not considered as a fire hazard. This absence of transient combustibles removes the ignition source for the cables, the hydraulic fluid, and the EPDM rubber.
- e. Prior to plant start-up administrative controls will assure the removal of transient combustibles which could be brought into containment during plant shutdowns.
- f. Charcoal filter CAH-F-8 has an early fire detection system internal to the filter.

2. System Analysis

- a. Containment Structure Cooling Units CAH-AC-1A through 1F (Fans CAH-FN-1A through 1F, Speed Changers CAH-JV3-43 through CAH-JV8-43 and CC Flow Switches CC-FISL 2122 through CC-FISL-2224)

Cables for the redundant cooling unit fans, speed changers and flow switches are routed through trays and conduits from the penetration where they enter containment to the cooling units. The trays are separated by concrete floors except between Columns 2 and 4, Columns 5 and 6, Columns 7 and 8, Columns 12 and 13, Columns 14 and 15, and Columns 17 and 18 where there is grating.

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Between Columns 2 and 4, the Train B trays are a minimum of 12' above floor elevation (-) 26'-0" and a maximum of 19' above floor elevation (-) 26'-0". The Train A trays are a minimum of 11' above the grating elevation 0'-0". There is a minimum of 18' of vertical separation between the redundant trays. Even if the redundant trays are affected by a fire, only two Train B and one Train A cooling unit could be affected, the other three cooling units would continue to be operable.

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' of vertical separation between the redundant trays. Even if the redundant trays were affected by a fire, only one Train A and one Train B cooling units could be affected; the other four cooling units would continue to be operable.

Between Columns 7 and 8, only one Train A cooling units' cables are routed. There are no Train B cooling units' cables at this location.

Between Columns 12 and 13, only one Train A and one Train B cooling units' cables are routed. The other four cooling units would continue to be operable.

Between Columns 14 and 15, the Train B trays are a minimum of 19' above floor elevation (-) 26'-0" and a maximum of 21' above floor elevation (-) 26'-0". The Train A trays are a minimum of 17' above the grating elevation 0'-0". There is a minimum of 22' of vertical separation between the redundant trays. Even if the redundant trays were affected by a fire, the only two Train A and one Train B cooling unit could be affected. The other three cooling units would continue to be operable.

Between Columns 17 and 18, the Train B trays are a minimum of 12' above floor elevation (-) 26'-0" and a maximum of 19' above floor elevation (-) 26'-0". The Train A trays are a minimum of 11' above the grating elevation 0'-0". There is a minimum of 18' of vertical separation between the redundant trays. Even if the redundant trays were affected by a fire, only two Train A and one Train B cooling units could be affected; the other three cooling units would continue to be operable.

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A maximum of three containment structure cooling units (CAH) are needed to maintain habitability of the containment. This can be any combination of Train A and B units. At all points discussed above where Train A and B cables are run near each other without concrete floor separation, there is a minimum of 18' of vertical separation, with the Train B cables a minimum of 12' off the floor.

This vertical separation, the height of the cable from the floor and the lack of combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. Additionally, a fire at any of these points would affect a maximum of three out of six units, leaving three to cool containment.

b. Thermal Barrier Pumps CC-P-322A and CC-P-322B

Cables for the redundant thermal barrier pumps are routed through trays and conduits from the penetration where they enter containment to the pumps at elevation (-) 26'-0". The trays are separated by concrete floors except between Columns 17 and 18 where there is a grating.

Between Columns 17 and 18, the Train B trays are a minimum of 12' above floor elevation (-) 26'-0" and a maximum of 19' above floor elevation (-) 26'-0". The Train A trays are a minimum of 11' above the grating elevation 0'-0". There is a minimum of 18' of vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in trays.

The conduit to the Train A pump is routed such that there is a minimum of 6' horizontal separation from the Train B tray that contains the redundant cable. The conduit is run approximately 22' above elevation (-) 26'-0" to the point that it drops down to the Train A pump. The pump is located 6' above elevation (-) 26'-0" between Columns 17 and 18. The Train A pump is separated from the tray containing the cable to the Train B pump by a horizontal distance of 6' and a vertical distance of 9'. In addition there are two totally enclosed instrument trays below the Train B tray.

Should the thermal barrier cooling be unavailable, the redundant seal injection cooling capability located in other plant fire areas will satisfy the safe shutdown requirements.

The separation height of cable from the floor and lack of in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. The redundant seal cooling satisfies the safe shutdown requirements.

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c. Component Cooling Isolation Valves CC-V57, CC-121, CC-V176, CC-V256

Cables for the redundant valves are routed through trays and conduits from the penetration where they enter containment to the valves on the west side of containment at elevation 4'-0". The trays are separated by a concrete floor, except between Columns 17 and 18 and between Columns 14 and 15 where there is grating.

Between Columns 17 and 18, the Train B trays are a minimum of 12' above floor elevation (-) 26'-0" and a maximum of 19' above floor elevation (-) 26'-0". The Train A trays are a minimum of 11' above the grating elevation 0'-0". There is a minimum of 18' of vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

Between Columns 14 and 15, the Train B trays are a minimum of 19' above floor elevation (-) 26'-0" and a maximum of 21' above floor elevation (-) 26'-0". The Train A trays are a minimum of 17' above the grating elevation 0'-0". There is a minimum of 22' of vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

The Train A valves CC-V57 and CC-V121 are located between Columns 14 and 15 approximately 4' above the grating elevation 0'-0". The cables for the Train B valves CC-V176 and CC-V256 are routed in trays which are a minimum of 19' above floor elevation (-) 26'-0". There is a minimum of 8' vertical separation between the Train B trays and the Train A valves. The only in situ combustibles at this location are the cables in the trays.

The Train B valves CC-V176 and CC-V256 are located between Columns 12 and 13 approximately 4' above the grating elevation 0'-0". Although the cables for the redundant Train A valves are not in this location, the power cables for Train A containment structure cooling unit CAH-AC-1E are routed in this area such that a fire could impact four of the six cooling units. However, the cables are routed in tray 19' above the grating elevation 0'-0" and then in conduit to the cooling unit. There is a vertical separation of approximately 15' between valves CC-V176 and CC-V256 and the Train A trays. The only in situ combustibles at this location are the cables in the tray.

One set of redundant valves is needed to provide component cooling water to one train of containment structure cooling units.

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Between Columns 17 and 18, the vertical separation is 18' with the lower cables 12' off the floor. The separation and height of cable from the floor provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

Between Columns 14 and 15, there is a vertical separation of 27', with the lower cables 19' off the floor. There is a minimum separation of 8' between the Train A valves and the Train B cables, with the Train B cables 19' off the floor. The separation, height of cable from 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 12 and 13, there is a vertical separation of 15' between the Train B valves and the Train A cable. The valves are 30' off the floor (Elevation (-) 26'-0"). The separation, height of the valves off the floor and lack of in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

- d. Component Cooling 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 and Associated Flow Switches CC-FISHL-2147, CC-FISHL-2248, CC-FISHL-2247, CC-FISHL-2148

Cables associated with CC heat tank level transmitters which affect 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.

Cables associated with CC head tank level transmitters which affect the Loop A outboard isolation valves CC-V122 and CC-V168 are routed in proximity to trays containing cables for the Loop B inboard isolation valves CC-V176 and CC-V256. Failures in these cables could cause total loss of PCCW to containment by initiation of a spurious lo-lo head tank level signal. Loop A PCCW can be re-established by transferring control of valves CC-V122 and CC-V168 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.

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The provision of a capability to isolate the affected portion of the circuit and re-position the valves from another fire area satisfies the safe shutdown requirements.

e. Thermal Barrier Isolation Valves CC-V395, CC-V428, CC-V438, CC-V439

Valves CC-V395, CC-V428, CC-V438 and CC-V439 are normally open valves which must remain open for safe shutdown. The valves are permanently disabled in the open position.

The disabling of the above valves satisfies the safe shutdown requirements.

f. Air Compressors and Dryers SA-C-4A, SA-C-4B, IA-D-2A, IA-D-2B and Associated Distribution Panels, Control Panels and Contactors

The air compressors and their associated dryers located at elevation 0'-0" are required only for instrument air to the primary component cooling water containment isolation valves. These valves are required to remain operable only for containment entry when manual operation of the safety injection accumulator isolation valves SI-V3, SI-V17, SI-V32, and SI-V47 and RHR inlet isolation valves RC-V22, RC-V23, RC-V87 and RC-V88 is required.

The redundant air compressors and dryers are within 4' of one another. The Train B cables are routed in conduit from the compressors through the floor to the Train B trays. The Train B cable is routed in conduit from the air dryer to the power panel. The only in situ combustibles at this location are the cables in trays.

A cross connection to the plant instrument air system is provided to back up the containment instrument air system in the event of a compressor failure. Containment isolation is provided by an air operated, fail closed valve (outboard) and a check valve (inboard). The outboard valve is operable from the Main Control Board. The cross connection is not relied upon to achieve hot/colds shutdown and is only described here due to its potential use as a backup. The cable and control circuits are not considered Appendix R equipment and are, therefore, not listed in the respective tables.

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The Train A cables to valves SI-V3 and RC-V88 are routed in power and control trays a minimum of 17' above floor elevation 0'-0" in the vicinity of the Train B air compressor and dryer. The trays are effectively shielded from the compressor and dryer by a 5' wide by 3' high steel ventilation duct located 8' above the floor between the compressor/dryer and the trays. Should the cables to valve SI-V3 fail, the accumulator can be vented by use of Train B valves SI-FV-2475 and SI-FV-2476. Further discussion of the separation between these cables is provided in Paragraph "n". Failure of the cables to RC-V88 will not prevent safe shutdown as functionally redundant valve RC-V23 will still be operable.

The Train A cables to valve RC-V23 are routed in tray and conduit a minimum of 20' horizontal from the Train B air compressors and dryers and are separated by a concrete floor when they are in proximity to the equipment.

The Train B cables to valves SI-V47, RC-V22 and RC-V87 are routed in trays which are separated from the Train A air compressor and dryer by a concrete floor.

The cables to Train A Valve SI-V32 and Train B valve SI-V17 are routed on the opposite side of containment from the air compressors.

The separation distance, radiant shielding provided by ventilation duct and lack of in situ combustibles between the air compressors/dryers and the cabling for the valves that must remain operable should the redundant compressors/dryers be damaged due to a fire provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

g. RC Pump Seal Water Isolation Valves CS-V10, CS-V28, CS-V44, CS-V59, CS-V168, and CS - Charging to RC Isolation Valves CS-V177, CS-V185

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, if CS-V10, CS-V28, CS-V44 and CS-V59 cannot be closed. This inventory is directed to the PRT and is therefore, non-recoverable. 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.

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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

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

i. Charging Pump Test Line Isolation Valves SI-158, SI-159

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 seal injection path through valves CS-V154, CS-V158, CS-V162 and CS-V166 located in Fire Zones PP-F-1A-Z and PP-F-5B-Z. The operators can close SI-V158 and SI-V159 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.

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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).

The safe shutdown requirements are satisfied.

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 concrete 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'.

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.

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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 acceptable 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.

I. 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 between 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.

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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 in situ combustibles at this location are the 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 are a 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 enclosure of combustibles in the motors provide acceptable fire protection and provide 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.

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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 over-cooling 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 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 over-cooling 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 and the block valve by tripping their power supplies in the Train B switchgear room (Fire area: CB-F-1B-A).

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

RHR isolation valves are permanently disabled in the closed position. Redundant valves RC-V23 and RC-V88 are separated by 25' with no intervening combustibles other than cables in trays. Redundant valves RC-V22 and RC-V87 are separated by 3'. These valves are not needed until 9 hours into the event and are only required to be opened for cold shutdown. This can be accomplished manually, if required.

Therefore, no fire protection other than the existing separation is needed. Protection equivalent to the technical requirements of Appendix R is provided.

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- n. Accumulator Tank Outlet Isolation Valve SI-V3 and Vent Valves SI-FV-2475, SI-FV-2476

Cables for the redundant valves are routed through trays and conduits from the penetration where they enter containment to the valves. The trays are separated by concrete floor except between Columns 17 and 18 where there is grating.

The Train A valve SI-V3 is located near column 17 at Elevation (-) 26'-0" and the Train B, valves SI-FV-2475 and SI-FV-2476 are located near column 16 at Elevation 0'-0". The accumulator isolation valve is separated from its redundant vent valves by approximately 20' horizontal with an intervening concrete floor.

At Elevation (-) 26'-0" the cables to the redundant valves are in proximity such that a fire could affect operation of both trains of equipment. However, the same fire will not prevent the operation of the Train A equipment necessary for containment habitability.

These valves are not required to reach or maintain hot standby. They are required to be closed before going to cold shutdown. These valves will be manually closed, if required, prior to decreasing reactor pressure below 600 psig. Prior to this time the accumulators are prevented from injection by reactor pressure acting against a check valve. Manual operation of the isolation valve is only necessary if both the valve circuit and the redundant vent valves are rendered inoperable by the fire. This manual operation can be delayed as much as 9 hours into the event.

At Elevation 0'-0" the cables to the redundant valves are in proximity such that a fire could affect operation of both trains of equipment. Additionally, the redundant air compressors/dryers necessary for containment habitability are in the same area. As discussed above, the valves are not required for 9 hours. To assure that one train of valves can be operated from the MCR or locally, a radiant energy shield is provided around the Train B vent valves and their related cables in the area of the air compressors.

The horizontal separation distance between the redundant valves provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. The provision of a capability to manually operate the accumulator isolation valve satisfies the safe shutdown requirements.

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- o. Accumulator Tank Outlet Isolation Valve SI-V32 and Vent Valves SI-FV-2477, SI-FV-2486

Cables for redundant valves are routed through trays and conduits from the penetration where they enter containment to the valves. The trays are separated by concrete floors except between 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.

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' of 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 in situ combustibles at this location are the cables in trays.

The Train A Valve SI-V32 is located near column 8 at Elevation (-) 26'-0" and the Train B valves SI-FV-2477 and SI-FV-2486 are located near column 7 at Elevation 0'-0". The accumulator isolation valve is separated from its redundant vent valves by approximately 20' horizontal with an intervening concrete floor.

Between Columns 7 and 8 at Elevation (-) 26'-0" the cables are in proximity such that a fire could affect operation of both trains of equipment. However, the same fire will not prevent operation of the Train A or Train B equipment necessary for containment habitability.

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These valves are not required to reach or maintain hot standby. They are required to be closed before going to cold shutdown. These valves will be manually closed, if required, prior to decreasing reactor pressure below 600 psig. Prior to this time the accumulators are prevented from injection by reactor pressure acting against a check valve. Manual operation of the isolation valve is only necessary if both the valve circuit and the redundant vent valves are rendered inoperable by the fire. This manual operation can be delayed as much as 9 hours into the event.

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 are a 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 enclosure of combustibles in the motors provide acceptable fire protection and provides protection equivalent to the technical requirements of Appendix R.

At the valves, the horizontal separation between the redundant valves provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R. The provision of a capability to manually operate the accumulator isolation valve satisfies the safe shutdown requirements.

p. Accumulator Tank Outlet Isolation Valve SI-V17 and Vent Valves SI-FV-2482, SI-FV-2483

Cables for the redundant valves are routed through trays and conduits from the penetration where they enter containment to the valves. The trays are separated by concrete floors except between Columns 2 and 4.

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 combustible at this location are the cables in the trays.

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The Train B valve SI-V17 is located near column 3 at Elevation (-) 26'-0" and the Train A valves SI-FV-2482 and SI-FV-2483 are located near column 4 at Elevation 0'-0". The accumulator isolation valve is separated from its redundant vent valves by approximately 20' horizontal separation with an intervening concrete floor.

Between Columns 2 and 4 there is a minimum vertical separation of 25' between Train A and B cables. The Train B cables are a 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.

At the valves, the horizontal separation between the redundant valves and the intervening concrete floor provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

q. Accumulator Tank Outlet Isolation Valve SI-V47 and Vent Valves SI-FV-2495 and SI-FV-2496

Cables for the redundant valves are routed through trays and conduits from the penetrations where they enter containment to the valves. The trays are separated by concrete floor except between Columns 17, and 18, between Columns 14 and 15 and between Columns 12 and 13.

Between Columns 17 and 18, the Train B trays are a minimum of 12' above floor elevation (-) 26'-0" and a maximum of 19' above floor elevation (-) 26'-0". The Train A trays are a minimum of 11' above the grating elevation 0'-0". There is a minimum of 18' of vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

Between Columns 14 and 15, the Train B trays are a minimum of 19' above floor elevation (-) 26'-0" and a maximum of 21' above floor elevation (-) 26'-0". The Train A trays are a minimum of 17' above the grating elevation 0'-0". There is a minimum of 22' of vertical separation between the redundant trays. The only in situ combustibles at this location are the cables in the trays.

Between Columns 12 and 13, the Train B cables are routed in trays which are a minimum of 20' above floor Elevation (-) 26'-0". The Train A cables are routed in tray and conduit a minimum of 19' above the grating Elevation 0'-0". There is a minimum of 20' vertical separation between the redundant cables. The only in situ combustible at this location are the cables in the trays.

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The Train B valve SI-V47 is located near column 12 at Elevation (-) 26'-0" and the Train A valves SI-FV-2495 and SI-FV-2496 are located near column 13 at Elevation 0'-0". The accumulator isolation valve is separated from its redundant vent valves by approximately 20' horizontal separation with an intervening concrete floor.

Between Columns 17 and 18, the vertical separation is 18' with the lower cables 12' off the floor. The separation and height of cable from the floor provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

Between Columns 14 and 15, there is a vertical separation of 27', with the lower cables 19' off the floor. There is a minimum separation of 8' between the Train A valves and the Train B cables, with the Train B cables 19' off the floor. The separation, height of cable from the floor and lack of in situ combustibles provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

Between column 12 and 13, there is a vertical separation of 20' with the lower cables 20' off the floor. The separation and height of cable from the floor provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

At the valves, the horizontal separation between the redundant valves and the intervening concrete floor provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

r. 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 to one another in the area of the valves RC-V22, RC-V23, RV-V87 and RV-V88. Valves RH-V35 and RH-V36 are normally closed and their position is in consequential 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 room (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 9 hours into the event. Therefore, no fire protection other than the existing separation is needed.

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

s. Steam Generator Blowdown Isolation Valves SB-V1, SB-V3, SB-V5, SB-V7

One Train (Train A) of the SG Blowdown isolation valves and their related cables are located in containment. The redundant train (Train B) valves SB-V9, SB-V10, SB-V11 and SB-V12 are located in the main steam and feedwater pipe chase (Fire Zone: MS-F-1B-Z).

The Appendix R separation requirements are satisfied.

t. Steam Generator Level Transmitters FW-LT-501, FW-LT-502, FW-LT-503, FW-LT-504, FW-LT-519, FW-LT-529, FW-LT-537, FW-LT-548

Cables for redundant steam generator level transmitters are routed through enclosed trays and conduits from the penetration where they enter containment to the level transmitters. As only two steam generators are required for safe shutdown, any combinations of two transmitters will satisfy the safe shutdown requirements. At the penetrations in containment the four Train A transmitter cables are separated from the four Train B transmitter cables by a concrete floor. From the penetrations the cables separate such that two Train A and two Train B transmitter cables are routed on each side of the containment up to the transmitters. The transmitters are located approximately 75' apart with intervening walls.

The separation between redundant transmitters and their cables provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

u. Excore Nuclear Instrumentation NI-NE-6690 and NI-NE-6691 and Terminal Boxes EDE-TBX-XP8, EDE-TBX-XP9

Cables for the redundant nuclear instrumentation are routed through conduit from the penetration where they enter containment to the instruments in the reactor pit. The conduits are separated by concrete floors and walls or by a minimum of 20' from the penetration to the reactor pit. The only intervening combustibles between the redundant conduits are cables in trays. The conduits enter the pit approximately 3' apart and again separate to turn to their respective 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.

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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 inaccessibility 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 between the redundant raceways. The only in situ combustibles at this location are the cables in the trays.

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The redundant level transmitters are located 6' above the floor at Elevation 0'-0". They are separated by approximately 1'-0" horizontally. The Train B transmitter is enclosed in a non-combustible radiant energy shield. 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 is protected by a radiant energy shield above Elevation 0'-0" until it enters the enclosure formed by the non-combustible radiant energy shield for RC-LT-460. 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".

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

w. Pressurizer Pressure Transmitters RC-PT-455, RC-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 initiate safety injection and containment isolation phase A signals. The operators will have the capability to 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 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.

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- 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 Train B incore thermocouples IC-TE-1 through IC-TE-58 which are separated from the Train A penetration area by concrete walls and floors.

The separation between redundant temperature monitoring capabilities and their associated cables provide acceptable fire protection and provide protection equivalent to the technical requirements of Appendix R.

- y. Reactor Coolant Cold Leg Temperature Elements RC-TE-413B through RC-TE-443B and Terminal Boxes EDE-TBX-X14 through EDE-TBX-X69

Cables for redundant RC cold leg temperature elements are routed through enclosed trays and conduits from the penetration where they enter containment to the temperature elements. As only one cold leg temperature is required for safe shutdown any one of the TE's can satisfy the safe shutdown requirements except for the penetration area. At the Train B penetration area, all cold leg TE cables could fail. This function can also be performed by the steam generator pressure instruments because cold leg temperature approximates the saturation temperature corresponding to secondary pressure. These pressure transmitters FW-PT-514, FW-PT-525, FW-PT-534 and FW-PT-545 are located in Fire Zones MS-F-3A-Z and MS-F-1B-Z.

The provision of a capability to permit RC temperature monitoring outside the fire area satisfies the safe shutdown requirements.

C. Evaluation

Deviations from the Appendix R, Paragraph III.G.2 separation requirements exist in containment and have been described above and analyzed in detail. These deviations are justified based on the analyses and our assertion that additional modifications would not enhance fire protection safety which has been insured by the protective measures listed in the "General Area Analysis" and the "System Analysis".

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CAH-FN-1C		x			
CAH-FN-1E		x			
CAH-FN-1F		x			
CBA-DP-21A		x			
CBA-DP-24A		x			
CBA-DP-24B		x			
CBA-DP-24C		x			
CBA-DP-26A		x			
CBA-E-230A		x			
CBA-FN-14A		x			
CBA-FN-19		x			
CBA-FN-20		x			
CBA-FN-21A		x			
CBA-P-434A		x			
CBA-P-435A		x			
CBS-P-9A		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			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CC-P-11A		x			
CC-P-11C		x			
CC-P-322A		x			
CC-TE-2171		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-110A					x
CS-FCV-111A					x
CS-FCV-110B					x
CS-FCV-111B					x
CS-FCV-121		x			
CS-HCV-182		x			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CS-LCV-112B		x			
CS-LCV-112D		x			
CS-LT-102		x			
CS-P-2A		x	CS-P-2B	(1)	(1)
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-V196		x			
CS-V460		x			
DAH-DP-16A		x			
DAH-FN-25A		x			
DAH-FN-26A		x			

- (1) CS-P-2B and its cables are not actually located in this fire area. However, CS-P-2B is listed because it is potentially affected via a systems interaction. See Analysis Section B.13.

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
DG-CP-75A		x			
DG-CP-79	x	x			
DG-DG-1A		x			
DG-P-38A		x			
DG-C-2A		x			
EAH-FN-5A		x			
EAH-FN-31A		x			
EAH-FN-174A		x			
ED-X-14J		x			
ED-BC-2A		x			
ED-BC-2B		x			
ED-I-4		x			
ED-PP-122B	x	x			
ED-PP-3C	x	x			
ED-US-11	x	x			
ED-US-23	x	x			
EDE-B-1A		x			
EDE-B-1C		x			
EDE-BC-1A	x	x			
EDE-BC-1C	x	x			
EDE-CP-1E	x	x			
EDE-CP-227	x	x			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-MM-578	x	x			
EDE-MM-583	x	x			
EDE-MM-585	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			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-PP-112A	x	x			
EDE-PP-113A	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-P-113		x			
FW-P-161		x			
FW-V156		x			
FW-V163		x			
MS-PV-3001		x			
MS-PV-3002		x			
MS-PV-3003		x			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
MS-PV-3004		x			
MS-V86		x			
MS-V88		x			
MS-V90		x			
MS-V92		x			
MM-CP-1		x			
MM-CP-3		x			
MM-CP-7		x			
MM-CP-12		x			
MM-CP-108A	x	x			
MM-CP-152A		x			
MM-CP-153		x			
MM-CP-297A		x			
NI-NE-6690		x			
NI-NM-6690	x	x			
NI-MM-6690J	x	x			
PAH-DP-35A		x			
PAH-DP-36A		x			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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			
RH-FCV-618		x			
RH-HCV-606		x			
RH-P-8A		x			
RH-V14		x			
RH-V35		x			
RH-V70		x			
SA-SKD-137A		x			
SA-C-4A		x			
SI-FV-2482		x			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-V56		x			
SW-V74		x			

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Tabulation 3.2.7.2

Control Building – El. 21' -6"

Fire Area: CB-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SW-V139		x			
SWA-DP-66		x			
SWA-FN-71		x			
SWA-FN-40A		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 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.

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3. Component Cooling Water Containment Isolation Valves CC-V57, CC-V121, CC-V175, CC-V257 and Head Tank Level Transmitters CC-LT-2172-1, 2, 3, CC-LT-2272-1, 2, 3

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.

The safe shutdown requirements are satisfied.

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5. Charging Pump Flow Control Valve CS-FCV-121 and Flow Transmitter CS-FT-121

Under normal conditions, charging is accomplished by utilizing the control valve CS-FCV-121 and its associated transmitter. Spurious closure of this valve could isolate the seal injection path. In this event the operators will utilize the high head injection path for hot standby 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 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. This operator action can be delayed for up to four (4) hours.

The safe shutdown requirements are satisfied.

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

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 E512, which powers these valves, is fed from emergency bus E5.

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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.

The Appendix R separation requirements are satisfied.

8. 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.

9. Tower Actuation Logic EDE-CP-248

Failures in TA logic cables or equipment could initiate a spurious tower actuation signal which would transfer Train A 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.

10. 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 any 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 UAT and RAT breaker dc control power will be disabled at the disabling panel and the DG breaker control power will be disabled at the DG control panel both in the Train A diesel generator room (Fire Area DG-F-2A-A).

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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.

11. 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 E5. MCC E515, which powers these valves, is fed from emergency bus E5.

The safe shutdown requirements are satisfied.

12. 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 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).

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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. Volume Control Tank Isolation Valve CS-LCV-112B and Charging Pump CS-P-2A & CS-P-2B

Volume control tank (VCT) isolation valves CS-LCV-112B & -112C are normally open to provide a suction path from the VCT to the normally operating charging pump (CS-P-2A or -2B). These valves must stay open until RWST valve CS-LCV-112D or -112E is manually opened to provide a charging pump suction path from the RWST, or the boric acid tanks are manually aligned as a charging pump suction source. Spurious closure of a VCT isolation valve caused by a hot short would interrupt suction flow to the operating charging pump causing it to be damaged. If the standby charging pump has cables in the same area then its operation can also be degraded. The result would be no charging system flow. Since this fire area contains cables for CS-LCV-112B and CS-P-2A, this condition is potentially applicable for the system alignment with CS-P-2A the standby pump and CS-P-2B the operating pump.

The CS-LCV-112B circuit design prevents spurious valve closure from hot shorts in two ways. First, the field cable conductors for the motor control center (MCC) contactor close coil circuit are in different cables than the 120 V “hot” circuit conductors eliminating the hot short failure mode within the cables. Cable-to-cable hot shorts need not be postulated for thermoset cable insulation as used at Seabrook. Second, the close coil circuit internal wires, and field cable conductors after the cable jacket has been removed, are routed in sleeves or wraps internal to motor control center EDE-MCC-512 and remote safe shutdown panel MM-CP-108A, both of which are in this fire area, to provide a physical barrier to prevent hot shorts from the 120 V “hot” circuit internal wires and field cable conductors. Since CS-LCV-112B will not spuriously close, CS-P-2B as the operating charging pump will not be damaged.

Since charging flow is available, the safe shutdown requirements are satisfied.

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14. Not Used.

15. 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.

16. 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 their power supplies in the Train A diesel generator room (Fire Area: DG-F-2A-A).

The safe shutdown requirements are satisfied.

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

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling valve RC-V88 must be opened. This can be accomplished manually by entry into containment, if required. This manual operation can be delayed as much as 9 hours into the event.

The safe shutdown requirements are satisfied.

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18. 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.

19. Cooling Tower Fan SW-F-51A, Pump SW-P-110A, Valves SW-V54, 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.

20. 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, or mitigate the condition by tripping the heaters' circuit breaker, by tripping off-site power from the control room, or by reducing pressure by opening a PORV.

The safe shutdown requirements are satisfied.

21. 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.

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

Cables for dampers PAH-DP-35A and PAH-DP-36A are routed through this area. Under normal operation both dampers are open. If both dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in the recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. Independent operation of either damper (one open and one closed) could cause an air flow problem in EAH system. This assumes that both redundant dampers (PAH-DP-35B and PAH-DP-36B) are in their normal open position since they would not be affected by a fire in this area.

Both dampers are powered from a single Train A power supply. The circuit design is such that a spurious signal will cause both dampers to operate together either both open (normal mode) or both closed (recirculation mode).

The safe shutdown requirements are satisfied.

23. Control Room Air Conditioning

The non-safety related chilled water system, which is powered from a non-safety related power supply, is normally running and aligned to either the A Train or the B Train Control Building Air Conditioning System fan unit. During normal plant operation, with the non-safety subsystem aligned for Control Room cooling on the A Train fan unit, the control switch on the MCB for the safety related train will be aligned for AUTO operation. On a loss of offsite power, the non-safety chilled water subsystem will be shut down and an automatic start sequence will be initiated via the emergency diesel generator load sequencer to restart the AC unit and start the A Train safety chiller.

In the event the A Train of the CBA fails to start, operator actions, prompted by high Control Room temperature, are assumed to secure the failed chiller and associated equipment and start the B Train. All controls for the recovery are in the Control Room.

The safe shutdown requirements are satisfied.

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24. Boration/Dilution Flow Control Valves, CS-FCV-110A, -111A, -110B, -111B

This area contains cables for CS-FCV-110A, -111A, -110B, -111B. Spurious opening of these valves in conduction with spurious start of a boric acid transfer pump or reactor makeup water pump may divert boric acid from the reactor coolant system affecting cold shutdown reactivity control, or result in an unplanned dilution affecting hot standby and cold shutdown reactivity control. The operators isolate the diversion flow by closing CS-FCV-110B and -111B using the main control board control switches. The operators isolate the dilution flow by closing CS-LCV-112C using the main control board control switch.

The safe shutdown requirements are satisfied.

25. Charging Pump CS-P-2A and High Head Injection Valve SI-V-138

Either charging pump CS-P-2A or CS-P-2B is normally operating. High head injection valve SI-V-138 is normally closed. If SI-V-138 spuriously opens, CS-P-2A and CS-P-2B need to be stopped to isolate charging flow to prevent pressurizer overfill. If CS-P-2A can not be stopped from the main control room because its cables are routed through this fire area, then power will be removed from Emergency Bus E5 to stop the pump (see Item 10 analysis). A fire in this area does not affect the capability to trip CS-P-2B from the main control room.

C. Evaluation

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

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-64
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Tabulation 3.2.7.3

Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CAH-FN-1A		x
			CAH-FN-1B		x
			CAH-FN-1D		x
			CBA-DP-21B		x
			CBA-DP-26B		x
			CBA-E-230B		x
			CBA-FN-14B		x
			CBA-FN-21B		x
			CBA-FN-32		x
			CBA-FN-33		x
			CBA-P-434B		x
			CBA-P-435B		x
			CBS-P-9B		x
			CC-LT-2192-1		x
			CC-LT-2192-2		x
			CC-LT-2192-3		x
			CC-LT-2292-1		x

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-65
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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CC-LT-2292-2		x
			CC-LT-2292-3		x
			CC-P-11B		x
			CC-P-11D		x
			CC-P-322B		x
			CC-TE-2271		x
			CC-TV-2271-1		x
			CC-TV-2271-2		x
			CC-V122		x
			CC-V168		x
			CC-V176		x
			CC-V256		x
			CC-V272		x
			CC-V1092		x
			CC-V1095		x
			CP-CP-111		x
			CS-LCV-112C		x
			CS-LCV-112E		x

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-66
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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CS-P-2A	(1)	(1)	CS-P-2B		x
			CS-P-3B		x
			CS-V143		x
			CS-V168		x
			CS-V175		x
			CS-V176		x
			CS-V197		x
			CS-V426		x
			CS-V461		x
			CS-V475		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

- (1) CS-P-2A and its cables are not actually located in this fire area. However, CS-P-2A is listed because it is potentially affected via a systems interaction. See Analysis Section B.19.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-67
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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			DG-P-38B		x
			DG-C-2B		x
			EAH-FN-5B		x
			EAH-FN-31B		x
			EAH-FN-174B		x
			ED-X-16A		x
			EDE-B-1B		x
			EDE-B-1D		x
			EDE-BC-1B	x	x
			EDE-BC-1D	x	x
			EDE-CP-1F	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

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-68
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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-MCC-614		x
			EDE-MCC-611		x
			EDE-MCC-615	x	x
			EDE-MCC-621	x	x
			EDE-MCC-622	x	x
			EDE-MCC-631	x	x
			EDE-MM-580	x	x
			EDE-PP-1B	x	x
			EDE-PP-1D	x	x
			EDE-PP-1F	x	x
			EDE-PP-11F	x	x
			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

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-69
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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			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-V347		x
			IA-SKD-18B		x
			MM-CP-2		x
			MM-CP-4		x
			MM-CP-13		x
			MM-CP-108B	x	x
			MM-CP-152B		x
			MM-CP-486B		x

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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			MM-CP-297B		x
			MS-CP-183	x	x
			MS-CP-185	x	x
			MS-PV-3001		x
			MS-PV-3002		x
			MS-PV-3003		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
			PAH-DP-35B		x
			PAH-DP-36B		x
			PAH-DP-43B		x
			PAH-DP-358		x

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-71
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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			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-SKD-137B		x
			SA-C-4B		x
			SI-FV-2475		x
			SI-FV-2476		x

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Control Building – El. 21' -6"

Fire Area – CB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			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-V18		x
			SW-V19		x
			SW-V23		x
			SW-V25		x
			SW-V29		x
			SW-V31		x
			SWA-FN-40B		x

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-73
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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-V256 and Head Tank Level Transmitters CC-LT-2192-1, 2, 3, CC-LT-2292-1, 2, 3

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.

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4. RC Pump Seal Water Isolation Valve CS-V168

Valve CS-V168 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-V10, CS-V28, CS-V44 and CS-V59. The cables, controls and equipment required for the operation of CS-V10, CS-V28, CS-V44 and CS-V59 are not contained in this fire area.

The safe shutdown requirements are satisfied.

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

Cables for functionally redundant fail closed valves CS-V175 and CS-V176 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-V175 at the disabling panel in the Train B diesel generator room (Fire Area: DG-F-2B-A).

The safe shutdown requirements are satisfied.

6. Charging Pump Test Line Isolation Valve SI-V158

On spurious operation of the normally closed, fail closed valves SI-V158 (Train B), the operators will maintain the normally closed high head injection path valves SI-V138 and SI-V139 closed. Charging will be accomplished utilizing the seal injection flow path through valves CS-FCV-121, CS-V154, CS-V158, CS-V162 and CS-V166. The cables controls and equipment required for operation of these valves are not contained in the fire area.

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

7. 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 Zone: PAB-F-2B-Z). The operators can maintain the plant in hot standby for the time required to perform this manual action.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-75
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The safe shutdown requirements are satisfied.

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

Cables for valves CS-V461 and CS-V475 are located in proximity. Prior to beginning cooldown, the normally closed valve CS-V461 valve should remain closed or the functionally redundant valve CS-V475 should be closed. The isolation of this path will prevent the potential 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 4 hours.

Should this area be inaccessible due to the fire or should the operators desire to initiate the cooldown sooner than 4 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.

9. Tower Actuation Logic EDE-CP-249

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

The safe shutdown requirements are satisfied.

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10. 4160V Switchgear EDE-SWG-6

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 any fire in the Train B 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 UAT and RAT breaker dc control power will be disabled at the disabling panel and the DG breaker control power will be disabled at the DG control panel, both in the Train B diesel generator room (Fire Area: DG-F-2B-A).

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 E5 and Train A power will be supplied by the Train A diesel generator.

The safe shutdown requirements are satisfied.

11. Emergency Feedwater Pump Control Valves FW-FV-4214B, FW-FV-4224B, FW-FV-4234B and 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 removing power from the 4160V emergency bus E6. MCC E615, which powers these valves, is fed from emergency bus E6.

The safe shutdown requirements are satisfied.

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12. 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 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 B diesel generator room (Fire Area: DG-F-2B-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.

13. 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 spurious opening of this path by disabling the power supply to valve RC-FV-2881 at the disabling panel in the Train B diesel generator room (Fire Area: DG-F-2B-A).

The safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-78
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14. 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.

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

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling valve RC-V22 must be opened. This can be accomplished by entry into containment, if required. This manual operation can be delayed as much as 9 hours into the event.

The safe shutdown requirements are satisfied.

16. 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 E6.

The safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-79
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17. Containment Enclosure Isolation Damper, PAH-DP-35B, PAH-DP-36B

Cables for dampers PAH-DP-35B and PAH-DP-36B are routed through this area. Under normal operation both dampers are open. If both dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in the recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. Independent operation of either damper (one open and one closed) could cause an air flow problem in EAH system. This assumes that both redundant dampers (PAH-DP-35A and PAH-DP-36A) are in their normal open position since they would not be affected by a fire in this area.

Both dampers are powered from a single Train B power supply. The circuit design is such that a spurious signal will cause both dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

The safe shutdown requirements are satisfied.

18. Control Room Air Conditioning

The non-safety related chilled water system, which is powered from a non-safety related power supply, is normally running and aligned to either the A Train or the B Train Control Building Air Conditioning System fan unit. During normal plant operation, with the non-safety subsystem aligned for Control Room cooling on the B Train fan unit, the control switch on the MCB for the safety related train will be aligned for AUTO operation. On a loss of offsite power, the non-safety chilled water subsystem will be shut down and an automatic start sequence will be initiated via the emergency diesel generator load sequencer to restart the AC unit and start the B Train safety chiller.

In the event the B Train of the CBA fails to start, operator actions, prompted by high Control Room temperature, are assumed to secure the failed chiller and associated equipment and start the A Train. All controls for the recovery are in the Control Room.

The safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-80
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19. Volume Control Tank Isolation Valve CS-LCV-112C and Charging Pump CS-P-2A & CS-P-2B

Volume control tank (VCT) isolation valves CS-LCV-112B & -112C are normally open to provide a suction path from the VCT to the normally operating charging pump (CS-P-2A or -2B). These valves must stay open until RWST valve CS-LCV-112D or -112E is manually opened to provide a charging pump suction path from the RWST, or the boric acid tanks are manually aligned as a charging pump suction source. Spurious closure of a VCT isolation valve caused by a hot short would interrupt suction flow to the operating charging pump causing it to be damaged. If the standby charging pump has cables in the same area then its operation can also be degraded. The result would be no charging system flow. Since this fire area contains cables for CS-LCV-112C and CS-P-2B, this condition is applicable for the system alignment with CS-P-2B the standby pump and the CS-P-2A the operating pump.

The CS-LCV-112C circuit design prevents spurious valve closure from hot shorts in two ways. First, the field cable conductors for the motor control center (MCC) contactor close coil circuit are in different cables than the 120 V "hot" circuit conductors eliminating the hot short failure mode within the cables. Cable-to-cable hot shorts need not be postulated for thermoset cable insulation as used at Seabrook. Second, the close coil circuit internal wires, and field cable conductors after the cable jacket has been removed, are routed in sleeves or wraps internal to motor control center EDE-MCC-612 and remote safe shutdown panel MM-CP-108B, both of which are in this fire area, to provide a physical barrier to prevent hot shorts from the 120 V "hot" circuit internal wires and field cable conductors. Since CS-LCV-112C will not spuriously close, CS-P-2A as the operating charging pump will not be damaged.

Since charging flow is available, the safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-81
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20. Charging Pump CS-P-2B and High head Injection Valve SI-V-139

Either charging pump CS-P-2A or CS-P-2B is normally operating. High head injection valve SI-V-139 is normally closed. If SI-V-139 spuriously opens, CS-P-2A and CS-P-2B need to be stopped to isolate charging flow to prevent pressurizer overfill. If CS-P-2B can not be stopped from the main control room because its cables are routed through this fire area, then power will be removed from Emergency Bus E6 to stop the pump (see Item 10 analysis). A fire in this area does not affect the capability to trip CS-P-2A from the main control room.

C. Evaluation

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

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-82
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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

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-B-1A	x	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.

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.5

Control Building – El. 21' -6"

Fire Area – CB-F-1E-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-B-1C	x	x			

B. Analysis

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

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.6

Control Building – El. 21' -6"

Fire Area – CB-F-1F-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-B-1B	x	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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-85
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Tabulation 3.2.7.7

Control Building – El. 21' -6"

Fire Area – CB-F-1G-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-B-1D	x	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.

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Tabulation 3.2.7.8

Control Building – El. 50' -0"

Fire Area – CB-F-2A-A

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.9

Control Building – El. 50' -0"

Fire Area – CB-F-2B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-E-230A		x			
CBA-FN-14A		x			
CBA-FN-19	x	x			
CBA-FN-20	x	x			
CBA-FN-21A	x	x			
CBA-FN-211A		x			
CBA-PDS-21206 A1/A2		x			
CBA-TIC-5571	x				
DG-CP-79		x			
MM-CP-152A		x			
MM-CP-153		x			
MM-CP-297A		x			
RC-LCV-459		x			

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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.

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-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 PCC 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-LT-4252 and emergency feedwater flow transmitters FW-FT-4214-2 and FW-FT-4234-2. The Train B CST level transmitter FW-LT-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.

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5. Control Room Air Conditioning

The non-safety related chilled water system, which is powered from a non-safety related power supply, is normally running and aligned to either the A Train or the B Train Control Building Air Conditioning System fan unit. During normal plant operation, with the non-safety subsystem aligned for Control Room cooling on the A Train fan unit, the control switch on the MCB for the safety related train will be aligned for AUTO operation. On a loss of offsite power, the non-safety chilled water subsystem will be shut down and an automatic start sequence will be initiated via the emergency diesel generator load sequencer to restart the AC unit and start the A Train safety chiller.

In the event the A Train of the CBA fails to start, operator actions, prompted by high Control Room temperature, are assumed to secure the failed chiller and associated equipment and start the B Train. All controls for the recovery are in the Control Room.

The safe shutdown requirements are satisfied.

C. Evaluation

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

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Tabulation 3.2.7.10

Control Building – El. 50' -0"

Fire Area – CB-F-2C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CBA-DP-21B	x	x
			CBA-DP-24D	x	
			CBA-DP-24E	x	
			CBA-DP-24F	x	
			CBA-DP-26B		x
			CBA-E-230B		x
			CBA-FN-14B		x
			CBA-FN-21B	x	x
			CBA-FN-32	x	x
			CBA-FN-33	x	x
			CBA-FN-211B		x
			CBA-PDS-21206 B1/B2		x
			CBA-TIC-5572	x	
			DG-CP-76A		x
			DG-DG-1B		x
			DG-CP-80		x
			EDE-SWG-6		x
			MM-CP-13		x
			MM-CP-297B		x
			RC-FV-2881		x

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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.

2. Main Control Room Cooling Equipment CBA-E-230A, CBA-E-230B, CBA-DP-26A, CBA-DP-26B, CBA-FN-14A, CBA-FN-14B, CBA-FN-211A, CBA-FN-211B, CBA-PDS-21206A1/A2, CBA-PDS-21206B1/B2, CBA-TCV-21200A, CBA-TCV-21200B

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 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 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 only exception is at an interference with two HVAC duct hangers where the one-hour wrap is butted up to the hangers and pyrocrete is installed for heat transfer protection. The conduit and box are approximately 20 ft. above the floor. There are a total of eight 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.

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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, and automatic fire suppression system shall be installed", has been approved.

2a. Control Room Air Conditioning

The non-safety related chilled water system, which is powered from a non-safety related power supply, is normally running and aligned to either the A Train or the B Train Control Building Air Conditioning System fan unit. During normal plant operation, with the non-safety subsystem aligned for Control Room cooling on the B Train fan unit, the control switch on the MCB for the safety related train will be aligned for AUTO operation. On a loss of offsite power, the non-safety chilled water subsystem will be shut down and an automatic start sequence will be initiated via the emergency diesel generator load sequencer to restart the AC unit and start the B Train safety chiller.

In the event the B Train of the CBA fails to start, operator actions, prompted by high Control Room temperature, are assumed to secure the failed chiller and associated equipment and start the A Train. All controls for the recovery are in the Control Room.

The safe shutdown requirements are satisfied.

3. 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 at 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.

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4. 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-LT-4257 and emergency feedwater flow transmitters FW-FT-4224-2 and FW-FT-4244-2. The Train A CST level transmitter FW-LT-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.

5. 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 functionally redundant valve RC-V323 is normally closed and has no cables, controls, or equipment in this fire area so it cannot spuriously open.

The Appendix R separation requirements are satisfied.

C. Evaluation

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.

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Tabulation 3.2.7.11

Control Building – El. 75' -0"

Fire Area – CB-F-3A-A

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

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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

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CBA-CP-177	x	x	CBA-CP-178	x	x
CBA-DP-26A	x	x	CBA-DP-26B	x	x
CBA-E-230A		x	CBA-E-230B		x
CBA-FN-14A	x	x	CBA-FN-14B	x	x
CBA-FN-211A		x	CBA-FN-211B		x
CBA-DP-52	x	x			
CBA-PDS-21206 A1/A2		x	CBA-PDS-21206 B1/B2		x
CBA-PDSH-5305	x	x	CBA-TCV-21200B	x	x
CBA-PDSH-5306	x	x	CBA-TC-21200B		x
CBA-TCV-21200A	x	x			
CBA-TC-21200A		x			
DG-CP-79		x	DG-CP-80		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. The main control room may also become uninhabitable because of smoke from a fire in this area.

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.

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Tabulation 3.2.7.13

Control Building – El. 75' -0" Computer Room

Fire Area – CB-F-3C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.14

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Tabulation 3.2.7.15

Control Building – Stairwell

Fire Area – CB-F-S1-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.16

Control Building – Stairwell

Fire Area – CB-F-S2-0

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.17

Containment Enclosure Fan Area And Containment Annulus/
Mechanical Penetration Area

Fire Area - CE-F-1-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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-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
EDE-TBX-YC3	x	x	EDE-TBX-YB3	x	x
			PAH-DP-35B	x	x
			PAH-DP-36B	x	x
RC-FV-2894	x	x	RC-FV-2896	x	x
RC-V23		x	RC-V22		x

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Containment Enclosure Fan Area And Containment Annulus/
Mechanical Penetration Area

Fire Area - CE-F-1-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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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
CBS-V8	x	x	CBS-V14	x	x
SI-V138	x	x	SI-V139	x	x
SI-PT-937	x	x	SI-PT-936	x	x

B. Analysis

1. General Area Analysis

a. Mechanical Penetration Area (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.

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b. Containment Fan Enclosure Area and Containment Annulus (CE-F-I-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 and fiberglass ladders.

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 1050 lbs. of charcoal each are not required for safe shutdown nor are they within 30 ft. of the cooling units. The units have an early fire detection system internal to the units.

Detectors are provided throughout the area.

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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 requirements 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 rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

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c. Charging Line Isolation Valves CS-V142, 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 charging 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.

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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

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.

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

All Train B cables required for operation of the cooling unit EAH-AC-2B are routed in one-hour, fire-rated barriered conduits from the rated fire wall where they enter the fire area to the equipment.

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.

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- 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). These fans are required to maintain the equipment vaults habitable for entry if manual operations are required to place RHR into operation for cold shutdown. A fire in the containment enclosure fire zone CE-F-1-Z will not prevent operation from the MCR of any equipment necessary for RHR operation; hence, habitability of the equipment vaults is not required. Analysis and field testing has confirmed that the containment enclosure supply fan EAH-FN-5A or EAH-FN-5B is sufficient to maintain the equipment vaults below the equipment's qualified temperatures.

The safe shutdown requirements are satisfied.

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

Cables for dampers PAH-DP-35B and PAH-DP-36B are routed through this area. Under normal operation both dampers are open. If both dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in the recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. Independent operation of either damper (one open and one closed) could cause an air flow problem in EAH system. This assumes that both redundant dampers (PAH-DP-35A and PAH-DP-36A) are in their normal open position since they would not be affected by a fire in this area.

Both dampers are powered from a single Train B power supply. The circuit design is such that a spurious signal will cause both dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

The safe shutdown requirements are satisfied.

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- i. RHR Isolation Valves RC-V22, RC-V23, RC-V87, RC-V88 and Sample Valves RC-FV-2894, RC-FV-2896

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. H 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 the redundant valve by tripping the power supply breakers in either the Train A or 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 spuriously opens, the operators will prevent further spurious operation of the redundant valve by tripping the power supply breakers in either the Train A or Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

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l. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35, RH-V36, Containment Sump Isolation Valves CBS-V8, CBS-V14 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-2-A-Z).

Manual operation of the valves can be delayed as much as 9 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.

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 by use of manual reset 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.

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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", has been approved. These deviations are justified based on the analysis and our assertion that additional modifications would not enhance fire protection safety.

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Tabulation 3.2.7.18

Condensate Storage Tank

Fire Area – CST-F-1-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.19

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Tabulation 3.2.7.20

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Tabulation 3.2.7.21

Cooling Tower - El. 22'-0"

Fire Area – CT-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-MCC-641	x	x
			EDE-SWG-6		x
			SW-P-41B		x
			SW-P-41D		x
			SW-V25		x

B. Analysis

All equipment and cables are Train B. Thus Train B service water supplied either by the service water pumps or cooling tower pumps are not available due to a fire in this area. The redundant Train A equipment and cables are in Fire Area CT-F-1D-A, separated from this area by a 3-hour fire wall. Train A service water, normally supplied by Train A service water pump is available.

C. Evaluation

The Appendix R separation requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-114
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Tabulation 3.2.7.22

Cooling Tower - El. 22'-0"

Fire Area – CT-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-MCC-513	x	x			
SW-FN-51A		x			
SW-P-41A		x			
SW-P-41C		x			
SW-P-110A		x			
SW-V54		x			
SW-V56		x			
SW-V139		x			
SWA-DP-64B	x				
SWA-DP-66		x			
SWA-FN-64		x			
SWA-FN-71		x			
SWA-L-28	x				
SWA-TSH-5669	x	x			

B. Analysis

All equipment and cables are Train A. Thus Train A service water supplied either by the service water pumps or cooling tower pump are not available due to a fire in this area. The redundant Train B equipment and cables are in Fire Area CT-F-1C-A, separated from this area by a 3-hour fire wall. Train B service water, normally supplied by Train B service water pump is available.

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.23

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Tabulation 3.2.7.24

Cooling Tower - El. 46'-0"

Fire Area – CT-F-2B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SW-FN-51A		x			
SW-P-41A		x	SW-P-41B		x
SW-P-41C		x	SW-P-41D		x
SW-P-110A	x	x			
SW-V54	x	x	SW-V25	x	x
SW-V55	x				
SW-V56	x	x			
SW-V139		x			
SWA-DP-66	x	x			
SWA-FN-64	x	x			
SWA-FN-71	x	x			
SWA-TSH-5667	x	x			

B. Analysis

Redundant equipment and cables are located in the same fire area. The plant will normally be operating on service water pumps SW-P-41A, B, C, and D. These pumps are located in the service water pump house which is a separate area (Fire Area: SW-F-1E-Z).

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This area contains valves SW-V25 and SW-V54 which are normally closed. The spurious opening of SW-V25 would divert B Train service water flow to the cooling tower thus reducing cooling flow to the diesel generator and PCCW heat exchangers. Spurious opening of SW-V54 would result in the same condition for the A Train service water system. The operators will prevent further spurious operation of the redundant valve by tripping the power supply breakers for EDE-MCC-513 at the 480 Volt Unit Substation E51 (Fire Area: CB-F-1A-A) for SW-V54 and the EDE-US-64 supply breaker at 4160 Switchgear E6 (Fire Area: CB-F-1B-A) for valve SW-V25. Thus, one train of service water capability is assured.

Permissive logic for redundant SW pumps could prevent the redundant SW pumps from being started (Note: one pump of each Train is normally running). The operators will prevent spurious operation of the permissive logic 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).

This area contains cooling tower fan SW-F-51A, pump SW-P110A, valves SW-V54, SW-V55, SW-V56, SW-V139, fans SWA-FN-64, SWA-FN-71, damper SWA-DP-66 and switch SWA-TSH-5667. 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.

C. Evaluation

The safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-118
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Tabulation 3.2.7.25

Cooling Tower - Fans

Fire Area – CT-F-3-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SW-FN-51A	x	x			
SW-V139	x	x			

B. Analysis

All equipment and cables are Train A. However, the fire in this area does not affect the Train A or Train B service water pumps and associated equipment (located in Fire Area SW-F-1E-Z) which will normally be operating. Safe shutdown is not affected.

C. Evaluation

The Appendix R separation requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-119
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Tabulation 3.2.7.26

Duct Bank - ET To SW-0"

Fire Area – DCT-F-1A-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-CP-248		x			
EDE-MCC-514		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			
SWA-FN-40A		x			

B. Analysis

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

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.27

Duct Bank - ET To SW

Fire Area – DCT-F-1B-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-CP-249		x
			EDE-MCC-614		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-40B		x

B. Analysis

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

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.28

Duct Bank - PAB To CT

Fire Area – DCT-F-2A-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-MCC-513		x			
SW-FN-51A		x			
SW-P-41A		x			
SW-P-41C		x			
SW-P-110A		x			
SW-V54		x			
SW-V56		x			
SW-V139		x			
SWA-DP-66		x			
SWA-FN-64		x			
SWA-FN-71		x			

B. Analysis

All equipment and cables are Train A. The redundant Train B equipment and cables are in Fire Area DCT-F-2B-0 and other plant fire areas.

C. Evaluation

The Appendix R separation requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-122
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Tabulation 3.2.7.29

Duct Bank - PAB To CT

Fire Area – DCT-F-2B-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-SWG-6		x
			SW-P-41B		x
			SW-P-41D		x
			SW-V25		x

B. Analysis

All equipment and cables are Train B. The redundant Train A equipment and cables are in Fire Area DCT-F-2A-0.

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.30

Duct Bank - CB to PAB

Fire Area – DCT-F-3B-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CC-P-11B		x
			CC-P-11D		x
			CC-TE-2271		x
			CC-TV-2271-1		x
			CC-TV-2271-2		x
			CC-V122		x
			CC-V168		x
			CC-V1092		x
			CC-V1095		x
			CS-LCV-112C		x
			CS-LCV-112E		x
CS-P-2A	(1)	(1)	CS-P-2B		x
			CS-P-3B		x
			CS-V143		x
			CS-V197		x
			EAH-FN-5B		x
			EAH-FN-31B		x
			EDE-SWG-6		x
			PAH-DP-43B		x

- (1) CS-P-2A and its cables are not actually located in this fire area. However, CS-P-2A is listed because it is potentially affected via a systems interaction. See Analysis Section B.4.

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Duct Bank - CB to PAB

Fire Area – DCT-F-3B-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			PAH-DP-358		x
			PAH-FN-42B		x
			RC-V22		x
			RC-V87		x
			SI-V139		x
			SW-P-41B		x
			SW-P-41D		x
			SW-V5		x
			SW-V18		x
			SW-V19		x
			SW-V23		x
			SW-V25		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 cables. The redundant Train A safe shutdown cables are located in Fire Area PAB-F-1G-A.

The Appendix R separation requirements are satisfied.

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2. Component Cooling Water Pumps CC-P-11B, CC-P-11D and Component Cooling Water Containment Isolation Valves CC-V122, CC-V168

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 are 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 requirements are satisfied.

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

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.

4. Volume Control Tank Isolation Valve CS-LCV-112C and Charging Pump CS-P-2A & CS-P-2B

Volume control tank (VCT) isolation valves CS-LCV-112B & -112C are normally open to provide a suction path from the VCT to the normally operating charging pump (CS-P-2A or -2B). These valves must stay open until RWST valve CS-LCV-112D or -112E is manually opened to provide a charging pump suction path from the RWST, or the boric acid tanks are manually aligned as a charging pump suction source. Spurious closure of a VCT isolation valve caused by a hot short would interrupt suction flow to the operating charging pump causing it to be damaged. If the standby charging pump has cables in the same area then its operation can also be prevented. The result would be no charging system flow. Since this fire area contains cables for CS-LCV-112C and CS-P-2B, this condition is potentially applicable for the system alignment with CS-P-2B the standby pump and CS-P-2A the operating pump.

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The CS-LCV-112C circuit design prevents spurious valve closure from hot shorts as follows. The field cable conductors for the motor control center (MCC) contactor close coil circuit are in different cables than the 120 V "hot" circuit conductors eliminating the hot short failure mode within the cables. Cable-to-cable hot shorts need not be postulated for thermoset cable insulation as used at Seabrook. Since CS-LCV-112C will not spuriously close, CS-P-2A as the operating charging pump will not be damaged. Also, the CS-LCV-112C and CS-P-2B cables are routed in separate concrete encased conduits within the duct bank so that one fire can not damage both the valve and the standby pump cables.

Since charging flow is available, the safe shutdown requirements are satisfied.

C. Evaluation

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

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Tabulation 3.2.7.31

East MUA

Fire Area – DCT-F-4A-0

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-128
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Tabulation 3.2.7.32

East MUA

Fire Area – DCT-F-4B-0

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>				<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>		<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-129
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Tabulation 3.2.7.33

East MUA

Fire Area – DCT-F-5A-0

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-130
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Tabulation 3.2.7.34

East MUA

Fire Area – DCT-F-5B-0

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-131
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Tabulation 3.2.7.35

Duct Bank - SWPH To CW

Fire Area – DCT-F-6-0

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>				<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>		<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-132
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Tabulation 3.2.7.36

Duct Bank - TB To CST

Fire Area – DCT-F-7-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CO-LT-4096	x				

B. Analysis

Train A cable is located in this area. The redundant cable and equipment is located in fire area EFW-F-1-A.

C. Evaluation

The Appendix R separation requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-133
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Tabulation 3.2.7.37

Diesel Generator Building - El. (-) 16'-0"

Fire Area – DG-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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 requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-134
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Tabulation 3.2.7.38

Diesel Generator Building - El. (-) 16'-0"

Fire Area – DG-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			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 requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-135
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Tabulation 3.2.7.39

Diesel Generator Building - El. 21'-6"

Fire Area – DG-F-2A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CBA-E-230A		x			
CBA-P-434A		x			
CBA-P-435A		x			
DAH-DP-16A	x	x			
DAH-FN-25A		x			
DAH-FN-26A	x	x			
DAH-TSH-5529-1	x	x			
DAH-TSH-5529-2	x	x			
DG-C-2A	x	x			
DG-C-18A	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-SKD-17A	x	x			
DG-TBX-HF7	x	x			
DG-TK-45A	x				
DG-TK-45B	x				
ED-I-4		x			
EDE-MCC-511	x	x			
EDE-SWG-5		x			

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-136
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Diesel Generator Building - El. 21'-6"

Fire Area – DG-F-2A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
MM-CP-12		x			
MM-CP-297A		x			
MM-CP-450A	x	x			
MS-PV-3001		x			
MS-PV-3003		x			
RC-LCV-459		x			
RC-PCV-456A		x			
SW-V16		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. Valve RC-V88 is 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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-137
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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-LT-4252 and emergency feedwater flow transmitters FW-FT-4214-2 and, FW-FT-4234-2. The Train B CST level transmitter FW-LT-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.

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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-138
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6. Control Room Air Conditioning

The non-safety related chilled water system, which is powered from a non-safety related power supply, is normally running and aligned to either the A Train or the B Train Control Building Air Conditioning System fan unit. During normal plant operation, with the non-safety subsystem aligned for Control Room cooling on the A Train fan unit, the control switch on the MCB for the safety related train will be aligned for AUTO operation. On a loss of offsite power, the non-safety chilled water subsystem will be shut down and an automatic start sequence will be initiated via the emergency diesel generator load sequencer to restart the AC unit and start the A Train safety chiller.

In the event the A Train of the CBA fails to start, operator actions, prompted by high Control Room temperature, are assumed to secure the failed chiller and associated equipment and start the B Train. All controls for the recovery are in the Control Room.

The safe shutdown requirements are satisfied.

C. Evaluation

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

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-139
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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

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CBA-P-434B		x
			CBA-P-435B		x
			DAH-DP-16B	x	x
			DAH-FN-25B		x
			DAH-FN-26B	x	x
			DAH-TSH-5530-1	x	x
			DAH-TSH-5530-2	x	x
			DG-C-2B	x	x
			DG-C-18B	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
			DG-SKD-17B	x	x
			DG-TBX-HF8	x	x
			DG-TK-45C	x	
			DG-TK-45D	x	
			EDE-MCC-611	x	x
			EDE-SWG-6		x
			MM-CP-13		x
			MM-CP-450B	x	x

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-140
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Diesel Generator Building - El. 21'-6"

Fire Area – DG-F-2B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			MS-PV-3002		x
			MS-PV-3004		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. 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. Valve RC-V22 is 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.

The safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-141
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3. 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 functionally redundant valve RC-V323 is normally closed and has no cables, controls, or equipment in this fire area so it cannot spuriously open.

The Appendix R separation requirements are satisfied.

4. 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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-142
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5. Control Room Air Conditioning

The non-safety related chilled water system, which is powered from a non-safety related power supply, is normally running and aligned to either the A Train or the B Train Control Building Air Conditioning System fan unit. During normal plant operation, with the non-safety subsystem aligned for Control Room cooling on the B Train fan unit, the control switch on the MCB for the safety related train will be aligned for AUTO operation. On a loss of offsite power, the non-safety chilled water subsystem will be shut down and an automatic start sequence will be initiated via the emergency diesel generator load sequencer to restart the AC unit and start the B Train safety chiller.

In the event the B Train of the CBA fails to start, operator actions, prompted by high Control Room temperature, are assumed to secure the failed chiller and associated equipment and start the A Train. All controls for the recovery are in the Control Room.

The safe shutdown requirements are satisfied.

C. Evaluation

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

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-143
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Tabulation 3.2.7.41

Diesel Generator Building - El. 51'-6"

Fire Area – DG-F-3A-Z, DG-F-3B-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CBA-E-230A	x	x	CBA-E-230B	x	x
CBA-FN-211A	x	x	CBA-FN-211B	x	x
CBA-P-434A	x	x	CBA-P-434B	x	x
CBA-P-435A	x	x	CBA-P-435B	x	x
CBA-PDS-21202A	x	x	CBA-PDS-21202B	x	x
CBA-PDS-21206 A1/A2	x	x	CBA-PDS-21206 B1/B2	x	x
DAH-FN-25A	x	x	DAH-FN-25B	x	x
DAH-FISH-5529	x	x	DAH-FISH-5530	x	x
			DG-CP-76A		x
			DG-DG-1B		x
			EDE-SWG-6		x
			MM-CP-13		x
RC-LCV-459		x			
			RC-FV-2881		x

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-144
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B. Analysis

1. General Area Analysis

The diesel generator mechanical equipment room is a Class 1 area which for safe shutdown has a primary function of providing protection for the redundant air handling equipment for the diesel generator rooms. The area is approximately 86 ft long by 37 ft. wide by 26 ft. high with a floor area of 3200 sq. ft. and volume of 83,000 cu. ft.

The in situ combustibles consist of cables in trays, 7 gallons of oil in equipment, and fiberglass ladders.

There are a total of six cable trays which run horizontally and vertically through the area. When stacked the trays are run three high with the bottom tray being an enclosed instrumentation cable tray. There is approximately 375 ft. of uncovered cable tray containing a total of approximately 80 cables.

Detectors are provided throughout the area.

An analysis has shown that a worst case fire caused by burning 3.5 gallons of oil will not affect the operation of the Safe Shutdown equipment.

2. System/Equipment Analysis

- a. Main Control Room Cooling CBA-E-230A, CBA-E-230B, CBA-FN-211A, CBA-FN-211B, CBA-P-434A, CBA-P-435A, CBA-P-434B, CBA-P-435B, CBA-PDS-21202A, CBA-PDS-21202B, CBA-PDS-21206A1/A2, CBA-PDS-21206B1/B2

The redundant control room cooling equipment and cables are located in the same fire area. A fire in this area can cause total loss of this cooling capability. Should this occur, the operators will utilize the evaporator fans CBA-FN-14A, 14B to supply outside air into the control room. These fans and their cables are not in this fire area. An air inlet and exhaust path, utilizing these fans, can be established by opening certain doors in the control room complex which will allow air to enter into the fan intake plenum from the south stairwell and exhaust the control room via the double doors to the turbine building.

The safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-145
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b. Diesel Generator Room Cooling DAH-FN-25A, DAH-FN-25B,
DAH-FISH-5529, DAH-FISH-5530

The Safe Shutdown cables for the fans and flow switches are routed in barriered conduit from the floor where they enter the area to the equipment (a distance of approximately 20 feet or less). The one-hour, fire-rated barrier is reduced at two locations or stops approximately two feet from the equipment because of access or potential interference. The redundant fans and dampers are separated by approximately 28 feet with the only intervening combustible being approximately 44 cables in three vertical/horizontal Train B trays and approximately 33 cables in two horizontal Train A trays. The Train A and Train B trays are separated by 8 ft. The redundant flow switches and associated conduits are separated by 45 ft. with the above trays containing the only intervening combustibles.

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

Note: A deviation was requested and granted for not installing suppression in this location. Since that deviation was granted the following conservative changes have been made, the electrically operated supply dampers have been changed to back draft dampers and the supply fan flow switch interlock with the exhaust fan has been removed. Cables for the flow switch are still routed in barriered conduit because their failure could effect the control circuit for the supply fan. These changes do not adversely effect the basis of the deviation.

c. Diesel Generator Control DG-CP-76A, DG-DG-1B, EDE-SWG-6

The cables for control panels DG-CP-76A and DG-DG-1B are located in this area. Failure of these cables will render the Train B diesel inoperable from the main control room. The operators can re-establish Train B diesel operability by transferring control to the RSS panel located in the Train B diesel room (Fire Area: DG-F-2B-A). Operation of the diesel from the RSS panel will also allow re-establishing emergency power to EDE-SWG-6 by isolation of the faulted main control room cables.

The safe shutdown requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-146
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d. 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 at 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.

e. 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.

f. 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 functionally redundant valve RC-V323 is normally closed and has no cables, controls, or equipment in this fire area so it cannot spuriously open.

The 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", has been approved. 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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-147
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Tabulation 3.2.7.42

Diesel Generator Building - El. 51'-6"

Fire Area –DG-F-3C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-148
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Tabulation 3.2.7.43

Diesel Generator Building - El. 51'-6"

Fire Area –DG-F-3D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-149
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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

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-150
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Tabulation 3.2.7.45

Diesel Generator Building - El. 51'-6"

Fire Area –DG-F-3F-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			DG-F-36B	x	
			DG-MM-8B	x	

B. Analysis

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

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.46

Diesel Generator Building – Stairwell (N)

Fire Area –DG-F-S1-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.47

Diesel Generator Building – Stairwell (S)

Fire Area –DG-F-S2-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.48

Emergency Feedwater Pump Building

Fire Area – EFP-F-1-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EPA-TSH-5430	x	x	EPA-TSH-5431	x	x
EPA-FN-47A	x	x	EPA-FN-47B	x	x
EPA-DP-371	x	x	EPA-DP-372	x	x
EPA-DP-373	x	x	EPA-DP-374	x	x
MM-IR-49	x	x	MM-IR-50	x	x
FW-FT-4214-2	x	x	FW-FT-4224-2	x	x
FW-FT-4224-4	x	x	FW-FT-4214-4	x	x
FW-FT-4234-2	x	x	FW-FT-4244-2	x	x
FW-FT-4244-4	x	x	FW-FT-4234-4	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
			FW-P-37B	x	x
FW-LT-4252	x	x	FW-LT-4257	x	x
			FW-V347	x	x

B. Analysis

The emergency feedwater pump building is a Class 1 concrete structure which for Safe Shutdown has a primary function of providing protection for the motor driven feedwater pump and valves. The area is approximately 79 ft. long by 28 ft. wide by 18 ft. high with a floor area of 2400 sq. ft. and a volume of 43,000 cu. ft.

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The in situ combustibles consist of six gallons of oil in the turbine drive of emergency feedwater pump FW-P-37A and 27 pounds of plastic in a 10 ft. step and 24 ft. extension ladder. An analysis of the Design basis Fire for this combustible is contained in the "Fire Protection Program Evaluation and Comparison to Branch Technical Position APCS-9.5-1 Appendix A.

All cables are routed in conduit.

Detectors are provided throughout the area.

See Section 3.4 for a discussion of the operator response for a fire in this area.

The eight emergency feed pump control valves are separated such that valves FW-FV-4214A, B and FW-FV-4244A, B are separated by 60 feet from valves FW-FV-4224A, B and FW-FV-4234A, B. See Section 3.4 for more discussion of these valves.

The redundant fans and dampers are in separate steel enclosures located 11 ft. above the floor, and separated by 1'-6". The temperature switches are separated by over 20'.

The redundant CST Level transmitters FW-LT-4252 and FW-LT-4257 are separated by 16'.

The motor driven emergency feedwater pump and recirculation valve FW-V347 are located in this fire area.

For a fire in this area, the start-up feedwater pump FW-P-113 (SUFP) and start-up to EFW valves FW-V156 and FW-V163 will be utilized to satisfy the safe shutdown requirements. The SUFP low suction pressure trip must also be bypassed prior to commencing cooldown.

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During no-load and low load plant operations, the SUFP is aligned to non-emergency Bus 4 to provide its startup and shutdown functions. After the SUFP completes its startup function, its power supply will be transferred to emergency Bus E5 as plant power is increased. The SUFP will remain aligned to Bus E5 during 100% power operation. As power is decreased in preparation for a plant shutdown, the SUFP power supply will be transferred back to Bus 4. If the SUFP is required to perform its EFW contingency function in response to a fire that disables the Train B emergency feedwater pump, while aligned to Bus 4 coincident with a loss of offsite power, it will have to be manually transferred to Bus E5 and manually started. SUFP operation will be controlled by operating procedures including selection of the appropriate power supply and verification of adequate power supply capacity prior to starting the SUFP on the emergency diesel generator.

The main control room would not have to be evacuated for a fire in this area; hence, the operators would have the capability to control and monitor all the equipment which is powered from the electrical distribution emergency system and would be required for a safe shutdown.

Additional details on the alternative safe shutdown capability are contained in Section 3.4.

C. Evaluation

A deviation from the requirements of Appendix R, Paragraph III.G.3 requiring the installation of fixed suppression in an area for which alternative safe shutdown capability has been developed exists in the emergency feedwater pump building. This deviation is justified based on our assertion that additional modifications would not enhance plant safety which has been insured by the alternative shutdown capability discussed in Section 3.4 and Tabulation 3.4.3.

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Tabulation 3.2.7.49

Electrical Tunnel

Fire Area – ET-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CAH-FN-1C		x			
CAH-FN-1E		x			
CAH-FN-1F		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			
CC-P-322A		x			
CC-V57		x			
CC-V121		x			
EDE-MM-582	x	x			
ED-X-14J	x	x			
ED-PP-8J	x	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			

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Electrical Tunnel

Fire Area – ET-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
RC-E-10		x			
RC-PP-6A	x	x			
RC-PCV-456A		x			
RC-V122		x			
RC-V23		x			
RC-V88		x			
SI-V159		x			
SI-V3		x			
SI-V32		x			
SI-FV-2482		x			
SI-FV-2483		x			
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-V86		x			
MS-V88		x			
MS-V90		x			
MS-V92		x			

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Electrical Tunnel

Fire Area – ET-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
MS-PV-3002		x			
MS-PV-3003		x			
SB-V1		x			
SB-V3		x			
SB-V5		x			
SB-V7		x			
EAH-FN-174A		x			
EDE-CP-248		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			
SW-V22		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			

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Electrical Tunnel

Fire Area – ET-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
FW-PT-524		x			
FW-PT-526		x			
FW-PT-534		x			
FW-PT-536		x			
FW-LT-4252		x			
FW-FT-4214-2		x			
FW-FT-4224-4		x			
FW-FT-4234-2		x			
FW-FT-4244-4		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			

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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, and Head Tank Level Transmitters CC-LT-2172-1, 2, 3, CC-LT-2272-1, 2, 3

Cables associated with head tank level transmitters which affect 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 and will not prevent safe shutdown.

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.

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5. Charging Pump Test Line Isolation Valve SI-V159

On spurious operation of the normally closed, fail closed valve SI-V159 (Train A), the operators will maintain the normally closed high head injection path valves SI-V138 and SI-V139 closed. Charging will be accomplished utilizing the seal injection flow path through valves CS-FCV-121, CS-V154, CS-V158, CS-V162 and CS-V166. The cables, controls and equipment required for operation of these valves are not contained in the fire area.

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. For entry into RHR shutdown cooling, valve RC-V88 must be opened. These valves are not required until 9 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. 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.

9. Not used.

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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 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 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.

11. 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 Train A 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.

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

Redundant channels of main steam pressure cables are located in proximity. Spurious operation of the channels will initiate safety injection and containment isolation Phase A signals. The operators will have the capability to terminate SI after 1 minute by use of the manual reset block switch and terminate the containment isolation by use of the manual reset 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: CS-F-1A-A and CB-F-1B-A).

The safe shutdown requirements are satisfied.

13. 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.

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

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15. Condensate Storage Tank Level FW-LT-4252

All cables are Train A. The Train B level transmitter FW-LT-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.

16. 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 safety injection and containment isolation Phase A signals. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch and terminate the containment isolation by use of the manual reset 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).

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 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.

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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 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).

The safe shutdown requirements are required.

19. 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.

C. Evaluation

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

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Tabulation 3.2.7.50

Electrical Tunnel

Fire Area – ET-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CAH-FN-1C		x			
CAH-FN-1E		x			
CAH-FN-1F		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			
CC-P-322A		x			
CC-V57		x			
CC-V121		x			
ED-X-14J		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			
RC-E-10		x			

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Electrical Tunnel

Fire Area – ET-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
RC-PCV-456A		x			
RC-V122		x			
RC-V23		x			
RC-V88		x			
SI-V159		x			
SI-V3		x			
SI-V32		x			
SI-FV-2482		x			
SI-FV-2483		x			
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			
FW-V156		x			
MS-V86		x			
MS-V88		x			
MS-V90		x			
MS-V92		x			

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Electrical Tunnel

Fire Area – ET-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-CP-248		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			
SW-V22		x			
SW-PT-8272		x			
SW-PT-8273		x			
SW-PT-8274		x			
SWA-FN-40A		x			
FW-LT-501		x			

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Electrical Tunnel

Fire Area – ET-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-LT-4252		x			
FW-FT-4214-2		x			
FW-FT-4224-4		x			
FW-FT-4234-2		x			
FW-FT-4244-4		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			

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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 and Head Tank Level Transmitters CC-LT-2172-1, 2, 3, CC-LT-2272-1, 2, 3

Cables associated with head tank level transmitters which affect 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 to 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.

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5. Charging Pump Test Line Isolation Valve SI-V159

On spurious operation of the normally closed, fail closed valve SI-V159 (Train A), the operators will maintain the normally closed high head injection path valves SI-V138 and SI-V139 closed. Charging will then be accomplished utilizing the seal injection path through valves CS-FCV-121, CS-V154, CS-V158, CS-V162 and CS-V166. The cables, controls and equipment required for operation of these valves are not contained in the fire area.

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. For entry into RHR shutdown cooling, valve RC-V88 must be opened. These valves are not required until 9 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. Not used.

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. Not used.

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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 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 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.

12. 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 Train A 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.

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13. 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 cables are located in proximity. Spurious operation of the channels will initiate safety injection and containment isolation Phase A signals. The operators will have the capability to terminate SI after one (1) minute by use of the manual reset and block switch and terminate the containment isolation by use of the manual reset 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.

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 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.

15. 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.

16. Condensate Storage Tank Level FW-LT-4252

All cables are Train A. The Train B level transmitter FW-LT-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.

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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 safety injection and containment isolation Phase A signals. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch and terminate the containment isolation by use to the manual reset 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).

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.

19. 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.

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

RC-PCV-456A 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-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 their power supplies in the Train A switchgear room (Fire Area: CB-F-1A-A).

The safe shutdown requirements are satisfied.

C. EVALUATION

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

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Tabulation 3.2.7.51

Electrical Tunnel

Fire Area – ET-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CAH-FN-1A		x
			CAH-FN-1B		x
			CAH-FN-1D		x
			CC-LT-2192-1		x
			CC-LT-2192-2		x
			CC-LT-2192-3		x
			CC-LT-2292-1		x
			CC-LT-2292-2		x
			CC-LT-2292-3		x
			CC-P-322B		x
			CC-V122		x
			CC-V256		x
			EDE-MM-584	x	x
			ED-PP-8B		x
			ED-X-16A		x
			SA-C-4B		x
			CS-V168		x
			CS-V175		x
			CS-V176		x
			RC-FV-2881		x
			RC-V323		x
			RC-E-10		x

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Electrical Tunnel

Fire Area – ET-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			RC-PP-6B	x	x
			RC-PCV-456B		x
			RC-V124		x
RC-V23		x	RC-V22		x
RC-V88		x	RC-V87		x
			SI-V158		x
			SI-V17		x
			SI-V47		x
			SI-FV-2475		x
			SI-FV-2476		x
			SI-FV-2477		x
			SI-FV-2486		x
			RH-V36		x
			FW-FV-4214B		x
			FW-FV-4224B		x
			FW-FV-4234B		x
			FW-FV-4244B		x
			FW-P-37B		x
			FW-V347		x
			MS-V88		x
			MS-V90		x
			MS-PV-3002		x
			MS-PV-3003		x
			EAH-FN-174B		x

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Electrical Tunnel

Fire Area – ET-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-CP-249		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-V29		x
			SW-V31		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
			FW-LT-4257		x
			FW-FT-4214-4		x
			FW-FT-4224-2		x
			FW-FT-4234-4		x
			FW-FT-4244-2		x

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Electrical Tunnel

Fire Area – ET-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			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
			MM-CP-486B		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.

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2. Component Cooling Water Isolation Valves CC-V176, CC-V256 and Head Tank Level Transmitters CC-LT-2192-1, 2, 3, CC-LT-2292-1, 2, 3

Cables associated with head tank level transmitters which affect the Loop A outboard isolation valves CC-V122 and CC-V168 are routed in the same trays as the Loop B inboard isolation valves CC-V176 and CC-V256. Failures in these cables could cause total

loss of PCCW to containment by initiation of a spurious lo-lo head tank level signal. Loop A PCCW can be re-established by transferring control of valves CC-V122 and CC-V168 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-V168

Valve CS-V168 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-V10, CS-V28, CS-V44 and CS-V59. The cables, controls and equipment required for the operation of CS-V10, CS-V28, CS-V44 and CS-V59 are not contained in this fire area.

The safe shutdown requirements are satisfied.

4. Letdown Isolation Valves CS-V175, CS-V176

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).

The safe shutdown requirements are satisfied.

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5. Charging Pump Test Line Isolation Valve SI-V158

On spurious operation of the normally closed, fail closed valve SI-V158 (Train B), the operators will maintain the normally closed high head injection path valves SI-V138 and SI-V139 closed. Charging will be accomplished utilizing the seal injection path through valves CS-FCV-121, CS-V154, CS-V158, CS-V162 and CS-V166.

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

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-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).

The safe shutdown requirements are satisfied.

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

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling, valves RC-V22 and RC-V23 must be opened. This can be accomplished manually by entry into containment, if required. This manual operation can be delayed as much as 9 hours into the event.

The safe shutdown requirements are satisfied.

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.

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

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 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.

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.

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

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 the one channel is not sufficient to initiate the logic. Hence, a failure in this cable will not prevent safe shutdown.

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 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.

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.

15. Condensate Storage Tank Level FW-LT-4257

All cables are Train B. The Train A level transmitter FW-LT-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.

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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 safety injection and containment isolation Phase A signals. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch and terminate the containment isolation by use of the manual reset 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).

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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-185
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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 their power supplies in Train B switchgear room (Fire Area: CB-F-1A-A).

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 safety injection, containment spray and containment isolation Phase A and Phase B. The operators will have the capability to terminate the SI after 1 minute by use of manual reset and block switches and terminate the containment spray and containment isolation by use of manual reset 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).

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 requirements and Appendix R separation requirements are satisfied.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-186
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Tabulation 3.2.7.52

Electrical Tunnel

Fire Area – ET-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CAH-FN-1A		x
			CAH-FN-1B		x
			CAH-FN-1D		x
			CC-LT-2192-1		x
			CC-LT-2192-2		x
			CC-LT-2192-3		x
			CC-LT-2292-1		x
			CC-LT-2292-2		x
			CC-LT-2292-3		x
			CC-P-322B		x
			CC-V176		x
			CC-V256		x
			ED-X-16A		x
			SA-C-4B		x
			CS-V168		x
			CS-V175		x
			CS-V176		x
			PAH-DP-35B		x
			PAH-DP-36B		x
			RC-FV-2881		x
			RC-V323		x
			RC-E-10		x

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Electrical Tunnel

Fire Area – ET-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			RC-PCV-456B		x
			RC-V124		x
			RC-V22		x
			RC-V87		x
			SI-V158		x
			SI-V17		x
			SI-V47		x
			SI-FV-2475		x
			SI-FV-2476		x
			SI-FV-2477		x
			SI-FV-2486		x
			RH-V36		x
			FW-FV-4214B		x
			FW-FV-4224B		x
			FW-FV-4234B		x
			FW-FV-4244B		x
			FW-P-37B		x
			FW-V-347		x
			MS-V86		x
			MS-V88		x
			MS-V90		x
			MS-V92		x
			MS-PV-3001		x
			MS-PV-3002		x

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Electrical Tunnel

Fire Area – ET-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			MS-PV-3003		x
			MS-PV-3004		x
			SB-V9		x
			SB-V10		x
			SB-V11		x
			SB-V12		x
			EAH-FN-174B		x
			EDE-CP-249		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-V29		x
			SW-V31		x
			SW-PT-8282		x
			SW-PT-8283		x
			SW-PT-8284		x
			SWA-FN-40B		x
			CS-LT-106		x
			FW-LT-502		x
			FW-LT-504		x
			FW-LT-519		x

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Electrical Tunnel

Fire Area – ET-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			FW-LT-537		x
			FW-PT-515		x
			FW-PT-516		x
			FW-PT-525		x
			FW-PT-535		x
			FW-PT-545		x
			FW-PT-546		x
			FW-LT-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
			MM-CP-486B		x
			RC-TE-413B		x
			RC-TE-423B		x
			RC-TE-433B		x
			RC-TE-443B		x
			SI-PT-934		x

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Electrical Tunnel

Fire Area – ET-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			SI-PT-936		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-V176, CC-V256 and Head Tank level Transmitters CC-LT-2192-1, 2, 3 and CC-LT-2292-1, 2, 3

Cables associated with head tank level transmitters which affect the Loop A outboard isolation valves CC-V122 and CC-V168 are routed in the same trays as the Loop B inboard isolation valves CC-V176 and CC-V256. Failures in these cables could cause total loss of PCCW to containment by initiation of a spurious lo-lo head tank level signal. Loop A PCCW can be re-established by transferring control of valves CC-V122 and CC-V168 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.

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3. RC Pump Seal Water Isolation Valve CS-V168

Valve CS-V168 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-V10, CS-V28, CS-V44 and CS-V59 and the excess letdown line by means of either normally closed, fail closed valves CS-V175 or CS-V176. The cables, controls and equipment required for the operation of CS-V10, CS-V28, CS-V44 and CS-V59 are not contained in this fire area. The cables for valves CS-V175 and CS-V176 are routed in the same trays as the cables for CS-V168. To prevent the spurious closure of CS-V168 or the spurious opening of CS-V175 or CS-V176, 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.

4. Letdown Isolation Valves CS-V175, CS-V176

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).

The safe shutdown requirements are satisfied.

5. Charging Pump Test Line Isolation Valve SI-V158

On spurious operation of the normally closed, fail closed valve SI-V158 (Train B), the operators will maintain the normally closed high head injection path valves SI-V138 and SI-V139 closed. Charging will be accomplished utilizing the seal injection path through valves CS-FCV-121, CS-V154, CS-V158, CS-V162 and CS-V166. The cables, controls and equipment required for operation of these valves are not contained in the fire area.

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

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6. 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).

The safe shutdown requirements are satisfied.

7. RHR Isolation Valves RC-V-22, RC-V87

RHR isolation valves are permanently disabled in the closed position. For entry into RHR shutdown cooling, valve RC-V22 must be opened. This can be accomplished manually by entry into containment, if required. This manual operation can be delayed as much as 9 hours into the event.

The safe shutdown requirements are satisfied.

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-V86, MS-V88, MS-V90, MS-V92

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.

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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 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 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.

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.

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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 cables are located in proximity. Spurious operation of the channels will initiate safety injection and containment isolation Phase A signals. The operators will have the capability to terminate SI after 1 minute by use of the manual reset and block switch and terminate the containment isolation by use of the manual reset 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).

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.

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15. Condensate Storage Tank Level FW-LT-4257

All cables are Train B. The Train A level transmitter FW-LT-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. 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-PT-534, 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.

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18. Containment Pressure Transmitters SI-PT-934, SI-PT-936

Redundant channels of containment pressure instruments and cables are located in proximity. Spurious operation of these channels will initiate safety injection, containment spray and containment isolation Phase A and Phase B. The operators will have the capability to terminate the SI after 1 minute by use of manual reset and block switches and terminate the containment spray and containment isolation by use of manual reset 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.

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 requirements are satisfied.

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

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-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 their power supply in the Train B switchgear room (Fire Area: CB-F-1B-A).

The safe shutdown requirements are satisfied.

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

Cables for dampers PAH-DP-35B and PAH-DP-36B are routed through this area. Under normal operation both dampers are open. If both dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in the recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. Independent operation of either damper (one open and one closed) could cause an air flow problem in EAH system. This assumes that redundant dampers (PAH-DP-35A and PAH-DP-36A) are in their normal open position since they would not be affected by a fire in this area.

Both dampers are powered from a single Train B power supply. The circuit design is such that a spurious signal will cause both dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

The safe shutdown requirements are satisfied.

C. Evaluation

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

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Tabulation 3.2.7.53

Electrical Tunnel- Stairwell

Fire Area – ET-F-S1-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.54

Fire Pump House

Fire Area – FPH-F-1A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-200
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Tabulation 3.2.7.55

Fire Pump House

Fire Area – FPH-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-201
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Tabulation 3.2.7.56

Fire Pump House

Fire Area – FPH-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-202
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Tabulation 3.2.7.57

Fuel Storage Building

Fire Area – FSB-F-I-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-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-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			

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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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-CP-248		x			
SW-P-41A		x			
SW-P-41C		x			
SW-V2		x			
SW-V22		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 and fiberglass ladders. 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.

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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 MS-F-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 safety injection and containment isolation Phase A signals. The operators will have the capability to terminate SI after one (1) minute by use of the manual reset and block switch and terminate the containment isolation by use of the manual reset 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).

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Additionally main steam line pressure transmitters FW-PT-525 and FW-PT-534 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 transmitters FW-PT-514 and FW-PT-545 which are functionally redundant and are located in the west main steam and feedwater pipe chase. (Fire Area: MS-F-1B-Z). These pressure transmitters and their associated atmospheric relief valves MS-PV-3001 and MS-PV-3004 will perform their safe shutdown function.

The Appendix R separation requirements are satisfied.

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

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.

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- e. Main Steam Isolation Valves (MSIV) MS-V88 and MS-V90 and Logic Cabinet MS-CP-182, MS-CP-184.

The valves MS-V88 and MS-V90 have no redundant counterpart, but they are supplied with redundant control capabilities. The Train A cables are routed in tray and conduit to the MSIV's and their respective Train A logic cabinets. The Train B cables are routed in conduit on the opposite side of the MS & FW pipe chase. There is a minimum horizontal separation of 10' up to the point that the conduits must run to the valves. The Train B conduits are routed approximately 15' above the floor. The MSIV'S, 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 west main steam and feedwater pipe chase (Fire Area: MS-F-1B-Z, MS-F-2B-Z) will be available for safe shutdown.

The safe shutdown requirements are satisfied.

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

Valves MS-V86 and MS-V92 receive logic signals from both the Train A and the Train B MSIV logic cabinets. The cables and equipment in this Fire Area are associated with the Train A logic. The Train B logic cables and equipment are not routed through this fire area; hence, they will perform their safety function (MSIV trip).

The Appendix R separation requirements are satisfied.

- g. Not used.

- h. Service Water Pumps SW-P-41A and SW-P-41C

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.

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i. Service Water Valves SW-V2 and SW-V22

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.

j. Tower Activation Logic Pressure Transmitters SW-PT-8272, SW-PT-8273, SW-PT-8274 and Tower Actuation Panel EDE-CP-248

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.

k. Service Water Air Handling Fan SWA-FN-40A

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. Evaluation

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

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Tabulation 3.2.7.59

West Main Steam and Feedwater Pipe Chase

Fire Area – MS-F-1B-Z, MS-F-2B-Z, MS-F-3B-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
FW-PT-514	x	x	FW-PT-545	x	x
FW-PT-544	x	x	FW-PT-515	x	x
FW-V156	x	x	FW-PT-516	x	x
			FW-PT-546	x	x
MM-IR-52A	x	x	MM-IR-52B	x	x
MS-PY-3001-1, 2	x	x			
MS-PY-3001-3, 4	x	x	MS-PY-3001-5, 6	x	x
MS-PV-3001	x	x	MS-PV-3001	x	x
			MS-PY-3004-1, 2	x	x
MS-PY-3004-5, 6	x	x	MS-PY-3004-3, 4	x	x
MS-PV-3004	x	x	MS-PV-3004	x	x
MS-V86	x	x	MS-V86	x	x
MS-V92	x	x	MS-V92	x	x
			SB-V9	x	x
			SB-V10	x	x
			SB-V11	x	x
			SB-V12	x	x

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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 only in situ combustibles contained in the area consist of one gallon of oil in the steam recirculation pump for a fire loading of 150,000 Btu's and fiberglass ladders for a fire loading of 1,586,000 Btu's. There are 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 safety injection and containment isolation Phase A signals. The operators will have the capability to 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 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).

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 transmitters 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-F-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.

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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 Areas: MS-F-1A-Z, MS-F-2A-Z).

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.

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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 Areas: MS-F-1A-Z and MS-F-2A-Z) will be available for safe shutdown.

The safe shutdown requirements are satisfied.

d. Not used.

C. Evaluation

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

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-213
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Tabulation 3.2.7.60

East Air Make-Up Pit

Fire Area – MUA-F-1-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-214
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Tabulation 3.2.7.61

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Tabulation 3.2.7.62

Non-Essential Switchgear Room

Fire Area – NES-F-1A-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
ED-CP-532	x	x			
ED-I-4	x	x			
ED-PP-5	x	x			
ED-PP-121B	x	x			
ED-PP-122A		x			
ED-SWG-1	x	x			
ED-SWG-2	x	x			
ED-US-11		x			
ED-US-23		x			
EDE-SWG-5		x			
FW-P-113		x			
FW-P-161		x			
MM-CP-153		x			
RC-P-1A		x			
RC-P-1B		x			
RC-P-1C		x			
RC-P-1D		x			

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B. Analysis

Loss of ED-I-4, ED-PP-5, ED-CP-532, MM-CP-153 will cause loss of CST level instrumentation CO-LT-4096. Redundant equipment is located in fire area EFP-F-1-A.

RC pump switchgear control power (ED-SWG-1 and ED-SWG-2) 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.

Pressurizer heaters C, D and control group control power (ED-US-11 and ED-US-23) 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). Alternatively, the operator can reduce pressure by opening a PORV. Redundant heaters are available with control power from the emergency DC bus.

Cables from EDE-SWG-5 are located in this fire area. Loss of 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.

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Tabulation 3.2.7.63

Primary Auxiliary Building

Fire Area – PAB-F-1A-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CC-P-11B		x
			CC-P-11D		x
			CC-TE-2271		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-V143		x
CS-V196		x	CS-V197		x
			EAH-FN-5B		x
			EAH-FN-31B		x

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Primary Auxiliary Building

Fire Area – PAB-F-1A-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			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
SW-FN-51A		x			
SW-P-41A		x	SW-P-41B		x
SW-P-41C		x	SW-P-41D		x
SW-P-110A		x			
			SW-V5		x
			SW-V18		x
			SW-V19		x
			SW-V23		x
SW-V54		x	SW-V25		x
SW-V56		x			
SW-V139		x			
SWA-DP-66		x			
SWA-FN-64		x			
SWA-FN-71		x			

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B. Analysis

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

C. Evaluation

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

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Tabulation 3.2.7.64

Primary Auxiliary Building

Fire Area – PAB-F-1B-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.65

Primary Auxiliary Building

Fire Area – PAB-F-1F-Z

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-222
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Tabulation 3.2.7.66

Primary Auxiliary Building

Fire Area – PAB-F-IJ-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-V23		x			
RC-V88		x			
SI-PT-937		x	SI-PT-936		x
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.

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Tabulation 3.2.7.67

Primary Auxiliary Building

Fire Area – PAB-F-IK-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CS-LCV-112B		x	CS-LCV-112C		x
CS-LCV-112D		x	CS-LCV-112E		x
PAH-DP-43A	x	x	PAH-DP-43B	x	x
PAH-DP-357		x	PAH-DP-358		x
PAH-FN-42A		x	PAH-FN-42B		x
SW-V4	x	x	SW-V5	x	x
SW-V74	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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-224
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Tabulation 3.2.7.68

Primary Auxiliary Building

Fire Area – PAB-F-2A-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CS-FCV-110A		x			
CS-FCV-111A		x			
CS-FCV-110B		x			
CS-FCV-111B		x			
CS-LT-102		x	CS-LT-106		x
CS-P-3A		x			
			CS-V426		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-V54		x			
SW-V56		x			
SW-V139		x			
SWA-DP-66		x			

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Primary Auxiliary Building

Fire Area – PAB-F-2A-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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.

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Tabulation 3.2.7.69

Primary Auxiliary Building

Fire Area – PAB-F-2B-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CS-FCV-110A	x	x			
CS-FCV-111A	x	x			
CS-FCV-110B	x	x			
CS-FCV-111B	x	x			
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-V1207	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.

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Tabulation 3.2.7.70

Primary Auxiliary Building

Fire Area – PAB-F-2C-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-TE-2197	x	x	CC-TE-2297	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-110A		x			
CS-FCV-111A		x			
CS-FCV-110B		x			
CS-FCV-111B		x			
CS-FCV-121		x			
CS-HCV-182		x			

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Primary Auxiliary Building

Fire Area – PAB-F-2C-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-FN-5A		x	EAH-FN-5B		x
EAH-FN-31A		x	EAH-FN-31B		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
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-V16		x	SW-V18		x

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Primary Auxiliary Building

Fire Area – PAB-F-2C-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SW-V20	x	x	SW-V19	x	x
SW-V34	x	x	SW-V23	x	x
SW-V54		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.

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Tabulation 3.2.7.71

Primary Auxiliary Building

Fire Area – PAB-F-3A-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-FCV-110A		x			
CS-FCV-111A		x			
CS-FCV-110B		x			
CS-FCV-111B		x			
CS-LCV-112B		x			
DG-E-42A	x		DG-E-42B	x	
SW-V4		x	SW-V5		x
SW-V15	x	x	SW-V17	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.

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Tabulation 3.2.7.72

Primary Auxiliary Building

Fire Area – PAB-F-3B-Z

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-FCV-110A		x			
CS-FCV-111A		x			
CS-FCV-110B		x			
CS-FCV-111B		x			
CS-LCV-112B	x	x	CS-LCV-112C	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.

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Tabulation 3.2.7.73

Primary Auxiliary Building

Fire Area – PAB-F-4-Z

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

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PAB Zone

Primary Auxiliary Building

Zone Analysis And Evaluation

B. Analysis

1. General Area Analysis

- a. The PAB is a Class 1 concrete structure which contains the above listed equipment and cable required for safe shutdown. The PAB has been divided into several zones for fire protection analysis, with intervening walls, floors and ceilings of poured concrete.
- b. The significant in situ combustibles consist of 0.2 gallon of oil in each of the two boron injection pumps; 1.0 gallon of oil in the monorail crane hoists; 1.0 gallon of oil in each of the two chiller pumps; 0.25 gallon of oil in each of the two reactor makeup water pumps; 1.0 pound of grease in each of the two boric acid transfer pumps; 1.0 gallon of oil in each of the four primary component cooling pumps; 0.5 gallon of oil in each of the two flash tank distillate pumps; 32,500 lbs. of charcoal within filters PAH-F-16 and CAP-F-40 and 19,000 pounds of insulation for cables in trays. The analysis of the in situ fire load provided by the cable in trays is contained in the "Zone Analyses". An analysis of the Design Basis Fires for the remaining combustibles is contained in the "Fire Protection Program Evaluation of Comparison to Branch Technical Position APCSB 9.5-1, Appendix A" and is summarized as follows:

1) Elevation 7'-0" and Below

a) Fire Zone PAB-F-1A-Z

Total fire loading for 6.0 gallons of oil is 900,000 Btu (chiller pumps CS-P-7A, and CS-P-7B and reactor makeup water pumps RMW-P-16A and RMW-P-16B), and the fire loading for fiberglass ladders is (28 pounds plastic) 364,000 Btu.

b) Fire Zone PAB-F-1J-Z

Limited in situ combustibles in pumps.

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c) Fire Zone PAB-F-1K-Z

No combustibles

2) Elevation 25'-0"

a) Fire Zone PAB-F-2A-Z

Total fire load for fiberglass ladders is (71 pounds plastic) 923,000 Btu.

b) Fire Zone PAB-F-2B-Z

Total fire loading for 2.0 pounds of grease is 36,000 Btu (boric acid transfer pumps CS-P-3A and CS-P-3B).

c) Fire Zone PAB-F-2C-Z

Total fire loading for 5.25 gallons of oil is 787,500 Btu (PCCW pumps CC-P-11A, 11B, 11C and 11D; 3½ ton monorail crane hoist CS-CR-13; 4½ ton monorail crane hoist CS-CR-5; boron injection pumps SI-P-4A and SI-P-4B).

3) Elevation 53'-0"

a) Fire Zone PAB-F-3A-Z

Total fire loading for 1.0 gallon of oil is 150,000 Btu (flash tank distillate pumps SB-P-171A and SB-P-171B).

b) Fire Zone PAB-F-3B-Z

Total fire loading for 0.5 gallon of oil is 75,000 Btu (4½ ton monorail crane hoist CS-CR-6) and for 50 pounds of Class A material is 400,000 Btu and for fiberglass ladders is (71 pounds plastic) 923,000 Btu. See "Fire Protection Program Evaluation and Comparison to Branch Technical Position APCS 9.5-1 Appendix A" for analysis of 6600 lbs. of charcoal in CAP-F-40.

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- c. The Train A safe shutdown cables are routed in trays. The Train B safe shutdown cables are routed in conduits with a one-hour, fire-rated barrier from the fire area boundary where they enter the PAB to the fire area boundary where they exit or the equipment at which they terminate, except as discussed in the zone analyses.
- d. Detectors are provided in all zones of the PAB with the exception of Fire Zones PAB-F-1B-Z, PAB-F-1F-Z and PAB-F-1K-Z.
- e. Suppression is provided in Fire Zone PAB-F-2C-Z. Details are provided in the zone analysis.
- f. Early fire detection by use of carbon monoxide detectors within the charcoal filter CAP-F-40 is provided.
- g. Volume control tank (VCT) isolation valves CS-LCV-112B & -112C are normally open to provide a suction path from the VCT to the normally operating charging pump (CS-P-2A or -2B). These valves must stay open until RWST valve CS-LCV-112D or -112E is manually opened to provide a charging pump suction path from the RWST, or the boric acid tanks are manually aligned as a charging pump suction source. Spurious closure of a VCT isolation valve caused by a hot short would interrupt suction flow to the operating charging pump causing it to be damaged. If the standby charging pump has cables in the same area then its operation can also be degraded. The result would be no charging system flow.

The following PAB fire zones have been combined into one fire area for analysis purposes:

PAB-F-1A-Z, PAS-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.

Since this combined fire area contains cables for CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B, this condition is potentially applicable for the system alignment with either combination of CS-P-2A and CS-P-2B as the standby pump and operating pump.

The CS-LCV-112B and CS-LCV-112C circuit design prevents spurious valve closure from hot shorts as follows. The field cable conductors for the motor control center (MCC) contactor close coil circuit are in different cables than the 120 V "hot" circuit conductors eliminating the hot short failure mode within the cables. Cable-to-cable hot shorts need not be postulated for thermoset cable insulation as used at Seabrook. Also, the

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barriered conduit for CS-LCV-112C prevents Train B cable damage. Since CS-LCV-112B and CS-LCV-112C will not spuriously close, CS-P-2A or -2B as the operating charging pump will not be damaged.

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. All Train B Safe Shutdown cables are routed in conduit with a one-hour, fire-rated barrier. Combustibles are limited to 6.0 gallons of oil for a fire loading of 900,000 Btu and 28 pounds of plastic (fiberglass ladders) for a fire loading of 364,000 Btu with a total fire loading of 248 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 CC-P-11D; and valves CC-TV-2271-1, CC-TV-2272-2, CC-V122, CC-V168, CC-V1092 and CC-V1095. 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.

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See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

Cables for the Train A Valve CS-FCV-121 and transmitter CS-FT-121 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.

c) Containment Enclosure Air Handling (EAH) System

This zone contains cables routed in barriered conduits for 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 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.

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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 equipment 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-V18, SW-V19, SW-V23 and SW-V25. The only exception is at an interference with an HVAC duct support where the one-hour wrap is reduced and pyrocrete is installed for heat transfer protection. Cables for Train A pumps SW-P-41A and SW-P-41C and valve SW-54, 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 between the Train B barriered conduit and the Train A tray. For the other Train A cables routed in this zone, the redundant cables and equipment are contained in other fire areas.

i) Service Water Air Handling (SWA) System

All cables are Train A, the redundant cables are located in other fire areas.

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3) Summary

For CC, EAH, and PAH systems above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the absence of Train A equipment and cables; 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 for Appendix R, Paragraph III G.2c. "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed," has been approved.

For CS and SI systems above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the 10' height of the tray and conduit above the floor; and considering the low combustibles loading in the zone, provide acceptable fire protection and provide protection equivalent to the technical requirements and Appendix R. A deviation for Appendix R, Paragraph III G.2c "in addition to 1 hour fire barrier, an automatic fire suppression system shall be installed," is requested.

For SW system above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier; the 8' of separation between the Train A tray and the Train B conduit; 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 for Appendix R, Paragraph III G.2c "in addition 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.

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

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b. Fire Zone PAB-F-1J-Z (Tabulation 3.2.7.66)

1) Specific Zone Analysis

This zone at Elevation (-) 6'-0" and (-) 26'-0" of the PAB is bounded by concrete floors, ceiling and walls with penetrations to other zones. The zone is approximately 96' long by 75' wide by 11' to 18' high with floor area of 1980 sq. ft. and a volume of 23,782 cu. ft.

All Train B safe shutdown cables are routed in conduit with a one-hour, fire-rated barrier.

Combustibles are limited to cables in open trays with a total fire loading of 500 Btu per sq. ft. and limited in situ combustibles in pumps.

Detectors are provided throughout the zone.

2) System Analyses

a) Primary Component Cooling Water (CC) System

This zone contains cables routed in tray for the Train A valves CC-V175 and CC-V257. The tray is minimum of 10' above floor elevation (-) 26'-0". Only 6 linear 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-1Z-Z, which is approximately 18' horizontally above the Train A cables with an intervening concrete floor.

b) Chemical and Volume Control (CS) System

This zone contains equipment and cables in conduit required for operation of Train A Valve CS-FCV-121 which provides a 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.

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Valve CS-V158 provides 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).

See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

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. Failures 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 six 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.

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Redundant channels of containment pressure (SI-PT-936 and SI-PT-937) 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 by use of manual reset 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).

3) Summary

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 and B raceways, the provision of a capability to mitigate the spurious operation of the pressure transmitters outside the fire area; 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", has been approved.

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 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", has been approved.

For RC system above, the safe shutdown requirements are satisfied.

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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.

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.

See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

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 only exception to the barrier is a short length of flexible conduit whose wrapping would interfere with the damper operator. 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.

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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 (104°F).

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. The only exception to the barrier is one cable which runs in flexible conduit between a limit switch on valve SW-V5 to its motor operator. There is 8' horizontal separation between the barriered conduit for valve SW-V5 and valve SW-V4. 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 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", has been approved.

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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 absence of in situ combustibles in the zone and the fact that a fire in the area could not cause loss of off-site 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 has been approved.

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 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", has been approved.

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 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 penetrations 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 71 pounds of plastic (fiberglass ladders) for a total fire loading of 596 Btu per sq. ft. of floor area and limited in situ combustibles. This is classed as a low fire load.

Detectors are provided throughout the zone.

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2) System Analyses

a) Chemical and Volume Control (CS) System

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-LT-7464. This transmitter and its associated cable are not contained in this fire zone. The indicator for this transmitter is located at the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A).

This zone contains cables routed in tray and conduit for the boric acid pump CS-P-3A and for the boric acid to charging pumps isolation valve CS-V426. Cables for the redundant Train B boric acid pump CS-P-3B are routed in barriered conduits in Fire Zones PAB-F-2B-Z and PAB-F-2C-Z. Valve CS-V426 has no electrically operated redundant counterpart. Should the valve be damaged by a fire, the operator will establish a gravity path from the BAT's to the charging pump suction by the repositioning to 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 up to four hours into the event.

See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

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This zone contains cables for CS-FCV-110A, -111A, -110B, -111B. Spurious opening of these valves in conjunction with spurious start of a boric acid transfer pump or reactor makeup water pump may divert boric acid from the reactor coolant system affecting cold shutdown reactivity control, or result in an unplanned dilution affecting hot standby and cold shutdown reactivity control. The operators isolate the diversion flow by closing CS-FCV-110B & -111B using the main control board control switches. The operators isolate the dilution flow by closing CS-LCV-112B or CS-LCV-112C using the main control board control switch.

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.

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 outboard isolation dampers PAH-DP-35A and PAH-DP-36A and inboard isolation dampers PAH-DP-35B and PAH-DP-36B are routed in trays and conduits in proximity to one another. Under normal operation both outboard and both inboard dampers are open. If both outboard or both inboard dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. If the outboard dampers and the inboard dampers operate independently such that either the supply or the exhaust path but not both are isolated, there could be an air flow problem in EAH system.

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Outboard dampers are powered from a single Train A power supply. Inboard dampers are powered from a single Train B power supply. The circuit design for the outboard and inboard dampers is such that a spurious signal in either or both circuits will cause both outboard and inboard dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

This zone contains cables routed in tray for the Train A fan PAH-FN-42A and damper PAH-DP-357. The cables for the redundant Train B fan PAH-FN-42B and damper PAH-DP-358 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.

e) Service Water (SW) System

This zone contains cable routed in tray for the Train A pumps SW-P-41A and SW-P-41C and valve SW-V54. The cables for the redundant Train B pumps SW-P-41B and SW-P-41D and valve SW-V25 are routed in barriered conduits in fire zone PAB-F-1A-Z. There is approximately 25' of horizontal separation between the tray and the redundant barriered conduits. For the other Train A cables routed in this zone, the redundant cables and equipment are contained in other fire areas.

f) Service Water Air Handling (SWA) System

All cable are Train A, the redundant cables are located in other fire areas.

3) Summary

For the CS system above, the provision of a manual valve alignment capability that is not required for up to four hours into the event satisfies the safe shutdown requirements. Also, the capability to isolate the boric acid diversion flow and the dilution flow using the main control board control switches satisfies the safe shutdown requirements.

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For the EAH, PAH and SW systems above, the routing of the Train B cables in a one-hour, fire-rated barrier; the horizontal separation of 16', 25' and 50' respectively; and 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", has been approved.

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

e. Fire Zone PAB-F-2B-Z (Tabulation 3.2.7.69)

1) Specific Zone Analysis

This zone at Elevation 25'-0" of the PAB is bounded by concrete floor, ceiling and walls (South and West) and is contiguous to fire zones PAB-F-2A-Z and PAB-F-2C-Z. The northern and eastern boundaries consists of full height concrete walls and metal partitions. There are penetrations for tray, ducts and pipes to other fire zones.

The zone is approximately 28' long by 37' wide by 16' high with a floor area of 1300 sq. ft. and a volume of 33,800 sq. ft.

Combustibles are limited to 2.0 pounds of grease for a fire loading of 36,000 Btu and cables in open trays for a total fire loading of 6000 Btu per sq. ft. of floor area.

Detectors are provided throughout the zone.

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2) System Analyses

a) Chemical and Volume Control (CS) System

The redundant boric acid tank level transmitters CS-LT-102 and CS-LT-106 are located in the same fire zone. Should both transmitters be unavailable due to fire damage, the operators can utilize the Train B level transmitter CS-LT-7464. This transmitter and its associated cable are not contained in this fire zone. The indicator for this transmitter is located on the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A).

Redundant boric acid pumps CS-P-3A and CS-P-3B and the valve CS-V426 are located in the same fire zone. Should both pumps or the valve be damaged by the fire, the operators will establish a gravity flow path from the BAT's to the charging pump suction by repositioning of manual valves in the fire zone.

Valves CS-V410, CS-V416, CS-V437, CS-V1207, CS-V439 and CS-V442 are manual valves required for gravity feed from the boric acid tanks to the charging pumps. These valves are not required to be operated until boric acid is required for shutdown reactivity. This would be upon commencement of cooldown, up to four hours into the event, and the valves would then be accessible for manual operation. During this time the plant would be maintained in hot standby with RC inventory makeup provided by the RWST.

See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

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This zone contains cables for CS-FCV-110A, -111A, -110B, -111B and the valves. Spurious opening of these valves in conjunction with spurious start of a boric acid transfer pump or reactor makeup water pump may divert boric acid from the reactor coolant system affecting cold shutdown reactivity control, or result in an unplanned dilution affecting hot standby and cold shutdown reactivity control. The operators isolate the diversion flow by closing CS-FCV-110B & -111B using the main control board control switches. The operators isolate the dilution flow by closing CS-LCV-112B or CS-LCV-112C using the main control board control switch.

b) PAB Air Handling (PAH) System

This zone contains cables routed in tray and conduit for the Train A fan PAH-FN-42A and dampers PAH-DP-43A and PAH-DP-357. The cables for the redundant Train B fan PAH-FN-42B and dampers PAH-DP-43B and PAH-DP-358 are routed in barriered conduit in fire zone PAB-F-2C-Z. There is 4' horizontal separation between the Train A raceways and the Train B equipment and barriered conduit. The Train A trays are a minimum of 8' above floor Elevation 25'-0". A total of 3 trays exist in the stack with the bottom tray an enclosed instrument level tray containing no Safe Shutdown cables. The Train B damper PAH-DP-358 is located approximately 18' above floor Elevation 25'-0".

3) Summary

For the CS system above, the provision of a manual valve alignment capability that is not required for up to four hours into the event satisfies the safe shutdown requirements. Also, the capability to isolate the boric acid diversion flow and the dilution flow using the main control board control switches satisfies the safe shutdown requirements.

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For the PAH system above, the routing of the Train B cables in conduit with a one-hour, fire-rated barrier in another zone of the PAB; the 4' horizontal between the Train A and Train B equipment; the 8' height of the tray above the floor; 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, automatic fire suppression system shall be installed", has been approved.

f. Fire Zone PAB-F-2C-Z (Tabulation 3.2.7.70)

1) Specific Zone Analysis

This zone at Elevation 25'-0" of the PAB is bounded by concrete floors, ceilings and walls (North, East and West) and is contiguous to fire zones PAB-F-2A-Z and PAB-F-2B-Z to the South. The southern boundary consists of full height partitions, full and partial height concrete walls and an 11' wide access passage. There are penetrations for tray, ducts and pipes to other fire zones. The zone is approximately 100' long by 75' wide by 26' high with a floor area of 7,200 sq. ft. and a volume of 187,000 cu. ft.

The trays installed at Elevation 25'-0" are in stacks five and six high by four wide, as a worst case, with a minimum of 4' between the Train A and Train B stacks. There are several areas where the trays have vertical drops through the floor. With a limited number of exceptions, the trays are a minimum of 10' above the floor. Metal covers are provided around the vertical trays near column lines 2 and C.

The in situ combustibles are limited to cables in open trays which provide a fire load of 16,000 Btu per square foot of floor area; the boron injection pumps which contain 0.25 gallons of oil are a fire loading of 37,500 Btu; the primary component cooling water pumps CC-P-11A, 11B, 11C and 11D containing a total of four gallons of oil for a fire loading of 600,000 Btu; 4½ ton monorail crane hoist CS-CR-5 containing 0.5 gallons of oil for a fire loading of 75,000 Btu; and 3½ ton monorail crane hoist CS-CR-13 containing 0.5 gallons of oil for a fire loading of 75,000 Btu.

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The concentrated fire load in this zone is 30,000 Btu per square foot of tray. Because of the concentrated fire load, we have installed sprinklers to control transient fires in the area of the trays.

To protect the PCCW pumps against a fire from a transient combustible, we have installed a pre-action system, using high temperature heads over the pumps and the surrounding area. Spray shields will be installed over the PCCW pump motors.

Detectors are provided throughout the zone.

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 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 only exception is a reduction in the barriers at the controllers and valves due to interference with instrument lines. The redundant valves are mounted approximately 20' above the floor with a minimum separation of 2'.

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

The redundant temperature elements CC-TE-2171, CC-TE-2197 and CC-TE-2271, CC-TE-2297 are located in the same fire area. The cable for one of the redundant Train B temperature elements is routed in a barriered conduit. The trip logic is a 2 out of 2 logic. 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 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.

b) Chemical and Volume Control (CS) System

This zone contains cables in tray required for operation of Train A valve CS-FCV-121, which provides one of the required hot standby charging flow paths. The redundant Train B valve SI-V139 cables are routed in barriered conduit in Fire Zone PAB-F-1A-Z and are separated from the Train A cables by concrete floors.

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. This operator action can be delayed for up to of 4 hours into the event.

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

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-LT-7464. This transmitter and its associated cable are not contained in this fire zone. The indicator for this transmitter is located at the RSS panel in the Train B switchgear room (Fire Area: CB-F-1B-A).

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 not be required for up to four hours into the event.

This zone contains cables routed in tray and conduit for the Train A charging pump CS-P-2A. 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-LCV-112C and CS-LCV-112E. The cables for valves CS-LCV-112C and CS-LCV-112E are routed in barriered conduits. The only exception is at an interference with fire detectors where the one-hour wrap is reduced to allow air flow to the detector. At the point of the reduced one-hour wrap, there is a minimum of 20' of horizontal separation to functionally redundant cables.

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See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

This zone contains cables for CS-FCV-110A, -111A, -110B, -111B. Spurious opening of these valves may divert boric acid from the reactor coolant system affecting cold shutdown reactivity control, or result in an unplanned dilution affecting hot standby and cold shutdown reactivity control. The operators isolate the diversion flow by tripping the control circuit power supply breaker to close CS-FCV-110B & -111B (valves fail closed). The operators isolate the dilution flow by closing CS-LCV-112C using the main control board control switch.

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.

c) Containment Enclosure Air Handling (EAH) System

The cables for the redundant fans EAH-FN-5A and EAH-FN-5B, are routed in tray and conduits in the same area. All the Train B fan cables are routed in barriered conduits, which are separated from the Train A cables by a minimum of 18'.

Cables for redundant equipment vault return fans EAH-FN-31A and EAH-FN-31B are routed in trays and conduits in proximity to one another. These fans are required to maintain the equipment vaults habitable for entry if manual operations are required to place RHR into operation for cold shutdown. A fire in the PAB fire area will not prevent operation from the MCR of any equipment necessary for RHR operation; hence, habitability of the equipment vaults is not required. Analysis and field testing has confirmed that the containment enclosure supply fans EAH-FN-5A and EAH-FN-5B are sufficient to maintain the equipment vaults below the equipment's qualified temperatures.

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d) Electrical Distribution Emergency (EDE) System

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

e) PAB Air Handling (PAH) System

Cables and equipment for outboard isolation dampers (PAH-DP-35A and PAH-DP-36A and inboard isolation dampers PAH-DP-35B and PAH-DP-36B) are routed in trays and conduits in proximity to one another. Under normal operation both outboard and both inboard dampers are open. If both outboard or both inboard dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. If the outboard dampers and the inboard dampers operate independently such that either the supply or the exhaust path but not both are isolated, there could be an air flow problem in EAH system.

Outboard dampers are powered from a single Train A power supply. Inboard dampers are powered from a single Train B power supply. The circuit design for the outboard and inboard dampers is such that a spurious signal in either or both circuits will cause both outboard and inboard dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

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. The only exception to the barrier is short lengths of flexible conduit whose wrapping would interfere with damper operator PAH-DP-358. 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.

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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 and conduits containing their cables are located in proximity. Failure of these switches or their cables could prevent operation of fans PAH-FN-42A and PAH-FN-42B. Should the switches or cables 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.

The cables for redundant valves SW-V-15 and SW-V17 are located in the same fire zone. These valves are normally in their safe shutdown position to provide cooling to the PCCW heat exchangers. In addition, the circuit breaker for SW-V17 is administratively controlled off so the valve cannot spuriously close. If SW-V15 spuriously closes, SW-V17 is still open to provide the Train B PCCW heat exchanger cooling function.

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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-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.

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For the CS system transmitters, boric acid pumps and related valve above, the provision of a manual valve alignment capability that is not required for up to four hours into the event satisfies the safe shutdown requirements. Also, the capability to isolate the boric acid diversion flow by tripping the control circuit power supply breaker and isolate the dilution flow using the main control board control switches satisfies the safe shutdown requirements.

For the EAH system supply 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 return fans 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 barrier; the height of the fans off the floor; the lack of combustibles in the area of the fans 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 satisfied.

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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 contiguous to fire zone PAB-F-3B-Z to the South. The southern boundary consists of a full height partition wall. There are penetrations for tray, ducts and pipes to other fire zones. The zone is approximately 53' long by 75' wide by 26' high with a floor area of 4000 sq. ft. and a volume of 103,400 cu. ft.

Combustibles are limited to 1.0 gallon of oil for a fire loading of 150,000 Btu and cables in open trays for a total fire loading of 3000 Btu per sq. ft. of floor area.

Detectors are provided throughout the zone.

2) System Analyses

a) Primary Component Cooling Water (CC) System

Redundant transmitters and cables for head tank level logic are in proximity. Failures in these transmitters or 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.

b) Chemical and Volume Control (CS) System

This zone contains cables routed in tray for the Train A valve CS-LCV-112B. The Train B cables are routed in barriered conduits in fire zone PAB-F-3B-Z.

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See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

This zone contains cables for CS-FCV-110A, -111A, -110B, -111B. Spurious opening of these valves in conjunction with spurious start of boric acid transfer pump or reactor makeup water pump may divert boric acid from the reactor coolant system affecting cold shutdown reactivity control, or result in an unplanned dilution affecting hot standby and cold shutdown reactivity control. The operators isolate the diversion flow by closing CS-FCV-110B & -111B using the main control board control switches. The operators isolate the dilution flow by closing CS-LCV-112C using the main control board control switch.

c) Service Water (SW) System

This zone contains Train A valves SW-V15 and SW-V16 and cables for Train A valve SW-V4. Also contained in this zone are the redundant Train B valves SW-V17 and SW-V18 and cables for valve SW-V5.

Redundant valves SW-V15 and SW-V17 are in the Safe Shutdown position. In addition, the circuit breaker for SW-V17 is administratively controlled off so the valve cannot spuriously close. If SW-V15 spuriously closes, SW-V17 is still open to provide the Train B PCCW heat exchanger cooling function. For conservatism, the operators will prevent further spurious operation by tripping the SW-V15 power supply breaker in the Train A switchgear room (Fire Area: CB-F-1A-A).

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Redundant diesel generator jacket water heat exchanger valves SW-V16 and SW-V18 are normally closed and are required to open for operation of the diesel generators. De-energizing the solenoids will open the valves. If SW-V16 or SW-V18 spuriously closes, SW to the respective train DG would be isolated. The other train DG would still be available. Also, a fire in this area does not cause a loss-of-offsite power. To prevent further spurious operation, the operators will trip the valves' power supply breakers in the Train A and Train B switchgear rooms (Fire Areas: CB-F-1A-A and CB-F-1B-A).

The Train A cables for valve SW-V4 are routed in trays and conduit. The trays and conduit are a minimum of 10' above floor Elevation 53'-0". The Train B cables for valve SW-V5 are routed in barriered conduits. The Train A and Train B raceways are separated by greater than 25'.

3) Summary

For the CC system above, the safe shutdown requirements are satisfied. For the CS system above, the routing of the Train B cables in conduit with a one-hour, fire rated barrier in another fire zone 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 one (1) hour fire barrier, an automatic fire suppression system shall be installed", has been approved. Also, the capability to isolate the boric acid diversion flow and the dilution flow using the main control board control switches satisfies the safe shutdown requirements.

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; the disabling capabilities in another fire area; 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 one (1) hour fire barrier, an automatic fire suppression system shall be installed", has been approved.

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h. Fire Zone PAB-F-3B-Z (Tabulation 3.2.7.72)

1) Specific Zone Analysis

This zone at Elevation 53'-0" of the PAB is bounded by concrete floor, ceiling and walls (South, East and West) and is contiguous to fire zone PAB-F-3A-Z to the North. The northern boundary consists of a full height partition wall. There are penetrations for ducts and pipes to other fire zones. The zone is approximately 88' long by 75' wide by 26' high with a floor area of 6500 sq. ft. and a volume of 168,200 cu. ft.

Combustibles are limited to 71 pounds of plastic (fiberglass ladders) for a fire loading of 923,000 Btu, 0.5 gallon of oil for a fire loading of 75,000 Btu, 50 pounds of Class A material for a fire loading of 400,000 Btu for a total fire loading of 1602 Btu per sq. ft. of floor area. See "Fire Protection Program Evaluation and Comparison to Branch Technical Position APCSB 9.5-1 Appendix A" for the analysis of 6600 lbs. of charcoal in CAP-F-40.

Detectors are provided throughout the zone.

2) System Analysis

a) Primary Component Cooling Water (CC) System

Redundant transmitters and cables for head tank level logic are in proximity. Failures in these transmitters or 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.

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b) Chemical and Volume Control (CS) System

The redundant volume control tank isolation valves CS-LCV-112B and CS-LCV-112C are located in the same fire area. The valves are in separate concrete cells with concrete walls and a solid controlled access door between them. There are no in situ combustibles or cables in trays in the cells. The cables for the Train B valve CS-LCV-112C are routed in barriered conduits.

See additional CS system discussion on CS-LCV-112B, CS-LCV-112C, CS-P-2A and CS-P-2B in the General Area Analysis, Section B.1.g.

This zone contains cables for CS-FCV-110A, -111A, -110B, -111B. Spurious opening of these valves in conjunction with spurious start of a boric acid transfer pump or reactor makeup water pump may divert boric acid from the reactor coolant system affecting cold shutdown reactivity control, or result in an unplanned dilution affecting hot standby and cold shutdown reactivity control. The operators isolate the diversion flow by closing CS-FCV-110B & -111B using the main control board control switches. The operators isolate the dilution flow by closing CS-LCV-112C using their main control board control switch.

3) Summary

For the CC system above, the safe shutdown requirements are satisfied.

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For the CS system above, the routing of the Train B cables in a one-hour, fire-rated barrier; the separation between the valves; the absence of in situ combustibles in the cells; 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", has been approved. Also, the capability to isolate the boric acid diversion flow and the dilution flow using the main control board control switches satisfies the safe shutdown requirements.

C. 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.

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Tabulation 3.2.7.74

Primary Auxiliary Building

Fire Area – PAB-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CS-P-2A	x	x			
CS-PS-7467-1	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.

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Tabulation 3.2.7.75

Primary Auxiliary Building

Fire Area – PAB-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CS-P-2B	x	x
			CS-PS-7468-1	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.

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Tabulation 3.2.7.76

Primary Auxiliary Building

Fire Area – PAB-F-1E-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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 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 hot standby.

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.

C. Evaluation

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

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Tabulation 3.2.7.77

Primary Auxiliary Building

Fire Area – PAB-F-1G-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-110A		x			
CS-FCV-111A		x			
CS-FCV-110B		x			
CS-FCV-111B		x			
CS-FCV-121		x			

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Primary Auxiliary Building

Fire Area – PAB-F-1G-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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-2B	(1)	(1)
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-V461		x
EAH-FN-5A		x			
EAH-FN-31A		x			
EDE-MCC-513		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			

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Primary Auxiliary Building

Fire Area – PAB-F-1G-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
PAH-FN-42A		x			
(1) CS-P-2B and its cables are not actually located in this fire area. However, CS-P-2B is listed because it is potentially affected via a systems interaction. See Analysis Section B.18.					
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-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-V56		x			

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Primary Auxiliary Building

Fire Area – PAB-F-1G-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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 shutdown requirements are satisfied.

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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 are 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 requirements are satisfied.

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

Cables for redundant valves CC-V145 and CC-V272 are routed in proximity to one another. The valves are normally open to their shutdown cooling position 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 9 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 Valve CS-FCV-121

This zone contains cables in tray required for operation of Train A valves CS-FCV-121, which provides one of the required hot standby charging flow paths. The redundant Train B SI-V139 cables are located in Fire Area DCT-F-3B-0.

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. This operator action can be delayed for up to of 4 hours.

The Appendix R separation and safe shutdown requirements are satisfied.

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6. 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-LT-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.

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

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.

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. The cables, controls and equipment required for operation of valves CS-V10, CS-V28, CS-V44, and CS-V59, are not contained in this fire area.

The Appendix R separation requirements are satisfied.

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.

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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 4 hours.

Should the operators desire to initiate the cooldown sooner than 4 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 outboard isolation dampers PAH-DP-35A and PAH-DP-36A and inboard isolation dampers PAH-DP-35B and PAH-DP-36B are routed in trays and conduits in proximity to one another. Under normal operation both outboard and both inboard dampers are open. If both outboard or both inboard dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. If the outboard dampers and the inboard dampers operate independently such that either the supply or the exhaust path but not both are isolated, there could be an air flow problem in EAH system.

Outboard dampers are powered from a single Train A power supply. Inboard dampers are powered from a single Train B power supply. The circuit design for the outboard and inboard dampers is such that a spurious signal in either or both circuits will cause both outboard and inboard dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

The safe shutdown requirements are satisfied.

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

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. 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.

The safe shutdown requirements are satisfied.

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 deenergized 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.

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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).

Manual operation of the valves can be delayed as much as 9 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.

17. Containment Pressure Transmitters SI-PT-936, 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 by use of manual reset 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.

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18. Volume Control Tank Isolation Valve CS-LCV-112B and Charging Pump CS-P-2A & CS-P-2B

Volume control tank (VCT) isolation valves CS-LCV-112B & -112C are normally open to provide a suction path from the VCT to the normally operating charging pump (CS-P-2A or -2B). These valves must stay open until RWST valve CS-LCV-112D or -112E is manually opened to provide a charging pump suction path from the RWST, or the boric acid tanks are manually aligned as a charging pump suction source. Spurious closure of a VCT isolation valve caused by a hot short would interrupt suction flow to the operating charging pump causing it to be damaged. If the standby charging pump has cables in the same area then its operation can also be degraded. The result would be no charging system flow. Since this fire area contains cables for CS-LCV-112B and CS-P-2A, this condition is potentially applicable for the system alignment with CS-P-2A the standby pump and CS-P-2B the operating pump.

The CS-LCV-112B circuit design prevents spurious valve closure from hot shorts as follows. The field cable conductors for the motor control center (MCC) contactor close coil circuit are in different cables than the 120 V "hot" circuit conductors eliminating the hot short failure mode within the cables. Cable-to-cable hot shorts need not be postulated for thermoset cable insulation as used at Seabrook. Since CS-LCV-112B will not spuriously close, CS-P-2B as the operating charging pump will not be damaged.

Since charging flow is available, the safe shutdown requirements are satisfied.

19. Boration/Dilution Flow Control Valves, CS-FCV-110A, -111A, -110B, -111B

This area contains cables for CS-FCV-110A, -111A, -110B, -111B. Spurious opening of these valves in conjunction with spurious start of a boric acid transfer pump or reactor makeup water pump may divert boric acid from the reactor coolant system affecting cold shutdown reactivity control, or result in an unplanned dilution affecting hot standby and cold shutdown reactivity control. The operators isolate the diversion flow by closing CS-FCV-110B and -111B using the main control board control switches. The operators isolate the dilution flow by closing CS-LCV-112C using the main control board switch.

The safe shutdown requirements are satisfied.

C. Evaluation

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

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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

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

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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

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-282
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Tabulation 3.2.7.80

Equipment Vault - Train B (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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			CC-V272	x	x
			CS-V461		x
			CS-V475		x
			RC-V22		x
RC-V88		x	RC-V87		x
			RH-E-9B	x	
			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	
SI-V89	x	x	SI-V89	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 B safe shutdown equipment and cables. The redundant Train A safe shutdown equipment and cables are located in Train A Vault (Vault #1) (Fire Areas: 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.

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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 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 4 hours.

Should this area be inaccessible due to the fire or should the operators desire to initiate the cooldown sooner than 4 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. Valve RC-V22 is 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 the valve 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 valve repositioned for safe shutdown.

The safe shutdown requirements are satisfied.

4. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35 and RH-V36 and SI Isolation Valve SI-V89

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 - Train A (Vault #1) (Fire Zone: RHR-F-4B-Z).

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Manual operation of the valve can be delayed as much as 9 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.

C. Evaluation

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

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Tabulation 3.2.7.81

Equipment Vault - Train A (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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CC-V145	x	x			
CC-V1101		x			
CC-V1109		x			
CS-V142		x			
CS-V154		x			
CS-V162		x			
CS-V166		x			
CS-V167		x			
CS-V460	x	x	CS-V475	x	x
			CS-V461	x	x
RC-V23		x	RC-V22		x
RC-V88		x			
RH-E-9A	x				
RH-HCV-606	x	x			
RH-FCV-618	x	x			
RH-P-8A	x	x			
RH-V8	x				
RH-V14		x			
RH-V35	x	x	RH-V36		x
RH-V70		x			
SI-V90	x	x	SI-V90	x	x
SI-V93	x	x	SI-V93	x	x

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Equipment Vault - Train A (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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SI-V138		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 equipment Vault Train B (Vault #2) (Fire Areas: 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.

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

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.

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3. 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.

4. 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 4 hours.

Should this area be inaccessible due to the fire or should the operators desire to initiate the cooldown sooner than 4 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.

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5. RHR Isolation Valves RC-V22, RC-V23, RC-V88

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. Valve RC-V88 is 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 valve 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 valve repositioned for safe shutdown.

The safe shutdown requirements are satisfied.

6. RH Heat Exchanger to CS/SI Pump Isolation Valves RH-V35, RH-V36 and SI Isolation Valves SI-V90, SI-V93

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 valve RH-V36 remains closed. Should valve RH-V36 open spuriously, the operators can disable its power supply in the Train B switchgear room (Fire Area: CB-F-1B-A) and manually reposition the valve located in the equipment Vault Train B (Vault #2) (Fire Zone: RHR-F-2A-Z).

Manual operation of the valve can be delayed as much as 9 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.

C. Evaluation

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

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Tabulation 3.2.7.82

Circulating Water Pump House

Fire Area – SW-F-1A-Z

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
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.

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.2 Page 3.2-290
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Tabulation 3.2.7.83

Service Water Pump House

Fire Area – SW-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-CP-248		x			
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			
SWA-FN-40A		x	SWA-FN-40B		x
SWA-TSH-5614-1	x	x	SWA-TSH-5615-2	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 A safe shutdown equipment and cables. The redundant Train B equipment and cables are located in fire area SW-F-1C-A separated from this area by a 3-hour fire wall.

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2. Service Water Pump House Electrical Room Fans SWA-FN-40A, SWA-FN-40B and Temperature Switches SWA-TSH-5614-1, SWA-TSH-5615-2

This area contains the electrical rooms' supply fans SW-FN-40A and SW-FN-40B temperature switches whose failure could cause increase in temperature in the electrical rooms. This could result in the loss of electrical distribution equipment necessary for operation of both Train A and Train B service water equipment. In the event this occurs, the cooling towers will be utilized. This transfer can be initiated from the MCR manually or automatically with Train B tower actuation. The cables, controls and equipment required for operation of the cooling towers are not contained in the fire area.

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.84

Service Water Pump House

Fire Area – SW-F-1C-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
			EDE-CP-249		x
			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

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 SW-F-1B-A separated from this area by a 3-hour fire wall.

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2. Service Water Pump House Electrical Room Fans SWA-FN-40A, SWA-FN-40B and Temperature Switches SWA-TSH-5614-2, SWA-TSH-5615-1

This area contains the electrical rooms' supply fans SW-FN-40A and SW-FN-40B temperature switches whose failure could cause increase in temperature in the electrical rooms. This could result in the loss of electrical distribution equipment necessary for operation of both Train A and Train B service water equipment. In the event this occurs, the cooling towers will be utilized. This transfer can be initiated from the MCR manually or automatically with Train B tower actuation. The cables, controls and equipment required for operation of the cooling towers are not contained in the fire area.

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.85

Service Water Pump House

Fire Area – SW-F-1D-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SWA-FN-40A	x	x	SWA-FN-40B	x	x

B. Analysis

Service water pump house electrical rooms' fans SWA-FN-40A 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 electrical distribution equipment for both trains of the Service Water pumps. 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.

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Tabulation 3.2.7.86

Service Water Pump House

Fire Area – SW-F-1E-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
EDE-CP-248		x	EDE-CP-249		x
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

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, 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.

C. Evaluation

The Appendix R separation requirements are satisfied.

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Tabulation 3.2.7.87

Intake And Discharge Structure

Fire Area – SW-F-2-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
SW-V44	x				
SW-V63	x				

B. Analysis

Valves SW-V44, SW-V63 are normally open valves which should remain open for safe shutdown. The valves are permanently disabled in the open position.

C. Evaluation

The safe shutdown requirements are satisfied.

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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

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
CBA-DP-24A		x			
CBA-DP-24B		x			
CBA-DP-24C		x			
CO-LT-4096		x			
ED-B-2A		x			
ED-B-2B		x			
ED-BC-2A	x	x			
ED-BC-2B	x	x			
ED-I-4		x			
ED-PP-121B		x			
ED-PP-122A	x	x			
ED-PP-122B		x			
ED-SWG-12A	x	x			
ED-SWG-12B	x	x			
EDE-MCC-523	x	x			
EDE-SWG-5		x	EDE-SWG-6		x
FP-CP-558	x	x			
FW-P-113	x	x			
FW-P-161	x	x			
FW-V163	x	x			
IA-SKD-18A	x		IA-SKD-18B	x	

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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

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
MM-IR-33A	x	x			
SA-V92	x	x			
SA-V93	x	x			
SA-TK-23A	x		SA-TK-23B	x	
SA-SKD-137A	x	x	SA-SKD-137B	x	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
SCC-FV-7050	x	x	SCC-FV-7050	x	x
SY-CP-87	x	x	SY-CP-87	x	x
SCC-FV-7050A-1	x	x	SCC-FV-7050A-1	x	x
SCC-FV-7050A-2	x	x	SCC-FV-7050A-2	x	x
			SCC-PCV-7035	x	

B. Analysis

1. Control Building Air Handling (CBA) System Dampers CBA-DP-24A, B, C and Fire Protection Panel FP-CP-558

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.

The Appendix R separation requirements are satisfied.

2. Condensate Storage Tank (CST) Level Transmitter 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).

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The Appendix R separation requirements are satisfied.

3. Battery Chargers ED-BC-2A & ED-BC-2B, Batteries ED-B-2A & ED-B-2B, Switchgear ED-SWG-12A & ED-SWG-12B, and Power Panels ED-PP-121B & ED-PP-122A

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-1A-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). Alternatively, the operator can reduce pressure by operating a PORV. Redundant heaters are available with control power from the emergency DC buses.

The safe shutdown requirements are satisfied.

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.

The safe shutdown requirements are satisfied.

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 3-hour fire wall.

The Appendix R separation requirements are satisfied.

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5. Instrument Air (IA) System

Redundant equipment and cables for instrument air dryers are located in the same fire area. Dryers IA-SKD-18A and IA-SKD-18B provide instrument air for the primary component cooling water system containment isolation valves, Train A and Train B switchgear room dampers CBA-DP-24A, B, C, D, E, F, 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. The operators have the capability to manually position the Main Control Room air conditioning condenser units face and bypass dampers in the Diesel Generator Building HVAC equipment area (Fire Areas DG-F-3A-Z & DG-F-3B-Z). As these dampers fail “as is”, this action would only be required to maintain long term habitability required by 9 hours into the event. Therefore, the air dryers are not required for safe shutdown for a fire in this area.

The safe shutdown requirements are satisfied.

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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. Compressor skids SA-SKD-137A and SA-SKD-137B 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. 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. The operators have the capability to manually position the switchgear room dampers in the control building mechanical equipment rooms (Fire Areas: CB-F-2B-A and CB-F-2C-A). As the Train A and Train B switchgear room intake and recirculation dampers fail "as is" and the exhaust damper fails open, this action would only be required to maintain long term habitability required by 9 hours into the event. Therefore, the SA system is not required for safe shutdown for a fire in this area.

The safe shutdown requirements are satisfied.

C. Evaluation

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

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Tabulation 3.2.7.89

Turbine Building

Fire Area – TB-F-1B-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
ED-B-2A	x	x			
ED-B-2B	x	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-1A-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). Alternatively, the operator can reduce pressure by operating a PORV. Redundant heaters are available with control power from the emergency DC bus.

C. Evaluation

The safe shutdown requirements are satisfied.

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Tabulation 3.2.7.90

Tank Farm

Fire Area – T-F-1-0

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
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. The cables for VCT isolation valves CS-LCV-112B and CS-LCV-112C, are also located in this fire area. These are normally open valves.

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 but can not spuriously close as described below.

A fire in this area does not affect the normal charging, letdown, and boric acid makeup functions so safe shutdown can be achieved and maintained using a charging pump aligned to the VCT through CS-LCV-112 B & -112C. The RWST is not needed for this normal shutdown so the inability to open CS-LCV-112D & -112E does not affect safe shutdown. If there was a need to use the RWST, the RWST valves could be manually opened, and the VCT isolation valves could be closed from the RSS panels or manually closed.

Volume control tank (VCT) isolation valves CS-LCV-112B & -112C are normally open to provide a suction path from the VCT to the normally operating charging pump (CS-P-2A or -2B). These valves must stay open to provide a charging pump suction path from the VCT. Spurious closure of a VCT isolation valve caused by a hot short would interrupt suction flow to the operating charging pump causing it to be damaged. If the standby charging pump has cables in the same area then its operation can also be degraded. The result would be no charging system flow. Since this fire area does not contain cables for CS-P-2A or CS-P-2B, this condition is not applicable to this fire zone.

Furthermore, the CS-LCV-112B and -112C circuit design prevents spurious valve closure from hot shorts as follows. The field cable conductors for the motor control center

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(MCC) contactor close coil circuit are in different cables from the 120 V "hot" circuit conductors eliminating the hot short failure mode within the cables. Cable-to-cable hot shorts need not be postulated for thermoset cable insulation as used at Seabrook. Since CS-LCV-112B and -112C will not spuriously close, CS-P-2A or -2B as the operating charging pump will not be damaged.

C. Evaluation

The safe shutdown requirements are satisfied.

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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

<u>Description</u>	<u>Equip.</u>	<u>Train A</u> <u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Train B</u> <u>Cable</u>
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.

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3.3 ALTERNATIVE SAFE SHUTDOWN USING REMOTE SAFE SHUTDOWN FACILITIES

3.3.1 General

Remote safe shutdown (RSS) 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.

Technical Specification (T/S) 3/4.3.3.5 requires surveillance testing of selected equipment used for safe shutdown from outside the Control Room at Remote Safe Shutdown (RSS) locations. The required equipment is listed in Table 3.3-9. The selection criteria for the Transfer Switch/Control Circuit portion of the table is the primary equipment which has remote/local selector switches and is required to perform the reactor coolant system inventory and pressure control, reactivity control, and decay heat removal functions to achieve and maintain hot standby. For Appendix R shutdown, only one train of equipment (safety or non-safety related) is required; redundancy is not a requirement. Seabrook is a hot standby safe shutdown design basis plant (see UFSAR Section 5.4.7.2.i). Support equipment, and equipment required only to achieve and maintain cold shutdown, are not required to be included in the T/S table. Process monitoring instruments also have surveillance requirements.

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 B Switchgear Room (Switchgear E6, and various Unit Substations, Motor Control Centers (MCC) and Distribution Panels).
- b. Train A Switchgear Room (MM-CP-108A, Switchgear E5, and various Unit Substations, Motor Control Centers (MCC), and Distribution Panels).
- c. Diesel Generator Room A

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- d. Diesel Generator Room B
- e. Primary Auxiliary Building El. 53'-0" Primary Component Coolant Water Heat Exchanger Area
- f. Primary Auxiliary Building El. 25'-0" Boric Acid Tank Area
- g. Primary Auxiliary Building El. 7'-0" Train B Charging Pump Room
- h. Control Building Mechanical Equipment Rooms - El. 50'-0"
- i. Equipment Vault - Train B (Vault #2)
- j. Condensate Storage Tank
- k. Non-Essential Switchgear Room

The term "prompt action" refers to an action taken after receipt of a valid fire alarm in the main control room. The term "expeditious action" or "expeditiously" refers to an action taken quickly upon entry into the applicable safe shutdown procedure. These type actions are considered to be completed prior to a spurious operation of the equipment operated by the prompt and expeditious actions. Therefore, no associated timing calculation is required for these actions.

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, either the refueling water storage tank (RWST) or the boric acid tanks (BAT) are used. The injection path to the RC 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, the normal charging flow to the RC system is isolated. This can be accomplished by temporarily stopping a charging pump to prevent overfill of the pressurizer. It can also be accomplished by use of any one of two functionally redundant but non-credited valves (CS-V142 or CS-V143). Should the seal injection path not be operable e.g., due to spurious closure of a flowpath valve (CS-FCV-121), 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.

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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. A control room or cable spreading room fire can result in a temporary loss of all cooling to the RCP seals. The operator action to accomplish restoration of cooling to the seals is to restore power to an emergency bus, restart of a thermal barrier cooling pump and a CC water pump. Then, a charging pump and SW pump are started for long term seal cooling via seal cooling, as well as inventory control. The operator action to restore RCP seal cooling is accomplished prior to the time that there would be potential damage to the seals. The reactor coolant pumps (RCPs) are stopped from the main control board prior to evacuating the main control room. Circuit analysis shows that the RCPs can not spuriously restart due to fire-induced cable damage.

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).

Considering worst case scenarios for spurious actuation of affected equipment, the required times for operator actions regarding RC inventory and pressure control for safe shutdown from the remote safe shutdown facilities are provided below:

Seabrook Station	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Rev. 9 Section 3.3 Page 3.3-4
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Action	Time
Close PORV block valve	Prompt
Open the RWST outlet valves	Prompt
Place the standby charging pump in pull-to-lock	Prompt
Restore RCP seal cooling	9.9 to 19.8 minutes, depending on the highest RCP seal rate
Trip RCPs	10 minutes
Restore cooling to charging pump oil cooler	9.6 minutes
Isolate letdown	15 minutes
Swap charging pump suction from VCT to RWST	15.4 minutes. Should SI-V138, SI-V139, or CS-HCV-182 spuriously open, this action must be completed no later than 5.0 minutes following letdown line isolation.
Restore SW to emergency diesel generators	17.6 minutes
Open a PORV to reduce pressurizer pressure in the event of spurious pressurizer heater operation or trip pressurizer heaters	23 minutes
Start a charging pump, or open a high head safety injection valve SI-V-138 or SI-V-139 if normal charging pump path is not available	31.1 minutes
Isolate charging flow, except for seal injection	35.4 minutes
Trip spuriously operating containment building spray pumps	46 minutes
Trip spuriously operating SI pump	<4 hours, prior to commencement of plant cooldown
Isolate the potential diversion path from the BAT to the RWST or align BAT for gravity feed.	<4 hours, prior to commencement of plant cooldown
Align BAT for makeup source	<4 hours, prior to commencement of plant cooldown

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3.3.3.2 Reactivity Control

Reactivity for hot standby at normal operating temperature (NOT) is provided by insertion of the control rods. Reactivity conditions required for cooldown and maintaining cold shutdown are provided by a portion of the chemical and volume control (CV) system which includes a centrifugal charging pump taking suction from the BAT's. During cooldown, the borated source must be the BAT volume until expended, at which time the RWST would be aligned. The credited path for boration is gravity feed with the RWSP isolated. The boric acid transfer pumps can be used if available.

Considering worst case scenarios for spurious actuation of affected equipment, the required times for operator actions regarding reactivity control for safe shutdown from the remote safe shutdown facilities are provided below:

Action	Time
Trip the Reactor	Expeditiously
Provide borated water from the BATs, via boric acid transfer pump or gravity feed.	<4 hours, prior to commencement of plant cooldown
Isolate boric acid flow diversion path.	<4 hours, prior to commencement of plant cooldown

3.3.3.3 Decay Heat Removal

The reactor coolant (RC) system temperature is controlled by use of portions of the feedwater (FW) system and the main steam (MS) system. The main steam safety/relief valves will maintain a heat dump capability. The steam generator water inventory is controlled by operating the motor driven emergency feedwater pump 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 but is not required to meet Appendix R requirements. To assure main steam system integrity the MSIV's and MSIV bypass are maintained closed. The MSIV bypass valves are normally locked closed and depowered with breakers locked open to preclude spurious opening. Decay heat transfer is made possible by natural convection flow in the RC System.

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Considering worst case scenarios for spurious actuation of affected equipment, the required times for operator actions regarding decay heat removal for safe shutdown from the remote safe shutdown facilities are provided below:

Action	Time
Isolate MSIVs	Expeditiously following a reactor trip
Place the mode selector switches for the ASDVs to the closed position	Prompt
Gain Control of excessive Emergency Feedwater Flow	20 minutes
Start motor driven EFW pump to preclude steam generator dry out	39 minutes
Time allotted for operator actions to preclude emptying CO tank to accommodate RHR Cut-in, and ultimately achieve cold safe shutdown within 72 hours	9 hours; 4 hours at hot standby plus 5 hours cooldown to RHR Cut-in

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
- 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)

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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. Section 3.3.3.1 provides the required times for operator actions, based on worst case scenarios for spurious actuation.

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, 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. Section 3.3.3.1 provides the required times for operator actions, based on worst case scenarios for spurious actuation.

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 to the shutdown margin greater than or equal to the limit specified in the Core Operating Limits Report (COLR).

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, and the hydrogen analyzer and electrical room. The EAH system includes the coolers, fans, and dampers required for air handling in these areas.

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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 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.

3.3.3.13 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 unit substations and 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, fuel oil transfer pumps, starting air compressors and backup operating air compressors.

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.

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3.3.3.16 Communication

The Gaitronics or radio systems are used to announce the fire event, dispatch the fire brigade, and to dispatch an NSO to perform local actions in the emergency diesel generator rooms. The Gaitronics system is also used to provide a fire alarm. Face-to-face communications is used to dispatch a control room operator (CRO) to the Train B switchgear room to perform local actions. A sound powered telephone loop (SPC) is provided for the CRO and NSO to communicate between the switchgear and the diesel generator rooms. Headsets or handsets are stored at these RSS locations for operator use. All actions required to achieve and maintain hot standby are taken in these areas. When field actions are required to commence cooldown, and achieve and maintain cold shutdown, an operator would: a) be dispatched to take the required action, b) go to the field and take the action, and c) then return and report the action completed. The RSS SPC loop also includes two SPC jacks in the RHR equipment vaults. Radios and Gaitronics are not credited but would be used as additional means of communications, if not damaged by the fire.

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, the operators 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.

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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, placing the switches for the ASDVs to the closed position, placing the standby centrifugal charging pump in pull-to-lock, and opening the RWST outlet valves to the charging pump suction will be accomplished from the main control board after alarm confirmation (promptly) to prevent over cooling situations from either the primary or secondary side of the plant and ensuring proper RCS inventory control. 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. After a confirmed fire alarm for a main control room or cable spreading room fire, a control room operator (CRO) and nuclear systems operator (NSO) are dispatched to the Train B switchgear and emergency diesel generator rooms to take actions as directed by procedure. 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 transfer control capability to the RSS facility by means of "Remote-Local" selector switches at the RSS locations and take the actions necessary to maintain control of the RCS inventory and pressure, and decay heat removal functions within the time frames described in sections 3.3.3.1 and 3.3.3.3. Control of the Train B Diesel Generator will be taken and if a Loss of Offsite Power (LOOP) occurs, clear and load EDE-SWG-6 to support safe shutdown. The operators will also trip the power supplies for engineered safety features actuation system (ESFAS) logic and cooling tower actuation logic to prevent inadvertent activation of these functions. The operators will then disable (trip power supply breakers) all equipment which is properly positioned in its safe shutdown position. Any additional recovery actions needed to maintain hot standby or to start a cooldown will be completed if inadvertent safeguard operation, 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-V145 and CC-V272.
3. Charging pump discharge and bypass valves CS-V210, CS-V219, CS-V220 and CS-V221.
4. RHR sampling valves RH-V8 and RH-V44.

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5. Boric acid tank gravity feed valves CS-V410, CS-V416, CS-V437, CS-V439, CS-V442, and CS-V1207.

The cables for valves CC-V145 and CC-V272 are not included in the review. Equipment CBA-DP-24D, CBA-DP-24E, CBA-DP-24F, CS-V210, CS-V219, CS-V220, CS-V221, CS-V410, CS-V416, CS-V437, CS-V439, CS-V442, CS-V1207, RH-V8, and RH-V44, are not electrically operated; hence, they have no cables.

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, CC-V1101 and CC-V1109.
- c. Chemical and volume control valves CS-V154, CS-V158, CS-V162, CS-V166, CS-V167, CS-V168, CS-V175, CS-V176, CS-V196, CS-V197, CS-V460, CS-V461, CS-FCV-110A, -111A, -110B, -111B.
- d. Not used.
- e. 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).
- f. Not Used.
- g. Reactor coolant valves RC-V323, RC-FV-2881, RC-LCV-459* and RC-LCV-460*
- h. Pressurizer heaters Group C, Group D and Control Group
- i. 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
- j. Steam generator blowdown valves SB-V9*, SB-V10*, SB-V11* and SB-V12*
- k. Safety injection valves SI-V158 and SI-V159
- l. Safety injection pumps SI-P-6A and SI-P-6B

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- m. Service water valves SW-V15, SW-V16*, SW-V18*, SW-V20, SW-V23, and SW-V34.
- n. Engineered safety features-actuation system logic cabinets
- o. Tower actuation logics

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

3.3.8 Safe Shutdown Equipment List

Tables that list all equipment, including instrumentation and vital support systems equipment required to achieve hot standby or cold shutdown using the RSS facilities are provided in Appendix III. However, analysis can be also provided to justify not listing components and cables in Appendix III. The tables provide the following requested information for each equipment listed:

- a) A column which notes whether the equipment is required for hot standby 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

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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.

Appendix R Section III.L requires that only one train of equipment necessary to achieve and maintain hot standby must be available from alternate or dedicated RSS shutdown facilities. Redundancy is not required. Equipment required to achieve and maintain cold shutdown can be repaired within 72 hours. For Seabrook, the preferred RSS shutdown equipment is Train B. The Train B RSS equipment with R/L selector and control switches have redundant control circuit fuses. This ensures that the local control circuit will still be operable in case the MCR control circuit blows the circuit fuse before control is transferred to local. For conservatism, redundant Train A equipment is typically listed in the RSS equipment lists in Appendix III, for example, both the Train A and the Train B charging pumps are listed whereas only one (Train B) is required to provide the safe shutdown function. This Train A equipment is desired, but not required, for safe shutdown. In some cases the Train A equipment is not listed just for conservative redundancy but is actually required for safe shutdown, for example, the SI accumulator isolation valves where there are two Train A and two Train B required valves.

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

<u>Function</u>	<u>Table No.</u>
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
(Deleted)	3.1.3.9

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<u>Function</u>	<u>Table No.</u>
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
Communication	3.1.3.19

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:

<u>Building</u>	<u>Fire Area</u>	<u>Tabulation</u>
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

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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 Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
PAH-DP-35A		X	PAH-DP-35B		X
PAH-DP-36A		X	PAH-DP-36B		X

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 except for the equipment listed.

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

Cables for outboard isolation dampers PAH-DP-35A and PAH-DP-36A and inboard isolation dampers PAH-DP-35B and PAH-DP-36B are routed in trays and conduits in proximity to one another. Under normal operation both outboard and both inboard dampers are open. If both outboard or both inboard dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. If the outboard dampers and the inboard dampers operate independently such that either the supply or the exhaust path but not both are isolated, there could be an air flow problem in EAH system.

Outboard dampers are powered from a single Train A power supply. Inboard dampers are powered from a single Train B power supply. The circuit design for the outboard and inboard dampers is such that a spurious signal in either or both circuits will cause both outboard and inboard dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

The safe shutdown requirements are satisfied.

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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.

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Tabulation 3.3.9.2

Control Building - El. 75'-0"

Main Control Room

Fire Area: CB-F-3A-A

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
PAH-DP-35A		X	PAH-DP-35B		X
PAH-DP-36A		X	PAH-DP-36B		X

B. Analysis

The Main Control Room fire area CB-F-3A-A does not contain any cables or equipment which are required for safe shutdown from the RSS facilities except for the equipment listed.

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

Cables for outboard isolation dampers PAH-DP-35A and PAH-DP-36A and inboard isolation dampers PAH-DP-35B and PAH-DP-36B are routed in trays and conduits in proximity to one another. Under normal operation both outboard and both inboard dampers are open. If both outboard or both inboard dampers go closed, the Containment Enclosure Air Handling (EAH) system operates in recirculation mode. The normal and recirculation modes for EAH system operation both satisfy the safe shutdown function. If the outboard dampers and the inboard dampers operate independently such that either the supply or the exhaust path but not both are isolated, there could be an air flow problem in EAH system.

Outboard dampers are powered from a single Train A power supply. Inboard dampers are powered from a single Train B power supply. The circuit design for the outboard and inboard dampers is such that a spurious signal in either or both circuits will cause both outboard and inboard dampers to operate together, either both open (normal mode) or both closed (recirculation mode).

The safe shutdown requirements are satisfied.

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A fixed fire suppression system in accordance with Appendix R Paragraph III.G.3 has not been provided in this continually manned area.

Detectors are provided throughout the area.

C. Evaluation

The Appendix R Paragraphs III.L alternative shutdown capability requirements are satisfied.

Deviations from Appendix R, Paragraph III.G.3, fixed fire suppression requirement, exist in the main control room. This deviation is justified based on the analysis and our assertion that additional modification would not enhance fire protection safety.

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Tabulation 3.3.9.3

Control Building - El. 75'-0"

HVAC Equipment & Duct Area

Fire Area: CB-F-3B-A

A. Equipment And Cables Located In The Fire Area

		<u>Train A</u>		<u>Train B</u>	
<u>Description</u>	<u>Equip.</u>	<u>Cable</u>	<u>Description</u>	<u>Equip.</u>	<u>Cable</u>
None			None		

B. Analysis

The HVAC Equipment and Duct Area CB-F-3B-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 not been provided in this area which contains equipment required for the main control room ventilation system.

Detectors are provided throughout the area.

Carbon monoxide detectors are provided in CBA-F-38 and CBA-F-8038 for early charcoal fire detection.

C. Evaluation

The Appendix R Paragraphs III.L alternative shutdown capability requirements are satisfied.

Deviations from Appendix R, Paragraph III.G.3, fixed fire suppression requirement, exist in the HVAC equipment and duct area. This deviation is justified based on the analysis and our assertion that additional modification would not enhance protection safety.

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3.4 **ALTERNATIVE SAFE SHUTDOWN - EMERGENCY FEEDWATER PUMPHOUSE FIRE**

A fire in this area disables both emergency feedwater (EFW) pumps, associated EFW flow control valves, and related instrumentation. An immediate plant trip in response to this fire event is not desirable since this would place a demand on the EFW system which may not be available. Instead, plant operation will be maintained stable at 100% power conditions using the normal feedwater system while the fire event is assessed and appropriate mitigating actions are determined. The plant will not be perturbed by any action, including a power change, that might result in a plant trip and demand on the EFW system. If it is determined that plant shutdown is warranted, then normal procedures will be used eliminating an EFW system demand. This approach is consistent with the Technical Specification 3/4.7.1.2 Bases. Plant shutdown using normal procedures does not require use of the EFW system so the time critical operator action response times related to the EFW system do not apply (see Section 3.2.2.3) for this fire area.

If an immediate plant shutdown was required, then the startup feedwater pump (SUFP) would be used to provide the EFW function. Since both EFW trains are disabled by a fire in this area, this is considered an alternate shutdown capability area. Safe shutdown would be controlled from the main control room. Since this is not the preferred response, immediate plant shutdown is considered a beyond design basis condition analyzed for defense in depth. If the EFW flow control valves are disabled, then the EFW pumps may have to be tripped to control excessive EFW flow. The SUFP and its valves can provide throttled flow to prevent overfill/over cooling conditions. Since this is a beyond design basis, defense in depth, response, the time critical operator action response times related to the EFW system do not apply for this fire area.

The following analysis evaluates the beyond design bases response of shutdown controlled from the main control room with an immediate plant trip using the SUFP to provide the EFW function. Plant shutdown using normal procedures does not require use of equipment in this fire area so no further analysis of normal shutdown is required.

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
- e. Turbine Building

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Actions required in the additional areas would be to realign the suction of the startup feedpump; realign the power supply of the startup feedpump from Bus ED-SWG-4 to Bus EDE-SWG-5 (if offsite power is not available and not already aligned to Bus EDE-SWG-5); bypass the startup feedpump low suction pressure trip (prior to commencing cooldown) and trip the power supply breakers for the feedwater flow control valves. Safe shutdown will then be performed from the main control room.

3.4.2 Safe Shutdown Equipment List

Tables that list all equipment, including instrumentation and vital support systems equipment, required to achieve hot standby and cold shutdown are provided in Appendix III. The tables provide the following requested information for each equipment listed.

- a. A column which notes whether the equipment is required for hot standby and 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

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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.

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3.4.3 Analysis and Evaluation of Fire Area EFP-F-I-A, Emergency Feedwater Pump Bldg.

A. Equipment And Cables Located In The Fire Area

<u>Description</u>	<u>Train A</u>		<u>Description</u>	<u>Train B</u>	
	<u>Equip.</u>	<u>Cable</u>		<u>Equip.</u>	<u>Cable</u>
FW-FT-4214-2	x	x	FW-FT-4214-4	x	x
FW-FT-4224-4	x	x	FW-FT-4224-2	x	x
FW-FT-4234-2	x	x	FW-FT-4234-4	x	x
FW-FT-4244-4	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

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 other fire areas. Additional details on the fire protection measures and physical separation for this fire area are contained in Tabulation 3.2.7.48.

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).

C. Evaluation

A deviation from the Appendix R, Paragraph III.L.3 requirements exists in the emergency feedwater pump building. This deviation is justified based on the analysis and our assertion that additional modifications would not enhance fire protection safety.

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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.

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- 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

3.5.3 Review and Analysis

A review of each of the lines listed in subsection 3.5.1 is provided to identify lines which could open and cause a LOCA. The flow through each high-low interface path will be evaluated. If the flow is less than the capacity of one charging pump, then the open path is not considered a LOCA and no further circuit analysis is required. The effect of the flow on system operation would still need to be evaluated. If the flow exceeds the capacity of one charging pump, then further circuit analysis is required per the criteria in Section 3.1.8 to demonstrate that spurious valve operation can not result in an open path. A specific flow value may not be documented for cases where it is obviously unacceptable (ex. RHR/RCS isolation valves). Alternatively, a circuit analysis per the criteria in Section 3.1.8 can be used to demonstrate that spurious valve operation cannot result in an open high-low interface path so no flow analysis is needed.

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. Upstream of CS-HCV-123 are two normally closed, fail close diaphragm valves, CS-V175 and CS-V176.

Spurious opening of one valve will not open the path and prevent safe shutdown. The operators will prevent further spurious openings by tripping the 125 Volt dc power supply breaker for valves CS-V175 and CS-V176 in the Train B switchgear room. An additional disabling capability exists at the disabling panel for CS-V-175 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.

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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. Upstream of CS-HCV-189 and CS-HCV-190 are fail close diaphragm valves CS-V145, RC-LCV-459, and RC-LCV-460. CS-HCV-189 or 190 failing full open results in a maximum flow rate that exceeds the charging pump capability.

To isolate this path, the operator will close CS-V-145, RC-LCV-459 or RC-LCV-460. RC-LCV-459 and RC-LCV-460 can also be closed by tripping a circuit breaker 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) for RC-LCV-459.

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 diaphragm 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-V168 or CS-V167 (normally open motor operated 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 or RWST.

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 prevent opening when RCS pressure is above 365 psig.

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.

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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 the PORV or block 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 inaccessible 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. Spurious opening of one valve will not open the path. The operators will prevent further spurious openings by disabling the normally closed MOV RC-V323 and solenoid RC-FV-2881 at the motor control center and 125 volt dc distribution panel, respectively, in the B Train switchgear room (Fire Area: CB-F-1B-A). An additional disabling capability exists for RC-FV-2881 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.

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
- c. Reactor coolant pumps seal bleedoff lines
The safe shutdown requirements are satisfied

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3.5.4.2 Residual Heat Removal System

The safe shutdown requirements are satisfied.

3.5.4.3 Pressurizer Power Operated Relief Valves

The safe shutdown requirements are satisfied.

3.5.4.4 Reactor Vessel Head Vent

The safe shutdown requirements are satisfied.

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3.6 ASSOCIATED CIRCUITS

3.6.1 Definition of Associated Circuits of Concern

Circuits other than those directly required for the safe shutdown functions which have the potential to affect or prevent post-fire safe shutdown are considered associated circuits of concern. Associated circuits of concern are defined as those cables (Class 1E and non-Class 1E) that:

- a. Have a physical separation less than that required by Section III.G.2 of Appendix R, and
- b. Have one of the following:
 - 1) a common power source with the safe shutdown equipment (redundant or alternative) and the power source is not electrically protected from the circuit of concern by coordinated breakers, fuses or similar devices, or
 - 2) a connection to circuits of equipment whose spurious operation would adversely affect the safe shutdown capability (e.g., RHR/RCS isolation valves, PORVS, steam atmospheric dump valves, etc.), or
 - 3) a common enclosure (e.g., panel) with the shutdown cables (redundant or alternative) and
 - a) are not electrically protected by circuit breakers, fuses or similar devices, or
 - b) will allow propagation of fire into the common enclosure.

3.6.2 Discussion of Methodology

Sections 3.6.2.1, 3.6.2.2 and 3.6.2.3 in conjunction with Figure 3.6-1 describes the methodology utilized to address the following types of associated circuits:

- a. Common power source
- b. Spurious operation
- c. Common enclosure

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3.6.2.1 Common Power Source

As stated in FSAR Section 8.3.1.4, all non-Class 1E circuits are associated relative to electrical separation with either Train A or Train B in accordance with the provisions of FSAR Appendix 8A Section 4.5a. Based on these design considerations, associated circuits can be powered from the Class 1E electrical distribution emergency (EDE) system or from the non-Class 1E electrical distribution (ED) system and further may be routed in the same raceways and terminate in the same enclosure as Class 1E circuits. Although all safe shutdown circuits are powered from the EDE system, not all safe shutdown circuits are considered to be Class 1E. There are no Safe shutdown circuits, which require electrical power to operate, powered from the ED system.

Associated circuits that are powered from the EDE system, and are associated with the safe shutdown circuits by a common power supply, are protected by a coordinated circuit breaker and; hence, are not considered to be associated circuits of concern.

The above design considerations eliminates as associated circuits of concern all circuits which have no deleterious impact on safe shutdown.

3.6.2.2 Spurious Operation

The review of each system required to satisfy the safe shutdown functions included all valves necessary to operate the system or maintain the system process boundaries. This assures that the safe shutdown system will operate as designed. If valves or other equipment from one train (i.e., Train A) are required for operation or could prevent operation of the other train (i.e., Train B), then additional reviews are performed to determine the failure modes and provide manual actions or operations of other equipment that would prevent the spurious operation from affecting safe shutdown. An example of this is the primary component cooling water containment isolation function which requires that both Train A and Train B valves remain open. The inboard containment isolation valve is the same train as the pumps which supply primary component cooling water while the outboard valve is of the opposite train but could be operated manually upon loss of power or damage to electrical circuit.

To prevent the spurious operation of various safety injection system valves, containment isolation valves and service water valves, the engineered safety features actuation system logic and the tower actuation logic are disabled by tripping their power supplies after a control room evacuation.

In several instances (e.g., RHR/RCS isolation valves), the power supplies are permanently disabled (breaker tripped and locked out) to prevent spurious operation.

The spurious operation of valves protecting high-low pressure interfaces is discussed in Section 3.5.

See Section 3.1.8 for criteria to evaluate components for spurious operation.

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3.6.2.3 Common Enclosures

The deleterious effects of fire on associated circuits in common enclosures is eliminated by the following three design considerations:

- a. Coordinated circuit breakers, fuses or similar devices will assure that the associated circuit failure does not prevent the redundant train from performing its safe shutdown function.
- b. The cables are qualified to IEEE Standard 383; hence, the propagation of the fire from one train to the redundant train in another fire area/zone is very unlikely.
- c. Train and channel separation for cable routing is assured by a computerized cable routing program which does not allow cables with different circuit code assignments to be routed in the same raceways.

Based on the above design considerations, associated circuits in common enclosures are not considered associated circuits of concern.

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SECTION 3.7 DEVIATIONS FROM 10CFR50 APPENDIX R

<u>Fire Area</u>	<u>Section Located In Report</u>	<u>Equipment/System</u>	<u>Type Of Deviation From Appendix</u>
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.v	RC-LT-459, 460	III.G.2.d
	3.2.7.1 B.2.x	RC Hot Leg Temp.	III.G.2.d
CB-F-2C-A	3.2.7.10.B.2	CBA	III.G.2.c Auto Fire Suppression
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/	3.2.7.17 B.f	EAH-AC-2A, -2B, EAH-FN-5A,	III.G.2.b - Separation 20'
PP-F-XX-Z		-5B, EAH-DP-3A, -3B	III.G.2.c - Auto Fire Suppression
DG-F-3A-Z/	3.2.7.41 B.2.b	DAH-FN-25A, -25B	III.G.2.b - Separation 20'
DG-F-3B-Z			III.G.2.c - Auto Fire Suppression
EFP-F-1-A	3.2.7.48	EFW Room	III.G.3 - Fixed Fire Suppression

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<u>Fire Area</u>	<u>Section Located In Report</u>	<u>Equipment/System</u>	<u>Type Of Deviation From Appendix</u>
	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 Suppression
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	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.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50. Appendix R P & I Diagrams (Typical)	Rev 5 Appendix I Page I-1
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P & I DIAGRAMS (TYPICAL)

This section originally contained photographs of the marked P & I Diagrams for the decay heat removal safe shutdown function. These drawings were typical of the P & I Diagrams which were marked for each safe shutdown function and not all inclusive, thus they have been removed from this appendices.

The typical diagrams included in this section were only to show the methodology used for the original report preparation and were not intended to be updated for report revisions.

The latest design documents, not these typical drawings, should be used to evaluate the Safe Shutdown Capability.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50. Appendix R Schematic Diagrams & Cable Schematics (Typical)	Rev 5 Appendix II Page II-1
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Schematic Diagrams & Cable Schematics (Typical)

This section originally contained drawings that were typical of those which were marked for each safe shutdown function. The typical drawings included in this section were only to show the methodology used for the original report preparation. These typical drawings were not intended to be updated for report revision.

The original drawings were provided to show marked-up electrical schematic diagrams, cable schematics, and cable tables for the Train A decay heat removal safe shutdown function. The drawings were marked by shading and by cross-hatching. The equipment and cables which were shaded were isolated by a "Local Remote" selector switch or other isolation device and were not considered for further review. The equipment and cables which have been cross-hatched were analyzed, and it was determined that there was no effect on safe shutdown capability. These equipment and cables were not considered for further review.

The latest design documents, not these typical drawings, should be used to evaluate the Safe Shutdown Capability.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Equipment Lists (Tables)	Rev. 9 Appendix III Page III-1
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Equipment Lists (Tables)

This section contains the following tables which list all equipment required for performance of the safe shutdown function.

Main Control Room

<u>Function</u>	<u>Table Number</u>
Decay Heat Removal	MCR 3.1.3.1
Reactor Coolant Inventory and Pressure Control	MCR 3.1.3.2
Reactivity Control	MCR 3.1.3.3
Process Monitoring	MCR 3.1.3.4
Safeguard Actuation System	MCR 3.1.3.5
Cold Shutdown	MCR 3.1.3.6
Service Water	MCR 3.1.3.7
Primary Component Cooling Water	MCR 3.1.3.8
Containment Building Air Handling	MCR 3.1.3.9
Control Building Air Handling	MCR 3.1.3.10
Diesel Generator Building Air Handling	MCR 3.1.3.11
Containment Enclosure Air Handling	MCR 3.1.3.12
Emergency Feedwater Pumphouse Air Handling	MCR 3.1.3.13
Primary Auxiliary Building Air Handling	MCR 3.1.3.14
Service Water Air Handling	MCR 3.1.3.15
Service/Instrument Air	MCR 3.1.3.16
Electrical Distribution Emergency	MCR 3.1.3.17
Diesel Generator	MCR 3.1.3.18

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Equipment Lists (Tables)	Rev. 9 Appendix III Page III-2
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Alternative Safe Shutdown

<u>Function</u>	<u>Table Number</u>
Decay Heat Removal	RSS 3.1.3.1
Reactor Coolant Inventory and Pressure Control	RSS 3.1.3.2
Reactivity Control	RSS 3.1.3.3
Process Monitoring	RSS 3.1.3.4
Safeguard Actuation System	RSS 3.1.3.5
Cold Shutdown	RSS 3.1.3.6
Service Water	RSS 3.1.3.7
Primary Component Cooling Water	RSS 3.1.3.8
Deleted	RSS 3.1.3.9
Control Building Air Handling	RSS 3.1.3.10
Diesel Generator Building Air Handling	RSS 3.1.3.11
Containment Enclosure Air Handling	RSS 3.1.3.12
Emergency Feedwater Pumphouse Air Handling	RSS 3.1.3.13
Primary Auxiliary Building Air Handling	RSS 3.1.3.14
Service Water Air Handling	RSS 3.1.3.15
Deleted	RSS 3.1.3.16
Electrical Distribution Emergency	RSS 3.1.3.17
Diesel Generator	RSS 3.1.3.18
Communication	RSS 3.1.3.19
Emergency Feedwater Pumphouse Building	3.2.3
High-Low Pressure Interfaces	3.3.2

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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	CO-TK-25	Condensate Storage Tank	CO-20426	A/B	310248	CST-P-1-0	X	X	-	-	-	-	-	-	-	-	-	-	-	-	Note 1
2	FW-P-113	Start-Up Feedwater Pump	CO-20426	A	310326	TB-F-1A-Z	X	X	X	-	N12	FW-A93-52	4160 V AC Circuit Breaker	A93	CB-F-1A-1	A47-A93	310844	A93g	EDE-SWG-5	FW-P-37B	
												FW-A93-FU	Fuses	A93	CB-F-1A-A	A47-A93/1	A93b	CBA-FN-19			
												FW-CS-4268-1	Control Switch with Indication	F60	CB-F-3A-A	A47-A93/2	A93c	CBA-FN-20			
												FW-SS-4268	Selector Switch	A47	NES-F-1A-Z	A47-N12	A93d				
												FW-A93-CS	Test Control Switch	A93	CB-F-1A-A	A47-P82	A47a	A47g			
												FW-A93-G, R, W	Indicating Lights	A93	CB-F-1A-A	A93-F60/1					
												EDE-A53-94-2	Bus Undervoltage	A53	CB-F-1A-A	A93-F60/2					
												FW-A93-R1	Auxiliary Relay	A93	CB-F-1A-A	A93-F60/3					
												FW-PSLH-PS5	Lube Oil Pressure Switch	P82	TB-F-1A-Z	A93-F50/4					
												FW-A93-PS5X	Pressure Switch	A93	CB-F-1A-A	A93-ED7					
												FW-A93-52S	Auxiliary Relay	A93	CB-F-1A-A	A93-G8L					
												FW-A93-52H	Mechanically Operated Contact	A93	CB-F-1A-A	A93-HR2					
												FW-A93-62	Truck-Operated Contact	A93	CB-F-1A-A	G8L-P2V					
												FW-ED7-2	PS5 Starting Blocking Time Delay Relay	A93	CB-F-1A-A	(Non-CASP)					
												FW-A93-R2	Prelube Pump Starting Auxiliary Time Delay Relay	ED7	TB-F-2-Z						
												FW-A93-86	Auxiliary Relay	A93	CB-F-1A-A						
												FW-A93-TD2	Lockout Relay	A93	CB-F-1A-A						
												FW-A93-CT	Lockout Relay Test Device	A93	CB-F-1A-A						
												FW-A93-TD1	Current Transformers 300/5A	A93	CB-F-1A-A						
												FW-A93-50/51	CT Test Device	A93	CB-F-1A-A						
												FW-A93-AM	Inst/Time Overcurrent Relays 0A, 0C	A93	CB-F-1A-A						
												FW-A93-AS	Ammeter	A93	CB-F-1A-A						
												FW-A93-ATR	Ammeter Switch	A93	CB-F-1A-A						
												FW-AM-4268-1	Transducer	A93	CB-F-1A-A						
												FW-A47-52	Ammeter	F60	CB-F-3A-A						
												FW-A93-S1GS	4160 V AC Circuit Breaker	A47	NES-F-1A-Z						
												FW-PSL-4233-2	Ground Sensor Relay	A93	CB-F-1A-A						
												FW-CS-4233	Pressure Switch Low Suction	P2V	TB-F-1A-Z						
												FW-HR2-RMO	Suction Pressure Bypass Switch	G8L	TB-F-1A-Z						
													EPS Manual Override Relay (K27)	HR2	CB-F-1A-A						

NOTES

1. The equipment is mechanical with no electrical requirement.

2. Air is not needed to position or to reposition the valve for safe shutdown.

3. During normal operation, this equipment is in its safe shutdown position (locked closed) with its circuit breaker administratively controlled locked open (off) to prevent its spurious operation.

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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
3	FW-P-161	Start-Up Feedwater Pump FW-P-113 Prelube Pump	CO-20426	A	310326	TB-F-1A-Z	X	X	X	-	NUO	FW-CN1-52 FW-CN1-FU FW-CS-4268 FW-SS-4268 FW-CS-4268-1 FW-CS-4278 FW-ED7-2 FW-PSLH-PS4 FW-CN1-42 FW-CN1-49 FW-FB7-K620A FW-ED7-3 FW-EA1-3A FW-EA1-3B	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Control Switch Pump Starting Time Delay Relay Lube Oil Pressure Switch Motor Starter Overload Relays SSPS Output Relay Time Delay Relay Auxiliary Relay Auxiliary Relay	CN1 CN1 F60 A47 F60 F60 ED7 P81 CN1 CN1 FB7 ED7 EA1 EA1	TB-F-2-Z TB-F-2-Z CB-F-3A-A NES-F-1A-Z CB-F-3A-A TB-F-2-Z TB-F-1A-Z TB-F-2-Z TB-F-2-Z CB-F-1A-A CB-F-1A-A	CN1-NUO CN1-F60 CN1-P81 A47-F60/4 EA1-F60 F60-FB7/5	CN1a CN1c	EDE-MCC-523	None		
4	FW-V-156	Start-Up Feed Pump to EFW Header Valve	FW-20688	A	310589	MS-F-1B-Z	X	X	X	-	V3L	FW-B4S-52 FW-B4S-FU FW-CS-4261 FW-B4S-42/0,C FW-B4S-49 FW-ZS-V156	460 V AC Circuit Breaker Fuse Control Switch with Indication Motor Starters Overload Relays Valve Position and Open/Close Torque Switches	B4S B4S F60 B4S B4S V3L	CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A MS-F-1B-Z	B4S-V3L B4S-V3L/1 B4S-F60 B4S-F60/1	B4Sa 310844 B4Sc	CBA-FN-19 CBA-FN-20 EDE-MCC-531	None		
4A	FW-V-163	Start-Up Feed Pump Bypass to EFW Pump Valve	FW-20687	A	310326	TB-F-1A-Z	X	X	X	-	V3H	FW-C2R-52 FW-C2R-FU FW-CS-4262 FW-C2R-42/0,C FW-C2R-49 FW-ZS-V163	460 V AC Circuit Breaker Fuse Control Switch with Indication Motor Starter Overload Relays Valve Position and Open/Close Torque Switches	C2R C2R F60 C2R C2R V3M	TB-F-2-Z TB-F-2-Z CB-F-3A-A TB-F-2-Z TB-F-2-Z TB-F-1A-Z	C2R-V3M C2R-V3M/1 C2R-F60	CN1a CN1c	EDE-MCC-523	None		

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FUNCTION: DECAY HEAT REMOVAL																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
5	FW-P-37B	Emergency Feed Pump	FW-20688	B	310708	EF-P-F-1-A	X	X	X	-	N14	FW-A80-52 FW-A80-FU FW-A80-R FW-CS-4255-2 FW-SS-4255 EDE-A73-94-1B FW-A80-86 FW-A80-52H FW-A80-50/51 FW-A80-AM FW-A80-AS FW-A80-CT FW-A80-TD1 FW-A80-ATR FW-A80-TD2 FW-A80-G,R,W,A FW-A80-52Z FW-A80-51GS FW-CS-4255-1 FW-EPS-PR1,RM0,SR6 FW-FB0-K615B,K640B EDE-FT0-KA24	4160 V AC Circuit Breaker Fuses Auxiliary Relay Control Switch Selector Switch Bus Under Voltage Relay Lockout Relay Truck-Operated Contact Instrument/Time Overcurrent Relays øA, øC Ammeter Ammeter Switch Current Transformers (200/5) CT Test Device Transducer Lockout Relay Test Device Indicating Lights Time Delay Relay Ground Sensor Relay Control Switch Emergency Power Sequencer Auxiliary Relays Isolation Relay	A80 A80 A80 A80 A80 A73 A80 A80 A80 A80 A80 A80 A80 A80 A80 A80 A80 A80 A80 A80 A80 F60 HR2 FB0 FT0	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 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 CB-F-1B-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A	A80-N14 A80-F66/1 A80-F66/2 A80-HR4 FBO-HR4 FBO-FT0/1	A80a A80b A80c A80d	310844	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-SWG-6	FW-P-113		
5A	FW-V347	Emergency Feedwater Recirculating Valve	FW-20688	B	310708	EF-P-F-1-A	X	X	X	-	V4P	FW-C3T-52 FW-C3T-FU FW-CS-4369-2 MS-SS-3064 FW-C3T-42/0,C FW-C3T-49 FW-ZS-V347 FW-CS-4369-1	460 V AC Circuit Breaker Fuses Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Control Switch with Indication	C3T C3T G2J G2J C3T C3T V4P F60	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-3A-A	C3T-V4P C3T-V4P/1 C3T-G2J F66-G2J/6	CN1a CN1c	EDE-MCC-523	None			
6	FW-FV-4214A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EF-P-F-1-A	X	X	X	-	V2E	FW-B3V-52 FW-B3V-FU FW-CS-4214-A2 FW-SS-4214-A FW-B3V-42/0,C FW-B3V-49 FW-ZS-4214-A FW-E3C-4214AX FW-CS-4214-A1 FW-E3C-R1,R2,R3,R4 FW-E3P-62-1 FW-E3P-62-2 FW-E3P-62-3 FW-E3P-62-4 MM-CP-297A FW-FR-4214 FW-FI-4214-2 FW-FI-4214-2	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay "A" Train BOP-PCC Flow Recorder Flow Transmitter Flow Indicators	B3V B3V G2G G2G B3V B3V V2E E3C F51 E3C E3P E3P E3P E3P FK0 F86 GL3 F56	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A EFP-F-1A-A CB-F-3A-A	B3V-V2E B3V-V2E/1 E3C-G2G G2G-V2E CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A CB-F-3A-A E3C-F51 F51-G2G E3C-FK0 E3C-F56 F56-FK0 F86-FK0 FK0-GL3	B3Va B3Vd B3Ve	310844	CBA-FN-19 CBA-FN-20 EPA-FN-47A EDE-MCC-515	FW-FV-4214-B		

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FUNCTION: DECAY HEAT REMOVAL																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
7	FW-FV-4214B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2J	FW-B3Z-52 FW-B3Z-FU FW-CS-4214-B2 FW-SS-4214-B FW-B3Z-42/0,C FW-B3Z-49 FW-ZS-4214-B FW-E3D-4214BX FW-CS-4214-B1 FW-E3D-R1,R2,R3,R4 FW-E3Q-62-1 FW-E3Q-62-2 FW-E3Q-62-3 FW-E3Q-62-4 FW-FT-4214-4 MM-CP-297B	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay Flow Transmitter "B" Train BOP-PCC	B3Z B3Z G2J G2J B3Z B3Z V2J E3D F51 E3D E3Q E3Q E3Q E3Q GL4 FL2	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1A-A CB-F-3A-A	B3Z-V2J B3Z-V2J/1 E3D-G2J G2J-V2J B3Z-G2J E3D-F51 F51-G2J E3D-FL2 E3D-F51/4 FL2-GL4	310844 B3Za 310952 FL2a	B3Zd B3Ze FL2a	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4214-A		
8	FW-FV-4224A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2F	FW-B3W-52 FW-B3W-FU FW-CS-4224-A2 FW-SS-4224-A FW-B3W-42/0,C FW-B3W-49 FW-ZS-4224-A FW-E3C-4224AX FW-CS-4224-A1 FW-E3C-R1,R2,R3,R4 FW-E3P-62-1 FW-E3P-62-2 FW-E3P-62-3 FW-E3P-62-4 FW-FT-4224-4 MM-CP-297A	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay Flow Transmitter "A" Train BOP-PCC	B3W B3W G2G G2G B3W B3W V2F E3C F51 E3C E3P E3P E3P E3P GL3 FK0	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1A-A CB-F-3A-A	B3W-V2F B3W-V2F/1 E3C-G2G/1 G2G-V2F E3C-F51/1 F51-G2G/1 E3C-FK0 E3C-F56 FK0-GL3	310844 B3Wa 310952 FK0a	B3Wd B3We FK0a	CBA-FN-19 CBA-FN-20 EPA-FN-47A EDE-MCC-515	FW-FV-4224-B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.1-5
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
9	FW-FV-4224B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2K	FW-B4A-52 FW-B4A-FU FW-CS-4224-B2 FW-SS-4224-B FW-B4A-42/0,C FW-B4A-49 FW-ZS-4224-B FW-E3D-4224BX FW-CS-4224-B1 FW-E3D-R1,R2,R3,R4 FW-E3Q-62-1 FW-E3Q-62-2 FW-E3Q-62-3 FW-E3Q-62-4 MM-CP-297B FW-FR-4224 FW-FI-4224-2 FW-FI-4224-2	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay "B" Train BOP-PCC Flow Recorder Flow Transmitter Flow Indicator	B4A B4A G2J G2J B4A B4A V2K E3D F51 E3D E3Q E3Q E3Q E3Q FL2 F86 GL4 F56	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-3A-A EFP-F-1A-A CB-F-3A-A	B4A-V2K B4A-V2K/1 E3D-G2J/1 G2G-V2K B4A-G2J E3D-F51/1 F51-G2J/1 E3D-FL2 E3D-F51/4 F56-FL2 F88-FL2 FL2-GL4	B4Aa 310844 B4Ad B4Ae E3F/1a E3F/1c 310952 FL2a	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4224-A		
10	FW-FV-4234A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2G	FW-B3X-52 FW-B3X-FU FW-CS-4234-A2 FW-SS-4214-A FW-B3X-42/0,C FW-B3X-49 FW-ZS-4234-A FW-E3C-4234AX FW-CS-4234-A1 FW-E3C-R1,R2,R3,R4 FW-E3P-62-1 FW-E3P-62-2 FW-E3P-62-3 FW-E3P-62-4 MM-CP-297A FW-FR-4214 FW-FI-4234-2 FW-FI-4234-2	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay "A" Train BOP-PCC Flow Recorder Flow Transmitter Flow Indicator	B3X B3X G2G G2G B3X B3X V2G E3C F51 E3C E3P E3P E3P E3P FK0 F86 GL3 F56	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A EFP-F-1A-A CB-F-3A-A	B3X-V2G B3X-V2G/1 G2G-V2G E3C-G2G/2 E3C-F51/2 F51-G2G/2 E3C-FK0 E3C-F56 FK0-GL3 F56-FK0 F86-KF0	B3Xa 310844 B3Xd B3Xe E3E/1a E3E/1c 310952 FK0a	CBA-FN-19 CBA-FN-20 EPA-FN-47A EDE-MCC-515	FW-FV-4234-B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.1-6
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
11	FW-FV-4234B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2L	FW-B4B-52 FW-B4B-FU FW-CS-4234-B2 FW-SS-4214-B FW-B4B-42/0,C FW-B4B-49 FW-ZS-4234-B FW-E3D-4234BX FW-CS-4234-B1 FW-E3D-R1,R2,R3,R4 FW-E3Q-62-1 FW-E3Q-62-2 FW-E3Q-62-3 FW-E3Q-62-4 FW-FT-4234-4 MM-CP-297B	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay Flow Transmitter "B" Train BOP-PCC	B4B B4B G2J G2J B4B B4B V2L E3D F51	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1A-A CB-F-3A-A	B4B-V2L B4B-V2L/1 E3D-G2J/2 G2J-V2L B4B-G2J E3D-F51/2 F51-G2J/2 E3D-FL2 E3D-F51/4 FL2-GL4	310844 B4Ba B4Bd B4Be 310952 FL2a	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4234-A		
12	FW-FV-4244A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2H	FW-B3Y-52 FW-B3Y-FU FW-CS-4244-A2 FW-SS-4224-A FW-B3Y-42/0,C FW-B3Y-49 FW-ZS-4244-A FW-E3C-4244AX FW-CS-4244-A1 FW-E3C-R1,R2,R3,R4 FW-E3P-62-1 FW-E3P-62-2 FW-E3P-62-3 FW-E3P-62-4 FW-FT-4244-4 MM-CP-279A	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay Flow Transmitter "A" Train BOP-PCC	B3Y B3Y G2G G2G B3Y B3Y V2H E3C F51	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1A-A CB-F-3A-A	B3Y-V2H B3Y-V2H/1 E3C-G2G/3 G2G-V2H E3C-F51/3 F51-G2G/3 E3C-FK0 E3C-F56 FK0-GL3	310844 B3Ya B3Yd B3Ye 310952 FK0a	CBA-FN-19 CBA-FN-20 EPA-FN-47A EDE-MCC-515	FW-FV-4244-B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.1-7
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
13	FW-FV-4244B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EF-P-F-1-A	X	X	X	-	V2M	FW-B4C-52 FW-B4C-FU FW-CS-4244-B2 FW-SS-4224-B FW-B4C-42/0,C FW-B4C-49 FW-ZS-4244-B FW-E3D-4244BX FW-CS-4244-B1 FW-E3D-R1,R2,R3,R4 FW-E3Q-62-1 FW-E3Q-62-2 FW-E3Q-62-3 FW-E3Q-62-4 MM-CP-297B FW-FR-4224 FW-FI-4244-2 FW-FI-4244-2	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Control Switch with Indication Auxiliary Relays Timing Relay Timing Relay Timing Relay Timing Relay "B" Train BOP-PCC Flow Recorder Flow Transmitter Flow Indicator	B4C B4C G2J G2J B4C B4C V2M E3D F51 E3D E3Q E3Q E3Q FL2 F86 GL4 F56	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-3A-A EFP-F-1A-A CB-F-3A-A	B4C-V2M B4C-V2M/1 E3D-G2J/3 GJ2-V2M B4C-G2J E3D-F51/3 F51-G2J/3 E3D-FL2 E3D-F51/4 FL2-GL4 F56-FL2 F88-FL2	B4Ca 310844 B4Cd B4Ce E3F/1a 310952 E3F/1c FL2a	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4244-A		
14	MS-PV-3001	Main Steam Header	MS-20580	A/B	310589	MS-F-2B-Z	X	X	X	X	V2N	MS-E2T/8-72 MS-SS-3001-2 MS-PY-3001-1 MS-PY-3001-2 MS-PY-3001-3 MS-PY-3001-4 MS-CS-3001-1 MS-CS-3001-2 MS-SS-3001-1 MS-ZS-3001-A MS-PY-3001-5 MS-PY-3001-6 MS-EZU/15-72 MS-CS-3001-1	125 V DC Circuit Breaker Selector Switch Solenoid Valve Solenoid Valve Solenoid Valve Solenoid Valve Control Switch with Indication Control Switch with Indication Selector Switch Valve Position Switch Solenoid Valve Solenoid Valve 125 V DC Circuit Breaker Control Switch	E2T G5X U0A U0A U0B U0B F60 G2G G2G V2N U0C U0C E2U F60	CB-F-1A-A DG-F-2A-A MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z CB-F-3A-A CB-F-1A-A CB-F-1A-A MS-F-2B-Z MS-F-2B-Z CB-F-1B-A CB-F-3A-A	G2G-V2N G2G-U0A G2G-U0B F60-G2G/9 E2T-G5X G2G-CSX E2U-F66 F66-U0C	E2T/8a 310841 E2T/8e E2T/8f 310841 E2U/15 E2U/15	CBA-FN-19 CBA-FN-20 EDE-PP-113A INST AIR EDE-PP-113B	MS-PV-3002 or MS-PV-3004		
15	MS-PV-3003	Main Steam Header Atmospheric Relief Valve	MS-20580	A/B	310586	MS-F-2A-Z	X	X	X	X	V2Q	MS-SS-3003-2 MS-CS-3003-2 MS-CS-3003-1 MS-E2T/10-72 MS-SS-3003-1 MS-ZS-3003-A MS-PY-3003-1 MS-PY-3003-2 MS-PY-3003-3 MS-PY-3003-4 MS-PY-3003-5 MS-PY-3003-6 MS-E2U/16-72 MS-CS-3003-1	Selector Switch Control Switch with Indication Control Switch with Indication 125 V DC Circuit Breaker Selector Switch Valve Position Switch Solenoid Valve Solenoid Valve Solenoid Valve Solenoid Valve Solenoid Valve 125 V DC Circuit Breaker Control Switch	G5X G2G F60 E2T G2G V2Q U0K U0K U0L U0L U0M U0M E2U F60	DG-F-2A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z CB-F-1B-A CB-F-3A-A	G2G-V2Q G2G-U0K G2G-U0L F60-G2G/B E2T-CSX/1 G2G-G5X/1 E2U-F66/1 F66-U0M	E2T/10a 310841 E2T/10 E2T/10 E2U/16 E2U/1	EDE-PP-113A CBA-FN-19 CBA-FN-20 INST AIR EDE-PP-113B	MS-PV-3002 or MS-PV-3004		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.1-10
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
19	MS-V-88	Main Steam Isolation Valve	MS-20583	A/B	310586	MS-F-2A-Z	X	X	X	X	ZW3 ZW4 ZW5 ZW6	MS-E2T/12-72 MS-FY-89A-2 MS-FY-10A-2 MS-FY-102A-2 MS-FY-102B-2 MS-GX7-K103 MS-GX7-K104 MS-GX7-CS-3006-A MS-E1S/9-52 MS-GX7-FU-101,102 MS-GX7-K101 MS-GX7-K102 MS-ZS-V88A-1 MS-ZS-V88A-2 MS-ZL-3006-1 MS-SS-3005-1 MS-CP-182 MS-CS-3006 MS-FC1-K-804 MS-CS-3085-2 MS-DS-8030 MS-FB7-K634A MS-E2U/12-72 MS-GX8-K103 MS-GX8-K104 MS-FY-89B-2 MS-FY-10B-2 MS-FY-117A-2 MS-FY-117B-2 MS-GX8-CS-3006-B MS-E1T/9-52 MS-GX8-FU-101,102 MS-GX8-K101 MS-GX8-K102 MS-ZS-V88B-1 MS-ZS-V88B-2 MS-ZL-3006-2 MS-SS-3005-2 MS-CP-183 MS-FC2-K-804 MS-CS-3085-1 MS-DS-8030 MS-FB0-K634B	125 V DC Circuit Breaker Pilot Solenoid Pilot Solenoid Solenoid Valve Solenoid Valve Output Relay Output Relay Control Switch 120 V AC Circuit Breaker 120 V AC Fuses Output Relay Output Relay Valve Position Switch Valve Position Switch Valve Position Indicating Lights Selector Switch MSIV Logic Cabinet (Train A) Control Switch with Indication Auxiliary Relay SSPS Test Control Switch Isolation Indication SSPS Auxiliary Relay 125 V DC Circuit Breaker Output Relay Output Relay Pilot Solenoid Pilot Solenoid Solenoid Valve Solenoid Valve Control Switch 125 V AC Circuit Breaker 120 V AC Fuses Output Relay Output Relay Valve Position Switch Valve Position Switch Valve Position Indicating Lights Selector Switch MSIV Logic Cabinet (Train B) Auxiliary Relay SSPS Test Control Switch Isolation Indication SSPS Auxiliary Relay	E2T ZW3 ZW3 ZW3 ZW3 GX7 GX7 GX7 ZW5 ZW5 G2G G2G GX7 GX7 F60 FC1 F20 FC1 FB7 E2U GX8 GX8 ZW4 ZW4 ZW4 ZW4 GX8 E1T GX8 GX8 GX8 GX8 ZW6 ZW6 G2J G2J GX8 FC2 F50 FC2 FB0	CB-F-1A-A MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-3A-Z MS-F-3A-Z MS-F-3A-Z CB-F-1A-A MS-F-3A-Z MS-F-3A-Z MS-F-3A-Z MS-F-2A-Z MS-F-2A-Z CB-F-1A-A CB-F-1A-A MS-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A MS-F-2A-Z MS-F-2A-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	E2T-GX7 GX7-ZW3 E1S-GX7/1 G2G-GX7/4 G2G-GX7/5 GX7-ZW5 G2G-GX7/3 FB7-GX7 F20-GX7 GX7-ZW5/1 FC1-GX7 F60-GX7/1 FC1-GX7/1 FB7-FC1/F F60-G2G/5 F60-GX7 E2U-GX8 GX8-ZW4 E1T-GX8/3 G2J-GX8 GX8-ZW6 G2J-GX8/1 FB0-GX8 F51-GX8 GX8-ZW6/1 FC2-GX8 FB0-FC2/F	310841 E2T/12a E2T/12c E1S/9a E1S/9h E1S/9b E1S/9i E1S/9c E1S/9j E1S/9d E1S/9k E2U/12a E2U/12c E1T/9a E1T/9f E1T/9b E1T/9g E1T/9c E1T/9i	CBA-FN-19 DBA-FN-20 EDE-PP-113A CBA-FN-19 CBA-FN-20 EDE-PP-11E CBA-FN-32 CBA-FN-33 EDE-PP-113B CBA-FN-32 CBA-FN-33 EDE-PP-11F	None	Note 2	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.1-12
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
21	MS-V-92	Main Steam Isolation Valve	MS-20583	A/B	310589	MS-F-2B-Z	X	X	X	X	ZX3 Z1A Z1B Z1C	MS-E87/18-52 MS-GX6-K111 MS-GX6-K112 MS-FY-89A-4 MS-FY-10A-4 MS-FY-102A-4 MS-FY-102B-4 MS-CP-184 MS-GX6-CS-3008-A MS-E1S/7-52 MS-GX6-FU-103,104 MS-GX6-K109 MS-GX6-K110 MS-ZS-V92A-1 MS-ZS-V92A-2 MS-ZL-3008-1 MS-SS-3005-1 MS-CP-184 MS-CS-3008 MS-CS-3085-2 MS-DS-8032 MS-FB7-K634A MS-FC1-K804 MS-E88/14-72 MS-GX9-K111 MS-GX9-K112 MS-FY-89B-4 MS-FY-10B-4 MS-FY-117A-4 MS-FY-117B-4 MS-CP-185 MS-GX9-3008-B MS-E1T/7-52 MS-GX9-FU-103,104 MS-GX9-K109 MS-GX9-K110 MS-ZS-V92B-1 MS-ZS-V92B-2 MS-ZL-3008-2 MS-SS-3005-2 MS-CP-185 MS-CS-3085-1 MS-DS-8032 MS-FB0-K634B MS-FC2-K804	125 V DC Circuit Breaker Output Relay Output Relay Pilot Solenoid Pilot Solenoid Solenoid Valve Solenoid Valve MSIV Logic Cabinet (Train A) Control Switch 120 V AC Circuit Breaker 120 V AC Fuses Output Relay Output Relay Valve Position Switch Valve Position Switch Valve Position Indicating Lights Selector Switch MSIV Logic Cabinet (Train A) Control Switch with Indication Control Switch Isolation Indication SSPS Auxiliary Relay Auxiliary Relay SSPS Test 125 V DC Circuit Breaker Output Relay Output Relay Pilot Solenoid Pilot Solenoid Solenoid Valve Solenoid Valve MSIV Logic Cabinet (Train B) Control Switch 125 V AC Circuit Breaker 120 V AC Fuses Output Relay Output Relay Valve Position Switch Valve Position Switch Valve Position Indicating Lights Selector Switch MSIV Logic Cabinet (Train B) Control Switch Isolation Indication SSPS Auxiliary Relay Auxiliary Relay SSPS Test	E87 GX6 GX6 ZX3 ZX3 ZX3 ZX3 GX6 GX6 GX6 Z1B Z1B G2G G2G GX6 GX6 F60 F20 FC1 FC1 FC1 E88 GX9 GX9 Z1A Z1A Z1A GX9 GX9 GX9 GX9 Z1C Z1C G2J G2J GX9 GX9 GX9 Z1C Z1C G2J G2J GX9 GX9 F50 FC2 FB0 FC2	CB-F-1A-A MS-F-3A-Z MS-F-3A-Z MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z CB-F-1A-A MS-F-3A-Z CB-F-1A-A MS-F-3A-Z MS-F-3A-Z MS-F-3A-Z MS-F-2B-Z MS-F-2B-Z CB-F-1A-A CB-F-1A-A MS-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z 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 CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	E87-GX6/1 GX6-ZX3 E87/18a E87/18c E1S-GX6/1 G2G-GX6/3 G2G-GX6/4 G2G-GX6/5 GX6-Z1B FB7-GX6 GX6-Z1B/1 F20-GX6/1 FC1-GX6 F60-GX6/1 FB7-PC1/E F60-GX6 F60-G2G/2 E88-GX9/1 GX9-Z1A E88/9a E88/9c E1T-GX9/3 GX9-Z1C G2J-GX9 G2J-GX9/1 FB0-GX9 F51-GX9 GX9-Z1C/1 FB0-FC2/E FC2-GX9 E1T/7a E1S/7b E1S/7c E1S/7h E1S/7i E1S/7j E1S/7k	310841 E87/18a E87/18c E1S/7a E1S/7b E1S/7c E1S/7d E1S/7h E1S/7i E1S/7j E1S/7k CBA-FN-19 CBA-FN-20 EDE-PP-112A CBA-FN-19 CBA-FN-20 EDE-PP-11E CBA-FN-32 CBA-FN-33 EDE-PP-112B CBA-FN-32 CBA-FN-33 EDE-PP-11F	None	Note 2		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.1-13
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
22	MS-V-204	Main Steam Isolation Valve Bypass Valve	MS-20583	A	310589	MS-F-2B-Z	X	X	X	-	VU6	MS-B1X-52	460 VAC Circuit Breaker	B1X	CB-F-1A-A	-	-	-	-	None	Note 3
23	MS-V-205	Main Steam Isolation Valve Bypass Valve	MS-20583	A	310586	MS-F-2A-Z	X	X	X	-	VU7	MS-B1Y-52	460 VAC Circuit Breaker	B1Y	CB-F-1A-A	-	-	-	-	None	Note 3
24	MS-V-206	Main Steam Isolation Valve Bypass Valve	MS-20583	A	310586	MS-F-2A-Z	X	X	X	-	VU8	MS-B1Z-52	460 VAC Circuit Breaker	B1Z	CB-F-1A-A	-	-	-	-	None	Note 3
25	MS-V-207	Main Steam Isolation Valve Bypass Valve	MS-20583	A	310589	MS-F-2B-Z	X	X	X	-	VU9	MS-B2A-52	460 VAC Circuit Breaker	B2A	CB-F-1A-A	-	-	-	-	None	Note 3
26	RC-E-11A	Steam Generator	RC-20841	A	310576 310582 310578	C-F-1-Z C-F-1-Z C-F-2-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	RC-E-11B or RC-E-11D	Note 1
27	RC-E-11B	Steam Generator	RC-20842	B	310576 310582 310578	C-F-1-Z C-F-1-Z C-F-2-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	RC-E-11A or RC-E-11C	Note 1
28	RC-E-11C	Steam Generator	RC-20843	A	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	RC-E-11B or RC-E-11D	Note 1
29	RC-E-11D	Steam Generator	RC-20844	B	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	RC-E-11A or RC-E-11C	Note 1
30	SB-V9	Outboard Blowdown	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM4	SB-CS-1900 SB-FB0-K630B SS-FY-1900B SB-ZS-V9	Control Switch with Indication SSPS Output Relay Pilot Solenoid Valve Position Switch	F28 FB0 U6V UM4	CB-F-3A-A CB-F-3A-A MS-F-1B-Z MS-F-1B-Z	F26-U6V F26-UM4 F26-FB0/4	310901 E88/18a E88/18c E88/18d		SB-V-1	Note 2	
31	SB-V10	Outboard Blowdown	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM5	SB-CS-1901 SB-FB0-K630B SS-FY-1901-B SB-ZS-V10	Control Switch with Indication SSPS Output Relay Pilot Solenoid Valve Position Switch	F28 FB0 U6W UM5	CB-F-3A-A CB-F-3A-A MS-F-1B-Z MS-F-1B-Z	F26-U6W F26-UM5 F26-FB0/4	310901 E88/18a E88/18c E88/18d		SB-V-3	Note 2	
32	SB-V11	Outboard Blowdown Isolation Valve	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM6	SB-CS-1902 SB-FB0-K630B SS-FY-1902-B SB-ZS-V11	Control Switch with Indication SSPS Output Relay Pilot Solenoid Valve Position Switch	F28 FB0 U6X UM6	CB-F-3A-A CB-F-3A-A MS-F-1B-Z MS-F-1B-Z	F26-U6X F26-UM6 F26-FB0/4	310901 E88/18a E88/18c E88/18d		SB-V-5	Note 2	
33	SB-V12	Outboard Blowdown Isolation Valve	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM7	SB-CS-1903 SB-FB0-K630B SS-FY-1903-B SB-ZS-V12	Control Switch with Indication SSPS Output Relay Pilot Solenoid Valve Position Switch	F28 FB7 U6Y UM7	CB-F-3A-A CB-F-3A-A MS-F-1B-Z MS-F-1B-Z	F26-U6Y F26-UM7 F26-FB0/5	310901 E88/18a E88/18c E88/18d		SB-V-7	Note 2	
34	SB-V-1	RC-E-11A Inboard Blowdown Isolation Valve	SB-20626	A	310578	C-F-2-Z	X	X	X	X	VB7	SB-CS-1987 SB-FY-V1-20 SB-ZS-V1 EDE-MM-112	Control Switch with Indication Solenoid Valve Valve Position Switches Electrical Penetration	F28 VB7 VB7 H36	CB-F-3A-A C-F-2-Z C-F-2-Z C-F-2-Z ET-F-1A-A	F28-H36/4 F28-H36/5 H36-VB7/1	310901 E93/14a E93/14b	E93/14d	SB-V-9	Note 2	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-1
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	RC-E-10	Reactor Coolant System Pressurizer	RC-20846	A/B	310598	C-F-1-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	None	Note 1
2	RC-E-10	Pressurizer Heaters Group A	RC-20846	A	310598	C-F-1-Z	X	X	X	-	M26	RC-AB4-52 RC-AB4-FV RC-CS-7318-2 RC-SS-7318 EDE-AC3-94-3 RC-AB4-52H-1 EDE-TBX-X47 RC-AB4-G,R RC-AB4-CT1 RC-AB4-AM RC-AB4-CT2 RC-AC3-WTR RC-PP-6A EDE-MM-90 RC-HR2-RMO, PR1 RC-CS-7318-1 RC-PYY-455GX1 RC-LYY-459CX1 RC-LYY-460DX1 RC-LYY-459EX1 EDE-AC3-94-3 RC-LT-459 MM-CP-1 EDE-MM-121 MM-CP-5 RC-LT-460 EDE-MM-131 MM-CP-2 MM-CP-6	480 V AC Circuit Breaker Fuses Control Switch with Indication Selector Switch Bus Undervoltage Relay Truck Operated Contact Terminal Box Indicating Lights Current Transformer (600/5) ØB Bus Side Ammeter Current Transformer (600/5) ØA, ØC Load Side Watt Transducer Distribution Panel Electrical Penetration Emergency Power Sequence Auxiliary Relays Control Switch with Indication Low Pressure Auxiliary Relay Low Level Auxiliary Relay Low Level Auxiliary Relay High Level Auxiliary Relay Undervoltage Tripping Relay Pressurizer Level Transmitter Process Protection System Cabinet No. 1 Electrical Penetration Process Control GP No. 1 Cabinet Pressurizer Level Transmitter Electrical Penetration Process Protection System Cabinet No. 2 Process Control GP No. 2 Cabinet	AB4 AB4 G81 G81 AC3 AB4 X47 AB4 AB4 AB4 AB4 AC3 E07 H14 HR2 F31 FB1 FB1 FB1 FB1 AC3 GN5 FA1 H45 FA5 GN5 H55 FA2 FA6	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-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A ET-F-1A-A ET-F-1A-A C-F-2-Z CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A C-F-2-Z CB-F-3A-A C-F-2-Z ET-F-1A-A CB-F-3A-A C-F-2-Z C-F-1-Z ET-F-1C-Z CB-F-3A-A CB-F-3A-A	AB4-E07 AB4-E07/1 AB4-G81 AB4-G81/1 E07-H14 E07-H14/1 E07-H14/2 E07-H14/3 E07-H14/4 H14-X47 H14-X47/1 H14-X47/2 H14-X47/3 H14-X47/4 M26-X47 M26-X47/1 M26-X47/2 M26-X47/3 M26-X47/4 M26-X47/5 M26-X47/6 M26-X47/7 M26-X47/8 M26-X47/9 M26-X47/A M26-X47/B M26-X47/C M26-X47/D M26-X47/E FB1-HR2 F38-FB1 F38-G81 GN5-H45/1 FA1-H45/1 H45 FA5 GN5-H55/2 FA2-H55/3 H55 FA2 FA6	-	310882 AB4a AB4b AB4c AB4g AB4h AB4i	CBA-FN-19 CBA-FN-20 EDE-US-52	Pressurizer - Heaters Group B	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-2
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NO	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NO	FIRE AREA/ZONE		SCHEM.	CABLE			
3	RC-E-10	Pressurizer Heaters Group B	RC-20846	B	310598	C-F-1-Z	X	X	X	-	M26	RC-AD4-52	480 V AC Circuit breaker	AD4	CB-F-1B-A	AD4-E08	310882		CBA-FN-32	Pressurizer Heaters Group A	
												RC-AD4-FU	Fuses	AD4	CB-F-1B-A	AD4-E08/1					
												RC-CS-7319-2	Control Switch with indication	GZ0	CB-F-1B-A	AD4-GZ0/1	AD4a	AD4f			
												RC-SS-7319	Selector Switch	GZ0	CB-F-1B-A	E08-H20	AD4b	AD4g			
												EDE-AE3-94-3	Bus Undervoltage relay	AE3	CB-F-1B-A	E08-H20/1	AD4c	AD4p			
												RC-AD4-52H-1	Truck Operated contact	AD4	CB-F-1B-A	E08-H20/2		AD4n			
												RC-AD4-G,R	Indicating Lights	AD4	CB-F-1B-A	E08-H20/3					
												EDE-TBX-X44	Terminal Box	X44	C-F-1-Z	H20-X44/1					
												RC-AD4-CT1	Current Transformer 600/5) 0B Bus Side	AD4	CB-F-1B-A	H20-X44/2					
												RC-AD4-AM	Ammeter	AD4	CB-F-1B-A	H20-X44/3					
												RC-AD4-CT2	Current Transformer 600/5) 0A, 0C Load side	AD4	CB-F-1B-A	H20-X44/4					
												RC-AE3-WTR	Watt Transducer	AE3	CB-F-1B-A	M26-X44					
												RC-PP-6B	Distribution Panel	E08	ET-F-1C-A	M26-X44/1					
												EDE-MM-96	Electrical penetration	H20	ET-F-1C-A	M26-X44/2					
												RC-AE3-R1	Auxiliary Relay	AE3	CB-F-1B-A	M26-X44/3					
												RC-HR4-RM0,PR1	Emergency Power sequencer Auxiliary relays	HR4	CB-F-1B-A	M26-X44/4					
												RC-CS-7319-1	Control Switch with indication	F31	CB-F-3A-A	M26-X44/5					
												EDE-FT0-KA2,KA3	Auxiliary Relays	FT0	CB-F-3A-A	M26-X44/6					
												A4,KA5	Isolation Cabinet			M26-X44/7					
												EDE-AE3-94-3	Undervoltage Tripping relay	AE3	CB-F-1B-A	M26-X44/8					
																F31-FT0					
																F31-HR4					
																F31-GZ0					
																AE3-GZ0					
												RC-FS9-FU	Fuses	FS9	CB-F-3A-A	FB2-FS9/1	310966				
												RC-LYY-459CX2	Low Level Auxiliary relay	FB2	CB-F-3A-A	FB2-FS9/2	EH9/15a	EH9/15s			
												RC-LYY-460DX2	Low Level Auxiliary relay	FB2	CB-F-3A-A		EH9/15b	EH9/15t			
												EDE-FT0-KA3,KA5	Auxiliary Relays Isolation Cabinet	FT0	CB-F-3A-A		EH9/15c				
																	EH9/15d				
																	EH9/15e				
																	EH9/15f				
																	EH9/15g				
																	EH9/15h				
																	EH9/15i				
												MM-CP-5	Process Control cabinet	FA5	CB-F-3A-A	GN5-H45/1	C509011	310942			
												EDE-MM-121	Electrical penetration	H45	C-F-2-Z	FA1-H45/1	C509027	FA1s			
												MM-CP-1	Process Protection cabinet No. 1	FA1	CB-F-3A-A		FP30001	FA1w			
												RC-LT-459	Pressurizer Level transmitter	GN5	C-F-2-Z		FP129				
												RC-LT-460	Pressurizer Level transmitter	GN5	C-F-2-Z	GN5-H55/2	C509011	310942			
												EDE-MM-131	Electrical penetration Process protection System	H55	C-F-1-Z	FA2-H55/3	C509027	FA2r			
												MM-CP-2	Protection System cabinet No. 2	FA2	CB-F-3A-A		FP30001	FA2w			
												MM-CP-6	Process Control GP cabinet No. 2 Cabinet	FA6	CB-F-3A-A		SH129				

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-3
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	RC-V-122	RC-E-10 Pressurizer Relief Isolation Valve	RC-20846	A	310581	C-F-3-Z	X	X	X	-	V01	RC-B97-52-1,2 RC-B97-FU RC-CS-7313-2 RC-SS-7313 RC-B97-42-1/0,C RC-B97-42-2 RC-B97-49-1,2 EDE-TBX-X56 RC-ZS-V122 EDE-MM-94 EDE-MM-111 RC-CS-7313-1 RC-ED1-R1	460 V AC 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 Control Switch with Indication Auxiliary Relay	B97 B97 G81 G81 B97 B97 B97 X56 V01 H18 H35 F31 ED1	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-3-Z C-F-3-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A CB-F-1A-A	B97-G81 B97-G81/1 B97-H18 B97-H35 H18-V01 H35-X56 V01-X56 ED1-F38 F38-G81/2 F38-G81/3	310882 B97a B97e B97c B97d	CBA-FN-19 CBA-FN-20 EDE-MCC-521	RC-V-124 or RC-PCV-456A		
5	RC-V-124	RC-E-10 Pressurizer Relief Isolation Valve	RC-20846	B	310581	C-F-3-Z	X	X	X	-	V02	RC-B98-52-1,2 RC-B98-FU RC-CS-7314-2 RC-SS-7314 RC-B98-42-1/0,C RC-B98-42-2 RC-B98-49-1,2 EDE-TBX-X35 RC-ZS-V124 EDE-MM-91 EDE-MM-117 RC-CS-7314-1 RC-FT0-KA6	460 V AC Circuit Breakers Fuses 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 Control Switch with Indication Auxiliary Relay	B98 B98 G20 G20 B98 B98 B98 X35 V02 H15 H41 F31 FT0	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-3-Z C-F-3-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-3A-A CB-F-3A-A	B98-G20 B98-G20/1 B98-H15 B98-H41 H15-V02 H41-X35 V02-X35 B98-G20/2 F31-FT0/1 F31-G20/5 F31-G20/6	310882 B98a B98e B98c B98d	CBA-FN-32 CBA-FN-33 EDE-MCC-621	RC-V-122 or RC-PCV-456B		
6	RC-PCV-456A	RC-E-10 Pressurizer Relief Control Valve	RC-20846	A	310581	C-F-3-Z	X	X	X		LD3	RC-E87/19-72 RC-CS-456A-2 RC-SS-456-A1 RC-SS-456-A2 RC-J3M-42 RC-PCV-456A-20 RC-ZS-PCV-456A RC-E4A-FU11,12 EDE-TBX-X56 EDE-MM-94 EDE-MM-111 RC-CS-456A-1 RC-PY-405CX, RC-TY-413KK RC-PY-455EX, RC-PY-458BX	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Selector Switch Auxiliary Relay Solenoid Operating Coil Valve Position Switch 30 A Fuses Terminal Box Electrical Penetration Electrical Penetration Control Switch with Indication Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay	E87 G81 G81 G5X J3M LD3 LD3 E4A X56 H18 H35 F31 FB1 FB1 FB1 FB1	CB-F-1A-A CB-F-1A-A CB-F-1A-A DG-F-2A-A DG-F-2A-A C-F-3-Z C-F-3-Z CB-F-1A-A C-F-3-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	E87-E4A/4 E4A-J3M G81-J3M G81-H35 G5X-J3M H18-J3M H18-LD3 H35-X56/2 LD3-X56 F38-G81/1 F38-FB1/2	310882 E87/19a E87/19c E87/19d	CBA-FN-19 CBA-FN-20 EDE-PP-112A	RC-PCV-456B or RC-V-122		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.2-4
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																						
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
7	RC-PCV-456B	RC-E-10 Pressurizer Relief Control Valve	RC-20846	B	310581	C-F-3-Z	X	X	X		LD4	RC-E88/19-72 RC-CS-456B-2 RC-SS-456-B1 RC-SS-456-B2 RC-J3P-42 RC-PCV-456B-20 RC-ZS-PCV-456B RC-E4C-FU19,20 EDE-TBX-X35 EDE-MM-100 EDE-MM-115 RC-CS-456B-1 EDE-FT0-KA7 RC-E4C-FU-23,24	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Selector Switch Auxiliary Relay Solenoid Operating Coil Valve Position Switch 30 A Fuses Terminal Box Electrical Penetration Electrical Penetration Control Switch with Indication Auxiliary Relays Isolation Cabinet 30 A Fuses	E88 GZ0 GZ0 G5Y J3P LD4 LD4 E4C X35 H24 H39 F31 FT0 E4C	CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-2B-A DG-F-2B-A C-F-3-Z C-F-3-Z CB-F-1B-A C-F-3-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-3A-A CB-F-3A-A CB-F-1B-A	E88-E4C/7 E4C-J3P GZ0-J3P GZ0-H39 G5Y-J3P H24-J3P H24-LD4 H39-X35 LD4-X35 F31-FT0/2 F31-GZ0/2 E4C-GZ0/2	310882 E88/19a E88/19c E88/19d		CBA-FN-32 CBA-FN-33 EDE-PP-112B	RC-PCV-456A or RC-V-124		
8	RC-TK11	Pressurizer Relief Tank	RC-20846	A/B	310577	C-F-1-Z	X	X		-	-	-	-	-	-	-	-		None	Note 1		
9	RC-V-323	Reactor Vessel Venting Valve	RC-20485	B	310581	C-F-3-Z	X	X	X	-	VB2	RC-BV9-42-1,2 RC-BV9-49-1,2 RC-CS-2885 RC-V-323 EDE-MM-91 EDE-MM-117	Starter Overload Relays Control Switch with Indication Valve Position and Open/Close Torque Switches Electrical Penetration Electrical Penetration	BV9 BV9 F31 VB2 H15 H41	CB-F-1B-A CB-F-1B-A CB-F-3A-A C-F-3-Z C-F-1-Z ET-F-1C-A C-F-1-Z ET-F-1C-A	BV9-F31 CB-F-1B-A BV9-H41 F31-H41/2 H41-VB2 H41-VB2/1	310882 BV9a BV9c BV9d			RC-FV-2881		
10	RC-FV-2881	Reactor Vessel Venting Valve	RC-20845	B	310581	C-F-3-Z	X	X	X		U04	RC-CS-2881 RC-SS-2881 RC-GN0-R7 EDE-CP-249 EDE-MM-117 EDE-MM-115	Control Switch with Indication Selector Switch Auxiliary Relay EDE-CP-249 Electrical Penetration Electrical Penetration	F31 G5Y GN0 H41 H39	CB-F-3A-A CB-F-1B-A CB-F-1B-A C-F-1-Z ET-F-1C-A C-F-1-Z ET-F-1C-A	F31-GN0 F31-G5Y F31-H41/1 H41-U04 H39-U04 F26-H39	310882 E88/1g E88/1e E88/1d E88/1f			RC-V-323		
11	RC-LCV-459	Letdown Isolation Valve	RC-20843	A	310577	C-F-1-Z	X	X	X	X	L99	RC-SS-459 CS-ZS-V-145 RC-CS-459 RC-LY/459-CX1 EDE-MM-112	Selector Switch Position Switch Control Switch with Indication Auxiliary Relay Auxiliary Rack No. 1 Electrical Penetration	G5X LH2 F40 FB1 H36	DG-F-2A-A C-F-1-Z CB-F-3A-A CB-F-3A-A C-F-2-Z ET-F-1A-A	F40-FB1/2 F40-G5X F40-H36 GE5-H36/2 GE5-LH2/1 GE5-L99 L99-LH2	310882 E89/17a E89/17c E89/17d			RC-LCV-460 CS-V-145		
12	RC-LCV-460	Letdown Isolation Valve	RC-20843	A	310577	C-F-1-Z	X	X	X	X	LF7	RC-CS-460 CS-ZS-V-145 RC-LY/460-DX1 EDE-MM-112	Control Switch with Indication Position Switch Auxiliary Relay Auxiliary Rack No. 1 Electrical Penetration	F40 LH2 FB1 H36	CB-F-3A-A C-F-1-Z CB-F-3A-A C-F-2-Z ET-F-1A-A	F40-FB1 F40-H36/1 F40-H36/3 GE4-H36 GE4-LH2 GE4-LF7/1	310882 E89/1b E89/1e E89/1f			RC-V-459 CS-V-145		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.2-6		
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
15	CS-V-142	Charging Line Isolation Valve	CS-20722	A	310769	PP-F-1A-Z	X	X	X	-	V12	CS-B82-52 CS-CS-7410-2 CS-SS-7410 CS-B82-42/0,C CS-B82-49 CS-ZS-V142 CS-B82-FU CS-CS-7410-1 CS-FB7-K601A	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuse Control Switch with Indication Auxiliary Relay SSPS 'A' CAB	B82 G2G G2G B82 B82 V12 B82 F41 FB7	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PP-F-1A-Z CB-F-1A-A CB-F-3A-A CB-F-3A-A	B82-G2G B82-G2G/1 B82-V12 B82-V12/1 F41-FB7/1 F41-G2G/4 F41-G2G/5	310891 B82a B82c B82d	CBA-FN-19 CBA-FN-20 EAH-FN-5A EDE-MCC-512	CS-V-143 or CS-HCV-182		
16	CS-V-143	Charging Line Isolation Valve	CS-20722	B	310769	PP-F-1A-Z	X	X	X	-	V11	CS-B87-52 CS-CS-7411-2 CS-SS-7411 CS-B87-42/0,C CS-B87-49 CS-ZS-V143 CS-B87-FU CS-CS-7411-1 CS-FB0-K601B	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuse Control Switch with Indication Auxiliary Relay SSPS 'A' CAB	B87 G2J G2J B87 B87 V11 B87 F41 FB0	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PP-F-1A-Z CB-F-1B-A CB-F-3A-A CB-F-3A-A	B87-G2J B87-G2J/1 B87-V11 B87-V11/1 F48-FB0/3 F48-G2J/2 F48-G2J/3	310891 B87a B87c B87d	CBA-FN-32 CBA-FN-33 EAH-FN-5B EDE-MCC-612	CS-V-142 or CS-HCV-182		
17	RC-P-1A	Reactor Coolant Pump	RC-20841	A	310576 310582 310578	C-F-1-Z C-F-1-Z C-F-2-Z	X	-	X	-	M01	RC-A05-52 ED-E97-72 RC-A05-FU RC-CS-7300	13.8 kV Circuit Breaker 125 V DC Circuit Breaker Fuses (Trip Circuit) Control Switch with Indication	A05 E97 A05 F31	NES-F-1A-Z NES-F-1A-Z NES-F-1A-Z CB-F-3A-A	A05-F31/2	310882 A05a A05b A05c A05d A05i	A05g A05h	ED-SWG-1	None	
18	RC-P-1B	Reactor Coolant Pump	RC-20842	A	310576 310582 310578	C-F-1-Z C-F-1-Z C-F-2-Z	X	-	X	-	M02	RC-A20-52 ED-E97-72 RC-A20-FU RC-CS-7304	13.8 kV Circuit Breaker 125 V DC Circuit Breaker Fuses (Trip Circuit) Control Switch with Indication	A20 E97 A20 F31	NES-F-1A-Z NES-F-1A-Z NES-F-1A-Z CB-F-3A-A	A20-F31/2	310882 A20a A20b A20c A20d A20i	A20g A20K	ED-SWG-1	None	
19	RC-P-1C	Reactor Coolant Pump	RC-20843	A	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	-	X	-	M03	RC-A09-52 ED-E91-72 RC-A09-FU RC-CS-7306	13.8 kV Circuit Breaker 125 V DC Circuit Breaker Fuses (Trip Circuit) Control Switch with Indication	A09 E91 A09 F31	NES-F-1A-Z TB-F-1A-Z NES-F-1A-Z CB-F-3A-A	A09-F38/2	310882 A09a A09b A09c A09d A09i	A09g A09h	ED-SWG-2	None	
20	RC-P-1D	Reactor Coolant Pump	RC-20844	A	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	-	X	-	M04	RC-A24-52 ED-E91-72 RC-A24-FU RC-CS-7308	13.8 kV Circuit Breaker 125 V DC Circuit Breaker Fuses (Trip Circuit) Control Switch with Indication	A24 E91 A24 F31	NES-F-1A-Z TB-F-1A-Z NES-F-1A-Z CB-F-3A-A	A24-F31/2	310882 A24a A24b A24c A24d A24i	A24g A24h	ED-SWG-2	None	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-7
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
21	RC-V-22	RC-E-11A Hot Leg-RHR Isolation Valve	RC-20841	B	310582	C-F-1-Z	-	X	X	-	V27	RC-B54-52-1	460 V AC Circuit Breaker	B54	CB-F-1B-A		310882 B54a B54d	B54c		RC-V-23	Note 4 7 and 8
22	RC-V-23	RC-E-11A Hot Leg-RHR Isolation Valve	RC-20841	A	310576	C-F-1-Z	-	X	X	-	V25	RC-B53-52-1	460 V AC Circuit Breaker	B52	CB-F-1A-A		310882 B53a B53d	B53c		RC-V-22	Note 4, 7 and 8
23	RC-V-87	RC-E-11D Hot Leg-RHR Isolation Valve	RC-20844	B	310582	C-F-1-Z	-	X	X	-	V26	RC-B61-52-1	460 V AC Circuit Breaker	B61	CB-F-1B-A		310882 B61a B61d	B61c		RC-V-88	Note 4, 7 and 8
24	RC-V-88	RC-E-11D Hot Leg-RHR Isolation Valve	RC-20844	A	310577	C-F-1-Z	-	X	X	-	V28	RC-B62-52-1	460 V AC Circuit Breaker	B62	CB-F-1AXA		310882 B62a B62d	B62c		RC-V-87	Note 4, 7 and 8
25	SI-V-3	Accumulator TK-9A Outlet Isolation Valve	SI-20450	A	310576	C-F-1-Z		X	X	-	V39	SI-B35-5-1,2 SI-B35-FU SI-CS-2403-2 SI-SS-2403 SI-ZL-2403-4 SI-B35-42/0,C SI-B35-49 SI-ZS-V3 EDE-MM-95 EDE-MM-112 SI-FB7-K603A,K621A SI-CS-2403-1 SI-EH9/9-52 SI-CS-2403-2 SI-SS-2403 SI-ZS-V3 SI-E4H-FU7,8 EDE-MM-112 SI-CS-2403-1	460 V AC 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 Auxiliary Relays Control Switch 120 V AC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 A Fuses Electrical Penetration Control Switch with Indication	B35 B35 G81 G81 G81 B35 B35 V39 H19 H36 FB7 F20 EH9 G81 G81 G81 V39 E4H H36 F20	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-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z CB-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A	B35-G81 B35-H19 B35-H36 H19-V39 H36-V39 F20-FB7/5 F20-G81/1 G81-H35/5 G81-H36/6 H35-V41/1 H36-V39/1 E4H-EH9 E4H-G81 F20-G81	B35a EH9/9a	B35c EH9/9b	CBA-FN-19 CBA-FN-20 EDE-MCC-522 CBA-FN-19 CBA-FN-20 EDE-PP-1E	SI-FV-2475 SI-FV-2476	

SEABROOK
STATION

Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 9
Table MCR 3.1.3.2-8

FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL

ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
26	SI-V-17	Accumulator TK-9B Outlet Isolation Valve	SI-20450	B	310576	C-F-1-Z		X	X	-	V40	SI-B36-52-1,2 SI-B36-FU SI-CS-2413-2 SI-SS-2413 SI-ZL-2413-4 SI-B36-42/0,C SI-B36-49 SI-ZS-V17 EDE-MM-91 EDE-MM-117 SI-FB0-K603B,K621 SI-CS-2413-1 SI-EH0/9-52 SI-CS-2413-2 SI-SS-2413 SI-ZS-V17 SI-E4J-FU7,8 EDE-MM-117 SI-CS-2413-1	460 V AC 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 Auxiliary Relays Control Switch with Indication 120 V AC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 A Fuses Electrical Penetration Control Switch with Indication	B36 B36 G20 G20 G20 B36 B36 V40 H15 H41 F80 F20 EH0 G20 G20 V40 E4J H41 F20	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-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z CB-F-1B-A C-F-1-Z, ET-F-1C-A CB-F-3A-A	B36-G20 B36-H15 B36-H41 H15-V40 H41-V40 F20-FB0/6 F20-G20/1	B36a 310890 B36c	EH0/9a EH0/9b EH0/9c	CBA-FN-32 CBA-FN-33 EDE-MCC-622 CBA-FN-32 CBA-FN-33 EDE-PP-1F	SI-FV-2482 SI-FV-2483	
27	SI-V-32	Accumulator TK-9C Outlet Isolation Valve	SI-20450	A	310577	C-F-1-Z		X	X	-	V41	SI-B37-52-1,2 SI-B37-FU SI-CS-2423-2 SI-SS-2423 SI-ZL-2423-4 SI-B37-42/0,C SI-B37-49 EDE-MM-94 EDE-MM-111 SI-ZS-V32 SI-FB7-K608A,K621A SI-CS-2423-1 SI-EH9/9-52 SI-CS-2423-2 SI-SS-2423 SI-ZS-V32 SI-E4H-FU7,8 EDE-MM-111 SI-CS-2423-1	460 V AC Circuit Breakers Fuse Control Switch with Indication Selector Switch Pilot Light Motor Starters Overload Relay Electrical Penetration Electrical Penetration Valve Position and Open/Close Torque Switches Auxiliary Relays Control Switch with Indication 120 V AC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 A Fuses Electrical Penetration Control Switch with Indication	B37 B37 G81 G81 G81 G81 B37 B37 H18 H35 V41 F20-FB7/6 F20-G81/2 F87 F20 EH9 G81 G81 V41 E4H H35 F20	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-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-Z C-F-1-Z CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z CB-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A	B37-G81 B37-H18 B37-H35 H18-V41 H35-V41 F20-FB7/6 F20-G81/2 G81-H35/5 G81-H36/6 H35-V41/1 H36-V39/1 E4H-EH9 E4H-G81 F20-G81	B37a 310890 B37c	EH9/9a EH9/9b EH9/9c	CBA-FN-19 CBA-FN-20 EDE-MCC-522 CBA-FN-19 CBA-FN-20 EDE-PP-1E	SI-FV-2477 SI-FV-2486	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-9
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
28	SI-V-47	Accumulator TK-9D Outlet Isolation Valve	SI-20450	B	310577	C-F-1-Z		X	X	-	V42	SI-B38-52-1,2 SI-B38-FU SI-CS-2433-2 SI-SS-2433 SI-ZL-2433-4 SI-B38-42/0,C SI-B38-49 SI-ZS-V47 EDE-MM-100 EDE-MM-115 SI-FB0-K608B,K621B SI-CS-2433-1 SI-EH0/9-52 SI-CS-2433-2 SI-SS-2433 SI-ZS-V47 SI-E4J-FU7,8 EDE-MM-115 SI-CS-2433-1	460 V AC 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 Auxiliary Relays Control Switch with Indication 120 V AC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 A Fuses Electrical Penetration Control Switch with Indication	B38 B38 G20 G20 G20 B38 B38 V42 H24 H39 FB0 F20 EH0 G20 G20 V42 E4J H39 F20	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-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z CB-F-1B-A C-F-1-Z, ET-F-1C-A CB-F-3A-A	B38-G20 B38-H24 B38-H39 H24-V42 H39-V42 F20-FB0/7 F20-G20/2 G20-H39/5 G20-H41/4 H39-V42/1 H41-V40/1 E4J-EH0 E4J-G20 F20-G20	310890 B38a B38c EH0/9a EH0/9b EH0/9c	CBA-FN-32 CBA-FN-33 EDE-MCC-622 CBA-FN-32 CBA-FN-33 EDE-PP-1F	SI-FV-2495 SI-FV-2496		
29	CS-P-2A	Charging Pump Lube Oil Cooler	CS-20725	A	310764 805213	PAB-F-1C-A	X	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	CS-P-2B	Note 9
30	CS-P-2B	Charging Pump Lube Oil Cooler	CS-20725	B	310764 815214	PAB-F-1D-A	X	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	CS-P-2B	Note 9
31	CS-V-460	SI-P-6A Suction Valve	CS-20725	A	310761	RHR-F-2B-Z	-	X	X	-	V59	CS-B44-42/0,C CS-B44-49 CS-ZS-V460 CS-CS-2442	Motor Starters Overload Relays Limit Switches and Open/Close Torque Switches Control Switch with Indication	B44 B44 V59 F10	CB-F-1A-A CB-F-1A-A RHR-2B-Z CB-F-3A-A	B44-F10 B44-V59/1 B44-V59/2	310891 B44a B44c		CS-V-475		
32	CS-V-461	SI-P-6A Suction Valve	CS-20725	B	310761	RHR-F-2B-Z	-	X	X	-	V60	CS-B45-42/0,C CS-B45-49 CS-ZS-V461 CS-CS-2452	Motor Starters Overload Relays Limit Switches and Open/Close Torque Switches Control Switch with Indication	B45 B45 V60 F10	CB-F-1B-A CB-F-1B-A RHR-2B-Z CB-F-3A-A	B45-F10 B45-V60/1 B45-V60/2	310891 B45a B45c		None		
33	CS-V-167	RC Pump Seal Water Isolation Valve	CS-20726	A	310769	PP-F-5B-Z	X	X	X	-	V05	CS-B73-42/0,C CS-B73-49 CS-ZS-V167 CS-CS-7405 CS-FC1-K802A CS-FB7-K631A	Motor Starters Overload Relays Limit Switches and Open/Close Torque Switches Control Switch with Indication Auxiliary Relay MM-CP-14 Auxiliary Relay MM-CP-12	B73 B73 V05 F41 FC1 FB7	CB-F-1A-A CB-F-1A-A PP-F-5B-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A	B73-F41 B73-V05/1 B73-V05/2 FB7-FC1/9 F41-FC1	310891 B73a B73c		CS-V-10 CS-V-28 CS-V-44 CS-V-59 CS-V-175 CS-V-176		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-10
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
34	CS-V-168	RC Pump Seal Water Isolation Valve	CS-20726	B	310577	C-F-1-Z	X	X	X	-	V06	CS-B72-42-1,2 CS-B72-49-1,2 CS-CS-7404 CS-ZS-V168 CS-FC2-K802B MM-CP-15 CS-FB0-K631B CS-ED0-R1 EDE-MM-115	Motor Starters Overload Relays Control Switch with Indication Limit Switches and Open/Close Torque Switches Auxiliary Relay MM-CP-15 Auxiliary Relay MM-CP-13 Auxiliary Relay EDE-MCC-E612 Electrical Penetration	B72 B72 F41 V06 FC2 FB0 ED0 H39	CB-F-1B-A CB-F-1B-A CB-F-3A-A C-F-1-Z CB-F-3A-A CB-F-3A-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	B72-H39 B72-F48 FB0-FC2/9 H39-V06 F48-FC2	310891 B72a B72c			CS-V-10 CS-V-28 CS-V-44 CS-V-59 CS-V-175 CS-V-176	
35	CS-V-175	Excess Letdown Isolation Valve	CS-20722	B	310577	C-F-1-Z	X	X	X	X	L95	CS-ZS-V175 CS-CS-7418 CS-FY-7418 EDE-MM-115	Valve Position Switch Control Switch with Indication Solenoid Valve Electrical Penetration	L95 F41 GE5 H39	C-F-1-Z CB-F-3A-A C-F-1-Z C-F-1-Z, ET-F-1C-A	F48-H39/2 GE5-H39/1	310891 E95/2a E95/2d	E95/2c		CS-V-176	Note 2
36	CS-V-176	Excess Letdown Isolation Valve	CS-20722	B	310577	C-F-1-Z	X	X	X	X	LA5	CS-ZS-V176 CS-FX-7417 CS-FY-7417 EDE-MM-115	Valve Position Switch Control Switch with Indication Solenoid Valve Electrical Penetration	LA5 F41 GE5 H39	C-F-1-Z CB-F-1A-A C-F-1-Z C-F-1-Z, ET-F-1C-A	F48-H39/1 GE5-H39/5 GE5-LA5/1	310891 E95/4a E95/4b	E95/4d E95/4e E95/4f		CS-V-175	Note 2
37	CS-V-196	Charging Pump Miniflow Isolation Valve	CS-20725	A	310762	PAB-F-1J-Z	X	X	X	-	V13	CS-B81-42/0,C CS-B81-49 CS-ZS-V196 CS-CS-7421 CS-FYY-7325 MM-CP-297A CS-FB7-K603A	Motor Starters Overload Relays Limit Switch and Open/Close Torque Switches Control Switch with Indication Auxiliary Relay MM-CP-297A Auxiliary Relay MM-CP-12	B81 B81 V13 F41 FK0 FB7	CB-F-1A-A CB-F-1A-A PAB-F-1J-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A	B81-F41 B81-F41/1 B81-V13/1 F41-FB7/2 F41-FK0 B81-V13/2	310891 B81a B81c			CS-V-197	
38	CS-V-197	Charging Pump Miniflow Isolation Valve	CS-20725	B	310762	PAB-F-1J-Z	X	X	X	-	V14	CS-B86-42/0,C CS-B86-49 CS-ZS-V197 CS-CS-7422-1 CS-FYY-7326 CS-FB0-K603B CS-CS-7422-2 CC-SS-7422	Motor Starters Overload Relays Limit Switch and Open/Close Torque Switches Control Switch with Indication Auxiliary Relay MM-CP-297B Auxiliary Relay MM-CP-13 Control Switch Selector Switch	B86 B86 V14 F41 FL2 FB0 ED0 ED0	CB-F-1B-A CB-F-1B-A PAB-F-1J-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A	B86-F48 B86-F48/1 B86-V14/1 B86-V14/2 F48-FB0/2 F48-FL2	310891 B86a B86d	B86c		CS-V-196	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-11
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
39	CS-LCV-112B	Chemical and Volume Control Tank Outlet Isolation Valve	CS-20725	A	310768	PAB-F-3B-Z	X	X	X	-	VE4	CS-B50-52 CS-B50-FU CS-CS-112B-2 CS-SS-112B CS-B50-42/0,C CS-B50-49 CS-ZS-LCV-112B CS-EC8-R1 CS-CS-112B-1 CS-FB7-K701A, K602A, K706A CS-ZS-LCV-112D	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay Control Switch with Indication Auxiliary Relays MM-CP-12 Valve Position Switch	B50 B50 G2G G2G B50 B50 VE4 EC8 F41 FB7 VE6	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-3B-Z CB-F-1A-A CB-F-3A-A CB-F-3A-A TF-F-1-0	B50-G2G B50-G2G/1 B50-VE4 B50-VE4/1 B50-VE4/2 F40-FB7 F40-G2G F40-CSG/1 B50-VE6	310891 B50a B50d B50c B50f	CBA-FN-19 CBA-FN-20 EDE-MCC-512	CS-LCV-112C			
40	CS-LCV-112C	Chemical and Volume Control Tank Outlet Isolation Valve	CS-20725	B	310768	PAB-F-3B-Z	X	X	X	-	VE7	CS-B83-52 CS-B83-FU CS-CS-112C-2 CS-SS-112C CS-B83-42/0,C CS-B83-49 CS-ZS-LCV-112C CS-ED0-R1 CS-CS-112C-1 CS-FB0-K701B, K602B, K706B CS-ZS-LCV-112E	460 V AC Circuit Breaker Fuses Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay Control Switch with Indication Auxiliary Relays MM-CP-13 Valve Position Switch	B83 B83 G2J G2J B83 B83 VE7 ED0 F41 FB0 VE5	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-3B-Z CB-F-1B-A CB-F-3A-A CB-F-3A-A TF-F-1-0	B83-G2J B83-G2J/1 B83-VE7 B83-VE7/1 B83-VE7/2 B83-VE5/1 F48-FB0/1 F48-G2J/4 F48-G2J/5	310891 B83a B83d B83c B83f	CBA-FN-32 CBA-FN-33 EDE-MCC-612	CS-LCV-112B			
41	CS-LCV-112D	Refueling Water Storage Tank to Charging Pump 2A Isolation Valve	CBS-20233	A	301254	TF-F-1-0	X	X	X	-	VE6	CS-B78-52 CS-CS-122D-2 CS-SS-112D CS-B78-42/0,C CS-B78-49 CS-ZS-LCV-112D CS-EC8-R1 CS-B78-FU CS-FB7-K701A, K602A, K706A CS-CS-112D-1	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay Fuse Auxiliary Relays MM-CP-12 Control Switch with Indication	B78 G2G G2G B78 B78 VE6 EC8 B78 FB7 F10	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A TF-F-1-0 CB-F-1A-A CB-F-1A-A CB-F-3A-A	B78-G2G B78-G2G/1 B78-VE6 B78-VE6/1 B78-VE6/2 F10-FB7/4 F10-G2G/2 F10-G2G/3	310891 B78a B78d B78c B78f	CBA-FN-19 CBA-FN-20 EDE-MCC-512	CS-LCV-112E			
42	CS-LCV-112E	RWST CBS-TK-8 to Charging Pump 2B Isolation Valve	CBS-20233	B	301254	TF-F-1-0	X	X	X	-	VE5	CS-B79-52 CS-CS-112E-2 CS-SS-112E CS-B79-42/0,C CS-B79-49 CS-ZS-LCV-112E CS-ED0-R1 CS-B79-FU CS-FB0-K701B, K602B, K706B CS-CS-112E-1	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay Fuse Auxiliary Relays MM-CP-13 Control Switch with Indication	B79 G2J G2J B79 B79 VE5 ED0 B79 FB0 F10	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A TF-F-1-0 CB-F-1B-A CB-F-1B-A CB-F-3A-A	B79-G2J B79-G2J/1 B79-VE5 B79-VE5/1 B79-VE5/2 F10-FB0/4 F10-G2J/2 F10-G2J/3	310891 B79a B79d B79c B79f	CBA-FN-32 CBA-FN-33 EDE-MCC-612	CS-LCV-112D			

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-12
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
43	SI-V-138	Charging Pump To Cold Leg Isolation Valve	SI-20447	A	310769	PP-F-1B-Z	X	X	X	-	V31	SI-B31-52 SI-CS-2437-2 SI-SS-2437 SI-B31-42/0,C SI-B31-49 SI-ZS-V138 SI-B31-FU SI-FB7-K616A SI-CS-2437-1 SI-FC1-K801A SI-FC1-W SI-FC1-RES	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuse Auxiliary Relays MM-CP-12 Control Switch with Indication Auxiliary Relay MM-CP-14 Indicating Light Resistor	B31 G81 G81 B31 B31 V31 B31 FB7 F10 FC1 FC1 FC1	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PP-F-1B-Z CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	B31-G2G B31-G2G/2 B31-V31 B31-V31/1 B31-V31/2 F10-FB7 F10-G2G/4 F10-G2G/5 F10-FC1	B31a B31d	B31c	CBA-FN-19 CBA-FN-20 EDE-MCC-521	SI-V-139 or CS-FCV-121	
44	SI-V-139	Charging Pump To Cold Leg Isolation Valve	SI-20447	B	310769	PP-F-1B-Z	X	X	X	-	V32	SI-B32-52 SI-CS-2447-2 SI-SS-2447 SI-B32-42/0,C SI-B32-49 SI-ZS-V139 SI-B32-FU SI-FB0-K616B SI-CS-2447-1 SI-FC2-K801B SI-FC2-W SI-FC2-RES	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuses Auxiliary Relays MM-CP-13 Control Switch with Indication Auxiliary Relay MM-CP-15 Indicating Light Resistor	B32 GZ0 GZ0 B32 B32 V32 B32 FB0 F10 FC2 FC2 FC2	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PP-F-1B-Z CB-F-1B-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	B32-G2J B32-G2J/2 B32-V32 B32-V32/1 B32-V32/2 F10-FB0 F10-G2J/4 F10-G2J/5 F10-FC2	B32a B32d	B32c	CBA-FN-32 CBA-FN-33 EDE-MCC-621	SI-V-138 or CS-FCV-121	
45	RC-E-10	Pressurizer Heaters Group C	RC-20846	A	310598	C-F-1-Z	X	-	X	-	M26	RC-AG4-52 RC-AG4-FU RC-CS-7321 RC-AG4-52H-1 RC-AG4-G,R RC-FB1-LYY-459 EXA RC-FB1-LYY-459 CXA RC-FB1-LYY-460 DXA RC-FB1-PYY-455 GXA	480 V AC Circuit Breaker Fuses Control Switch with Indication Truck Operated Contact Indicating Lights High Level Auxiliary Relay Low Level Auxiliary Relay Low Level Auxiliary Relay Low Pressure Auxiliary Relay	AG4 AG4 F31 AG4 AG4 FB1 FB1 FB1 FB1	CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	F31-FB1/3 AG4-F31 AG4a AG4d AG4f	310882 AG4a AG4d AG4e		None		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-13
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
46	RC-E-10	Pressurizer Heaters Group D	RC-20846	A	310598	C-F-1-Z	X	-	X	-	M26	RC-AM5-52 RC-AM5-FU RC-AM5-52H-1 RC-AM5-G,R RC-CS-7322 RC-FB2-PYY-455 GXB RC-FB2-LYY-459 CXB RC-FB2-LYY-459 EXB RC-FB2-LYY-460 DXB RC-FB2-LYY-459 CXB	480 V AC Circuit Breaker Fuses Truck Operated Contact Indicating Lights Control Switch with Indication Low Pressure Auxiliary Relay Low Level Auxiliary Relay High Level Auxiliary Relay Low Level Auxiliary Relay Low Level Auxiliary Relay	AM5 AM5 AM5 F31 FB2 FB2 FB2 FB2 FB2	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	F31-FB2/2 AM5-F31	310882 AM5a AM5b AM5d AM5e AM5f		None		
47	CBS-P-9A	Containment Spray Pump	CBS-20233	A	310761	RHR-F-1B-Z	X	-	X	-	M15	CBS-A61-52 CBS-A61-AM CBS-A61-AS CBS-A61-50/51 CBS-A61-CT CBS-CS-2300 CBS-AU2-52S CBS-A61-86 CBS-A61-G,R,W CBS-A61-52Z CBS-A61-R1,R2 CBS-FB7-K644A CBS-HR2-RM0 CBS-HR9-SR3,LR8 CBS-A53-94-1B CBS-A61-TD1 CBS-A61-TD2 CBS-A61-52H CBS-A61-CS CBS-A61-51GS	4160 V AC Circuit Breaker Ammeter Ammeter Switch Overcurrent Relay Current Transformer (100/5) Control Switch with Indication Auxiliary Relay Contact Lockout Relay Indicating Lights Timing Relay Auxiliary Relays Auxiliary Relay NI-CP-11 Emergency Power Sequence Relay Emergency Power Sequence Relay Tripped Relay Test Device Test Device Truck Operated Contact Control Switch Ground Sensor Relay	A61 A61 A61 A61 A61 F20 AU2 A61 A61 A61 A61 FB7 HR2 HR9 A53 A61 A61 A61	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-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 CB-F-1A-A	A61-F20/1 A61-F20/2 A61-HR9 F20-FB7/1 HR2-HR9	310900 A61a A61c A61h A61b A61d		None		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-14
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
48	CBS-P-9B	Containment Spray Pump	CBS-20233	B	310761	RHR-F-1A-Z	X	-	X	-	M16	CBS-A81-52 CBS-A81-AM CBS-A81-AS CBS-A81-50/51 CBS-A81-CT1 CBS-CS-2301 CBS-HR4-RM0 CS-HR0-SR3,LR8 CBS-AU6-52S CBS-A73-94-1B CBS-FB0-R644B CBS-A81-86 CBS-A81-G,R,W CBS-A81-52Z CBS-A81-R1,R2 CBS-A81-TD1 CBS-A81-TD2 CBS-A81-52H CBS-A81-CS CBS-A81-51GS	4160 V AC Circuit Breaker Ammeter Ammeter Switch Overcurrent Relay Current Transformer (100/5) Control Switch with Indication Emergency Power Sequence Relay Emergency Power Sequence Relay Mechanical Operated Relay Tripped Relay Auxiliary Relay MM-CP-13 Lockout Relay Indicating Lights Timing Relay Auxiliary Relays Test Device Test Device Truck Operated Contact Control Switch Ground Sensor Relay	A81 A81 A81 A81 A81 F20 HR4 HR0 AU6 A73 FB0 A81 A81 A81 A81 A81 A81 A81 A81 A81	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-3A-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 CB-F-1B-A	A81-F20/1 A81-F20/2 A81-HR0 F20-FB0/1 HR4-HR0	310900 A81a A81c A81h	A81b A81d		None	
49	SI-P-6A	Safety Injection Pump	SI-20446	A	310761	RHR-F-2B-Z		X	X	-	M09	SI-A56-52 SI-A56-AM SI-A56-AS SI-A56-50/51 SI-A53-94-1A SI-A56-CT SI-CS-2449 SI-FB7-K601A SI-HR9-RM0,SR1 SI-A56-TD1 SI-A56-TD2 SI-A56-51GS SI-A56-86 SI-A56-G,R,W SI-A56-CS SI-A56-52Z SI-A56-52H	4160 V AC Circuit Breaker Ammeter Ammeter Switch Overcurrent Relay Tripping Relay Current Transformer (100/5) Control Switch with Indication Signal Actuating Output Relay Emergency Power Sequence Relays Test Device Test Device Ground Sensor Relay Lockout Relay Indicating Lights Control Switch Timing Relay Truck Operated Contact	A56 A56 A56 A56 A53 A56 F10 FB7 HR9 A56 A56 A56 A56 A56 A56 A56 A56 A56	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-3A-A CB-F-3A-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 CB-F-1A-A CB-F-1A-A	A56-F10 F10-FB7/2 A56-F10/2 A56-HR9	310890 A56a A56c A56h	A56b A56d		None	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.2-15
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
50	SI-P-6B	Safety Injection	SI-20446	B	310761	RHR-F-2A-Z		X	X	-	M10	SI-A76-52 SI-A76-AM SI-A76-AS SI-A76-50/51 SI-A73-94-1A SI-A76-CT SI-CS-2459 SI-FB0-K610B SI-HR0-RM0,SR1 SI-A76-TD1 SI-A76-TD2 SI-A76-51GS SI-A76-86 SI-A76-G,R,W SI-A76-CS SI-A76-52Z SI-A76-52H	4160 V AC Circuit Breaker Ammeter Ammeter Switch Overcurrent Relay Tripping Relay Current Transformer (100/5) Control Switch with Indication Signal Actuating Output Relay Emergency Power Sequence Relays Test Device Test Device Ground Sensor Relay Lockout Relay Indicating Lights Control Switch Timing Relay Truck Operated Contact	A76 A76 A76 A76 A76 A76 F10 FB0 HR0 A76 A76 A76 A76 A76 A76 A76 A76	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-3A-A CB-F-3A-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 CB-F-1B-A CB-F-1B-A CB-F-1B-A	A76-F10 F10-FB0/1 A76-F10/2 A76-HR0	310890 A76a A76c A76h		None		
51	SI-FV-2482 SI-FV-2483 SI-FV-2495 SI-FV-2496	Accumulator TK-9B Relief Valve Accumulator TK-9D Relief Valve	SI-20450 SI-20450 SI-20450 SI-20450	A A A A	310576 310576 310577 310577	C-F-1-Z C-F-1-Z C-F-1-Z C-F-1-Z	- - - -	X X X X	X X X X		V3B V3C V3F V3G	SI-E4H-FU SI-SS-2482 SI-CS-2482-1 SI-CS-2482-2 SI-CS-2483 SI-CS-2495-1 SI-CS-2495-2 SI-CS-2496 EDE-MM-111 EDE-MM-112 SI-CS-2482-1X SI-CS-2483-X SI-CS-2495-1X SI-CS-2496-X	Fuse Selector Switch Control Switch with Indication Control Switch with Indication Control Switch with Indication Control Switch with Indication Control Switch with Indication Electrical Penetration Electrical Penetration Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay	E4H G81 F20 G81 G81 F20 G81 F20 H35 H36 F20 F20 F20 F20	CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	E2T-E4H/2 E4H-G81/2 F20-G81/4 F20-G81/5 F20-G81/6 G81-H35/6 G81-H35/7 G81-H36/9 G81-H36/A H35-V3B H35-V3C H36-V3F H36-V3G	310890 E2T/7a E2T/7c E2T/7f E2T/7h	E2T/7b E2T/7d E2T/7g	EDE-PP-113A	SI-V-17 SI-V-47	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table MCR 3.1.3.2-16
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
52	SI-FV-2475	Accumulator TK-9A Relief Valves	SI-20450	B	310576	C-F-1-Z		X	X		V2Z	SI-E4C-FU	Fuse	E4C	CB-F-1B-A	E2U-E4C/3	310890	E2U/7a E2U/7c E2U/7f E2U/7h	E2U/7b E2U/7d E2U/7g	EDE-PP-113B	SI-V-3 SI-V-32
	SI-FV-2476		SI-20450	B	310576	C-F-1-Z		X	X	V3A	SI-SS-2475	Selector Switch	G20	CB-F-1B-A	E4C-G20/1						
	SI-FV-2477	Accumulator TK-9C Relief Valves	SI-20450	B	310577	C-F-1-Z		X	X	V3D V3E	SI-CS-2475-1	Control Switch with Indication	F20	CB-F-3A-A	F20-G20/4						
	SI-FV-2486		SI-20450	B	310577	C-F-1-Z		X	X		SI-CS-2475-2	Control Switch with Indication	G20	CB-F-1B-A	F20-G20/5						
											SI-CS-2476	Control Switch with Indication	F20	CB-F-3A-A	F20-G20/6						
											SI-CS-2477-1	Control Switch with Indication	F20	CB-F-3A-A	G20-H39/6						
											SI-CS-2477-2	Control Switch with Indication	G20	CB-F-1B-A	G20-H39/7						
											SI-CS-2486	Control Switch with Indication	F20	CB-F-3A-A	G20-H41/5						
											EDE-MM-115	Electrical Penetration	H39	C-F-1-Z, ET-F-1C-A	G20-H41/6						
											EDE-MM-117	Electrical Penetration	H41	C-F-1-Z, ET-F-1C-A	H39-V2Z						
									SI-CS-2475-1X	Auxiliary Relay	F20	CB-F-3A-A	H39-V3A								
									SI-CS-2476-X	Auxiliary Relay	F20	CB-F-3A-A	H41-V3D								
									SI-CS-2477-1X	Auxiliary Relay	F20	CB-F-3A-A	H41-V3E								
									SI-CS-2486-X	Auxiliary Relay	F20	CB-F-3A-A									
53	CS-V-475	SI-CS-P-6A Suction Cross Connection Valve	CS-20725	B	310761	RHR-F-2B-Z	-	X	X	-	V52	CS-B46-52	460 V AC Circuit Breakers	B46	CB-F-1B-A	B46-V52	310891	B46a	B46c	EDE-MCC-612	None
												CS-B46-CPT	Control Power Transformer	B46	CB-F-1B-A	B46-V52/1					
												CS-B46-42/0,C	Motor Starter	B46	CB-F-1B-A	B46-V52/2					
												CS-B46-49	Overload Relays	B46	CB-F-1B-A	B46-F10					
												CS-B46-FU	Fuse	B46	CB-F-1B-A	B46-F10/1					
												CS-CS-2478	Control Switch with Indication	F10	CB-F-3A-A						
54	CS-FT-121 CS-FCV-121	Pressurizer Level Control - Flow	CS-20725	A	310763 310762	PAB-F-1A-Z PAB-F-1J-Z	X X	X X	X X	- x	S1E S82	CS-FQY-121	Power Supply	FA7	CB-F-3A-A	FA7-S1E	310891	FP55321 Sh. 23 Sh. 24 Sh. 25	310940 FA7a	MM-CP-7 ED-PP-3C Inst. Air	SI-V-139
												CS-FI-121B	Flow Indicator	S42	PAB-F-1E-A	FA7-S42					
												CS-FY-121A	Square Root Extractor	FA7	CB-F-3A-A	F41-FA7					
												CS-FC-121	Controller	FA7	CB-F-3A-A	F47-FA7					
												CS-FCV-121	Driver (Auto)	FA7	CB-F-3A-A	FA7-S82					
												CS-FY-121A	Driver (Manual)	FA7	CB-F-3A-A						
												CS-FK-121	Manual/Auto Control Station	F41	CB-F-3A-A						
												CS-FY-121C	Relays	FA7	CB-F-3A-A						
												CS-FB-121A/B	Comparator	FA7	CB-F-3A-A						
												CS-FI-121A	Flow Indicator	F41	CB-F-3A-A						
CS-FY-121B	I/D Converter	S82	PAB-F-1J-Z																		
55	SI-V-158	Charging Pump Test Line Isolation Valve	SI-20447	B	310577	C-F-1-Z	-	X	X	X	L89	SI-CS-2416	Control Switch with Indication	F26	CB-F-3A-A	F26-H39/9	310890	E88/7f E88/7a E88/7b	E88/7d E88/7e E88/7g		None
												EDE-MM-115	Electrical Penetration	H39	C-F-1-Z, ET-F-1C-A	GE5-H39/7					
												SI-ZS-V158	Valve Position Switches	L89	C-F-1-Z	GE5-L89					
												SI-FY-2416	Solenoid Valve	GE5	C-F-1-Z						
56	SI-V-159	Charging Pump Test Line Isolation Valve	SI-20447	A	310577	C-F-1-Z	-	X	X	X	L90	SI-CS-2406	Control Switch with Indication	F26	CB-F-3A-A	F26-H36/5	310890	E89/4d E89/4a E89/4b E89/4c	E89/4g E89/4h E89/4i E89/4j E89/4k		None
												EDE-MM-11	Electrical Penetration	H36	C-F-2-Z, ET-F-1A-A	GE5-H36/5					
												SI-ZS-V159	Valve Position Switches	L90	C-F-1-Z	GE5-L90					
												SI-FY-2406	Solenoid Valve	GE5	C-F-1-Z						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.2-19	
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
65	CS-V-145	Letdown Heat Exchanger E-2 to E-8 Isolation Valve	CS-20722	A	310577	C-F-1-Z	X	X	X	X	LH2	CS-CS-7447 RC-LY/459CX1 RC-LY/460DX1 EDE-MM-112 RC-ZS-LCV-460 RC-ZS-LCV-459 CS-FY-7447 CS-ZS-V145 CS-F42-R1 EDE-F59-KB20	Control Switch with Indication Low Level Auxiliary Relay Low Level Auxiliary Relay Electrical Penetration Letdown Isolation Valve Position Switch Letdown Isolation Valve Position Switch Solenoid Valve Valve Position Switches Aux. Rly Aux. Rly	F40 FB1 H36 LF7 L99 GE5 LH2 F42 F59	CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A C-F-1-Z C-F-1-Z C-F-1-Z CB-F-3A-A CB-F-3A-A	F40-FB1/1 F40-H36/2 GE4-H36/1 GE4-LF7/2 GE5-H36/8 GE5-L99/1 GE5-LH2/3 FB1-F59	310891 E97/11a E97/11g E97/11b E97/11h E97/11c E97/11i E97/11d E97/11j E98/11k			RC-LCV-459 RC-LCV-460	
66	RC-E-10	Pressurizer Heaters Control Group	RC-20846	A	310598	C-F-1-Z	X	-	X	-	M26	RC-AM4-52H RC-CS-7320 RC-LYY-459CXA RC-LYY-460DXA RC-AM4-FU RC-AM4-52	Truck Operated Switch Contacts Control Switch with Indication Level Auxiliary Relay Level Auxiliary Relay 15 A Fuses 480 V AC Circuit Breaker	AM4 F31 FB1 AM4 AM4	CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A	AM4-F31 F31-FB1/4 AM4b AM4d AM4e AM4f AM4g	310882	CBA-FN-19 CBA-FN-20			
67	CS-V-210	Charging Pump 2A Discharge Valve	CS-20725	A	310764	PAB-F-1C-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-220	Note 1
68	CS-V-219	Charging Pump 2B Bypass Valve	CS-20725	B	310764	PAB-F-1D-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-221	Note 1
69	CS-V-220	Charging Pump 2B Discharge Valve	CS-20725	B	310764	PAB-F-1D-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-210	Note 1
70	CS-V-221	Charging Pump 2A Bypass Valve	CS-20725	A	310764	PAB-F-1C-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-219	Note 1

Notes:

- The equipment is mechanical with no electrical requirement.
- During normal operation, the valve is in its safe shutdown position. To prevent spurious operations, this equipment will be disabled at the appropriate control location.
- Disabling the valve at the appropriate control location will reposition it for shut shutdown.
- Air is not needed to position or to reposition the valve for safe shutdown.
- This valve is permanently disabled by tripping its circuit breaker at the MCC.
- During normal operation, the valve is in its hot shutdown position. To prevent spurious operations, this equipment will be disabled at the appropriate control location.
- For cold shutdown, the valve will be energized for repositioning.
- These valves are closed with their circuit breakers locked open during 100% power operation. This will prevent spurious operation. For cold shutdown, these valves are energized for repositioning.
- These valves are also listed in Table MCR 3.1.3.6.
- Electrical group conduit 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).

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 9 Table MCR 3.1.3.3-1
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FUNCTION: REACTIVITY CONTROL																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
1	CS-TK-4A	Boric Acid Storage Tank	CS-20729	A/B	310766	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-TK-4B	Note 1	
2	CS-TK-4B	Boric Acid Storage Tank	CS-20729	A/B	310766	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-TK-4A	Note 1	
3	CS-V-410	Boric Acid Tank 4A Outlet Valve	CS-20729	A/B	310766 805216 805229	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-416 CS-V-1207	Notes 1, 2, 3	
4	CS-V-416	Boric Acid Tank 4B Outlet Valve	CS-20729	A/B	310766 805216	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-410 CS-V-1207	Notes 1, 2, 3	
5	CS-V-423	Boric Acid Recirculation Valve	CS-20729	A	310766 805216 805230	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-431 CS-V-1207	Notes 1, 2, 3	
6	CS-V-431	Boric Acid Recirculation Valve	CS-20729	B	310766 805216 805230	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-423 CS-V-1207	Notes 1, 2, 3	
7	CS-V-437	Boric Acid Transfer Pump's Suction Cross-Over Line Isolation Valve	CS-20729	A	310766 805216	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-1207	Notes 1, 2, 3	
8	CS-V-439	Charging Pump Isolation Valve	CS-20729	A/B	310766 805216 805229	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-426	Notes 1, 2, 3	
9	CS-V-442	Charging Pump Isolation Valve	CS-20729	A/B	310766 805216 805229	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-426	Notes 1, 2, 3	
10	CS-P-3A	Boric Acid Transfer Pump	CS-20729	A	310766	PAB-F-2B-Z	-	X	X	-	M43	CS-B88-52 CS-B88-CPT CS-B88-42 CS-B88-49 CS-M43-49 CS-B88-FU CS-SS-7435 CS-CS-7435-2 CS-CS-7435-1 CS-EC8-R1	460 V AC Circuit Breaker Control Transformer Motor Starter Overload Relay Overload Fuse Selector Switch Control Switch with Indication Control Switch with Indication Auxiliary Relay	B88 B88 B88 B88 M43 B88 B88 B88 B88 B88	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-2B-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	B88-F41 B88-M43 B88-M43/1	B88a	B88c	310891	CBA-FN-19 CBA-FN-20 EDE-MCC-512	CS-P-3B	

* Table notes on last page of table

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.3-2
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FUNCTION: REACTIVITY CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
11	CS-P-3B	Boric Acid Transfer Pump	CS-20729	B	310766	PAB-F-2B-Z	-	X	X	-	M44	CS-B89-52 CS-B89-CPT CS-B89-42 CS-B89-49 CS-M44-49 CS-SS-7436 CS-CS-7436-2 CS-CS-7436-1 CS-FT0-KA1 CS-B89-FU	460 V AC Circuit Breaker Control Transformer Motor Starter Overload Relay Overload Selector Switch Control Switch with Indication Control Switch with Indication Auxiliary Relay Isolation Cab Fuse	B89 B89 B89 B89 M44 B89 B89 F41 FT0 B89	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2B-Z CB-F-1B-A CB-F-3A-A CB-F-3A-A CB-F-1B-A	B89-F48 B89-M44 B89-M44/1 F48-FT0	B89a310891B89c	CBA-FN-32 CBA-FN-33 EDE-MCC-612	CS-P-3A		
12	CS-V-426	Boric Acid F-5 to Charging Pumps Isolation Valve	CS-20729	B	310766	PAB-F-2B-Z	-	X	X		V04	CS-B94-52 CS-B94-CPT CS-B94-42/0,C CS-B94-49 CS-B94-FU CS-SS-7437 CS-CS-7437-2 CS-CS-7437-1 CS-ZS-V426	460 V Circuit Breaker Control Transformer Motor Starter Overload Relay Fuse Selector Switch Control Switch with Indication Control Switch Valve Position and Open/Close Torque Switches	B94 B94 B94 B94 B94 B94 B94 F41 V04	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 CB-F-2A-A PAB-F-2B-Z	B94-V04 B94-V04/1 B94-V04/2 B94-F48 B94-F48/1	B94a310891B94c	CBA-FN-32 CBA-FN-33 EDE-MCC-612	CS-V-439 CS-V-442		
13	CP-CP-111	Reactor Trip Switchgear Cab 1	-	B	310442	CB-F-1A-A	X	-	X		HD2	CP-CS-6611-1 CP-CS-6601-1 CP-CS-6601-2 SI-CS-2471-1 SI-CS-2471-2 CP-ZL-6601-3 CP-ZL-6601-6 CP-ZL-6601-2 CP-HD2-52H CP-HD3-52H CP-HD2-STB CP-HD2-S1 CP-HD3-X1B CP-HD2-X5B CP-HD2-FU CP-HD3-X2B CP-HD3-X4B CP-HD2-X3B CP-HD2-XB CP-HD2-X6B CP-HD3-52 CP-HD3-X3A	Control Switch Control Switch Control Switch Control Switch Indicator Light Indicator Light Indicator Light Truck Operated Contact Truck Operated Contact Shunt Trip Pushbutton Auxiliary Relay Auxiliary Relay Fuses Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay Circuit Breaker Auxiliary Relay	F42 F42 F10 F10 F10 F50 F42 F42 F10 HD2 HD3 HD2 HD2 HD2 HD3 HD3 HD2 HD2 HD3 HD3 HD3	CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-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 CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	E94-HD2 F10-HD2 F48-HD2/1 F48-HD2	HD2a310944HD2b	EDE-PP-111B	CP-CP-111 Train A		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.3-3
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FUNCTION: REACTIVITY CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
14	CP-CP-111	Reactor Trip Switchgear Cab 2	-	A	310442	CB-F-1A-A	X	-	X		HD3	CP-CS-6611-1 CP-CS-6601-1 CP-CS-6601-2 SI-CS-2471-1 SI-CS-2471-2 CP-ZL-6601-4 CP-ZL-6601-5 CP-ZL-6601-1 CP-HD2-S1 CP-HD2-STA CP-HD2-S2 CP-HD2-52H CP-HD3-FU CP-HD3-52H CP-HD2-X3A CP-HD2-X3B CP-HD2-XA CP-HD3-X2A CP-HD3-X4A CP-HD3-X6A	Control Switch Control Switch Control Switch Control Switch Indicator Light Indicator Light Indicator Light Pushbutton Shunt Trip Circuit Breaker Truck Operated Contact Fuses Truck Operated Contact Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay	F42 F42 F10 F10 F50 F10 F42 F42 HD2 HD2 HD2 HD2 HD3 HD3 HD2 HD2 HD3 HD3	CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-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 CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	E93-HD3 F10-HD3 F42-HD3/1 F42-HD3	310944 HD3a HD3b	HD3f	EDE-PP-111A	CP-CP-111 Train B	
15	CS-V-1207	Boric Acid Transfer Pump's suction Cross-over line Isolation Valve	CS-20729	B	310766 805216	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-437	Notes 1,2,3

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.3-5
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FUNCTION: REACTIVITY CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
16 (cont)												CS-LT-112 CS-LQY-112 CS-LB-112C/D CS-LYY-112D CS-LY/112DX CS-LI-112 CS-LDY-112 CS-IRTU-1	Level Transmitter Level Loop Pwr Supply & I/E Converter Level Bistable Auxiliary Relay Level Indication Isolation Resistors Computer Termination Cabinet	GP9 FA5 FA5 FA5 FB1 GP9 Fa5 FD1	PAB-F-3B-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A PAB-F-3B-Z CB-F-3A-A CB-F-3A-A	FA5-GP9 FA5-FB1 F41-FD1/1	ILD-1-CS-L00112 310940 FA5a FA5b 310181 FD1r ILD-1-CS-F00111	FA5h FA5d			
17	RMW-P-16A	Reactor Makeup Water Pump	CS-20360	A	310763	PAB-F-1A-Z	-	X	X	-	M36	-	-	-	-	-	-	-	-	-	Note 4
18	RMW-P-16B	Reactor Makeup Water Pump	CS-20360	A	310763	PAB-F-1A-Z	-	X	X	-	M37	-	-	-	-	-	-	-	-	-	Note 4

- Notes
- Equipment is mechanical with no electrical requirement.
 - CS-V-423, 410, 416, 431, 437, 439, 442 are non-electrically operated valves and will be manually positioned as required to provide their reactivity control function during safe shutdown.
 - Electrical conduit plan drawing, 310766, listed only to show fire zone correlation reference to Primary Auxiliary Building area covered by piping Drawings 805216, 805229, 805230, where Valves CS-V-410, 416, 423, 431, 437, 439, 442 are identified in plan and section.
 - This equipment is listed because it can spuriously start due to cable failure in the boration & dilution flow control valve control circuits. Spurious pump start by itself from failure of its cables is not of concern since CS-FCV-111A remains closed.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.4-1
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FUNCTION: PROCESS MONITORING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	NI-NE-6690	Intermediate Range Thermal Neutron Flux Monitoring Detector	-	A	310565	C-F-1-Z	X	X	X	-	Q05	NI-E1S/13-52 NI-E1S/14-52 NI-E1S/15-52 NI-NI-6690-3&4 NI-NT-6690 NI-NM-6690 NI-NM-6690J EDE-TBX-XP8 EDE-NM-116	120 V AC Circuit Breaker 120 V AC Circuit Breaker 120 V AC Circuit Breaker Excore Wide-Range Thermal Neutron Flux Indicators Excore Wide-Range Transmitter Excore Wide-Range Signal Processor Excore Wide-Range Signal Processor Expansion Box Junction Box Electrical Penetration	E1S E1S E1S F10 KDO QCI QIO XP8 H40	CB-F-1A-1 CB-F-1A-A CB-F-1A-A CB-F-3A-A ET-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z C-F-2-Z ET-F-1A-A	H40-XP8 H40-KDO KDO-QC1 QCI-QIO G2H-QC1 Q05-XP8 E1S-KDO E1S-QC1 E1S-QIO F10-QCI	310943 E1S/13a E1S/13b E1S/13c	CBA-FN-19 CBA-FN-20 EDE-PP-11E	NI-NE-6691		
2	NI-NE-6691	Intermediate Range Thermal Neutron Flux Monitoring Detector	-	B	310565	C-F-1-Z	X	X	X	-	Q07	NI-E1T/13-52 NI-E1T/14-52 NI-E1T/15-52 NI-NI-6691-3&4 NI-NT-6691 NI-NM-6691 NI-NM-6691J EDE-TBX-XP9 EDE-NM-97 NI-NI-6691-1&2	120 V AC Circuit Breaker 120 V AC Circuit Breaker 120 V AC Circuit Breaker Excore Wide-Range Thermal Neutron Flux Indicators Excore Wide-Range Transmitter Excore Wide-Range Signal Processor Excore Wide-Range Signal Processor Expansion Box Junction Box Electrical Penetration Excore Wide-Range Thermal Neutron Flux Indicators	E1T E1T E1T G2K KD1 QDO QJ1 XP9 H21 F20	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A ET-F-1C-A CB-F-1B-A CB-F-1B-A C-F-1-Z C-F-1-Z, ET-F-1C-A CB-F-3A-A	H21-XP9 H21-KD1 KD1-QDO QDO-QJ1 G2K-QDO Q07-XP9 E1T-KD1 E1T-QDO E1T-QJ1 F20-QDO	310943 E1T/13a E1T/13b E1T/13c	CBA-FN-32 CBA-FN-33 EDE-PP-11F	NI-NE-6690		
3	CS-LT-102	CS-TK-4A Boric Acid Tank Level	CS-20729	A	310766	PAB-F-2B-Z	-	X	X	-	RJ7	CS-LI-102 MM-CP-1	Level Indicator Process Protection System Cabinet (PPC) No. 1	F41 FA1	CB-F-3A-A CB-F-3A-A	FA1-RJ7 F47-FA1	310942 FA1a FA1d	MM-CP-1	CS-LT-106		
4	RC-TE-413A	RC Loop 1 Wide-Range Hot Leg Temperature	RC-20841	A	310582	C-F-1-Z	X	X	X	-	TB7	RC-TI-413A RC-TR-413A MM-CP-1 EDE-TBX-X40 EDE-MM-120	Temperature Indicator Temperature Recorder PPC No. 1 Terminal Box Electrical Penetration	F41 F41 FA1 X40 H44	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-Z C-F-2-Z, ET-F-1A-A	TB7-X40 H44-X40/1 FA1-H44/3 F47-FA1/1	310942 FA1r FA1v E01/9	MM-CP-1	IC-TE-XX		
5	RC-TE-443A	RC Loop 4 Wide-Range Hot Leg Temperature	RC-20844	A	310583	C-F-1-Z	X	X	X	-	TB0	RC-TI-443A MM-CP-1 EDE-TBX-X40 EDE-MM-120	Temperature Indicator PPC No. 1 Terminal Box Electrical Penetration	F41 FA1 X40 H44	CB-F-3A-A CB-F-3A-A C-F-1-Z C-F-2-Z, ET-F-1A-A	TB0-X40 H44-X40/1 FA1-H44/3 F47-FA1/2	310942 FA1r FA1v FA1y	MM-CP-1	IC-TE-XX		

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FUNCTION: PROCESS MONITORING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
6	RC-PT-405	RC Loop 1 Wide-Range Hot Leg Pressure	RC-20845	A	310694	ET-F-1C-A	X	X	X	-	P78	RC-PI-405-1 RC-PR-405 MM-CP-1 RC-PI-405A-1 RC-PI-405-2 RC-PI-405A-2	Pressure Indicator Pressure Recorder PPC No. 1 Pressure Indicator Pressure Indicator Pressure Indicator	F40 F41 F41 F40 F10 F10	CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA1-P78/1 F47-FA1/3 F47-FA1/2 F10-F47 F10-F47/1	310942 FA1r FA1v FA1w FA1z	MM-CP-1	RC-PT-403		
7	RC-TE-423A	RC Loop 2 Wide-Range Hot Leg Temperature	RC-20842	A	310582	C-F-1-Z	X	X	X	-	TB8	RC-TI-423A MM-CP-1 EDE-TBX-X48 EDE-MM-121	Temperature Indicator PPC No. 1 Terminal Box Electrical Penetration	F41 FA1 X48 H45	CB-F-3A-A CB-F-3A-A C-F-1-Z C-F-2-Z, ET-F-1A-A	TB8-X48 H45-X48 FA1-H45/2 F47-FA1/1	310942 FA1r FA1s FA1y	MM-CP-1	IC-TE-XX		
8	RC-TE-433A	RC Loop 3 Wide-Range Hot Leg Temperature	RC-20843	A	310583	C-F-1-Z	X	X	X	-	TB9	RC-TI-433A RC-TR-433A MM-CP-1 EDE-TBX-X94 EDE-MM-121	Temperature Indicator Temperature Recorder PPC No. 1 Terminal Box Electrical Penetration	F41 F41 FA1 X94 H45	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-Z C-F-2-Z, ET-F-1A-A	H45-X94 TB9-X94 FA1-H45/2 F47-FA1/2	310942 FA1r FA1s FA1w FA1y	MM-CP-1	IC-TE-XX		
9	RC-LT-459	RC-E-10 Pressurizer Level	RC-20846	A	310579	C-F-2-Z	X	X	X	-	GN5	RC-LI-459A RC-LR-459A MM-CP-1 EDE-MM-121	Level Indicator Level Recorder PPC No. 1 Electrical Penetration	F31 F40 FA1 H45	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A	GN5-H45/1 FA1-H45/1 F38-FA1/1	310942 FA1s FA1v FA1w	MM-CP-1	RC-LT-460		
10	CS-LT-106	CS-TK-4B Boric Acid Tank Level	CS-20729	B	310766	PAB-F-2B-Z	-	X	X	-	RJ0	CS-LI-106 MM-CP-2	Level Indicator PPC No. 2	F41 FA2	CB-F-3A-A CB-F-3B-A	FA2-RJ0 F48-FA2	310942 FA2a FA2d	MM-CP-2	CS-LT-102		
11	RC-TE-423B	RC Loop 2 Wide-Range Cold Leg Temperature	RC-20842	B	310582	C-F-1-Z	X	X	X	-	TC2	RC-TI-423B MM-CP-2 EDE-TBX-X52 EDE-MM-131	Level Indicator PPC No. 2 Terminal Box Electrical Penetration	F41 FA2 X52 H55	CB-F-3A-A CB-F-3B-A C-F-1-Z C-F-1-Z, ET-F-1C-A	TC2-X52 H55-X52/1 F48-FA2/1 FA2-H55/6	310942 FA2r FA2s FA2w fa2x	MM-CP-2	FW-PT-524		
12	RC-TE-413B	RC Loop 1 Wide-Range Cold Leg Temperature	RC-20841	B	310582	C-F-1-Z	X	X	X	-	TC1	RC-TI-413B RC-TR-413B MM-CP-2 EDE-TBX-X14 EDE-MM-131	Temperature Indicator Temperature Recorder PPC No. 2 Terminal Box Electrical Penetration	F41 F41 FA2 X14 H55	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-Z C-F-1-Z, ET-F-1C-A	TC1-X14 H55-X14 F48-FA2/1 FA2-H55/6	310942 FA2r FA2s FA2w FA2x	MM-CP-2	FW-PT-514		
13	RC-TE-433B	RC Loop 3 Wide-Range Cold Leg Temperature	RC-20843	B	310583	C-F-1-Z	X	X	X	-	TC3	RC-TI-433B RC-TR-433B MM-CP-2 EDE-TBX-X69 EDE-MM-131	Temperature Indicator Temperature Recorder PPC No. 2 Terminal Box Electrical Penetration	F41 F41 FA2 X69 H55	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-Z C-F-1-Z, ET-F-1C-A	TC3-X69 H55-X69 FA2-H55/7 F48-FA2/2	310942 FA2t FA2y FA2z	MM-CP-2	FW-PT-514		
14	RC-TE-443B	RC Loop 4 Wide-Range Cold Leg Temperature	RC-20844	B	310583	C-F-1-Z	X	X	X	-	TC4	RC-TI-443B MM-CP-2 EDE-TBX-X86 EDE-MM-131	Temperature Indicator PPC No. 2 Terminal Box Electrical Penetration	F41 FA2 X86 H55	CB-F-3A-A CB-F-3A-A C-F-1-Z C-F-1-Z, ET-F-1C-A	TC4-X86 H55-X86 FA2-H55/7 F48-FA2/2	310942 FA2r FA2t FA2y FA2z	MM-CP-2	FW-PT-544		

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FUNCTION: PROCESS MONITORING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
15	RC-PT-403	RC Loop 4 Wide-Range Hot Leg Pressure	RC-20845	D	310694	ET-F-1C-A	X	X	X	-	P76	RC-PI-403-1 RC-PR-403 MM-CP-4 RC-PI-403A-1 RC-PI-403-2 RC-PI-403A-2	Pressure Indicator Pressure Recorder PPC No. 4 Pressure Indicator Pressure Indicator Pressure Indicator	F41 F41 F44 F41 F20 F20	CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA4-P76/1 F48-FA4/2 F48-FA4 F20-F48	310942 FA4r FA4u FA4v	MM-CP-4	RC-PT-405		
16	RC-LT-460	RC-E-10 Pressurizer Level	RC-20846	B	310579	C-F-2-Z	X	X	X	-	GN5	RC-LI-460A MM-CP-2 EDE-MM-131	Level Indicator PTC No. 2 Electrical Penetration	F31 FA2 H55	CF-F-3A-A CB-F-3A-A C-F-1-Z, ET-F-1C-A	GN5-H55/2 FA2-H55/3 F39-FA2/1	310942 FA2r FA2w	MM-CP-2	RC-LT-459		
17	CO-LT-4096	CO-TK-25 Condenser Storage Tank Level	FW-20426	A	310828	CST-F-1-0	-	X	X	-	R53	CO-LI-4096 MM-CP-153 MM-CP-153	Level Indicator BOP - Process Control Cabinet BOP - Process Control Cabinet	F61 FJ7 FJ8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FJ7-R53 F66-FJ8	310953 FJ7g FJ7f	MM-CP-153	FW-LT-4252 FW-LT-4257		
18	FW-FT-4214-2	RC-E-11A Emergency FW Header Flow	FW-20688	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 (PCC)	F51 F86 FK0	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FK0-GL3 F56-FK0 F86-FK0	310952 FK0a	MM-CP-297A	FW-FT-4224-2 FT-FT-4244-2 FW-LT-519		
19	FW-FT-4224-2	RC-E-11B Emergency FW Header Flow	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	GL4	FW-FT-4224-2 FW-FR-4224 MM-CP-297B	Flow Indicator Flow Recorder BOP - PCC	F51 F86 FL2	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FL2-GL4 F56-FL2 F88-FL2	310952 FL2a	MM-CP-297B	FW-FT-4214-2 FW-FT-4234-2 FW-LT-529		
20	FW-FT-4234-2	RC-E-11C Emergency FW Header Flow	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	GL3	FW-FI-4234-2 FW-FR-4214 MM-CP-297A	Flow Indicator Flow Recorder BOP - PCC	F51 F86 FK0	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FK0-GL3 F56-FK0 F86-FK0	310952 FK0a	MM-CP-297A	FW-FT-4224-2 FW-FT-4244-2 FW-LT-537		
21	FW-FT-4244-2	RC-E-11D Emergency FW Header Flow	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	GL4	FW-FT-4244-2 FW-FR-4224 MM-CP-297B	Flow Indicator Flow Recorder BOP - PCC	F51 F86 FL2	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FL2-GL4 F56-FL2 F88-FL2	310952 FL2a	MM-CP-297B	FW-FT-4214-2 FW-FT-4234-2 FW-LT-548		
22	FW-LT-501	RC-E-11A Steam Generator Wide-Range Level	FW-20686	A	310576	C-F-1-Z	X	X	X	-	R1D	FW-LI-501 MM-CP-1 FW-XR-501 EDE-MM-120	Level Indicator PPC No. 1 Recorder Electrical Penetration	F51 FA1 F51 H44	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A	FA1-H44 F56-FA1/4 H44-R1D F56-FA1/3 F56/FA1	310942 FA1h FA1l FA1m	MM-CP-1	FW-LT-502 FW-LT-504 FW-LT-519		
23	FW-LT-502	RC-E-11B Steam Generator Wide-Range Level	FW-20686	B	310576	C-F-1-Z	X	X	X	-	R1E	FW-LI-502 MM-CP-2 FW-XR-502 EDE-MM-131	Level Indicator PPC No. 2 Recorder Electrical Penetration	F51 FA2 F51 H55	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-Z, ET-F-1C-A	FA2-H55 H55-R1E F56-FA2/1	310942 FA2h FA2l FA2m	MM-CP-2	FW-LT-501 FW-LT-503 FW-LT-529		
24	FW-LT-503	RC-E-11C Steam Generator Wide-Range Level	FW-20686	C	310577	C-F-1-Z	X	X	X	-	R1F	FW-LI-503 MM-CP-3 FW-XR-503 EDE-MM-123	Level Indicator PPC No. 3 Recorder Electrical Penetration	F51 FA3 F51 H47	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A	FA3-H47/1 F56-FA3/2 H47-R1F	310942 FA3h FA3l	MM-CP-3	FW-LT-502 FW-LT-504 FW-LT-537		
25	FW-LT-504	RC-E-11D Steam Generator Wide-Range Level	FW-20686	D	310577	C-F-1-Z	X	X	X	-	R1G	FW-LI-504 MM-CP-4 FW-XR-504 EDE-MM-128	Level Indicator PPC No. 4 Recorder Electrical Penetration	F51 FA4 F51 H52	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-Z, ET-F-1C-A	F56-FA4 FA4-H52/1 H52-R1G	310942 FA4h FA4l	MM-CP-4	FW-LT-501 FW-LT-503 FW-LT-548		
26	FW-PT-514	RC-E-11A Steam Generator Steam Pressure	MS-20580	A	310589	MS-F-1B-Z	X	X	X	-	GL6	FW-PI-514A MM-CP-1	Pressure Indicator PPC No. 1	F51 FA1	CB-F-3A-A CB-F-3A-A	FA1-GL6 F56-FA1	310942 FA1h FA1l FA1m	MM-CP-1	FW-PT-525 FW-PT-545 FW-PT-515		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.4-4
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FUNCTION: PROCESS MONITORING																						
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
27	FW-PT-525	RC-E-11B Steam Generator Steam Pressure	MS-20581	B	310586	MS-F-3A-Z	X	X	X	-	GZ4	FW-PI-525A MM-CP-2	Pressure Indicator PPC No. 2	F51 FA2	CB-F-3A-A CB-F-3A-A	FA2-GZ4 F56-FA2/1	FA21 FA2m	310942 FA2h	MM-CP-2	FW-PT-514 FW-PT-534 FW-PT-524		
28	FW-PT-534	RC-E-11C Steam Generator Steam Pressure	MS-20581	A	310586	MS-F-3A-Z	X	X	X	-	GL5	FW-PI-534A MM-CP-1	Pressure Indicator PPC No. 1	F51 FA1	CB-F-3A-A CB-F-3A-A	FA1-GL5 F56-FA1		310942 FA1h FA1l FA1m	MM-CP-1	FW-PT-525 FW-PT-545 FW-PT-535		
29	FW-PT-545	RC-E-11D Steam Generator Steam Pressure	MS-20580	B	310589	MS-F-1B-Z	X	X	X	-	GZ6	FW-PI-545A MM-CP-2	Pressure Indicator PPC No. 2	F51 FA2	CB-F-3A-A CB-F-3A-A	FA2-GZ6 F56-FA2/1	FA21 FA2m	310942 FA2h	MM-CP-2	FW-PT-514 FW-PT-534 FW-PT-544		
30	FW-LT-4252	FW-P-37A CST Level	CO-20426	A	310708	EFP-F-1-A	-	X	X	-	P1G	FW-LI-4252 MM-CP-297A	Level Indicator BOP - PCC	F51 FK0	CB-F-3A-A CB-F-3A-A	FK0-P1G F56-FK0/1		310952 FK0a	MM-CP-297A	CO-LT-4096 FW-LT-4257		
31	FW-LT-4257	FW-P-37B CST Level	CO-20426	B	310708	EFP-F-1-A	-	X	X	-	P1F	FW-LI-4257 MM-CP-297B	Level Indicator BOP - PCC	F51 FL2	CB-F-3A-A CB-F-3A-A	FL2-P1F F56-FL2/1		310952 FL2a	MM-CP-297B	CO-LT-4096 FW-LT-4252		
32	IC-TE-1	Incore Temperature E-6 Core Grid Location J-8		B	310501	C-F-2-2	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/M		310965 F97g 310181 JW0n JW0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A		
33	IC-TE-4	Incore Temperature A-5 Core Grid Location H-6		B	310501	C-F-2-2	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/1		310965 F97g 310181 JW0n JW0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A		
34	IC-TE-6	Incore Temperature Cal. Core Grid Location J-10		B	310501	C-F-2-2	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/F		310965 F97g 310181 JW0n JW0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A		
35	IC-TE-7	Incore Temperature B-5 Core Grid Location F-7		B	310501	C-F-2-2	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/6		310965 F97g 310181 JW0n JW0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A		
36	IC-TE-8	Incore Temperature B-3 Core Grid Location K-6		B	310501	C-F-2-2	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/5		310965 F97g 310181 JW0n JW0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A		
37	IC-TE-12	Incore Temperature A-8 Core Grid Location E-9		B	310501	C-F-2-2	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/4		310965 F97g 310181 JW0n JW0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A		
38	IC-TE-14	Incore Temperature E-3 Core Grid Location H-4		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/J		310965 F97g 310181 JW0n JW0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.4-5
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FUNCTION: PROCESS MONITORING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
39	IC-TE-15	Incore Temperature F-1 Core Grid Location D-8		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/P	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
40	IC-TE-16	Incore Temperature E-4 Core Grid Location M-7		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/K	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
41	IC-TE-18	Incore Temperature D-10 Core Grid Location L-11		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/G	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
42	IC-TE-20	Incore Temperature C-10 Core Grid Location E-5		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/C	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
43	IC-TE-21	Incore Temperature B-10 Core Grid Location E-11		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/9	310965 310181	F97g Jw0n Jw0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
44	IC-TE-24	Incore Temperature B-9 Core Grid Location H-13		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/8	310965 310181	F97g Jw0n Jw0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
45	IC-TE-27	Incore Temperature B-9 Core Grid Location C-8		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/N	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
46	IC-TE-30	Incore Temperature C-9 Core Grid Location E-3		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/B	310965 310181	F97g Jw0n Jw0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
47	IC-TE-31	Incore Temperature A-6 Core Grid Location D-12		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/2	310965 310181	F97g Jw0n Jw0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
48	IC-TE-32	Incore Temperature D-4 Core Grid Location L-13		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/D	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.4-6
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FUNCTION: PROCESS MONITORING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
49	IC-TE-34	Incore Temperature F-2 Core Grid Location H-2		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/Q	310965 310181	F97g Jw0n Jw0t	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
50	IC-TE-37	Incore Temperature F-8 Core Grid Location P-9		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/U	310965 310181	F97g Jw0n Jw0t	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
51	IC-TE-38	Incore Temperature A-2 Core Grid Location K-2		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9	310965 310181	F97g Jw0n Jw0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
52	IC-TE-39	Incore Temperature A-7 Core Grid Location B-6		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/3	310965 310181	F97g Jw0n Jw0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
53	IC-TE-40	Incore Temperature E-2 Core Grid Location F-14		B	310501	C-F-2-Z	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/H	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
54	IC-TE-41	Incore Temperature D-5 Core Grid Location N-4		B	310501	CB-F-3A-A	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/E	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
55	IC-TE-45	Incore Temperature E-5 Core Grid Location N-13		B	310501	CB-F-3A-A	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/L	310965 310181	F97g Jw0n Jw0s	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
56	IC-TE-47	Incore Temperature F-7 Core Grid Location A-9		B	310501	CB-F-3A-A	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/T	310965 310181	F97g Jw0n Jw0t	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
57	IC-TE-50	Incore Temperature R-6 Core Grid Location R-6		B	310501	CB-F-3A-A	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/7	310965 310181	F97g Jw0n Jw0r	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
58	IC-TE-52	Incore Temperature F-4 Core Grid Location L-15		B	310501	CB-F-3A-A	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/S	310965 310181	F97g Jw0n Jw0t	MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.4-7
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FUNCTION: PROCESS MONITORING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
59	IC-TE-57	Incore Temperature F-3 Core Grid Location B-3		B	310501	CB-F-3A-A	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/R	310965 310181 F97g JW0n JW0t		MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
60	IC-TE-58	Incore Temperature C-4 Core Grid Location B-13		B	310501	CB-F-3A-A	X	X	X	-	HN9	MM-CP-486B EDE-MM-130	RVLIS/HELB Cabinet Electrical Penetration	F97 H54	CB-F-3A-A C-F-1-Z, ET-F-1C-A	F97-H54 H54-HN9/A	310965 310181 F97g JW0n JW0r		MM-CP-486B	RC-TE-413A RC-TE-423A RC-TE-433A RC-TE-443A	
61	MM-CP-486B	RVLIS/HELB Incore Temperature Display		B	310501	CB-F-3A-A	X	X	X	-	F97	RC-XX-7315-4	Plasma Display	FT1	CB-F-3A-A	F97-FT1 E53-FT1	310965 E53/18 E53/18		EDE-MCC-631	MM-CP-1	
62	FW-LT-529	RC-E-11B Steam Generator Narrow-Range Level	FW-20686	A	310578	C-F-2-Z	X	X	X		GE9	FW-LR-529 FW-LI-529 MM-CP-1 EDE-MM-121	Level Recorder Level Indicator PPC No. 1 Electrical Penetration	F51 F51 FA1 H45	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A	GE9-H45 FA1-H45 F56-FA1	310942 FA1h		MM-CP-1	FW-LT-502	
63	FW-LT-519	RC-E-11A Steam Generator Narrow-Range Level	FW-20686	B	310578	C-F-2-Z	X	X	X		R15	FW-LI-519 FW-LR-519 MM-CP-2 EDE-MM-131	Level Indicator Level Recorder PPC No. 2 Electrical Penetration	F51 F51 FA2 H55	CB-F-3A-A CB-F-3A-A CB-F-3A-A C-F-1-Z, ET-F-1C-A	H55-R15 FA2-H55 F56-FA2/1	310942 FA1h		MM-CP-2	FW-LT-501	
64	FW-LT-548	RC-E-11D Steam Generator Narrow-Range Level	FW-20686	C	310579	C-F-2-Z	X	X	X		GF8	FW-LI-548 MM-CP-3 EDE-MM-123	Level Indicator PPC No. 3 Electrical Penetration	F51 FA3 H47	CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A	GF8-H47 FA3-H47/1 F56-FA3/2	310942 FA3h		MM-CP-3	FW-LT-504	
65	FW-LT-537	RC-E-11C Steam Generator Narrow-Range Level	FW-20686	D	310579	C-F-2-Z	X	X	X		GF7	FW-LI-537 MM-CP-4 EDE-MM-128	Level Indicator PPC No. 4 Electrical Penetration	F51 FA4 H52	CB-F-3A-A CB-F-3A-A C-F-1-Z, ET-F-1C-A	GN5-H52 FA4-H52 F56-FA4	310942 FA4h		MM-CP-4	FW-LT-503	
66	FW-PT-524	RC-E-11B Steam Generator Steam Pressure	MS-20581	A	310586	MS-F-3A-Z	X	X	X		GL5	FW-PI-524A MM-CP-1	Pressure Indicator PPC No. 1	F51 FA1	CB-F-3A-A CB-F-3A-A	FA1-GL5 F56-FA1	310942 FA1h		MM-CP-1	FW-PT-525	
67	FW-PT-544	RC-E-11D Steam Generator Steam Pressure	MS-20580	A	310589	MS-F-1B-Z	X	X	X		GL6	FW-PI-544A MM-CP-1	Pressure Indicator PPC No. 1	F51 FA1	CB-F-3A-A CB-F-3A-A	FA1-GL6 F56-FA1	310942 FA1h		MM-CP-1	FW-PT-545	
68	CC-TE-2171	PCCW Loop A Sup. Header Temperature	CC-20205	A	310765	PAB-F-2C-X	X	X	X		TM0	MM-CP-297A CC-TI-2171-1	BOP - Process Control Cabinet Temperature Indicator	FK0 F30	CB-F-3A-A CB-F-3A-A	FK0-TM0 F30-FK0/4	310952 FK0d FK0f		MM-CP-297A	CC-TE-2271	
69	CC-TE-2271	PCCW Loop B Sup. Header Temperature	CC-20211	B	310765	PAB-F-2C-Z	X	X	X		TM8	MM-CP-152B CC-TI-2271-1	BOP - Process Control Cabinet Temperature Indicator	FJ4 F30	CB-F-3A-A CB-F-3A-A	FJ4-TM8/10 F39-FJ4/4	310952 FJ4j FJ4n		MM-CP-152B	CC-TE-2171	
70	MM-CP-153	BOP - Process Control Cabinet	-	A	310499	CB-F-3A-A	X	-	X		FJ7	-	-	-	-	EJ9-FJ7	310953 EJ9/12 EJ9/12		ED-PP-5	MM-CP-297B	
71	MM-CP-153	BOP - Process Control Cabinet	-	A	310499	CB-F-3A-A	X	-	X		FJ8	-	-	-	-	EJ9-FJ7	310953 EJ9/12 EJ9/12		ED-PP-5	MM-CP-297B	

SEABROOK
STATION

Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 9
Table MCR 3.1.3.4-8

FUNCTION: PROCESS MONITORING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
72	MM-CP-297A	BOP - Process Control Cabinet	-	A	310499	CB-F-3A-A	X	X	X		FK0	-	-	-	-	EH9-FK0	310952 EH9/19	EH9/19	EDE-PP-1E	MM-CP-297B	
73	MM-CP-297B	BOP - Process Control Cabinet	-	B	310499	CB-F-3A-A	X	X	X		FL2	-	-	-	-	EH0-FL2	310952 EH0/19	EH0/19	EDE-PP-1F	MM-CP-297A	
74	MM-CP-152B	BOP - Process Control Cabinet	-	B	310499	CB-F-3A-A	X	X	X		FJ4	-	-	-	-	EH0-FJ4	310952 EH0/1	EH0/1	EDE-PP-1F	MM-CP-297A MM-CP-152A	
75	FW-PT-515	RC-E-11D Steam Generator Steam Pressure	MS-20580	B	310589	MS-F-1B-Z	X	X	X	-	GZ6	MM-CP-2 FW-PI-515A	PPC No. 2 Pressure Indicator	FA2 F51	CB-F-3A-A CB-F-3A-A	FA2-GZ6 F56-FA2/1	310492 FA21 FA2m	FA2h	MM-CP-2	FW-PT-514 FW-PT-534 FW-PT-544	
76	FW-PT-535	RC-E-11B Steam Generator Steam Pressure	MS-20581	B	310586	MS-F-3A-Z	X	X	X	-	GZ4	MM-CP-2 FW-PI-535	PPC No. 2 Pressure Indicator	FA2 F51	CB-F-3A-A CB-F-3A-A	FA2-GZ4 F56-FA2/1	310942 FA21 FA2m	FA2h	MM-CP-2	FW-PT-514 FW-PT-534 FW-PT-524	
77	MM-CP-7	Process Control System Cabinet 3	-	A	310499	CB-F-3A-A	X	X	X	-	FA7	-	-	-	-	EH7-FA7	310940 EH7/9	EH7/9	ED-PP-3C	-	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 7 Table MCR 3.1.3.5-1
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FUNCTION: SAFEGUARD ACTUATION SYSTEM																						
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
1	MM-CP-12	Solid State Protection System Cabinet	-	A	310501	CB-F-3A-A	X	X	X	-	FB6/ FB7/ FF8	CBS-CS-2318-1	Control Switch Containment Spray and Isolation Phase B Actuation	F10	CB-F-3A-A	F10-F50 F10-F86/2 F10/F86/3 F10/FB7/7 F10-F50/1 F10-FB6/1 F10-FB6 F10-FB7/5	FB6e FB6f	310949	FB6h FB6j FB6k	EDE-PP-1A	MM-CP-13	
												CBS-CS-2318-2	Control Switch Containment Spray and Isolation Phase B Actuation	F10	CB-F-3A-A							
												CBS-CS-2318-3	Control Switch Containment Spray and Isolation Phase B Actuation	F50	CB-F-3A-A							
												CBS-CS-2318-4	Control Switch Containment Spray and Isolation Phase B Actuation	F50	CB-F-3A-A							
												CBS-CS-2319	Control Switch Containment Spray Reset	F10	CB-F-3A-A							
												CS-CS-2572-1	Control Switch "T" Signal Containment Isolation Phase A Actuation	F10	CB-F-3A-A							
												CS-CS-2572-2	Control Switch "T" Signal Containment Isolation Phase A Actuation	F50	CB-F-3A-A							
												CS-CS-2573	Control Switch "T" Signal Containment Isolation Phase A Actuation	F10	CB-F-3A-A							
												CBS-CS-2358	Control Switch "P" Signal Containment Isolation Phase B Reset	F10	CB-F-3A-A							
												SI-CS-2471-1	Control Switch Safety Injection Actuation	F10	CB-F-3A-A							
												SI-CS-2471-2	Control Switch Safety Injection Actuation	F50	CB-F-3A-A							
												SI-CS-2489	Control Switch Safety Injection Reset and Block	F10	CB-F-3A-A							
												PSC-E01/11-52	120 V AC Circuit Breaker	E01	CB-F-1A-A							
												MM-CP-450A	Remote Disabling Control Panel	GSX	DG-F-2A-A	E01-CSX FF8-GSX	E01/2a	E01/2b				

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 7 Table MCR 3.1.3.5-3
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FUNCTION: SAFEGUARD ACTUATION SYSTEM																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
8	RC-PT-456	Protection Set II Pressurizer Pressure - Safety Injection Actuation, Clear Manual Block of Safety Injection	RC-20846	B	310579	C-F-2-Z	X	-	X	-	GN5	EDE-MM-131 MM-CP-2 MM-CP-12 MM-CP-13	Electrical Penetration Process Protection System Cabinet No. 2 Solid State Protection System Cabinet Solid State Protection System Cabinet	H55 FA2 FB5 FB8	C-F-1-Z ET-F-1A-A CB-F-3A-A CB-F-3A-A	GN5-H55/5 FA2-H55/3 FA2-FB5 FA2-FB8	9763-C-509012 9763-C-509046 9763-C-509048 310942	FA2b FA2r FA2e FA2w	MM-CP-2 MM-CP-12 MM-CP-13	-	
9	RC-PT-457	Protection Set III Pressurizer Pressure - Safety Injection Actuation, Clear Manual Block of Safety Injection	RC-20846	C	310579	C-F-2-Z	X	-	X	-	GN5	EDE-MM-123 MM-CP-3 MM-CP-12 MM-CP-13	Electrical Penetration Process Protection System Cabinet No. 3 Solid State Protection System Cabinet Solid State Protection System Cabinet	H47 FA3 FB5 FB8	C-F-2-Z ET-F-1A-A CB-F-3A-A CB-F-3A-A	GN5-H47/3 FA3-H47/3 FA3-FB5 FA3-FB8	9763-C-509012 9763-C-509046 9763-C-509048 310942	FA3b FA3r FA3e FA3v	MM-CP-3 MM-CP-12 MM-CP-13	-	
10	RC-PT-458	Protection Set IV Pressurizer Pressure - Safety Injection Actuation	RC-20846	D	310579	C-F-2-Z	X	-	X	-	GN5	EDE-MM-128 MM-CP-4 MM-CP-12 MM-CP-13	Electrical Penetration Process Protection System Cabinet No. 4 Solid State Protection System Cabinet Solid State Protection System Cabinet	H52 FA4 FB5 FB8	C-F-1-Z ET-F-1A-A CB-F-3A-A CB-F-3A-A	GN5-H52/1 FA4-H52/2 FA4-FB5 FA4-FB8	9763-C-509012 9763-C-509046 9763-C-509048 310942	FA4b FA4r FA4e FA4u	MM-CP-4 MM-CP-12 MM-CP-13	-	
11	SI-CS-2480	Control Switch - Steam Line Safety Injection Block Control	-	A	310443	CB-F-3A-A	X	-	X	-	F51	MM-CP-12	Solid State Protection System Cabinet	FB6	CB-F-3A-A	F51-FB6	FB6g 310949	FB6h FB6k	MM-CP-12	-	
12	SI-CS-2490	Control Switch - Steam Line Safety Injection Block Control	-	B	310443	CB-F-3A-A	X	-	X	-	F51	MM-CP-13	Solid State Protection System Cabinet	FB9	CB-F-3A-A	F51-FB9	FB9g 310949	FB9h FB9k	MM-CP-13	-	
13	SI-CS-2488	Control Switch - Pressurizer Pressure Safety Injection Block Control	-	A	310443	CB-F-3A-A	X	-	X	-	F40	MM-CP-12	Solid State Protection System Cabinet	FB6	CB-F-3A-A	F40-FB6	FB6g 310949	FB6h FB6k	MM-CP-12	-	
14	SI-CS-2498	Control Switch - Pressurizer Pressure Safety Injection Block Control	-	B	310443	CB-F-3A-A	X	-	X	-	F41	MM-CP-13	Solid State Protection System Cabinet	FB9	CB-F-3A-A	F48-FB9/2	FB9g 310949	FB9h FB9k	MM-CP-13	-	
15	FW-PT-514	Protection Set I/ Steam Generator Loop 1 - Safety Injection	MS-20580	A	310589	MS-F-1B-Z	X	-	X	-	GL6	MM-CP-1 MM-CP-12 MM-CP-13	Process Protection Cabinet No. 1 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA1 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA1-GL6 FA1-FB5 FA1-FB8	9763-C-509013 9763-C-509047 9763-C-509048 310942	FA1b FA1h FA1e FA1l	MM-CP-1 MM-CP-12 MM-CP-13	-	
16	FW-PT-515	Protection Set II/ Steam Generator Loop 1 - Safety Injection	MS-20580	B	310589	MS-F-1B-Z	X	-	X	-	GZ6	MM-CP-2 MM-CP-12 MM-CP-13	Process Protection Cabinet No. 2 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA2 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA2-GZ6 FA2-FB5 FA2-FB8	9763-C-509015 9763-C-509047 9763-C-509048 310942	FA2b FA2h FA2e FA2l	MM-CP-2 MM-CP-12 MM-CP-13	-	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.5-4</div>
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FUNCTION: SAFEGUARD ACTUATION SYSTEM																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
17	FW-PT-516	Protection Set IV/ Steam Generator Loop 1 - Safety Injection	MS-20580	D	310589	MS-F-1B-Z	X	-	X	-	PS3	MM-CP-4 MM-CP-12 MM-CP-13	Process Protection Cabinet No. 4 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA4 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA4-PS3 FA4-FB5/1 FA4-FB8/1	9763-C-509021 9763-C-509047 9763-C-509048 310942	FA4b FA4h FA4e FA4f	MM-CP-4 MM-CP-12 MM-CP-13	-	
18	FW-PT-524	Protection Set I/ Steam Generator Loop 2 - Safety Injection	MS-20581	A	310586	MS-F-3A-Z	X	-	X	-	GL5	MM-CP-1 MM-CP-12 MM-CP-13	Process Protection Cabinet No. 1 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA1 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA1-GL5 FA1-FB5 FA1-FB8	9763-C-509013 9763-C-509047 9763-C-509048 310942	FA1b FA1h FA1e FA1f	MM-CP-1 MM-CP-12 MM-CP-13	-	
19	FW-PT-525	Protection Set II/ Steam Generator Loop 2 - Safety Injection	MS-20581	B	310586	MS-F-3A-Z	X	-	X	-	GZ4	MM-CP-2 MM-CP-12 MM-CP-13	Process Protection Cabinet No. 2 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA2 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA2-GZ4 FA2-FB5 FA2-FB8	9763-C-509016 9763-C-509047 9763-C-509048 310942	FA2b FA2h FA2e FA2f	MM-CP-2 MM-CP-12 MM-CP-13	-	
20	FW-PT-526	Protection Set III/ Steam Generator Loop 2 - Safety Injection	MS-20581	C	310586	MS-F-3A-Z	X	-	X	-	PS1	MM-CP-3 MM-CP-12 MM-CP-13	Process Protection Cabinet No. 3 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA3 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA3-PS1 FA3-FB5/1 FA3-FB8/1	9763-C-509021 9763-C-509047 9763-C-509048 310942	FA3b FA3h FA3e FA3f	MM-CP-3 MM-CP-12 MM-CP-13	-	
21	FW-PT-534	Protection Set I/ Steam Generator Loop 3 - Safety Injection	MS-20581	A	310586	MS-F-3A-Z	X	-	X	-	GL5	MM-CP-1 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 1 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA1 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA1-GL5 FA1-FB5/2 FA1-FB8/2	9763-C-509014 9763-C-509047 9763-C-509048 310942	FA1b FA1h FA1e FA1f FA1f	MM-CP-1 MM-CP-12 MM-CP-13	-	
22	FW-PT-535	Protection Set II/ Steam Generator Loop 3 - Safety Injection	MS-20581	B	310586	MS-F-3A-Z	X	-	X	-	GZ4	MM-CP-2 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 2 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA2 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA2-GZ4 FA2-FB5/2 FA2-FB8/2	9763-C-509015 9763-C-509047 9763-C-509048 310942	FA2b FA2h FA2e FA2f FA2f	MM-CP-2 MM-CP-12 MM-CP-13	-	
23	FW-PT-536	Protection Set III/ Steam Generator Loop 3 - Safety Injection	MS-20581	C	310586	MS-F-3A-Z	X	-	X	-	PS2	MM-CP-3 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 3 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA3 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA3-PS2 FA3-FB5/1 FA3-FB8/1	9763-C-509021 9763-C-509047 9763-C-509048 310942	FA3b FA3h FA3e FA3f FA3f	MM-CP-3 MM-CP-12 MM-CP-13	-	
24	FW-PT-544	Protection Set I/ Steam Generator Loop 4 - Safety Injection	MS-20580	A	310589	MS-F-1B-Z	X	-	X	-	GL6	MM-CP-1 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 1 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA1 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA1-GL6 FA1-FB5/2 FA1-FB8/2	9763-C-509014 9763-C-509047 9763-C-509048 310942	FA1b FA1h FA1e FA1f FA1f	MM-CP-1 MM-CP-12 MM-CP-13	-	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.5-5</div>
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FUNCTION: SAFEGUARD ACTUATION SYSTEM																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
25	FW-PT-545	Protection Set II/ Steam Generator Loop 4 - Safety Injection	MS-20580	B	310589	MS-F-1B-Z	X	-	X	-	GZ6	MM-CP-2 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 2 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA2 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA2-GZ6 FA2-FB5/2 FA2-FB8/2	9763-C-509016 9763-C-509047 9763-C-509048 310942	FA2b FA2h FA2e FA2f FA2I	MM-CP-2 MM-CP-12 MM-CP-13		
26	FW-PT-546	Protection Set IV/ Steam Generator Loop 4 - Safety Injection	MS-20580	D	310586	MS-F-1B-Z	X	-	X	-	PS4	MM-CP-4 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 4 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA4 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA4-PS4 FA4-FB5/1 FA4-FB8/1	9763-C-509021 9763-C-509047 9763-C-509048 310942	FA4b FA4h FA4e FA4f FA4I	MM-CP-4 MM-CP-12 MM-CP-13		
27	SI-PT-934	Protection Set IV, Containment Pressure - P Signal Containment Isolation Phase B Actuation, Safety Injection Actuation, Containment Spray Actuation	-	D	310694	ET-F-1C-A	X	-	X	-	P85	MM-CP-4 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 4 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA4 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA4-P85/1 FA4-FB5/1 FA4-FB8/1	9763-C-509022 9763-C-509048 310942	FA4a FA4b FA4d FA4e	MM-CP-4 MM-CP-12 MM-CP-13	-	
28	SI-PT-935	Protection Set III, Containment Pressure - P Signal Containment Isolation Phase B Actuation, Safety Injection Actuation, Containment Spray Actuation	-	C	310694	ET-F-1C-A	X	-	X	-	P86	MM-CP-3 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 3 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA3 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA3-P86/1 FA3-FB5/1 FA3-FB8/1	9763-C-509022 9763-C-509048 310942	FA3a FA3b FA3d FA3e FA3f	MM-CP-3 MM-CP-12 MM-CP-13	-	
29	SI-PT-936	Protection Set II, Containment Pressure - P Signal Containment Isolation Phase B Actuation, Safety Injection Actuation, Containment Spray Actuation	-	B	310769	PP-F-4B-Z	X	-	X	-	P87	MM-CP-2 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 2 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA2 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA2-P87 FA2-FB5/2 FA2-FB8/2	9763-C-509022 9763-C-509048 310942	FA2a FA2b FA2d FA2e FA2f	MM-CP-2 MM-CP-12 MM-CP-13	-	
30	SI-PT-937	Protection Set I, Containment Pressure - P Signal Containment Isolation Phase B Actuation, Containment Spray Actuation	-	A	310769	PP-F-4B-Z	X	-	X	-	P88	MM-CP-1 MM-CP-12 MM-CP-13	Process Protection System Cabinet No. 1 Solid State Protection System Cabinet Solid State Protection System Cabinet	FA1 FB5 FB8	CB-F-3A-A CB-F-3A-A CB-F-3A-A	FA1-P88/1 FA1-FB5/2 FA1-FB8/2	9763-C-509022 9763-C-509048 310942	FA1a FA1b FA1d FA1e FA1f	MM-CP-1 MM-CP-12 MM-CP-13	-	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.6-1
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Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 9
Table MCR 3.1.3.6-1

[illegible]

ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	RH-P-8A	Residual Heat Removal Pump	SI-20448	A	310761	RHR-F-ID-Z	-	X	X	-	H11	RH-A57-52	4160 V AC Circuit Breaker	A57	CB-F-1A-A	A57-M11 A57-F20/1	A57a A57b A57c A57d	310887 A57g	CBA-FN-19 CBA-FN-20 EAH-FN-5A EAH-FN-31A EDE-SWG-5	RH-P-8B	
												RHR-A57-FU	Fuses	A57	CB-F-1A-A						
												RH-CS-2467-2	Control Switch	A57	CB-F-1A-A						
												RH-SS-2467	Selector Switch	A57	CB-F-1A-A						
												EDE-A53-94-1A	Bus Under Voltage Relay	A53	CB-F-1A-A						
												RH-A57-G,R,W	Indicating Lights	A57	CB-F-1A-A						
												RH-A57-86	Lockout Relay	A57	CB-F-1A-A						
												RH-A57-52H	Truck-Operated Contact	A57	CB-F-1A-A						
												RH-A57-50/51	Instrument/Time Overcurrent Relays	A57	CB-F-1A-A						
													øA, øC								
												RH-A57-51GS	Ground Sensor Relay	A57	CB-F-1A-A						
												RH-A57-AM	Ammeter	A57	CB-F-1A-A						
												RH-A57-AS	Ammeter Switch	A57	CB-F-1A-A						
												RH-A57-CT	Current Transformers	A57	CB-F-1A-A						
													(75/5)								
												RH-A57-TD1	CT Test Device	A57	CB-F-1A-A						
												RH-A57-ATR	Transducer	A57	CB-F-1A-A						
												RH-A57-TD2	Lockout Relay Test Device	A57	CB-F-1A-A						
												RH-A57-52Z	Time Delay Relay	A57	CB-F-1A-A						
												RH-CS-2467-1	Control Switch with Indication	F20	CB-F-3A-A						
												RH-HR9-PR1,RM0,SR2	Emergency Power Sequencer Relays	HR9	CB-F-1A-A						
												RH-FB7-K-601A	Safety Injection Signal Actuating Relay	FB7	CB-F-3A-A						

- Notes:

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.6-2
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Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 9
Table MCR 3.1.3.6-2

[illegible]

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.6-3
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	RH-V-35	RH-E-9A to Charging Pump Isolation Valve	RH-20662	A	310761	RHR-F-4B-Z	-	X	X	-	V53	RH-B59-52 RH-CS-2465 RH-B59-42/0,C RH-ZS-V35 SI-ZS-V89 SI-ZS-V90 SI-ZS-V93 CBS-ZS-V8 RC-ZS-V23 RC-ZS-V22 RH-B59-49 EDE-TBX-X32	460 V AC Circuit Breaker Control Switch with Indication Motor Starters Position Switch Isolation Valve Isolation Valve Isolation Valve Containment Sump Isolation Valve RHR Letdown and Inlet Isolation Valve RHR Letdown and Inlet Isolation Valve Thermal Overload Relay Terminal Box	B59 F20 B59 V53 V58 V49 V57 V35 V25 V27 B5 Y32	CB-F-1A-A CB-F-3A-A CB-F-1A-A RHR-F-4B-Z RHR-F-2A-Z RHR-F-2B-Z RHR-F-2B-Z PP-F-1A-Z C-F-1-Z C-F-1-Z CB-F-1A-A PP-F-1A-Z	V49-V57 V49-V58 B59-V49 B59-F20 B59-F20/1 B59-H36 H36-V25 B59-V53/1 B59-V53/2 V25/V27 B59-Y32	310887 B59a B59c	CBA-FN-19 CBA-FN-20	None		
6	RH-V-36	RH-E-9B to SI Pump Isolation Valve	SI-20449	B	310761	RHR-F-2A-Z	-	X	X	-	V54	RH-B66-52 RH-CS-2466 RH-B66-42/0,C RH-B66-49 RH-ZS-V36 SI-ZS-V90 SI-ZS-V89 SI-ZS-V93 CBS-ZS-V14 RC-ZS-V87 RC-ZS-V88 EDE-TBX-Y35	460 V AC Circuit Breaker Control Switch with Indication Motor Starters Thermal Overload Position Switch Isolation Valve Isolation Valve Isolation Valve Containment Sump Isolation Valve RHR Letdown and Inlet Isolation Valve RHR Letdown and Inlet Isolation Valve Terminal Box	B66 F20 B66 B66 V54 V49 V58 V57 V36 V26 V28 Y35	CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A RHR-F-2A-Z RHR-F-2B-Z RHR-F-2A-Z RHR-F-2B-Z PP-F-1B-Z C-F-1-Z C-F-1-Z PP-F-1B-Z	V49-V57/1 V57-V58 B66-V57 B66-V54/2 B66-V54/1 B66-F20 H36-V25 B66-F20/1 B66-Y35 B66-H39 H39-V26 V26-V28	310887 B66a B66c	CBA-FN-32 CBA-FN-33	None		
7	RH-V-32	RHR PP to Hot Leg Isolation Valve	RH-20663	B	310769	PP-F-1A-Z	-	X	X	-	V51	RH-B58-52 RH-CS-2460 RH-ZL-2460-3 RH-B58-42 RH-B58-49 RH-ZS-V32	460 V AC 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-Z	B58-V51 B58-F20	310887 B58a B58c	CBA-FN-32 CBA-FN-33	None		
8	RH-V-70	RHR to Hot Leg Isolation Valve	RH-20663	A	310769	PP-F-1A-Z	-	X	X	-	VB4	RH-D90-52 RH-CS-2479 RH-ZL-2479-3 RH-D90-42 RH-D90-49 RH-ZS-V70	460 V AC Circuit Breaker Control Switch Pilot Light Motor Starter Thermal Overload Position Switch	D90 F20 F20 D90 D90 VB4	CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A PP-F-1A-Z	D90-VB4/1 D90-F20	310887 D90a D90c	CBA-FN-19 CBA-FN-20	None		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.6-4
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
9	RH-HCV-606 RH-FCV-618	RH-E-9A Outlet Flow control Valve and Bypass Flow Control Valve	RH-20662	A	310761	RHR-F-4B-Z	-	X	X	X	LG8 LH3	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 VW3 GK0	CB-F-3A-A CB-F-3A-A RHR-F-4B-Z RHR-F-4B-Z	F20-GK0 F20-VW3	310887 E87/2a E87/2e	E87/2c E87/2d E87/2f	CBA-FN-19 CBA-FN-20	RH-HCV-607 RH-FCV-619	Note 5
10	RH-HCV-607 RH-FCV-619	RH-E-9B Outlet Flow control Valve and Bypass Flow Control Valve	RH-20663	B	310761	RHR-F-4A-Z	-	X	X	X	LG9 LH4	RC-CS-619 RC-CS-607 RC-FY-619-1 RC-HY-607-1	Control Switch Control Switch E-9B RC Bypass Solenoid Valve E-9B Outlet Valve	F20 F20 VW4 U7W	CB-F-3A-A CB-F-3A-A RHR-F-4A-Z RHR-F-4A-Z	F20-U7W F20-VW4	310887 E88/2a E88/2e	E88/2c E88/2d E88/2f	CBA-FN-32 CBA-FN-33	RH-HCV-606 RH-FCV-618	Note 5

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table MCR 3.1.3.6-5</div>
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
11	RC-V-22	RHR Inlet Isolation Valve	RH-20841	B	310582	C-F-1-Z	-	X	X	-	V27	RC-B54-52-1,2 RC-B54-FU RC-CS-7302-2 RC-SS-7302 RC-B54-42-1/0,C RC-B54-42-2 RC-B54-49-1,2 EDE-MM-100 RC-ZS-7302B RC-ZL-7302-1 EDE-MM-115 RC-CS-7302-1 RC-ZL-7302-2 RH-ZS-2465B RC-FF9-K734B RC-EH0/16-52 RC-CS-7310-2 RC-SS-7310 RC-ZS-V87 EDE-MM-115 RC-EJ4-FU9 & 10 RC-CS-7302-2 RC-SS-7302 RC-ZS-7302B RC-CS-2896-2 RC-SS-2896 RC-ZS-FV-2896 RC-ED0-R1 RC-CS-7302-1 RC-CS-7310-1 RC-CS-2896-1 RC-PT-403 MM-CP-4 MC-CP-13	460 V AC 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 and Open/Close Torque Switches PSC Actuating Auxiliary Relay 120 V AC Circuit Breaker Control Switch with Indication Selection Switch Valve Position and Open/Close Torque Switches Electrical Penetration 30 Amp Fuses Control Switch with Indication Selector Switch Valve Position Switch Auxiliary Relay Control Switch with Indication Control Switch with Indication Control Switch with Indication Wide-Range Pressure Transmitter Process Protection System Cabinet No. 4 Solid State Protection System Output No. 2 Cabinet	B54 B54 G2J G2J G2J B54 B54 B54 H24 V27 H39 F20 F20 V53 FF9 EH0 G2J G2J V26 H39 E4J G2J G2J G2J F20 F20 F20 GZ0 GZ0 U8U ED0 F20 F29 P76 FA4 FF9	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-Z, ET-F-1C-A C-F-1-Z CB-F-1B-A C-F-1-Z, ET-F-1C-A CB-F-3A-A CB-F-3A-A RHR-F-4B-Z CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z C-F-1-Z ET-F-1C-A CB-F-1B-A PP-F-1B-Z CB-F-1B-A CB-F-3A-A CB-F-3A-A ET-F-1C-A CB-F-3A-A CB-F-3A-A	B54-G2J B54-G2J/1 B54-H39 B54-H24 H24-V27 H39-V27 F20-G2J F20-FF9/2 B54-V53 E4J-EH0/1 E4J-G2J G2J-H39/6 H39-V26/3 GZ0-U8U ED0-GZ0/1 H39-V27/1 F20-G2J/2 F26-GZ0/4 FA4-P76/1 FA4-FB8	B54a B54d EH0/16a EH0/16b C-509036 310942 FA4r FA4w FA4b FA4e	B54c EH0/16c EH0/16d MM-CP-4 MM-CP-13	EDE-MCC-621 CBA-FN-32 CBA-FN-33 CAH-FN-1A CAH-FN-1B CAH-FN-1D	RC-V-88	Notes 6 and 7

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.6-6
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
12	RC-V-23	RHR Inlet Isolation Valve	RC-20841	A	310576	C-F-1-Z	X	X	X	-	V25	RC-B53-52-1,2 RC-B53-FU RC-CS-7303-2 RC-SS-7303 RC-ZL-7303-1 RC-B53-42-1/0,C RC-B53-42-2 RC-B53-49-1,2 EDE-MM-95 RC-ZS-V23 EDE-MM-112 RC-CS-7303-1 RC-ZL-7303-2 RH-ZS-2465A RC-FF8-K-734A RC-PT-405 MM-CP-1 MM-CP-12 RC-EH9/16-52 RC-CS-7303-2 RC-SS-7303 RC-ZS-V23 EDE-MM-112 RC-E4H-FU-9,10 RC-CS-7311-2 RC-SS-7311 RC-ZS-7311A RC-CS-2894-2 RC-SS-2894 RC-ZS-FV-2894 RC-EC8-R1 RC-CS-7311-1 RC-CS-7303-1 RC-CS-2894-1	460 V AC Circuit Breakers Fuse Control Switch with Indication Selector Switch Pilot Light Motor Starters Motor Starter Overload Relays Electrical Penetration Valve Position and Open/Close Torque Switches Electrical Penetration Control Switch with Indication Pilot Light Valve Position Switch PSC Actuating Auxiliary Relay Wide-Range Pressure Transmitter Process Protection System Cabinet No. 1 Solid State Protection System Output No. 2 Cabinet 120 V AC Circuit Breaker Control Switch with Indication Selection Switch Valve Position and Open/Close Torque Switches Electrical Penetration 30 Amp Fuses Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Control Switch with Indication Selector Switch Valve Position Switch Auxiliary Relay Control Switch with Indication Control Switch with Indication	B53 B53 G2G G2G G2G B53 B53 B53 H19 V25 H36 F20 F20 V53 FF8 P78 FA1 FF8 EH9 G2G G2G V25 H36 E4H G2G G2G V28 G81 U8T EC8 F20 F20 F29	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-2-Z, ET-F-1A-A CB-F-3A-A CB-F-3A-A RHR-F-1B-Z CB-F-3A-A ET-F-1C-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z ET-F-1A-A, C-F-2-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z CB-F-1A-A CB-F-1A-A CB-F-1A-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A	B53-G2G B53-G2G/1 B53-H36 B53-H19 H36-V25/2 H19-V25 F20-G2G F20-FF8/2 B53-V53 FA1-P78/1 FA1-FB5/2 E4H-EH9/1 E4H-G2G G2G-H36/8 H36-V25/3 H36-V28/1 G81-U8T EC8-G81 F20-G2G/2 F29-G81/2 EC8-G81/1	B53a B53c B53d C-509036 310942 FA1r FA1w FA1b FA1e EH9/16a EH9/16b EH9/16c EH9/16d	EDE-MCC-521 CBA-FN-19 CBA-FN-20 CAH-FN-1C CAH-FN-1E CAH-FN-1F MM-CP-1 MM-CP-12 EDE-PP-1E CBA-FN-19 CBA-FN-20	RC-V-87	Notes 6 and 7	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table MCR 3.1.3.6-7</div>
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
13	RC-V-87	RHR Inlet Isolation Valve	RC-20844	B	310582	C-F-1-Z	X	X	X	-	V26	RC-B61-52-1,2 RC-B61-FU RC-CS-7310-2 RC-SS-7310 RC-ZL-7310-1 RC-B61-42-1/0,C RC-B61-42-2 RC-B61-49-1,2 RC-ZS-V87 EDE-MM-100 EDE-MM-115 RC-CS-7310-1 RC-ZL-7310-2 RH-ZS-2466B RC-FF9-K-734B RC-PT-403 MM-CP-4 MM-CP-13 RC-EH0/16-52 RC-CS-7310-2 RC-SS-7310 RC-ZS-V87 EDE-MM-115 RC-E4J-FU-9,10 RC-CS-7302-2 RC-SS-7302 RC-ZS-7302B RC-CS-2896-2 RC-SS-2896 RC-ZS-FV-2896 RC-EC0-R1 RC-CS-7302-1 RC-CS-7310-1 RC-CS-2896-1	460 V AC Circuit Breakers Fuse Control Switch with Indicator Selector Switch Pilot Light Motor Starters Motor Starter Overload Relays Valve Position and Open/Close Torque Switches Electrical Penetration Electrical Penetration Control Switch with Indication Pilot Light Valve Position Limit Switch PSC Actuating Auxiliary Relay Wide-Range Pressure Transmitter Process Protection System Cabinet No. 4 Solid State Protection System Output No. 2 Cabinet 120 v AC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Electrical Penetration 30 Amp Fuses Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Control Switch with Indication Selector Switch Valve Position Switch Auxiliary Relay Control Switch with Indication Control Switch with Indication	B61 B61 G2J G2J G2J B61 B61 B61 V26 H24 H39 F20 F20 V54 FF9 P76 FA4 FF9 EH0 G2J G2J V26 H39 E4J G2J G2J V27 G20 G20 U8U ED0 F20 F29	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-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-3A-A CB-F-3A-A RHR-F-1A-Z CB-F-3A-A ET-F-1C-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z C-F-1-Z, ET-F-1C-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z CB-F-1B-A CB-F-1B-A PP-F-1B-Z CB-F-1B-A CB-F-3B-A CB-F-3B-A	B61-G2J B61-G2J/1 B61-H39 B61-H24 H39-V26/2 H24-V26 F20-G2J/1 F20-FF9/1 B61-V54 FA4-P76/1 FA4-FB8 E4J-EH0/1 E4J-G2J G2J-H39/6 H39-V26/3 G20-U8U ED0-G20/1 H39-V27/1 F20-G2J/2 F26-G20/4	B61a B61c B61d C-509036 310942 FA4r FA4w FA4b FA4e EH0/16a EH0/16b EH0/16c EH0/16d	EDE-MCC-621 CBA-FN-32 CBA-FN-33 CAH-FN-1A CAH-FN-1B CAH-FN-1D MM-CP-4 MM-CP-13 EDE-PP-1F CBA-FN-32 CBA-FN-33	RC-V-23	Notes 6 and 7	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table MCR 3.1.3.6-9</div>
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
16	RH-P-8B	RHR Pump Lube Oil Cooler	RH-20663	B	310761 805200	RHR-F-1C-Z	-	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	RH-P-8A	Notes 1,2
17	RH-E-9A	Residual Heat Removal Heat Exchanger	SI-20448	A	310761 310762 805202 805203	RHR-F-3B-Z	-	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	RH-E-9B	Notes 1, 3
18	RH-E-9B	Residual Heat Removal Heat Exchanger	RH-20663	B	310761 310762 805202 805203	RHR-F-3A-Z	-	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	RH-E-9A	Notes 1, 3
19	RH-V-8	RHR Loop A Sample Valve	RH-20662	A	310761 805201	RHR-F-4B-Z	-	X	-	-	-	-	-	-	-	-	-	-	EAH-FN-5A EAH-FN-31A	RH-V-44	Notes 1, 4
20	RH-V-44	RHR Loop B Sample Valve	RH-20663	B	310761 805201	RHR-F-4A-Z	-	X	-	-	-	-	-	-	-	-	-	-	EAH-FN-5B EAH-FN-31B	RH-V-8	Notes 1, 4

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.7-1
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FUNCTION: SERVICE WATER																						
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
1	SW-P-41A	Service Water Loop "A" - Pump "A"	SW-20794	A	301140	SW-F-1E-Z	X	X	X	-	N81	SW-AQ3-52	4160 V AC Circuit Breaker	AQ3	CB-F-1A-A	AQ3-GN9 AQ3-VL3	301107	AQ3a AQ3b AQ3c AQ3d	AQ3h	CBA-FN-19 CBA-FN-20 EDE-SWG-5	SW-P-41B or SW-P-41D	
												SW-AQ3-FU	Fuses	AQ3	CB-F-1A-A	AQ3-N81						
												SW-CS-6101-2	Control Switch	AQ3	CB-F-1A-A	AQ4-HR2						
												SW-SS-6101	Selector Switch	AQ3	CB-F-1A-A	AQ4-F72/2						
												SW-ZS-V2	Valve Position Switch	VL3	SW-F-1E-Z	AQ3-F72/1						
												EDE-A53-94-2	Bus Undervoltage Relay	A53	CB-F-1A-A							
												SW-AQ3-52H	Truck Operated Contact	AQ3	CB-F-1A-A							
												SW-AQ3-50/51	Inst/Time Overcurrent Relays 0A, 0C	AQ3	CB-F-1A-A							
												SW-AQ3-51GS	Ground Sensor Relay	AQ3	CB-F-1A-A							
												SW-AQ3-86	Lockout Relay	AQ3	CB-F-1A-A							
												SW-AQ3-CT	Current Transformers 100/5A	AQ3	CB-F-1A-A							
												SW-AQ3-TD1	Test Device	AQ3	CB-F-1A-A							
												SW-AQ3-AM	Ammeter	AQ3	CB-F-1A-A							
												SW-AQ3-AS	Ammeter Switch	AQ3	CB-F-1A-A							
												SW-AQ3-G,R,W	Indicating Lights	AQ3	CB-F-1A-A							
												SW-AQ3-ATR	Transducer	AQ3	CB-F-1A-A							
												SW-AQ3-TD2	Lockout Relay Test Device	AQ3	CB-F-1A-A							
												SW-GN9-RV54	Auxiliary Relay	GN9	CB-F-1A-A							
												SW-AQ3-52Z	Time Delay Relay	AQ3	CB-F-1A-A							
												SW-AQ3-R1	Auxiliary Relay	AQ3	CB-F-1A-A							
												SW-CS-6102-1	Control Switch	F72	CB-F-3A-A							
												SW-CS-6101-1	Control Switch with Indication	F72	CB-F-3A-A							
												SW-HR2-PR1	EPS Permit Relay (K8 and K10)	HR2	CB-F-1A-A							
												SW-HR2-SR5	EPS Starting Relay (K80)	HR2	CB-F-1A-A							
												SW-HR2-RM0	EPS Manual Override Relay (K32)	HR2	CB-F-1A-A							
												SW-AW-4-52S	Mechanical Operated Switch	AQ4	CB-F-1A-A							
												SW-GN9-RTA	Tower Actuation Sig. Auxiliary Relay	GN9	CB-F-1A-A							
												SW-GN9-RX1	TA Signal Relay	GN9	CB-F-1A-A							
												SW-ZS-V54	Valve Position Switch and Valve Open/Close Torque Switches	VM5	CT-F-2B-A							
												SW-GN9-RV54	Auxiliary Relay	GN9	CB-F-1A-A	GN9-VM5	E2T/1a	E2T/1b	CBA-FN-19 CBA-FN-20		Notes 2,4	

Notes

- Air is not needed to position or to reposition the valve for safe shutdown.
- Circuit shown in 301107, Sheet E2T/1a, involving Auxiliary Relay SW-GN9-RV54 of SW-P-41A also affects SW-P-41C.
- Circuit shown in 301107, Sheet E2U/1a, involving Auxiliary Relay SW-GN0-RV25 of SW-P-41B also affects SW-P-41D.
- Electrical power not required for support.
- The equipment is permanently disabled.
- During normal operation, this equipment is in its safe shutdown position with its circuit breaker administratively controlled off to prevent its spurious operation.

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table MCR 3.1.3.7-2</div>
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
2	SW-P-41B	Service Water Loop "B" - Pump "B"	SW-20794	B	301140	SW-F-1E-Z	X	X	X	-	N82	SW-AR3-52	4160 V AC Circuit Breaker	AR3	CB-F-1B-A	AR3-GN0 AR3-VL4 AR3-N82 AR3-F71/1 AR3-F71/3 AR4-HR4	301107	AR3a AR3b AR3c AR3d	CBA-FN-32 CBA-FN-33 EDE-SWG-6	SW-P-41A or SW-P-41C Cooling Towers	
												SW-AR3-FU	Fuses	AR3	CB-F-1B-A						
												SW-CS-6111-2	Control Switch	AR3	CB-F-1B-A						
												SW-SS-6111	Selector Switch	AR3	CB-F-1B-A						
												SW-ZS-V29	Valve Position Switch	VL4	SW-F-1E-Z						
												EDE-A73-94-2	Bus Undervoltage Relay	A73	CB-F-1B-A						
												SW-AR3-52H	Truck Operated Contact	AR3	CB-F-1B-A						
												SW-AR3-50/51	Inst/Time Overcurrent Relays 0A, 0C	AR3	CB-F-1B-A						
												SW-AR3-51GS	Ground Sensor Relay	AR3	CB-F-1B-A						
												SW-AR3-86	Lockout Relay	AR3	CB-F-1B-A						
												SW-AR3-CT	Current Transformers 100/5A	AR3	CB-F-1B-A						
												SW-AR3-TD1	Test Device	AR3	CB-F-1B-A						
												SW-AR3-AM	Ammeter	AR3	CB-F-1B-A						
												SW-AR3-AS	Ammeter Switch	AR3	CB-F-1B-A						
												SW-AR3-G,R,W	Indicating Lights	AR3	CB-F-1B-A						
												SW-AR3-ATR	Transducer	AR3	CB-F-1B-A						
												SW-AR3-TD2	Lockout Relay Test Device	AR3	CB-F-1B-A						
												SW-GN0-RV25	Auxiliary Relay	GN0	CB-F-1B-A						
												SW-AR3-52Z	Time Delay Relay	AR3	CB-F-1B-A						
												SW-AR3-R1	Auxiliary Relay	AR3	CB-F-1B-A						
												SW-CS-6112-1	Control Switch	F71	CB-F-3A-A						
												SW-CS-6111-1	Control Switch with Indication	F71	CB-F-3A-A						
												SW-HR4-PR1	EPS Permit Relay (K8 and K10)	HR4	CB-F-1B-A						
												SW-HR0-SR5	EPS Starting Relay (K80)	HR0	CB-F-1B-A						
												SW-HR4-RM0	EPS Manual Override Relay (K32)	HR4	CB-F-1B-A						
												SW-AR4-52S	Mechanical Operated Switch	AR4	CB-F-1B-A						
												SW-GN0-RTB	Tower Actuation Sig. Auxiliary Relay	GN0	CB-F-1B-A						
												SW-GN0-RX1	TA Signal Relay	GN0	CB-F-1B-A						
												SW-ZS-V25	Valve Position Switch and Valve Open/Close Torque Switches	VM8	CT-F-2B-A						
												SW-GN0-RV25	Auxiliary Relay	GN0	CB-F-1B-A	GN0-VM8	E2U/1a	E2U/1b	CBA-FN-32 CBA-FN-33	Notes 3,4	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.7-3
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FUNCTION: SERVICE WATER																			
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
3	SW-P-41C	Service Water Loop "A" - Pump "C"	SW-20794	A	301140	SW-F-1E-Z	X	X	X	-	N83	SW-AQ4-52	4160 V AC Circuit Breaker	AQ4	CB-F-1A-A	AQ4-GN9 AQ4-VL5 AQ4-N83 AQ3-F72/2 AQ4-F72/1 AQ3-HR2	301107	AQ4a AQ4b AQ4c AQ4d	Note 2
												SW-AQ4-FU	Fuses	AQ4	CB-F-1A-A				
												SW-CS-6102-2	Control Switch	AQ4	CB-F-1A-A				
												SW-SS-6102	Selector Switch	AQ4	CB-F-1A-A				
												SW-ZS-V22	Valve Position Switch	VL5	SW-F-1E-Z				
												EDE-A53-94-2	Bus Undervoltage Relay	A53	CB-F-1A-A				
												SW-AQ4-52H	Truck Operated Contact	AQ4	CB-F-1A-A				
												SW-AQ4-50/51	Inst/Time Overcurrent Relays 0A, 0C	AQ4	CB-F-1A-A				
												SW-AQ4-51GS	Ground Sensor Relay	AQ4	CB-F-1A-A				
												SW-AQ4-86	Lockout Relay	AQ4	CB-F-1A-A				
												SW-AQ4-CT	Current Transformers 100/5A	AQ4	CB-F-1A-A				
												SW-AQ4-TD1	Test Device	AQ4	CB-F-1A-A				
												SW-AQ4-AM	Ammeter	AQ4	CB-F-1A-A				
												SW-AQ4-AS	Ammeter Switch	AQ4	CB-F-1A-A				
												SW-AQ4-G,R,W	Indicating Lights	AQ4	CB-F-1A-A				
												SW-AQ4-ATR	Transducer	AQ4	CB-F-1A-A				
												SW-AQ4-TD2	Lockout Relay Test Device	AQ4	CB-F-1A-A				
												SW-GN9-RV54	Auxiliary Relay	GN9	CB-F-1A-A				
												SW-AQ4-52Z	Time Delay Relay	AQ4	CB-F-1A-A				
												SW-CS-6102-1	Control Switch	F72	CB-F-3A-A				
												SW-CS-6101-1	Control Switch with Indication	F72	CB-F-3A-A				
												SW-HR2-PR1	EPS Permit Relay (K8 and K10)	HR2	CB-F-1A-A				
												SW-HR2-SR5	EPS Starting Relay (K80)	HR2	CB-F-1A-A				
												SW-HR2-RM0	EPS Manual Override Relay (K32)	HR2	CB-F-1A-A				
												SW-AQ3-52S	Mechanical Operated Switch	AQ3	CB-F-1A-A				
												SW-GN9-RTA	Tower Actuation	GN9	CB-F-1A-A				
												SW-GN9-RX1	Sig. Auxiliary Relay	GN9	CB-F-1A-A				
												SW-AQ4-R1	TA Signal Relay	AR4	CB-F-1A-A				
													Auxiliary Relay	AR4	CB-F-1A-A				

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.7-4
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SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.7-5
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
7	SW-V29	Service Water Pump "B" Discharge Valve	SW-20794	B	301140	SW-F-1E-Z	X	X	X	-	VL4	SW-CS1-52 SW-AR3-52S SW-ZS-V29 SW-CS1-42/0,C SW-CS1-49 SW-CS1-FU SW-EE2-TDR	460 V AC Circuit Breaker Mechanically Operated Contact Valve Position Switch and Valve Open/Close Torque Switches Motor Starters Overload Relay Fuses Time Delay Relay	CS1 AR3 VL4 CS1 CS1 CS1 EE2	SW-F-1C-A CB-F-1B-A SW-F-1E-Z SW-F-1C-A SW-F-1C-A SW-F-1C-A SW-F-1C-A	AR3-CS1 CS1-VL4/1 CS1-VL4	301107 CS1a CS1c	SWA-FN-40B EDE-MCC-614	SW-V-2 SW-V-22 Cooling Towers		
8	SW-V31	Service Water Pump "D" Discharge Valve	SW-20794	B	301140	SW-F-1E-Z	X	X	X	-	VL6	SW-CS2-52 SW-AR4-52S SW-ZS-V31 SW-CS2-42/0,C SW-CS2-49 SW-CS2-FU SW-EE2-TDR	460 V AC Circuit Breaker Mechanically Operated Contact Valve Position Switch and Valve Open/Close Torque Switches Motor Starters Overload Relay Fuses Time Delay Relay	CS2 AR4 VL6 CS2 CS2 CS2 EE2	SW-F-1C-A CB-F-1B-A SW-F-1E-Z SW-F-1C-A SW-F-1C-A SW-F-1C-A SW-F-1C-A	AR4-CS2 CS2-VL6/1 CS2-VL6	301107 CS2a CS2c	SWA-FN-40B EDE-MCC-614	SW-V-2 SW-V-22 Cooling Towers		
9	SW-V4	Secondary Component Cooling Water Heat Exchanger Header Supply Valve	SW-20795	A	310767	PAB-F-1K-Z	X	X	X	-	VP0	SW-DA6-52 SW-CS-6117-2 SW-SS-6117 SW-DA6-42/0,C SW-DA6-49 SW-ZS-V4 SW-DA6-FU SW-CS-6117-1 SW-HR2-PR1 SW-FB7-K603A SW-GN9-RTA	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch and Valve Open/Close Torque Switches Fuse Control Switch with Indication EPS Permit Auxiliary Relay (K8 and K11) SI Actuating Auxiliary Relay Tower Actuation Sig. Auxiliary Relay	DA6 G2H G2H DA6 DA6 VP0 DA6 F72 HR2 FB7 GN9	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-1K-Z CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A	DA6-VP0 DA6-G2H DA6-G2H/2 DA6-G2H/1 DA6-VP0/1 F72-G2H/3 F72-G2H/5 F72-FB7 DA6-GN9 DA6-HR2	301107 DA6a DA6c DA6d	CBA-FN-19 CBA-FN-20 EDE-MCC-512	SW-V5		
10	SW-V5	Secondary Component Cooling Water Heat Exchanger Header Supply Valve	SW-20795	B	310767	PAB-F-1K-Z	X	X	X	-	VQ1	SW-DA2-52 SW-CS-6137-2 SW-SS-6137 SW-DA2-42/0,C SW-DA2-49 SW-ZS-V5 SW-DA2-FU SW-CS-6137-1 SW-HR4-PR1 SW-FB0-K603B SW-GN0-RTB	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch and Valve Open/Close Torque Switches Fuse Control Switch with Indication EPS Permit Auxiliary Relay (K8 and K11) SI Actuating Auxiliary Relay Tower Actuation Sig. Auxiliary Relay	DA2 G2K G2K DA2 DA2 VQ1 DA2 F71 HR4 FB0 GN0	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-1K-Z CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-3A-A CB-F-1B-A	DA2-VQ1 DA2-G2K DA2-G2K/1 DA2-G2K/2 DA2-VQ1/1 F71-G2K/3 F71-G2K/5 F71-FB0 DA2-GN0 DA2-HR4	301107 DA2a DA2c DA2d	CBA-FN-32 CBA-FN-33 EDE-MCC-612	SW-V4		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table MCR 3.1.3.7-6
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
11	SW-V15	CC-E-17A Outlet Valve	SW-20795	A	310767	PAB-F-3A-Z	X	X	X	-	VN1	SW-CS-6160 SW-DA7-42/0,C SW-GN9-RTA SW-ZS-V15 SW-DA7-52	Control Switch with Indication Motor Starter Twr. Act. Sig. Auxiliary Relay Position Switch 460 V AC Circuit Breaker	F72 DA7 GN9 VN1 DA7	CB-F-3A-A CB-F-1A-A CB-F-1A-A PAB-F-3A-Z CB-F-1A-A	DA7-VN1/1 DA7-F72 DA7-GN9 DA7-VN1/2	301107 DA7a DA7c	CBA-FN-19 CBA-FN-20	SW-V17	Note 4	
12	SW-V16	Diesel Generator "A" Water Jacket Heat Exchanger Solenoid-Operated Valve	SW-20795	A	310767	PAB-F-3A-Z	X	X	X	X	UK6	EDE-E2T/2-72 SW-CS-6182 SW-GN9-R1 SW-G06-LSRX SW-ZS-V16	125 V DC Circuit Breaker Control Switch with Indication Auxiliary Relay Low Speed Relay SW DG Water Jacket VLV-V16 Position Switch and Solenoid	E2T F72 GN9 G06 UK6	CB-F-1A-A CB-F-3A-A CB-F-1A-A DG-F-2A-A PAB-F-3A-Z	F72-G06 F72-GN9/1 F72-GN9/5 GN9-UK6	301107 E2T/2a E2T/2c	CBA-FN-19 CBA-FN-20	SW-V18	Notes 1,4	
13	SW-V17	CC-E-17B Outlet Valve	SW-20795	B	310767	PAB-F-3A-Z	X	X	X	-	VN2	SW-DA3-52	460 V AC Circuit Breaker	DA3	CB-F-1B-A	-	-	CBA-FN-32 CBA-FN-33	SW-V15	Note 6	
14	SW-V18	Diesel Generator "B" Water Jacket Heat Exchanger Solenoid-Operated Valve	SW-20795	B	310767	PAB-F-3A-Z	X	X	X	X	UK7	EDE-E2U/2-72 SW-CS-6192 SW-GN0-R1 SW-G18-LSRX SW-ZS-V18	125 V DC Circuit Breaker Control Switch with Indication Auxiliary Relay Low Speed Relay SW DG Water Jacket VLV-V18 Position Switch and Solenoid	E2U F71 GN0 G18 UK7	CB-F-1B-A CB-F-3A-A CB-F-1B-A DG-F-2B-A PAB-F-3A-Z	F71-GN0/1 F71-GN0/5 F71-G18 GN0-UK7	301107 E2U/2a E2U/2c	CBA-FN-32 CBA-FN-33	SW-V16	Notes 1,4	
15	SW-V19	Service Water Discharge to Sea Isolation Valve	SW-20795	B	310765	PAB-F-2C-Z	X	X	X	-	VN3	SW-DA4-52 SW-CS-6172 SW-CS-6172-1 SW-SS-8257 SW-DA4-42/0,C SW-DA4-49 SW-GN0-RTB-2 SW-ZS-V19	460 V AC Circuit Breaker Control Switch with Indication Control Switch with Indication Selector Switch Motor Starters Thermal Overload Twr. Act. Sig. Auxiliary Relay Position Switch	DA4 F71 DA4 DA4 DA4 DA4 GN0 VN3	CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z	DA4-VN3/1 DA4-VN3/2 DA4-F71 DA4-GN0	301107 DA4a DA4c	CBA-FN-32 CBA-FN-33	SW-V20	Note 4	
16	SW-V20	Service Water Discharge to Sea Isolation Valve	SW-20795	A	310765	PAB-F-2C-Z	X	X	X	-	VN4	SW-DA8-52 SW-CS-6162 SW-DA8-42/0,C SW-DA8-49 SW-GN9-RTA-2 SW-ZS-V20	460 V AC Circuit Breaker Control Switch with Indication Motor Starters Thermal Overload Twr. Act. Sig. Auxiliary Relay Position Switch	DA8 F72 DA8 DA8 GN9 VN4	CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-2C-Z	DA8-VN4 DA8-VN4/1 DA8-VN4/2 DA8-F72 DA8-GN9	301107 DA8a DA8c	CBA-FN-19 CBA-FN-20 EDE-MCC-512	SW-V19		
17	SW-V23	Service Water to Cooling Tower Isolation Valve	SW-20795	B	310765	PAB-F-2C-Z	X	X	X	-	VN5	SW-DA5-52 SW-CS-6171 SW-DA5-42/0,C SW-DA5-49 SW-GN0-RTB-2 SW-ZS-V23	460 V AC Circuit Breaker Control Switch with Indication Motor Starters Thermal Overload Twr. Act. Sig. Auxiliary Relay Position Switch	DA5 F71 DA5 DA5 GN0 VN5	CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z	DA5-VN5/1 DA5-VN5/2 DA5-F71 DA5-F71/1 DA5-GN0	301107 DA5a DA5c	CBA-FN-32 CBA-FN-33	SW-V34	Note 4	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table MCR 3.1.3.7-7</div>
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
18	SW-V25	Cooling Tower Pump Discharge Valve	SW-20794	B	310717	CT-F-2B-A	X	X	X	-	VH8	SW-CQ7-52 SW-CS-6174-2 SW-SS-6174 SW-CQ7-42/0,C SW-CQ7-49 SW-ZS-V25 SW-CS-6174-1 SW-AU6-52S SW-GNO-RTB1 SW-EE7-TDR SW-GNO-RV25 SW-ZS-V25 SW-GNO-RV25	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position Switch and Valve Open/Close Torque Switches Control Switch with Indication Mechanical Operated Switch Tower Actuation Signal Auxiliary Relay Time Delay Relay Auxiliary Relay Position Switch Auxiliary Relay	CQ7 G2K G2K CQ7 CQ7 VM8 F71 AU6 GNO EE7 GNO VM8 GNO	CT-F-1C-A CB-F-1B-A CB-F-1B-A CT-F-1C-A CT-F-1C-A CT-F-2B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CT-F-1C-A CB-F-1B-A CT-F-2B-A CB-F-1B-A	CQ7-G2K CQ7-VM8/1 CQ7-VM8/2 F71-G2K AU6-G2K G2K-GNO EE7-G2K G2K-GNO/3	301107 CQ7a CQ7c	CBA-FN-32 CBA-FN-33	SW-V54	Note 4	
19	SW-V34	Service Water to Cooling Tower Outlet Valve	SW-20795	A	310765	PAB-F-2C-Z	X	X	X	-	VN6	SW-DA9-52 SW-CS-6161 SW-DA9-42/0,C SW-DA9-49 SW-GN9-RTA-2 SW-ZS-V34	460 v AC Circuit Breaker Control Switch with Indication Motor Starters Thermal Overload Tower Actuation Signal Auxiliary Relay Position Switch	DA9 F72 DA9 DA9 GN9 VN6	CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-2C-Z	DA9-VN6 DA9-VN6/1 DA9-VN6/2 DA9-F72 DA9-F72/1 DA9-GN9	301107 DA9a DA9c	CBA-FN-19 CBA-FN-20 EDE-MCC-512	SW-V23	Note 4	
20	SW-V44	Service Water Unit Pumps Intake Valve	SW-20794	A	301037	SW-F-2-0	X	X	X	-	VM1	SW-CU5-52	460 V ac Circuit Breaker	CU5	SW-F-1B-A				None	Note 5	
21	SW-V54	Cooling Tower Pump Discharge Valve	SW-20794	A	301717	CT-F-2B-A	X	X	X	-	VM5	SW-CP8-52 SW-CS-6164-2 SW-SS-6164 SW-CP8-42/0,C SW-CP8-49 SW-ZS-V54 SW-CP8-FU SW-CS-6164-1 SW-AU2-52S SW-GN9-RTA-1 SW-ED6-TDR SW-ZS-V54 SW-GN9-RV54	460 V ac Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position Switch and Valve Open/Close Torque Switches Fuse Control Switch with Indication Mechanical Operated Switch Tower Actuation Signal Auxiliary Relay Timing Relay Position Switch Auxiliary Relay	CP8 G2H G2H CP8 CP8 VM5 CP8 F72 AU2 GN9 ED6 VM5 GN9	CT-F-1D-A CB-F-1A-A CB-F-1A-A CT-F-1D-A CT-F-1D-A CT-F-2B-A CT-F-1D-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CT-F-2B-A CB-F-1A-A	CP8-G2H CP8-VM5 CP8-VM5/1 CP8-VM5/2 F72-G2H AU2-G2H G2H-GN9/1 G2H-GN9/5 ED6-G2H	301107 CP8a CP8c	CBA-FN-19 CBA-FN-20 EDE-MCC-513	SW-V25	Note 4	
22	SW-V63	Service Water Discharge Valve to Intake	SW-20794	A	301037	SW-F-2-0	X	X	X	-	VQ0	SW-DZ3-52	460 V ac Circuit Breaker	DZ3	SW-F-1B-A				None	Note 5	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.7-8
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
23	EDE-CP-248	Service Water Cooling Tower Actuation Logic (TA)	SW-20794	A	310442	CB-F-1A-A	X	X	X	-	GN9	SW-CS-6149-2 SW-CS-6148-1 SW-CS-6148-2 SW-CS-6149-1 SW-AQ3-52S SW-AQ4-52S SW-GN9-RX1 SW-GN9-TD1 SW-EF4-RP1 SW-EF4-RP2 SW-EF4-RP3 SW-GN9-RTA SW-GN9-RTA1 SW-GN9-RTA2 SW-ZL-6149 SW-GN9-TD2 SW-CS-6101-1 SW-CS-6102-1 SW-CS-6167-1 SW-ED4-94-5 SW-PYY-8272-2 SW-PYY-8273 SW-PYY-8274-2 SW-EF4-RP1 SW-EF4-RP2 SW-EF4-RP3 SW-PT-8272 MM-CP-152A SW-PT-8273 MM-CP-152A SW-PT-8274 MM-CP-152A	Control Switch Control Switch Control Switch Control Switch Circuit Breaker Circuit Breaker Auxiliary Relay Time Delay Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay Tower Actuation Relay Tower Actuation Relay Tower Actuation Relay Pilot Light Time Delay Relay Control Sw Control Sw Control Sw Aux Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay Auxiliary Relay SW-Discharge HDR PR BOP-PCC SW-Discharge HDR PR BOP-PCC SW-Discharge HDR PR BOP-PCC	F77 F72 F72 F77 AQ3 AW4 GN9 GN9 EF4 EF4 EF4 GN9 GN9 GN9 F77 GN9 F72 F72 F72 ED4 FJ1 FJ1 FJ1 EF4 EF4 EF4 GRO FJ1 GRO FJ1 GRO FJ1	CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-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 CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A SW-F-1E-Z CB-F-3A-A SW-F-1E-Z CB-F-3A-A SW-F-1E-Z CB-F-3A-A	EF4-GN9/1 F72-GN9 AQ3-GN9/1 ED4-F72	301107 E87/4a E87/4b	E87/4g	CBA-FN-19 CBA-FN-20	EDE-CP-249	Note 4
															EF4-FJ1/2	EH9/10a	EH9/10b			Note 4	
															FJ1-GRO	310952	FJ1c FJ1e				
															FJ1-GRO		FJ1c FJ1e				
															FJ1-GRO		FJ1c FJ1e				

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.7-9
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FUNCTION: SERVICE WATER																							
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS		
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE					
24	EDE-CP-249	Service Water Cooling Water Actuation Logic (TA)	SW-20794	B	310442	CB-F-1B-A	X	X	X	-	GNO	SW-CS-6159-2	Control Switch	F77	CB-F-3A-A	EE3-GNO/1 F71-GNO AR3-GNO/1 EE6-F71	301107 E88/4a E88/4b	E88/4g	CBA-FN-32 CBA-FN-33	EDE-CP-248	Note 4		
												SW-CS-6158-1	Control Switch	F71	CB-F-3A-A								
												SW-CS-6158-2	Control Switch	F71	CB-F-3A-A								
												SW-CS-6159-1	Control Switch	F77	CB-F-3A-A								
												SW-AR3-52S	Circuit Breaker	AR3	CB-F-1B-A								
												SW-AR4-52S	Circuit Breaker	AR4	CB-F-1B-A								
												SW-GNO-RX1	Auxiliary Relay	GNO	CB-F-1B-A								
												SW-GNO-TD1	Time Delay Relay	GNO	CB-F-1B-A								
												SW-EE3-RP1	Auxiliary Relay	EE3	CB-F-1B-A								
												SW-EE3-RP2	Auxiliary Relay	EE3	CB-F-1B-A								
												SW-EE3-RP3	Auxiliary Relay	EE3	CB-F-1B-A								
												SW-GNO-RTA	Tower Actuation Relay	GNO	CB-F-1B-A								
												SW-GNO-RTA1	Tower Actuation Relay	GNO	CB-F-1B-A								
												SW-GNO-RTA2	Tower Actuation Relay	GNO	CB-F-1B-A								
												SW-ZL-6159	Pilot Light	F77	CB-F-3A-A								
												SW-GN9-TD2	Time Delay Relay	GNO	CB-F-1B-A								
												SW-CS-6111-1	Control Sw	F71	CB-F-3A-A								
												SW-CS-6112-1	Control Sw	F71	CB-F-3A-A								
												SW-CS-6177-1	Control Sw	F71	CB-F-3A-A								
												SW-EE6-94-6	Aux Relay	EE6	CB-F-3A-A								
												SW-PYY-8282-2	Auxiliary Relay	FJ4	CB-F-3A-A	EE3-FJ4/2	EHO/10a	EHO/10c					
												SW-PYY-8283	Auxiliary Relay	FJ4	CB-F-3A-A								
												SW-PYY-8284-2	Auxiliary Relay	FJ4	CB-F-3A-A								
												SW-EE3-RP1	Auxiliary Relay	EE3	CB-F-1B-A								
SW-EE3-RP2	Auxiliary Relay	EE3	CB-F-1B-A																				
SW-EE3-RP3	Auxiliary Relay	EE3	CB-F-1B-A																				
SW-PT-8282	SW-Discharge HDR PR	GRO	SW-F-1E-Z	FJ4-GRO	310952	FJ4g																	
MM-CP-152B	BOP-PCC	FJ4	CB-F-3A-A				FJ4h																
SW-PT-8283	SW-Discharge HDR PR	GRO	SW-F-1E-Z	FJ4-GRO		FJ4g																	
MM-CP-152B	BOP-PCC	FJ4	CB-F-3A-A		FJ4h																		
SW-PT-8284	SW-Discharge HDR PR	GRO	SW-F-1E-Z	FJ4-GRO		FJ4g																	
MM-CP-152B	BOP-PCC	FJ4	CB-F-3A-A		FJ4h																		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.7-10
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
25	SW-P-110A	Cooling Tower Pump	SW-20794	A	301717	CT-F-2B-A	X	X	X	-	NG4	SW-AU2-52	4160 Volt Circuit Breaker	AU2	CB-F-1A-A	AU2-F72/1 AU2-F72/2 AU2-GN9 AU2-HR9 AU2-VM5 AU2-VM5/1 VM5-VM7/1 AU2-NG4	301107 AU2a AU2b AU2c AU2d	AU2h AU2i	EDE-SWG-5	SW Pumphouse	
												SW-AU2-FU	Fuses	AU2	CB-F-1A-A						
												SW-CS-6167-2	Control Switch	AU2	CB-F-1A-A						
												SW-SS-6167	Selector Switch	AU2	CB-F-1A-A						
												EDE-A53-94-1B	Bus Undervoltage Relay	A53	CB-F-1A-A						
												SW-AU2-52H	Truck Operated Contact	AU2	CB-F-1A-A						
												SW-AU2-50/51	Inst/Time Overcurrent Relays 0A, 0C	AU2	CB-F-1A-A						
												SW-AU2-51GS	Ground Sensor Relay	AU2	CB-F-1A-A						
												SW-AU2-86	Lockout Relay	AU2	CB-F-1A-A						
												SW-AU2-CT	Current Transformers 150/5A	AU2	CB-F-1A-A						
												SW-AU2-TD1	Test Device	AU2	CB-F-1A-A						
												SW-AU2-AM	Ammeter	AU2	CB-F-1A-A						
												SW-AU2-AS	Ammeter Switch	AU2	CB-F-1A-A						
												SW-AU2-G,R,W	Indicating Lights	AU2	CB-F-1A-A						
												SW-AU2-ATR	Transducer Test Device	AU2	CB-F-1A-A						
												SW-AU2-52Z	Time Delay Relay	AU2	CB-F-1A-A						
												SW-ZS-V54	Valve Position Switch & Valve Open/Close Torque Switches	VM5	CT-F-2B-A						
												SW-ZS-V56	Valve Position Switch & Valve Open/Close Torque Switches	VM7	CT-F-2B-A						
												SW-CS-6102-1	Control Switch	F72	CB-F-3A-A						
												SW-CS-6101-1	Control Switch	F72	CB-F-3A-A						
												SW-HR2-PR1	E.P.S. Permit Relay (K8 & K10)	HR2	CB-F-1A-A						
												SW-HR2-RMO	E.P.S. Manual Override Relay (K32)	HR2	CB-F-1A-A						
												SW-GN9-RTA	Tower Actuation Signal Auxiliary Relay	GN9	CB-F-1A-A						
												SW-HR9-HR8	E.P.S. Start Relay	HR9	CB-F-1A-A						
												CBS-A61-52S	Mechanical Operated Switch	A61	CB-F-1A-A						
												SW-AU2-R1	Auxiliary Relay	AU2	CB-F-1A-A						
												SW-AU2-R1X	Auxiliary Relay	AU2	CB-F-1A-A						
												SW-AU2-R4	Auxiliary Relay	AU2	CB-F-1A-A						
26	SW-FN-51A	Cooling Tower Fan	SW-20794	A	301717	CT-F-3-0	X	X	X	-	NG6	SW-AV4-52	4160 Volt Circuit Breaker	AV4	CB-F-1A-A	AV4-HR2 AV4-F72/2 AV4-F72/1 AV4-NG6	301107 AV4a AV4b AV4c AV4d	AV4h	EDE-SWG-5	SW Pumphouse	
												SW-AV4-FU	Fuses	AV4	CB-F-1A-A						
												SW-CS-6185-2	Control Switch	AV4	CB-F-1A-A						
												SW-SS-6185	Selector Switch	AV4	CB-F-1A-A						
												EDE-A53-94-1B	Bus Undervoltage Relay	A53	CB-F-1A-A						
												SW-AV4-52H	Truck Operated Contact	AV4	CB-F-1A-A						
												SW-AV4-50/51	Inst/Time Overcurrent Relays 0A, 0C	AV4	CB-F-1A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.7-11
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	SW-FN-51A (Continued)											SW-AV4-51GS SW-AV4-86 SW-AV4-CT SW-AV4-TD1 SW-AV4-AM SW-AV4-AS SW-AV4-G,R,W SW-AV4-ATR SW-AV4-TD2 SW-AV4-52Z SW-CS-6285-1 SW-HR2-RMO	Ground Sensor Relay Lockout Relay Current Transformers 5/50 Test Device Ammeter Ammeter Switch Indicating Lights Transducer Lockout Relay Test Device Time Delay Relay Control Switch E.P.S. Manual Override Relay (K32)	AV4 AV4 AV4 AV4 AV4 AV4 AV4 AV4 AV4 AV4 F72 HR2	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 CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A						
27	SW-V74	Loop A Discharge to Cooling Tower	SW-20795	A	310765	PAB-F-1K-Z	X	X	X	-	VM2	SW-BX8-52 SW-CS-8271 SW-BX8-42/O,C SW-GN9-RTA SW-ZS-V74 SW-FB7-K608A	460 V ac Circuit Breaker Control Switch with Indication Motor Starters Tower Actuation Signal Auxiliary Relay Position Switch SI Actuating Auxiliary Relay	BX8 F72 BX8 GN9 VM2 FB7	CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A PAB-F-1K-Z CB-F-3A-A	F72-FB7/1 BX8-F72 FX8-F72/1 BX8-GN9 BX8-VM2 BX8-VM2/1 BX8-VM2/2	BX8a 301107 BS8c	EDE-MCC-512	Sw Pumphouse		
28	SW-V55	Cooling Tower PP A Test/Bypass	SW-20794	A	301717	CT-F-2B-A	X	X	X	-	VM6	SW-CP9-52	460 V ac Circuit Breaker	CP9	CT-F-1D-A				Sw Pumphouse	Note 5	
29	SW-V56	Cooling Tower Loop A Test Recirculation	SW-20794	A	301717	CT-F-2B-A	X	X	X	-	VM7	SW-CP0-52 SW-CS-6165 SW-CP0-42/O,C SW-ZS-V54 SW-ZS-V56 SW-AU2-52S SW-CP0-49	460 V ac Circuit Breaker Control Switch with Indication Motor Starters Position Switch Position Switch Mechanical Operated Switch Thermal Overload	CP0 F72 CP0 VM5 VM7 AU2 CP0	CT-F-1D-A CB-F-3A-A CT-F-1D-A CT-F-2B-A CT-F-2B-A CB-F-1A-A CT-F-1D-A	CP0-F72 CP0-F72/1 AU2-F72/3 AU2-VM5/3 VM5-VM7 CP0-VM7 CP0-VM7/1 CP0-VM7/2	CP0a 301107 CP0c	EDE-MCC-513	Sw Pumphouse		
30	SW-V139	Cooling Tower Spray Bypass Recirculation Valve	SW-20794	A	301717	CT-F-3-0	X	X	X	-	V3Q	SW-C3D-52 SW-CS-6168 SW-C3D-42/O,C SW-ZS-V139 SW-C3D-49	460 V ac Circuit Breaker Control Switch with Indication Motor Starters Position Switch Thermal Overload	C3D F72 C3D V3Q C3D	CT-F-1D-A CB-F-1A-A CT-F-1D-A CT-F-3-0 CT-F-1D-A	C3D-V3Q C3D-V3Q/1 C3D-V3Q/3 C3D-F72	C3Da 301107 C3Dc	EDE-MCC-513	Sw Pumphouse		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.8-5</div>
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	CC-V-57	Primary Component Cooling Water Loop "A" Header Isolation Inboard Supply Valve	CC-20207	A	310578	C-F-2-Z	-	X	X	X	VA8	CC-E2T/4-72 CC-CS-2099-2 CC-SS-2099 CC-ZS-V57 CC-E4H-FU3,4 EDE-MM-112 CC-V57-20-1 CC-V57-20-2 CC-CS-2099-1 CC-FB7-K-633A CC-FB7-K-632A CC-ATR-LLA1 CC-FC1-K803 CC-FC1-K811	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch 30A Fuses Electrical Penetration Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Relay Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Safeguard Test Cabinet Relay	E2T G81 G81 VA8 E4H H36 VA8 VA8 F30 FB7 FB7 GN9 FC1 FC1	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z CB-F-1A-A C-F-2-Z, ET-F-1A-A C-F-2-Z C-F-2-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A	E2T-E4H E4H-G81/1 G81-H36/7 G81-H36/8 H36-VA8 H36-VB1 F30-G81/8 F30-G81/9 F30-FB7/5 G81-GN9/D FB7-G81 FC1-G81 FC1-G81/1 F30-G81/8 G81-GN9/8	310895 E2T/4b E2T/4a E2T/4e E2T/4f	CBA-FN-19 CBA-FN-20 Instrument Air EDE-PP-113A	CC-V-176		
6	CC-V-121	Primary Component Cooling Water Loop "A" Header Isolation Inboard Return Valve	CC-20207	A	310579	C-F-2-Z	-	X	X	X	VB1	CC-E2T/4-72 CC-CS-2150-2 CC-SS-2150 CC-ZS-V121 CC-E4H-FU3,4 EDE-MM-112 CC-V121-20-1 CC-V121-20-2 CC-CS-2150-1 CC-FB7-K-633A CC-FB7-K-632A CC-ATR-LLA1 CC-FC1-K803 CC-FC1-K811	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch 30A Fuses Electrical Penetration Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Relay Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Safeguard Test Cabinet Relay	E2T G81 G81 VB1 E4H H36 VB1 VB1 F30 FB7 FB7 GN9 FC1 FC1	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z CB-F-1A-A C-F-2-Z, ET-F-1A-A C-F-2-Z C-F-2-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A	E2T-E4H G81-H36/8 G81-H36/7 H36-VB1 H36-VA8 E4H-G81/1 F30-G81/8 F30-G81/9 F30-FB7/5 G81-GN9/8 FB7-G81 FC1-G81 FC1-G81/1 FC1-G81/8 G81-GN9/D	310895 E2T/4a E2T/4b E2T/4e E2T/4f	CBA-FN-19 CBA-FN-20 Instrument Air EDE-PP-113A	CC-V-256		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 7 Table MCR 3.1.3.8-6
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
7	CC-V-122	Primary Component Cooling Water Loop "A" Header Isolation Outboard Return Valve	CC-20207	B	310769	PP-F-4B-Z	-	X	X	X	UZ1	CC-E2U/6-72 CC-CS-2149-2 CC-SS-2149 CC-ZS-V122 CC-V122-20-1 CC-V122-20-2 CC-CS-2149-1 CC-FB0-K-633B CC-FB0-K-632B CC-BTR-LLA1 CC-FC2-K803 CC-FC2-K811	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Relay Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Cabinet Relay	E2U G2O G2O U21 U21 U21 F30 F80 F80 GN0 FC2 FC2	CB-F-1B-A CB-F-1B-A CB-F-1B-A PP-F-4B-Z PP-F-4B-Z PP-F-4B-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-3A-A CB-F-3A-A	E2U-G20/2 G20-U21 G20-U22 F30-G20/6 F30-G20/7 F30-FB0/5 GN0-G20/6 FB0-G20 FC2-G20 FC2-G20/1 F30-G20/9 GN0-G20/8	310895 E2U/6a E2U/6b	E2U/6d E2U/6e	CBA-FN-32 CBA-FN-33 Instrument Air EDE-PP-113B EAH-FN-31B	CC-V-257	
8	CC-V-168	Primary Component Cooling Water Loop "A" Header Isolation Outboard Supply Valve	CC-20207	B	310769	PP-F-4B-Z	-	X	X	X	UZ2	CC-E2U/6-72 CC-CS-2151-2 CC-SS-2151 CC-ZS-V168 CC-V168-20-1 CC-V168-20-2 CC-CS-2151-1 CC-FB0-K-633B CC-FB0-K-632B CC-BTR-LLA1 CC-FC2-K803 CC-FC2-K811	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Relay Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Cabinet Relay	E2U G2O G2O U22 U22 U22 F30 F80 F80 GN0 FC2 FC2	CB-F-1B-A CB-F-1B-A CB-F-1B-A PP-F-4B-Z PP-F-4B-Z PP-F-4B-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-3A-A CB-F-3A-A	E2U-G20/2 G20-U22 G20-U21 F30-G20/7 F30-G20/9 F30-FB0/5 GN0-G20/8 FB0-G20 FC2-G20 FC2-G20/1 F30-G20/6 GN0-G20/6	310895 E2U/6b E2U/6a	E2U/4d E2U/4e	CBA-FN-32 CBA-FN-33 Instrument Air EDE-PP-113B EAH-FN-5B EAH-FN-31B	CC-V-175	
9	CC-V-175	Primary Component Cooling Water Loop "B" Header Isolation Outboard Supply Valve	CC-20213	A	310769	PP-F-4B-Z	-	X	X	X	UZ4	CC-E2T/6-72 CC-CS-2251-2 CC-SS-2251 CC-ZS-V175 CC-V175-20-1 CC-V175-20-2 CC-CS-2251-1 CC-FB7-K-633A CC-FB7-K-632A CC-ATR-LLB1 CC-FC1-K803 CC-FC1-K812	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Relay Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Cabinet Relay	E2T G2G G2G G2G U24 U24 U24 F30 FB7 FB7 GN9 FC1 FC1	CB-F-1A-A CB-F-1A-A CB-F-1A-A PP-F-4B-Z PP-F-4B-Z PP-F-4B-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A	E2T-G2G G2G-U24 G2G-U23 F30-G2G F30-G2G/1 F30-FB7/6 G2G-GN9 FB7-G2G FC1-G2G FC1-G2G/1 F30-G2G/5 G2G-GN9/3	310895 E2T/6a E2T/6b	E2T/6d E2T/6e	CBA-FN-19 CBA-FN-20 Instrument Air EDE-PP-113A EAH-FN-5A EAH-FN-31A	CC-V-168	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.8-7</div>
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
10	CC-V-176	Primary Component Cooling Water Loop "B" Header Isolation Inboard Supply Valve	CC-20213	B	310579	C-F-2-Z	-	X	X	X	VA9	CC-E2U/4-72 CC-CS-2299-2 CC-SS-2299 CC-ZS-V176 CC-E4C-FU15,16 EDE-MM-115 CC-V176-20-1 CC-V176-20-2 CC-CS-2299-1 CC-FB0-K-633B CC-FB0-K-632B CC-BTR-LLB1 CC-FC2-K803 CC-FC2-K812	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch 30A Fuses Electrical Penetration Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Safeguard Test Cabinet Relay	E2U G2J G2J VA9 E4C H39 VA9 VA9 F30 FB0 FB0 GN0 FC2 FC2	CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-2-Z CB-F-1B-A C-F-1-Z, ET-F-1C-A C-F-2-Z C-F-2-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-3A-A CB-F-3A-A	E2U-E4C E4C-G2J G2J-H39 G2J-H39/1 H39-VA9 H39-VA0 F30-G2J/1 F30-G2J/6 F30-FB0/4 G2J-GN0/2 FB0-G2J FC2-G2J FC2-G2J/2 F30-G2J G2J-GN0/3	310895 E2U/4a E2U/4b E2U/4d E2U/4e E2U/4f	CBA-FN-32 CBA-FN-33 Instrument Air EDE-PP-113B	CC-V-57		
11	CC-V-256	Primary Component Cooling Water Loop "B" Header Isolation Inboard Return Valve	CC-20213	B	310579	C-F-2-Z	-	X	X	X	VA0	CC-E2U/4-72 CC-CS-2250-2 CC-SS-2250 CC-ZS-V256 CC-E4C-FU15,16 EDE-MM-115 CC-V256-20-1 CC-V256-20-2 CC-V176-20-2 CC-CS-2250-1 CC-FB0-K-633B CC-FB0-K-632B CC-BTR-LLB1 CC-FC2-K803 CC-FC2-K812	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch 30A Fuses Electrical Penetration Pilot Solenoid Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Relay Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Safeguard Test Cabinet Relay	E2U G2J G2J VA0 E4C H39 VA0 VA0 VA9 F30 FB0 FB0 GN0 FC2 FC2	CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-2-Z CB-F-1B-A C-F-1-Z, ET-F-1C-A C-F-2-Z C-F-2-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-3A-A CB-F-3A-A	E2U-E4C E4C-G2J G2J-H39 G2J-H39/1 H39-VA0 H39-VA9 G2J-H39/1 F30-G2J F30-G2J/1 F30-FB0/4 G2J-GN0/3 FB0-G2J FC2-G2J FC2-G2J/2 G2J-GN0/2 F30-G2J/6	310895 E2U/4a E2U/4b E2U/4d E2U/4e E2U/4f	CBA-FN-32 CBA-FN-33 Instrument Air EDE-PP-113B	CC-V-121		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 7 Table MCR 3.1.3.8-8
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
12	CC-V-257	Primary Component Cooling Water Loop "B" Header Isolation Outboard Return Valve	CC-20213	A	310769	PP-F-4B-Z	-	X	X	X	UZ3	CC-E2T/6-72 CC-CS-2249-2 CC-SS-2249 CC-ZS-V257 CC-V257-20-1 CC-V257-20-2 CC-CS-2249-1 CC-FB7-K-633A CC-FB7-K-632A CC-ATR-LLB1 CC-FC1-K803 CC-FC1-K812	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch Pilot Solenoid Pilot Solenoid Control Switch with Indication Protection System Relay Protection System Relay Isolation Signal Auxiliary Relay Safeguard Test Cabinet Relay Safeguard Test Cabinet Relay	E2T G2G G2G UZ3 UZ3 UZ3 F30 FB7 FB7 GN9 FC1 FC1	CB-F-1A-A CB-F-1A-A CB-F-1A-A PP-F-4B-Z PP-F-4B-Z PP-F-4B-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A	E2T-G2G G2G-UZ3 G2G-UZ4 F30-G2G/1 F30-G2G/5 F30-FB7/6 G2G-GN9/3 FB7-G2G FC1-G2G FC1-G2G/1 F30-G2G G2G-GN9	310895 E2T/6a E2T/6b E2T/6d E2T/6e	CBA-FN-19 CBA-FN-20 Instrument Air EDE-PP-113A EAH-FN-5A EAH-FN-31A	CC-V-122		
13	CC-TV-2171-1	Primary Component Cooling Water Heat Exchanger E-17A Temperature Control Valve	CC-20205	A	310765	PAB-F-2C-Z	X	X	X	X	UN6	CC-E2T/3-72 CC-SS-2171 CC-GN9-R1 CC-TY-2171-1 CC-ZL-2171-5 CC-ZS-TV-2171-1 CC-CS-2171 CC-GN9-R1 CC-ZL-2171-1 CC-SS-2171 CC-TY-2171-4 CC-TY-2171-5 CC-TE-2171 CC-TYY-2171-2 CC-TK-2171 MM-CP-297A	125 V DC Circuit Breaker Selector Switch Auxiliary Relay Pilot Solenoid Valve Position Indicating Lights Valve Position Switch Control Switch Auxiliary Relay Indicating Lights Selector Switch I/P Converter I/P Converter Temperature Element PCCW Loop "A" Relay Manual Controller BOP-PCC	E2T G81 GN9 G2M G81 UN6 F30 GN9 F30 G81 G2M G2M TMO FK0 F30 FK0	CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-2C-Z CB-F-1A-A PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A PAB-F-2C-Z PAB-F-2C-Z PAB-F-2C-Z PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A	E2T-G81 G81-G2M G81-UN6/1 G81-UN7/1 G81-GN9/A F30-G81/6 F30-G81/7 G81-G2M/2 F30-FK0/3 FK0-G81/1 FK0-TMO CB-F-3A-A CB-F-3A-A CB-F-3A-A	310895 E2T/3a E2T/3c E2T/3d	CBA-FN-19 CBA-FN-20 PAH-FN-42A EDE-PP-113A Instrument Air	CC-TV-2271-1		
14	CC-TV-2171-2	Primary Component Cooling Water Heat Exchanger E-17A Temperature Control Valve	CC-20205	A	310765	PAB-F-2C-Z	X	X	X	X	UN7	CC-E2T/3-72 CC-SS-2171 CC-GN9-R1 CC-TY-2171-2 CC-ZL-2171-6 CC-ZS-TV-2171-2 CC-CS-2171 CC-GN9-R1 CC-ZL-2171-2 CC-SS-2171 CC-TY-2171-4 CC-TY-2171-5 CC-TE-2171 CC-TYY-2171-2 CC-TK-2171 MM-CP-297A	125 V DC Circuit Breaker Selector Switch Auxiliary Relay Pilot Solenoid Valve Position Indicating Lights Valve Position Switch Control Switch Auxiliary Relay Indicating Lights Selector Switch I/P Converter I/P Converter Temperature Element PCCW Loop "A" Relay Manual Controller BOP-PCC	E2T G81 GN9 G2M G81 UN7 F30 GN9 F30 G81 G2M G2M TMO FK0 F30 FK0	CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-2C-Z CB-F-1A-A PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A PAB-F-2C-Z PAB-F-2C-Z PAB-F-2C-Z PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A	E2T-G81 G81-G2M G81-UN6/1 G81-UN7/1 G81-GN9/A F30-G81/6 F30-G81/7 G81-G2M/2 F30-FK0/3 FK0-G81/1 FK0-TMO CB-F-3A-A CB-F-3A-A CB-F-3A-A	310895 E2T/3a E2T/3c E2T/3d	CBA-FN-19 CBA-FN-20 PAH-FN-42A EDE-PP-113A Instrument Air	CC-TV-2271-2		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 7 Table MCR 3.1.3.8-9
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
15	CC-TV-2271-1	Primary Component Cooling Water Heat Exchanger E-17B Temperature Control Valve	CC-20211	B	310765	PAB-F-2C-Z	X	X	X	X	UP9	CC-E2U/3-72 CC-SS-2271 CC-GNO-R1 CC-GNO-R2 CC-TY-2271-1 CC-ZL-2271-5 CC-ZS-TV-2271-1 CC-CS-2271 CC-ZL-2271-1 CC-SS-2271 CC-TY-2271-5 CC-TY-2271-4 CC-TE-2271 CC-TYY-2271-2 CC-TK-2271 MM-CP-152B	125 V DC Circuit Breaker Selector Switch Auxiliary Relay Auxiliary Relay Pilot Solenoid Valve Position Indicating Lights Valve Position Switch Control Switch Indicating Lights Selector Switch I/P Converter I/P Converter Temperature Element PCCW Loop "B" Relay Manual Controller BOP-PCC	E2U GZ0 GNO GNO UI2 GZ0 UP9 F30 F30 GZ0 Q60 Q60 TM8 FJ4 F30 FJ4	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z CB-F-1B-A PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-1B-A PAB-F-2C-Z PAB-F-2C-Z PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A	E2U-GZ0 GNO-GZ0/5 GZ0-UP9/1 GZ0-UP0/1 GNO-GZ0/9 E2U-GNO/6 GZ0-UI2 F31-GZ0/3 F31-GZ0/4 GZ0-Q60 FJ4-TM8/1 FJ4-GZ0/3 F30-FJ4/1	E2U/3a 310895 E2U/3c E2U/3d 310895 4c 310952 FJ4j FJ4l FJ4m	CBA-FN-32 CBA-FN-33 PAH-FN-42B EDE-PP-113B Instrument Air CBA-FN-32 CB-FN-33 PAH-FN-42B Instrument Air MM-CP-152B	CC-TV-2171-1		
16	CC-TV-2271-2	Primary Component Cooling Water Heat Exchanger E-17B Temperature Control Valve	CC-20211	B	310765	PAB-F-2C-Z	X	X	X	X	UP0	CC-E2U/3-72 CC-SS-2271 CC-GNO-R1 CC-GNO-R2 CC-TY-2271-2 CC-ZL-2271-6 CC-ZS-TV-2271-2 CC-CS-2271 CC-ZL-2271-2 CC-SS-2271 CC-TY-2271-5 CC-TY-2271-4 CC-TE-2271 CC-TYY-2271-2 CC-TK-2271 MM-CP-152B	125 V DC Circuit Breaker Selector Switch Auxiliary Relay Auxiliary Relay Pilot Solenoid Valve Position Indicating Lights Valve Position Switch Control Switch Indicating Lights Selector Switch I/P Converter I/P Converter Temperature Element PCCW Loop "B" Relay Manual Controller BOP-PCC	E2U GZ0 GNO GNO UI2 GZ0 UP0 F30 F30 GZ0 Q60 Q60 TM8 FJ4 F30 FJ4	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z CB-F-1B-A PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-1B-A PAB-F-2C-Z PAB-F-2C-Z PAB-F-2C-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A	E2U-GZ0 GNO-GZ0/5 GZ0-UP9/1 GZ0-UP0/1 GNO-GZ0/9 E2U-GNO/6 GZ0-UI2 F31-GZ0/3 F31-GZ0/4 GZ0-Q60 FJ4-TM8/1 FJ4-GZ0/3 F30-FJ4/1	E2U/3a 310895 E2U/3c E2U/3d 310895 4c 310952 FJ4j FJ4l FJ4m	CBA-FN-32 CBA-FN-33 PAH-FN-42B EDE-PP-113B Instrument Air CBA-FN-32 CB-FN-33 PAH-FN-42B Instrument Air MM-CP-152B	CC-TV-2171-2		
17	CC-E-17A	Primary Component Cooling Water Heat Exchanger	CC-20205	A	310765 805217	PAB-F-2C-Z PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	CC-E-17B	Notes 1 and 3
18	CC-E-17B	Primary Component Cooling Water Heat Exchanger	CC-20211	B	310765 805217	PAB-F-2C-Z PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	CC-E-17A	Notes 1 and 3
19	CC-V-145	RH-E-9A Return Header Isolation Valve V-145	CC-20207	A	310763	RHR-F-3B-Z	-	X	X	-	V78	CC-BY2-52 CC-CS-2144 CC-BY2-42 CC-BY2-49 CC-V78-V145 CC-FB7-K624A	460 V AC Circuit Breaker Control Switch with Indication Motor Starter Thermal Overload Position Switch Containment Isolation Auxiliary Relay	BY2 F30 BY2 BY2 V78 FB7	CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A RHR-F-3B-Z CB-F-3A-A	BY2-F30 BY2-F30/1 F30-FB7/1 BY2-V78 BY2-V78/1 BY2-V78/2	BY2a 310895 BY2c	EAH-FN-5A EAH-FN-31A EDE-MCC-512	CC-V-272		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.8-10</div>
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
20	CC-V-272	RHR-E-9B Return Header Isolation Valve V-272	CC-20213	B	310763	RHR-F-3A-Z	-	X	X	-	V72	CC-BY8-52 CC-CS-2244 CC-BY8-42 CC-V72-V272 CC-FB0-K623B	460 V AC Circuit Breaker Control Switch with Indication Motor Starter Thermal Overload Position Switch Containment Isolation Auxiliary Relay	BY8 F30 BY8 BY8 FB0	CB-F-1A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A RHR-F-3A-Z CB-F-3A-A	BY8-F31 BY8-F31/1 F31-FB0/3 BY8-V72 BY8-V72/1 BY8-V72/2	BY8a	BY8c	EAH-FN-5B EAH-FN-31B EDE-MCC-612	CC-V-145	
21	CC-P-322A	Thermal Barrier PCCW Recirculation Pump	CC-20209	A	310576	C-F-1-Z	X	X	X	-	M1D	CC-B4M-52-1,2 CC-CS-2077-2 CC-SS-2077 CC-B4M-42 CC-B4M-49 EDE-MM-94 CC-B4M-FU CC-CS-2077-1 CC-FYY-2175A	460 V AC Circuit Breakers Control Switch with Indication Selector Switch Motor Starter Overload Relay Electrical Penetration Fuse Control Switch with Indication Flow Relay	B4M G2G G2G B4M B4M H18 B4M F30 FK0	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A	B4M-H18 H18-M1D B4M-G81 F30-FK0/2 F30-G81/A	B4Ma	B4Mc B4Md	CBA-FN-19 CBA-FN-20 EDE-MCC-515	CC-P-322B	
22	CC-P-322B	Thermal Barrier PCCW Recirculation Pump	CC-20209	B	310577	C-F-1-Z	X	X	X	-	M1E	CC-B4Q-52-1,2 CC-CS-2078-2 CC-SS-2078 CC-B4Q-42 CC-B4Q-49 EDE-MM-91 CC-B4Q-FU CC-CS-2078-1 CC-FYY-2175B	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starter Overload Relay Electrical Penetration Fuses Control Switch with Indication Flow Relay	B4Q G2J G2J B4Q B4Q H15 B4Q F30 FL2	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A CB-F-1B-A CB-F-3A-A CB-F-3A-A	B4Q-H15 H15-M1E B4Q-G20 F30-FL2 F30-G20/8	B4Qa	B4Qc B4Qd	CBA-FN-32 CBA-FN-33 EDE-MCC-615	CC-P-322A	
23	CC-E-153A	Thermal Barrier Heat Exchanger	CC-20209	A	310576	C-F-1-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	CC-E-153B	Note 1
24	CC-E-153B	Thermal Barrier Heat Exchanger	CC-20209	B	310577	C-F-1-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	CC-E-153A	Note 1
25	CC-V-1101	Thermal Barrier HX CC-E-153A Isolation Valve	CC-20209	A	310769	PP-F-3A-Z	X	X	X	-	V2S	CC-B4K-52 CC-CS-2073 CC-B4K-42 CC-B4K-49 CC-V2S-V1101	460 V AC Circuit Breaker Control Switch with Indication Motor Starter thermal Overload Position Switch	B4K F29 B4K B4K V2S	CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A PP-F-3A-Z	B4K-V2S/1 B4K-F29 B4K-F29/1	B4Ka	310895 B4Kc B4Kd	CBA-FN-19 CBA-FN-20	CC-V-1092	
26	CC-V-1109	Thermal Barrier HX CC-E-153A Isolation Valve	CC-20209	A	310769	PP-F-3A-Z	X	X	X	-	V2T	CC-B4L-52 CC-CS-2074 CC-B4L-42 CC-B4L-49 CC-V2T-V1109	460 V AC Circuit Breaker Control Switch with Indication Motor Starter Thermal Overload Position Switch	B4L F29 B4L B4L V2T	CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A PP-F-3A-Z	B4L-V2T/1 B4L-F29 B4L-F29/1	B4La	310895 B4Lc B4Ld	CBA-FN-19 CBA-FN-20	CC-V-1095	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.8-12
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
36	CC-LT-2172-1	Head Tank CC-TK-19A Level	CC-20205	A	310767	PAB-F-3A-Z	X	X	X	-	RG5	MM-CP-152A	BOP-PCC Terminal Box	FJ1 YH4	CB-F-3A-A	FJ1-YH4	310952	FJ1g FJ1j			
	CC-LT-2172-2										RW1	EDE-TBX-YH4			PAB-F-3A-Z	RG5-YH4					
	CC-LT-2172-3										RW2					RW1-YH4					
	CC-LT-2272-1	Head Tank CC-TK-19B Level	CC-20211	B	310768	PAB-F-3B-Z	X	X	X	-	RG6	MM-CP-152A	BOP-PCC Terminal Box	FJ1 YH4	CB-F-3A-A	FJ1-YH4/1	310895	E42/10a	E42/10c E42/10d	EDE-MCC-521	
	CC-LT-2272-2										RW3	EDE-TBX-YH4			PAB-F-3A-Z	RG6-YH4					
	CC-LT-2272-3										RW4	CC-E42/10-52	120 V AC Circuit Breaker	E42	CB-F-1A-A	EF4-FJ1					
												CC-LYY-2172-1,2,3	Level Relay	FJ1	CB-F-3A-A	EF4-FJ1/1					
												CC-LYY-2272-1,2,3	Level Relay	FJ1	CB-F-3A-A	E4E-EF4					
												CC-RYY-2172-1LL	Auxiliary Relay	EF4	CB-F-1A-A	E4E-H36/3					
												CC-RYY-2172-2LL	Auxiliary Relay	EF4	CB-F-1A-A	H36-S4P					
												CC-RYY-2172-3LL	Auxiliary Relay	EF4	CB-F-1A-A	GF8-H36					
												CC-RYY-2272-1LL	Auxiliary Relay	EF4	CB-F-1A-A						
												CC-RYY-2272-2LL	Auxiliary Relay	EF4	CB-F-1A-A						
												CC-RYY-2272-3LL	Auxiliary Relay	EF4	CB-F-1A-A						
												MM-CP-152A	BOP-PCC	FJ1	CB-F-3A-A						
												EDE-MM-582	Fuse Panel	E4E	ET-F-1A-A						
												EDE-MM-112	Electrical Penetration	H36	C-F-2-Z,						
												CC-FISHL-2147	Flow Switch	S4P	ET-F-1A-A						
												CC-FISHL-2248	Flow Switch	GF8	C-F-2-Z						
												MM-CP-14	Safeguards Cabinet	FC1	CB-F-3A-A	EF4-GN9	310895	E87/10a E87/10b E87/10e E87/10f			
												CC-RYY-2172-1LL	Auxiliary Relay	EF4	CB-F-1A-A	FC1-GN9/1					
												CC-RYY-2172-2LL	Auxiliary Relay	EF4	CB-F-1A-A						
												CC-RYY-2172-3LL	Auxiliary Relay	EF4	CB-F-1A-A						
												CC-RYY-2272-1LL	Auxiliary Relay	EF4	CB-F-1A-A						
												CC-RYY-2272-2LL	Auxiliary Relay	EF4	CB-F-1A-A						
												CC-RYY-2272-3LL	Auxiliary Relay	EF4	CB-F-1A-A						
												CC-ATR-LLA1	Containment Isolation Relay	GN9	CB-F-1A-A						
												CC-ATR-LLB1	Containment Isolation Relay	GN9	CB-F-1A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.8-13
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
37	CC-LT-2192-1	Head Tank	CC-20205	A	310767	PAB-F-3A-Z	X	X	X	-	R81	MM-CP-152B	BOP-PCC Terminal Box	FJ4 YH5	CB-F-3A-A	FJ4-YH5	310952				
	CC-LT-2192-2	CC-TK-19A Level									RW5	EDE-TBX-YH5			PAB-F-3A-Z	R81-YH5	FJ4j				
	CC-LT-2192-3										RW6					RW5-YH5	FJ4i				
	CC-LT-2292-1	Head Tank	CC-20211	B	310768	PAB-F-3B-Z	X	X	X	-	R82	MM-CP-152B	BOP-PCC Terminal Box	FJ4 YH5	CB-F-3A-A	FJ4-YH5/1					
	CC-LT-2292-2	CC-TK-19B Level									RW7	EDE-TBX-YH5			PAB-F-3A-Z	R82-YH5					
	CC-LT-2292-3										RW8					Rw7-YH5					
												CC-E50/6-52	120 V AC Circuit Breaker	E50	CB-F-1B-A	EE3-FJ4	310895		EDE-MCC-621		
												CC-LYY-2192-1,2,3	Level Relay	FJ4	CB-F-3A-A	E4J-ED0/1	E50/6a	E50/6c			
												CC-LYY-2292-1,2,3	Level Relay	FJ4	CB-F-3A-A	E50-E4J/1	E50/6b	E50/6e			
												CC-RYY-2192-1LL	Auxiliary Relay	EE3	CB-F-1B-A	ED0-H41					
												CC-RYY-2192-2LL	Auxiliary Relay	EE3	CB-F-1B-A	H41-S4Q					
												CC-RYY-2192-3LL	Auxiliary Relay	EE3	CB-F-1B-A	GN5-H41					
												CC-RYY-2292-1LL	Auxiliary Relay	EE3	CB-F-1B-A						
38	MM-CP-152A	BOP Process Control Cabinet	-	A	310499	CB-F-3A-A	X	X	X	-	FJ1		-	-	-	-	EH9-FJ1	310952	EH9/1	EDE-PP-1E	MM-CP-152B
												MM-CP-15	Safeguards Cabinet	FC2	CB-F-3A-A	FC2-GN0/2	310895				
												BTR-LLA1	Isolation Relay	GN0	CB-F-1B-A	EE3-GN0	E88/8a	E88/8d			
												BTR-LLB1	Isolation Relay	GN0	CB-F-1B-A		E88/8b	E88/8e			
												CC-RYY-2192-1LL	Auxiliary Relay	EE3	CB-F-1B-A			E88/8f			
												CC-RYY-2192-2LL	Auxiliary Relay	EE3	CB-F-1B-A						
												CC-RYY-2192-3LL	Auxiliary Relay	EE3	CB-F-1B-A						
												CC-RYY-2292-1LL	Auxiliary Relay	EE3	CB-F-1B-A						
												CC-RYY-2292-2LL	Auxiliary Relay	EE3	CB-F-1B-A						
												CC-RYY-2292-3LL	Auxiliary Relay	EE3	CB-F-1B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.9-1
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FUNCTION: CONTAINMENT BUILDING AIR HANDLING																						
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE				
1	CAH-FN-1A	Containment Structure Cooler AC-1A-Fan	MAH-20506	B	301578	C-F-2-Z		X	X	-	M19	CAH-ACS-52	480 V AC Circuit Breaker	ACS	CB-F-1B-A	ACS-G2K	310931		CBA-FN-32	CAH-FN-1C		
												CAH-JV7-43	Safety Switch Speed Changer	JV7	C-F-2-Z	ACS-G2K/1	AC5d	CBA-FN-33	CAH-FN-1E			
												CAH-JV8-43	Safety Switch Speed Changer	JV8	C-F-2-Z	ACS-GNO		EDE-US-63	CAH-FN-1F			
												CAH-CS-5660-2	Control Switch with Indication	G2K	CB-F-1B-A	ACS-H13		Primary Component Cooling Water				
												CAH-SS-5660	Selector Switch	G2K	CB-F-1B-A	ACS-H13/1						
												EDE-AF8-94-4	Bus Undervoltage Relay	AF8	CB-F-1B-A	G2K-H41						
												CAH-GNO-R1	Time Delay Relay	GNO	CB-F-1B-A	H41-M19/1						
												CC-FISL-2122	Flow Indication Switch	SD1	C-F-2-Z	H41-SD1						
												CAH-ACS-52H-1	Truck Operated Contact	ACS	CB-F-1B-A	JV7-JV8						
												CAH-ACS-G,R	Indicating Lights	ACS	CB-F-1B-A	JV7-M19						
												CAH-ACS-AM	Ammeter	ACS	CB-F-1B-A	JV7-M19/1						
												CAH-ACS-CT	Current Transformer (300/5)	ACS	CB-F-1B-A	JV8-M19						
												CAH-ACS-ATR	Transducer	ACS	CB-F-1B-A	F37-FB0/1						
												CAH-ZL-5660-2	Outlet Damper	G2K	CB-F-1B-A	F37-G2K/9						
												CAH-DP-312	Position Lights	M19	C-F-2-Z	F37-G2K/A						
												EDE-MM-89	Outlet Damper	H13	C-F-1-Z,	F37-G2K/B						
												EDE-MM-117	Position Switch	H41	ET-F-1C-A	G2K-HR4/2						
												CAH-ACS-FU	Electrical	ACS	C-F-1-Z,	G2K-HR4/7						
												CAH-CS-5660-1	Penetration	F37	ET-F-1C-A							
												EPS-HR4-PR1, RA, RMO, SR3	15A Fuses	ACS	CB-F-1B-A							
												CAH-FB0-K610B	Control Switch with Indication	F37	CB-F-3A-A							
												CAH-ZL-5660-1	Emergency Power Sequencer Relays	HR4	CB-F-1B-A							
													SI Actuating Auxiliary Relay	FB0	CB-F-3A-A							
													Outlet Damper	F37	CB-F-3A-A							
													Position Lights									
												CC-FISL-2122	Flow Indication Switch	SD1	C-F-2-Z	E4G-H41/1	310895					
												CC-E4G-FU6	30A Fuse	E4G	C-F-2-Z	E53-E4G/1	E53/10a		EDE-MCC-631			
												EDE-MM-117	Electrical	H41	ET-F-1C-A,	H41-SD1/1	E53/10c					
												CAH-E53/10-52	Penetration	E53	C-F-1-Z	E53-E4G						
												CC-FISL-2123	120 V AC Circuit Breaker		CB-F-1B-A	H41-SD2/1						
													Flow Indication Switch	SD2	C-F-2-Z	E4G-H39/1						
												EDE-MM-115	Electrical		C-F-2-Z	H39-SD4/1						
												CC-FISL-2222	Penetration	H39	ET-F-1C-A,							
													Flow Indication Switch	SD4	C-F-1-Z							

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FUNCTION: CONTAINMENT BUILDING AIR HANDLING																						
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
2	CAH-FN-1B	Containment Structure Cooler AC-1B Fan	MAH-20506	B	310579	C-F-2-Z		X	X	-	M20	CAH-AE5-52	480 V AC Circuit Breaker	AE5	CB-F-1B-A	AE5-G2K	310931	AE5d	CBA-FN-32 CBA-FN-33 EDE-US-63 Primary Component Cooling Water	CAH-FN-1C CAH-FN-1E CAH-FN-1F		
												CAH-CS-5661-2	Control Switch with Indication	G2K	CB-F-1B-A	AE5-G2K/1	AE5b	AE5d				
												CAH-SS-5661	Selector Switch	G2K	CB-F-1B-A	G2K-H41/2						
												EDE-AF8-94-4	Bus Undervoltage Relay	AF8	CB-F-1B-A	G2K-H41/3						
												CAH-GNO-R1	Time Delay Relay	GNO	CB-F-1B-A	AE5-H13						
												CC-FISL-2123	Flow Indication Switch	SD2	C-F-2-Z	AE5-H13/1						
												CAH-AE5-52H-1	Truck Operated Contact	AE5	CB-F-1B-A	H13-M20						
												CAH-AE5-G,R	Indicating Lights	AE5	CB-F-1B-A	H13-M20/1						
												CAH-AE5-AM	Ammeter	AE5	CB-F-1B-A	H41-M20/1						
												CAH-AE5-CT	Current Transformer (300/5)	AE5	CB-F-1B-A	H41-SD2						
												CAH-AE5-ATR	Transducer	AE5	CB-F-1B-A	F37-FB0/2						
												CAH-ZL-5661-2	Outlet Damper Position Lights	G2K	CB-F-1B-A	F37-G2K/3						
												CAH-DP-313	Outlet Damper Position Switch	M20	C-F-2-Z	F37-G2K/4						
												EDE-MM-89	Electrical Penetration	H13	C-F-1-Z, ET-F-1C-A	F37-G2K/5						
												EDE-MM-117	Electrical Penetration	H41	C-F-1-Z, ET-F-1C-A	G2K-HR4/3						
												CAH-AE5-FU	15A Fuses	AE5	CB-F-1B-A	G2K-HR4/5						
												CAH-CS-5661-1	Control Switch with Indication	F37	CB-F-3A-A							
												EPS-HR4-PR1, RA, RMO, SR3	Emergency Power Sequencer Relays	HR4	CB-F-1A-A							
												CAH-FB0-K-610B	SI Actuating Auxiliary Relay	F80	CB-F-3A-A							
												CAH-ZL-5661-1	Outlet Damper Position Lights	F37	CB-F-3A-A							
												CC-FISL-2123	Flow Indication Switch	SD2	C-F-2-Z	H41-SD2/1	301895	E53/10a	E53/10c	EDE-MCC-631		
												CC-E4G-FU6	30A Fuse	E4G	ET-F-1C-A	E53-E4G/1						
												EDE-MM-117	Electrical Penetration	H41	ET-F-1C-A, C-F-1-Z	E4G-H41/1						
												CAH-E53/10-52	120 V AC Circuit Breaker	E53	CB-F-1B-A	H41-SD1/1						
												CC-FISL-2122	Flow Indication Switch	SD1	C-F-2-Z	E4G-H39/1						
												EDE-MM-115	Electrical Penetration	H39	ET-F-1C-A, C-F-1-Z	H39-SD4/1						
												CC-FISL-2222	Flow Indication Switch	SD4	C-F-2-Z							

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.9-3</div>
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FUNCTION: CONTAINMENT BUILDING AIR HANDLING																					
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
3	CAH-FN-1C	Containment Structure Cooler AC-1C Fan	MAH-20506	A	310579	C-F-2-Z		X	X	-	M21	CAH-AE7-52	480 V AC Circuit Breaker	AE7	CB-F-1A-A	AE7-G2H	310931 AE7a AE7b	AE7d	CBA-FN-19 CBA-FN-20 EDE-US-53 Primary Component Cooling Water	CAH-FN-1A CAH-FN-1B CAH-FN-1D	
												CAH-JV3-43	Safety Switch Speed Changer	JV3	C-F-2-Z	AE7-G2H/1					
												CAH-JV4-43	Safety Switch Speed Changer	JV4	C-F-2-Z	AE7-GN9	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CAH-CS-5662-2	Control Switch with Indication	G2H	CB-F-1A-A	AE7-H08					
												CAH-SS-5662	Selector Switch	G2H	CB-F-1A-A	AE7-H08/1	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												EDE-AF3-94-4	Bus Undervoltage Relay	AF3	CB-F-1A-A	G2H-H35					
												CAH-GN9-R1	Time Delay Relay	GN9	CB-F-1A-A	G2H-H35/1	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CC-FISL-2124	Flow Indication Switch	SD3	C-F-2-Z	H08-JV3					
												CAH-AE7-52H-1	Truck Operated Contact	AE7	CB-F-1A-A	H08-JV3/1	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CAH-AE7-G,R	Indicating Lights	AE7	CB-F-1A-A	H35-M21/1					
												CAH-AE7-AM	Ammeter	AE7	CB-F-1A-A	JV3-M21	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CAH-AE7-CT	Current Transformer (300/5)	AE7	CB-F-1A-A	JV4-M21					
												CAH-AE7-ATR	Transducer	AE7	CB-F-1A-A	F36-FB7/4	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CAH-ZL-5662-2	Outlet Damper	G2H	CB-F-1A-A	F36-G2H/9					
												CAH-DP-314	Position Lights	M21	C-F-2-Z	F36-G2H/A	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												EDE-MM-84	Outlet Damper Electrical	H08	C-F-2-Z, ET-F-1A-A	F36-G2H/B					
												EDE-MM-111	Penetration Electrical	H35	C-F-2-Z, ET-F-1A-A	G2H-HR2/4	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CAH-AE7-FU	15A Fuses	AE7	CB-F-1A-A	G2H-HR2/5					
												CAH-CS-5662-1	Control Switch with Indication	F36	CB-F-3A-A	H36-SD5/1	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												EPS-HR4-PR1, RA, RMO, SR3	Emergency Power Sequencer Relays	HR2	CB-F-1A-A	H36-SD6/1					
												CAH-FB7-K-610A	SI Actuating Auxiliary Relay	FB7	CB-F-3A-A		301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CAH-ZL-5662-1	Outlet Damper Position Lights	F36	CB-F-3A-A						
												CC-FISL-2124	Flow Indication Switch	SD3	C-F-2-Z	E4H-H35	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CC-E4H-FU20	30A Fuse Electrical	E4H	CB-F-1A-A	E45-E4H					
												EDE-MM-111	Penetration	H35	ET-F-1A-A, C-F-2-Z	H35-SD3	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CAH-E45/11-52	120 V AC Circuit Breaker	E45	CB-F-1A-A	E45-E4E					
												EDE-MM-112	Electrical	H36	ET-F-1A-A, C-F-2-Z	E4E-H36/4	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		
												CC-FISL-2223	Penetration Flow Indication Switch	SD5	C-F-2-Z	H36-SD5/1					
												CC-FISL-2224	Flow Indication Switch	SD6	C-F-2-Z	H36-SD6/1	301895 E45/11a E45/11C	E45/11C	EDE-MCC-531		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.9-4</div>
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FUNCTION: CONTAINMENT BUILDING AIR HANDLING																																							
ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS																		
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE																					
4	CAH-FN-1D	Containment Structure Cooler AC-1D Fan	MAH-20505	B	310579	C-F-2-Z		X	X	-	M22	CAH-AE6-52	480 V AC Circuit Breaker	AE6	CB-F-1B-A	AE6-G2K AE6-G2K/1 AE6-GNO AE6-H09 AE6-H09/1 G2K-H39 G2K-H39/1 H09-M22 H09-M22/1 H39-M22/1 H39-SD4 F37-FB0/3 F37-G2K/6 F37-G2K/7 F37-G2K/8 G2K-HR4/4 G2K-HR4/6	310931 AE6a AE6b	AE6d	CBA-FN-32 CBA-FN-33 EDE-US-63 Primary Component Cooling Water	CAH-FN-1C CAH-FN-1E CAH-FN-1F																			
												CAH-CS-5663-2	Control Switch with Indication	G2K	CB-F-1B-A																								
												CAH-SS-5663	Selector Switch	G2K	CB-F-1B-A																								
												EDE-AF8-94-4	Bus Undervoltage Relay	AF8	CB-F-1B-A																								
												CAH-GNO-R1	Time Delay Relay	GNO	CB-F-1B-A																								
												CC-FISL-2222	Flow Indication Switch	SD4	C-F-2-Z																								
												CAH-AE6-52H-1	Truck Operated Contact	AE6	CB-F-1B-A																								
												CAH-AE6-G,R	Indicating Lights	AE6	CB-F-1B-A																								
												CAH-AE6-AM	Ammeter	AE6	CB-F-1B-A																								
												CAH-AE6-CT	Current Transformer (300/5)	AE6	CB-F-1B-A																								
												CAH-AE6-ATR	Transducer	AE6	CB-F-1B-A																								
												CAH-ZL-5663-2	Outlet Damper Position Lights	G2K	CB-F-1B-A																								
												CAH-DP-315	Outlet Damper Position Switch	M22	C-F-2-Z																								
												EDE-MM-85	Electrical Penetration	H09	C-F-1-Z, ET-F-1C-A																								
												EDE-MM-115	Electrical Penetration	H39	C-F-1-Z, ET-F-1C-A																								
												CAH-AE6-FU	15A Fuses	AE6	CB-F-1B-A																								
												CAH-CS-5663-1	Control Switch with Indication	F37	CB-F-3A-A																								
												EPS-HR4-PR1, RA, RMO, SR3	Emergency Power Sequencer Relays	HR4	CB-F-1B-A																								
												CAH-FB0-K610B	SI Actuating Auxiliary Relay	FB0	CB-F-3A-A																								
												CAH-ZL-5663-1	Outlet Damper Position Lights	F37	CB-F-3A-A																								
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SEABROOK
STATION

Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 7
Table MCR 3.1.3.9-5

FUNCTION: CONTAINMENT BUILDING AIR HANDLING

ITEM NO	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	CAH-FN-1E	Containment Structure Cooler AC-1E Fan	MAH-20505	A	310579	C-F-2-Z		X	X	-	M23	CAH-AC6-52 CAH-JV5-43 CAH-JV6-43 CAH-AC6-G,R CAH-CS-5664-2 CAH-SS-5664 EDE-AF3-94-4 CAH-GN9-R1 CC-FISL-2223 CAH-AC6-52H-1 CAH-AC6-AM CAH-AC6-CT CAH-AC6-ATR CAH-ZL-5664-2 CAH-DP-316 EDE-MM-83 EDE-MM-112 CAH-AC-FU CAH-CS-5664-1 EPS-HR2-PR1, RA, RMO, SR3 CAH-FB7-K610A CAH-ZL-5664-1 CC-FISL-2223 CC-E4E-FU39 EDE-MM-112 CAH-E45/11-52 CC-FISL-2224 EDE-MM-111 CC-FISL-2124	480 V AC Circuit Breaker Safety Switch Speed Changer Safety Switch Speed Switch Indicating Lights Control Switch with Indication Selector Switch Bus Undervoltage Relay Time Delay Relay Flow Indication Switch Truck Operated Contact Ammeter Current Transformer (300/5) Transducer Outlet Damper Position Lights Outlet Damper Position Switch Electrical Penetration Electrical Penetration 15A Fuses Control Switch with Indication Emergency Power Sequencer Relays SI Actuating Auxiliary Relay Outlet Damper Position Lights Flow Indication Switch 30A Fuse Electrical Penetration 120 V AC Circuit Breaker Flow Indication Switch Electrical Penetration Flow Indication Switch	AC6 JV5 JV6 AC6 G2H G2H AF3 GN9 SD5 AC6 AC6 AC6 G2H M23 H07 H36 AC6 F36 HR2 FB7 F36 SD5 E4E H36 E45 SD6 H35 SD3	CB-F-1A-A C-F-2-Z C-F-2-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z CB-F-1A-A CB-F-1A-A C-F-2-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A C-F-2-Z ET-F-1A-A ET-F-1A-A, C-F-2-Z CB-F-1A-A C-F-2-Z ET-F-1A-A, C-F-2-Z C-F-2-Z	AC6-G2H AC6-G2H/1 AC6-GN9 AC6-H07 AC6-H07/1 G2H-H36 G2H-H36/1 H07-JV5 H07-JV5/1 H36-H23/1 H36-SD5 JV5-JV6 JV5-M23 JV5-M23/1 JV6-M23 JV6-M23/1 F36-FB7/5 F36-G2H/3 F36-G2H/4 F36-G2H/5 G2H-HR2 G2H-HR2/1 E45-E4E E4E-H36/4 H36-SD5/1 H36-SD6/1 E45-E4H E4H-H35 H35-SD3	AE6a AE6b	310931 AE6d	CBA-FN-19 CBA-FN-20 EDE-US-53 Primary Component Cooling Water	CAH-FN-1A CAH-FN-1B CAH-FN-1D	
																	301895 E45/11a E45/11C		EDE-MCC-531		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.10-1</div>
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FUNCTION: CONTROL BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	CBA-DP-24A	Mechanical Room "A" Outside Air Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	V1A	CBA-FY-5550A FP-R1 FP-CP-558 CBA-TIC-5571 CBA-FY-5550B CBA-FY-5550C	Pilot Solenoid Signal Actuating Output Relay Fire Protection Control Panel Temperature Indicating Control (Pneumatic) Pilot Solenoid Pilot Solenoid	V1A G3C G4P - V1B V1C	CB-F-2B-A TB-F-2-Z TB-F-2-Z CB-F-2B-A CB-F-2B-A CB-F-2B-A	G4P-V1A G4P-V1B G4P-V1C G3C-G4P/5	BK4a	BK4c	Instrument Air	CBA-DP-24F	Note 4
2	CBA-DP-24B	Mechanical Room "A" Recirculating Air Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	V1B	CBA-FY-5550B FP-CP-558 FP-R1 CBA-TIC-5571 CBA-FY-5550A CBA-FY-5550C	Pilot Solenoid Fire Protection Control Panel Signal Actuating Output Relay Temperature Indicating Controller (Pneumatic) Pilot Solenoid Pilot Solenoid	V1B G4P G3C - V1A V1C	CB-F-2B-A TB-F-2-Z TB-F-2-Z CB-F-2B-A CB-F-2B-A CB-F-2B-A	G4P-V1A G4P-V1B G4P-V1C G3C-G4P/5	BK4a	BK4c	Instrument Air	CBA-DP-24E	Note 4
3	CBA-DP-24C	Mechanical Room "A" Return Air Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	V1C	CBA-FY-5550C FP-CP-558 FP-R1 CBA-TIC-5571 CBA-FY-5550A CBA-FY-5550B	Pilot Solenoid Fire Protection Control Panel Signal Actuating Output Relay Temperature Indicating Controller (Pneumatic) Pilot Solenoid Pilot Solenoid	V1C G4P G3c - V1A V1C	CB-F-2B-A TB-F-2-Z TB-F-2-Z CB-F-2B-A CB-F-2B-A CB-F-2B-A	G4P-V1A G4P-V1B G4P-V1C G3C-G4P/5	BK4a	310926 BK4c	Instrument Air	CB-DP-24D	Note 4
4	CBA-DP-24D	Mechanical Room "B" Return Air Damper	CBA-20303	B	310443 604094	CB-F-2C-A	X	X	-	X	-	CBA-TIC-5572	Temperature Indicating Controller (Pneumatic)	-	CB-F-2C-A	-	-	-	Instrument Air	CBA-DP-24C	Notes 1,2,4
5	CBA-DP-24E	Mechanical Room "B" Recirculating Air	CBA-20303	B	310443 604094	CB-F-2C-A	X	X	-	X	-	CBA-TIC-5572	Temperature Indicating Controller (Pneumatic)	-	CB-F-2C-A	-	-	-	Instrument Air	CBA-DP-24B	Notes 1,2,4
6	CBA-DP-24F	Mechanical Room "B" Outside Air Damper	CBA-20303	B	310443 604094	CB-F-2C-A	X	X	-	X	-	CBA-TIC-5572	Temperature Indicating Controller (Pneumatic)	-	CB-F-2C-A	-	-	-	Instrument Air	CBA-DP-24A	Notes 1,2,4
7	CBA-FN-19	Control Building Train "A" SWGR Supply Fan	CBA-20303	A	310443	CB-F-2B-A	X	X	X	-	N28	CBA-BL6-52 CBA-CS-5552 DG-HR2-HR9X DG-HR2-RMO CBA-BL6-42 CBA-BL6-42X CBA-BL6-49 CBA-BL6-FU	460 V ac Circuit Breaker Control Switch with Indication EPS Step Loading Relay EPS Manual Override Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Fuse	BL6 BL6 HR2 HR2 BL6 BL6 BL6 BL6	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 CB-F-1A-A	BL6-HR2/1 BL6-N28/2	BL6a	BL6c	EDE-MCC-515	CBA-FN-32	-

- Notes
- Equipment is mechanical with no electrical requirements.
 - Electrical conduit Plan Drawing 310443, listed only to show fire zone correlation reference to control building area covered by HVAC Drawing 604094 where CBA Dampers 24 D, E, and F are identified in plan.
 - Air is not required for support as damper fails open.
 - Process connections showing positioning of air operated dampers, DP-24A-F, by pneumatic temperature indicating controllers, CBA-TIC-5571 and 5572, are detailed on I&C Loop Diagrams 506159 and 506160.
 - Air is not required for support as damper fails closed.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 7 Table MCR 3.1.3.10-2
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FUNCTION: CONTROL BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
8	CBA-FN-20	Control Building Train "A" SWGR Return Fan	CBA-20303	A	310443	CB-F-2B-A	X	X	X	-	N30	CBA-BL7-52 DG-HR2-RM0 CBA-BL7-42 CBA-BL7-49 CBA-BL7-FU CBA-CS-5554 DG-HR2-HR9X CBA-BL7-42X	460 V ac Circuit Breaker EPS Manual Override Relay Motor Starter Overload Relays Fuse Control Switch with Indication EPS Step Loading Relay Motor Starter Auxiliary Relay	BL7 HR2 BL7 BL7 BL7 BL7 HR2 BL7	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 CB-F-1A-A	BL7-HR2 BL7-N30/2	BL7a	BL7c	EDE-MCC-521	CBA-FN-33	-
9	CBA-FN-21A	Control Building Battery Room Exhaust Fan "A"	CBA-20303	A	310443	CB-F-2B-A	X	X	X	-	N32	CBA-BL8-52 CBA-CS-5556 CBA-ZS-DP-21A CBA-BL8-42 CBA-ZL-5556 CBA-BL8-49 CBA-DP-21A-20 CBA-BL8-FU	460 V ac Circuit Breaker Control Switch with Indication Damper Position Switch Motor Starter Damper 21A Indicating Lights Overload Relays Pilot Solenoid Fuse	BL8 BL8 VV5 BL8 BL8 BL8 VV5 BL8	CB-F-1A-A CB-F-1A-A CB-F-2B-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-2B-A CB-F-1A-A	BL8-N32 BL8-VV5/1 BL8-VV5	BL8a	BL8c	EDE-MCC-521	CBA-FN-21B	
10	CBA-DP-21A	Battery Room Exhaust Fan "A" Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	VV5	CBA-BL8-52 CBA-BL8-FU CBA-CS-5556 CBA-DP-21A-20	460 V ac Circuit Breaker Fuse Control Switch with Indication Pilot Solenoid	BL8 BL8 BL8 VV5	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-2B-A	BL8-VV5 BL8-VV5/1	BL8a	BL8c	EDE-MCC-521	CBA-DP-21B	Note 3
11	CBA-FN-21B	Control Building Battery Room Exhaust Fan "B"	CBA-20303	B	310443	CB-F-2C-A	X	X	X	-	N33	CBA-BL5-52 CBA-CS-5557 CBA-ZS-DP-21B CBA-BL5-42 CBA-ZL-5557 CBA-BL5-49 CBA-DP-21B-20 CBA-BL5-FU	460 V ac Circuit Breaker Control Switch with Indication Damper Position Switch Motor Starter Damper 21B Indicating Lights Overload Relays Pilot Solenoid Fuse	BL5 BL5 VV4 BL5 BL5 BL5 VV4 BL5	CB-F-1B-A CB-F-1B-A CB-F-2C-A CB-F-1B-A CB-F-1B-A CB-F-2C-A CB-F-1B-A CB-F-1B-A	BL5-N33 BL5-VV4/1 BL5-VV4	BL5a	310926 BL5c	EDE-MCC-621	CBA-FN-21A	
12	CBA-DP-21B	Battery Room Exhaust Fan "B" Damper	CBA-20303	B	310443	CB-F-2C-A	X	X	X	X	VV4	CBA-BL5-52 CBA-BL5-FU CBA-CS-5557 CBA-DP-21B-20	460 V ac Circuit Breaker Fuse Control Switch Pilot Solenoid	BL5 BL5 BL5 VV4	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-2C-A	BL5-VV4 BL5-VV4/1	BL5a	310926 BL5c	EDE-MCC-621	CBA-DP-21A	Note 3
13	CBA-FN-32	Control Building Train "B" SWGR Supply Fan	CBA-20303	B	310443	CB-F-2C-A	X	X	X	-	NH3	CBA-BL3-52 CBA-CS-5559 DG-HR4-HR9X DG-HR4-RM0 CBA-BL3-42 CBA-BL3-42X CBA-BL3-49 CBA-BL3-FU	460 V ac Circuit Breaker Control Switch with Indication EPS Step Loading Relay EPS Manual Override Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Fuse	BL3 BL3 HR4 HR4 BL3 BL3 BL3 BL3	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 CB-F-1B-A	BL3-HR4 BL3-NH3	BL3a	BL3c	EDE-MCC-621	CBA-FN-19	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 7 Table MCR 3.1.3.10-4
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FUNCTION: CONTROL BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
16	CBA-CP-178	Control Room A/C Unit B Control Panel	CBA-20303 CBA-20304	B	310444	CB-F-3B-A	X	X	X	-	GU2	CBA-AE4-52 CBA-FN-14B CBA-FN-211B CBA-PDS-21206B1/B2 CBA-DP-26B CBA-CS-5301-1 CBA-CS-21222B CBA-AE4-FU CBA-AE4-52H CBA-CS-5301-3 DG-HR4-RMO, PR1, LR1 DG-HR0 - SR5 EDE-AE3-94-3 CBA-E-230B CBA-PDS-21202B CBA-ZL-21221B CBA-TCV-21200B CBA-TC-21200B CBA-B6H-52 CBA-B6H-FU CBA-SS-21220B CBA-6K13 CBA-B6H-42 CBA-B6H-49 CBA-B6I-52 CBA-B6I-FU CBA-B6I-42 CBA-B6I-49 CBA-P-434B CBA-P-435B	Breaker AC Unit Fan Condensor Exhaust Fan FN-211B Diff Pressure Damper FN-14B Control Switch FN-211B Control Switch Breaker Fuse Breaker Truck Switch Breaker Control Switch Sequencer Relays Sequencer Relay Undervoltage Relay Chiller Evaporator Diff Pressure Chiller Indication Chilled Water TCV Chilled Water Temp Cont. 460V ac Circuit Breaker Fuse Selector Switch Signal Relay Motor Starter Overload Relays 460V ac Circuit Breaker Fuse Motor Starter Overload Relays Chiller Circ. Water Pump Chiller Circ. Water Pump	AE4 N22 NN3 PV0 UG2 F37 F37 AE4 AE4 AE3 HR4 HR0 AE3 HW5 PL0 F37 LV2 TON B6H B6H HW5 B6I B6I NM7 NM8	CB-F-1B-A CB-F-3B-A DG-F-3B-Z DG-F-3B-Z CB-F-3B-A CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-3B-Z DG-F-3B-Z CB-F-3A-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-3B-Z DG-F-3B-Z	AE4-GU2 AE4-HR4 GU2-N22 GU2-N22/1 GU2-NN3 GU2-NN3/1 GU2-PV0 GU2-UG2 F37-GU2 F37-GU2/1 GU2-HR4 GU2-HW5 GU2-HW5/1 GU2-HW5/2 GU2-HW5/3 GU2-HW5/4 B6H-HW5 B6I-HW5 HW5-PL0 HW5-PL5 B6H-NM7 B6I-NM8	310926 AE4a AE4e AE4b AE4f AE4na AE4me AE4na AE4nc B6Ha B6Ia B6Hc B6Ic	EDE-US-62 Instrument Air	CBA-CP-177		
17	CBA-DP-52	Control Building Recirculation Air Damper	CBA-20304	A	310444	CB-F-3B-A	X	X	X	X	UH2	CBA-CS-5302 CBA-PDSH-5305 CBA-PDSH-5306	Control Switch Pressure Differential Switch Pressure Differential Switch	F36 P64 P65	CB-F-3A-A CB-F-3B-A CB-F-3B-A	GN8-P64 GN8-UH2 F36-GN8 GN8-P65	E16/29a E16/29e E16/29g	E16/29c E16/29d E16/29h		Note 5	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.11-1</div>
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FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	DAH-FN-25A	DG-1A Room Supply Air Fan	DAH-20624	A	310525	DG-F-3A-Z	X	X	X	-	N37	DAH-B01-52 DAH-CS-5529 DAH-FISH-5529 DAH-TSH-5529-1 DAH-ED1-R2 DG-G29-HSR DAH-B01-42 DAH-B01-42X DAH-B01-49 DAH-B01-FU DAH-EDI-RI DAH-GN9-RS DAH-GN9-RD	460 V AC Circuit Breaker Control Switch with Fan Indicating Lights Flow Switch Temperature Switch Auxiliary Relay DG-1A High Speed Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Fuse Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B01 B01 S40 T3P ED1 G29 B01 B01 B01 B01 EDI GN9 GN9	CB-F-1A-A CB-F-1A-A DG-F-3A-Z DG-F-2A-A CB-F-1A-A DG-F-2A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	B01-N37/1 B01-G29 B01-T3P B01-GN9	310928 B01a B01c B01d	EDE-MCC-521 EDE-PP-11E	DAH-FN-25B		
2	DAH-DP-16A	DG-1A Room Return Air Damper	DAH-20624	A	310524	DG-F-2A-Z	X	X	X	X	UF9	DAH-ED1-R2 (B01 & B03) DAH-DP-16A-20 DAH-TSH-5529-2 DAH-GN9-RS DAH-GN9-RD DAH-EIS/6-52 DAH-ZL-5529-4	Auxiliary Relays Pilot Solenoid Temperature Switch EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay 120 v AC Circuit Breaker Damper Position Indicating Lights	ED1 UF9 TP5 GN9 GN9 EIS B03	CB-F-1A-A DG-F-2A-A DG-F-2A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	B01-UF9/1 B01-TP5 EIS-GN9 EDI-GN9 B03-UF9 B01-HR2	EIS/6a EIS/6c	EDE-MCC-521 EDE-PP-11E	DAH-DP-16B	Note 1	
3	DAH-FN-25B	DG-1B Room Supply Air Fan	DAH-20624	B	310525	DG-F-3B-Z	X	X	X	-	N38	DAH-B02-52 DAH-CS-5530 DAH-FISH-5530 DAH-TSH-5530-1 DAH-EE3-R2 DAH-B02-FU DG-G30-HSR DAH-B02-42 DAH-B02-42X DAH-B02-49 DAH-E3D-RI DAH-GN0-RS DAH-GN0-RD	460 V AC Circuit Breaker Control Switch with Fan Indicating Lights Flow Switch Temperature Switch Auxiliary Relay Fuse DG-1B High Speed Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B02 B02 S41 T38 EE3 B02 G30 B02 B02 B02 E3D GN0 GN0	CB-F-1B-A CB-F-1B-A DG-F-3B-Z DG-F-2B-A CB-F-1B-A CB-F-1B-A DG-F-2B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	B02-N38/1 B02-G30 B02-S41 B02-T38 B02-GN0 EE3-EED	310928 B02a B02c B02d	EDE-MCC-621 EDE-PP-11F	DAH-FN-25A		

Notes:
1. Air is not required for support as damper is open

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.11-2
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FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
4	DAH-DP-16B	DG-1B Room Return Air Damper	DAH-20624	B	310524	DG-F-2B-Z	X	X	X	X	UFO	DAH-EE3-R2 (B02 & B04) DAH-DP-16B-20 DAH-B02-FU DAH-TSH-5530-2 DAH-ZS-DP-16B DG-HR4-HRB DH-HR4-PR1 DG-HR4-SR1 DAH-GN0-RS DAH-GN0-RD DAH-EIT/6-52 DAH-ZL-5530-4	Auxiliary Relay Pilot Solenoid Fuse Temperature Switch Damper 16B Position Switch EPS Permissive Auxiliary Relay EPS Permissive Auxiliary Relay EPS Permissive Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay 120 v AC Circuit Breaker Damper Position Indicating Lights	EE3 UFO B02 TP6 UFO HR4 HR4 HR4 GN0 GN0 EIT B04	CB-F-1B-A DG-F-2B-A CB-F-1B-A DG-F-2B-A DG-F-2B-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 CB-F-1B-A	B02-UFO/1 ED0-TP6 B02-ED0 EE3-GN0/2 EIT-GN0 B01-HR4 B04-UFO	EIT/6a	EIT/6c	EDE-MCC-621 EDE-PP-11F	DAH-DP-16A	Note 1	
5	DAH-FN-26A	DG-1A Room Return Air Fan	DAH-20624	A	310525	DG-F-2A-A	X	X	X	-	N39	DAH-B03-52 DAH-B03-42 DAH-B03-42X DAH-B03-49 DAH-B03-FU DAH-TSH-5529-1 DG-G29-HSR DAH-CS-6058 DAH-EDI-R2 DAH-EDI-R1 DAH-GN9-RS DAH-GN9-RD	460 V AC Circuit Breaker Motor Starter Motor Starter Auxiliary Relays Overload Relays Fuse Temperature Switch DG-1A High Speed Relay Control Switch with Indicating Lights Auxiliary Relay Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B03 B03 B03 B03 B03 T3P G29 B03 EDI EDI GN9 GN9	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A DG-F-2A-A DG-F-2A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	B03-N39/1 B03-T3P G29-T3P B03-GN9	310928	B03a	B03c B03d	EDE-MCC-521 EDE-PP-11E	DAH-FN-26B	
6	DAH-FN-26B	DG-1B Room Return Air Fan	DAH-20624	B	310525	DG-F-2B-A	X	X	X	-	N40	DAH-B04-52 DAH-B04-42 DAH-B04-42X DAH-B04-49 DAH-B04-FU DAH-TSH-5530-1 DG-G30-HSR DAH-CS-6059 DAH-EE3-R2 DAH-EE3-R1 DAH-GN0-RS DAH-GN0-RD	460 V AC Circuit Breaker Motor Starter Motor Starter Auxiliary Relays Overload Relays Fuse Temperature Switch DG-1B High Speed Relay Control Switch with Indicating Lights Auxiliary Relay Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B04 B04 B04 B04 B04 B04 T3Q G30 B04 EE3 EE3 GN0 GN4	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-2B-A DG-F-2B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	B04-N40/1 B04-T3Q G30-T3Q B04-GN0	B04a	B04c B04d	EDE-MCC-621 EDE-PP-11F	DAH-FN-26A		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.12-1
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FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	EAH-FN-5A	Containment Enclosure Cooler AC-2A Fan	MAH-20495	A	310766	CE-F-1-Z	X	X	X	-	M80	EAH-AF5-52 EAH-AF5-G, R EAH-CS-5767-2 EAH-SS-5767 EAH-ZL-5767-2 EAH-ZS-DP-3A EAH-AF5-AM EAH-AF5-CT EDE-AC3-94-3 EAH-AF5-52H-1 EDE-TBX-YC3 EAH-AF5-FU EAH-CS-5767-1 DG-HR2-SR1 DG-HR2-PR1 DG-HR2-RMO EAH-ZL-5767-1 EAH-E3C-R1	480 V AC Circuit Breaker Indicating Lights Control Switch with Indication Selector Switch Outlet Damper Position Lights Damper Position Switch Ammeter Current Transformer (200/5) Bus Undervoltage Relay Truck-Operated Contact Terminal Box Fuses Control Switch with Indication EPS Permit Auxiliary Relay EPS Permit Auxiliary Relay EPS Permit Auxiliary Relay Pressure Switch Outlet Damper Position Lights Auxiliary Relay	AF5 AF5 G2H G2H G2H G2H L41 AF5 AF5 AC3 AF5 YC3 AF5 F36 HR2 HR2 HR2 F36 E3C	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CE-F-1-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A CE-F-1-Z CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A	AF5-G2H AF5-G2H/1 AF5/M80 AF5-YC3 L41-YC3 F36-G2H F36-G2H/1 AF5-HR2 AF5-E3C	310932 AF5a AF5b AF5f AF5e AF5g	EAH-FN-31A EDE-US-52 Primary Component Cooling Water	EAH-FN-5B		

Notes

- Equipment is mechanical with no electrical requirements.
- Air and electrical power are not required for support as damper fails closed.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.12-2
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FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
2	EAH-FN-5B	Containment Enclosure Cooler AC-2B Fan	MAH-20495	B	310766	CE-F-1-Z	X	X	X	-	M81	EAH-AF9-52 EAH-AF9-G, R EAH-CS-5768-2 EAH-SS-5768 EAH-ZL-5768-2 EAH-ZS-DP-3B EAH-AF9-AM EAH-AF9-CT EDE-AE3-94-3 EAH-AF9-52H-1 EDE-TBX-YB3 EAH-AF9-FU EAH-CS-5768-1 DG-HR4-SR1 DG-HR4-PR1 DG-HR4-RMO EAH-ZL-5768-1 EAH-AE3-R1 EAH-E3D-R2	480 V AC Circuit Breaker Indicating Lights Control Switch with Indication Selector Switch Outlet Damper Position Lights Damper Position Switch Ammeter Current Transformer (200/5) Bus Undervoltage Relay Truck-Operated Contact Terminal Box Fuses Control Switch with Indication EPS Permit Auxiliary Relay EPS Permit Auxiliary Relay EPS Permit Auxiliary Relay Pressure Switch Outlet Damper Position Lights Auxiliary Relay Auxiliary Relay	AF9 AF9 G2K G2K G2K G2K L42 AF9 AF9 AE3 AF9 YB3 AF9 F37 HR4 HR4 HR4 F37 AE3 E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CE-F-1-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CE-F-1-Z CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A	AF9-G2K AF9-G2K/1 AF9/M81 AF9-YB3 L42-YB3 F37-G2K F37-G2K/1 AF9-HR4 AF9-G2K/2 AF9-E3D	AF9a AF9b AF9f	AF9e AF9g	EAH-FN-31B EDE-US-62 Primary Component Cooling Water	EAH-FN-5A		
3	EAH-FN-31A	Containment Enclosure Return Fan "A"	MAH-20495	A	310765	CE-F-1-Z	-	X	X	-	ND5	EAH-BB2-52 EAH-BB2-FU EAH-CS-5769-2 EAH-BB2-G, R EAH-SS-5769 EAH-BB2-42 EAH-BB2-42X EAH-BB2-49 EAH-ZS-DP-25A EAH-CS-5769-1 EAH-ZL-5769-1 DG-HR2-RMO EAH-AF5-52	460 V AC Circuit Breaker Fuses Control Switch Indication Lights Selector Switch Motor Starter Motor Starter Auxiliary Relay Overload Relays Damper Position Switch Control Switch with Indication Inlet Damper Position Lights EPS Permit Auxiliary Relay 480 V AC Circuit Breaker Auxiliary Switch	BB2 BB2 BB2 BB2 BB2 BB2 BB2 BB2 BB2 VQ2 F36 F36 HR2 HR2 AF5	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 CB-F-1A-A CB-F-1A-A CE-F-1-Z CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A	BB2-ND5 BB2-VQ2 BB2-F36 BB2-F36/1 AF5-BB2 BB2-HR2	BB2a 310932 BB2c	EDE-MCC-512	EAH-FN-31B			

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.13-2
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	EPA-DP-374	Emergency Feedwater Pumphouse Exhaust Damper	MAH-20503	B	310708	EFP-F-1-A	X	X	X	X	UH4	EPA-BC7-FU EPA-EDO-RBC7 EPA-DP-374-20 EPA-EDO-R1	Fuses Auxiliary Relay Pilot Solenoid Auxiliary Relay	BC7 EDO UH4 EDO	CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A	BC7-UH4	BC7a	BC7c BC7d	CBA-FN-32 CBA-FN-33 EDE-MCC-612	EPA-DP-373	Note 1

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 7 Table MCR 3.1.3.14-1
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FUNCTION: PRIMARY AUXILIARY BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	PAH-FN-42A	PAB Auxiliary Supply Fan "A"	MAH-20495	A	310765	PAB-F-2C-Z	X	X	X	-	M61	PAH-BF6-52 PAH-CS-5391-2 PAH-ZL-5391-4 PAH-SS-5391 PAH-ED1-R1 PAH-ZS-DP-43A-1, PAH-ZS-DP-43A-2 PAH-ZS-DP-357-1 and 357-2 PAH-BF6-42 PAH-BF6-49 PAH-DP-43A-20 PAH-DP-357-20 PAH-ZL-5391-5 PAH-ZL-5391-6 PAH-BF6-FU PAH-CS-5391-1 PAH-ZL-5391-1 PAH-TSH-5391 PAH-ZL-5391-2 PAH-ZL-5391-3	460 V ac Circuit Breaker Control Switch Fan Indicating Lights Selector Switch Damper Auxiliary Relay Damper Position Switches Damper Position Switches Motor Starter Overload Relays Pilot Solenoid Pilot Solenoid Damper DP-43A Position Lights Damper DP-357 Position Lights Fuse Control Switch Fan Indicating Lights Temperature Switch High Damper DP-43A Position Lights Damper DP-357 Position Lights	BF6 BF6 BF6 ED1 UG5 UG7 BF6 BF6 UG5 UG7 BF6 BF6 F36 F36 TY3 F36 F36	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-1K-Z PAB-F-2C-Z CB-F-1A-A CB-F-1A-A PAB-F-1K-Z PAB-F-2C-Z CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A PAB-F-2C-Z CB-F-3A-A CB-F-3A-A	BF6-M61 BF6-ED1 BF6-UG5 BF6-UG7 UG5-UG7 BF6-UG5/1 BF6-F36 BF6-F36/1 BF6-TY3	310930 BF6a BF6c BF6d	CBA-FN-19 CBA-FN-20 EDE-MCC-512	PAH-FN-42B		
2	PAH-DP-43A	PAB Auxiliary Fan Supply Damper	MAH-20495	A	310765	PAB-F-1K-Z	X	X	X	X	UG5	PAH-ED1-R1 PAH-DP-43A-20	Damper Auxiliary Relay Pilot Solenoid	ED1 UG5	CB-F-1A-A PAB-F-1K-Z	BF6-ED1 BF6-UG5 BF6-UG7 UG5-UG7 BF6-UG5/1	BF6a BF6c BF6d	CBA-FN-19 CBA-FN-20	PAH-DP-43B	Note 1	
3	PAH-DP-357	PAB Auxiliary Fan Exhaust Damper	MAH-20495	A	310766	PAB-F-2C-Z	X	X	X	X	UG7	PAH-ED1-R1 PAH-DP-357-20	Damper Auxiliary Relay Pilot Solenoid	ED1 UG7	CB-F-1A-A PAB-F-2C-Z	BF6-ED1 BF6-UG5 BF6-UG7 UG5-UG7	BF6a BF6c	CBA-FN-19 CBA-FN-20	PAH-DP-358	Note 1	

Notes

1.

Air and electrical power are not required for support as damper fails open.

2.

See Table RSS 3.1.3.12 for operation of dampers PAH-DP-35A, -35B, -36A & -36B.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.15-1
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FUNCTION: SERVICE WATER AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	SWA-FN-40A	Service Water Pumphouse Train "A" Switchgear Room Supply Fan	SWA-20372	A	301139	SW-F-ID-A	X	X	X	-	NJO	SWA-CR5-52 SWA-CR5-42 SWA-CR5-49 SWA-CS-5614-2 SWA-SS-5614 SWA-CR5-FU SWA-CS-5614-1 SWA-TSH-5614-1 SWA-TSH-5614-2	460 V ac Circuit Breaker Motor Starter Overload Relays Control Switch with Indication Selector Switch Fuse Control Switch with Indication Temperature Switch Temperature Switch	CR5 CR5 CR5 CR5 G2H G2H CR5 F36 TV7 TW9	SW-F-1B-A SW-F-1B-A SW-F-1B-A SW-F-1B-A CB-F-1A-A CB-F-1A-A SW-F-1B-A CB-F-3A-A SW-F-1B-A SW-F-1C-A	CR5-NJO CR5-G2H/1 CR5-G2H F36-G2H/2 CR5-TV7 CR5-TW9	CR5a 301115 CR5c	EDE-MCC-514	SWA-FN-40B		
2	SWA-FN-40B	Service Water Pumphouse Train "B" Switchgear Room Supply Fan	SWA-20372	B	301139	SW-F-ID-A	X	X	X	-	NK1	SWA-CR0-52 SWA-CR0-42 SWA-CR0-49 SWA-CS-5615-2 SWA-SS-5615 SWA-CR0-FU SWA-CS-5615-1 SWA-TSH-5615-1 SWA-TSH-5615-2	460 V ac Circuit Breaker Motor Starter Overload Relays Control Switch with Indication Selector Switch Fuses Control Switch with Indication Temperature Switch Temperature Switch	CR0 CR0 CR0 CR0 G2K G2K CR0 F37 TV8 TW0	SW-F-1C-A SW-F-1C-A SW-F-1C-A SW-F-1C-A CB-F-1B-A CB-F-1B-A SW-F-1C-A CB-F-3A-A SW-F-1C-A SW-F-1B-C	CR0-NK1 CR0-G2K/1 CR0-G2K F37-G2K/2 F37-G2K/C CR0-TV8 CR0-TW0 CR0-G2K/2	CR0a CROc	EDE-MCC-614	SWA-FN-40A SWA-FN-64 SWA-FN-71		
3	SWA-FN-64	Service Water Cooling Tower Switchgear Room Supply Fan	SWA-20372	A	301717	CT-F-2B-A	X	X	X	-	NW1	SWA-CQ0-52 SWA-CQ0-42 SWA-CQ0-49 SWA-CS-5669 SWA-ZL-5669 SWA-CQ0-FU SWA-TSH-5669 SWA-FY-5669-1 SWA-FY-5669-2 SWA-DP-66 SWA-ED6-R1	460 V ac Circuit Breaker Motor Starter Overload Relay Control Switch Indicating Light Fuse Temperature Switch Solenoid Valve Solenoid Valve Position Switch Auxiliary Relay	CQ0 CQ0 CQ0 F36 F36 CQ0 TSV NW1 NW1 NW1 ED6	CT-F-1D-A CT-F-1D-A CT-F-1D-A CB-F-3A-A CB-F-3A-A CT-F-1D-A CT-F-1D-A CT-F-2B-A CT-F-2B-A CT-F-2B-A CT-F-1D-A	CQ0-NW1 CQ0-NW1/2 CQ0-NW1/3 CQ0-F36 ED6-TSV ED6-F36/1	CQ0a CQ0c CQ0d	EDE-MCC-513	SWA-FN-40B		
4	SWA-DP-66	Service Water Cooling Tower Switchgear Room Supply Damper	SWA-20372	A	301717	CT-F-2B-A	X	X	X	-	NW1	SWA-CQ0-52 SWA-CQ0-42 SWA-CQ0-49 SWA-CS-5669 SWA-ZL-5669 SWA-CQ0-FU SWA-TSH-5669 SWA-FY-5669-1 SWA-FY-5669-2 SWA-DP-66 SWA-ED6-R1	460 V ac Circuit Breaker Motor Starter Overload Relay Control Switch Indicating Lights Fuse Temperature Switch Solenoid Valve Solenoid Valve Position Switch Auxiliary Relay	CQ0 CQ0 CQ0 F36 F36 CQ0 TSV NW1 NW1 NW1 ED6	CT-F-1D-A CT-F-1D-A CT-F-1D-A CB-F-3A-A CB-F-3A-A CT-F-1D-A CT-F-1D-A CT-F-2B-A CT-F-2B-A CT-F-2B-A CT-F-1D-A	CQ0-NW1 CQ0-NW1/2 CQ0-NW1/3 CQ0-F36 ED6-TSV ED6-F36/1	CQ0a CQ0c CQ0d	EDE-MCC-513 Instrument Air	SWA-FN-40B		
5	SWA-FN-71	Service Water Tower Roof Exhaust Fan	SWA-20372	A	301717	CT-F-2B-A	X	X	X	-	NW2	SWA-CR1-52 SWA-CR1-42 SWA-CR1-49 SWA-CS-5667 SWA-TSH-5667 SWA-CR1-FU	460 V ac Circuit Breaker Motor Starter Overload Relay Control Switch with Indication Temperature Switch Fuse	CR1 CR1 CR1 F36 TST CR1	CT-F-1D-A CT-F-1D-A CT-F-1D-A CB-F-3A-A CT-F-2B-A CT-F-1D-A	CR1-NW2 CR1-F36 CR1-TST	CR1a CR1c	EDE-MCC-513	SWA-FN-40B		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table MCR 3.1.3.16-1</div>
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FUNCTION: INSTRUMENT/SERVICE AIR																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	SA-SKD-137A	Service Air Compressor 16A	SA-20650	A	310328	TB-F-1A-Z	X	X	X	-	NN2	SA-AA2-52 SA-AA2-FU SA-CS-8501-A SA-AA2-52H-1 DG-HR2-HR9X-RMO EDE-ED4-94-5	460 V AC Circuit Breaker Fuses Control Switch with Indication Truck Operated Switch EPS Relay Undervoltage Relay	AA2 AA2 AC3 AA2 HR2 ED4	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	AA2-ED4 AA2-HR2 AA2-NH2 AA2a AA2b AA2c	310863 AA2d AA2e	U5-52 CBA-FN-19 CBA-FN-20	SA-SKD-137b		
2	SA-TK-23A	Service Air Tank Receiver	SA-20650	A	310328	TB-F-1A-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	-	
3	SA-V-92	Service Air Isolation Valve	SA-20650	A	310328	TB-F-1A-Z	X	X	X	X	UM9	SA-E46/8-52 SA-CS-8540 SA-PSL-8540 SA-PIS-8509 SA-UM9-20-1 SA-ED8-3 SA-ZS-V92 SA-PSL-8545	120 V AC Circuit Breaker Control Switch with Indication Pressure Switch Pressure Indication Switch Solenoid Valve Interlocking Relay Position Switch Pressure Switch	E46 F71 G29 G29 UM9 ED8 UM9 G29	TB-F-2-Z CB-F-3A-A TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z	ED8-F71 ED8-G29/1 ED8-UM9 ED8-UM0 UM9-UM0 G29-UM9/ G29-UM0	E46/8a E46/8c E46/8d	-	-	-	Note 1
4	SA-SKD-137B	Service Air Compressor 16B	SA-20650	B	310328	TB-F-1A-Z	X	X	X	-	NT4	SA-AT2-52 SA-AT2-FU SA-CS-8501-B SA-AT2-52H-1 DG-HR4-HR9X-RMO EDE-EF8-94-3	460 V AC Circuit Breaker Fuses Control Switch with Indication Truck Operated Switch EPS Relay Undervoltage Relay	AT2 AT2 AF8 AT2 HR4 AF8	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	AT2-HR4 AT2-NT4 AT2a AT2b AT2c	310863 AT2d AT2e	CBA-FN-32 CBA-FN-33 US-63	SA-SKD-137A		
5	SA-TK-23B	Service Air Tank Receiver	SA-20650	B	310328	TB-F-1A-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	-	
6	SA-V-93	Service Air Isolation Valve	SA-20650	A	310328	TB-F-1A-Z	X	X	X	X	UM0	SA-E46/8-52 SA-CS-8540 SA-PSL-8540 SA-PIS-8509 SA-UM0-20-2 SA-ED8-3 SA-ZS-V93 SA-PSL-8545	120 V AC Circuit Breaker Control Switch with Indication Pressure Switch Pressure Indication Switch Solenoid Valve Interlocking Relay Position Switch Pressure Switch	E46 F71 G29 G29 UM0 ED8 UM0 G29	TB-F-2-Z CB-F-3A-A TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z	ED8-F71 ED8-G29/1 ED8-UM9 ED8-UM0 UM9-UM0 G29-UM0 G29-UM9	E46/8a E46/8c E46/8d	-	-	-	Notes 1 and 2

Notes:

- Air and electrical power are not required for support as valve fails closed.
- Fail open mechanical valve.
- Manual valve.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table MCR 3.1.3.16-2
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FUNCTION: INSTRUMENT/SERVICE AIR																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
7	IA-SKD-18A	Instrument Air Dryer (Skid 18A)	IA-20637	A	310328	TB-F-1A-Z	X	X	X	-	HF1	IA-C68-52	460 V AC Circuit Breaker	C68	TB-F-2-Z	C68-HF1/1	310864		IA-SKD-18B		
8	IA-SKD-18B	Instrument Air Dryer (Skid 18B)	IA-20637	B	310328	TB-F-1A-Z	X	X	X	-	HF2	IA-C74-52	460 V AC Circuit Breaker	C74	CB-F-1B-A	C74-HF2/1	310864	C68a C68b	CBA-FN-32 CBA-FN-33 EDE-MCC-631	IA-SKD-18A	
9	SA-C-4A	Containment Air Compressor 4A (Skid 16A) with Control Panel	IA-20643	A	310578	C-F-2-Z	-	X	X	-	M38	SA-D93-52-1,2	460 V AC Circuit Breaker	D93	CB-F-1A-A	D93-F71	310863	D93a D93c	EDE-MCC-531 Primary Component Cooling Water CAH-FN-1C CAH-FN-1E CAH-FN-1F CAH-FN-19 CAH-FN-20	SA-C-4B	
												SA-D93-FU	Fuse	D93	CB-F-1A-A	D93-F71/1					
												SA-CS-8531	Control Switch with Indication	F71	CB-F-3A-A	D93-HR2					
												SA-HR2-HR9	EPS Permit Auxiliary Relay	HR2	CB-F-1A-A	D93-H36/1					
												SA-D93-42	Motor Starter	D93	CB-F-1A-A	D93-H36/2					
												SA-D93-49	Overload Relays	D93	CB-F-1A-A	G44-H36					
												SA-CS-4A-T	Control Switch Load-Unload	G44	C-F-2-Z	G44-H36/1					
												SA-CS-4A-PB	Reset Push Button	G44	C-F-2-Z	H19-M38					
												SA-PS-4A-1	Pressure Switch Lube Oil	G44	C-F-2-Z						
												SA-PS-4A-2	Pressure Switch Air Header	G44	C-F-2-Z						
												SA-TS-4A-1	Temperature Switch Compressor Outlet	G44	C-F-2-Z						
												SA-G44-R	Air Compressor Shutdown Relay	G44	C-F-2-Z						
												SA-SV-4A	Loading Solenoid	G44	C-F-2-Z						
												SA-G44-TR1	Compressor Loading Time Delay Relay	G44	C-F-2-Z						
												SA-G44-TR2	Compressor Auto Stop Time Delay Relay	G44	C-F-2-Z						
												SA-G44-TR3	Compressor Auto Restart Time Delay Relay	G44	C-F-2-Z						
												EDE-MM-95	Electrical Penetration	H19	C-F-2-Z, ET-F-1A-A						
												EDE-MM-112	Electrical Penetration	H36	C-F-2-Z, ET-F-1A-A						

FUNCTION: INSTRUMENT/SERVICE AIR																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
10	SC-C-4B	Containment Air Compressor 4B (Skid 16B) with Control Panel	IA-20643	B	310578	C-F-2-Z	-	X	X	-	M39	SA-D95-52-1,2 SA-D95-FU SA-CS-8541 SA-HR4-HR9 SA-D95-42 SA-D95-49 SA-CS-4B-T SA-CS-4B-PB SA-PS-4B-1 SA-PS-4B-2 SA-TS-4B-1 SA-G45-R SA-SV-4B SA-G45-TR1 SA-G45-TR2 SA-G45-TR3 EDE-MM-100 EDE-MM-115	460 V AC Circuit Breaker Fuse Control Switch with Indication EPS Permit Auxiliary Relay Motor Starter Overload Relays Control Switch Load-Unload Reset Push Button Pressure Switch Lube Oil Pressure Switch Air Header Temperature Switch Compressor Outlet Air Compressor Shutdown Relay Loading Solenoid Compressor Loading Time Delay Relay Compressor Auto Stop Time Delay Relay Compressor Auto Restart Time Delay Relay Electrical Penetration Electrical Penetration	D95 D95 F71 HR4 D95 D95 G45 G45 G45 G45 G45 G45 G45 G45 G45 G45 G45 H24 H39	CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-2-Z C-F-2-Z C-F-2-Z C-F-2-Z C-F-2-Z C-F-2-Z C-F-2-Z C-F-2-Z C-F-2-Z C-F-2-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A	D95-F71 D95-F71/1 D95-HR4 D95-H24 D95-H39/1 D95-H39/2 C45-H39 C45-H39/1 H24-M39	D95a D95c D95d	EDE-MCC-631 Primary Component Cooling Water CAH-FN-1A CAH-FN-1B CAH-FN-1D CBA-FN-32 CBA-FN-33	SA-C-4A		
11	IA-D-2A	Containment Instrument Air Dryer 2A	IA-20643	A	310578	C-F-2-Z	X	X	X	-	HF3	IA-E9L/3-52 EDE-MM-582 EDE-MM-95	120 V AC Circuit Breaker Fuse Panel Penetration	E9L EDE H19	ET-F-1A-A ET-F-1A-A ET-F-1A-A	EM9-397 HF3-397 E4E-E9L/2 E4E-H19/2 H19-397	310864 E9L/3a E9L/3b	ED-PP-8J CAH-FN-1C CAH-FN-1E CAH-FN-1F	IA-D-2B		
12	IA-D-2B	Containment Instrument Air Dryer 2B	IA-20643	B	310578	C-F-2-Z	X	X	X	-	HF4	IA-EM0/1-52	120 V AC Circuit Breaker	EM0	C-F-1-Z	EM0-398 HF4-398	EM0/1a EM0/1b	ED-PP-8B CAH-FN-1A CAH-FN-1B CAH-FN-1D	IA-D-2A		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-2
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	EDE-SWG-5 (Continued)											ED-GA0-TD-2	Lockout Relay Test Device (86SB/2/1X-1)	GA0	TB-F-1C-Z						
												ED-GA6-TD-2	Lockout Relay Test Device (86-2/2/B3)	GA6	TB-F-1C-Z						
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2A)	GA8	TB-F-1C-Z						
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2B)	GA8	TB-F-1C-Z						
												ED-GA9-TD-2	Lockout Relay Test Device (86BF-2/2/52/TG1)	GA9	TB-F-1C-Z						
												ED-GA9-TD-2	Lockout Relay Test Device (86GT/2/TG1)	GA9	TB-F-1C-Z						
												ED-GB0-TD-2	Lockout Relay Test Device (86-1/2/B3)	GB0	TB-F-1C-Z						
												ED-GB3-TD-2	Lockout Relay Test Device (86BF-2/2H)	GB3	TB-F-1C-Z						
												ED-GB4-TD-2	Lockout Relay Test Device (86BF-2/2E)	GB4	TB-F-1C-Z						
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2A)	GC2	TB-F-1C-Z						
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2B)	GC2	TB-F-1C-Z						
												ED-GC3-TD-2	Lockout Relay Test Device (86BF-1/2/52/TG1)	GC3	TB-F-1C-Z						
												ED-GC4-TD-2	Lockout Relay Test Device (86SP/2/1X-1)	GC4	TB-F-1C-Z						
												ED-GC6-TD-2	Lockout Relay Test Device (86BF-1/2H)	GC6	TB-F-1C-Z						
												ED-GC7-TD-2	Lockout Relay Test Device (86BF-1/2E)	GC7	TB-F-1C-Z						
												EDE-A51-51	Time Overcurrent Relays 0A, 0B, 0C	A51	CB-F-1A-A						
												EDE-A51-51GS	Ground Sensor Relay	A51	CB-F-1A-A						
												EDE-SNS-9736-1	Synchronizing Switch	F80	CB-F-3A-A						
												EDE-CS-9709-1	Control Switch with Indicating Light	F80	CB-F-3A-A						
												DG-HR2-RM0	EPS Auxiliary Relay	HR2	CB-F-1A-A						
												EDE-CS-9707-1	Control Switch	F80	CB-F-3A-A						
												EDE-A5A-52S	Mechanically Operated Contact	A5A	CB-F-1A-A						
2	EDE-SWG-5	Grounding Transformer	310007	A	310442	CB-F-1A-A	X	X	X	-	A67	EDE-A67-XFMR	3-1ø 15 KVA Transformers	A67	CB-F-1A-A		310102		CBA-FN-19 CBA-FN-20 EDE-SWG-5	EDE-SWG-6 GRD XFMR	
												EDE-A67-FU	3-10A Fuses	A67	CB-F-1A-A		A67a				
												EDE-A67-52	120 V AC Circuit Breaker	A67	CB-F-1A-A						
												EDE-A67-RES	Grounding Resistor	A67	CB-F-1A-A						
												EDE-A67-64	Grounding Relay	A67	CB-F-1A-A						
												EDE-A67-TD-3	VM Test Device	A67	CB-F-1A-A						
												EDE-A67-VM	(3) Ground Voltmeters	A67	CB-F-1A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-4
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
3	EDE-SWG-5 (Continued)											EDE-A53-25RX	Auxiliary Synchronizing Check Relay	A53	CB-F-1A-A						
												EDE-A53-25R	Synchronizing Check Relay	A53	CB-F-1A-A						
												EDE-A52-62	Time Delay Relay	A52	CB-F-1A-A						
												EDE-A51-3	Interposing Relay for SWG Lockout Relays	A51	CB-F-1A-A						
												EDE-A52-TD-2	Lockout Relay Test Device (A52-86)	A52	CB-F-1A-A						
												EDE-A52-TD-4	Interposing Relay Test Device (A52-3)	A52	CB-F-1A-A						
												ED-86RB/2/1X-3A	Lockout Relay	GA7	TB-F-1C-Z						
												ED-86-2/2/B2	Lockout Relay	GB7	TB-F-1C-Z						
												ED-86-1/2/B2	Lockout Relay	GC0	TB-F-1C-Z						
												ED-86RP/2/1X-3A	Lockout Relay	GC1	TB-F-1C-Z						
												ED-86RP/2/1X-3B	Lockout Relay	GE6	TB-F-1C-Z						
												ED-86RB/2/1X-3B	Lockout Relay	GE7	TB-F-1C-Z						
												ED-GA7-TD-2	Lockout Relay Test Device (86RB/2/1X-3A)	GA7	TB-F-1C-Z						
												ED-GB7-TD-2	Lockout Relay Test Device (86-2/2/B2)	GB7	TB-F-1C-Z						
												ED-GC0-TD-2	Lockout Relay Test Device (86-1/2/B2)	GC0	TB-F-1C-Z						
												ED-GC1-TD-2	Lockout Relay Test Device (86RP/2/1X-3A)	GC1	TB-F-1C-Z						
												ED-GE6-TD-2	Lockout Relay Test Device (86RP/2/1X-3B)	GE6	TB-F-1C-Z						
												ED-GE7-TD-2	Lockout Relay Test Device (86RP/2/1X-3B)	GE7	TB-F-1C-Z						
												EDE-A52-51	Time Overcurrent Relays 0A, 0B, 0C	A52	CB-F-1A-A						
												EDE-A52-51GS	Ground Sensor Relay	A52	CB-F-1A-A						
												EDE-SNS-9736-1	Synchronizing Switch	F80	CB-F-3A-A						
												EDE-CS-9707-1	Control Switch with Indication Light	F80	CB-F-3A-A						
												EDE-A53-62BX	Auxiliary Latch Relay	A53	CB-F-1A-A						
												EDE-A52-27RB-1	Residual Undervoltage Relay	A52	CB-F-1A-A						
												EDE-A52-27RB-2	Residual Undervoltage Relay	A52	CB-F-1A-A						
												EDE-CS-9709-1	Control Switch	F80	CB-F-3A-A						
												EDE-A52-62X	Auxiliary Relay	A52	CB-F-1A-A						
												EDE-A5A-52S	Mechanically Operated Contact	A5A	CB-F-1A-A						

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table MCR 3.1.3.17-5</div>
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	EDE-SWG-5	4160 V Bus E5 PT Compartment	310007	A	310442	CB-F-1A-A	X	X	X	-	A53	EDE-A53-PT	Potential Transformers	A53	CB-F-1A-A	A53-AC2 A53-HR2 AF2-ED4 A53-G07 AC2-AF2 A53-FB7 F80-G07/5 A54-A5A/4 A54-A5A/5 A55-A5A/1 A55-A5A/2	310102 A53a A53e A53h	A53d	CBA-FN-19 CBA-FN-20 EDE-SWG-5 EDE-PP-111A DAH-FN-25A DAH-FN-26A	EDE-SWG-6 PT	
												EDE-A53-VM	Voltmeter	A53	CB-F-1A-A						
												EDE-A53-VS	Voltmeter Switch	A53	CB-F-1A-A						
												EDE-A53-TD-3	PT Test Device	A53	CB-F-1A-A						
												EDE-A53-VTR-1	Voltage Transducer	A53	CB-F-1A-A						
												EDE-A53-VTR-2	Voltage Transducer	A53	CB-F-1A-A						
												EDE-SS-9709	Selector Switch	G07	DG-F-2A-A						
												EDE-SNS-9736-2	Synchronizing Switch	G06	DG-F-2A-A						
												EDE-A53-25U	Synchronizing Check Relay	A53	CB-F-1A-A						
												EDE-A53-25R	Synchronizing Check Relay	A53	CB-F-1A-A						
												EDE-A54-52S	Mechanically Operated Contact	A54	CB-F-1A-A						
												EDE-A53-27B-1	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-27B-2	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-TS-3	Undervoltage Relays	A53	CB-F-1A-A						
												EDE-A53-27D-1	Test Switch	A53	CB-F-1A-A						
												EDE-A53-27D-1-RES	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-27D-2	Resistor	A53	CB-F-1A-A						
												EDE-A53-27D-2-RES	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-TS-1	Resistor	A53	CB-F-1A-A						
												EDE-A52-27RB-1,2	Undervoltage Relays	A53	CB-F-1A-A						
												EDE-A53-62B	Test Switch	A52	CB-F-1A-A						
												EDE-A53-62B-RES	Residual Undervoltage Relay	A52	CB-F-1A-A						
												EDE-A53-TS-4	Time Delay Relay	A53	CB-F-1A-A						
												EDE-A53-62BX-1	Resistor	A53	CB-F-1A-A						
												EDE-A53-62BX	Test Switch EDE-62B	A53	CB-F-1A-A						
												EDE-A51-52S	Auxiliary Relay	A53	CB-F-1A-A						
												EDE-ED4-94-5	Auxiliary Latch Relay	A53	CB-F-1A-A						
												EDE-A52-27/59X1	Mechanically Operated Contact	A51	CB-F-1A-A						
												EDE-AF3-94-4	Undervoltage Tripping Relay	ED4	CB-F-1A-A						
												DG-HR2-RM0	Under/Over Voltage Auxiliary Relay	A52	CB-F-1A-A						
												EDE-A53-94-1A	Undervoltage Tripping Relay	AF3	CB-F-1A-A						
												EDE-A53-94-1B	Relay	HR2	CB-F-1A-A						
												EDE-A53-94-2	Undervoltage Tripping Relay	A53	CB-F-1A-A						
												EDE-AC3-94-3	Undervoltage Tripping Relay	AC3	CB-F-1A-A						
												EDE-A53-FU	Relay	A53	CB-F-1A-A						
												EDE-A53-FU	120 V AC 3A Fuses	A53	CB-F-1A-A						
												EDE-A53-62D	125 V DC 10A Fuses (2)	A53	CB-F-1A-A						
												EDE-A53-62D-RES	Time Delay Relay	A53	CB-F-1A-A						
												EDE-A53-TS-2	Resistor	A53	CB-F-1A-A						
												EDE-A53-62DX	Test Switch Relay 62D	A53	CB-F-1A-A						
												EDE-SNS-9736-1	Auxiliary Relay	A53	CB-F-1A-A						
												EDE-FB7-K609A	Synchronizing Switch	F80	CB-F-3A-A						
												EDE-A5A-52S	SI Sig. Act.	F87	CB-F-1A-A						
													Auxiliary Relay	A5A	CB-F-1A-A						
													Mechanically Operated Contact								

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-7
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Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 9
Table MCR 3.1.3.17-7

FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	EDE-SWG-5 (Continued)											EDE-A54-81-RES EDE-A54-86DP EDE-A54-W EDE-A69-86B EDE-A69-86DB EDE-A69-W EDE-A51-86 EDE-A52-86 EDE-A51-52S EDE-A52-52S EDE-A54-52S EDE-A69-RLA DG-G10-25Y EDE-A69-RS EDE-A54-81 EDE-A54-87DP EDE-A69-51B EDE-A54-81X EDE-A69-60 EDE-A69-60AX EDE-A69-60BX EDE-A69-40 EDE-A54-40X EDE-A69-32 EDE-A69-TD-1 EDE-A69-TD-2 EDE-A54-TD-2 DG-G07-R43L5 DG-G07-R43R3 DG-G07-R43R4 DG-G07-R43R6 DG-G29-5A EDE-A69-51V EDE-A69-FU	Resistor Primary Lockout Relay Indicating Light (A54-86DP) Lockout Relay Back-Up Lockout Relay Indicating Light (A69-86B & A69-86DB) Lockout Relay Lockout Relay Mechanically Operated Contact Mechanically Operated Contact Mechanically Operated Contact LOCA Seal Relay Auxiliary Sync Check Relay Fast Closure Relay Frequency Relay Primary Differential Relay Time Overcurrent Relays, 0A, 0B, 0C Auxiliary Frequency Relay Voltage Balance Relay Auxiliary Voltage Balance Relay Auxiliary Voltage Balance Relay Loss of Field Relays 0A, 0B Auxiliary Loss of Field Relay Power Directional Relay Lockout Relay Test Device (86B) Lockout Relay Test Device (86DB) Lockout Relay Test Device (86DP) Selector Switch Auxiliary Relay (Local) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Shutdown Relay Time Overcurrent Voltage Restraint Relays, 0A, 0B, 0C 120 V AC 3A Fuses	A54 A54 A54 A69 A69 A69 A51 A52 A51 A52 A54 A69 G10 A69 A54 A54 A69 A54 A69 A69 A69 A69 A54 A69 A69 G29 A69 A69	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 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-2A-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 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						

ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
5	EDE-SWG-5 (Continued)											EDE-A54-81-RES EDE-A54-86DP EDE-A54-W EDE-A69-86B EDE-A69-86DB EDE-A69-W EDE-A51-86 EDE-A52-86 EDE-A51-52S EDE-A52-52S EDE-A54-52S EDE-A69-RLA DG-G10-25Y EDE-A69-RS EDE-A54-81 EDE-A54-87DP EDE-A69-51B EDE-A54-81X EDE-A69-60 EDE-A69-60AX EDE-A69-60BX EDE-A69-40 EDE-A54-40X EDE-A69-32 EDE-A69-TD-1 EDE-A69-TD-2 EDE-A54-TD-2 DG-G07-R43L5 DG-G07-R43R3 DG-G07-R43R4 DG-G07-R43R6 DG-G29-5A EDE-A69-51V EDE-A69-FU	Resistor Primary Lockout Relay Indicating Light (A54-86DP) Lockout Relay Back-Up Lockout Relay Indicating Light (A69-86B & A69-86DB) Lockout Relay Lockout Relay Mechanically Operated Contact Mechanically Operated Contact Mechanically Operated Contact LOCA Seal Relay Auxiliary Sync Check Relay Fast Closure Relay Frequency Relay Primary Differential Relay Time Overcurrent Relays, 0A, 0B, 0C Auxiliary Frequency Relay Voltage Balance Relay Auxiliary Voltage Balance Relay Auxiliary Voltage Balance Relay Loss of Field Relays 0A, 0B Auxiliary Loss of Field Relay Power Directional Relay Lockout Relay Test Device (86B) Lockout Relay Test Device (86DB) Lockout Relay Test Device (86DP) Selector Switch Auxiliary Relay (Local) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Shutdown Relay Time Overcurrent Voltage Restraint Relays, 0A, 0B, 0C 120 V AC 3A Fuses	A54 A54 A54 A69 A69 A69 A51 A52 A51 A52 A54 A69 G10 A69 A54 A54 A69 A54 A69 A69 A69 A54 A69 A69 G07 G07 G07 G07 G29 A69 A69	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 CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-2A-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 CB-F-2A-A CB-F-1A-A CB-F-2A-A CB-F-2A-A CB-F-2A-A CB-F-1A-A CB-F-1A-A							

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-8
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	EDE-SWG-5 (Continued)											EDE-A54-87DP Reactor	Primary Differential Relay Reactor Assembly	A54	CB-F-1A-A						
												EDE-A69-51GS	Ground Sensor Relay	A69	CB-F-1A-A						
												EDE-A54-TD-1	Test Device	A54	CB-F-1A-A						
												EDE-CS-9700-1	Control Switch with Indicating Light	F80	CB-F-3A-A						
												DG-HR9-PRIX	EPS Auxiliary Relay	HR9	CB-F-1A-A						
												EDE-SNS-9736-1	Synchronizing Switch	F80	CB-F-3A-A						
												MM-FB7-K601A	SI signal Act. Output Relay	FB7	CB-F-3A-A						
												DG-G07-ESS	Emergency Start Auxiliary Relay	G07	DG-F-2A-A						
												EDE-A54-81Y	Time Delay Relay	A54	CB-F-1A-A						
												EDE-A5A-52S	Mechanically Operated Contact	A5A	CB-F-1A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-9
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
6	DG-CP-75A	Diesel Generator 1A Control Panel Cubicle 2 Synchronizing System	310010	A	310524	DG-F-2A-A	X	X	X	-	G07	DG-G07-FU-17&18 EDE-SS-9700 EDE-SS-9709 EDE-SS-9707 DG-G07-R43R4 DG-G07-R43R6 DG-G07-RAX DG-G07-R43L4 EDE-SNS-9736-2 EDE-CS-9700-3 EDE-CS-9707-3 EDE-CS-9709-3 DG-G06-25DG DG-G10-25Y DG-G10-25Y1 EDE-SNS-9763-1 EDE-CS-9700-1 EDE-CS-9707-1 EDE-CS-9709-1 EDE-A67-PT EDE-A53-PT EDE-A53-PT EDE-A69-PT	125 V DC Fuses (6A) Selector Switch Selector Switch Selector Switch Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Auxiliary Relay, Latch Selector Switch Auxiliary Relay (Local) Synchronizing Switch Control Switch Control Switch Control Switch Synchronizing Check Relay Auxiliary Synchronizing Check Relay Auxiliary Synchronizing Check Relay Synchronizing Switch Control Switch Control Switch Control Switch UAT X-2A Inc. Line Potential Transformer RAT X-3A Inc. Line Potential Transformer Bus ES Potential Transformer DG-1A Inc. Line Potential Transformer	G07 G06 G07 G07 G07 G07 G07 G07 G06 G06 G07 G07 G06 G10 G10 F80 F80 F80 F80 A67 A53 A53 A69	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	F80-G07/B F80-G07/1	310102 G07/2c 7b	G07/2g 7f	DAH-FN-25A DAH-FN-26A Eg13-SWG-11A	DG-CP-76A	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.17-10
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
6	DG-CP-75A (Continued)											EDE-SNS-9736-2 EDE-SS-9707 EDE-SS-9709 DG-G07-R43R3 DG-G07-R43R4 DG-G07-RAX DG-G06-25DG EDE-SYN-9701 EDE-ZL-9701 EDE-VM-9701-1 EDE-VM-9701-2 EDE-SYN-9891 EDE-ZL-9891 EDE-VM-9891-1 EDE-VM-9891-2	Synchronizing Switch Selector Switch Selector Switch Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Auxiliary Relay, Latch Synchronizing Check Relay Synchroscope Synchronizing Lights Synchronizing Voltmeter Incoming Synchronizing Voltmeter Running Synchroscope Synchronizing Lights Voltmeter Voltmeter	G06 G07 G07 G07 G07 G07 G06 G06 G06 G06 F80 F80 F80 F80	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A							
7	EDE-SWG-5	4160 V Feed to 480 V Transformer EDE-X-5A for Substation Bus EDE-US-51	310007	A	310442	CB-F-1A-A	X	X	X	-	A55	EDE-A55-52 EDE-A55-FU EDE-CS-9706 EDE-A55-G,R,W EDE-SS-9706 EDE-A55-52H EDE-A55-86 EDE-A55-TD2 EDE-A55-50/51 EDE-A55-CT EDE-A55-AM EDE-A55-AS EDE-A55-ATR EDE-A55-TD1 EDE-A55-51GS EDE-ZL-9706	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay Lockout Relay Test Device Inst/Time Overcurrent Relays øA, øB, øC Current Transformers (300/5) Ammeter Ammeter Switch Transducer CT Test Device Ground Sensor Relay Indicating Lights	A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 F80	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 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 CB-F-1A-A	A55-AB1 A55-F80/1	310102 A55a A55b A55c A55d	A55g	CBA-FN-19 CBA-FN-20 EDE-PP-111A EDE-SWG-5	EDE-SWG-6 EDE-X-5C EDE-US-61		
8	EDE-SWG-5	4160 V Feed to 480 V Transformer EDE-X-5B for Substation Bus EDE-US-52	310007	A	310442	CB-F-1A-A	X	X	X	-	A63	EDE-A63-52 EDE-A63-FU EDE-CS-9703 EDE-A63-G,R,W EDE-SS-9703 EDE-A63-52H EDE-A63-86	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay	A63 A63 A63 A63 A63 A63	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	A63-AC1 A63-F80/1	310102 A63a A63b A63c A63d	A63g	CBA-FN-19 CBA-FN-20 EDE-PP-111A EDE-SWG-5	EDE-SWG-6 EDE-X-5D EDE-US-62		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.17-11
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE				
8	EDE-SWG-5 (Continued)											EDE-A63-TD2 EDE-A63-50/51 EDE-A63-CT EDE-A63-AM EDE-A63-AS EDE-A63-ATR EDE-A63-TD1 EDE-A63-51GS EDE-ZL-9703	Lockout Relay Test Device Inst/Time Overcurrent Relays øA, øB, øC Current Transformers (300/5) Ammeter Ammeter Switch Transducer CT Test Device Ground Sensor Relay Indicating Lights	A63 A63 A63 A63 A63 A63 A63 A63 A63 F80	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 CB-F-1A-A CB-F-1A-A CB-F-3A-A							
9	EDE-SWG-5	4160 V Feed to 480 V Transformer EDE-X-5E for Substation Bus EDE-US-53	310007	A	310442	CB-F-1A-A	X	X	X	-	A60	EDE-A60-52 EDE-A60-FU EDE-CS-9742 EDE-A60-G,R,W EDE-SS-9742 EDE-A60-52H EDE-A60-86 EDE-A60-TD2 EDE-A60-50/51 EDE-A60-CT EDE-A60-AM EDE-A60-AS EDE-A60-ATR EDE-A60-TD1 EDE-A60-51GS EDE-ZL-9742	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay Lockout Relay Test Device Inst/Time Overcurrent Relays øA, øB, øC Current Transformers (300/5) Ammeter Ammeter Switch Transducer CT Test Device Ground Sensor Relay Indicating Lights	A60 A60 A60 A60 A60 A60 A60 A60 A60 A60 A60 A60 A60 A60 A60 A60 F80	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 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 CB-F-1A-A CB-F-1A-A CB-F-3A-A	A60/AF1 A60/F80/1	310102 A60a A60b A60c A60d	A60g	CBA-FN-19 CBA-FN-20 EDE-PP-111A EDE-SWG-5	EDE-SWG-6 EDE-X-5F EDE-US-63		
10	EDE-US-51	480 V Bus 51 Unit Substation	310013	A	310442	CB-F-1A-A	X	X	X	-	AB2	EDE-AB2-52 EDE-X-5A EDE-AB3-FU EDE-AB1-LA EDE-AB2-CT EDE-AB3-AM EDE-AB3-AS	480 V AC Circuit Breaker 4160-480 V Distribution Transformer Fuses 6 KV Lightning Arrestors (3) Current Transformers (2000/5) Ammeter Ammeter Switch	AB2 AB1 AB3 AB1 AB2 AB3 AB3	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		310103 AB2a AB2b	AB2c	CBA-FN-19 CBA-FN-20 EDE-X-5A	EDE-US-61		
11	EDE-US-52	480 V Bus 52 Unit Substation	310013	A	310442	CB-F-1A-A	X	X	X	-	AC2	EDE-AC2-52 EDE-X-5B EDE-AC3-FU EDE-AC1-LA EDE-AC2-CT EDE-AC3-AM EDE-AC3-AS	480 V AC Circuit Breaker 4160-480 V Distribution Transformer Fuses 6 KV Lightning Arrestors (3) Current Transformers (2000/5) Ammeter Ammeter Switch	AC2 AC1 AC3 AC1 AC2 AC3 AC3	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		310103 AC2a AC2b	AC2c	CBA-FN-19 CBA-FN-20 EDE-X-5B	EDE-US-62		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 9 Table MCR 3.1.3.17-12
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
12	EDE-US-53	480 V Bus 53 Unit Substation	310051	A	310442	CB-F-1A-A	X	X	X	-	AF2	EDE-AF2-52 EDE-X-5E EDE-AF3-FU EDE-AF1-LA EDE-AF2-CT EDE-AF3-AM EDE-AF3-AS	480 V AC Circuit Breaker 4160-480 V Distribution Transformer Fuses 6 KV Lightning Arrestors (3) Current Transformers (2000/5) Ammeter Ammeter Switch	AF2 AF1 AF3 AF1 AF2 AF3 AF3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A		310103 AF2a AF2c	CBA-FN-19 CBA-FN-20 EDE-X-5E	EDE-US-63		
13	EDE-US-51	480 V Feed to 460 V Motor Control Center 512	310013	A	310442	CB-F-1A-A	X	X	X	-	AB6	EDE-AB6-52	480 V AC Circuit Breaker	AB6	CB-F-1A-A	AB6-B10 AB6-B10/1	310103 AB6 AB6	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-612		
14	EDE-US-51	480 V Feed to 460 V Motor Control Center 514	310013	A	310442	CB-F-1A-A	X	X	X	-	A94	EDE-A94-52	480 V AC Circuit Breaker	A94	CB-F-1A-A	A94-C11	310103 A94 A94	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-614		
15	EDE-US-51	480 V Feed to 460 V Motor Control Center 515	310013	A	310442	CB-F-1A-A	X	X	X	-	AX8	EDE-AX8-52	480 V AC Circuit Breaker	AX8	CB-F-1A-A	AX8-B4D AX8-B4D/1	310103 AX8 AX8	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-615		
16	EDE-US-52	480 V Feed to 460 V Motor Control Center 521	310013	A	310442	CB-F-1A-A	X	X	X	-	AC8	EDE-AC8-52	480 V AC Circuit Breaker	AC8	CB-F-1A-A	AC8-B13 AC8-B13/1	310103 AC8 AC8	CBA-FN-19 CBA-FN-20 EDE-US-52	EDE-US-62 EDE-MCC-621		
17	EDE-US-52	480 V Feed to 460 V Motor Control Center 522	310013	A	310442	CB-F-1A-A	X	X	X	-	AW9	EDE-AW9-52 EDE-CS-9787-2 EDE-SS-9787 EDE-AW9-52H EDE-AW9-FU EDE-CS-9787-1 EDE-AW9-G,R	480 V AC Circuit Breaker Control Switch with Indication Selector Switch Truck Operated Contact Fuses Control Switch with Indication Indicating Lights	AW9 G81 G81 AW9 AW9 F80 AW9	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A	AW9-D12 AW9-G81/1 AW9-G81 F80-G81	310103 Aw9a Aw9b Aw9c Aw9e	CBA-FN-19 CBA-FN-20 EDE-US-52	EDE-US-62 EDE-MCC-622		
17a	EDE-US-51	480 V Feed to 460 V Motor Control Center 511	310013	A	310442	CB-F-1A-A	X	X	X	-	AB5	EDE-AB5-52	480 V AC Circuit Breaker	AB5	CB-F-1A-A	AB5-B09 AB5-B09/1	310103 AB5 AB5	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-611		
18	EDE-US-52	480 V Feed to Motor Control Center 523	310013	A	310442	CB-F-1A-A	X	X	X	-	AF4	EDE-AF4-52	480 V AC Circuit Breaker	AF4	CB-F-1A-A	AF4-C99 AF4-C99/1	310103 AF4 AF4	CBA-FN-19 CBA-FN-20 EDE-US-52	EDE-US-63 EDE-MCC-631		
19	EDE-US-53	480 V Feed to Motor Control Center 531	310051	A	310442	CB-F-1A-A	X	X	X	-	AB8	EDE-AB8-52	480 V AC Circuit Breaker	AB8	CB-F-1A-A	AB8-B12 AB8-B12/1	310103 AB8 AB8	CBA-FN-19 CBA-FN-20 EDE-US-53	EDE-US-63 EDE-MCC-631		
20	EDE-US-51	Grounding Transformer	310012	A	310442	CB-F-1A-A	X	X	X	-	AB3	EDE-AB3-XFMR EDE-AB3-FU EDE-AB3-RES EDE-AB3-VM EDE-AB3-64	3-1ø KVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AB3 AB3 AB3 AB3 AB3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A		310103 AB3b -	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 GRD XFMR		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 9 Table MCR 3.1.3.17-13
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
21	EDE-US-52	Grounding Transformer	310013	A	310442	CB-F-1A-A	X	X	X	-	AC3	EDE-AC3-XFMR EDE-AC3-FU EDE-AC3-RES EDE-AC3-VM EDE-AC3-64	3-1ø KVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AC3 AC3 AC3 AC3 AC3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A		310103 AC3b	-	CBA-FN-19 CBA-FN-20 EDE-US-52	EDE-US-62 GRD XFMR	
22	EDE-US-53	Grounding Transformer	310051	A	310442	CB-F-1A-A	X	X	X	-	AF3	EDE-AF3-XFMR EDE-AF3-FU EDE-AF3-RES EDE-AF3-VM EDE-AF3-64	3-1ø KVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AF3 AF3 AF3 AF3 AF3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A		310103 AF3b	-	CBA-FN-19 CBA-FN-20 EDE-US-53	EDE-US-63 GRD XFMR	
23	EDE-I-1E	Uninterruptible Power Supply	310043	A	310442	CB-F-1A-A	X	X	X	-	HF5	EDE-DD3-52 EDE-DM7-72 EDE-HF5/2-52 EDE-HF5/1-72 EDE-HF5/3-52	460 V AC Circuit Breaker 125 V DC Circuit Breaker 460 V AC Inc. Line Circuit Breaker 125 V DC Inc. Line Circuit Breaker 120 V AC Output Circuit Breaker	DD3 DM7 HF5 HF5 HF5	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	DD3-HF5/1 DM7-HF5/1	310105 DD3a	DD3b	CBA-FN-19 CBA-FN-20 EDE-MCC-512 EDE-SWG-11A	EDE-I-1F	
23A	EDE-CP-1E	Static Transfer Switch	310043	A	310442	CB-F-1A-A	X	X	X	-	E1Y	EDE-E1Y-F1	300 A, 600 V Fuse	E1Y	CB-F-1A-A	E1Y-HF5 E1Y-HF5/1	310105 DD3a	DD3b	EDE-I-1E CBA-FN-19 CBA-FN-20	EDE-CP-1F	
24	EDE-PP-1E	Vital Instrument Bus	310043	A	310442	CB-F-1A-A	X	X	X	-	EH9	EDE-EH9/NC-52	120 V AC Circuit Breaker - Inc. Feed from EDE-CP-1E (Norm. Closed)	EH9	CB-F-1A-A	EH9-E1Y	310105 DD3a EH9a	DD3b	CBA-FN-19 CBA-FN-20 EDE-CP-1E	EDE-PP-1F	
25	EDE-PP-11E	Vital Instrument Bus	310043	A	310442	CB-F-1A-A	X	X	X	-	E1S	EDE-EH9/13-52	120 V AC Circuit Breaker	EH9	CB-F-1A-A	E1S-EH9	310105 DD3a E1Sa	DD3b	CBA-FN-19 CBA-FN-20 EDE-PP-1E	EDE-PP-11F	
26	ED-X-14J	480-120/240 V Transformer	310026	A	310691	ET-F-1A-A	X	X	X	-	EG4	ED-BOM-52	460 V AC Circuit Breaker	BOM	CB-F-1A-A	BOM-EG4	310104 BOM		CBA-FN-19 CBA-FN-20 EDE-MCC-531 CAH-FN-1C CAH-FN-1E CAH-FN-1F	ED-X-16A	
27	ED-PP-8J	120/240 V Distribution Panel	310026	A	310691	ET-F-1A-A	X	X	X	-	E9L	ED-X-14J ED-E9L-52	Transformer 250 V AC Circuit Breaker (Main)	EG4 E9L	ET-F-1A-A ET-F-1A-A	EG4-E9L	310104 BOM E9La	310106	CAH-FN-1C CAH-FN-1E CAH-FN-1F ED-X-14J	ED-PP-8B	
28	Deleted																				
29	EDE-BC-1A	125 V DC Battery Charger	310042	A	310442	CB-F-1A-A	X	X	X	-	HR5	EDE-DB1-52 EDE-DB1-42 EDE-DB1-42X DG-HR2-HR9(K20) EDE-HR5/1-52 EDE-DB1-FU	460 V AC Circuit Breaker Contactor Auxiliary Relay EPS Relay 460 V AC Circuit Breaker - Incoming Feed Fuse	DB1 DB1 DB1 HR2 HR5 DB1	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	DB1-HR2 DB1-HR5	310107 DB1a DB1b DB1c	DB1f	CBA-FN-19 CBA-FN-20 EDE-MCC-512	EDE-BC-1B	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.17-14
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE				
30	EDE-B-1A	125 V DC Battery	310042	A	310442	CB-F-1D-A	X	X	X	-	HV4	EDE-J75-FU-1,2,3,4 EDE-J75-SH EDE-J75-ATR	1600A Fuses 1000A, 100 MV Shunt Transducer	J75 J75 J75	CB-F-1A-A CB-F-1A-A CB-F-1A-A	HV4-J75 HV4-J75/1	310107 DB1a DB1b DB1c	DB1f	CBA-FN-19 CBA-FN-20 CBA-FN-21A EDE-BC-1A EDE-SWG-11A	EDE-B-1B		
31	EDE-SWG-11A	125 V DC Switchboard Auxiliary Buses 120 V AC and 125 V DC	310042	A	310442	CB-F-1A-A	X	X	X	-	DM1	EDE-HR5/2-72 EDE-DL4-72 EDE-DM2-72 EDE-DM3-72 EDE-DM1-FU-1&2 EDE-DM1-27BL EDE-DM1-27BLL EDE-DM1-VM EDE-DM1-VTR EDE-DM1-DIO EDE-DM1-XS EDE-DM1-AMY EDE-EH9/5-52 EDE-DM1-62BL EDE-DM1-62BLL EDE-DM2-72 EDE-DM2-72STC EDE-J75-ATR EDE-DM1-52 EDE-DM1-FU	125 V DC Circuit Breaker 125 V DC Circuit Breaker 125 V DC Circuit Breaker 125 V DC Circuit Breaker 125 V DC 15A Fuses Undervoltage Relay Undervoltage Relay DC Voltmeter Voltage Transducer Diodes Selector Switch Ammeter Relay 120 V AC Circuit Breaker Timing Relay Timing Relay Breaker Operated Contact Circuit Breaker Shut Trip Coil Current Transducer 120 V AC Inc. Feed Circuit Breaker 120 V AC 15A and 1A Fuses	HR5 DL4 DM2 DM3 DM1 DM1 DM1 DM1 DM1 DM1 DM1 DM1 DM1 EH9 DM1 DM1 DM2 DM2 J75 DM1 DM1	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 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 CB-F-1A-A CB-F-							

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-15
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
36	EDE-US-51	480 V Unit Substation 125 V DC Control Bus		A	310442	CB-F-1A-A	X	X	X	-	AB3	EDE-E93/2-72 EDE-AB3-8	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	E93 AB3	CB-F-1A-A CB-F-1A-A	AB3-E93	310107 E93a E93b 310103 5m		CBA-FN-19 CBA-FN-20 EDE-PP-111A	EDE-US-61	
37	EDE-US-52	480 V Unit Substation 125 V DC Control Bus		A	310442	CB-F-1A-A	X	X	X	-	AC3	EDE-E93/3-72 EDE-AC3-8	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	E93 AC3	CB-F-1A-A CB-F-1A-A	AC3-E93	310107 E93a E93b 310103 5n		CBA-FN-19 CBA-FN-20 EDE-PP-111A	EDE-US-62	
38	EDE-US-53	480 V Unit Substation 125 V DC Control Bus		A	310442	CB-F-1A-A	X	X	X	-	AF3	EDE-E93/4-72 EDE-AF3-8	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	E93 AF3	CB-F-1A-A CB-F-1A-A	AF3-E93	310107 E93a E93b 310103 5o		CBA-FN-19 CBA-FN-20 EDE-PP-111A	EDE-US-63	
39	DG-CP-75A	Diesel Generator 1A Control Panel Cubicle 3 125 V DC Supply	310010 310042	A	310524	DG-F-2A-A	X	X	X	-	G10	EDE-DM9-72 DG-G10-72	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	DM9 G10	CB-F-1A-A DG-F-2A-A	DM9-G10	310102 DM9a DM9b 310107 DB1a		DAH-FN-25A DAH-FN-26A EDE-SWG-11A CBA-FN-19 CBA-FN-20	DG-CP-76A	
40	ED-US-11	480 V Unit Substation 125 V DC Control Bus	310002 310011	A	310442	CB-F-1A-A	X	X	X	-	AG3	EDE-E97/13-72 EDE-AG3-72	125 V DC Circuit Breaker (Main) 125 V DC Circuit Breaker	E97 AG3	NES-F-1A-Z CB-F-1A-A	AG3-E97	310107 E97a E97b 310103 5a		EDE-AG1-X-4A CBA-FN-19 CBA-FN-20	ED-US-23	
41	ED-US-23	480 V Unit Substation 125 V DC Control Bus	310002 310011	B	310442	CB-F-1A-A	X	X	X	-	AM3	EDE-E97/14-72 EDE-AM3-72	125 V DC Circuit Breaker 125 V DC Circuit Breaker	E97 AM3	NES-F-1A-Z CB-F-1A-A	AM3-E97	310107 E97a E97b 310103 5h		EDE-AM1-X-4F CBA-FN-19 CBA-FN-20	ED-US-11	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-17
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
42	EDE-SWG-6 (Continued)											ED-GA0-TD-2	Lockout Relay Test Device (86SB/2/1X-1)	GA0	TB-F-1C-Z						
												ED-GA6-TD-2	Lockout Relay Test Device (86-2/2/B3)	GA6	TB-F-1C-Z						
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2A)	GA8	TB-F-1C-Z						
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2B)	GA8	TB-F-1C-Z						
												ED-GA9-TD-2	Lockout Relay Test Device (86BF-2/2/52/TG1)	GA9	TB-F-1C-Z						
												ED-GA9-TD-2	Lockout Relay Test Device (86GT/2/TG-1)	GA9	TB-F-1C-Z						
												ED-GB0-TD-2	Lockout Relay Test Device (86-1/2/B3)	GB0	TB-F-1C-Z						
												ED-GB3-TD-2	Lockout Relay Test Device (86BF-2/2H)	GB3	TB-F-1C-Z						
												ED-GB4-TD-2	Lockout Relay Test Device (86BF-2/2E)	GB4	TB-F-1C-Z						
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2A)	GC2	TB-F-1C-Z						
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2B)	GC2	TB-F-1C-Z						
												ED-GC3-TD-2	Lockout Relay Test Device (86BF-1/2/52/TG1)	GC3	TB-F-1C-Z						
												ED-GC4-TD-2	Lockout Relay Test Device (86SP/2/1X-1)	GC4	TB-F-1C-Z						
												ED-GC6-TD-2	Lockout Relay Test Device (86BF-1/2H)	GC6	TB-F-1C-Z						
												ED-GC7-TD-2	Lockout Relay Test Device (86BF-1/2E)	GC7	TB-F-1C-Z						
												EDE-A71-51	Time Overcurrent Relays 0A, 0B, 0C	A71	CB-F-1B-A						
												EDE-A71-51GS	Ground Sensor Relay	A71	CB-F-1B-A						
												EDE-SNS-9737-1	Synchronizing Switch	F81	CB-F-3A-A						
												EDE-CS-9719-1	Control Switch with Indicating Lights	F81	CB-F-3A-A						
												DG-HR4-RM0	EPS Auxiliary Relay	HR4	CB-F-1B-A						
												EDE-CS-9717-1	Control Switch	F81	CB-F-3A-A						
												EDE-A7A-52S	Mechanically Operated Contact	A7A	CB-F-1B-A						
43	EDE-SWG-6	Grounding Transformer	310008	B	310442	CB-F-1B-A	X	X	X	-	A87	EDE-A87-XFMR	3-1ø 15 KVA Transformers	A87	CB-F-1B-A		310102		CBA-FN-32 CBA-FN-33 EDE-SWG-6	EDE-SWG-5 GRD XFMR	
												EDE-A87-FU	3-10A Fuses	A87	CB-F-1B-A		A87a				
												EDE-A87-52	120 V AC Circuit Breaker	A87	CB-F-1B-A						
												EDE-A87-RES	Grounding Resistor	A87	CB-F-1B-A						
												EDE-A87-64	Ground Relay	A87	CB-F-1B-A						
												EDE-A87-TD-3	VM Test Device	A87	CB-F-1B-A						
												EDE-A87-VM	(3) Ground Voltmeters	A87	CB-F-1B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-19
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
44	EDE-SWG-6 (Continued)											EDE-A72-62 EDE-A72-3 EDE-A72-TD-2 EDE-A72-TD-4 EDE-SNS-9737-1 EDE-CS-9717-1 EDE-A73-62BX EDE-A73-25R EDE-A73-27RB-1 EDE-A73-27RB-2 EDE-A72-62X ED-86RB/2/1X-3A ED-86-2/2/B2 ED-86-1/2/B2 ED-86RP/2/1X-3A ED-86RP/2/1X-3B ED-86RB/2/1X-3B ED-GA7-TD-2 ED-GB7-TD-2 ED-GC0-TD-2 ED-GC1-TD-2 ED-GE6-TD-2 ED-GE7-TD-2 EDE-A72-51 EDE-A72-51GS EDE-A7A-52S	Time Delay Relay Interposing Relay for SWYD Lockout Relays Lockout Relay Test Device (A72-86) Interposing Relay Test Device (A72-3) Synchronizing Switch Control Switch with Indicating Light Auxiliary Latch Relay Synchronizing Check Relay Residual Undervoltage Relay Residual Undervoltage Relay Auxiliary Relay Lockout Relay Lockout Relay Lockout Relay Lockout Relay Lockout Relay Lockout Relay Test Device (86RB/2/1X-3A) Lockout Relay Test Device (86-2/2/B2) Lockout Relay Test Device (86-1/2/B2) Lockout Relay Test Device (86RP/2/1X-3A) Lockout Relay Test Device (86RP/2/1X-3B) Lockout Relay Test Device (86RB/2/1X-3B) Time Overcurrent Relays 0A, 0B, 0C Ground Sensor Relay Mechanically Operated Contact	A72 A71 A72 A72 F81 F81 A73 A73 A73 A73 A72 GA7 GB7 GC0 GC1 GE6 GE7 GA7 GB7 GC0 GC1 GE6 GE7 A72 A72 A7A	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-3A-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 TB-F-1C-Z TB-F						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.17-20
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
45	EDE-SWG-6 (Continued)											EDE-A73-25U	Synchronizing Check Relay	A73	CB-F-1B-A						
												EDE-A73-25R	Synchronizing Check Relay	A73	CB-F-1B-A						
												EDE-A74-52S	Mechanically Operated Contact	A74	CB-F-1B-A						
												EDE-A73-27B-1	Instantaneous Undervoltage Relay	A73	CB-F-1B-A						
												EDE-A73-27B-2	Instantaneous Undervoltage Relay	A73	CB-F-1B-A						
												EDE-A73-TS-3	UV Relays Test Switch Instantaneous	A73	CB-F-1B-A						
												EDE-A73-27D-1	Undervoltage Relay	A73	CB-F-1B-A						
												EDE-A73-27D-1-RES	Resistor	A73	CB-F-1B-A						
												EDE-A73-27D-2	Instantaneous Undervoltage Relay	A73	CB-F-1B-A						
												EDE-A73-27D-2-RES	Resistor	A73	CB-F-1B-A						
												EDE-A73-TS-1	UV Relays Test Switch Residual Undervoltage Relay	A73	CB-F-1B-A						
												EDE-A72-27RB-1,2	Time Delay Relay	A72	CB-F-1B-A						
												EDE-A73-62B	Resistor	A73	CB-F-1B-A						
												EDE-A73-62B-RES	Resistor	A73	CB-F-1B-A						
												EDE-A73-TS-4	Test Switch EDE-62B	A73	CB-F-1B-A						
												EDE-A73-62BX-1	Auxiliary Relay	A73	CB-F-1B-A						
												EDE-A73-62BX	Auxiliary Latch Relay	A73	CB-F-1B-A						
												EDE-A71-52S	Mechanically Operated Contact	A71	CB-F-1B-A						
												EDE-AW3-94-5	Undervoltage Tripping Relay	AW3	CB-F-1B-A						
												EDE-A72-27/59X1	Under/Over Voltage Auxiliary Relay	A72	CB-F-1B-A						
												EDE-AF8-94-4	Undervoltage Tripping Relay	AF8	CB-F-1B-A						
												DG-HR4-RM0	EPS Auxiliary Relay	HR4	CB-F-1B-A						
												EDE-A73-94-1A	Undervoltage Tripping Relay	A73	CB-F-1B-A						
												EDE-A73-94-1B	Undervoltage Tripping Relay	A73	CB-F-1B-A						
												EDE-A73-94-2	Undervoltage Tripping Relay	A73	CB-F-1B-A						
												EDE-AE3-94-3	Undervoltage Tripping Relay	AE3	CB-F-1B-A						
												EDE-EE6-94-6	Tripping Relay	EE6	CB-F-1B-A						
												EDE-A73-FU	10A Fuses	A73	CB-F-1B-A						
												EDE-A73-62D	Time Delay Relay	A73	CB-F-1B-A						
												EDE-A73-62D-RES	Resistor	A73	CB-F-1B-A						
												EDE-A73-TS-2	Test Switch Relay 62D	A73	CB-F-1B-A						
												EDE-A73-62DX	Auxiliary Relay	A73	CB-F-1B-A						
												EDE-SNS-9737-1	Synchronizing Switch	F81	CB-F-3A-A						
												EDE-A73-FU	3A Fuse	A73	CB-F-1B-A						
												EDE-FB0-K609B	SI Sig. Act. Auxiliary Relay	FB0	CB-F-3A-A						
												EDE-A7A-52S	Mechanically Operated Contact	A7A	CB-F-1B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability													Revision 9 Table MCR 3.1.3.17-24
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
47	DG-CP-76A (Continued)											EDE-ZL-9711 EDE-VM-9711-1 EDE-VM-9711-2 EDE-SYN-9746 EDE-ZL-9746 EDE-VM-9746-1 EDE-VM-9746-2	Synchronizing Lights Synchronizing Voltmeter Incoming Synchronizing Voltmeter Running Synchroscope Synchronizing Lights Voltmeter Voltmeter	G18 G18 G18 F81 F81 F81 F81	DG-F-2B-A DG-F-2B-A DG-F-2B-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A						
48	EDE-SWG-6	4160 V Feed to 480 V Transformer EDE-X-5C for Substation Bus EDE-US-61	310008	B	310442	CB-F-1B-A	X	X	X	-	A75	EDE-A75-52 EDE-A75-FU EDE-CS-9716 EDE-A75-G,R,W EDE-SS-9716 EDE-A75-52H EDE-A75-86 EDE-A75-TD-2 EDE-A75-50/51 EDE-A75-CT EDE-A75-AM EDE-A75-AS EDE-A75-ATR EDE-A75-TD-1 EDE-A75-51GS EDE-ZL-9716	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay Lockout Relay Test Device Inst/Time Overcurrent Relays 0A, 0B, 0C Current Transformers (300/5) Ammeter Ammeter Switch Transducer CT Test Device Ground Sensor Relay Indicating Lights	A75 A75 A75 A75 A75 A75 A75 A75 A75 A75 A75 A75 A75 A75 F81	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 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 CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A	A75-AD1 A75-F81/1	310102 A75a A75b A75c A75d	A75g	CBA-FN-32 CBA-FN-33 EDE-PP-111B EDE-SWG-6	EDE-SWG-5 EDE-X-5A EDE-US-51	
49	EDE-SWG-6	4160 V Feed to 480 V Transformer EDE-X-5D for Substation Bus EDE-US-62	310008	B	310442	CB-F-1B-A	X	X	X	-	A83	EDE-A83-52 EDE-A83-FU EDE-CS-9713 EDE-A83-G,R,W EDE-SS-9713 EDE-A83-52H EDE-A83-86 EDE-A83-TD-2 EDE-A83-50/51 EDE-A83-CT EDE-A83-AM EDE-A83-AS EDE-A83-ATR EDE-A83-TD-1 EDE-A83-51GS EDE-ZL-9713	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay Lockout Relay Test Device Inst/Time Overcurrent Relays 0A, 0B, 0C Current Transformers (300/5) Ammeter Ammeter Switch Transducer CT Test Device Ground Sensor Relay Indicating Lights	A83 A83 A83 A83 A83 A83 A83 A83 A83 A83 A83 A83 A83 A83 A83 F81	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 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 CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A	A83-AE1 A83-F81/1	310102 A83a A83b A83c A83d	A83g	CBA-FN-32 CBA-FN-33 EDE-PP-111B EDE-SWG-6	EDE-SWG-5 EDE-X-5B EDE-US-52	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.17-25
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
50	EDE-SWG-6	4160 V Feed to 480 V Transformer EDE-X-5F for Substation Bus EDE-US-63	310008	B	310442	CB-F-1B-A	X	X	X	-	A90	EDE-A90-52 EDE-A90-FU EDE-CS-9743 EDE-A90-G,R,W EDE-SS-9743 EDE-A90-52H EDE-A90-86 EDE-A90-TD2 EDE-A90-50/51 EDE-A90-CT EDE-A90-AM EDE-A90-AS EDE-A90-ATR EDE-A90-TD1 EDE-A90-51GS EDE-ZL-9743	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay Lockout Relay Test Device Inst/Time Overcurrent Relays 0A, 0B, 0C Current Transformers (300/5) Ammeter Ammeter Switch Transducer CT Test Device Ground Sensor Relay Indicating Lights	A90 A90							

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.17-26
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
55	EDE-US-61	480 V Feed to 460 V Motor Control Center 614	310014	B	310442	CB-F-1B-A	X	X	X	-	AA4	EDE-AA4-52	480 V AC Circuit Breaker	AA4	CB-F-1B-A	AA4-BF0	310103 AA4	AA4	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 EDE-MCC-514	
56	EDE-US-61	480 V Feed to 460 V Motor Control Center 615	310014	B	310442	CB-F-1B-A	X	X	X	-	AX9	EDE-AX9-52	480 V AC Circuit Breaker	AX9	CB-F-1B-A	AX9-B4E AX9-B4E/1	310103 AX9	AX9	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 EDE-MCC-515	
57	EDE-US-62	480 V Feed to 460 V Motor Control Center 621	310014	B	310442	CB-F-1B-A	X	X	X	-	AE8	EDE-AE8-52	480 V AC Circuit Breaker	AE8	CB-F-1B-A	AE8-B19 AE8-B19/1	310103 AE8	AE8	CBA-FN-32 CBA-FN-33 EDE-US-62	EDE-US-51 EDE-MCC-521	
58	EDE-US-62	480 V Feed to 460 V Motor Control Center 622	310014	B	310442	CB-F-1B-A	X	X	X	-	AW0	EDE-AW0-52 EDE-CS-9788-2 EDE-SS-9788 EDE-AW0-52H EDE-AW0-FU EDE-CS-9788-1 EDE-AW0-R,G	480 V AC Circuit Breaker Control Switch with Indication Selector Switch Truck Operated Contact Fuses Control Switch with Indication Indicating Lights	AW0 GZ0 GZ0 AW0 AW0 F81 AW0	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A	AW0-D13 AW0-GZ0 AW0-GZ0/1 F81-GZ0	310103 AW0a AW0b AW0c AW0e	CBA-FN-32 CBA-FN-33 EDE-US-62	EDE-US-51 EDE-MCC-522		
59	EDE-US-63	480 V Feed to 460 V Motor Control Center 631	310052	B	310442	CB-F-1B-A	X	X	X	-	AD8	EDE-AD8-52	480 V AC Circuit Breaker	AD8	CB-F-1B-A	AD8-D18 AD8-B18/1	310103 AD8	AD8	CBA-FN-32 CBA-FN-33 EDE-US-63	EDE-US-53 EDE-MCC-531	
60	EDE-US-61	Grounding Transformer	310014	B	310442	CB-F-1B-A	X	X	X	-	AD3	EDE-AD3-XFMR EDE-AD3-FU EDE-AD3-RES EDE-AD3-VM EDE-AD3-64	3-1ø 1 KVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AD3 AD3 AD3 AD3 AD3	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	-	310103 AD3b	-	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 GRD XFMR	
61	EDE-US-62	Grounding Transformer	310014	B	310442	CB-F-1B-A	X	X	X	-	AE3	EDE-AE3-XFMR EDE-AE3-FU EDE-AE3-RES EDE-AE3-VM EDE-AE3-64	3-1ø 1 KVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AE3 AE3 AE3 AE3 AE3	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	-	310103 AE3b	-	CBA-FN-32 CBA-FN-33 EDE-US-62	EDE-US-52 GRD XFMR	
61a	EDE-US-61	480 V Feed to 460 V Motor Control Center 611	310014	B	310442	CB-F-1B-A	X	X	X	-	AD5	EDE-AD5-52	480 V AC Circuit Breaker	AD5	CB-F-1B-A	AD5-B15 AD5-B15/1	310103 AD5	AD5	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 EDE-MCC-511	
62	EDE-US-63	Grounding Transformer	310052	B	310442	CB-F-1B-A	X	X	X	-	AF8	EDE-AF8-XFMR EDE-AF8-FU EDE-AF8-RES EDE-AF8-VM EDE-AF8-64	3-1ø 1 KVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AF8 AF8 AF8 AF8 AF8	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	-	310103 AF8b	-	CBA-FN-32 CBA-FN-33 EDE-US-63	EDE-US-53 GRD XFMR	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.17-27
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
63	EDE-I-1F	Uninterruptible Power Supply	310043	B	310442	CB-F-1B-A	X	X	X	-	HF6	EDE-DD5-52 EDE-DN0-72 EDE-HF6/2-52 EDE-HF6/1-72 EDE-HF6/3-52	460 V AC Circuit Breaker 125 V DC Circuit Breaker 460 V AC Inc. Line Circuit Breaker 125 V DC Inc. Line Circuit Breaker 120 V AC Output Circuit Breaker	DD5 DN0 HF6 HF6 HF6	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	DD5-HF6/1 DN0-HF6/1	310105 DD5a DD5b		CBA-FN-32 CBA-FN-33 EDE-MCC-612 EDE-SWG-11B	EDE-I-1E	
63A	EDE-CP-1F	Static Transfer Switch	310043	B	310442	CB-F-1B-A	X	X	X	-	E2B	EDE-E2B-F1	300A, 600 V Fuse	E2B	CB-F-1B-A	E2B-HF6 E2B-HF6/1	DD5a 310105 DD5b		EDE-I-1F CBA-FN-32 CBA-FN-33	EDE-CP-1E	
64	EDE-PP-1F	Vital Instrument Bus	310043	B	310442	CB-F-1B-A	X	X	X	-	EH0	EDE-EH0/NC-52	120 V AC Circuit Breaker - Inc. Line from EDE-CP-1F (Norm. Closed)	EH0	CB-F-1B-A	EH0-E2B	DD5a 310105 EH0a DD5b		CBA-FN-32 CBA-FN-33 EDE-CP-1F	EDE-PP-1E	
65	EDE-PP-11F	Vital Instrument Bus	310043	B	310442	CB-F-1B-A	X	X	X	-	E1T	EDE-EH0/13-52	120 V AC Circuit Breaker	EH0	CB-F-1B-A	E1T-EH0	DD5a 310105 E1Ta DD5b		CBA-FN-32 CBA-FN-33 EDE-PP-1F	EDE-PP-11E	
66	ED-X-16A	480-120/240 V Containment Lighting Transformer	310032	B	310576	C-F-1-Z	X	X	X	-	EX6	EDE-D05-52-1 EDE-D05-52-2 EDE-MM-96	460 V AC Circuit Breaker 460 V AC Circuit Breaker Electrical Penetration	D05 D05 H20	CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	D05-H20 EX6-H20	DD5a 310104 D05b		CBA-FN-32 CBA-FN-33 EDE-MCC-631 CAH-FN-1A CAH-FN-1B CAH-FN-1D	ED-X-14J	
67	ED-PP-8B	120/240 V Distribution Panel	310032	B	310582	C-F-1-Z	X	X	X	-	EM0	ED-X-16A ED-EM0-52 ED-JX3-42 ED-ER1-52 EDE-MM-584 EDE-MM-117	Containment Lighting Transformer 250 V AC Circuit Breaker (Main) Lighting Contactor Lighting Panel 250 v AC Circuit Breaker (Main) Fuse Panel Electrical Penetration	EX6 EM0 JX3 ER1 E4G H41	C-F-1-Z C-F-1-Z C-F-2-Z C-F-2-Z ET-F-1C-A C-F-1-Z, ET-F-1C-A	EM0-EX6 ER1-JX3 EX6-JX3 E4G-H41 H41-JX3	DD5a 310104 DD5b 310106 EM0a		CAH-FN-1A CAH-FN-1B CAH-FN-1D ED-X-16A	ED-PP-8J	
68	EDE-BC-1B	125 V DC Battery Charger	310042	B	310442	CB-F-1B-A	X	X	X	-	HR6	EDE-DA1-52 EDE-DA1-42 EDE-DA1-42X DG-HR4-HR9(K20) EDE-HR6/1-52 EDE-DA1-FU	460 V AC Circuit Breaker Contactor Auxiliary Relay EPS Relay 460 V AC Circuit Breaker - Incoming Feed Fuse	DA1 DA1 DA1 HR4 HR6 DA1	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	DA1-HR4 DA1-HR6	DA1a 310107 DA1b DA1c DA1f		CBA-FN-32 CBA-FN-33 EDE-MCC-E612	EDE-BC-1A	
69	EDE-B-1B	125 V DC Battery	310042	B	310442	CB-F-1F-A	X	X	X	-	HV5	EDE-J76-FU-1,2,3,4 EDE-J76-SH EDE-J76-ATR	1600A Fuses 1000A, 100 MV Shunt Transducer	J76 J76 J76	CB-F-1B-A CB-F-1B-A CB-F-1B-A	HV5-J76 HV5-J76/1	DA1a 310107 DA1b DA1c DA1f		CBA-FN-32 CBA-FN-33 CBA-FN-21B EDE-BC-1B EDE-SWG-11B	EDE-B-1A	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 9 Table MCR 3.1.3.17-29
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
76	EDE-US-62	480 V Unit Substation 125 V DC Control Bus		B	310442	CB-F-1B-A	X	X	X	-	AE3	EDE-E94/3-72 EDE-AE3-8	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	E94 AE3	CB-F-1B-A CB-F-1B-A	AE3-E94	310107 E94a E94b 310103 5r	CBA-FN-32 CBA-FN-33 EDE-PP-111B	EDE-US-52		
77	EDE-US-63	480 V Unit Substation 125 V DC Control Bus		B	310442	CB-F-1B-A	X	X	X	-	AF8	EDE-E94/4-72 EDE-AF8-8	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	E94 AF8	CB-F-1B-A CB-F-1B-A	AF8-E94	310107 E94a E94b 310103 5s	CBA-FN-32 CBA-FN-33 EDE-PP-111B	EDE-US-53		
78	DG-CP-76A	Diesel Generator 1B Control Panel Cubicle 3 125 V DC Supply	310010 310042	B	310524	DG-F-2B-A	X	X	X	-	G20	EDE-DP1-72 DG-G20-72	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	DP1 G20	CB-F-1B-A DG-F-2B-A	DP1-G20	310102 DP1a DP1b 310107 DA1a	DAH-FN-25B DAH-FN-26B EDE-SWG-11B CBA-FN-32 CBA-FN-33	DG-CP-75A		
79	DG-CP-80	Emergency Power Sequencer	310008	B	310442	CB-F-1B-A	X	X	X	-	HR3	ED-X-2B ED-X-3B EDE-SWG-6 EDE-SGW-6 MM-CP-13	Bus E6 UAT Transformer Bus E6 RAT Transformer UAT Potential Transformer Bus E6 DG-1B Prot. Cabinet Main Control Board	A71 A72 A73 A74 FB0 F81	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-3A-A	F81-HR3/3 FB0-HR3 A71-HR3 A72-HR3 A73-HR3 A74-HR3	310108 FP31417 E94/5a FP31418 E94/5b FP31429		DG-CP-79		
80	DG-CP-79	Emergency Power Sequencer	310007	A	310442	CB-F-1A-A	X	X	X	-	HR1	ED-X-2A ED-X-3A EDE-SWG-5 EDE-SGW-5 MM-CP-12	Bus E5 UAT Transformer Bus E5 RAT Transformer UAT Potential Transformer Bus E5 DG-1A Prot. Cabinet Main Control Board	A51 A52 A53 A54 FB7 F80	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A	F80-HR1 FB7-HR1 A51-HR1 A52-HR1 A53-HR1 A54-HR1	310108 FP31417 E93/5a FP31418 E93/5b FP31429		DG-CP-80		
81	EDE-I-1A	Uninterruptible Power Supply	310043	A	310435	CB-F-1A-A	X	X	X	-	HE1	EDE-D27-52 EDE-DM6-72 EDE-HE1/2-52 EDE-HE1/1-72 EDE-HE1/3-52	460 V AC Circuit Breaker 125 V DC Circuit Breaker 460 V AC Inc. Line Circuit Breaker 125 V DC Inc. Line Circuit Breaker 120 V AC Output Circuit Breaker	D27 DM6 HE1 HE1 HE1	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	D27-HE1 DM6-HE1	310105 D27a D27b FP50513 to FP50517	CBA-FN-19 CBA-FN-20 EDE-SWG-11A	EDE-I-1B		
82	EDE-PP-1A	Vital Instrument Bus	310043	A	310435	CB-F-1A-A	X	X	X	-	E01	EDE-E01-52	120 V AC Circuit Breaker	E01	CB-F-1A-A	E01-HE1	310105 D27a E01a D27b	CBA-FN-19 CBA-FN-20 EDE-I-1A	EDE-PP-1B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.17-30
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
83	EDE-I-1B	Uninterruptible Power Supply	310043	B	310435	CB-F-1B-A	X	X	X	-	HE2	EDE-D26-52 EDE-DN8-72 EDE-HE2/2-52 EDE-HE2/1-72 EDE-HE2/3-52	460 V AC Circuit Breaker 125 V DC Circuit Breaker 460 V AC Inc. Line Circuit Breaker 125 V DC Inc. Line Circuit Breaker 120 V AC Output Circuit Breaker	D26 DN8 HE2 HE2 HE2	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	D26-HE2 DN8-HE2	310105 D26a FP50513 to FP50517 D26b	CBA-FN-32 CBA-FN-33 EDE-SWG-11B	EDE-I-1A		
84	EDE-PP-1B	Vital Instrument Bus	310043	B	310435	CB-F-1B-A	X	X	X	-	E02	EDE-E02-52	120 V AC Circuit Breaker	E02	CB-F-1B-A	E02-HE2	310105 D26a E02a D26b	CBA-FN-32 CBA-FN-33 EDE-I-1B	EDE-PP-1A		
85	EDE-I-1C	Uninterruptible Power Supply	310043	A	310442	CB-F-1A-A	X	X	X		HE3	EDE-D30-52 EDE-DP9-72 EDE-HE3/2-52 EDE-HE3/1-72 EDE-HE3/3-52	460 V AC Circuit Breaker 125 V DC Circuit Breaker 460 V AC Inc. Line Circuit Breaker 125 V DC Inc. Line Circuit Breaker 120 V AC Output Circuit Breaker	D30 DP9 HE3 HE3 HE3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	D30-HE3 DP9-HE3	310105 D30a FP50513 to FP50517 D30b	CBA-FN-19 CBA-FN-20 EDE-SWG-11c	EDE-I-1D		
86	EDE-PP-1C	Vital Instrument Bus	310043	C	310442	CB-F-1A-A	X	X	X		E03	EDE-E03-52	120 V AC Circuit Breaker	E03	CB-F-1A-A	E03-HE3	310105 D30a E03a D30b	CBA-FN-19 CBA-FN-20 EDE-I-1c	EDE-PP-1D		
87	EDE-I-1D	Uninterruptible Power Supply	310043	B	310435	CB-F-1B-A	X	X	X		HE4	EDE-D23-52 EDE-DR1-72 EDE-HE4/2-52 EDE-HE4/1-72 EDE-HE4/3-52	460 V AC Circuit Breaker 125 V DC Circuit Breaker 460 V AC Inc. Line Circuit Breaker 125 V DC Inc. Line Circuit Breaker 120 V AC Output Circuit Breaker	D23 DR1 HE4 HE4 HE4	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	D23-HE4 DR1-HE4	310105 D23a FP50513 to FP50517 D23b	CBA-FN-32 CBA-FN-33 EDE-SWG-11D	EDE-I-1C		
88	EDE-PP-1D	Vital Instrument Bus	310043	D	310435	CB-F-1B-A	X	X	X		E04	EDE-E04-52	120 V AC Circuit Breaker	E04	CB-F-1B-A	E04-HE4	310105 D23a E04a D23b	CBA-FN-32 CBA-FN-33 EDE-I-1D	EDE-PP-1C		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.17-31
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
89	EDE-SWG-11C	125 V DC Switchboard Auxiliary Buses 120 V AC and 125 V DC	310042	A	310442	CB-F-1A-A	X	X	X	-	DP5	EDE-HR7/2-72 EDE-DL6-72 EDE-DP6-72 EDE-DP7-72 EDE-DP8-72 EDE-DP5-FU-1,2 EDE-DP5-27BL EDE-DP5-VM EDE-DP5-VTR EDE-DP5-DIO EDE-DP5-XS EDE-DP5-AMY EDE-EH9/6-52 EDE-DP5-27BLL EDE-DP5-62BL EDE-DP5-62BLL EDE-DP6-72 EDE-DP6-72STC EDE-J77-ATR EDE-DP5-52 EDE-DP5-FU	125 V DC Circuit Breaker 125 V DC Circuit Breaker 125 V DC Circuit Breaker 125 V DC Circuit Breaker 125 V DC Circuit Breaker Fuses Undervoltage Relay DC Voltmeter Voltage Transducer Diodes Selector Switch Ammeter Relay 120 V AC Circuit Breaker Undervoltage Relay Timing Relay Timing Relay Breaker Operated Contact Circuit Breaker Shunt Trip Coil Current Transducer 120 V AC Inc. Feed Circuit Breaker 120 V AC 15A and 1A Fuses	HR7 DL6 DP6 DP7 DP8 DP5 DP5 DP5 DP5 DP5 DP5 DP5 DP5 DP5 DP5 DP6 DP6 J77 DP5 DP5	CB-F-1A-A CB-F-1A-A	DP7-377 DP7-377/1 DP6-HR7 G1Y-377 DP5-377/1 DP5-EH9	310107 D88a D88c 5c 310105 EH9a EH9b	D88f	CBA-FN-19 CBA-FN-20 EDE-BC-1C EDE-B-1C	EDE-SWG-11D	
90	EDE-BC-1C	125 V DC Battery Charger	310042	A	310442	CB-F-1A-A	X	X	X	-	HR7	EDE-D88-52 EDE-D88-42 EDE-D88-42X DG-HR2-HR9 EDE-HR7/1-52 EDE-D88-FU	460 V AC Circuit Breaker Contractor Auxiliary Relay EPS Relay 460 V AC Circuit Breaker - Incoming Feed Fuse	D88 D88 D88 HR2 HR7 D88	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	D88-HR7 D88-HR2	310107 D88a D88b D88f	CBA-FN-19 CBA-FN-20 EDE-MCC-E521	EDE-BC-1D		
91	EDE-B-1C	125 V DC Battery	310042	A	310442	CB-F-1E-A	X	X	X	-	HV6	EDE-J77-FU-1,2,3,4 EDE-J77-SH EDE-J77-ATR	1600A Fuses 1000A, 100 MW Shunt Transducer	J77 J77 J77	CB-F-1A-A CB-F-1A-A CB-F-1A-A	HV6-377 HV6-377/1	310107 D88a D88f	CBA-FN-19 CBA-FN-20	EDE-B-1C		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table MCR 3.1.3.17-34
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
104	ED-BC-2A	125 V DC Battery Charger	310059	A	310328	TB-F-1A-Z	X	X	X	-	HS2	ED-CN3-52 ED-CN3-42 ED-CN3-42X DG-HR2-HR9 ED-HS2-52 ED-CN3-FU	460 V AC Circuit Breaker Contactor Auxiliary Relay EPS Relay 460 V AC Circuit Breaker - Inc. Feed Fuse	CN3 CN3 CN3 HR2 HS2 CN3	TB-F-2-Z TB-F-2-Z TB-F-2-Z CB-F-1A-A TB-F-1A-Z TB-F-2-Z	CN3-HS2 CN3-HR2	310107 CN3a CN3b CN3f	ED-MCC-E523			
105	ED-B-2A	125 V DC Battery	310059	A	310328	TB-F-1B-A	X	X	X	-	HS3	ED-DR8-SH ED-DR6-ATR	1500A, 100 mV Shunt Transducer	DR8 DR6	TB-F-1A-Z TB-F-1A-Z	DR8-HS3 DR8-HS3/1	310107 CN3a CN3f				
106	ED-SWG-12A	125 V DC Switchgear Auxiliary Buses 120 V AC and 125 V DC	310059	A	310328	TB-F-1A-Z	X	X	X	-	DR6	ED-HS2-72 ED-DL8-72 ED-DR7-72 ED-DR8-72 ED-DR6-FU-1,2 ED-DR6-27BL ED-DR6-27BLL ED-DR6-VM ED-DR6-VTR ED-DR6-DIO ED-DR6-XS ED-DR6-AMY ED-E20/17-52 ED-DR6-62BL ED-DR6-62BLL ED-DR7-72STC ED-DR7-72 ED-DR6-ATR	125 V DC circuit Breaker 125 V DC circuit Breaker 125 V DC circuit Breaker 125 V DC circuit Breaker 15A Fuses Undervoltage Relay Undervoltage Relay DC Voltmeter Voltage Transducer Diodes Selector Switch Ammeter Relay 120 V DC Circuit Breaker Timing Relay Timing Relay Circuit Breaker Shunt Trip Coil Breaker Operated Contact Current Transducer	HS2 DL8 DR7 DR8 DR6 DR6 DR6 DR6 DR6 DR6 DR6 DR6 E20 DR6 DR6 DR6 DR7 DR7 DR6	TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z TB-F-1A-Z	DR7-HS2 					

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.18-1
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	DG-DG-1A	Diesel Generator 1A	DG-20462	A	310524	DG-F-2A-A	X	X	X	X	HA1	DG-CS-9510-2	Control Switch (Push Button)	G07	DG-F-2A-A	A54-G06/5 A54-G29	310857 E93/8a E93/8b E93/8c E93/8d E93/8e E93/8f E93/8g E93/8r	E93/8n E93/8p	CBA-FN-19 CBA-FN-20 DAH-FN-25A DAH-FN-26A EDE-PP-111A D/G Starting Air	DG-DG-1B	
												DG-CS-9511	Control Switch (Push Button)	G07	DG-F-2A-A	G06-G29					
												DG-CS-9512-3	Control Switch (Push Button)	G07	DG-F-2A-A	G06-G29/1					
												DG-CS-9512-4	Control Switch (Push Button)	G07	DG-F-2A-A	G06/HR2					
												DG-CS-9517-2	Control Switch (Push Button)	G07	DG-F-2A-A	G06/G29/2					
												DG-CS-9518-2	Control Switch (Push Button)	G07	DG-F-2A-A	G07-G29					
												EDE-SS-9700	Selector Switch	G06	DG-F-2A-A	E93-G29/1					
												DG-G29-0P2	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-ZL-9580-9	Start Ckt No 1 Signal Indicating Light	G07	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-G10-TSR3	Test Start Relay	G10	DG-F-2A-A						
												DG-G10-RDT	Ramp Down Time Relay	G10	DG-F-2A-A						
												DG-G07-IOT	Idle Operate Time Relay	G07	DG-F-2A-A						
												DG-G06-LSRX	Low Speed Aux Relay	G06	DG-F-2A-A						
												DG-FY-AS1	Air Start Solenoid Valve	G29	DG-F-2A-A						
												DG-G29-0P3	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-ZL-9580-10	Start Ckt No 2 Signal Indicating Light	G07	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-G29-0P4	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-SDS	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 Auxiliary Valves Solenoid	G29	DG-F-2A-A						
												DG-G29-T3A	Alarm Set Time Delay Relay	G29	DG-F-2A-A						
												DG-G29-TR	Engine Velocity Transmitter	G29	DG-F-2A-A						
												DG-FY-ISV-A	Intercooler Auxiliary 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						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.18-2
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											DG-G29-IPC	Coolant Pump Control Relay	G29	DG-F-2A-A	F80-FB7 F80-G06/8 F80-G06/9 G80-G07/9 F80-G07/F F80-G07/G					
												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						
												DG-FB7-K-603A	Protection System Relay	FB7	CB-F-3A-A						
												EDE-CS-9518-1	Control Switch	F80	CB-F-3A-A						
												EDE-CS-9517-1	Control Switch	F80	CB-F-3A-A						
												EDE-CS-9510-1	Control Switch	F80	CB-F-3A-A						
												DG-FB7-K-608A	Protection System Output Relay	FB7	CB-F-3A-A						
												EDE-CS-9512-1	Control Switch	F80	CB-F-3A-A						
												EDE-CS-9512-2	Control Switch	F80	CB-F-3A-A						
												EDE-ZL-9574	Monitoring Circuit Indication Light	G07	CB-F-2A-A						
												DG-G29-TACH	Tachometer	G29	DG-F-2A-A						
												DG-G29-SFR	Start Failure Relay	G29	DG-F-2A-A						
												EDE-ZL-9574-1	Monitoring Circuit Indicating Light	G29	DG-F-2A-A						
												DG-G29-SDR	Engine Trouble Shutdown Relay	G29	DG-F-2A-A						
												DG-G29-EOR	Engine Overspeed Relay	G29	DG-F-2A-A						
												EDE-A69-RLA	SI Signal Lockout Relay	A69	DG-F-1A-A						
												DG-G29-OTH	High Oil Temperature Relay	G29	DG-F-2A-A						
												DG-G29-CTH	High Coolant Temperature Relay	G29	DG-F-2A-A						
												EDE-A54-TD2	Test Device	A54	CB-F-1A-A						
												EDE-A69-TD2	Test Device	A69	CB-F-1A-A						
												DG-G29-EST	Emergency Start Time Delay Relay	G29	DG-F-2A-A						
												DG-G29-ESK	Emergency Start Auxiliary Relay	G29	DG-F-2A-A						
												DG-G29-RA1	Air Pressure Auxiliary Relay	G29	DG-F-2A-A						
												DG-G29-RA2	Air Pressure Auxiliary 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-OPL1	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						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-3
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Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 9

Table MCR 3.1.3.18-3

FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/I-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											DG-G29-OPC	Oil Pump Control Relay	G29	DG-F-2A-A						
												DG-G29-FPC	Auxiliary Fuel Oil Pump Control Relay	G29	DG-F-2A-A						
												DG-G29-CPC	Coolant Pump Control Relay	G29	DG-F-2A-A						
												DG-G29-CF4	Power Available Relay	G29	DG-F-2A-A						
												DG-G07-R43L1	Selector Switch Auxiliary Latch Relay (Local)	G07	DG-F-2A-A						
												DG-G07-R43L2	Selector Switch Auxiliary Relay (Local)	G07	DG-F-2A-A						
												DG-G07-R43L4	Selector Switch Auxiliary Relay (Local)	G07	DG-F-2A-A						
												DG-G07-R43M1	Selector Switch Auxiliary Latch Relay (Maintenance)	G07	DG-F-2A-A						
												DG-G07-R43R1	Selector Switch Auxiliary Latch Relay (Remote)	G07	DG-F-2A-A						
												DG-G07-R43R2	Selector Switch Auxiliary Latch Relay (Remote)	G07	DG-F-2A-A						
												DG-G07-R43R5	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A						
												DG-HR2-PR1	EPS Auxiliary Relay	HR2	CB-F-1A-A						
												DG-HR2-PR1X	EPS Auxiliary Relay	HR2	CB-F-1A-A						
												DG-G29-D1	P-N Junction Diode	G29	DG-F-2A-A						
												DG-SS-EOS	Engine Overspeed Switch	G29	DG-F-2A-A						
												DG-PS-APL1	Air Pressure Low Switch	G29	DG-F-2A-A						
												DG-PS-APL2	Air Pressure Low Switch	G29	DG-F-2A-A						
												DG-PS-CPS	Coolant Pressure Switch	G29	DG-F-2A-A						
												DG-PS-OPL2	Oil Low Pressure Switch	G29	DG-F-2A-A						
												DG-PS-OPL3	Oil Low Pressure Switch	G29	DG-F-2A-A						
												DG-PS-OPL4	Oil Low Pressure Switch	G29	DG-F-2A-A						
												DG-TS-CTHA	Coolant High Temperature Switch	G29	DG-F-2A-A						
												DG-TS-OTHA	Oil High Temperature Switch	G29	DG-F-2A-A						
												DG-ZS-BD1	Barring Device Position Switch	G29	DG-F-2A-A						
												DG-ZS-BD2	Barring Device Position Switch	G29	DG-F-2A-A						
												EDE-A54-86DP	DG Primary Protection Lockout Relay	A54	CB-F-1A-A						
												EDE-A69-86DB	DG Backup Protection Lockout Relay	A69	CB-F-1A-A						
												DG-G29-TRP	TR Control Power Relay	G29	DG-F-2A-A						
												DG-G29-SB	Shutdown Auxiliary Relay	G29	DG-F-2A-A						

ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											DG-G29-OPC Oil Pump Control Relay	G29	DG-F-2A-A							
												DG-G29-FPC Auxiliary Fuel Oil Pump Control Relay	G29	DG-F-2A-A							
												DG-G29-CPC Coolant Pump Control Relay	G29	DG-F-2A-A							
												DG-G29-CF4 Power Available Relay	G29	DG-F-2A-A							
												DG-G07-R43L1 Selector Switch	G07	DG-F-2A-A							
												DG-G07-R43L2 Auxiliary Latch Relay (Local)	G07	DG-F-2A-A							
												DG-G07-R43L4 Selector Switch	G07	DG-F-2A-A							
												DG-G07-R43L4 Auxiliary Relay (Local)	G07	DG-F-2A-A							
												DG-G07-R43M1 Selector Switch	G07	DG-F-2A-A							
												DG-G07-R43M1 Auxiliary Latch Relay (Maintenance)	G07	DG-F-2A-A							
												DG-G07-R43R1 Selector Switch	G07	DG-F-2A-A							
												DG-G07-R43R1 Auxiliary Latch Relay (Remote)	G07	DG-F-2A-A							
												DG-G07-R43R2 Selector Switch	G07	DG-F-2A-A							
												DG-G07-R43R2 Auxiliary Latch Relay (Remote)	G07	DG-F-2A-A							
												DG-G07-R43R5 Selector Switch	G07	DG-F-2A-A							
												DG-G07-R43R5 Auxiliary Relay (Remote)	G07	DG-F-2A-A							
												DG-HR2-PR1 EPS Auxiliary Relay	HR2	CB-F-1A-A							
												DG-HR2-PR1X EPS Auxiliary Relay	HR2	CB-F-1A-A							
												DG-G29-D1 P-N Junction Diode	G29	DG-F-2A-A							
												DG-SS-E05 Engine Overspeed Switch	G29	DG-F-2A-A							
												DG-PS-APL1 Air Pressure Low Switch	G29	DG-F-2A-A							
												DG-PS-APL2 Air Pressure Low Switch	G29	DG-F-2A-A							
												DG-PS-APL2 Coolant Pressure Switch	G29	DG-F-2A-A							
												DG-PS-CPS Oil Low Pressure Switch	G29	DG-F-2A-A							
												DG-PS-OPL2 Oil Low Pressure Switch	G29	DG-F-2A-A							
												DG-PS-OPL3 Oil Low Pressure Switch	G29	DG-F-2A-A							
												DG-PS-OPL4 Oil Low Pressure Switch	G29	DG-F-2A-A							
												DG-TS-CTHA Coolant High Temperature Switch	G29	DG-F-2A-A							
												DG-TS-OTHA Oil High Temperature Switch	G29	DG-F-2A-A							
												DG-ZS-BD1 Barring Device	G29	DG-F-2A-A							
												DG-ZS-BD2 Position Switch	G29	DG-F-2A-A							
												EDE-A54-86DP Barring Device	G29	DG-F-2A-A							
												EDE-A54-86DP DG Primary Protection Lockout Relay	A54	CB-F-1A-A							
												EDE-A69-86DB DG Backup Protection Lockout Relay	A69	CB-F-1A-A							
												DG-G29-TRP Lockout Relay	G29	DG-F-2A-A							
												DG-G29-TRP TR Control Power Relay	G29	DG-F-2A-A							
												DG-G29-5B Shutdown Auxiliary Relay	G29	DG-F-2A-A							

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.18-5
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											DG-G10-IDR1	Isochronous Droop Relay	G10	DG-F-2A-A	G06-G29/5 DM9-G10 F80-G06/3 F80-G06/4 F80-G06/5 F80-G10/1	310102 G06/1a G06/1b G06/1c G06/1d DM9a	G06/1f	DAH-FN-25A DAH-FN-26A DG-CP-75A EDE-SWG-11A		
											EDE-A69-60	Voltage Balance Relays	A69	CB-F-1A-A							
											DG-G06-64F	Generator Field Failure Relay	G06	DG-F-2A-A							
											DG-G10-SEVR-CC	Static Exciter Voltage Regulator Control Chassis	G10	DG-F-2A-A							
											DG-GT3-XCT1,2,3	Generator Current Transformers (2000/5)	GT3	DG-F-2A-A							
											DG-VM-9702-2	Field Voltmeter	G10	DG-F-2A-A							
											DG-G10-DCT	Field Voltage Transducer	G10	DG-F-2A-A							
											DG-G06-SH	50 MW Field Shunt	G06	DG-F-2A-A							
											DG-AM-9702-2	DC Field Ammeter	G10	DG-F-2A-A							
											DG-G10-ATR	Current Transducer	G10	DG-F-2A-A							
											DG-G10-CF10	Loss of Power Relay	G10	DG-F-2A-A							
											DG-A69-64	Ground Fault Sensing Relay	A69	CB-F-1A-A							
											DG-G10-FU-22,23	1 Amp Fuses	G10	DG-F-2A-A							
											DG-G07-IL10	Diode Failure Light	G07	DG-F-2A-A							
											EDE-G06-FU-1,2	10 Amp Fuses (2)	G06	DG-F-2A-A							
											DG-G07-R43R5	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A							
											EDE-CS-9820-2	Control Switch (Push Button)	G10	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-ES1	Emergency Start Relay	G29	DG-F-2A-A							
											DG-G29-ES2	Emergency Start Relay	G29	DG-F-2A-A							
											DG-SS-9585	Selector Switch	G07	DG-F-2A-A							
											DG-ZL-9580-11	Field Flash Signal Indicating Light	G10	DG-F-2A-A							
											DG-G07-R43M1	Selector Switch Auxiliary Latch Relay (Maintenance)	G07	DG-F-2A-A							
											DG-G29-5A	DG - Shutdown Relay	G29	DG-F-2A-A							
											DG-G06-LSRX	Low Speed Auxiliary Relay	G06	DG-F-2A-A							
											DG-G06-LSRXX	Time Delay Relay	G06	DG-F-2A-A							
											EDE-CS-9801-1	Push Button	G10	DG-F-2A-A							
											EDE-CS-9801-2	Push Button	G10	DG-F-2A-A							
											DG-G06-SERV-PC	Static Exciter Voltage Regulatory Power Chassis	G06	DG-F-2A-A							
											DG-G10-NM	Null Meter	G10	DG-F-2A-A							
											EDE-SS-9700	Selector Switch	G06	DG-F-2A-A							
											EDE-CS-9821-2	Control Switch	G10	DG-F-2A-A							
											EDE-CS-9822-2	Control Switch	G10	DG-F-2A-A							
											DG-G10-RR	Regulator Relay	G10	DG-F-2A-A							
											DG-G10-SERV-CC	Static Exciter Voltage Regulator Control Chassis	G10	DG-F-2A-A							
											DG-G10-CF-8	Loss of Power Relay	G10	DG-F-2A-A							
											EDE-CS-9820-1	Push Button Switch	F80	CG-F-3A-A							
											EDE-CS-9822-1	Control Switch	F80	CB-F-3A-A							
											EDE-CS-9821-1	Control Switch	F80	CB-F-3A-A							
											EDE-VM-9782	Null Voltmeter	F80	CB-F-3A-A							
											DG-G07-R43R6	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A							

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-7
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											DG-G07-R43R4	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A	F80-G07/8 A54-G07/4 F80-G06/7 F80-G07/7					
												DG-G07-R43R5	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A						
												DG-G07-R43R6	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A						
												DG-G07-64F	Generator Field Ground Relay	G06	DG-F-2A-A						
												DG-G10-64FX	Generator Field Ground Auxiliary Relay	G10	DG-F-2A-A						
												DG-G07-64FXA	Generator Field Ground Auxiliary Relay	G07	DG-F-2A-A						
												EDE-CS-9824-2	Control Switch	G10	DG-F-2A-A						
												DG-G10-23	Thermostat	G10	DG-F-2A-A						
												DG-G07-R-DNA	Diesel Not Available Auxiliary Relay	G07	DG-F-2A-A						
												DG-G07-R-B/I	SW CT Bypass/MOP Auxiliary Relay	G07	DG-F-2A-A						
												DG-G10-23X	Thermostat Auxiliary Relay	G10	DG-F-2A-A						
												EDE-ZL-9580-8	Indicating Light	F80	CB-F-3A-A						
												EDE-ZL-9518-1	Indicating Light	F80	CG-F-3A-A						
												EDE-CS-9824-1	Indicating Light	F80	CB-F-3A-A						
												EDE-ZL-9824-1	Indicating Light	F80	CB-F-3A-A						
												EDE-SNS-9763-1	Synchronizing Switch	F80	CB-F-3A-A						
												EDE-ZL-9802-1	Indicating Light	F80	CB-F-3A-A						
												EDE-CS-9824-1	Control Switch	F80	CB-F-3A-A						
												DG-A69-RLA	LOCA Seal Relay	A69	CB-F-1A-A						
												EDE-ZL-9580-6	Indicating Light	F80	CB-F-3A-A						
												DG-G10-IDR1	Isochronous Droop Relay	G10	DG-F-2A-A						
												DG-G10-IDR2	Isochronous Droop Relay	G10	DG-F-2A-A						
												DG-G10-IDR3	Isochronous Droop Relay	G10	DG-F-2A-A						
												EDE-ZL-9802-2	Indicating Light	G07	DG-F-2A-A						
												DG-G07-IDR4	Isochronous Droop Relay	G10	DG-F-2A-A						
												EDE-SS-9700	Selector Switch	G06	DG-F-2A-A						
												EDS-SNS-9736-2	Synchronizing Switch	G06	DG-F-2A-A						
												EDE-A51-52S	Circuit Breaker Operated Contact	A51	CB-F-1A-A						
												EDE-A52-52S	Circuit Breaker Operated Contact	A52	CB-F-1A-A						
												EDE-A54-52S	Circuit Breaker Operated Contact	A54	CB-F-1A-A						
												EDE-A69-60AX	Voltage Balance Auxiliary Relay	A69	CB-F-1A-A						
												DG-ZL-9580-3	Indicating Light	G07	DG-F-2A-A						
												DG-ZL-9518-2	Indicating Light	G07	DG-F-2A-A						
												EDE-ZL-9824-1	Indicating Light	G10	DG-F-2A-A						
												EDE-ZL-9824-2	Indicating Light	G10	DG-F-2A-A						
												DG-ZL-9580-1	Indicating Light	G07	DG-F-2A-A						
												DG-ZL-9580-4	Indicating Light	G07	DG-F-2A-A						
												DG-ZL-9580-5	Indicating Light	G07	DB-F-2A-A						
												MM-CS-6651	Test Push Button with Indicating Light	F80	CB-F-3A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 9 Table MCR 3.1.3.18-8
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											DG-G10-CF8 DG-G10-CF9 DG-G10-CF10 DG-G10-CR45 DG-G10-CR42	Loss of Control Power Relay Loss of Control Power Relay Loss of Control Power Relay Annunciator Auxiliary Relay Annunciator Auxiliary Relay	G10 G10 G10 G10 G10	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A						
2	DG-TK-45A	Starting Air Compressor Skid Air Receiver Tank	DG-20460	A	310524	DG-F-2A-A	X	X	-	-	HM2	-	-	-	-	-	-	-	DG-TK-45C	Notes 1 and 5	
3	DG-TK-45B	Starting Air Compressor Skid Air Receiver tank	DG-20460	A	310524	DG-F-2A-A	X	X	-	-	HM2	-	-	-	-	-	-	-	DG-TK-45D	Notes 1 and 5	
4	DG-MM-8A	Exhaust Silencer	DG-20462	A	310525	DG-F-3E-A	X	X	-	-	-	-	-	-	-	-	-	-	DG-MM-8B	Note 1	
5	DG-F-36A	Air Intake Filter	DG-20462	A	310525	DG-F-3E-A	X	X	-	-	-	-	-	-	-	-	-	-	DF-F-36B	Note 1	
6	DG-TK-26A	Fuel Oil Storage Tank	DG-20459	A	310525 202264	DG-F-1A-A	X	X	-	-	-	-	-	-	-	-	-	-	DG-TK-26B	Notes 1 and 2	
7	DG-TK-78A	Fuel Oil Day Tank	DG-20459	A	310525	DG-F-3C-A	X	X	-	-	-	-	-	-	-	-	-	-	DG-TK-78B	Note 1	
8	DG-P-38A	Fuel Oil Transfer Pump	DG-20459	A	310524 202265	DG-F-1A-A	X	X	X	-	N75	DG-BM7-52 DG-CS-9503 DG-LS-FLC DG-BM7-42 DG-BM7-49 DG-BM7-FU	460 V AC Circuit Breaker Control Switch with Indication Fuel Low Level Control Switch Motor Starter Thermal Overload Relay Fuse	BM7 BE4 RT8 BM7 BM7 BM7	CB-F-1A-A DG-F-2A-A DG-F-3C-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	BE4-BM7 BM7-RT8 BM7-N75	BM7a 310857 BM7c	CBA-FN-19 CBA-FN-20 DAH-FN-25A DAH-FN-26A EDE-MCC-521	DG-P-38B		
9	DG-P-119A	Engine-Driven Fuel Oil Pump	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	DG-P-119B	Notes 1 and 4	
10	DG-P-115A	Engine-Driven Lube Oil Pump	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	DG-P-115B	Notes 1 and 4	
11	DG-TK-102A	Lube Oil Reservoir	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	DG-TK-102B	Notes 1 and 4	
12	DG-P-228A	Engine-Driven Rocker Arm Lube Pump	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	DG-P-228B	Notes 1 and 4	
13	DG-E-41A	Lube Oil Heat Exchanger	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	DG-E-41B	Notes 1 and 4	
14	DG-TK-46A	Diesel Generator 1A Component Cooling Water Expansion Tank	DG-20461	A	310525	DG-F-3C-A	X	X	-	-	-	-	-	-	-	-	-	-	DG-TK-46B	Notes 1 and 4	
15	DG-E-42A	Diesel Generator 1A Component Cooling Water Heat Exchanger	DG-20461	A	310767 805217	PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	Service Water	DG-E-42B	Notes 1 and 3	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.18-9
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
16	DG-P-121A	Engine-Driven Jacket Coolant Pump	DG-20461	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-P-121B	Notes 1 and 4
17	DG-P-231A	Engine-Driven Air Coolant Pump	DG-20461	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-P-231B	Notes 1 and 4
17a	DG-C-2A	DG Starting Air Compressor	DG-220460	A	310524	DG-F-2A-A	X	X	X	-	NC3	DG-BM3-52 DG-CS-9559 DGA-PS-APCI DG-PS-APCZ DG-HR2-HR9 DG-BM3-42 DG-BM3-49 DG-BM3-FU	460 v AC Circuit Breaker Control Switch Pressure Switch Pressure Switch EPS Relay Motor Starter Thermal O. L. Fuse	BM3 BM3 HM2 HM2 HR2 BM3 BM3 BM3	D6-F-2A-A D6-F-2A-A D6-F-2A-A D6-F-2A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	BM3-NC3 BM3-HM2 BM3-HR2	310857 BM3a BM3c	DAH-FN-25A DAH-FN-26A EDE-MCC-511	DG-C-2-B	Note 5	
17b	DG-SKD-17A	Diesel Generator 1A Starting Air Compressor Skid	DG-20460	A	310524	DG-F-2A-A	X	X	X	-	HM2	DG-E39/4-52 DG-HM2-52 DG-HM2-ATM DG-V-253A DG-HM2-ICT DG-V-279A DG-V-280A DG-V-285A DG-V-288A DG-V-289A DG-V-HM2-KR DG-BM3-42	120 v AC Circuit Breaker 120 v AC Circuit Breaker Auto Drain Timer Auto Drain Solenoid Vlv. Motor Synchronous Timer Left Chamber inlet Sol. Vlv. Right Chamber inlet Sol. Vlv. Repressurizing Sol. Vlv. Left Chamber Exhaust Sol. Vlv. Right Chamber Exhaust Sol. Vlv. Aux. Relay Motor Starter	E9 HM2 HM2 HM2 HM2 HM2 HM2 HM2 HM2 HM2 HM2 BM3	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A	E39-HM2 BM3-HM2	310857 E39/4a E39/4b	DAH-FN-25A DAH-FN-26A EDE-MCC-E511 120 v AC Dist. Panel	DG-SKD-17B	Note 5	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-10
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
18	DG-DG-1B	Diesel Generator 1B	DG-20467	B	310524	DG-F-2B-A	X	X	X	X	HA2	DG-CS-9520-2	Control Switch (Push Button)	G19	DG-F-2B-A	A74-G18/7 A74-G30/6 E94-G30/1 G18-G30 G18-G30/1 G18-G30/2 G18-HR4 G19-G30 G19-G30/6 G18-G30/8	310857 E94/8a E94/8b E94/8c E94/8d E94/8e E94/8f E94/8g E94/8s	E94/8n E94/8p E94/8r	DBA-FN-32 DBA-FN-33 DAH-FN-25B DAH-FN-26B EDE-PP-111B D/G Starting Air	DG-DG-1A	
												DC-CS-9521	Control Switch (Push Button)	G19	DG-F-2B-A						
												DG-CS-9522-3	Control Switch (Push Button)	G19	DG-F-2B-A						
												DG-CS-9522-4	Control Switch (Push Button)	G19	DG-F-2B-A						
												DG-CS-9527-2	Control Switch (Push Button)	G19	DG-F-2B-A						
												DG-CS-9528-2	Control Switch (Push Button)	G19	DG-F-2B-A						
												EDE-SS-9710	Selector Switch	G18	DG-F-2B-A						
												DG-G30-OP2	Oil Pressure Relay	G30	DG-F-2B-A						
												DG-G30-CR1	Ready for Auto Start Relay	G30	DG-F-2B-A						
												DG-G30-4A	Start Relay	G30	DG-F-2B-A						
												DG-G30-T2A	Cranking Time Control Time Delay Relay	G30	DG-F-2B-A						
												DG-ZL-9590-9	Start Ckt No 1 Signal Indicating Light	G19	DG-F-2B-A						
												DG-G30-ES1	Emergency Start Relay	G30	DG-F-2B-A						
												DG-G20-TSR1	Test Start Relay	G20	DG-F-2B-A						
												DG-G20-TSR2	Test Start Relay	G20	DG-F-2B-A						
												DG-G20-TSR3	Test Start Relay	G20	DG-F-2B-A						
												DG-G20-RDT	Ramp Down Time Relay	G20	DG-F-2B-A						
												DG-G19-IOT	Idle Operate Time Relay	G19	DG-F-2B-A						
												DG-G18-LSRX	Low Speed Auxiliary Relay	G18	DG-F-2B-A						
												DG-FY-AS1	Air Start Solenoid Valve	G30	DG-F-2B-A						
												DG-G29-OP3	Oil Pressure Relay	G29	DG-F-2B-A						
												DG-G30-CR2	Ready for Auto Start Relay	G30	DG-F-2B-A						
												DG-G30-TACH	Tachometer	G30	DG-F-2B-A						
												DG-G30-4B	Start Relay	G30	DG-F-2B-A						
												DG-G30-T2B	Cranking Time Control Time Delay Relay	G30	DG-F-2B-A						
												DG-ZL-9590-10	Start Ckt No 2 Signal Indicating Light	G19	DG-F-2B-A						
												DG-G30-ES2	Emergency Start Relay	G30	DG-F-2B-A						
												DG-FY-AS2	Air Start Solenoid Valve	G30	DG-F-2B-A						
												DG-G29-OP4	Oil Pressure Relay	G29	DG-F-2B-A						
												DG-G30-5E	Emergency Stop Relay	G30	DG-F-2B-A						
												DG-G30-5	Normal Stop Relay	G30	DG-F-2B-A						
												DG-G30-5A	Shutdown Relay	G30	DG-F-2B-A						
												DG-G30-5B	Shutdown Relay	G30	DG-F-2B-A						
												DG-FY-SDS	Shutdown Solenoid Valve	G30	DG-F-2B-A						
												DG-FY-AC0	Air Supply Cutoff Solenoid	G30	DG-F-2B-A						
												DG-G30-T3A	Alarm Set Time Delay Relay	G30	DG-F-2B-A						
												DG-G30-ASA	Air Start Relay	G30	DG-F-2B-A						
												DG-G30-ASB	Air Start Relay	G30	DG-F-2B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table MCR 3.1.3.18-11
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1B (Continued)											DG-G30-TR	Engine Velocity Transmitter	G30	DG-F-2B-A						
												DG-G30-SG	Signal Generator	G30	DG-F-2B-A						
												DG-G30-HSR	High Speed Relay	G30	DG-F-2B-A						
												DG-G30-LSR	Low Speed Relay	G30	DG-F-2B-A						
												DG-G30-ASR	Starting Air Shutoff Relay	G30	DG-F-2B-A						
												DG-G30-BDR	Barring Device Relay	G30	DG-F-2B-A						
												DG-G30-SFR	Start Failure Relay	G30	DG-F-2B-A						
												SG-G30-SDR	Engine Trouble Shutdown Relay	G30	DG-F-2B-A						
												DG-G30-EOR	Engine Overspeed Relay	G30	DG-F-2B-A						
												EDE-A89-RLA	SI Signal Lockout Relay	A89	CB-F-1B-A						
												DG-G30-OTH	High Oil Temperature Relay	G30	DG-F-2B-A						
												DG-G30-CTH	High Coolant Temperature Relay	G30	DG-F-2B-A						
												EDE-A74-TD2	Test Device	A74	CB-F-1B-A						
												EDE-A89-TD2	Test Device	A89	CB-F-1B-A						
												DG-G30-EST	Emergency Start Time Delay Relay	G30	DG-F-2B-A						
												DG-G30-ESX	Emergency Start Auxiliary Relay	G30	DG-F-2B-A						
												DG-G30-RA1	Air Pressure Auxiliary Relay	G30	DG-F-2B-A						
												DG-G30-RA2	Air Pressure Auxiliary Relay	G30	DG-F-2B-A						
												DG-G30-CF3	Power Available Relay	G30	DG-F-2B-A						
												DG-G30-CF4	Power Available Relay	G30	DG-F-2B-A						
												DG-G19-R43L1	Selector Switch Auxiliary Latch Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43L2	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43L4	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43M1	Selector Switch Auxiliary Latch Relay (Maintenance)	G19	DG-F-2B-A						
												DG-G30-FU	10 Amp Fuses (10)	G30	DG-F-2B-A						
												DG-G19-R43R1	Selector Switch Auxiliary Latch Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R2	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R5	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-HR4-PR1	EPS Auxiliary Relay	HR4	CB-F-1B-A						
												DG-HR4-PR1X	EPS Auxiliary Relay	HR4	CB-F-1B-A						
												DG-SS-EOS	Engine Overspeed Switch	G30	DG-F-2B-A						
												DG-PS-APL1	Air Pressure Low Switch	G30	DG-F-2B-A						
												DG-PS-APL2	Air Pressure Low Switch	G30	DG-F-2B-A						
												DG-G19-FU	10 Amp Fuses (20)	G19	DG-F-2B-A						
												DG-G19-R43L5	Selector Switch Auxiliary Relay (Local)	G19	DB-F-2B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-12
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1B (Continued)											DG-PS-CPS	Coolant Pressure Switch	G30	DG-F-2B-A						
												DG-PS-OPL2	Oil Low Pressure Switch	G30	DG-F-2B-A						
												DG-PS-OPL3	Oil Low Pressure Switch	G30	DG-F-2B-A						
												DG-PS-OPL4	Oil Low Pressure Switch	G30	DG-F-2B-A						
												DG-TS-CTHA	Coolant High Temperature Switch	G30	DG-F-2B-A						
												DG-TS-OTHA	Oil High Temperature Switch	G30	DG-F-2B-A						
												DG-ZS-BD1	Barring Device Position Switch	G30	DG-F-2B-A						
												DG-G30-D1	P-N Junction Diode	G30	DG-F-2B-A						
												DG-ZS-BD2	Barring Device Position Switch	G30	DG-F-2B-A						
												EDE-A74-86DP	DG Primary Protection Lockout Relay	A74	CB-F-1B-A						
												EDE-A89-86DB	DG Backup Protection Lockout Relay	A89	CB-F-1B-A						
												EDE-A74-TS	Test Start Control Switch	A74	CB-F-1B-A						
												DG-G30-CF1	Power Available Relay	G30	DG-F-2B-A						
												DG-G30-CF2	Power Available Relay	G30	DG-F-2B-A						
												EDE-ZL-9594	Monitoring Circuit Indicating Light	G19	DG-F-2B-A						
												EDE-ZL-9594-1	Monitoring Circuit Indicating Light	G30	DG-F-2B-A						
												DG-PS-OPL1	Oil Low Pressure Switch	G30	DG-F-2B-A						
												DG-G30-OP1	Oil Pressure Relay	G30	DG-F-2B-A						
												DG-PS-FPLA	Fuel Low Pressure Switch	G30	DG-F-2B-A						
												DG-G30-FPL	Fuel Pressure Relay	G30	DG-F-2B-A						
												DG-PS-CPLA	Jacket Coolant Low Pressure Switch	G30	DG-F-2B-A						
												DG-G30-CPL	Jacket Coolant Pressure Relay	G30	DG-F-2B-A						
												DG-PS-IPLA	Intercooler Low Pressure Switch	G30	DG-F-2B-A						
												DG-G30-IPL	Intercoolant Pressure Relay	G30	DG-F-2B-A						
												DG-G30-CF5	Power Available Relay	G30	DG-F-2B-A						
												DG-G30-OPC	Oil Pump Control Relay	G30	DG-F-2B-A						
												DG-G30-5B	Shutdown Auxiliary Relay	G30	DG-F-2B-A						
												DG-G30-TRP	TR Control Power Relay	G30	DG-F-2B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-13
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1B (Continued)											DG-G30-FPC	Auxiliary Fuel Oil Pump Control Relay	G30	DG-F-2B-A						
												DG-G30-CPC	Coolant Pump Control Relay	G30	DG-F-2B-A						
												DG-FY-CSV-B	Jacket Coolant Auxiliary Valves Solenoid	G30	DG-F-2B-A						
												DG-G30-IPC	Coolant Pump Control Relay	G30	DG-F-2B-A						
												DG-FY-ISV-B	Intercooler Auxiliary Valves Solenoid	G30	DG-F-2B-A						
												DG-FB0-K-603B	Protection System Output Relay	FB0	CB-F-3A-A	F81-FB0					
												EDE-CS-9528-1	Control Switch	F81	CB-F-3A-A	F81-G18					
												EDE-CS-9527-1	Control Switch	F81	CB-F-3A-A	F81-G18/1					
												EDE-CS-9520-1	Control Switch	F81	CB-F-3A-A	F81-G19					
												DG-FB0-K-608B	Protection System Output Relay	FB0	CB-F-3A-A	F81-G19/E					
												EDE-CS-9522-1	Control Switch	F81	CB-F-3A-A	F81-G19/F					
												EDE-CS-9522-2	Control Switch	F81	CB-F-3A-A						
												EDE-G19-FU-17,18	6 Amp Fuses (2)	G19	DG-F-2B-A						
												EDE-SS-9710	Selector Switch	G18	DG-F-2B-A						
												DG-G19-CF6	Auxiliary Relay	G19	DG-F-2B-A						
												DG-G19-R43L1	Selector Switch Auxiliary Latch Relay (Local)	G19	DG-F-2B-A	DP1-G20 F81-G19/9	310102 G19/2a G19/2b DP1a	G19/2g G19/2c DP1b	DAH-FN-25B DAH-FN-26B DC-CP-75B EDE-SWG-11B		
												DG-G19-R43L2	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43L3	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43L4	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43L5, R43L6	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43R1	Selector Switch Auxiliary Latch Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43M1	Selector Switch Auxiliary Latch Relay (Maintenance)	G19	DG-F-2B-A						
												DG-G19-R43R2	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R3	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R4	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R5	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R6	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												EDE-SNS-9737-1	Selector Switch	F81	CB-F-3A-A						
												EDE-CS-9717-1	Control Switch	F81	CB-F-3A-A						
												EDE-CS-9719-1	Control Switch	F81	CB-F-3A-A						
												EDE-CS-9710-1	Control Switch	F81	CB-F-3A-A						
												EDE-SNS-9737-2	Selector Switch	G18	DG-F-2B-A						
												EDE-CS-9717-3	Control Switch	G19	DG-F-2B-A						
												EDE-CS-9719-3	Control Switch	G19	DG-F-2B-A						
												EDE-CS-9710-3	Control Switch	G19	DG-F-2B-A						
												DG-G19-FU17B, 18B	6 Amp Fuses	G19	DG-F-2B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-14
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FUNCTION: DIESEL GENERATORS																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
	DG-DG-1B (Continued)											EDE-G18-FU-9,10	50 Amp Fuses	G18	DG-F-2B-A	A89-G18 G18-HF8 A89-HP1 DP1-G20	310102	HA2a HA2b DP1a	HA2c HA2d DP1b	DAH-FN-25B DAH-FN-26B CBA-FN-32 DBA-FN-33 EDE-SWG-11B		
											DG-A89-XFMR	Grounding Transformer	A89	CB-F-1B-A								
											DG-HF8-XF	Static Exciter	HF8	DG-F-2B-A								
											DG-G18-SEVR-PC	Voltage Regulator	G18	DG-F-2B-A								
											DG-SM-9587	Power Chassis Governor Control (2301A)	G18	DG-F-2B-A								
											DG-G20-SEVR-CC	Voltage Regulator Control Chassis	G20	DG-F-2B-A								
											DG-GT4-PT1	Potential Transformer	GT4	DG-F-2B-A								
											DG-GT4-PT2	Potential Transformer	GT4	DG-F-2B-A								
											DG-GTR-PPT4	Power Transformer	GT4	DG-F-2B-A								
											DG-GTR-CCT	Current Transformer 2000/5	GT4	DG-F-2B-A								
											DG-G20-IDR1	Isochronous Droop Relay	G20	DG-F-2B-A								
											EDE-A89-60	Voltage Balance Relays	A89	CB-F-1B-A								
											DG-G20-64F	Generator Field Failure Relay	G20	DG-F-2B-A								
											DG-HP1-NCB	DG Neutral Connection Box	HP1	DG-F-2B-A								
											DG-GT4-XCT1,2,3	Generator Current Transformers (2000/5) øA, øB, øC	GT4	DG-F-2B-A								
											DG-VM-9712-2	Field Voltmeter	G20	DG-F-2B-A								
											DG-G20-DCT	Field Voltage Transducer	G20	DG-F-2B-A								
											DG-G18-SH	50 MV Field Shunt	G18	DG-F-2B-A								
											DG-AM-9712-2	DC Field Ammeter	G20	DG-F-2B-A								
											DG-G20-ATR	Current Transducer	G20	DG-F-2B-A								
											DG-G20-CF10	Loss of Power Relay	G20	DG-F-2B-A								
											DG-A89-64	Ground Fault Sensing Relay	A89	CB-F-1B-A								
											DG-G20-FU-22,23	1 Amp Fuses	G20	DG-F-2B-A								
											DG-G19-IL10	Diode Failure Light	G19	DG-F-2B-A								
											DG-G20-K2	Field Flashing Contactor	G20	DG-F-2B-A								
											EDE-G18-FU-1,2 1B,2B	10 Amp Fuses (4)	G18	DG-F-2B-A	G18-G30/5 DP1-G20	310102	G18/1a G18/1b G18/1c G18/1d DP1a	G18/1f	DAH-FN-25B DAH-FN-26B DG-CP-75B EDE-SWG-11B			
											DG-G19-R43R5	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A	F81-G18/4 F81-G18/5 F81-G18/6 F81-G20/1							
											EDE-CS-9825-2	Control Switch (Push Button)	G20	DG-F-2B-A								
											DG-G30-HSR	High Speed Relay	G30	DG-F-2B-A								
											DG-G30-LSR	Low Speed Relay	G30	DG-F-2B-A								
											DG-G30-ES1	Emergency Start Relay	G30	DG-F-2B-A								
											DG-G30-ES2	Emergency Start Relay	G30	DG-F-2B-A								
											DG-SS-9587	Selector Switch	G19	DG-F-2B-A								
											DG-ZL-9590-11	Field Flash Signal Indicating Light	G20	DG-F-2B-A								
											DG-G19-R43M1	Selector Switch	G19	DG-F-2B-A								
											DG-G30-5A	Auxiliary Latch Relay (Maintenance)	G30	DG-F-2B-A								
											DG-G19-R43R6	DG Shutdown Relay Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A								
											DG-G18-LSRX	Low Speed Auxiliary Relay	G18	DG-F-2B-A								

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-16
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Fire Protection of Safe Shutdown Capability 10CFR50,
Appendix R
Safe Shutdown Capability

Revision 9
Table MCR 3.1.3.18-16

[illegible]

ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1B (Continued)											EDE-G2-FU-7,8 7B,8B DG-G30-CR1 Auto Start Ready Relay DG-G30-CR2 Auto Start Ready Relay DG-G3-RA1 Air Pressure Auxiliary Relay DG-G30-RA2 Air Pressure Auxiliary Relay DG-G19-R43L3 Selector Switch Auxiliary Relay (Local) DG-G19-ESS Emergency Start Auxiliary Relay DG-G20-RR Regulator Relay DG-G19-R43L4 Selector Switch Auxiliary Relay (Local) DG-G19-R43L6 Selector Switch Auxiliary Relay (Local) DG-G19-R43L5 Selector Switch Auxiliary Relay (Local) DG-G19-R-DNA Diesel Not Available Auxiliary Relay DG-G19-R-B/I Switch Circuit Bypass/Inoperable Auxiliary Relay DG-G19-R43R3 Selector Switch Auxiliary Relay (Remote) DG-G19-R43R4 Selector Switch Auxiliary Relay (Remote) DG-G19-R43R5 Selector Switch Auxiliary Relay (Remote) DG-G19-R43R6 Selector Switch Auxiliary Relay (Remote) DG-G18-64F Generator Field Ground Relay DG-G20-64FX Generator Field Ground Auxiliary Relay DG-G19-64FXA Generator Field Ground Auxiliary Relay EDE-CS-9829-2 Control Switch DG-G20-23 Thermostat DG-G20-23X Thermostat Auxiliary Relay DG-G20-IDR1 Isochronous Droop Relay DG-G20-IDR2 Isochronous Droop Relay DG-G20-IDR3 Isochronous Droop Relay DG-G20-IDR4 Isochronous Droop Relay EDE-SS-9710 Selector Switch EDE-SNS-9737-2 Synchronizing Switch	10 Amp Fuses (4) G30 DG-F-2B-A G30 DG-F-2B-A G30 DG-F-2B-A G30 DG-F-2B-A G30 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G20 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G19 DG-F-2B-A G18 DG-F-2B-A G20 DG-F-2B-A G19 DG-F-2B-A G20 DG-F-2B-A G20 DG-F-2B-A G20 DG-F-2B-A G20 DG-F-2B-A G20 DG-F-2B-A G18 DG-F-2B-A G18 DG-F-2B-A	A74-G20/1 G20-G30 A89-G20 DP1-G20 F81-G19/8 A74-G19/4 F81-G18/7 F81-G19/7	G20a G20b G20c DP1a G20e DP1b	DAH-FN-25B DAH-FN-26B CBA-FN-32 CBA-FN-33 DG-CP-75B EDE-SWG-11B					

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table MCR 3.1.3.18-18
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
25	DG-P-38B	Fuel Oil Transfer Pump	DG-20464	B	310524 202264	DG-F-1B-A	X	X	X	-	N76	DG-BP7-52 DG-CS-9506 DG-LS-FLC DG-BP7-42 DG-BP7-49 DG-BP7-FU	460 V AC Circuit Breaker Control Switch with Indication Fuel Low Level Control Switch Motor Starter Thermal Overload Relay Fuse	BP7 BE5 RU1 BP7 BP7 BP7	CB-F-1B-A DG-F-2B-A DG-F-3D-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	BE5-BP7 BP7-RU1 BP7-N76	BP7a 310857 BP7c	CBA-FN-32 CBA-FN-33 DAH-FN-25B DAH-FN-26B EDE-MCC-621	DG-P-38A	-	
26	DG-P-119B	Engine-Driven Fuel Oil Pump	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-P-119A	Notes 1 and 6	
27	DG-P-115B	Engine-Drive Lube Oil Pump	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-P-115A	Notes 1 and 6	
28	DG-TK-102B	Lube Oil Reservoir	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-P-102A	Notes 1 and 6	
29	DG-P-228B	Engine-Driven Rocker Arm Lube Pump	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-P-228A	Notes 1 and 6	
30	DG-E-41B	Lube Oil Heat Exchanger	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-E-41A	Notes 1 and 6	
31	DG-TK-46B	Diesel Generator 1B Component Cooling Water Expansion Tank	DG-20466	B	310525	DG-F-3D-A	X	X	-	-	-	-	-	-	-	-	-	-	DG-TK-46A	Note 1	
32	DG-E-42B	Diesel Generator 1B Component Cooling Water Heat Exchanger	DG-20466	B	310767 805217	PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	Service Water	DG-E-42A	Notes 1 and 3	
33	DG-P-121B	Engine-Driven Jacket Coolant Pump	DG-20466	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-P-121A	Notes 1 and 4	
34	DG-P-231B	Engine-Driven Air Coolant Pump	DG-20466	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-F-231A	Notes 1 and 6	
35	DG-PV-7A-2	Lube Oil Cooler Differential Pressure Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-PT-7A-3 DG-PT-7A-4 DG-PDT-7A-2 DG-PDC-7A-2	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA1 HA1 HA1 HA1	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A	-	-	-	DAH-FN-25A DAH-FN-26A D/G Starting Air	DG-PV-7B-2	Note 8
36	DG-TCV-7A-2	Air Cooler Coolant Temperature Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-TT-7A-2 DG-TC-7A-2	Temperature Transmitter Temperature Controller	HA1 HA1	DG-F-2A-A DG-F-2A-A	-	-	-	DAH-FN-25A DAH-FN-26A D/G Starting Air	DG-TCV-7B-2	Note 8

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 9 Table MCR 3.1.3.18-19
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
37	DG-PV-7A-1	Jacket Coolant Differential Pressure Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-PT-7A-1 DG-PT-7A-2 DG-PDT-7A-1 DG-PDC-7A-1	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA1 HA1 HA1 HA1	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A	-	-	-	DAH-FN-25A DAH-FN-26A D/G Starting Air	DG-PV-7B-1	Note 9
38	DG-TCV-7A-1	Air Cooler Coolant Temperature Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-TT-7A-1 DG-TC-7A-1	Temperature Transmitter Temperature Controller	HA1 HA1	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	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-F-64B	Notes 1 and 4
40	DG-F-23A	Lube Oil Duplex Filter	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-F-23B	Notes 1 and 4
41	DG-S-4A	Lube Oil Strainer	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-S-4B	Notes 1 and 4
42	DG-S-85A	Lube Oil Sump Suction Strainer	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-S-85B	Notes 1 and 4
43	DG-S-5A	Fuel Oil Storage Tank Duplex Strainer	DG-20459	A	310524 202264	DG-F-1A-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-S-5B	Notes 1 and 2
44	DG-S-6A	Fuel Oil Day Tank Duplex Strainer	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-S-6B	Notes 1 and 4
45	DG-F-65A	Fuel Oil Duplex Filter	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-F-65B	Notes 1 and 4
46	DG-TK-110A	Fuel Oil Accumulator Tank	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-TK-110B	Notes 1 and 4
47	DG-PV-7B-2	Lube Oil Cooler Differential Pressure Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-PT-7B-3 DG-PT-7B-4 DG-PDT-7B-2 DG-PDC-7B-2	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA2 HA2 HA2 HA2	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	DC-PV-7A-2	Note 10
48	DG-TCV-7B-2	Air Cooler Coolant Temperature Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-TT-7B-2 DG-TC-7B-2	Temperature Transmitter Temperature Controller	HA2 HA2	DG-F-2B-A DG-F-2B-A	-	-	-	DAH-FN-25B DAH-FN-26B D/G Starting Air	DG-TCV-7A-2	Note 10
49	DG-PV-7B-1	Jacket Coolant Differential Pressure Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-PT-7B-1 B-2 DG-PDT-7B-1 DG-PDC-7B-1	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA2 HA2 HA2 HA2	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-1	Note 11

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																	Revision 9 Table MCR 3.1.3.18-20
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
50	DG-TCV-7B-1	Jacket Coolant Temperature Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-TT-7B-1 DG-TC-7B-1	Temperature Transmitter Temperature Controller	HA2 HA2	DG-F-2B-A DG-F-2B-A	-	-	-	DAH-FN-25B DAH-FN-26B D/G Starting Air	DG-TCV-7A-1	Note 11
51	DG-F-64B	Lube Oil Filter	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-F-64A	Notes 1 and 6	
52	DG-F-23B	Lube Oil Duplex Filter	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-F-23A	Notes 1 and 6	
53	DG-S-4B	Lube Oil Strainer	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-S-4A	Notes 1 and 6	
54	DG-S-85B	Lube Oil Sump Suction Strainer	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-S-85A	Notes 1 and 6	
55	DG-S-5B	Fuel Oil Storage Tank Duplex Strainer	DG-20464	B	310524 202264	DG-F-1B-A	X	X	-	-	-	-	-	-	-	-	-	-	DG-S-5A	Notes 1 and 2	
56	DG-S-6B	Fuel Oil Day Tank Duplex Strainer	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-S-6A	Notes 1 and 6	
57	DG-F-65B	Fuel Oil Duplex Filter	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-F-65A	Notes 1 and 6	
58	DG-TK-110B	Fuel Oil Accumulator Tank	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	DG-TK-110A	Notes 1 and 6	
59	DG-C-2B	DG Starting Air Compressor	DG-220465	B	310524	DG-F-2B-A	X	X	X	-	NC4	DG-BP3-52 DG-CS-9569 DGB-PS-APCI DGB-PS-APCZ DG-HR4-HR9 DG-BP3-42 DG-BP3-49 DG-BP3-FU	460 v AC Circuit Breaker Control Switch Pressure Switch Pressure Switch EPS Relay Motor Starter Thermal O. L. Fuse	BP3 BP3 HM3 HM3 HR3 BP3 BP3 BP3	D6-F-2B-A D6-F-2B-A D6-F-2B-A D6-F-2B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	BP3-NC4 BP3-HM3 BP3-HR4	310857 BP3a BP3c	DAH-FN-25B DAH-FN-26B EDE-MCC-611	DG-C-2A	Note 7	
59a	DG-C-18B	DG Backup Operating Air Compressor	DG-20465	B	310524	DG-F-2B-A	X	X	X	-	ML8	DG-B55-52 DG-B55-42 DG-B55-49 DG-B55-FU DG-CS-9536 DGB-PS-APC3 DGB-PS-APC4 DG-V-325B	460 v AC Ckt Bkr. Motor Starter Thermal O. L. Fuse Control Switch Pressure Switch Pressure Switch Unloader Sol. Vlv.	B55 B55 B55 B55 B55 HM3 HM3 UB1	DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A	B55-ML8 B55-HM3	310857 B55a B55c	DAH-FN-25B DAH-FN-26B EDE-MCC-611	DG-C-18A	Note 7	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table MCR 3.1.3.18-21
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
60	DG-SKD-17B	Diesel Generator 1B Starting Air Compressor Skid	DG-20465	B	310524	DG-F-2B-A	X	X	X	-	HM3	DG-E47/4-52	120 v AC Circuit Breaker	E47	DG-F-2B-A	E47-HM3 BP3-HM3/1	310857 E47/4a	E47/4b	DAH-FN-25B DAH-FN-26B EDE-MCC-E611 120 v AC Dist. Panel	DG-SKD-17A	Note 7
												DG-HM3-52	120 v AC Circuit Breaker	HM3	DG-F-2B-A						
												DG-HM3-ATM	Auto Drain Timer	HM3	DG-F-2B-A						
												DG-V-253B	Auto Drain Solenoid Vlv.	HM3	DG-F-2B-A						
												DG-HM3-ICT	Motor Synchronous Timer	HM3	DG-F-2B-A						
												DG-V-279B	Left Chamber inlet Sol. Vlv.	HM3	DG-F-2B-A						
												DG-V-280B	Right Chamber inlet Sol. Vlv.	HM3	DG-F-2B-A						
												DG-V-285B	Repressurizing Sol. Vlv.	HM3	DG-F-2B-A						
												DG-V-288B	Left Chamber Exhaust Sol. Vlv.	HM3	DG-F-2B-A						
												DG-V-289B	Right Chamber Exhaust Sol. Vlv.	HM3	DG-F-2B-A						
												DG-V-HM3-KR	Aux. Relay	HM3	DG-F-2B-A						
												DG-BP3-42	Motor Starter	BP3	CB-F-1B-A						

NOTES

- The equipment is mechanical with no electrical requirement.
- Electrical conduit plan drawing, 310524, is listed only to show the fire zone corresponding to the location of this equipment in the Diesel Generator Building as identified in 202263.
- Electrical conduit plan drawing, 310767, is listed only to show fire zone corresponding to the location of this equipment in the Primary Auxiliary Building as identified in 805217.
- This equipment is located in the Diesel Generator Skid DG-SKD-7A.
- This equipment is located in the Diesel Generator Skid DG-SKD-17A.
- This equipment is located in the Diesel Generator Skid DG-SKD-7B.
- This equipment is located in the Diesel Generator Skid DG-SKD-17B.
- The pneumatic control diagram of this equipment is shown in the DG air cooler water control loop diagram, 506403.
- The pneumatic control diagram of this equipment is shown in the diesel engine jacket cooling water control loop diagram, 506404.
- The pneumatic control diagram of this equipment is shown in the DG air cooler water control loop diagram, 506405.
- The pneumatic control diagram of this equipment is shown in the DG diesel engine jacket cooling water loop diagram, 506406.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Raceway Arrangement Drawings (Typical)	Rev. 5 Appendix IV Page IV-1
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Raceway Arrangement Drawings (Typical)

This section originally contained photographs of marked raceway arrangement drawings for several fire areas/zones of the plant containing redundant Safe Shutdown equipment and cables. The typical drawings included in this section were provided to only show the methodology used for the original report preparation. These typical drawings were not intended to be updated for report revisions.

These original drawings were typical of the raceway arrangement drawings which were marked for each fire area/zone containing safe shutdown equipment and cables.

The latest design documents, not these typical drawings, should be used to evaluate the Safe Shutdown Capability.

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table RSS 3.1.3.1-2
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	FW-FV-4214B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2J	FW-B3Z-52 FW-B3Z-FU FW-CS-4214-B2 FW-SS-4214-B FW-B3Z-42/0,C FW-B3Z-49 FW-ZS-4214-B FW-E3D-4214BX	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay	B3Z B3Z G2J G2J B3Z B3Z V2J E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A	B3Z-V2J B3Z-V2J/1 E3D-G2J G2J-V2J B3Z-G2J	B3Za B3Zd B3Ze	310844	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4214-A	
5	FW-FV-4224A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2F	FW-B3W-52 FW-B3W-FU FW-CS-4244-A2 FW-SS-4224-A FW-B3W-42/0,C FW-B3W-49 FW-ZS-4224-A FW-E3C-4224AX	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay	B3W B3W G2G G2G B3W B3W V2F E3C	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A	B3W-V2F B3W-V2F/1 E3C-G2G/1 G2G-V2F	B3WA B3WD B3WE	310844	CBA-FN-19 CBA-FN-20 EPA-FN-47A EDE-MCC-515	FW-FV-4224-B	
6	FW-FV-4224B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2K	FW-B4A-52 FW-B3W-FU FW-CS-4224-B2 FW-SS-4224-B FW-B4A-42/0,C FW-B4A-49 FW-ZS-4224-B FW-E3D-4224BX	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay	B4A B4A G2J G2J B4A B4A V2K E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A	B4A-V2K B4A-V2K/1 E3D-G2J/1 G2J-V2K B4A-G2J	B4Aa B4Ad B4Ae	310844	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4224-A	
7	FW-FV-4234A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2G	FW-B3X-52 FW-B3X-FU FW-CS-4234-A2 FW-SS-4214-A FW-B3X-42/0,C FW-B3X-49 FW-ZS-4234-A FW-E3C-4234AX	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay	B3X B3X G2G G2G B3X B3X V2G E3C	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A	B3X-V2G B3X-V2G/1 G2G-V2G E3C-G2G/2	B3Xa B3Xd B3Xe	310844	CBA-FN-19 CBA-FN-20 EPA-FN-47A EDE-MCC-515	FW-FV-4234-B	
8	FW-FV-4234B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EPF-F-1-A	X	X	X	-	V2L	FW-B4B-52 FW-B4B-FU FW-CS-4234-B2 FW-SS-4214-B FW-B4B-42/0,C FW-B4B-49 FW-ZS-4234-B FW-E3D-4234BX	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay	B4B B4B G2J G2J B4B B4B V2L E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A	B4B-V2L B4B-V2L/1 E3D-G2J/2 G2J-V2L B4B-G2J	B4Ba B4Bd B4Be	310844	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4234-A	
9	FW-FV-4244A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2H	FW-B3Y-52 FW-B3Y-FU FW-CS-4244-A2 FW-SS-4224-A FW-B3Y-42/0,C FW-B3Y-49 FW-ZS-4244-A FW-E3C-4244AX	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay	B3Y B3Y G2G G2G B3Y B3Y V2H E3C	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A	B3Y-V2H B3Y-V2H/1 E3C-G2G/3 G2G-V2H	B3Ya B3Yd B3Ye	310844	CBA-FN-19 CBA-FN-20 EPA-FN-47A EDE-MCC-515	FW-FV-4244-B	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table RSS 3.1.3.1-3</div>
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
10	FW-FV-4244B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2M	FW-B4C-52 FW-B4C-FU FW-CS-4244-B2 FW-SS-4224-B FW-B4C-42/0, C FW-B4C-49 FW-ZS-4244-B FW-E3D-4244BX	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch Auxiliary Relay	B4C B4C G2J G2J B4C B4C V2M E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A	B4C-V2M B4C-V2M/1 E3D-G2J/3 GJ2-V2M B4C-G2J	B4Ca B4Cd B4Ce	310844	CBA-FN-32 CBA-FN-33 EPA-FN-47B EDE-MCC-615	FW-FV-4244-A	
11	MS-PV-3001	Main Steam Header Atmospheric Relief Valve	MS-20580	A/B	310589	MS-F-2B-Z	X	X	X	X	V2N	MS-HIC-3001 MS-HQY-3001 MS-HY-3001 MS-SS-3001-1 MS-CS-3001-2 MS-PY-3001 MS-E2T/8-72 MS-CS-3001-2 MS-SS-3001-1 MS-ZS-3001-A MS-PY-3001-1 MS-PY-3001-2 MS-PY-3001-3 MS-PY-3001-4 MS-SS-3001-2 MS-PY-3001-5 + 6	Auto/Manual Controller with Indicator Mixing Amplifier Signal Converter Selector Switch Control Switch with Indication I/P Converter 125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch Solenoid Valve Solenoid Valve Solenoid Valve Solenoid Valve Selector Switch Solenoid Valve	G2G G2H G2H G2G G2G GL6 E2T G2G G2G V2N UOA UOA UOB UOB GSX E2U	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A MS-F-1B-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z DG-F-2A-A CB-F-1B-A	G2G-GL6 G2G-V2N G2G-UOA G2G-UOB E2T-G5X G2G-G5X -	310841 G2Ga 310841 E2T/8a 310953 FJ71 E2T/8e E2T/8f	CBA-FN-19 CBA-FN-20 MM-UQ-5868 MM-UQ-5869 Instrument Air EDE-PP-113A CBA-FN-19 CBA-FN-20 Instrument Air -	MS-PV-3002 or MS-PV-3004		Note 6
12	MS-PV-3003	Main Steam Header Atmospheric Relief Valve	MS-20580	A/B	310586	MS-F-2A-Z	X	X	X	X	V2Q	MS-HIC-3003 MS-HQY-3003 MS-HY-3003 MS-SS-3003-1 MS-CS-3003-2 MS-PY-3003 MS-E2T/10-72 MS-CS-3003-2 MS-SS-3003-1 MS-ZS-3003-A MS-PY-3003-1 MS-PY-3003-2 MS-PY-3003-3 MS-PY-3003-4 MS-SS-3003-2 MS-PY-3003-5 + 6	Auto/Manual Controller with Indicator Mixing Amplifier Signal Converter Selector Switch Control Switch with Indication I/P Converter 125 V DC Circuit Breaker Control Switch with Indication Selector Switch Valve Position Switch Solenoid Valve Solenoid Valve Solenoid Valve Solenoid Valve Selector Switch Solenoid Valve	G2G G2H G2H G2G G2G GL5 E2T G2G G2G V2Q UOK UOK UOL UOL GSX E2U	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A MS-F-3A-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z MS-F-2A-Z DG-F-2A-A CB-F-1B-A	G2G-GL5 G2G-V2Q G2G-UOK G2G-UOL E2T-G5X/1 G2G-G5X/1 -	310841 G2Ga 310841 E2T/10a 310953 FJ71 E2T/10e E2T/10f	CBA-FN-19 CBA-FN-20 MM-UQ-5868 MM-UQ-5869 Instrument Air EDE-PP-113A CBA-FN-19 CBA-FN-20 Instrument Air -	MS-PV-3002 or MS-PV-3004		Note 6

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table RSS 3.1.3.1-4</div>
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
13	MS-PV-3002	Main Steam Header Atmospheric Relief Valve	MS-20580	A/B	310586	MS-F-2A-Z	X	X	X	X	V2P	MS-HIC-3002	Auto/Manual Controller with Indicator	G2J	CB-F-1B-A	G2J-GZ4	310841 G2JaFJ4d	CBA-FN-32 CBA-FN-33 MM-UQ-5866 MM-UQ-5867 Instrument Air	MS-PV-3001 or MS-PV-3003		
												MS-HQY-3002	Mixing Amplifier	G2O	CB-F-1B-A						
												MS-HY-3002	Signal Converter	G2O	CB-F-1B-A						
												MS-SS-3002-1	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	G24	MS-F-3A-Z						
												MS-E2U/8-72	125 V DC Circuit Breaker	E2U	CB-F-1B-A	G2J-V2P					
												MS-CS-3002-2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-UOG	E2U/8a	E2U/8e	EDE-PP-113B		
												MS-SS-3002-1	Selector Switch	G2J	CB-F-1B-A	G2J-UOH	E2U/8f	E2U/8f	CBA-FN-32		
												MS-ZS-3002-B	Valve Position Switch	G2J	CB-F-1B-A	E2U-G5Y			CBA-FN-33		
												MS-PY-3002-1	Solenoid Valve	UOG	MS-F-2A-Z	G2J-G5Y			Instrument Air		
												MS-PY-3002-2	Solenoid Valve	UOG	MS-F-2A-Z						
												MS-PY-3002-3	Solenoid Valve	UOH	MS-F-2A-Z						
												MS-PY-3002-4	Solenoid Valve	UOH	MS-F-2A-Z						
												MS-SS-3002-2	Selector Switch	G5Y	DG-F-2B-A						
											U0J	MS-PY-3002-5 + 6	Solenoid Valve	E2T	CB-F-1A-A	-	-	-	-	Note 6	
14	MS-PV-3004	Main Steam Header Atmospheric Relief Valve	MS-20580	A/B	310589	MS-F-2B-Z	X	X	X	X	V2R	MS-HIC-3004	Auto/Manual Controller with Indicator	G2J	CB-F-1B-A	G2J-GZ6	310841 G2JaFJ4d	CBA-FN-32 CBA-FN-33 MM-UQ-5866 MM-UQ-5867 Instrument Air	MS-PV-3001 or MS-PV-3003		
												MS-HQY-3004	Mixing Amplifier	G2O	CB-F-1B-A						
												MS-HY-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	G26	MS-F-1B-Z						
												MS-E2U/10-72	125 V DC Circuit Breaker	E2U	CB-F-1B-A	G2J-V2R					
												MS-CS-3004-2	Control Switch with Indication	G2J	CB-F-1B-A	G2J-UOD	E2U/10a	E2U/10e	EDE-PP-113B		
												MS-SS-3004-1	Selector Switch	G2J	CB-F-1B-A	G2J-UOE	E2U/10f	E2U/10f	CBA-FN-32		
												MS-ZS-3004-B	Valve Position Switch	V2R	MS-F-2B-Z	E2U-G5Y/1			CBA-FN-33		
												MS-PY-3004-1	Solenoid Valve	UOD	MS-F-2B-Z	G2J-G5Y/1			Instrument Air		
												MS-PY-3004-2	Solenoid Valve	UOD	MS-F-2B-Z						
												MS-PY-3004-3	Solenoid Valve	UOE	MS-F-2B-Z						
												MS-PY-3004-4	Solenoid Valve	UOE	MS-F-2B-Z						
												MS-SS-3004-2	Selector Switch	G5Y	DG-F-2B-A						
											UOF	MS-PY-3004-5 + 6	Solenoid Valve	E2T	CB-F-1A-A	-	-	-	-	Note 6	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.1-5
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
15	MS-V-86	Main Steam Isolation Valve	MS-20583	A/B	310589	MS-F-2B-Z	X	X	X	X	ZV0 ZV1 ZV2 ZW1	MS-E87/14-72 MS-FY-89A-1 MS-FY-10A-1 MS-FY-102A-1 MS-FY-102B-1 MS-GX6-K103 MS-GX6-K104 MS-GX6-CS-3005-A MS-E1S/7-52 MS-GX6-FU-101&102 MS-GX6-K101 MS-GX6-K102 MS-ZS-V86A-1 MS-ZS-V86A-2 MS-ZL-3005-1 MS-SS-3005-1 MS-CP-184 MS-E88/14-72 MS-FY-89B-1 MS-FY-10B-1 MS-FY-117A-1 MS-FY-117B-1 MS-GX9-K103 MS-GX9-K104 MS-GX9-CS-3005-B MS-E1T/7-52 MS-GX9-FU-101&102 MS-GX9-K101 MS-GX9-K102 MS-ZS-V86B-1 MS-ZS-V86B-2 MS-ZL-3005-2 MS-CP-185 MS-SS-3005-2	125 V DC Circuit Breaker Pilot Solenoid Pilot Solenoid Solenoid Valve Solenoid Valve Output Relay Output Relay Control Switch 120 V AC Circuit Breaker 120 V AC Fuses Output Relay Output Relay Valve Position Switch Valve Position Switch Valve Position Indicating Lights Selector Switch MSIV Logic Cabinet (Train A) 125 V DC Circuit Breaker Pilot Solenoid Pilot Solenoid Solenoid Valve Solenoid Valve Output Relay Output Relay Control Switch 120 V AC Circuit Breaker 120 V AC Fuses Output Relay Output Relay Valve Position Switch Valve Position Switch Valve Position Indicating Lights MSIV Logic Cabinet (Train B) Selector Switch	E87 ZV1 ZV1 ZV1 ZV1 GX6 GX6 GX6 E1S GX6 GX6 GX6 ZV0 ZV0 G2G G2G GX6 E88 ZV2 ZV2 ZV2 ZV2 GX9 GX9 GX9 E1T GX9 GX9 GX9 ZW1 ZW1 G2J GX9 G2J	CB-F-1A-A MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z MS-F-3A-Z MS-F-3A-Z MS-F-3A-Z CB-F-1A-A MS-F-3A-Z MS-F-3A-Z MS-F-3A-Z MS-F-2B-Z MS-F-2B-Z CB-F-1A-A CB-F-1A-A MS-F-3A-Z CB-F-1B-A MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z MS-F-2B-Z 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 MS-F-2B-Z MS-F-2B-Z CB-F-1B-A	E87-GX6 GX6-ZV1 E1S-GX6/1 G2G-GX6/4 G2G-GX6/5 GX6-ZV0 G2G-GX6/3 E88-GX9 GX9-ZV2 E1T-GX9/3 G2J-GX9/1 G2J-GX9 GX9-Z1C	310841 E87/14a E87/14b E1S/7a E1S/7b E1S/7c E1S/7d E1S/7h E1S/7i E1S/7j E1S/7k E88/14a E88/14b E1T/7a E1T/7b E1T/7c E1T/7f	CBA-FN-19 CBA-FN-20 EDE-PP-112A CBA-FN-19 CBA-FN-20 EDE-PP-11E CBA-FN-32 CBA-FN-33 EDE-PP-112B CBA-FN-32 CBA-FN-33 EDE-PP-11F	None	Notes 4 and 5	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.1-9
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FUNCTION: DECAY HEAT REMOVAL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
24	RC-E-11B	Steam Generator	RC-20842	B	310576 310582 310578	C-F-1-Z C-F-1-Z C-F-2-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	RC-E-11A or RC-E-11C	Note 1
25	RC-E-11C	Steam Generator	RC-20843	A	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	RC-E-11B or RC-E-11D	Note 1
26	RC-E-11D	Steam Generator	RC-20844	B	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	RC-E-11A or RC-E-11C	Note 1
27	SB-V9	Outboard Blowdown Isolation Valve	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM4	SB-E88/18-72	125 V DC Circuit Breaker	E88	CB-F-1B-A	-	-	-	-	SB-V-1	Notes 3 and 4
28	SB-V10	Outboard Blowdown Isolation Valve	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM5	SB-E88/18-72	125 V DC Circuit Breaker	E88	CB-F-1B-A	-	-	-	-	SB-V-3	Notes 3 and 4
29	SB-V11	Outboard Blowdown Isolation Valve	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM6	SB-E88/18-72	125 V DC Circuit Breaker	E88	CB-F-1B-A	-	-	-	-	SB-V-5	Notes 3 and 4
30	SB-V12	Outboard Blowdown Isolation Valve	SB-20626	B	310589	MS-F-1B-Z	X	X	X	X	UM7	SB-E88/18-72	125 V DC Circuit Breaker	E88	CB-F-1B-A	-	-	-	-	SB-V-7	Notes 3 and 4

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.2-1
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	RC-E-10	Reactor Coolant System Pressurizer	RC-20846	A/B	310598	C-F-1-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	None	Note 1
2	RC-E-10	Pressurizer Heaters Group A	RC-20846	A	310598	C-F-1-Z	X	X	X	-	M26	RC-AB4-52 RC-AB4-FU RC-CS-7318-2 RC-SS-7318 EDE-AC3-94-3 RC-AB4-52H-1 EDE-TBX-X47 RC-AB4-G,R RC-AB4-CT1 RC-AB4-AM RC-AB4-CT2 RC-AC3-WTR RC-PP-6A EDE-MM-90	480 V AC Circuit Breaker Fuses Control Switch with Indication Selector Switch Bus Undervoltage Relay Truck Operated Contact Terminal Box Indicating Lights Current Transformer (600/5) øB Bus Side Ammeter Current Transformer (600/5) øA, øC Load Side Watt Transducer Distribution Panel Electrical Penetration	AB4 AB4 G81 G81 AC3 AB4 AB4 AB4 AB4 AC3 E07 H14	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-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A ET-F-1A-A ET-F-1A-A C-F-2-Z	AB4-E07 AB4-E07/1 AB4--G81 AB4-G81/1 E07-H14 E07-H14/1 E07-H14/2 E07-H14/3 E07-H14/4 H14-X47 H14-X47/1 H14-X47/2 H14-X47/3 H14-X47/4 M26-X47 M26-X47/1 M26-X47/2 M26-X47/3 M26-X47/4 M26-X47/5 M26-X47/6 M26-X47/7 M26-X47/8 M26-X47/9 M26-X47/A M26-X47/B M26-X47/C M26-X47/D M26-X47/E	AB4a 310882 AB4b AB4c AB4g	CBA-FN-19 CBA-FN-20 EDE-US-52	Pressurizer Heaters Group B	-	

Notes

- The equipment is mechanical with no electrical requirement.
- During normal operation, the valve is in its safe shutdown position. To prevent spurious operations, this equipment will be disabled at the appropriate control location.
- Disabling the valve at the appropriate control location will reposition it for safe shutdown.
- Air is not needed to position or to reposition the valve for safe shutdown.
- These valves are closed with their circuit breakers locked open during 100% power operation. This will prevent spurious operation. For cold shutdown, these valves are energized for repositioning.
- Not Used.

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.2-2</div>
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
3	RC-E-10	Pressurizer Heaters Group B	RC-20846	B	310598	C-F-1-Z	X	X	X	-	M26	RC-AD4-52 RC-AD4-FU RC-CS-7319-2 RC-SS-7319 EDE-AE3-94-3 RC-AD4-52H-1 RC-AD4-G,R EDE-TBX-X44 RC-AD4-CT1 RC-AD4-AM RC-AD4-CT2 RC-AE3-WTR RC-PP-6B EDE-MM-96 RC-AE3-R1	480 V AC Circuit Breaker Fuses Control Switch with Indication Selector Switch Bus Undervoltage Relay Truck Operated Contact Indicating Lights Terminal Box Current Transformer (600/5) øB Bus Side Ammeter Current Transformer (600/5) øA, øC Load Side Watt Transducer Distribution Panel Electrical Penetration Auxiliary Relay	AD4 AD4 GZ0 GZ0 AE3 AD4 X44 AD4 AD4 AD4 AE3 E08 H20 AE3	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 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-1C-A ET-F-1C-A C-F-1-Z CB-F-1B-A	AD4-E08 AD4-E08/1 AD4-GZ0 AD4-GZ0/1 AE3-GZ0 E08-H20 E08-H20/1 E08-H20/2 E08-H20/3 E08-H20/4 H20-X44 H20-X44/1 H20-X44/2 H20-X44/3 H20-X44/4 M26-X44 M26-X44/1 M26-X44/2 M26-X44/3 M26-X44/4 M26-X44/5 M26-X44/6 M26-X44/7 M26-X44/8 M26-X44/9 M26-X44/A M26-X44/B M26-X44/C M26-X44/D M26-X44/E	AD4a AD4b AD4c	AD4f	CBA-FN-32 CBA-FN-33 EDE-US-62	Pressurizer Heaters Group A	
4	RC-V-122	RC-E-10 Pressurizer Relief Isolation Valve	RC-20846	A	310581	C-F-3-Z	X	X	X	-	V01	RC-B97-52-1,2 RC-B97-FU RC-CS-7313-2 RC-SS-7313 RC-B97-42-1/0,C RC-B97-42-2 RC-B97-49-1,2 EDE-TBX-X56 RC-ZS-V122 EDE-MM-94 EDE-MM-111	460 V AC 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	B97 B97 G81 G81 B97 B97 B97 X56 V01 H18 H35	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-3-Z C-F-3-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A	B97-G81 B97-G81/1 B97-H18 B97-H35 H18-V01 H35-X56 V01-X56	310882 B97a B97e	B97c	CBA-FN-19 CBA-FN-20 EDE-MCC-521	RC-V-124 RC-PCV-456A	

Notes

7. These valves are also listed in Table RSS 3.1.3.6.

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 -F815214).

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.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.2-3
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	RC-V-124	RC-E-10 Pressurizer Relief Isolation Valve	RC-20846	B	310581	C-F-3-Z	X	X	X	-	V02	RC-B98-52-1,2 RC-B98-FU FC-CS-7314-2 RC-SS-7314 RC-B98-42-1/0,C RC-B98-42-2 RC-B98-49-1,2 EDE-TBX-X35 RC-ZS-V124 EDE-MM-91 EDE-MM-117	460 V AC 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	B98 B98 G20 G20 B98 B98 B98 X35 V02 H15 H41	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-3-Z C-F-3-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A	B98-GZ0 B98-GZ0/1 B98-GZ0/2 B98-H15 B98-H41 H15-V02 H41-X35 V02-X35	B98a B98e	B98c	CBA-FN-32 CBA-FN-33 EDE-MCC-621	RC-V-122 RC-PCV-456B	
6	RC-PCV-456A	RC-E-10 Pressurizer Relief Control Valve	RC-20846	A	310581	C-F-3-Z	X	X	X		LD3	RC-E87/19-72 RC-CS-456A-2 RC-SS-456-A1 RC-SS-456-A2 RC-J3M-42 RC-PCV-456A-20 RC-ZS-PCV-456A RC-E4A-FU11,12 EDE-TBX-X56 EDE-MM-94 EDE-MM-111	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Selector Switch Auxiliary Relay Solenoid Operating Coil Valve Position Switch 30 A Fuses Terminal Box Electrical Penetration Electrical Penetration	E87 G81 G81 G5X J3M LD3 LD3 E4A X56 H18 H35	CB-F-1A-A CB-F-1A-A CB-F-1A-A DG-F-2A-A DG-F-2A-A C-F-3-Z C-F-3-Z CB-F-1A-A C-F-3-Z C-F-2-Z, ET-F-1A-A	E87-E4A/4 E4A-J3M G81-J3M G81-H35 G5X-J3M H18-J3M H18-LD3 H35-X56/2 LD3-X56	E87/19a	E87/19c	CBA-FN-19 CBA-FN-20 EDE-PP-112A	RC-PCV-456B RC-V-122	
7	RC-PCV-456B	RC-E-10 Pressurizer Relief Control Valve	RC-20846	B	310581	C-F-3-Z	X	X	X		LD4	RC-E88/19-72 RC-CS-456B-2 RC-SS-456-B1 RC-SS-456-B2 RC-J3P-42 RC-PCV-456B-20 RC-ZS-PCV-456B RC-E4C-FU19 & 20 EDE-TBX-X35 EDE-MM-100 EDE-MM-115 RC-E4C-FU-23,24	125 V DC Circuit Breaker Control Switch with Indication Selector Switch Selector Switch Auxiliary Relay Solenoid Operating Coil Valve Position Switch 30 A Fuses Terminal Box Electrical Penetration Electrical Penetration 30 A Fuses	E88 G20 G20 G5Y J3P LD4 LD4 E4C X35 H24 H39 E4C	CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-2B-A DG-F-2B-A C-F-3-Z C-F-3-Z CB-F-1B-A C-F-3-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-1B-A	E88-E4C/7 E4C-GZ0/2 E4C-J3P GZ0-J3P GZ0-H39 G5Y-J3P H24-J3P H24-LD4 H39-X35 LD4-X35	E88/19a	310882 E88/19c	CBA-FN-32 CBA-FN-33 EDE-PP-112B	RC-PCV-456A or RC-V-124	
8	RC-TK11	Pressurizer Relief Tank	RC-20846	A/B	310577	C-F-1-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	None	Note 1
9	RC-V-323	Reactor Vessel Venting Valve	RC-20845	B	310581	C-F-3-Z	X	X	X	-	VB2	RC-BV9-52-1	460 V AC Circuit Breaker	BV9	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	RC-FV-2881	Note 2
10	RC-FV-2881	Reactor Vessel Venting Valve	RC-20845	B	310581	C-F-3-Z	X	X	X		U04	RC-E88/1-72 RC-SS-2881	125 V DC Circuit Breaker Selector Switch	E88 G5Y	CB-F-1B-A DG-F-2B-A	-	-	-	CBA-FN-32 CBA-FN-33 DAH-FN-25B DAH-FN-26B	RC-V-323	Note 2

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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
17	RC-P-1C	Reactor Coolant Pump	RC-20843	A	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	-	X	-	M03	RC-A09-52	13.8 kV AC Circuit Breaker	A09	NES-F-1A-Z	-	-	-	-	None	Note 10
18	RC-P-1D	Reactor Coolant Pump	RC-20844	A	310577 310583 310579	C-F-1-Z C-F-1-Z C-F-2-Z	X	-	X	-	M04	RC-A24-52	13.8 kV AC Circuit Breaker	A24	NES-F-1A-Z	-	-	-	-	None	Note 10
19	RC-V-22	RC-E-11A Hot Leg-RHR Isolation Valve	RC-20841	B	310582	C-F-1-Z	-	X	X	-	V27	RC-B54-52-1	460 V AC Circuit Breaker	B54	CB-F-1B-A	-	-	-	-	RC-V-23	Notes 5 and 7
20	RC-V-23	RC-E-11A Hot Leg-RHR Isolation Valve	RC-20841	A	310576	C-F-1-Z	-	X	X	-	V25	RC-B53-52-1	460 V AC Circuit Breaker	B53	CB-F-1A-A	-	-	-	-	RC-V-22	Notes 5 and 7
21	RC-V-87	RC-E-11D Hot Leg-RHR Isolation Valve	RC-20844	B	310582	C-F-1-Z	-	X	X	-	V26	RC-B61-52-1	460 V AC Circuit Breaker	B61	CB-F-1B-A	-	-	-	-	RC-V-87	Notes 5 and 7
22	RC-V-88	RC-E-11D Hot Leg-RHR Isolation Valve	RC-20844	A	310577	C-F-1-Z	-	X	X	-	V28	RC-B62-52-1	460 V AC Circuit Breaker	B62	CB-F-1A-A	-	-	-	-	RC-V-88	Notes 5 and 7
23	SI-V-3	Accumulator TK-9A Outlet Isolation Valve	SI-20450	A	310576	C-F-1-Z		X	X	-	V39	SI-B35-5-1,2 SI-B35-FU SI-CS-2403-2 SI-SS-2403 SI-ZL-2403-4 SI-B35-42/0,C SI-B35-49 SI-ZS-V3 EDE-MM-95 EDE-MM-112 SI-EH9/9-52 SI-CS-2403-2 SI-SS-2403 SI-ZS-V3 SI-E4H-FU7,8 EDE-MM-112	460 V AC 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 120 V AC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 A Fuses Electrical Penetration	B35 B35 G81 G81 G81 B35 B35 V39 H19 H36 EH9 G81 G81 V39 E4H H36	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-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z CB-F-1A-A C-F-2-Z, ET-F-1A-A	B35-G81 B35-H19 B35-H36 H19-V39 H36-V39 EH9/9a EH9/9b G81-H35/5 G81-H36/6 H35-V41/1 H36-V39/1 E4H-EH9 E4H-G81	B35a B35c	CBA-FN-19 CBA-FN-20 EDE-MCC-522 CBA-FN-19 CBA-FN-20 EDE-PP-1E	SI-FV-2475 SI-FV-2476		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.2-7</div>
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
26	SI-V-47	Accumulator TK-9D Outlet Isolation Valve	SI-20450	B	310577	C-F-1-Z		X	X	-	V42	SI-B38-52-1,2 SI-B38-FU SI-CS-2433-2 SI-SS-2433 SI-ZL-2433-4 SI-B38-42/0,C SI-B38-49 SI-ZS-V47 EDE-MM-100 EDE-MM-115 SI-EH0/9-52 SI-CS-2433-2 SI-SS-2433 SI-ZS-V47 SI-E4J-FU7,8 EDE-MM-115	460 V AC 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 120 V AC Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 A Fuses Electrical Penetration	B38 B38 G20 G20 G20 B38 B38 V42 H24 H39 EH0 G20 G20 V42 E4J H39	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z CB-F-1B-A C-F-1-Z, ET-F-1C-A	B38-GZ0 B38-H24 B38-H39 H24-V42 H39-V42 GZ0-H39/5 GZ0-H41/4 H39-V42/1 H41-V40/1 E4J-EH0 E4J-GZ0	B38a B38c EH0/9a EH0/9b	CBA-FN-32 CBA-FN-33 EDE-MCC-622 CBA-FN-32 CBA-FN-33 EDE-PP-1F	SI-FV-2495 SI-FV-2496		
27	CS-P-2A	Charging Pump Lube Oil Cooler	CS-20725	A	310764 805213	PAB-F-1C-A	X	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	CS-P-2B	Note 9
28	CS-P-2B	Charging Pump Lube Oil Cooler	CS-20725	B	310764 815214	PAB-F-1D-A	X	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	CS-P-2A	Note 9
29	CS-V-460	SI-P-6A Suction Valve	CS-20725	A	310761	RHR-F-2B-Z	-	X	X	-	V59	CS-B44-52	460 V AC Circuit Breaker	B44	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 2
30	CS-V-461	SI-P-6A Suction Valve	CS-20725	B	310761	RHR-F-2B-Z	-	X	X	-	V60	VS-B45-52	460 V AC Circuit Breaker	B45	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 2
31	CS-V-167	RC Pump Seal Water Isolation Valve	CS-20726	A	310769	PP-F-5B-Z	X	X	X	-	V05	CS-B73-52	460 V AC Circuit Breaker	B73	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 2
32	CS-V-168	RC Pump Seal Water Isolation Valve	CS-20726	B	310577	C-F-1-Z	X	X	X	-	V06	CS-B72-52-1	450 V AC Circuit Breaker	B72	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 2
33	CS-V-175	Excess Letdown Isolation Valve	CS-20722	B	310577	C-F-1-Z	X	X	X	X	L95	CS-E95/2-72 CS-SS-7418	125 V DC Circuit Breaker Selector Switch	E95 G5Y	C-F-1B-A DG-F-2B-A	-	-	-	CBA-FN-32 CBA-FN-33 DAH-FN-25B DAH-FN-26B	CS-V-176	Notes 2 and 4
34	CS-V-176	Excess Letdown Isolation Valve	CS-20722	B	310577	C-F-1-Z	X	X	X	X	LA5	CS-E95/4-72	125 V DC Circuit Breaker	E95	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	CS-V-175	Notes 2 and 4
35	CS-V-196	Charging Pump Miniflow Isolation Valve	CS-20725	A	310762	PAB-F-1J-Z	X	X	X	-	V13	CS-B81-52	460 V AC Circuit Breaker	B81	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	CS-V-197	Note 2
36	CS-V-197	Charging Pump Miniflow Isolation Valve	CS-20725	B	310762	PAB-F-1J-Z	X	X	X	-	V14	CS-B86-52	460 V AC Circuit Breaker	B86	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	CS-V-196	Note 2

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.2-8
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
37	CS-LCV-112B	Chemical and Volume Control Tank Outlet Isolation Valve	CS-20725	A	310768	PAB-F-3B-Z	X	X	X	-	VE4	CS-B50-52 CS-B50-FU CS-CS-112B-2 CS-SS-112B CS-B50-42/0,C CS-B50-49 CS-ZS-LCV-112B	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay	B50 B50 G2G G2G B50 B50 VE4	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-3B-Z	B50-G2G B50-G2G/1 B50-VE4 B50-VE4/1 B50-VE4/2	B50a B50d	310891 B50c	CBA-FN-19 CBA-FN-20 EDE-MCC-512	CS-LCV-112C	
38	CS-LCV-112C	Chemical and Volume Control Tank Outlet Isolation Valve	CS-20725	B	310768	PAB-F-3B-Z	X	X	X	-	VE7	CS-B83-52 CS-B83-FU CS-CS-112C-2 CS-SS-112C CS-B83-42/0,C CS-B83-49 CS-ZS-LCV-112C	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay	B83 B83 G2J G2J B83 B83 VE7	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-3B-Z	B83-G2J B83-G2J/1 B83-VE7 B83-VE7/1 B83-VE7/2	B83a B83d	B83c	CBA-FN-32 CBA-FN-33 EDE-MCC-612	CS-LCV-112B	
39	CS-LCV-112D	Refueling Water Storage Tank to Charging Pump 2A Isolation Valve	CBS-20233	A	301254	TF-F-1-0	X	X	X	-	VE6	CS-B78-52 CS-CS-122D-2 CS-SS-112D CS-B78-42/0,C CS-B78-49 CS-ZS-LCV-112D	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay	B78 G2G G2G B78 B78 VE6	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A TF-F-1-0	B78-G2G B78-G2G/1 B78-VE6 B78-VE6/1 B78-VE6/2	B78a B78d	B78c	CBA-FN-19 CBA-FN-20 EDE-MCC-512	CS-LCV-112E	
40	CS-LCV-112E	RWST CBS-TK-8 to Charging Pump 2B Isolation Valve	CBS-20233	B	301254	TF-F-1-0	X	X	X	-	VE5	CS-B79-52 CS-CS-122E-2 CS-SS-112E CS-B79-42/0,C CS-B79-49 CS-ZS-LCV-112E	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Auxiliary Relay Fuse	B79 G2J G2J B79 B79 VE5	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A TF-F-1-0	B79-G2J B79-G2J/1 B79-VE5 B79-VE5/1 B79-VE5/2	B79a B79d	310891 B79c	CBA-FN-32 CBA-FN-33 EDE-MCC-612	CS-LCV-112D	
41	SI-V-138	Charging Pump To Cold Leg Isolation Valve	SI-20447	A	310769	PP-F-1B-Z	X	X	X	-	V31	SI-B31-52 SI-CS-2437-2 SI-SS-2437 SI-B31-42/0,C SI-B31-49 SI-ZS-V138 SI-B31-FU	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuse	B31 G81 G81 B31 B31 V31 B31	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PP-F-1B-Z CB-F-1A-A	B31-G2G B31-G2G/2 B31-V31 B31-V31/1 B31-V31/2	B31a B31d	310890 B31c	CBA-FN-19 CBA-FN-20 EDE-MCC-521	SI-V-139	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.2-9
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
42	SI-V-139	Charging Pump To Cold Leg Isolation Valve	SI-20447	B	310769	PP-F-1B-Z	X	X	X	-	V32	SI-B32-52 SI-CS-2447-2 SI-SS-2447 SI-B32-42/0,C SI-B32-49 SI-ZS-V139 SI-B32-FU	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuses	B32 G20 G20 B32 B32 V32 B32	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PP-F-1B-Z CB-F-1B-A	B32-G2J B32-G2J/2 B32-V32 B32-V32/1 B32-V32/2	B32a B32d	B32c	CBA-FN-32 CBA-FN-33 EDE-MCC-621	SI-V-138	
43	RC-E-10	Pressurizer Heaters Group C	RC-20846	A	310598	C-F-1-Z	X	-	X	-	M26	RC-AG4-52	480 V AC Circuit Breaker	AG4	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 8
44	RC-E-10	Pressurizer Heaters Group D	RC-20846	A	310598	C-F-1-Z	X	-	X	-	M26	RC-AM5-52	480 V AC Circuit Breaker	AM5	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 8
45	CBS-P-9A	Containment Spray Pump	CSB-20233	A	310761	RHR-F-1B-Z	X	-	X	-	M15	CBS-A61-52	4160 V AC Circuit Breaker	A61	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 11
46	CBS-P-9B	Containment Spray Pump	CBS-20233	B	310761	RHR-F-1A-Z	X	-	X	-	M16	CBS-A81-52	4160 V AC Circuit Breaker	A81	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 11
47	SI-P-6A	Safety Injection Pump	SI-20446	A	310761	RHR-F-2B-Z	-	X	X	-	M09	SI-A56-52	4160 V AC Circuit Breaker	A56	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 11
48	SI-P-6B	Safety Injection Pump	SI-20446	B	310761	RHR-F-2A-Z	-	X	X	-	M10	SI-A76-52	4160 V AC Circuit Breaker	A76	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 11
49	SI-V-158	Charging Pump Test Line Isolation Valve	SI-20447	B	310577	C-F-1-Z	-	X	X	X	L89	RC-E88/7-72	125 V DC Circuit Breaker	E88	CB-F-1B-A	-	-	-	-	-	Note 2
50	SI-V-159	Charging Pump Test Line Isolation Valve	SI-20447	A	310577	C-F-1-Z	-	X	X	X	L90	RC-E89/4-72	125 V DC Circuit Breaker	E89	CB-F-1A-A	-	-	-	-	-	Note 2
51	SI-FV-2475	Accumulator TK-9A Relief Valve	SI-20450	B	310578	C-F-2-Z	-	X	X	-	V2Z	SI-E2U/7-72 SI-E4C-FU SI-SS-2475 SI-CS-2475-2 EDE-MM-115 SI-20-FV-2475 SI-ZS-FV-2475	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2U E4C G20 G20 H39 V2Z V2Z	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A C-F-2-Z C-F-2-Z	E2U-E4C/3 E4C-G20/1 G20-H39/6 H39-V2Z	E2U/7a 310890 E2U/7f E2U/7g E2U/7h	EDE-PP-113B			
52	SI-FV-2476	Accumulator TK-9A Relief Valve	SI-20450	B	310578	C-F-2-Z	-	X	X	-	V3A	SI-E2U/7-72 SI-E4C-FU SI-SS-2475 SI-CS-2475-2 EDE-MM-115 SI-20-FV-2476 SI-ZS-FV-2476	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2U E4C G20 G20 H39 V3A V3A	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A C-F-2-Z C-F-2-Z	E2U-E4C/3 E4C-G20/1 G20-H39/6 G20-H39/7 H39-V3A	E2U/7b E2U/7f E2U/7g E2U/7h	EDE-PP-113B			

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.2-10</div>
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
53	SI-FV-2477	Accumulator TK-9C Relief Valve	SI-20450	B	310578	C-F-2-Z	-	X	X	-	V3D	SI-E2U/7-72 SI-E4C-FU SI-SS-2475 SI-CS-2477-2 EDE-MM-117 SI-20-FV-2477 SI-ZS-FV-2477	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2U E4C G20 G20 H41 V3D V3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A C-F-2-Z C-F-2-Z	E2U-E4C/3 E4C-G20/1 G20-H41/5 H41-V3D	E2U/7c	E2U/7f E2U/7g E2U/7h	EDE-PP-113B		
54	SI-FV-2486	Accumulator TK-9C Relief Valve	SI-20450	B	310578	C-F-2-Z	-	X	X	-	V3E	SI-E2U/7-72 SI-E4C-FU SI-SS-2475 SI-CS-2477-2 EDE-MM-117 SI-20-FV-2486 SI-ZS-FV-2486	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2U E4C G20 G20 H41 V3E V3E	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A C-F-2-Z C-F-2-Z	E2U-E4C/3 E4C-G20/1 G20-H41/5 G20-H41/6 H41-V3E	E2U/7d	E2U/7f E2U/7g E2U/7h	EDE-PP-113B		
55	SI-FV-2482	Accumulator TK-9B Relief Valve	SI-20450	A	310578	C-F-2-Z	-	X	X	-	V3B	SI-E2T/7-72 SI-E4H-FU SI-SS-2482 SI-CS-2482-2 EDE-MM-111 SI-20-FV-2482 SI-ZS-FV-2482	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2T E4H G81 G81 H35 V3B V3B	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z ET-F-1A-A C-F-2-Z C-F-2-Z	E2T-E4H/2 E4H-G81/2 G81-H35/6 H35-V3B	E2T/7a	310890 E2T/7f E2T/7g E2T/7h	EDE-PP-113A		
56	SI-FV-2483	Accumulator TK-9B Relief Valve	SI-20450	A	310578	C-F-2-Z	-	X	X	-	V3C	SI-E2T/7-72 SI-E4H-FU SI-SS-2482 SI-CS-2482-2 EDE-MM-111 SI-20-FV-2483 SI-ZS-FV-2483	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2T E4H G81 G81 H35 V3C V3C	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z ET-F-1A-A C-F-2-Z C-F-2-Z	E2T-E4H/2 E4H-G81/2 G81-H35/6 G81-H35/7 H35-V3C	E2T/7b	E2T/7f E2T/7g E2T/7h	EDE-PP-113A		
57	SI-FV-2495	Accumulator TK-9D Relief Valve	SI-20450	A	310579	C-F-2-Z	-	X	X	-	V3F	SI-E2T/7-72 SI-E4H-FU SI-SS-2482 SI-CS-2495-2 EDE-MM-112 SI-20-FV-2495 SI-ZS-FV-2495	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2T E4H G81 G81 H36 V3F V3F	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z ET-F-1A-A C-F-2-Z C-F-2-Z	E2T-E4H/2 E4H-G81/2 G81-H36/9 H36-V3F	E2T/7c	E2T/7f E2T/7g E2T/7h	EDE-PP-113A		
58	SI-FV-2496	Accumulator TK-9D Relief Valve	SI-20450	A	310579	C-F-2-Z	-	X	X	-	V3G	SI-E2T/7-72 SI-E4H-FU SI-SS-2482 SI-CS-2495-2 EDE-MM-112 SI-20-FV-2496 SI-ZS-FV-2496	125 V DC Circuit Breaker Fuses Selector Switch Control Switch with Indication Electrical Penetration Solenoid Valve Valve Position Switch	E2T E4H G81 G81 H36 V3G V3G	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z ET-F-1A-A C-F-2-Z C-F-2-Z	E2T-E4H/2 E4H-G81/2 G81-H36/9 G81-H36/A H36-V3G	E2T/7d	E2T/7f E2T/7g	EDE-PP-113A		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 7 Table RSS 3.1.3.2-11
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FUNCTION: REACTOR COOLANT INVENTORY AND PRESSURE CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
59	CS-E-5A	Seal Water Heat Exchanger	CS-20726	A	310764	PAB-F-1B-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	-	Note 1
60	CS-E-5B	Seal Water Heat Exchanger	CS-20726	B	310764	PAB-F-1B-Z	X	X	-	-	-	-	-	-	-	-	-	-	-	-	Note 1
61	RC-E-10	Pressurizer Heaters Control Group	RC-20846	A	310598	C-F-1-Z	X	-	X	-	M26	RC-AM4-52	480 V AC Circuit Breaker	AM4	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 8
62	CS-V-142	Charging Line Isolation Valve	CS-20722	A	310769	PP-F-1A-Z	X	X	X	-	V12	CS-B82-52 CS-CS-7410-2 CS-SS-7410 CS-B82-42/0,C CS-B82-49 CS-ZS-V142	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuses	B82 G2G G2G B82 B82 V12	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PP-F-1A-Z	B82-G2G B82-G2G/1 B82-V12	310891 B82a B82c B82d	CBA-FN-19 CBA-FN-20 EAH-FN-5A EDE-MCC-512	CS-V-143		
63	CS-V-143	Charging Line Isolation Valve	CS-20722	B	310769	PP-F-1A-Z	X	X	X	-	V11	CS-B87-52 CS-CS-7411-2 CS-SS-7411 CS-B87-42/0,C CS-B87-49 CS-ZS-V143	460 V AC Circuit Breaker control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position and Open/Close Torque Switches Fuses	B87 G2J G2J B87 B87 V11	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PP-F-1A-Z	B87-G2J B87-G2J/1 B87-V11 B87-V11/1	B87a B87c B87d	CBA-FN-32 CBA-FN-33 EAH-FN-5B EDE-MCC-612	CS-V-142		
64	CS-V-210	Charging Pump 2A Discharge Valve	CS-20725	A	310764	PAB-F-1C-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-220	Note 1
65	CS-V-219	Charging Pump 2B Bypass Valve	CS-20725	B	310764	PAB-F-1D-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-221	Note 1
66	CS-V-220	Charging Pump 2B Discharge Valve	CS-20725	B	310764	PAB-F-1D-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-210	Note 1
67	CS-V-221	Charging Pump 2A Bypass Valve	CS-20725	A	310764	PAB-F-1C-A	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-219	Note 1
68	CS-V-154	RCP-1D Seal Injection Isolation Valve	CS-20726	A	310769	PP-F-5B-Z	X	X	-	-	-	-	480 V AC Circuit Breaker	B77	CB-F-1A-A	-	-	-	-	None	Note 2
69	CS-V-158	RCP-1C Seal Injection Isolation Valve	CS-20726	A	310769	PP-F-5B-Z	X	X	-	-	-	-	480 V AC Circuit Breaker	B76	CB-F-1A-A	-	-	-	-	None	Note 2
70	CS-V-162	RCP-1B Seal Injection Isolation Valve	CS-20726	A	310769	PP-F-1A-Z	X	X	-	-	-	-	480 V AC Circuit Breaker	B75	CB-F-1A-A	-	-	-	-	None	Note 2
71	CS-V-166	RCP-1A Seal Injection Isolation Valve	CS-20726	A	310769	PP-F-1A-Z	X	X	-	-	-	-	480 V AC Circuit Breaker	B74	CB-F-1A-A	-	-	-	-	None	Note 2

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table RSS 3.1.3.3-1</div>
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FUNCTION: REACTIVITY CONTROL																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	CS-TK-4A	Boric Acid Storage Tank	CS-20729	A/B	310766	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-TK-4B	Note 1
2	CS-TK-4B	Boric Acid Storage Tank	CS-20729	A/B	310766	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-TK-4A	Note 1
3	CS-V-410	Boric Acid Tank 4A Outlet Valve	CS-20729	A/B	310766 805216 805229	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-416 CS-V-1207	Notes 1, 2, 3
4	CS-V-416	Boric Acid Tank 4B Outlet Valve	CS-20729	A/B	310766 805216	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-410 CS-V-1207	Notes 1, 2, 3
5	CS-V-423	Boric Acid Recirculation Valve	CS-20729	A	310766 805216 805230	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-431 CS-V-1207	Notes 1, 2, 3
6	CS-V-431	Boric Acid Recirculation Valve	CS-20729	B	310766 805216 805230	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-423 CS-V-1207	Notes 1, 2, 3
7	CS-V-437	Boric Acid Transfer Pump's Suction Cross-Over Line Isolation Valve	CS-20729	A	310766 805216	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-1207	Notes 1, 2, 3
8	CS-V-439	Charging Pump Isolation Valve	CS-20729	A/B	310766 805216 805229	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-426	Notes 1, 2, 3
9	CS-V-442	Charging Pump Isolation Valve	CS-20729	A/B	310766 805216 805229	PAB-F-2B-Z	-	X	-	-	-	-	-	-	-	-	-	-	-	CS-V-426	Notes 1, 2, 3
10	CS-P-3A	Boric Acid Transfer Pump	CS-20729	A	310766 805216 805230	PAB-F-2B-Z	-	X	X	-	M43	CS-B88-52 CS-B88-FU CS-CS-7435-2 CS-SS-7435 CS-B88-42 CS-M43-49 CS-B88-49	460 V AC Circuit Breaker Fuse Control Switch Selector Switch Motor Starter Overload Relay Overload Relay	B88 B88 B88 B88 B88 M43 B88	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-2B-Z CB-F-1A-A	B88-M43 B88-M43/1	310891 B88a B88c	CBA-FN-19 CBA-FN-20 EDE-MCC-512	CS-P-3B		
11	CS-P-3B	Boric Acid Transfer Pump	CS-20729	B	310766 805216 805230	PAB-F-2B-Z	-	X	X	-	M44	CS-B89-52 CS-B89-FU CS-CS-7436-2 CS-SS-7436 CS-B89-42 CS-M44-49 CS-B89-49	460 V AC Circuit Breaker Fuse Control Switch Selector Switch Motor Starter Overload Relay Overload Relay	B89 B89 B89 B89 B89 M44 B89	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CF-F-1B-A PAB-F-2B-Z CB-F-1B-A	B89-M44 B89-M44/1	310891 B89a B89c	CBA-FN-32 CBA-FN-33 EDE-MCC-612	CS-P-3A		

Notes

- Equipment is mechanical with no electrical requirement.
- CS-V-423, 410, 416, 431, 437, 439, 442 are non-electrically operated valves and will be manually positioned as required to provide their reactivity control function during safe shutdown.
- Electrical conduit plan drawing, 310766, listed only to show fire zone correlation reference to Primary Auxiliary Building area covered by piping Drawings 805216, 805229, 805230, where Valves CS-V-410, 416, 423, 431, 437, 439, 442 are identified in plan and section.
- This equipment is listed because it can spuriously start due to cable failure in the boration and dilution flow control valve control circuits. Spurious pump start by itself from failure of its cable is not of concern since CS-FCV-111A remains closed so the pump cables are not listed.
- Disabling the valves at the appropriate control location will reposition CS-FCV-110B and CS-FCV-111B for safe shutdown. Air is not needed to position or to reposition the valve for safe shutdown.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.4-1
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FUNCTION: PROCESS MONITORING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	CC-TE-2297	Primary Component Cooling Water Loop "B" Supply Header Temperature Element	CC-20211	B	310763	PAB-F-2C-Z	X	X	X	-	T2Z	CC-TY-2297 CC-TI-2297	I/E Converter Temp. Indicator	GZ0 GZ0	CB-F-1B-A CB-F-1B-A	CZ0-T2Z	F.P71336 M-310952 4	GZ0c	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869	CC-TE-2197	
2	FW-FT-4224-5	RC-E-11B Steam Generator Emergency Feedwater Header Flow Transmitter	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	GL4	FW-FQY-4224-5 FW-FY-4224-5 FW-FI-4224-5	I/E Converter Square Root Extractor Flow Indicator	GZ0 GZ0 GZ3	CB-F-1B-A CB-F-1B-A CB-F-1B-A	GL4-GZ0/1	6	GZ0a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869 EPA-FN-478	FW-FT-4214-5 FW-FT-4234-5	
3	FW-FT-4244-5	RC-E-11D Steam Generator Emergency Feedwater Header Flow Transmitter	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	GL4	FW-FQY-4244-5 FW-FY-4244-5 FW-FI-4244-5	I/E Converter Square Root Extractor Flow Indicator	GZ0 GZ0 GZ3	CB-F-1B-A CB-F-1B-A CB-F-1B-A	GL4-GZ0/1	6	GZ0a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869 EPA-FN-478	FW-FT-4214-5 FW-FT-4234-5	
4	FW-LT-4320	RC-E-11B Steam Generator Wide Range Level Transmitter	FW-20686	B	310576	C-F-1-Z	X	X	X	-	R1N	FW-LQY-4320 FW-LI-4320 FW-LR-4320 EDE-MM-131	I/E Converter Level Indicator Level Recorder Electrical Penetration	GZ0 GZ3 GZ3 H55	CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	H55-R1N GZ0-H55	7	GZ0a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869 MM-UQ-5897	FW-LT-4310 FW-LT-4330	
5	FW-LT-4340	RC-E-11D Steam Generator Wide Range Level Transmitter	FW-20686	B	310577	C-F-1-Z	X	X	X	-	R1Q	FW-LQY-4340 FW-LI-4340 FW-LR-4320 EDE-MM-131	I/E Converter Level Indicator Level Recorder Electrical Penetration	GZ0 GZ3 GZ3 H55	CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	H55-R1Q GZ0-H55	7	GZ0a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869 MM-UQ-5897	FW-LT-4310 FW-LT-4330	
6	MS-PT-3174	RC-E-11B Steam Generator Header Pressure Transmitter	MS-20581	B	310586	MS-F-1A-Z	X	X	X	-	GZ4	MS-PQY-3174 MS-PI-3174	I/E Converter Press. Indicator	GZ0 GZ3	CB-F-1B-A CB-F-1B-A	GZ0-GZ4	10	GZ0c	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869	MS-PT-3173 MS-PT-3178	
7	MS-PT-3179	RC-E-11D Steam Generator Header Pressure Transmitter	MS-20581	B	310589	MS-F-1B-A	X	X	X	-	GZ6	MS-PQY-3179 MS-PI-3179	I/E Converter Press. Indicator	GZ0 GZ3	CB-F-1B-A CB-F-1B-A	GZ0-GZ6	10	GZ0c	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869	MS-PT-3173 MS-PT-3178	
8	RC-LT-7333	RC-E-10 Pressurizer Level Transmitter	RC-20846	B	310579	C-F-2-Z	X	X	X	-	GN5	RC-LQY-7333 RC-LI-7333 RC-LR-7333 EDE-MM-131	I/E Converter Level Indicator Level Recorder Electrical Penetration	GZ0 GZ0 GZ0 H55	CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	H55-PR8/1 GZ0-H55/1	11	GZ0a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869 MM-UQ-5897	RC-LT-7334	
9	RC-PT-7335	RC-E-10 Pressurizer Pressure Transmitter	RC-20846	B	310579	C-F-2-Z	X	X	X	-	PR8	RC-PQY-7335 RC-PI-7335 EDE-MM-131	I/E Converter Press. Indicator Electrical Penetration	GZ0 GZ0 H55	CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	H55-PR8 GZ0-H55/1	F.P. 71336 310952 12	GZ0a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869	RC-PT-7336	
10	RC-TE-9407	Reactor Coolant Loop 4 Wide Range Hot Leg Temperature Element	RC-20844	B	310583	C-F-1-Z	X	X	X	-	TS7	RC-TY-9407 RC-TI-9407 RC-TR-9407 EDE-MM-131	R/E Converter Temp. Indicator Temp. Recorder Electrical Penetration	GZ0 GZ0 GZ0 H55	CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	H55-TS7 GZ0-H55/2	13	GZ0a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869 MM-UQ-5897	RC-TE-9406	

Notes

1. Underground duct Plan Drawing 310248 is listed only to show the fire zone corresponding to the locations of the condensate storage tank level Indicator CO-LISL-4052 which is identified in Drawing 509066.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 7 Table RSS 3.1.3.4-2
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FUNCTION: PROCESS MONITORING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
11	RC-TE-9411	Reactor Coolant Loop 4 Wide Range Cold Leg Temperature Element	RC-20844	B	310583	C-F-1-Z	X	X	X	-	T3E	RC-TY-9411 RC-TI-9411 RC-TR-9407 EDE-MM-131	R/E Converter Temp. Indicator Temp. Recorder Electrical Penetration	G20 G20 G20 H55	CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z, ET-F-1C-A	H55-T3E G20-H55/2	13	G20a	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869 MM-UQ-5897	RC-TE-9410	
12	CS-LT-7464	Boric Acid Tank CS-TK-4B Level Transmitter	CS-20729	B	310766	PAB-F-2B-Z	-	X	X	-	RJ9	CS-LSY-7464 CS-LQY-7464 CS-LI-7464	Comparator I/E Converter Level Indicator	C2J C2J G2J	CB-F-1B-A CB-F-1B-A CB-F-1B-A	G2K-RJ9	G20c	CBA-FN-32 CBA-FN-33 MM-UQ-5868 MM-UQ-5869	CS-LT-7446		
13	MM-UQ-5868	Remote Shutdown Panel MM-CP-108B Power Supply	-	B	310442	CB-F-1B-A	X	X	X	-	G2J	VI-G2J-FU9 VI-G2J-FU10	20A Fuse 20A Fuse	G2J G2J	CB-F-1B-A CB-F-1B-A	EH0-G2J	M-310952 EH0/2	CBA-FN-32 CBA-FN-33 EDE-PP-1F	MM-UQ-5866		
14	MM-UQ-5869	Remote Shutdown Panel MM-CP-108B Power Supply	-	B	310442	CB-F-1B-A	X	X	X	-	G2J	VI-G2J-FU11 VI-G2J-FU12	20A Fuse 20A Fuse	G2J G2J	CB-F-1B-A CB-F-1B-A	EH0-G2J	EH0/2	CBA-FN-32 CBA-FN-33 EDE-PP-1F	MM-UQ-5867		
15	MM-UQ-5897	Remote shutdown Panel MM-CP-108B Recorders' Power Supply	-	B	310442	CB-F-1B-A	X	X	X	-	G2K	VI-E1T/4-52	120 V ac Circuit Breaker	E1T	CB-F-1B-A	E1T-G2K	E1T/4	CBA-FN-32 CBA-FN-32 EDE-PP-11F	MM-UQ-5896		
16	CC-TE-2197	Primary Component Cooling Water Loop "A" Supply Header Temperature Element	CC-20205	A	310763	PAB-F-2C-Z	X	X	X	-	T3A	CC-TY-2197 CC-TI-2197	I/E Converter Temp. Indicator	G2H G81	CB-F-1A-A CB-F-1A-A	G2H-T3A	FP-71337 11	M-310952 G81d	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867	CC-TE-2297	
17	FW-FT-4214-5	RC-E-11A Steam Generator Emergency Feedwater Header Flow Transmitter	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	GL3	FW-FQY-4214-5 FW-FY-4214-5 FW-FI-4214-5	I/E Converter Square Root Extractor Flow Indicator	G81 G81 G2G	CB-F-1A-A CB-F-1A-A CB-F-1A-A	G81-GL3	4	G81a	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867 EPA-FN-47A	FW-FT-4224-5 FW-FT-4244-5	
18	FW-FT-4234-5	RC-E-11C Steam Generator Emergency Feedwater Header Flow Transmitter	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	GL3	FW-FQY-4234-5 FW-FY-4234-5 FW-FI-4234-5	I/E Converter Square Root Extractor Flow Indicator	G81 G81 G2G	CB-F-1A-A CB-F-1A-A CB-F-1A-A	G81-GL3	FP-71337 4	310952 G81a	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867 EPA-FN-47A	FW-FT-4224-5 FW-FT-4244-5	
19	FW-LT-4310	RC-E-11A Steam Generator Wide Range Level Transmitter	FW-20686	A	310576	C-F-1-Z	X	X	X	-	R1M	FW-LQY-4310 FW-LI-4310 FW-LR-4310 EDE-MM-120	I/E Converter Level Indicator Level Recorder Electrical Penetration	G2H G2G G2G H44	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A	H44-R1M G2H-H44	17	G81d	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867 MM-UQ-5896	FW-LT-4320 FW-LT-4340	
20	FW-LT-4330	RC-E-11C Steam Generator Wide Range Level Transmitter	FW-20686	A	310577	C-F-1-Z	X	X	X	-	R1P	FW-LQY-4330 FW-LI-4330 FW-LR-4310 EDE-MM-121	I/E Converter Level Indicator Level Recorder Electrical Penetration	G2H G2G G2G H45	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A	H45-R1P G2H-H45	17	G81d	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867 MM-UQ-5896	FW-LT-4320 FW-LT-4340	
21	MS-PT-3173	RC-E-11A Steam Generator Header Pressure Transmitter	MS-20580	A	310589	MS-F-1B-Z	X	X	X	-	GL6	MS-PQY-3173 MS-PI-3173	I/E Converter Press. Indicator	G2H G2G	CB-F-1A-A CB-F-1A-A	G2H-GL6	13	G81d	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867	MS-PT-3174 MS-PT-3179	
22	MS-PT-3178	RC-E-11C Steam Generator Header Pressure Transmitter	MS-20581	A	310586	MS-F-1A-Z	X	X	X	-	GL5	MS-PQY-3178 MS-PI-3178	I/E Converter Press. Indicator	G2H G2G	CB-F-1A-A CB-F-1A-A	G2H-GL5/1	13	G81d	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867	MS-PT-3174 MS-PT-3179	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.4-3</div>
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FUNCTION: PROCESS MONITORING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
23	RC-LT-7334	RC-E-10 Pressurizer Level Transmitter	RC-20846	A	310579	C-F-2-Z	X	X	X	-	GK5	RC-LQY-7334 RC-LI-7334 RC-LR-7334 EDE-MM-121	I/E Converter Level Indicator Level Recorder Electrical Penetration	G81 G81 G81 H45	CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A	H45-PR9 G81-H45	6	G81a	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867 MM-UQ-5896	RC-LT-7333	
24	RC-PT-7336	RC-E-10 Pressurizer Pressure Transmitter	RC-20846	A	310579	C-F-2-Z	X	X	X	-	GK5	RC-PQY-7336 RC-PI-7336 EDE-MM-121	I/E Converter Press. Indicator Electrical Penetration	G2H G81 H45	CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A	H45-PR9/1 G2H-H45/1	12	G81d	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867	RC-PT-7335	
25	RC-TE-9406	Reactor Coolant Loop 1 Wide Range Hot Leg Temperature Element	RC-20841	A	310582	C-F-1-Z	X	X	X	-	TS6	RC-TY-9406 RC-TI-9406 RC-TR-9406 EDE-MM-120	R/E Converter Temp. Indicator Temp. Recorder Electrical Penetration	G81 G81 G81 H44	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A	H44-TS6 G81-H44	FP 71336 3	310952 G81a	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867 MM-UQ-5896	RC-TE-9407	
26	RC-TE-9410	Reactor Coolant Loop 1 Wide Range Cold Leg Temperature Element	RC-20841	A	310582	C-F-1-Z	X	X	X	-	T3D	RC-TY-9410 RC-TI-9410 RC-TR-9406 EDE-MM-120	R/E Converter Temp. Indicator Temp. Recorder Electrical Penetration	G81 G81 G81 H44	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A	H44-T3D G81-H44/1	3	G81a	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867 MM-UQ-5896	RC-TE-9411	
27	CS-LT-7446	Boric Acid Tank CS-TK-4A Level Transmitter	CS-20729	A	310766	PAB-F-2B-Z	-	X	X	-	RJ8	CS-LSY-7446 CS-LQY-7446 CS-LI-7446	Comparator I/E Converter Level Indicator	G2H G2H G2H	CB-F-1A-A CB-F-1A-A CB-F-1A-A	G2H-RJ8		G81d	CBA-FN-19 CBA-FN-20 MM-UQ-5866 MM-UQ-5867	CS-LT-7464	
28	MM-UQ-5866	Remote Shutdown Panel MM-CP-108A Power Supply	-	A	310442	CB-F-1A-A	X	X	X	-	G2G	VI-G2G-FU9 VI-G2G-FU10	20A Fuse 20A Fuse	G2G G2G	CB-F-1A-A CB-F-1A-A	EH9-G2G	M-310952 EH9/2	EH9/2	CBA-FN-19 CBA-FN-20 EDE-PP-1E	MM-UQ-5868	
29	MM-UQ-5867	Remote Shutdown Panel MM-CP-108A Power Supply	-	A	310442	CB-F-1A-A	X	X	X	-	G2G	VI-G2G-FU11 VI-G2G-FU12	20A Fuse 20A Fuse	G2G G2G	CB-F-1A-A CB-F-1A-A	EH9-G2G	EH9/2	EH9/2	CBA-FN-19 CBA-FN-20 EDE-PP-1E	MM-UQ-5869	
30	MM-UQ-5896	Remote Shutdown Panel MM-CP-108A Recorders' Power Supply	-	A	310442	CB-F-1A-A	X	X	X	-	G2H	VI-E1S/4-52	120 V ac Circuit Breaker	E1S	CB-F-1A-A	E1S-G2H	E1S/4	EH9/2	CBA-FN-19 CBA-FN-20 EDE-PP-11E	MM-UQ-5897	
31	NI-NE-6690	Intermediate Range Thermal Neutron Flux Monitoring Detector	-	A	310565	C-F-1-Z	X	X	X	-	Q05	NI-E1S/13-52 NI-E1S/14-52 NI-E1S/15-52 NI-NI-6690-3&4 NI-NT-6690 NI-NM-6690 NI-NM-6690J EDE-TBX-XP8 EDE-MM-116	120 V ac Circuit Breaker 120 V ac Circuit Breaker 120 V ac Circuit Breaker Excore Wide Range Thermal Neutron Flux Indicators Excore Wide Range Transmitters Excore Wide Range Signal Processor Excore Wide Range Signal Processor Expansion Box Junction Box Electrical Penetration	E1S E1S E1S G2H KDO QC1 Q10 XP8 H40	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A ET-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z C-F-2-Z, ET-F-1A-A	H40-XP8 H40-KDO KDO-QC1 QC1-Q10 G2H-QC1 Q05-XP8 E1S-KDO E1S-QC1 E1S-Q10	310943 E1S/13a	E1S/13b	CBA-FN-19 CBA-FN-20 EDE-PP-11E	NI-NE-6691	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.5-1
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FUNCTION: SAFEGUARDS ACTUATION																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	MM-CP-12	Solid State Protection System Cabinet (Train A Load Group)	-	A	310501	CB-F-3A-A	X	X	X	-	FF8	PSC-E01/11-52 MM-SS-5807	120 V ac Circuit Breaker Selector Switch	E01 G5X	CB-F-1A-A DG-F-2A-A	-	-	-	CBA-FN-19 CBA-FN-20 DAH-FN-25A DAH-FN-26A	None	Note 1
2	MM-CP-13	Solid State Protection System Cabinet (Train B Load Group)	-	B	310501	CB-F-3A-A	X	X	X	-	FF9	PSC-E02/11-52 MM-SS-5808	120 V ac Circuit Breaker Selector Switch	E02 G5Y	CB-F-1B-A DG-F-2B-A	-	-	-	CBA-FN-32 CBA-FN-33 DAH-FN-25B DAH-FN-26B	None	Note 1

Notes

- The Solid State Protection Cabinet will be disabled at the appropriate location to prevent the output from initiating spurious operation of various valves and pumps.

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.6-1</div>
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	RH-P-8A	Residual Heat Removal Pump	SI-20448	A	310761	RHR-F-1D-Z	-	X	X	-	M11	RH-A57-52 RHR-A57-FU RH-CS-2467-2 RH-SS-2467 EDE-A53-94-1A RH-A57-G,R,W RH-A57-86 RH-A57-52H RH-A57-50/51 RH-A57-51GS RH-A57-AM RH-A57-AS RH-A57-CT RH-A57-TD1 RH-A57-ATR RH-A57-TD2 RH-A57-52Z	4160 V ac Circuit Breaker Fuses Control Switch Selector Switch Bus Under Voltage Relay Indicating Lights Lockout Relay Truck Operated Contact Inst/Time Overcurrent Relays ϕA , ϕC Ground Sensor Relay Ammeter Ammeter Switch Current Transformers (75/5) CT Test Device Transducer Lockout Relay Test Device Time Delay Relay	A57 A57 A57 A57 A53 A57 A57 A57 A57 A57 A57 A57 A57 A57 A57 A57	CB-F-1A-A CB-F-1A-A	A57-M11	310887 A57a A57b A57c A57d A57g	CBA-FN-19 CBA-FN-20 EAH-FN-5A EAH-FN-31A EDE-SWG-5	RH-P-8B		
2	RH-P-8B	Residual Heat Removal Pump	RH-20663	B	310761	RHR-F-1C-Z	-	X	X	-	M12	RH-A77-52 RHR-A77-FU RH-CS-2468-2 RH-SS-2468 EDE-A73-94-1A RH-A77-G,R,W RH-A77-86 RH-A77-52H RH-A77-50/51 RH-A77-51GS RH-A77-AM RH-A77-AS RH-A77-CT RH-A77-TD1 RH-A77-ATR RH-A77-TD2 RH-A77-52Z	4160 V ac Circuit Breaker Fuses Control Switch Selector Switch Bus Under Voltage Relay Indicating Lights Lockout Relay Truck Operated Contact Inst/Time Overcurrent Relays ϕA , ϕC Ground Sensor Relay Ammeter Ammeter Switch Current Transformers (75/5) CT Test Device Transducer Lockout Relay Test Device Time Delay Relay	A77 A77 A77 A77 A53 A77 A77 A77 A77 A77 A77 A77 A77 A77 A77 A77 A77	CB-F-1B-A CB-F-1B-A	A77-M12	A77a A77b A77c A77d A77g	CBA-FN-32 CBA-FN-33 EAH-FN-5B EAH-FN-31B EDE-SWG-6	RH-P-8A		
3	RH-V-14	RH-P-8A to Cold Leg Isolation Valve	RH-20662	A	310769	PP-F-1A-Z	-	X	X	-	V47	RH-B57-52	460 V ac Circuit Breaker	B57	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	RH-V-26	Note 2
4	RH-V-26	RH-P-8B to Cold Leg Isolation Valve	RH-20663	B	310769	PP-F-1B-Z	-	X	X	-	V48	RH-B65-52	460 V ac Circuit Breaker	B65	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	RH-V-14	Note 2

Notes

- This equipment is mechanical with no electrical requirements.
- 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.
- Not used.
- Air is not needed to position or to reposition the valve for safe shutdown.
- The valve will be operated manually utilizing handwheels.

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.6-2</div>
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	RH-V-35	RH-E-9A to Charging Pump Isolation Valve	RH-20662	A	310761	RHR-F-4B-Z	-	X	X	-	V53	RH-B59-52	460 V ac Circuit Breaker	B59	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 2
6	RH-V-36	RH-E-9B to SI Pump Isolation Valve	SI-20449	B	310761	RHR-F-2A-Z	-	X	X	-	V54	RH-B66-52	460 V ac Circuit Breaker	B66	CBA-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 2
7	RH-V-32	RHR PP to Hot Leg Isolation Valve	RH-20663	B	310769	PP-F-1A-Z	-	X	X	-	V51	RH-B58-52	460 V ac Circuit Breaker	B58	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	None	Note 2
8	RH-V-70	RHR to Hot Leg Isolation Valve	RH-20663	A	310769	PP-F-1A-Z	-	X	X	-	VB4	RH-D90-52	460 V ac Circuit Breaker	D90	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	None	Note 2
9	RH-HCV-606	RH-E-9A Outlet Flow Control Valve	RH-20662	A	310761	RHR-F-4B-Z	-	X	X	X	LG8	EDE-E87/2-72	125 V dc Circuit Breaker	E87	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	RH-HCV-607	Notes 2 and 4
10	RH-HCV-607	RH-E-9B Outlet Flow Control Valve	RH-20663	B	310761	RHR-F-4A-Z	-	X	X	X	LG9	EDE-E88/2-72	125 V dc Circuit Breaker	E88	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	RH-HCV-606	Notes 2 and 4
11	RH-FCV-618	RH-E-9A Outlet Bypass Flow Control Valve	RH-20662	A	310761	RHR-F-4B-Z	-	X	X	X	LH3	EDE-E87/2-72	125 V dc Circuit Breaker	E87	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	RH-FCV-619	Notes 2 and 4
12	RH-FCV-619	RH-E-9B Outlet Bypass Flow Control Valve	RH-20663	B	310761	RHR-F-4A-Z	-	X	X	X	LH4	EDE-E88/2-72	125 V dc Circuit Breaker	E88	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	RH-FCV-618	Notes 2 and 4
13	RH-V-8	RHR Loop A Sample Valve	RH-20662	A	310761 805201	RHR-F-4B-Z	-	X	-	-	-	-	-	-	-	-	-	-	EAH-FN-5A EAH-FN-31A	RH-V-44	Notes 1&9
14	RH-V-44	RHR Loop B Sample Valve	RH-20663	B	310761 805201	RHR-F-4A-Z	-	X	-	-	-	-	-	-	-	-	-	-	EAH-FN-5B EAH-FN-31B	RH-V-8	Notes 1&9

Notes

6. 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.

7. 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 9763-F-805203.

8. 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 positioning.

9. 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-805201.

10. These valves are also listed in Table RSS 3.1.3.2.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.6-3
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FUNCTION: COLD SHUTDOWN																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
15	RC-V-22	RHR Inlet Isolation Valve	RC-20841	B	310582	C-F-1-Z	-	X	X	-	V27	RC-B54-52-1,2 RC-B54-FU RC-CS-7302-2 RC-SS-7302 RC-B54-42-1/0,C RC-B54-42-2 RC-B54-49-1,2 EDE-MM-100 RC-ZS-7302B RC-ZL-7302-1 EDE-MM-115 RC-EH0/16-52 RC-CS-7302-2 RC-SS-7302 RC-ZS-7302B RC-E4J-FU-9&10 EDE-MM-115 RC-CS-7310-2 RC-SS-7310 RC-ZS-V87 RC-CS-2896-2 RC-SS-2896 RC-ZS-FV-2896 RC-EDO-R1	460 V ac 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 120 V ac Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches 30 Amp Fuses Electrical Penetration Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Control Switch with Indication Valve Position Switch Auxiliary Relay	B54 B54 G2J G2J B54 B54 B54 B54 H24 V27 G2J H39 EH0 G2J G2J V27 E4J H39 G2J G2J U8U ED0	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-Z, ET-F-1C-A C-F-1-Z C-F-1-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z CB-F-1B-A ET-F-1C-A & C-F-1-Z CB-F-1B-A CB-F-1B-A PP-F-1B-Z CB-F-1B-A	B54-G2J B54-G2J/1 B54-H39 B54-H24 H24-V27 H39-V27 E4J-EH0/1 E4J-G2J GJ2-H39/6 H39-V27/1 H39-V26/3 GZ0-U8U ED0-GZ0/1	B54a <					

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability													Revision 7 Table RSS 3.1.3.6-4
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
16	continued											RC-EH9/16-52 RC-CS-7303-2 RC-SS-7303 RC-ZS-V23 EDE-MM-112 RC-E4H-FU-9&10 RC-CS-7311-2 RC-SS-7311 RC-ZS-7311A RC-CS-2894-2 RC-SS-2894 RC-ZS-FV-2894 RC-EC8-R1	120 V ac Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Electrical Penetration 30 Amp Fuses Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Control Switch with Indication Selector Switch Valve Position Switch Auxiliary Relay	EH9 G2G G2G V25 H36 E4H G2G G2G V28 G81 G81 U8T EC8	CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z ET-F-1A-A & C-F-2-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z CB-F-1A-A CB-F-1A-A PP-F-1B-Z CB-F-1A-Z	E4H-EH9/1 E4H-G2G G2G-H36/8 H36-V25/3 H36-V28/1 G81-U8T EC8-G81 EC8-G81/1	310882 EH9/16a EH9/16b EH9/16c EH9/16d	EDE-PP-1E CBA-FN-19 CBA-FN-20			
17	RC-V-87	RHR Inlet Isolation Valve	RC-20844	B	310582	C-F-1-Z	-	X	X	-	V26	RC-B61-52-1,2 RC-B61-FU RC-CS-7310-2 RC-SS-7310 RC-ZL-7310-1 RC-B61-42-1/0,C RC-B61-42-2 RC-B61-49-1,2 RC-ZS-V87 EDE-MM-100 EDE-MM-115 RC-EH0/16-52 RC-CS-7310-2 RC-SS-7310 RC-ZS-V87 EDE-MM-115 RC-E4J-FU-9&10 RC-CS-7302-2 RC-SS-7302 RC-ZS-7302B RC-CS-2896-2 RC-SS-2896 RC-ZS-FV-2896 RC-ED0-R1	460 V ac Circuit Breaker Fuse Control Switch with Indicator Selector Switch Pilot Light Motor Starters Motor Starter Overload Relays Valve Position and Open/Close Torque Switches Electrical Penetration Electrical Penetration 120 V ac Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Electrical Penetration 30 Amp Fuses Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Control Switch with Indication Selector Switch Valve Position Switch Auxiliary Relay	B61 B61 G2J G2J G2J B61 B61 B61 V26 H24 H39 EH0 G2J G2J V26 H39 E4J G2J G2J V27 G20	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-1Z-A C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z C-F-1-Z, ET-F-1C-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-1-Z CB-F-1B-A	B61-G2J B61-G2J/1 B61-H39 B61-H24 H39-V26/2 H24-V26 E4J-EH0/1 E4J-G2J G2J-H39/6 H39-V26/3 G20-U8U ED0-G20/1 H39-V27/1	B61a B61c EH0/16a EH0/16b EH0/16c EH0/16d	EDE-MCC-621 CBA-FN-32 CBA-FN-33 EDE-PP-1F CBA-FN-32 CBA-FN-33	RC-V-23	Notes 8 and 10	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 7 Table RSS 3.1.3.6-5
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FUNCTION: COLD SHUTDOWN																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
18	RC-V-88	RHR Inlet Isolation Valve	RH-20662	A	310577	C-F-1-Z	-	X	X	-	V28	RC-B62-52-1,2 RC-B62-FU RC-CS-7311-2 RC-SS-7311 RC-ZL-7311-1 RC-B62-42-1/0,C RC-B62-42-2 RC-B62-49-1,2 RC-ZS-7311A EDE-MM-25 EDE-MM-112 RC-EH9/16-52 RC-CS-7311-2 RC-SS-7311 RC-ZS-7311A EDE-MM-112 RC-E4H-FU-9&10 RC-CS-7303-2 RC-SS-7303 RC-ZS-V23 RC-CS-2894-2 RC-SS-2894 RC-ZS-FV-2894 RC-EC8-R1	460 V ac Circuit Breaker Fuse Control Switch with Indication Selector Switch Pilot Light Motor Starters Motor Starter Overload Relays Valve Position and Open/Close Torque Switches Electrical Penetration Electrical Penetration 120 V ac Circuit Breaker Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Electrical Penetration 30 Amp Fuses Control Switch with Indication Selector Switch Valve Position and Open/Close Torque Switches Control Switch with Indication Selector Switch Valve Position Switch Auxiliary Relay	B62 B62 G2G G2G G2G B62 B62 B62 V28 H19 H36 EH9 G2G G2G V28 H36 E4H G2G G2G V25 G81 G81 U8T EC8	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-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z C-F-2-Z, ET-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-1-Z CB-F-1A-A CB-F-1A-A PP-F-1B-Z CB-F-1A-A	B62-G2G B62-G2G/1 B62-H36 B62-H19 H36-V28 H19-V28 E4H-EH9/1 E4H-G2G G2G-H36/8 H36-V28/1 H36-V25/3 G81-U8T EC8-G81 EC8-G81/1	B62a 310882 B62c EH9/16a EH9/16b EH9/16c EH9/16d	EDE-MCC-521 CBA-FN-19 CBA-FN-20 EDE-PP-1E CBA-FN-19 CBA-FN-20	RC-V-22	Notes 8 and 10	
19	RH-P-8A	RHR Pump Lube Oil Cooler	RH-20662	A	310761 805200	RHR-F-1D-Z	-	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	RH-P-8B	Notes 1&6
20	RH-P-8B	RHR Pump Lube Oil Cooler	RH-20663	B	310761 805200	RHR-F-1C-Z	-	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	RH-P-8A	Notes 1&6
21	RH-E-9A	Residual Heat Removal Heat Exchanger	SI-20448	A	310761 310762 805202 805203	RHR-F-3B-Z	-	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	RH-E-9B	Notes 1&7
22	RH-E-9B	Residual Heat Removal Heat Exchanger	RH-20663	B	310761 310762 805202 805203	RHR-F-3A-Z	-	X	-	-	-	-	-	-	-	-	-	-	Component Cooling	RH-E-9A	Notes 1&7

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table RSS 3.1.3.7-4
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
8	SW-V31	Service Water Pump "D" Discharge Valve	SW-20794	B	301140	SW-F-1E-Z	X	X	X	-	VL6	SW-CS2-52 SW-AR4-52S SW-ZS-V31 SW-CS2-42/0,C SW-CS2-49 SW-CS2-FU SW-EE2-TDR	460 V AC Circuit Breaker Mechanically Operated Contact Valve Position Switch and Valve Open/Close Torque Switches Motor Starters Overload Relay Fuses Time Delay Relay	CS2 AR4 VL6 CS2 CS2 CS2 EE2	SW-F-1C-A CB-F-1B-A SW-F-1E-Z SW-F-1C-A SW-F-1C-A SW-F-1C-A SW-F-1C-A	AR4-CS2 CS2-VL6/1 CS2-VL6	301107 CS2a CS2c	SWA-FN-40B EDE-MCC-614	SW-V-2 or SW-V-22		
9	SW-V4	Secondary Component Cooling Water Heat Exchanger Header Supply Valve	SW-20795	A	310767	PAB-F-1K-Z	X	X	X	-	VP0	SW-DA6-52 SW-CS-6117-2 SW-SS-6117 SW-DA6-42/0,C SW-DA6-49 SW-ZS-V4 SW-DA6-FU	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch and Valve Open/Close Torque Switches Fuse	DA6 G2H G2H DA6 DA6 VP0 DA6	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-1K-Z CB-F-1A-A	DA6-VP0 DA6-G2H DA6-G2H/2 DA6-G2H/1 DA6-VP0/1	301107 DA6a DA6c DA6d	CBA-FN-19 CBA-FN-20 EDE-MCC-512	SW-V5		
10	SW-V5	Secondary Component Cooling Water Heat Exchanger Header Supply Valve	SW-20795	B	310767	PAB-F-1K-Z	X	X	X	-	VQ1	SW-DA2-52 SW-CS-6137-2 SW-SS-6137 SW-DA2-42/0,C SW-DA2-49 SW-ZS-V5 SW-DA2-FU	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch and Valve Open/Close Torque Switches Fuse	DA2 G2K G2K DA2 DA2 VQ1 DA2	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-1K-Z CB-F-1B-A	DA2-VQ1 DA2-G2K DA2-G2K/1 DA2-G2K/2 DA2-VQ1/1	301107 DA2a DA2c DA2d	CBA-FN-32 CBA-FN-33 EDE-MCC-612	SW-V4		
11	SW-V15	CC-E-17A Outlet Valve	SW-20795	A	310767	PAB-F-3A-Z	X	X	X	-	VN1	SW-DA7-52	460 V AC Circuit Breaker	DA7	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	SW-V17	Note 1
12	SW-V16	Diesel Generator "A" Water Jacket Heat Exchanger Solenoid-Operated Valve	SW-20795	A	310767	PAB-F-3A-Z	X	X	X	X	UK6	EDE-E2T/2-72	125 V DC Circuit Breaker	E2T	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	SW-V18	Notes 2 & 3
13	SW-V17	CC-E-17B Outlet Valve	SW-20795	B	310767	PAB-F-3A-Z	X	X	X	-	VN2	SW-DA3-52	460 V AC Circuit Breaker	DA3	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	SW-V15	Note 1
14	SW-V18	Diesel Generator "B" Water Jacket Heat Exchanger Solenoid-Operated Valve	SW-20795	B	310767	PAB-F-3A-Z	X	X	X	X	UK7	EDE-E2U/2-72	125 V DC Circuit Breaker	E2U	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	SW-V16	Notes 2 & 3

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table RSS 3.1.3.7-5
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
15	SW-V19	Service Water Discharge to Sea Isolation Valve	SW-20795	B	310765	PAB-F-2C-Z	X	X	X	-	VN3	SW-DA4-52 SW-CS-6172-1 SW-SS-8257 SW-DA4-42/0,C SW-DA4-49 SW-ZS-V19 SW-DA4-FU2/FU SW-GN0-RTB-2	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relays Valve Position Switch and Valve Open/Close Torque Switches Fuse Auxiliary Relay	DA4 DA4 DA4 DA4 DA4 VN3 DA4 GN0	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z CB-F-1B-A CB-F-1B-A	DA4-VN3 DA4-VN3/1 DA4-VN3/2 DA4-GN0	301107 DA4a DA4c	CBA-FN-32 CBA-FN-33 EDE-MCC-612	SW-V20		
16	SW-V20	Service Water Discharge to Sea Isolation Valve	SW-20795	A	310765	PAB-F-2C-Z	X	X	X	-	VN4	SW-DA8-52	460 V AC Circuit Breaker	DA8	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	SW-V19	Note 1
17	SW-V23	Service Water to Cooling Tower Isolation Valve	SW-20795	B	310765	PAB-F-2C-Z	X	X	X	-	VN5	SW-DA5-52	460 V AC Circuit Breaker	DA5	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	SW-V34	Note 1
18	SW-V25	Cooling Tower Pump Discharge Valve	SW-20794	B	310717	CT-F-2B-A	X	X	X	-	VM8	SW-CQ7-52 SW-CS-6174-2 SW-SS-6174 SW-CQ7-42/0,C SW-CQ7-49 SW-ZS-V25 SW-GN0-RV25 SW-VM8-V25	460 V AC Circuit Breaker Control Switch with Indication Selector Switch Motor Starters Overload Relay Valve Position Switch and Valve Open/Close Torque Switches Auxiliary Relay Position Switch	CQ7 G2K G2K CQ7 CQ7 VM8 GN0 VM8	CT-F-1C-A CB-F-1B-A CB-F-1B-A CT-F-1C-A CT-F-1C-A CT-F-2B-A CB-F-1B-A CT-F-2B-A	CQ7-G2K CQ7-VM8/1 CQ7-VM8/2 G2K-GN0/3	301107 CQ7a CQ7c	CBA-FN-32 CBA-FN-33 CBA-FN-32 CBA-FN-33	SW-V54	Notes 1,6 	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.7-6
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FUNCTION: SERVICE WATER																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
23	EDE-CP-248	Service Water Cooling Tower Actuation Logic (TA)	-	A	310442	CB-F-1A-A	X	X	X	-	GN9	SW-E87/4-72	125 V DC Circuit Breaker	E87	CB-F-1A-A	-	-	-	CBA-FN-19 CBA-FN-20	EDE-CP-249	Note 1
24	EDE-CP-249	Service Water Cooling Water Actuation Logic (TA)	-	B	310442	CB-F-1B-A	X	X	X	-	GN0	SW-E88/4-72	125 V DC Circuit Breaker	E88	CB-F-1B-A	-	-	-	CBA-FN-32 CBA-FN-33	EDE-CP-248	Note 1

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 7 Table RSS 3.1.3.8-4
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FUNCTION: PRIMARY COMPONENT COOLING WATER																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
7	CC-TV-2271-1	Primary Component Cooling Water Heat Exchanger E-17B Temperature Control Valve	CC-20211	B	310765	PAB-F-2C-Z	X	X	X	X	UP9	CC-E2U/3-72 CC-SS-2271 CC-GN0-R1 CC-TY-2271-1 CC-ZL-2271-5 CC-ZS-TV-2271-1 CC-GN0-R2 CC-SS-2271 CC-HIC-2271 CC-HQY-2271 CC-HY-2271 CC-TY-2271-4 CC-TY-2271-5	125 V DC Circuit Breaker Selector Switch Auxiliary Relay Pilot Solenoid Valve Position Indicating Lights Valve Position Switch Auxiliary Relay Selector Switch Auto/Manual Controller with Indicator E/E Converter E/I Converter I/P Converter I/P Converter	E2U GZ0 GN0 UI2 GZ0 UP9 GN0 GZ0 GZ0 Q60 Q60 Q60	CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z CB-F-1B-A PAB-F-2C-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z PAB-F-2C-Z	E2U-GN0/6 E2U-GZ0 GN0-GZ0/5 GN0-GZ0/9 GZ0-UP9/1 GZ0-UP0/1 GZ0-UI2 GZ0-Q60	310895 E2U/3a E2U/3c E2U/3d 310895 4c FP 71336 3 3108952 FJ4j FJ4n	CBA-FN-32 CBA-FN-33 PAH-FN-42B EDE-PP-113B Instrument Air CBA-FN-32 CBA-FN-33 PAH-FN-42B MM-UQ-5868 MM-UQ-5869 Instrument Air	CC-TV-2171-1	Note 6	
8	CC-TV-2271-2	Primary Component Cooling Water Heat Exchanger E-17B Temperature Control Valve	CC-20211	B	310765	PAB-F-2C-Z	X	X	X	X	UP0	CC-E2U/3-72 CC-SS-2271 CC-GN0-R1 CC-TY-2271-2 CC-ZL-2271-6 CC-ZS-TV-2271-2 CC-GN0-R2 CC-SS-2271 CC-HIC-2271 CC-HQY-2271 CC-HY-2271 CC-TY-2271-4 CC-TY-2271-5	125 V DC Circuit Breaker Selector Switch Auxiliary Relay Pilot Solenoid Valve Position Indicating Lights Valve Position Switch Auxiliary Relay Selector Switch Auto/Manual Controller with Indicator E/E Converter E/I Converter I/P Converter I/P Converter	E2U GZ0 GN0 UI2 GZ0 UP0 GN0 GZ0 GZ0 Q60 Q60 Q60	CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z CB-F-1B-A PAB-F-2C-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-2C-Z PAB-F-2C-Z	E2U-GN0/6 E2U-GZ0 GN0-GZ0/5 GN0-GZ0/9 GZ0-UP9/1 GZ0-UP0/1 GZ0-UI2 GZ0-Q60	310895 E2U/3a E2U/3c E2U/3d 310895 4c FP 71336 3 3108952 FJ4j FJ4n	CBA-FN-32 CBA-FN-33 PAH-FN-42B EDE-PP-113B Instrument Air CBA-FN-32 CBA-FN-33 PAH-FN-42B MM-UQ-5868 MM-UQ-5869 Instrument Air	CC-TV-2171-2	Note 6	
9	CC-E-17A	Primary Component Cooling Water Heater Exchanger	CC-20205	A	310765 805217	PAB-F-2C-Z PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	CC-E-17B	Notes 1,3
10	CC-E-17B	Primary Component Cooling Water Heater Exchanger	CC-20211	B	310765 805217	PAB-F-2C-Z PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	CC-E-17A	Notes 1,3
11	CC-V-145	RH-E-9A Return Header Isolation Valve	CC-20207	A	310763	RHR-F-3B-Z	-	X	X	-	V78	CC-BY2-52	460 V AC Circuit Breaker	BY2	CB-F-1A-A	-	-	-	EAH-FN-5A EAH-FN-31A	CC-V-272	Note 4
12	CC-V-272	RH-E-9B Return Header Isolation Valve	CC-20213	B	310763	RHR-F-3A-Z	-	X	X	-	V72	CC-BY8-52	460 V AC Circuit Breaker	BY8	CB-F-1B-A	-	-	-	EAH-FN-5B EAH-FN-31B	CC-V-145	Note 4
13	CC-P-322A	Thermal Barrier PCW Recirc Pump	CC-20209	A	310576	C-F-1-Z	X	X	X	-	M1D	CC-B4M-52-1,2 CC-CS-2077-2 CC-SS-2077 CC-B4M-42 CC-B4M-49 EDE-MM-94 CC-B4M-FU	460 V AC Circuit Breakers Control Switch with Indication Selector Switch Motor Starter Overload Relay Electrical Penetration Fuse	B4M G2G G2G B4M B4M H18 B4M	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-1A-A	B4M-H18 H18-M1D B4M-G81 B4Ma B4Mc	310895 B4Ma B4Mc	CBA-FN-19 CBA-FN-20 EDE-MCC-515	CC-P-322B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 4 Table RSS 3.1.3.9-1
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Table RSS 3.1.3.9 Deleted

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.10-1</div>
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FUNCTION: CONTROL BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	CBA-DP-24A	Mechanical Room "A" Outside Air Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	V1A	CBA-FY-5550A FP-R1 CBA-TIC-5571 CBA-FY-5550B CBA-FY-5550C	Pilot Solenoid Signal Actuating Output Relay Temperature Indicating Control (Pneumatic) Pilot Solenoid Pilot Solenoid	V1A G4P G3C - V1B V1C	CB-F-2B-A TB-F-2-Z CB-F-2B-A CB-F-2B-A CB-F-2B-A	G4P-V1A G4P-V1B G4P-V1C G3C-G4P/5	310926 BK4a BK4c	Instrument Air	CBA-DP-24F	Note 3,4	
2	CBA-DP-24B	Mechanical Room "A" Recirculating Air Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	V1B	CBA-FY-5550B FP-R1 CBA-TIC-5571 CBA-FY-5550A CBA-FY-5550C	Pilot Solenoid Signal Actuating Output Relay Temperature Indicating Controller (Pneumatic) Pilot Solenoid Pilot Solenoid	V1B G4P G3C - V1A V1C	CB-F-2B-A TB-F-2-Z CB-F-2B-A CB-F-2B-A CB-F-2B-A	G4P-V1A G4P-V1B G4P-V1C G3C-G4P/5	BK4a BK4c	Instrument Air	CBA-DP-24E	Note 3,4	
3	CBA-DP-24C	Mechanical Room "A" Return Air Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	V1C	CBA-FY-5550C FP-R1 CBA-TIC-5571 CBA-FY-5550A CBA-FY-5550B	Pilot Solenoid Signal Actuating Output Relay Temperature Indicating Controller (Pneumatic) Pilot Solenoid Pilot Solenoid	V1C G4P G3C - V1A V1B	CB-F-2B-A TB-F-2-Z CB-F-2B-A CB-F-2B-A CB-F-2B-A	G4P-V1A G4P-V1B G4P-V1C G3C-G4P/5	BK4a BK4c	Instrument Air	CB-DP-24D	Note 3,4	
4	CBA-DP-24D	Mechanical Room "B" Return Air Damper	CBA-20303	B	310443 604094	CB-F-2C-A	X	X	-	X	-	CBA-TIC-5572	Temperature Indicating Controller (Pneumatic)	-	CB-F-2C-A	-	-	-	Instrument Air	CBA-DP-24C	Notes 1,2,3,4
5	CBA-DP-24E	Mechanical Room "B" Recirculating Air	CBA-20303	B	310443 604094	CB-F-2C-A	X	X	-	X	-	CBA-TIC-5572	Temperature Indicating Controller (Pneumatic)	-	CB-F-2C-A	-	-	-	Instrument Air	CBA-DP-24B	Notes 1,2,3,4
6	CBA-DP-24F	Mechanical Room "B" Outside Air Damper	CBA-20303	B	310443 604094	CB-F-2C-A	X	X	-	X	-	CBA-TIC-5572	Temperature Indicating Controller (Pneumatic)	-	CB-F-2C-A	-	-	-	Instrument Air	CBA-DP-24A	Notes 1,2,3,4
7	CBA-FN-19	Control Building Train "A" SWGR Supply Fan	CBA-20303	A	310443	CB-F-2B-A	X	X	X	-	N28	CBA-BL6-52 CBA-CS-5552 DG-HR2-HR9X DG-HR2-RM0 CBA-BL6-42 CBA-BL6-42X CBA-BL6-49 CBA-BL6-FU	460 V ac Circuit Breaker Control Switch with Indication EPS Step Loading Relay EPS Manual Override Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Fuse	BL6 BL6 HR2 HR2 BL6 BL6 BL6 BL6	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 CB-F-1A-A	BL6-HR2/1 BL6-N28/2	310926 BL6a BL6c	EDE-MCC-515	CBA-FN-32	-	

Notes

- Equipment is mechanical with no electrical requirements.
- Electrical conduit Plan Drawing 310443, listed only to show fire zone correlation reference to control building area covered by HVAC Drawing 604094 where CBA Dampers 24 D, E, and F are identified in plan.
- Process connections showing positioning of air operated dampers, DP-24A-F, by pneumatic temperature indicating controllers, CBA-TIC-5571 and 5572, are detailed on I&C Loop Diagrams 510159 and 510160.
- Instrument air is required for normal positioning of dampers for area temperature control. Should IA fail, dampers 24A, 24B, 24E and 24F will fail "as is" and 24C and 24D fail open. The operators can start and stop fans to maintain switchgear room habitability.
- Dampers fail open on loss of instrument air, which is the safe shutdown position.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.10-2
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FUNCTION: CONTROL BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
8	CBA-FN-20	Control Building Train "A" SWGR Return Fan	CBA-20303	A	310443	CB-F-2B-A	X	X	X	-	N30	CBA-BL7-52 DG-HR2-RMO CBA-BL7-42 CBA-BL7-49 CBA-BL7-FU CBA-CS-5554 DG-HR2-HR9X CBA-BL7-42X	460 V ac Circuit Breaker EPS Manual Override Relay Motor Starter Overload Relays Fuse Control Switch with Indication EPS Step Loading Relay Motor Starter Auxiliary Relay	BL7 HR2 BL7 BL7 BL7 BL7 HR2 BL7	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 CB-F-1A-A	BL7-HR2 BL7-N30/2	BL7a	BL7c	EDE-MCC-521	CBA-FN-33	-
9	CBA-FN-21A	Control Building Battery Room Exhaust Fan "A"	CBA-20303	A	310443	CB-F-2B-A	X	X	X	-	N32	CBA-BL8-52 CBA-CS-5556 CBA-ZS-DP-21A CBA-BL8-42 CBA-ZL-5556 CBA-BL8-49 CBA-DP-21A-20 CBA-BL8-FU	460 V ac Circuit Breaker Control Switch with Indication Damper Position Switch Motor Starter Damper 21A Indicating Lights Overload Relays Pilot Solenoid Fuse	BL8 BL8 VV5 BL8 BL8 BL8 VV5 BL8	CB-F-1A-A CB-F-1A-A CB-F-2B-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-2B-A CB-F-1A-A	BL8-N32 BL8-VV5/1 BL8-VV5	BL8a	BL8c	EDE-MCC-521	CBA-FN-21B	
10	CBA-DP-21A	Battery Room Exhaust Fan "A" Damper	CBA-20303	A	310443	CB-F-2B-A	X	X	X	X	VV5	CBA-BL8-52 CBA-BL8-FU CBA-CS-5556 CBA-DP-21A-20	460 V ac Circuit Breaker Fuse Control Switch with Indication Pilot Solenoid	BL8 BL8 BL8 VV5	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-2B-A	BL8-VV5 BL8-VV5/1	BL8a	BL8c	EDE-MCC-521	CBA-DP-21B	Note 5
11	CBA-FN-21B	Control Building Battery Room Exhaust Fan "B"	CBA-20303	B	310443	CB-F-2C-A	X	X	X	-	N33	CBA-BL5-52 CBA-CS-5557 CBA-ZS-DP-21B CBA-BL5-42 CBA-ZL-5557 CBA-BL5-49 CBA-DP-21B-20 CBA-BL5-FU	460 V ac Circuit Breaker Control Switch with Indication Damper Position Switch Motor Starter Damper 21B Indicating Lights Overload Relays Pilot Solenoid Fuse	BL5 BL5 VV4 BL5 BL5 BL5 VV4 BL5	CB-F-1B-A CB-F-1B-A CB-F-2C-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-2C-A CB-F-1B-A	BL5-N33 BL5-VV4/1 BL5-VV4	BL5a	310926 BL5c	EDE-MCC-621	CBA-FN-21A	
12	CBA-DP-21B	Battery Room Exhaust Fan "B" Damper	CBA-20303	B	310443	CB-F-2C-A	X	X	X	X	VV4	CBA-BL5-52 CBA-BL5-FU CBA-CS-5557 CBA-DP-21B-20	460 V ac Circuit Breaker Fuse Control Switch Pilot Solenoid	BL5 BL5 BL5 VV4	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-2C-A	BL5-VV4 BL5-VV4/1	BL5a	BL5c	EDE-MCC-621	CBA-DP-21A	Note 5

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.10-3
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FUNCTION: CONTROL BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
13	CBA-FN-32	Control Building Train "B" SWGR Supply Fan	CBA-20303	B	310443	CB-F-2C-A	X	X	X	-	NH3	CBA-BL3-52 CBA-CS-5559 DG-HR4-HR9X DG-HR4-RMO CBA-BL3-42 CBA-BL3-42X CBA-BL3-49 CBA-BL3-FU	460 V ac Circuit Breaker Control Switch with Indication EPS Step Loading Relay EPS Manual Override Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Fuse	BL3 BL3 HR4 HR4 BL3 BL3 BL3 BL3	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 CB-F-1B-A	BL3-HR4 BL3-NH3	BL3a 	BL3c	EDE-MCC-621	CBA-FN-19	
14	CBA-FN-33	Control Building Train "B" SWGR Return Fan	CBA-20303	B	310443	CB-F-2C-A	X	X	X	-	NH5	CBA-BL4-52 CBA-CS-5561 DG-HR4-HR9X CBA-BL4-42 CBA-BL4-49 CBA-BL4-FU DG-HR4-RMO	460 V ac Circuit Breaker Control Switch with Indication EPS Step Loading Relay Motor Starter Overload Relays Fuse EPS Manual Override Relay	BL4 BL4 HR4 BL4 BL4 BL4 HR4	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	BL4-NR4 BL4-NH5	BL4a 	BL4c	EDE-MCC-621	CBA-FN-20	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.11-1
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FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	DAH-FN-25A	DG-1A Room Supply Air Fan	DAH-20624	A	310525	DG-F-3A-Z	X	X	X	-	N37	DAH-B01-52 DAH-CS-5529 DAH-FISH-5529 DAH-TSH-5529-1 DAH-ED1-R2 DG-G29-HSR DAH-B01-42 DAH-B01-42X DAH-B01-49 DAH-B01-FU DAH-EDI-RI DAH-GN9-RS DAH-GN9-RD	460 V AC Circuit Breaker Control Switch with Fan Indicating Lights Flow Switch Temperature Switch Auxiliary Relay DG-1A High Speed Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Fuse Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B01 B01 S40 T3P ED1 G29 B01 B01 B01 B01 EDI GN9 GN9	CB-F-1A-A CB-F-1A-A DG-F-3A-Z DG-F-2A-A CB-F-1A-A DG-F-2A-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 CB-F-1A-A	B01-N37/1 B01-G29 B01-T3P B01-GN9	310928 B01a B01c B01d	EDE-MCC-521 EDE-PP-11E	DAH-FN-25B		
2	DAH-DP-16A	DG-1A Room Return Air Damper	DAH-20624	A	310524	DG-F-2A-A	X	X	X	X	UF9	DAH-ED1-R2 (B01 & B03) DAH-DP-16A-20 DAH-TSH-5529-2 DAH-GN9-RS DAH-GN9-RD DAH-EIS/6-52 DAH-ZL-5529-4	Auxiliary Relays Pilot Solenoid Temperature Switch EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay 120 v AC Circuit Breaker Damper Position Indicating Lights	ED1 UF9 TP5 GN9 GN9 EIS B03	CB-F-1A-A DG-F-2A-A DG-F-2A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	B01-UF9/1 B01-TP5 EIS-GN9 EDI-GN9 B03-UF9 B01-HR2	EIS/6a EIS/6c	EDE-MCC-521 EDE-PP-11E	DAH-DP-16B	Note 1	
3	DAH-FN-25B	DG-1B Room Supply Air Fan	DAH-20624	B	310525	DG-F-3B-Z	X	X	X	-	N38	DAH-B02-52 DAH-CS-5530 DAH-FISH-5530 DAH-TSH-5530-1 DAH-EE3-R2 DAH-B02-FU DG-G30-HSR DAH-B02-42 DAH-B02-42X DAH-B02-49 DAH-E3D-RI DAH-GN0-RS DAH-GN0-RD	460 V AC Circuit Breaker Control Switch with Fan Indicating Lights Flow Switch Temperature Switch Auxiliary Relay Fuse DG-1B High Speed Relay Motor Starter Motor Starter Auxiliary Relay Overload Relays Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B02 B02 S41 T3B EE3 B02 G30 B02 B02 B02 E3D GN0 GN0	CB-F-1B-A CB-F-1B-A DG-F-3B-Z DG-F-2B-A CB-F-1B-A CB-F-1B-A DG-F-2B-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	B02-N38/1 B02-G30 B02-S41 B02-T3B B02-GN0 EE3-EED	310928 B02a B02c B02d	EDE-MCC-621 EDE-PP-11F	DAH-FN-25A		

Notes

1. Air is not required for support as damper fails open.

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.11-2</div>
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FUNCTION: DIESEL GENERATOR BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	DAH-DP-16B	DG-1B Room Return Air Damper	DAH-20624	B	310524	DG-F-2B-A	X	X	X	X	UFO	DAH-EE3-R2 (B02 & B04) DAH-DP-16B-20 DAH-B02-FU DAH-TSH-5530-2 DAH-ZS-DP-16B DG-HR4-HRB DH-HR4-PR1 DG-HR4-SR1 DAH-GN0-RS DAH-GN0-RD DAH-EIT/6-52 DAH-ZL-5530-4	Auxiliary Relay Pilot Solenoid Fuse Temperature Switch Damper 16B Position Switch EPS Permissive Auxiliary Relay EPS Permissive Auxiliary Relay EPS Permissive Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay 120 v AC Circuit Breaker Damper Position Indicating Lights	EE3 UFO B02 TP6 UFO HR4 HR4 HR4 GN0 GN0 EIT B04	CB-F-1B-A DG-F-2B-A CB-F-1B-A DG-F-2B-A DG-F-2B-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 CB-F-1B-A CB-F-1B-A	B02-UFO/1 ED0-TP6 B02-ED0 EE3-GN0/2 EIT-GN0 B01-HR4 B04-UFO	EIT/6a	EIT/6c	EDE-MCC-621 EDE-PP-11F	DAH-DP-16A	Note 1
5	DAH-FN-26A	DG-1A Room Return Air Fan	DAH-20624	A	310525	DG-F-2A-A	X	X	X	-	N39	DAH-B03-52 DAH-B03-42 DAH-B03-42X DAH-B03-49 DAH-B03-FU DAH-TSH-5529-1 DG-G29-HSR DAH-CS-6058 DAH-EDI-R2 DAH-EDI-R1 DAH-GN9-RS DAH-GN9-RD	460 V AC Circuit Breaker Motor Starter Motor Starter Auxiliary Relays Overload Relays Fuse Temperature Switch DG-1A High Speed Relay Control Switch with Indicating Lights Auxiliary Relay Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B03 B03 B03 B03 B03 T3P G29 B03 EDI EDI CN9 GN9	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A DG-F-2A-A DG-F-2A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	B03-N39/1 B03-T3P G29-T3P B03-GN9	310928 B03a	B03c B03d	EDE-MCC-521 EDE-PP-11E	DAH-FN-26B	
6	DAH-FN-26B	DG-1B Room Return Air Fan	DAH-20624	B	310525	DG-F-2B-A	X	X	X	-	N40	DAH-B04-52 DAH-B04-42 DAH-B04-42X DAH-B04-49 DAH-B04-FU DAH-TSH-5530-1 DG-G30-HSR DAH-CS-6059 DAH-EE3-R2 DAH-EE3-R1 DAH-GN0-RS DAH-GN0-RD	460 V AC Circuit Breaker Motor Starter Motor Starter Auxiliary Relays Overload Relays Fuse Temperature Switch DG-1B High Speed Relay Control Switch with Indicating Lights Auxiliary Relay Control Circuit Power Monitor Auxiliary Relay EPS Permissive Auxiliary Relay Damper Position Auxiliary Relay	B04 B04 B04 B04 B04 B04 T3Q G30 B04 EE3 EE3 GN0 GN4	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-2B-A DG-F-2B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	B04-N40/1 B04-T3Q G30-T3Q B04-GN0	B04a	B04c B04d	EDE-MCC-621 EDE-PP-11F	DAH-FN-26A	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.12-1
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FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	EAH-FN-5A	Containment Enclosure Cooler AC-2A Fan	MAH-20495	A	310766	CE-F-1-Z	X	X	X	-	M80	EAH-AF5-52 EAH-AF5-G, R EAH-CS-5767-2 EAH-SS-5767 EAH-ZL-5767-2 EAH-ZS-DP-3A EAH-AF5-AM EAH-AF5-CT EDE-AC3-94-3 EAH-AF5-52H-1 EDE-TBX-YC3 EAH-AF5-FU	480 V ac Circuit Breaker Indicating Lights Control Switch with Indication Selector Switch Outlet Damper Position Lights Damper Position Switch Ammeter Current Transformer (200/5) Bus Undervoltage Relay Truck-Operated Contact Terminal Box Fuses	AF5 AF5 G2H G2H G2H L41 AF5 AF5 AC3 AF5 YC3 AF5	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CE-F-1-Z CB-F-1A-A CB-F-1A-A CB-F-1A-A CE-F-1-Z CB-F-1A-A	AF5-G2H AF5-G2H/1 AF5/M80 AF5-YC3 L41-YC3	310932 AF5a AF5b AF5f	AF5e AF5g	EAH-FN-31A EDE-US-52 Primary Component Cooling Water	EAH-FN-5B	
2	EAH-FN-5B	Containment Enclosure Cooler AC-2B Fan	MAH-20495	B	310766	CE-F-1-Z	X	X	X	-	M81	EAH-AF9-52 EAH-AF9-G, R EAH-CS-5768-2 EAH-SS-5768 EAH-ZL-5768-2 EAH-ZS-DP-3B EAH-AF9-AM EAH-AF9-CT EDE-AE3-94-3 EAH-AF9-52H-1 EDE-TBX-YB3 EAH-AF9-FU EAH-AE3-R1	480 V ac Circuit Breaker Indicating Lights Control Switch with Indication Selector Switch Outlet Damper Position Lights Damper Position Switch Ammeter Current Transformer (200/5) Bus Undervoltage Relay Truck-Operated Contact Terminal Box Fuses Auxilliary Relay	AF9 AF9 G2K G2K G2K G2K L42 AF9 AF9 AE3 AF9 YB3 AF9 AE3	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CE-F-1-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CE-F-1-Z CB-F-1B-A CB-F-1B-A	AF9-G2K AF9-G2K/1 AF9-G2K/2 AF9/M81 AF9-YB3 L42-YB3	AF9a AF9b AF9f	AF9e AF9g	EAH-FN-31B EDE-US-62 Primary Component Cooling Water	EAH-FN-5A	
3	EAH-FN-31A	Containment Enclosure Return Fan "A"	MAH-20495	A	310765	CE-F-1-Z	-	X	X	-	ND5	EAH-BB2-52 EAH-BB2-FU EAH-CS-5769-2 EAH-BB2-G, R EAH-SS-5769 EAH-BB2-42 EAH-BB2-42X EAH-BB2-49 EAH-ZS-DP-25A	460 V ac Circuit Breaker Fuse Control Switch Indicating Lights Selector Switch Motor Starter Motor Starter Auxilliary Relay Overload Relays Damper Position Switch	BB2 BB2 BB2 BB2 BB2 BB2 BB2 BB2 BB2 VQ2	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 CB-F-1A-A CB-F-1A-A CE-F-1-Z	BB2-ND5 BB2-VQ2	BB2a BB2c	EDE-MCC-512	EAH-FN-31B		

Notes

- Equipment is mechanical with no electrical requirements.
- Air and electrical power are not required for support as damper fails closed.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.12-2
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FUNCTION: CONTAINMENT ENCLOSURE AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	EAH-FN-31B	Containment Enclosure Return Fan "B"	MAH-20495	B	310765	CE-F-1-Z	-	X	X	-	NJ7	EAH-BC1-52 EAH-BC1-FU EAH-CS-5770-2 EAH-BC1-G, R EAH-SS-5770 EAH-BC1-42 EAH-BC1-42X EAH-BC1-49 EAH-ZS-DP-25B	460 V ac Circuit Breaker Fuse Control Switch Indicating Lights Selector Switch Motor Starter Motor Starter Auxiliary Relay Overload Relays Damper Position Switch	BC1 BC1 BC1 BC1 BC1 BC1 BC1 BC1 BC1 VQ3	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 CB-F-1B-A CB-F-1B-A CE-F-1-Z	BC1-NJ7 BC1-VQ3	301932 BC1a BC1c	EDE-MCC-612	EAH-FN-31A		
5	EAH-DP-3A	Containment Encl. Cooler AC-2A Damper	MAH-20495	A	310766	CE-F-1-Z	X	X	-	-	L41	-	-	-	-	-	-	-	EAH-DP-3B	Note 1	
6	EAH-DP-3B	Containment Encl. Cooler AC-2B Damper	MAH-20495	B	310766	CE-F-1-Z	X	X	-	-	L42	-	-	-	-	-	-	-	EAH-DP-3A	Note 1	
7	EAH-FN-174A	MS & FWPC Analyzer Room Supply Fan	MAH-20503	A	310586	MS-F-4A-Z	X	X	X	-	M4T	EAH-B8C-52 EAH-B8C-FU EAH-CS-5136 EAH-B8C-42 EAH-B8C-49 EAH-TSH-5136	460 V ac Circuit Breaker Fuse Control Switch with Indication Motor Starter Overload Relays Temperature Switch	B8C B8C B8C B8C B8C B8C S5G	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A MS-F-4A-Z	B8C-M4T B8C-S5G	B8Ca B8Cc	CBA-FN-19 CBA-FN-20 EDE-MCC-515	EAH-FN-174B		
8	EAH-FN-174B	MS & FWPC Analyzer Room Supply Fan	MAH-20503	B	310586	MS-F-4A-Z	X	X	X	-	M4U	EAH-B8E-52 EAH-B8E-FU EAH-CS-5763 EAH-B8E-42 EAH-B8E-49 EAH-TSH-5736	460 V ac Circuit Breaker Fuse Control Switch with Indication Motor Starter Overload Relays Temp. Switch	B8E B8E B8E B8E B8E B8E S5H	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A MS-F-4A-Z	B8E-M4U B8E-S5H	B8Ea B8Ec	CBA-FN-32 CBA-FN-33 EDE-MCC-615	EAH-FN-174A		
9	PAH-DP-35A PAH-DP-36A	CE Outboard Isolation Dampers	MAH-20495	A A	310766 310765	PAB-F-2A-Z PAB-F-2C-Z	X X	X X	X X	X X	VN8 VN0	PAH-CS-5370 PAH-ZS-DP-35A PAH-ZS-DP-36A PAH-FY-DP-35A PAH-FY-DP-36A	Control Switch Position Switch Position Switch Solenoid Valve Solenoid Valve	F36 VN8 VN0 VN8 VN0	CB-F-3A-A PAB-F-2A-Z PAB-F-2C-Z PAB-F-2A-Z PAB-F-2C-Z	F36-VN8 F36-VN0	310930 E42/8a E42/8d	E42/8c		Note 2	
10	PAH-DP-35B PAH-DP-36B	CE Inboard Isolation Dampers	MAH-20495	B B	310766 310765	CE-F-1-Z CE-F-1-Z	X X	X X	X X	X X	VN9 VP1	PAH-CS-5371 PAH-ZS-DP-35B PAH-ZS-DP-36B PAH-FY-DP-35B PAH-FY-DP-36B	Control Switch Position Switch Position Switch Solenoid Valve Solenoid Valve	F37 VN9 VP1 VN9 VP1	CB-F-3A-A CE-F-1-Z CE-F-1-Z CE-F-1-Z CE-F-1-Z	F37-VP1 F37-VN9	310930 E50/8a E50/8c			Note 2	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.13-1</div>
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	EPA-FN-47A	Emergency Feedwater Pumphouse Intake Fan	MAH-20503	A	310708	EFP-F-1-A	X	X	X	-	NL8	EPA-BB7-52 EPA-BB7-FU EPA-CS-5430-2 EPA-ZL-5430-4 EPA-SS-5430 EPA-EC8-RBB7	460 V ac Circuit Breaker Fuse Control Switch Fan Indicating Lights Selector Switch Damper Auxiliary Relay	BB7 BB7 BB7 BB7 EC8	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	BB7-NL8 BB7-UH3 BB7-VV6	BB7a	310922 BB7c BB7d	CBA-FN-19 CBA-FN-20 EDE-MCC-512	EPA-FN-47B	
2	EPA-DP-373	Emergency Feedwater Pumphouse Exhaust Damper	MAH-20503	A	310708	EFP-F-1-A	X	X	X	X	UH3	EPA-BB7-FU EPA-EC8-RBB7 EPA-DP-373-20	Fuse Auxiliary Relay Pilot Solenoid	BB7 EC8 UH3	CB-F-1A-A CB-F-1A-A EFP-F-1-A	BB7-UH3	BB7a	BB7c BB7d	CBA-FN-19 CBA-FN-20 EDE-MCC-512	EPA-DP-374	Note 1
3	EPA-FN-47B	Emergency Feedwater Pumphouse Intake Fan	MAH-20503	B	310708	EFP-F-1-A	X	X	X	-	NL9	EPA-BC7-52 EPA-BC7-FU EPA-ZL-5431-4 EPA-SS-5431 EPA-EDO-RBC7	460 V ac Circuit Breaker Fuses Fan Indicating Lights Selector Switch Damper Auxiliary Relay	BC7 BC7 BC7 BC7 EDO	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	BC7-NL9 BC7-UH4 BC7-VV7	BC7a	BC7c BC7d	CBA-FN-32 CBA-FN-33 EDE-MCC-612	EPA-FN-47A	
4	EPA-DP-374	Emergency Feedwater Pumphouse Exhaust Damper	MAH-20503	B	310708	EFP-F-1-A	X	X	X	X	UH4	EPA-BC7-FU EPA-EDO-RBC7 EPA-DP-374-20 EPA-EDO-R1	Fuses Auxiliary Relay Pilot Solenoid Auxiliary Relay	BC7 EDO UH4 EDO	CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A	BC7-UH4	BC7a	BC7c BC7d	CBA-FN-32 CBA-FN-33 EDE-MCC-612	EPA-DP-373	Note 1

Notes
1. Air is not required for support as damper fails open.

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 7</div> <div>Table RSS 3.1.3.14-1</div>
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FUNCTION: PRIMARY AUXILIARY BUILDING AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	PAH-FN-42A	PAB Auxiliary Supply Fan "A"	MAH-20495	A	310765	PAB-F-2C-Z	X	X	X	-	M61	PAH-BF6-52 PAH-CS-5391-2 PAH-ZL-5391-4 PAH-SS-5391 PAH-ED1-R1 PAH-ZS-DP-43A-1 & 43A-2 PAH-ZS-DP-357 PAH-BF6-42 PAH-BF6-49 PAH-DP-43A-20 PAH-DP-357-20 PAH-ZL-5391-5 PAH-ZL-5391-6 PAH-BF6-FU	460 V ac Circuit Breaker Control Switch Fan Indicating Lights Selector Switch Damper Auxiliary Relay Damper Position Switch Damper Position Switch Motor Starter Overload Relays Pilot Solenoid Pilot Solenoid Damper DP-43A Position Lights Damper DP-357 Position Lights Fuse	BF6 BF6 BF6 ED1 UG5 UG7 BF6 BF6 UG5 UG7 BF6 BF6 BF6	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A PAB-F-1K-Z PAB-F-2C-Z CB-F-1A-A CB-F-1A-A PAB-F-1K-Z PAB-F-2C-Z CB-F-1A-A CB-F-1A-A	BF6-M61 BF6-ED1 BF6-UG5 BF6-UG7 UG5-UG7 BF6-UG5/1	310930 BF6a	BF6c BF6d	CBA-FN-19 CBA-FN-20 EDE-MCC-512	PAH-FN-42B	
2	PAN-DP-43A	PAB Auxiliary Fan Supply Damper	MAH-20495	A	310765	PAB-F-1K-Z	X	X	X	X	UG5	PAH-ED1-R1 PAH-DP-43A-20	Damper Auxiliary Relay Pilot Solenoid	ED1 UG5	CB-F-1A-A PAB-F-1K-Z	BF6-ED1 BF6-UG5 BF6-UG7 UG5-UG7 BF6-UG5/1	BF6a	BF6c BF6d	CBA-FN-19 CBA-FN-20	PAH-DP-43B	Note 1
3	PAH-DP-357	PAB Auxiliary Fan Exhaust Damper	MAH-20495	A	310766	PAB-F-2C-Z	X	X	X	X	UG7	PAH-ED1-R1 PAH-DP-357-20	Damper Auxiliary Relay Pilot Solenoid	ED1 UG7	CB-F-1A-A PAB-F-2C-Z	BF6-ED1 BF6-UG5 BF6-UG7 UG5-UG7	BF6a	BF6c	CBA-FN-19 CBA-FN-20	PAH-DP-358	Note 1
4	PAH-FN-42B	PAB Auxiliary Supply Fan "B"	MAH-20495	B	310765	PAB-F-2C-Z	X	X	X	-	M62	PAH-BF7-52 PAH-CS-5393-2 PAH-ZL-5393-4 PAH-SS-5393 PAH-EDO-R1 PAH-ZS-DP-43B-1 and 43B-2 PAH-ZS-DP-358 PAH-ZL-5393-5 PAH-DP-43B-20 PAH-DP-358-20 PAH-BF7-42 PAH-BF7-49 PAH-BF7-FU PAH-ZL-5393-6 PAH-E3D-R2	460 V ac Circuit Breaker Control Switch Fan Indicating Lights Selector Switch Damper Auxiliary Relay Damper Position Switch Damper Position Switch Damper DP-43B Position Lights Pilot Solenoid Pilot Solenoid Motor Starter Overload Relays Fuses Damper DP-358 Position Lights Auxiliary Relay	BF7 BF7 BF7 ED0 UG6 UG8 BF7 UG6 UG8 BF7 BF7 BF7 BF7 E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A PAB-F-1K-Z PAB-F-2C-Z CB-F-1B-A PAB-F-1K-Z PAB-F-2C-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	BF7-E3D/1 BF7-M62 BF7-UG6 BF7-UG8 UG6-UG8	BF7a	BF7c	CBA-FN-32 CBA-FN-33 EDE-MCC-612	PAH-FN-42A	
5	PAH-DP-43B	PAB Auxiliary Fan Supply Damper	MAH-20495	B	310765	PAB-F-1K-Z	X	X	X	X	UG6	PAH-EDO-R1 PAH-DP-43B-20	Damper Auxiliary Relay Pilot Solenoid	EDO UG6	CB-F-1B-A PAB-F-1K-Z	BF7-UG6 BF7-UG8 UG6-UG8	310930 BF7a	BF7c	CBA-FN-32 CBA-FN-33	PAH-DP-43A	Note 1

Notes

- Air and electrical power are not required for support as damper fails open.
- See Table RSS 3.1.3.12 for operation of dampers PAH-DP-35A, -35B, -36A & -36B.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 7 Table RSS 3.1.3.15-1
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FUNCTION: SERVICE WATER AIR HANDLING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	SWA-FN-40A	Service Water Pumphouse Train "A" Switchgear Room Supply Fan	SWA-20372	A	301139	SW-F-ID-A	X	X	X	-	NJO	SWA-CR5-52 SWA-CR5-42 SWA-CR5-49 SWA-CS-5614-2 SWA-SS-5614 SWA-CR5-FU	460 V ac Circuit Breaker Motor Starter Overload Relays Control Switch with Indication Selector Switch Fuse	CR5 CR5 CR5 CR5 G2H G2H CR5	SW-F-1B-A SW-F-1B-A SW-F-1B-A SW-F-1B-A CB-F-1A-A CB-F-1A-A SW-F-1B-A	CR5-NJO CR5-G2H/1 CR5-G2H	301115 CR5a	CR5c	EDE-MCC-514	SWA-FN-40B	
2	SWA-FN-40B	Service Water Pumphouse Train "B" Switchgear Room Supply Fan	SWA-20372	B	301139	SW-F-ID-A	X	X	X	-	NK1	SWA-CR0-52 SWA-CR0-42 SWA-CR0-49 SWA-CS-5615-2 SWA-SS-5615 SWA-CR0-FU	460 V ac Circuit Breaker Motor Starter Overload Relays Control Switch with Indication Selector Switch Fuses	CRO CRO CRO CRO G2K G2K CRO	SW-F-1C-A SW-F-1C-A SW-F-1C-A SW-F-1C-A CB-F-1B-A CB-F-1B-A SW-F-1C-A	CRO-NK1 CRO-G2K/1 CRO-G2K F37-G2K/2 CRO-G2K/2	CROa	CROc	EDE-MCC-614	SWA-FN-40A	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table RSS 3.1.3.17-1
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
1	EDE-SWG-5	4160 V Bus E5 UAT Incoming Line SWGR	310007	A	310442	CB-F-1A-A	X	X	X	-	A51	EDE-A51-52	4160 V Circuit Breaker	A51	CB-F-1A-A	A51-G07	310102	A51a A51b A51c A51d A51e	CBA-FN-19 CBA-FN-20 ED-X-2A EDE-PP-111A DAH-FN-25A DAH-FN-26A	EDE-SWG-6 UAT		
											EDE-CS-9709-2	Control Switch	A51	CB-F-1A-A	A51-G07/2							
											EDE-CS-9709-3	Control Switch with Indication	G07	DG-F-2A-A	A51-G10							
											EDE-A51-G, R, W	Indicating Lights	A51	CB-F-1A-A	A51-HR9							
											EDE-SS-9707	Selector Switch	G07	DG-F-2A-A	GA6-GB0/4							
											EDE-SS-9709	Selector Switch	G07	DG-F-2A-A	A51-G07/1							
											EDE-A51-52H	Truck Operated Contact	A51	CB-F-1A-A	A51-G07/3							
											EDE-A51-FU	Fuses	A51	CB-F-1A-A	A51-GB4							
											EDE-A51-CT1	Current Transformer (2000/5)	A51	CB-F-1A-A	GA0-GB3/4							
											EDE-A51-TD-1	CT Test Device	A51	CB-F-1A-A	GC4-GC6/4							
											EDE-A51-AM	Ammeter	A51	CB-F-1A-A	A51-GSX							
											EDE-A51-AS	Ammeter Switch	A51	CB-F-1A-A	A51-GSX/1							
											EDE-A51-ATR	Current Transducer	A51	CB-F-1A-A	A55-A5A							
											EDE-A51-CT2	Current Transformers (4000/5)	A51	CB-F-1A-A	A54-A5A/1							
											EDE-A67-PT	Potential Transformer (4200-120 V)	A67	CB-F-1A-A								
											EDE-A51-TD-3	PT Test Device	A51	CB-F-1A-A								
											EDE-A51-VM	Voltmeter	A51	CB-F-1A-A								
											EDE-A51-86	Lockout Relay	A51	CB-F-1A-A								
											EDE-A54-52S	Mechanically Operated Contact	A54	CB-F-1A-A								
											EDE-A52-52S	Mechanically Operated Contact	A52	CB-F-1A-A								
											DG-G10-25Y1	Auxiliary Synchronizing Check Relay	G10	DG-F-2A-A								
											EDE-A53-25U	Synchronizing Check Relay	A53	CB-F-1A-A								
											EDE-SS-9709-1	Selector Switch	GSX	DG-F-2A-A								
											EDE-CS-9707-3	Control Switch	G07	DG-F-2A-A								
											EDE-SNS-9736-2	Synchronizing Switch	G06	DG-F-2A-A								
											EDE-A52-86	Lockout Relay	A52	CB-F-1A-A								
											EDE-A69-86B	Lockout Relay	A69	CB-F-1A-A								
											ED-86SB/2/1X-1	Lockout Relay	GA0	TB-F-1C-2								
											ED-86-2/2/B3	Lockout Relay	GA6	TB-F-1C-Z								
											ED-86UB/2/1X-2A	Lockout Relay	GA8	TB-F-1C-Z								
											ED-86UB/2/1X-2B	Lockout Relay	GA8	TB-F-1C-Z								
											ED-86BF/2/2/52/TG1	Lockout Relay	GA9	TB-F-1C-Z								
											ED-86GT/2/TG1	Lockout Relay	GA9	TB-F-1C-Z								
											ED-86-1/2/B3	Lockout Relay	GB0	TB-F-1C-Z								
											ED-86BF-2/2H	Lockout Relay	GB3	TB-F-1C-Z								
											ED-86BF-2/2K	Lockout Relay	GB4	TB-F-1C-Z								
											ED-86UP/2/1X-2A	Lockout Relay	GC2	TB-F-1C-Z								
											ED-86UP/2/1X-2B	Lockout Relay	GC2	TB-F-1C-Z								
											ED-86BF-1/2/52/TG1	Lockout Relay	GC3	TB-F-1C-Z								
											ED-86SP/2/1X-1	Lockout Relay	GC4	TB-F-1C-Z								
											ED-86BF-1/2H	Lockout Relay	CG6	TB-F-1C-Z								
											ED-86BF-1/2E	Lockout Relay	CG7	TB-F-1C-Z								
											DG-HR9-RM0	EPS Auxiliary Relay	HR9	CB-F-1A-A								
											EDE-A51-3	Interposing Relay for SWD Lockout Relays	A51	CB-F-1A-A								
											EDE-A51-TD-2	Lockout Relay Test Device (A51-86)	A51	CB-F-1A-A								
											EDE-A51-TD-4	Interposing Relay Test Device (A51/3)	A51	CB-F-1A-A								

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table RSS 3.1.3.17-2
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
1	EDE-SWG-5 (Continued)											ED-GA0-TD-2	Lockout Relay Test Device (86SB/2/1X-1)	GA0	TB-F-1C-Z				
												ED-GA6-TD-2	Lockout Relay Test Device (86-2/2/B3)	GA6	TB-F-1C-Z				
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2A)	GA8	TB-F-1C-Z				
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2B)	GA8	TB-F-1C-Z				
												ED-GA9-TD-2	Lockout Relay Test Device (86BF-2/2/52/TG1)	GA9	TB-F-1C-Z				
												ED-GA9-TD-2	Lockout Relay Test Device (86GT/2/TG1)	GA9	TB-F-1C-Z				
												ED-GB0-TD-2	Lockout Relay Test Device (86-1/2/B3)	GB0	TB-F-1C-Z				
												ED-GB3-TD-2	Lockout Relay Test Device (86BF-2/2H)	GB3	TB-F-1C-Z				
												ED-GB4-TD-2	Lockout Relay Test Device (86BF-2/2E)	GB4	TB-F-1C-Z				
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2A)	GC2	TB-F-1C-Z				
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2B)	GC2	TB-F-1C-Z				
												ED-GC3-TD-2	Lockout Relay Test Device (86BF-1/2/52/TG1)	GC3	TB-F-1C-Z				
												ED-GC4-TD-2	Lockout Relay Test Device (86SP/2/1X-1)	GC4	TB-F-1C-Z				
												ED-GC6-TD-2	Lockout Relay Test Device (86BF-1/2H)	GC6	TB-F-1C-Z				
												ED-GC7-TD-2	Lockout Relay Test Device (86BF-1/2E)	GC7	TB-F-1C-Z				
												EDE-A51-51	Time Overcurrent Relays 0A, 0B, 0C	A51	CB-F-1A-A				
												EDE-A51-51GS	Ground Sensor Relay	A51	CB-F-1A-A				
												EDE-A5A-52S	Mechanically Operated Contact	A5A	CB-F-1A-A				
2	EDE-SWG-5	Grounding Transformer	310007	A	310442	CB-F-1A-A	X	X	X	-	A67	EDE-A67-XFMR	3-10 15 kVA Transformers	A67	CB-F-1A-A		310102	CBA-FN-19 CBA-FN-20 EDE-SWG-5	EDE-SWG-6 GRD XFMR
												EDE-A67-FU	3-10A Fuses	A67	CB-F-1A-A		A67a		
												EDE-A67-52	120 V AC Circuit Breaker	A67	CB-F-1A-A				
												EDE-A67-RES	Grounding Resistor	A67	CB-F-1A-A				
												EDE-A67-64	Grounding Relay	A67	CB-F-1A-A				
												EDE-A67-TD-3	VM Test Device	A67	CB-F-1A-A				
												EDE-A67-VM	(3) Ground Voltmeters	A67	CB-F-1A-A				

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.17-4
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
3	EDE-SWG-5 (Continued)											EDE-A52-TD-4	Interposing Relay Test Device (A52-3)	A52	CB-F-1A-A						
												ED-86RB/2/1X-3A	Lockout Relay	GA7	TB-F-1C-Z						
												ED-86-2/2/B2	Lockout Relay	GB7	TB-F-1C-Z						
												ED-86-1/2/B2	Lockout Relay	GC0	TB-F-1C-Z						
												ED-86RP/2/1X-3A	Lockout Relay	GC1	TB-F-1C-Z						
												ED-86RP/2/1X-3B	Lockout Relay	GE6	TB-F-1C-Z						
												ED-86RB/2/1X-3B	Lockout Relay	GE7	TB-F-1C-Z						
												ED-GA7-TD-2	Lockout Relay Test Device (86RB/2/1X-3A)	GA7	TB-F-1C-Z						
												ED-GB7-TD-2	Lockout Relay Test Device (86-1/2/B2)	GB7	TB-F-1C-Z						
												ED-GC0-TD-2	Lockout Relay Test Device (86-1/2/B2)	GC0	TB-F-1C-Z						
												ED-GC1-TD-2	Lockout Relay Test Device (86RP/2/1X-3A)	GC1	TB-F-1C-Z						
												ED-GE6-TD-2	Lockout Relay Test Device (86RB/2/1X-3B)	GE6	TB-F-1C-Z						
												ED-G37-TD-2	Lockout Relay Test Device (86RP/2/1X-3B)	GE7	TB-F-1C-Z						
												EDE-A52-51	Time Overcurrent Relays øA, øB, øC	A52	CB-F-1A-A						
												EDE-A52-51GS	Ground Sensor Relay	A52	CB-F-1A-A						
												EDE-A52-27RB-1	Residual Undervoltage Relay	A52	CB-F-1A-A						
												EDE-A52-27RB-2	Residual Undervoltage Relay	A52	CB-F-1A-A						
												EDE-A5A-52S	Mechanically Operated Contact	A5A	CB-F-1A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.17-5
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	EDE-SWG-5	4160 V Bus E5 PT Compartment	310007	A	310442	CB-F-1A-A	X	X	X	-	A53	EDE-A53-PT	Potential Transformers	A53	CB-F-1A-A	A53-AC2	310102	A53d	CBA-FN-19	EDE-SWG-6 PT	
												EDE-A53-VM	Voltmeter	A53	CB-F-1A-A	A53-HR2			CBA-FN-20		
												EDE-A53-VS	Voltmeter Switch	A53	CB-F-1A-A	AF2-ED4			EDE-SWG-5		
												EDE-A53-TD-3	PT Test Device	A53	CB-F-1A-A	A53-G07			EDE-PP-111A		
												EDE-A53-VTR-1	Voltage Transducer	A53	CB-F-1A-A	AC2-AF2			DAH-FN-25A		
												EDE-A53-VTR-2	Voltage Transducer	A53	CB-F-1A-A	A54-A5A/4					
												EDE-SS-9709	Selector Switch	A53	CB-F-1A-A	A54-A5A/5					
												EDE-SNS-9736-2	Synchronizing Switch	G07	DG-F-2A-A	A55-A5A/1					
												EDE-A53-25U	Synchronizing Check Relay	G06	DG-F-2A-A	A55-A5A/2					
												EDE-A53-25R	Synchronizing Check Relay	A53	CB-F-1A-A						
												EDE-A54-52S	Mechanically Operated Contact	A54	CB-F-1A-A						
												EDE-A53-27B-1	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-27B-2	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-TS-3	Undervoltage Relay Test Switch	A53	CB-F-1A-A						
												EDE-A53-27D-1	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-27-D-1-RES	Resistor	A53	CB-F-1A-A						
												EDE-A53-27D-2	Instantaneous Undervoltage Relay	A53	CB-F-1A-A						
												EDE-A53-27D-2-RES	Resistor	A53	CB-F-1A-A						
												EDE-A53-TS-1	Undervoltage Relays Test Switch	A53	CB-F-1A-A						
												EDE-A52-27RB-1,2	Residual Undervoltage Relay	A52	CB-F-1A-A						
												EDE-A53-62B	Time Delay Relay	A53	CB-F-1A-A						
												EDE-A53-62B-RES	Resistor	A53	CB-F-1A-A						
												EDE-A53-TS-4	Test Switch EDE-62B	A53	CB-F-1A-A						
												EDE-A53-62BX-1	Auxiliary Relay	A53	CB-F-1A-A						
												EDE-A53-62BX	Auxiliary Latch Relay	A53	CB-F-1A-A						
												EDE-A51-52S	Mechanically Operated Contact	A51	CB-F-1A-A						
												EDE-ED4-94-5	Undervoltage Tripping Relay	ED4	CB-F-1A-A						
												EDE-A52-27/59X1	Under/Over Voltage Auxiliary Relay	A52	CB-F-1A-A						
												EDE-AF3-94-4	Undervoltage Tripping Relay	AF3	CB-F-1A-A						
												DG-HR2-RM0	EPS Auxiliary Relay	HR2	CB-F-1A-A						
												EDE-A53-94-1A	Undervoltage Tripping Relay	A53	CB-F-1A-A						
												EDE-A53-94-1B	Undervoltage Tripping Relay	A53	CB-F-1A-A						
												EDE-A53-94-2	Undervoltage Tripping Relay	A53	CB-F-1A-A						
												EDE-AC3-94-3	Undervoltage Tripping Relay	AC3	CB-F-1A-A						
												EDE-A53-FU	125 V DC 10A Fuses (2)	A53	CB-F-1A-A						
												EDE-A53-62D	Time Delay Relay	A53	CB-F-1A-A						
												EDE-A53-62D-RES	Resistor	A53	CB-F-1A-A						
												EDE-A53-TS-2	Test Switch Relay 62D	A53	CB-F-1A-A						
												EDE-A53-62DX	Auxiliary Relay	A53	CB-F-1A-A						
												EDE-A5A-52S	Mechanically Operated Contact	A5A	CB-F-1A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.17-7
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
5	EDE-SWG-5 (Continued)											EDE-A54-W	Indicating Light (A54-86DP)	A54	CB-F-1A-A						
												EDE-A69-86B	Lockout Relay	A69	CB-F-1A-A						
												EDE-A69-86DB	Back-Up Lockout Relay	A69	CB-F-1A-A						
												EDE-A69-W	Indicating Light (A69-86B & A69-86DB)	A69	CB-F-1A-A						
												EDE-A51-86	Lockout Relay	A51	CB-F-1A-A						
												EDE-A52-86	Lockout Relay	A52	CB-F-1A-A						
												EDE-A51-52S	Mechanically Operated Contact	A51	CB-F-1A-A						
												EDE-A52-52S	Mechanically Operated Contact	A52	CB-F-1A-A						
												EDE-A54-52S	Mechanically Operated Contact	A54	CB-F-1A-A						
												EDE-A69-RLA	LOCA Seal Relay	A69	CB-F-1A-A						
												DG-G10-25Y	Auxiliary Sync Check Relay	G10	DG-F-2A-A						
												EDE-A69-RS	Fast Closure Relay	A69	CB-F-1A-A						
												EDE-A54-81	Frequency Relay	A54	CB-F-1A-A						
												EDE-A54-87DP	Primary Differential Relay	A54	CB-F-1A-A						
												EDE-A69-51B	Time Overcurrent Relays, 0A, 0B, 0C	A69	CB-F-1A-A						
												EDE-A54-81X	Auxiliary Frequency Relay	A54	CB-F-1A-A						
												EDE-A69-60	Voltage Balance Relay	A69	CB-F-1A-A						
												EDE-A69-60AX	Auxiliary Voltage Balance Relay	A69	CB-F-1A-A						
												EDE-A69-60BX	Auxiliary Voltage Balance Relay	A69	CB-F-1A-A						
												EDE-A69-40	Loss of Field Relays 0A, 0B	A69	CB-F-1A-A						
												EDE-A54-40X	Auxiliary Loss of Field Relay	A54	CB-F-1A-A						
												EDE-A69-32	Power Directional Relay	A69	CB-F-1A-A						
												EDE-A69-TD-1	Lockout Relay Test Device (86B)	A69	CB-F-1A-A						
												EDE-A69-TD-2	Lockout Relay Test Device (86DB)	A69	CB-F-1A-A						
												EDE-A54-TD-2	Lockout Relay Test Device (86DP)	A54	CB-F-1A-A						
												DG-G07-R43L5	Selector Switch Auxiliary Relay (Local)	G07	DG-F-2A-A						
												DG-G07-R43R3	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A						
												DG-G07-R43R4	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A						
												DG-G07-R43R6	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A						
												DG-G29-5A	Shutdown Relay	G29	DG-F-2A-A						
												EDE-A69-51V	Time Overcurrent Voltage Restraint Relays, 0A, 0B, 0C	A69	CB-F-1A-A						
												EDE-A69-51CS	Ground Sensor Relay	A69	CB-F-1A-A						
												EDE-A54-TD-1	Test Device	A54	CB-F-1A-A						
												EDE-A69-TD-3	Voltage Test Device	A69	CB-F-1A-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table RSS 3.1.3.17-9
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
7	EDE-SWG-5	4160 V Feed to 480 V Transformer EDE-X-5A for Substation Bus EDE-US-51	310007	A	310442	CB-F-1A-A	X	X	X	-	A55	EDE-A55-52 EDE-A55-FU EDE-CS-9706 EDE-A55-G,R,W EDE-SS-9706 EDE-A55-52H EDE-A55-86 EDE-A55-TD2 EDE-A55-50/51 EDE-A55-CT EDE-A55-AM EDE-A55-AS EDE-A55-ATR EDE-A55-TD1 EDE-A55-51GS	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay Lockout Relay Test Device Inst/Time Overcurrent Relays 0A, 0B, 0C Current Transformers (300/5) Ammeter Ammeter Switch Current Transducer CT Test Device Ground Sensor Relay	A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55 A55	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 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 CB-F-1A-A	A55-AB1	310102 A55a A55b A55c A55d A55g	CBA-FN-19 CBA-FN-20 EDE-PP-111A EDE-SWG-5	EDE-SWG-6 EDE-X-5C EDE-US-61		
8	EDE-SWG-5	4160 V Feed to 480 V Transformer EDE-X-5B for Substation Bus EDE-US-52	310007	A	310442	CB-F-1A-A	X	X	X	-	A63	EDE-A63-52 EDE-A63-FU EDE-CS-9703 EDE-A63-G,R,W EDE-SS-9703 EDE-A63-52H EDE-A63-86 EDE-A63-TD2 EDE-A63-50/51 EDE-A63-CT EDE-A63-AM EDE-A63-AS EDE-A63-ATR EDE-A63-TD1 EDE-A63-51GS	4160 V Circuit Breaker Fuses Control Switch Indicating Lights Selector Switch Truck Operated Contact Lockout Relay Lockout Relay Test Device Inst/Time Overcurrent Relays 0A, 0B, 0C Current Transformers (300/51) Ammeter Ammeter Switch Current Transducer CT Test Device Ground Sensor Relay	A63 A63 A63 A63 A63 A63 A63 A63 A63 A63 A63 A63 A63 A63 A63 A63	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 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 CB-F-1A-A	A63-AC1	310102 A63a A63b A63c A63d A63g	CBA-FN-19 CBA-FN-20 EDE-PP-111A EDE-SWG-5	EDE-SWG-6 EDE-X-5D EDE-US-62		
9	EDE-US-51	480 V Bus 51 Unit Substation	310013	A	310442	CB-F-1A-A	X	X	X	-	AB2	EDE-AB2-52 EDE-X-5A EDE-AB3-FU EDE-AB1-LA EDE-AB2-CT EDE-AB3-AM EDE-AB3-AS	480 V ac Circuit Breaker 4160-480 V Distribution Transformer Fuses 6 kV Lightning Arrestors (3) Current Transformers (2000/5) Ammeter Ammeter Switch	AB2 AB1 AB3 AB1 AB2 AB3 AB3 AB3	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 CB-F-1A-A	AB2a 310103 AB2b	CBA-FN-19 CBA-FN-20 EDE-X-5A	EDE-US-61			

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table RSS 3.1.3.17-10</div>
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
10	EDE-US-52	480 V Bus 51 Unit Substation	310013	A	310442	CB-F-1A-A	X	X	X	-	AC2	EDE-AC2-52 EDE-X-5B EDE-AC3-FU EDE-AC1-LA EDE-AC2-CT EDE-AC3-AM EDE-AC3-AS	480 V AC Circuit Breaker 4160-480 V Distribution Transformer Fuses 6 kV Lightning Arrestors (3) Current Transformers (2000/5) Ammeter Ammeter Switch	AC2 AC1 AC3 AC1 AC2 AC3 AC3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A		310103 AC2a AC2b	CBA-FN-19 CBA-FN-20 EDE-X-5B	EDE-US-62		
11	EDE-US-51	480 V Feed to 460 V Motor Control Center 512	310013	A	310442	CB-F-1A-A	X	X	X	-	AB6	EDE-AB6-52	480 V AC Circuit Breaker	AB6	CB-F-1A-A	AB6-B10 AB6-B10/1	310103 AB6	AB6	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-612	
12	EDE-US-51	480 V Feed to 460V Motor Control Center 514	310013	A	310442	CB-F-1A-A	X	X	X	-	A94	EDE-A94-52	480 V AC Circuit Breaker	A94	CB-F-1A-A	A94-C11	310103 A94	A94	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-614	
13	EDE-US-51	480 V Feed to 460 V Motor Control Center 515	310013	A	310442	CB-F-1A-A	X	X	X	-	AX8	EDE-AX8-52	480 V AC Circuit Breaker	AX8	CB-F-1A-A	AB6-B4D AB6-B4D/1	310103 AX8	AX8	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-615	
14	EDE-US-52	480 V Feed to 460 V Motor Control Center 521	310013	A	310442	CB-F-1A-A	X	X	X	-	AC8	EDE-AC8-52	480 V AC Circuit Breaker	AC8	CB-F-1A-A	AC8-B13 AC8-B13/1	310103 AC8	AC8	CBA-FN-19 CBA-FN-20 EDE-US-52	EDE-US-62 EDE-MCC-622	
15	EDE-US-52	480 V Feed to 460 V Motor Control Center 522	310013	A	310442	CB-F-1A-A	X	X	X	-	AW9	EDE-AW9-52 EDE-CS-9787-2 EDE-SS-9787 EDE-AW9-52H EDE-AW9-FU	480 V AC Circuit Breaker Control Switch with Indication Selector Switch Truck Operated Contact Fuses	AW9 G81 G81 AW9 AW9	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	AW9-D12 AW9-G81/1 AW9-G81	310103 AW9a AW9b AW9c	AW9c	CBA-FN-19 CBA-FN-20 EDE-US-52	EDE-US-62 EDE-MCC-622	
15a	EDE-US-51	480 V Feed to 460 V Motor Control Center 511	310013	A	310442	CB-F-1A-A	X	X	X	-	AB5	EDE-AB5-52	480 V AC Circuit Breaker	AB5	CB-F-1A-A	AB5-B09 AB5-B09/1	310103 AB5	AB5	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 EDE-MCC-611	
16	EDE-US-51	Grounding Transformer	310012	A	310442	CB-F-1A-A	X	X	X	-	AB3	EDE-AB3-XFMR EDE-AB3-FU EDE-AB3-RES EDE-AB3-VM EDE-AB3-64	3-1ø 1 k VA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AB3 AB3 AB3 AB3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A		310103 AB3b	CBA-FN-19 CBA-FN-20 EDE-US-51	EDE-US-61 Ground Transformer		
17	EDE-US-52	Grounding Transformer	310013	A	310442	CB-F-1A-A	X	X	X	-	AC3	EDE-AC3-XFMR EDE-AC3-FU EDE-AC3-RES EDE-AC3-VM EDE-AC3-64	3-1ø 1 k VA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AC3 AC3 AC3 AC3	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A		310103 AC3b	CBA-FN-19 CBA-FN-20 EDE-US-52	EDE-US-62 Ground Transformer		

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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
18	EDE-I-1E	Uninterruptible Power Supply	310043	A	310442	CB-F-1A-A	X	X	X	-	HF5	EDE-DD3-52 EDE-DM7-72 EDE-HF5/2-52 EDE-HF5/1-72 EDE-HF5/3-52	480 V AC Circuit Breaker 125 V dc Circuit Breaker 460 V ac Inc. Line Circuit Breaker 125 V dc Inc. Line Circuit Breaker 120 V ac Output Circuit Breaker	DD3 DM7 HF5 HF5 HF5	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	DD3-HF5/1 DM7-HF5/1	DD3a DD3b	310105	CBA-FN-19 CBA-FN-20 EDE-MCC-512 EDE-SWG-11A	EDE-I-1F	
18A	EDE-CP-1E	Static Transfer Switch	310043	A	310442	CB-F-1A-A	X	X	X	-	E1Y	EDE-E1Y-F1	300A, 600 V Fuse	E1Y	CB-F-1A-A	E1Y-HF5 E1Y-HF5/1	DD3a DD3b	310105	CBA-FN-19 CBA-FN-20 EDE-I-1E	EDE-CP-1F	
19	EDE-PP-1E	Vital Instrument Bus	310043	A	310442	CB-F-1A-A	X	X	X	-	EH9	EDE-EH9/NC-52 EDE-EH9/NO-52	120 V ac Circuit Breaker-Inc. Feed from EDE-CP-1E (Norm. Closed) 120 V ac Circuit Breaker-Inc. Feed from ED-X-31E (Norm. Open)	EH9 EH9	CB-F-1A-A CB-F-1A-A	EH9-E1Y	DD3a EH9a	310105	CBA-FN-19 CBA-FN-20 EDE-CP-1E	EDE-PP-1F	
20	EDE-PP-11E	Vital Instrument Bus	310043	A	310442	CB-F-1A-A	X	X	X	-	E1S	EDE-EH9/13-52	120 V ac Circuit Breaker	EH9	CB-F-1A-A	E1S-EH9	DD3a E1Sa	310105	CBA-FN-19 CBA-FN-20 EDE-PP-1E	EDE-PP-11F	
21	EDE-BC-1A	125 V dc Battery Charger	310042	A	310442	CB-F-1A-A	X	X	X	-	HR5	EDE-DB1-52 EDE-DB1-42 EDE-DB1-42X DG-HR2-HR9 (K20) EDE-HR5/1-52 EDE-DB1-FU	460 V ac Circuit Breaker Contactor Auxiliary Relay EPS Relay 460 V ac Circuit Breaker-Incoming Feed Fuse	DB1 DB1 DB1 HR2 HR5 DB1	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	DB1-HR2 DB1-HR5	DB1a DB1b DB1c	310107	CBA-FN-19 CBA-FN-20 EDE-MCC-512	EDE-BC-1B	
22	EDE-B-1A	125 V dc Battery	310042	A	310442	CB-F-1D-A	X	X	X	-	HV4	EDE-J75-FU-1,2,3,4 EDE-J75-SH EDE-J75-ATR	1600 A Fuses 1000A, 100MV Shunt Shunt Amplifier	J75 J75 J75	CB-F-1A-A CB-F-1A-A CB-F-1A-A	HV4-J75 HV4-J75/1	DB1a DB1b DB1c	310107	CBA-FN-19 CBA-FN-20 CBA-FN-21A EDE-BC-1A EDE-SWG-11A	EDE-B-1B	

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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
28	EDE-US-51	480 V Unit Substation 125 V dc Control Bus		A	310442	CB-F-1A-A	X	X	X	-	AB3	EDE-E93/2-72 EDE-AB3-8	125 V dc Circuit Breaker 125 V dc Circuit Breaker (Main)	E93 AB3	CB-F-1A-A CB-F-1A-A	AB3-E93	E93a 310107 E93b 310103 5m		CBA-FN-19 CBA-FN-20 EDE-PP-111A	EDE-US-61	
29	EDE-US-52	480 V Unit Substation 125 V dc Control Bus		A	310442	CB-F-1A-A	X	X	X	-	AC3	EDE-E93/3-72 EDE-AC3-8	125 V AC Circuit Breaker 125 V AC Circuit Breaker (Main)	E93 AC3	CB-F-1A-A CB-F-1A-A	AC3-E93	E93a 310107 E93b 310103 5m		CBA-FN-19 CBA-FN-20 EDE-PP-111A	EDE-US-62	
30	DG-CP-75A	Diesel Generator 1A Control Panel Cubicle 3 125 V dc Supply	310010 310042	A	310524	DG-F-2A-A	X	X	X	-	G10	EDE-DM9-72 DG-G10-72	125 V dc Circuit Breaker 125 V dc Circuit Breaker (Main)	DM9 G10	CB-F-1A-A DG-F-2A-A	DM9-G10	DM9a 310102 DM9b 310107 DB1a		DAH-FN-25A DAH-FN-26A EDE-SWG-11A CBA-FN-19 CBA-FN-20	DG-CP-76A	

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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
31	EDE-SWG-6 (Continued)											ED-GA0-TD-2	Lockout Relay Test Device (86SB/2/1X-1)	GA0	TB-F-1C-Z				
												ED-GA6-TD-2	Lockout Relay Test Device (86-2/2/B3)	GA6	TB-F-1C-Z				
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2A)	GA8	TB-F-1C-Z				
												ED-GA8-TD-2	Lockout Relay Test Device (86UB/2/1X-2B)	GA8	TB-F-1C-Z				
												ED-GA9-TD-2	Lockout Relay Test Device (86BF-2/2/52/TG1)	GA9	TB-F-1C-Z				
												ED-GA9-TD-2	Lockout Relay Test Device (86GT/2/TG-1)	GA9	TB-F-1C-Z				
												ED-GB0-TD-2	Lockout Relay Test Device (86-1/2/B3)	GB0	TB-F-1C-Z				
												ED-GB3-TD-2	Lockout Relay Test Device (86BF-2/2H)	GB3	TB-F-1C-Z				
												ED-GB4-TD-2	Lockout Relay Test Device (86BF-2/2E)	GB4	TB-F-1C-Z				
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2A)	GC2	TB-F-1C-Z				
												ED-GC2-TD-2	Lockout Relay Test Device (86UP/2/1X-2B)	GC2	TB-F-1C-Z				
												ED-GC3-TD-2	Lockout Relay Test Device (86BF-1/2/52/TG1)	GC3	TB-F-1C-Z				
												ED-GC4-TD-2	Lockout Relay Test Device (86SP/2/1X-1)	GC4	TB-F-1C-Z				
												ED-GC6-TD-2	Lockout Relay Test Device (86BF-1/2H)	GC6	TB-F-1C-Z				
												ED-GC7-TD-2	Lockout Relay Test Device (86BF-1/2E)	GC7	TB-F-1C-Z				
												EDE-A71-51	Time Overcurrent Relays 0A, 0B, 0C	A71	CB-F-1B-A				
												EDE-A71-51GS	Ground Sensor Relay	A71	CB-F-1B-A				
												EDE-A7A-52S	Mechanically Operated Contact	A7A	CB-F-1B-A				
32	EDE-SWG-6	Grounding Transformer	310008	B	310442	CB-F-1B-A	X	X	X	-	A87	EDE-A87-XFMR	3-10 15 k VA Transformers	A87	CB-F-1B-A		310102	CBA-FN-32 CBA-FN-33 EDE-SWG-6	EDE-SWG-5 Ground Transformer
												EDE-A87-FU	3-10A Fuses	A87	CB-F-1B-A	A87a			
												EDE-A87-52	120 V ac Circuit Breaker	A87	CB-F-1B-A				
												EDE-A87-RES	Grounding Resistor	A87	CB-F-1B-A				
												EDE-A87-64	Ground Relay	A87	CB-F-1B-A				
												EDE-A87-TD-3	VM Test Device	A87	CB-F-1B-A				
												EDE-A87-VM	(3) Ground Voltmeters	A87	CB-F-1B-A				

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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
33	EDE-SWG-6 (Continued)											EDE-86RB/2/1X-3A ED-86-2/2/B2 ED-86-1/2/B2 ED-86RP/2/1X-3A ED-86RP/2/1X-3B ED-86RB/2/1X-3B ED-GA7-TD-2 ED-GB7-TD-2 ED-GC0-TD-2 ED-GC1-TD-2 ED-GE6-TD-2 ED-GE7-TD-2 EDE-A72-51 EDE-A72-51GS EDE-A7A-52S	Lockout Relay Lockout Relay Lockout Relay Lockout Relay Lockout Relay Lockout Relay Lockout Relay Test Device (86RB/2/1x-3A) Lockout Relay Test Device (86-2/2/B2) Lockout Relay Test Device (86-1/2/B2) Lockout Relay Test Device (86RP/2/1x-3A) Lockout Relay Test Device (86RP/2/1x-3B) Lockout Relay Test Device (86RB/2/1x-3B) Time Overcurrent Relays 0A, 0B, 0C Ground Sensor Relay Mechanically Operated Contact	GA7 GB7 GC0 CG1 GE6 GE7 GA7 GB7 GC0 GC1 GE6 GE7 A72 A72 A7A	TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z TB-F-1C-Z CB-F-1B-A CB-F-1B-A CB-F-1B-A							
34	EDE-SWG-6	4160 V Bus E6 PT Compartment	310008	B	310442	CB-F-1B-A	X	X	X	-	A73	EDE-A73-PT EDE-A73-VM EDE-A73-VS EDE-A73-TD-3 EDE-A73-VTR-1 EDE-A73-VTR-2 EDE-SS-9719 EDE-SNS-9737-2 EDE-A73-25U EDE-A73-25R EDE-A74-52S EDE-A73-27B-1 EDE-A73-27B-2 EDE-A73-TS-3 EDE-A73-27D-1 EDE-A73-27D-1-RES EDE-A73-27D-2	Potential Transformer Voltmeter Voltmeter Switch PT Test Device Voltage Transducer Voltage Transducer Selector Switch Synchronizing Switch Synchronizing Check Relay Synchronizing Check Relay Mechanically Operated Contact Instantaneous Undervoltage Relay Instantaneous Undervoltage Relay UV Relays Test Switch Instantaneous Undervoltage Relay Resistor Instantaneous Undervoltage Relay	A73 A73 A73 A73 A73 A73 G19 G18 A73 A73 A74 A73 A73 A73 A73 A73	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-2B-A DG-F-2B-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 CB-F-1B-A CB-F-1B-A	A73-AE2 A73-G19 A73-HR4 AE2-AF7 AF7-EE6 AW2-EE6 A74-A7A/4 A74-A7A/5 A75-A7A/1 A75-A7A/1	A73A A73e A73h 					

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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
34	EDE-SWG-6 (Continued)											EDE-A73-27D-2-RES EDE-A73-TS-1 EDE-A72-27RB-1,2 EDE-A73-62B EDE-A73-62B-RES EDE-A73-TS-4 EDE-A73-62BX-1 EDE-A73-62BX EDE-A71-52S EDE-AW3-94-5 EDE-A72-27/59X1 EDE-AF8-94-4 DG-HR4-RM0 EDE-A73-94-1A EDE-A73-94-1B EDE-A73-94-2 EDE-AE3-94-3 EDE-EE6-94-6 EDE-A73-FU EDE-A73-62D EDE-A73-62D-RES EDE-A73-TS-2 EDE-A73-62DX EDE-A7A-52S	Resistor UV Relays Test Switch Residual Undervoltage Relay Time Delay Relay Resistor Test Switch EDE-62B Auxiliary Relay Auxiliary Latch Relay Mechanically Operated Contact Undervoltage Tripping Relay Under/Over Voltage Auxiliary Relay Undervoltage Tripping Relay EPS Auxiliary Relay Undervoltage Tripping Relay Undervoltage Tripping Relay Undervoltage Tripping Relay Tripping Relay 10A Fuses Time Delay Relay Resistor Test Switch Relay 62D Auxiliary Relay Mechanically Operated Contact	A73 A73 A72 A73 A73 A73 A73 A73 A71 AW3 A72 AF8 HR4 A73 A73 A73 AE3 EE6 A73 A73 A73 A73 A73 A73 A7A	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 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 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 CB-F-1B-A							

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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
35	EDE-SWG-6 (Continued)											EDE-A71-86 EDE-A72-86 EDE-A71-52S EDE-A72-52S EDE-A74-52S EDE-A89-RLA DG-G20-25Y EDE-A89-RS EDE-A74-81 EDE-A74-87DP EDE-A89-51B EDE-A74-81X EDE-A89-60 EDE-A89-60AX EDE-A89-60BX EDE-A89-40 EDE-A74-40X EDE-A89-32 EDE-A89-TD-1 EDE-A89-TD-2 EDE-A74-TD-2 DG-G19-R43L5 & R43L6 DG-G19-R43R4 DG-G19-R43R6 DG-G30-5A EDE-A89-51V DG-G19-R43R3 EDE-A89-51GS EDE-A74-TD-1 EDE-A74-87DP Reactor EDE-A74-81Y EDE-A7A-52S	Lockout Relay Lockout Relay Mechanically Operated Contact Mechanically Operated Contact Mechanically Operated Contact LOCA Seal Relay Auxiliary Sync Check Relay Fast Closure Relay Frequency Relay Primary Differential Relay Time Overcurrent Relays 0A, 0B, 0C Auxiliary Frequency Relay Voltage Balance Relay Auxiliary Voltage Balance Relay Auxiliary Voltage Balance Relay Loss of Field Relays 0A, 0B Auxiliary Loss of Field Relay Power Directional Relay Lockout Relay Test Device (86B) Lockout Relay Test Device (86DB) Lockout Relay Test Device (86DP) Selector Switch Auxiliary Relay (Local) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Shutdown Relay Time Overcurrent Voltage Restraint Relays 0A, 0B, 0C Selector Switch Auxiliary Relay (Remote) Ground Sensor Relay Test Device Primary Differential Relay Reactor Assembly Time Delay Relay Mechanically Operated Contact	A71 A72 A71 A72 A74 A89 G20 A89 A74 A74 A89 A74 A89 A89 A89 A74 A89 A89 A89 G30 A89 G19 G19 G19 G30 A89 G19 A89 A74 A74 A74 A74 A74	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A DG-F-2B-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 CB-F-1B-A CB-F-1B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A							

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table RSS 3.1.3.17-23</div>
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
40	EDE-US-62	480 V Bus 62 Unit Substation	310014	B	310442	CB-F-1B-A	X	X	X	-	AE2	EDE-AE2-52 EDE-X-5D EDE-AE3-FU EDE-AE1-LA EDE-AE2-CT EDE-AE3-AM EDE-AE3-AS	480 V AC Circuit Breaker 4160-480 V Distribution Transformer Fuses 6 kV Lightning Arrestors (3) Current Transformers (2000/5) Ammeter Ammeter Switch	AE2 AE1 AE3 AE1 AE2 AE3 AE3	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A		310103 AE2a AE2b	CBA-FN-32 CBA-FN-33 EDE-X-5D	EDE-US-52		
41	EDE-US-61	480 V Feed to 460 V Motor Control 612	310014	B	310442	CB-F-1B-A	X	X	X	-	AD6	EDE-AD6-52	480 V AC Circuit Breaker	AD6	CB-F-1B-A	AD6-B16 AD6-B16/1	310103 AD6	AD6	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 EDE-MCC-512	
42	EDE-US-61	480 V Feed to 460 V Motor Control 614	310014	B	310442	CB-F-1B-A	X	X	X	-	AA4	EDE-AA4-52	480 V AC Circuit Breaker	AA4	CB-F-1B-A	AA4-BF0	310103 AA4	AA4	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 EDE-MCC-514	
43	EDE-US-61	480 V Feed to 460 V Motor Control 615	310014	B	310442	CB-F-1B-A	X	X	X	-	AX9	EDE-AX9-52	480 V AC Circuit Breaker	AX9	CB-F-1B-A	AX9-B4E AX9-B4E/1	310103 AX9	AX9	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 EDE-MCC-515	
44	EDE-US-62	480 V Feed to 460 V Motor Control 621	310014	B	310442	CB-F-1B-A	X	X	X	-	AE8	EDE-AE8-52	480 V AC Circuit Breaker	AE8	CB-F-1B-A	AE8-B19 AE8-B19/1	310103 AE8	AE8	CBA-FN-32 CBA-FN-33 EDE-US-62	EDE-US-52 EDE-MCC-521	
45	EDE-US-62	480 V Feed to 460 V Motor Control 622	310014	B	310442	CB-F-1B-A	X	X	X	-	AW0	EDE-AW0-52 EDE-CS-9788-2 EDE-SS-9788 EDE-AW0-52H EDE-AW0-FU	480 V AC Circuit Breaker Control Switch with Indication Selector Switch Truck Operated Contact Fuses	AW0 GZ0 GZ0 AW0 AW0	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	AW0-D13 AW0-GZ0 AW0-GZ0/1	310103 AW0a AW0b AW0c	AW0e	CBA-FN-32 CBA-FN-33 EDE-US-62	EDE-US-52 EDE-MCC-522	
46	EDE-US-61	Grounding Transformer	310014	B	310442	CB-F-1B-A	X	X	X	-	AD3	EDE-AD3-XFMR EDE-AD3-FU EDE-AD3-RES EDE-AD3-VM EDE-AD3-64	3-1ø 1 kVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AD3 AD3 AD3 AD3 AD3	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	-	310103 AE3b	-	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 GRD XFMR	
46a	EDE-US-61	480 V Feed to 460 V Motor Control Center 611	310014	B	310442	CB-F-1B-A	X	X	X	-	AD5	EDE-AD5-52	480 V AC Circuit Breaker	AD5	CB-F-1B-A	AD5-B15 AD5-B15/1	310103 AD5	AD5	CBA-FN-32 CBA-FN-33 EDE-US-61	EDE-US-51 EDE-MCC-511	
47	EDE-US-62	Grounding Transformer	310014	B	310442	CB-F-1B-A	X	X	X	-	AE3	EDE-AE3-XFMR EDE-AE3-FU EDE-AE3-RES EDE-AE3-VM EDE-AE3-64	3-1ø 1 kVA Transformers Fuses Grounding Resistor Ground Voltmeters (3) Ground Relay	AE3 AE3 AE3 AE3 AE3	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	-	310103 AE3b	-	CBA-FN-32 CBA-FN-33 EDE-US-62	EDE-US-52 GRD XFMR	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	<div>Revision 9</div> <div>Table RSS 3.1.3.17-24</div>
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
48	EDE-1-1F	Uninterruptible Power Supply	310043	B	310442	CB-F-1B-A	X	X	X	-	HF6	EDE-DD5-52 EDE-DN0-72 EDE-HF6/2-52 EDE-HF6/1-72 EDE-HF6/3-52	460 V AC Circuit Breaker 125 V DC Circuit Breaker 460 V AC Inc. Line Circuit Breaker 125 V DC Inc. Line Circuit Breaker 120 V AC Output Circuit Breaker	DD5 DN0 HF6 HF6 HF6	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	DD5-HF6/1 DN0-HF6/1	310105 DD5a DD5b	CBA-FN-32 CBA-FN-33 EDE-MCC-612 EDE-SWG-11B	EDE-I-1E		
48A	EDE-CP-1F	Static Transfer Switch	310043	B	310442	CB-F-1B-A	X	X	X	-	E2B	EDE-E2B-F1	300A, 600 V Fuse	E2B	CB-F-1B-A	E2B-HF6 E2B-HF6/1	DD5a 310105 DD5b	CBA-FN-32 CBA-FN-33 EDE-I-1F	EDE-CP-1E		
49	EDE-PP-1F	Vital Instrument Bus	310043	B	310442	CB-F-1B-A	X	X	X	-	EHO	EDE-EHO/NC-52 EDE-EHO/NO-52	120 V AC Circuit Breaker - Inc. Line from EDE-CP-1F (Norm. Closed) 120 V AC Circuit Breaker - Inc. Line from ED-X-31F (Norm. Open)	EHO EHO	CB-F-1B-A CB-F-1B-A	EHO-E2B	310105 DD5a EH0a DD5b	CBA-FN-32 CBA-FN-33 EDE-CP-1F	EDE-PP-1E		
50	EDE-PP-11F	Vital Instrument Bus	310043	B	310442	CB-F-1B-A	X	X	X	-	E1T	EDE-EHO/13-52	120 V AC Circuit Breaker	EHO	CB-F-1B-A	E1T-EHO	310105 DD5a E1Ta DD5b	CBA-FN-32 CBA-FN-33 EDE-PP-1F	EDE-PP-11E		
51	EDE-BC-1B	125 V DC Battery Charger	310042	B	310442	CB-F-1B-A	X	X	X	-	HR6	EDE-DA1-52 EDE-DA1-42 EDE-DA1-42X DG-HR4-HR9(K20) EDE-HR6/1-52 EDE-DA1-FU	460 V AC Circuit Breaker Contactor Auxiliary Relay EPS Relay 460 V AC Circuit Breaker - Incoming Feed Fuse	DA1 DA1 DA1 HR4 HR6 DA1	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	DA1-HR4 DA1-HR6	310107 DA1a DA1b DA1c DA1f	CBA-FN-32 CBA-FN-33 EDE-MCC-E612	EDE-BC-1A		
52	EDE-B-1B	125 V DC Battery	310042	B	310442	CB-F-1F-A	X	X	X	-	HV5	EDE-J76-FU-1,2,3,4 EDE-J76-SH EDE-J76-ATR	1600A Fuses 1000A, 100 MV Shunt Shunt Amplifier	J76 J76 J76	CB-F-1B-A CB-F-1B-A CB-F-1B-A	HV5-J76 NV5-J76/1	310107 DA1a DA1b DA1c DA1f	CBA-FN-32 CBA-FN-33 CBA-FN-21B EDE-BC-1B EDE-SWG-11B	EDE-B-1A		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.17-26
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FUNCTION: ELECTRICAL DISTRIBUTION EMERGENCY																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
59	EDE-US-62	480 V Unit Substation 125 V DC Control Bus		B	310442	CB-F-1B-A	X	X	X	-	AE3	EDE-E94/3-72 EDE-AE3-8	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	E94 AE3	CB-F-1B-A CB-F-1B-A	AE3-E94	310107 E94aE94b 310103 5r	CBA-FN-32 CBA-FN-33 EDE-PP-111B	EDE-US-52		
60	DG-CP-76A	Diesel Generator 1B Control Panel Cubicle 3 125 V DC Supply	310010 310042	B	310524	DG-F-2B-A	X	X	X	-	G20	EDE-DP1-72 DG-G20-72	125 V DC Circuit Breaker 125 V DC Circuit Breaker (Main)	DP1 G20	CB-F-1B-A DG-F-2B-A	DP1-G20	DP1a310102 310107DP1b DA1a	DAH-FN-25B DAH-FN-26B EDE-SWG-11B CBA-FN-32 CBA-FN-33	DG-CP-75A		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table RSS 3.1.3.18-1
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	DG-DG-1A	Diesel Generator 1A	DG-20462	A	310524	DG-F-2A-A	X	X	X	X	HA1	DG-CS-9510-2	Control Switch (Push Button)	G07	DG-F-2A-A	A54-G06/5 E93-G29/1	310857 E93/8a E93/8b E93/8c E93/8d E93/8e E93/8f E93/8g E93/8r	E93/8n E93/8p	CBA-FN-19 CBA-FN-20 DAH-FN-25A DAH-FN-26A EDE-PP-111A D/G Starting Air	DG-DG-1B	
												DG-CG-9511	Control Switch (Push Button)	G07	DG-F-2A-A	A54-G29 G06-G29					
												DG-CS-9512-3	Control Switch (Push Button)	G07	DG-F-2A-A	G06-G29/1 G06/HR2					
												DG-CS-9512-4	Control Switch (Push Button)	G07	DG-F-2A-A	G06/G29/2 G07-G29					
												DG-CS-9517-2	Control Switch (Push Button)	G07	DG-F-2A-A						
												DG-CS-9518-2	Control Switch (Push Button)	G07	DG-F-2A-A						
												EDE-SS-9700	Selector Switch	G06	DG-F-2A-A						
												DG-G29-OP2	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-ZL-9580-9	Start Ckt No 1 Signal Indicating Light	G07	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-G10-TSR3	Test Start Relay	G10	DG-F-2A-A						
												DG-G10-RDT	Ramp Down Time Relay	G10	DG-F-2A-A						
												DG-G07-IOT	Idle Operate Time Relay	G07	DG-F-2A-A						
												DG-G06-LSRX	Low Speed Auxiliary Relay	G06	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 Delay Relay	G29	DG-F-2A-A						
												DG-ZL-9580-10	Start Ckt No 2 Signal Indicating Light	G07	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-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-SDS	Shutdown Solenoid Valve	G29	DG-F-2A-A						
												DG-FY-ACD	Air Supply Cutoff Solenoid Valve	G29	DG-F-2A-A						
												DG-FY-CSV-A	Jacket Coolant Auxiliary Valves Solenoid	G29	DG-F-2A-A						
												DG-G29-T3A	Alarm Set Time Delay Relay	G29	DG-F-2A-A						
												DG-G29-TR	Engine Velocity Transmitter	G29	DG-F-2A-A						
												DG-FY-ISV-A	Intercooler Auxiliary Valves Solenoid	G29	DG-F-2A-A						

* Table notes on last page of table

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.18-3
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FUNCTION: DIESEL GENERATORS																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
	DC-DG-1 (Continued)											DG-G29-GPC	Coolant Pump Control Relay	G29	DG-F-2A-A				
												DG-G29-CF4	Power Available Relay	G29	DG-F-2A-A				
												DG-G07-R43L1	Selector Switch	G07	DG-F-2A-A				
													Auxiliary Latch Relay (Local)						
												DG-G07-R43L2	Selector Switch	G07	DG-F-2A-A				
													Auxiliary Relay (Local)						
												DG-G07-R43L4	Selector Switch	G07	DG-F-2A-A				
													Auxiliary Relay (Local)						
												DG-G07-R43M1	Selector Switch	G07	DG-F-2A-A				
													Auxiliary Latch Relay (Maintenance)						
												DG-G07-R43R1	Selector Switch	G07	DG-F-2A-A				
													Auxiliary Latch Relay (Remote)						
												DG-G07-R43R2	Selector Switch	G07	DG-F-2A-A				
													Auxiliary Latch Relay (Remote)						
												DG-G07-R43R5	Selector Switch	G07	DG-F-2A-A				
													Auxiliary Relay (Remote)						
												DG-HR2-PR1	ESP Auxiliary Relay	HR2	CB-F-1A-A				
												DG-HR2-PR1X	EPS Auxiliary Relay	HR2	CB-F-1A-A				
												DG-G29-D1	P-H Junction Diode	G29	DG-F-2A-A				
												DG-SS-E05	Engine Overspeed Switch	G29	DG-F-2A-A				
												DG-PS-APL1	Air Pressure Low Switch	G29	DG-F-2A-A				
												DG-PS-APL2	Air Pressure Low Switch	G29	DG-F-2A-A				
												DG-PS-CPS	Coolant Pressure Switch	G29	DG-F-2A-A				
												DG-PS-OPL2	Oil Low Pressure Switch	G29	DG-F-2A-A				
												DG-PS-OPL3	Oil Low Pressure Switch	G29	DG-F-2A-A				
												DG-PS-OPL4	Oil Low Pressure Switch	G29	DG-F-2A-A				
												DG-TS-CTHA	Coolant High Temperature Switch	G29	DG-F-2A-A				
												DG-TS-OTHA	Oil High Temperature Switch	G29	DG-F-2A-A				
												DG-ZS-BD1	Barring Device	G29	DG-F-2A-A				
												DG-ZS-BD2	Position Switch	G29	DG-F-2A-A				
													Barring Device						
													Position Switch						
												EDE-A54-86DP	DG Primary Protection Lockout Relay	A54	CB-F-1A-A				
												EDE-A69-86DB	DG Backup Protection Lockout Relay	A69	CB-F-1A-A				
												EDE-A54-TS	Test Start Control Switch	A54	CB-F-1A-A				
												DG-G29-FU	10 Amp Fuses (10)	G29	DG-F-2A-A				
												DG-G29-TRP	TR Control Power Relay	G29	DG-F-2A-A				
												DG-G29-SB	Shutdown Auxiliary Relay						

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table RSS 3.1.3.18-4
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											EDE-G07-FU-17, 18 EDE-SS-9700 DG-G07-CF6 DG-G07-R43L1 DG-G07-R43L3 DG-G07-R43L4 DG-G07-R43L5 DG-G07-R43R6 DG-G07-R43R2 DG-G07-R43R3 DG-G07-R43R4 DG-G07-R43R5 DG-G07-R43M1 DG-G07-R43R1 EDE-G06-FU-9, 10 DG-A69, XFMR DG-HF7-XF DG-G07-SERV-PC DG-SM-9585 DG-GT3-PT1 DG-GT3-PT2 DG-GT3-PPT4 DG-HN0-NCB DG-GT3-CCT DG-G10-IDR1 EDE-A69-60 DG-G06-K2	6 Amp Fuses (2) Selector Switch Auxiliary Relay Selector Switch Auxiliary Latch Relay Latch (Local) Selector Switch Auxiliary Relay (Local) Selector Switch Auxiliary Relay (Local) Selector Switch Auxiliary Relay (Local) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Relay (Remote) Selector Switch Auxiliary Latch Relay (Maintenance) Selector Switch Auxiliary Latch Relay (Remote) 50 Amp Fuses Grounding Transformer DG Field Static Exciter Voltage Regulator Power Chassis Governor Control (2301A) Potential Transformer Potential Transformer Power Transformer DG Neutral Connection Box Current Transformer 2000/5 Isochronous Droop Relay Voltage Balance Relays Field Flashing Contractor	G07 G06 G07 G07 <							

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.18-5
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1A (Continued)											DG-G06-64F	Generator Field Failure Relay	G06	DG-F-2A-A	G06-G29/5 DM9-G10	310102 G06/1a G06/1b G06/1c G06/1d DM9a	G06/1f DM9b	DAH-FN-25A DAH-FN-26A DG-CP-75A EDE-SWG-11A		
	DG-G10-SEVR-CC	Static Exciter Voltage Regulator Control Chassis	G10	DG-F-2A-A																	
	DG-GT3-XCT1, 2, 3	Generator Current Transformers (2000/5)	GT3	DG-F-2A-A																	
	DG-VM-9702-2	Field Voltmeter	G10	DG-F-2A-A																	
	DG-G10-DCT	Field Voltage Transducer	G10	DG-F-2A-A																	
	DG-G06-SH	50 mV Field Shunt	G06	DG-F-2A-A																	
	DG-AM-9702-2	DC Field Ammeter	G10	DG-F-2A-A																	
	DG-G10-ATR	Current Transducer	G10	DG-F-2A-A																	
	DG-G10-CF10	Loss of Power Relay	G10	DG-F-2A-A																	
	DG-A69-64	Ground Fault Sensing Relay	A69	CB-F-1A-A																	
	DG-G10-FU-22, 23	1 Amp Fuses	G10	DG-F-2A-A																	
	DG-G07-IL10	Diode Failure Light	G07	DG-F-2A-A																	
	EDE-G06-FU-1, 2	10 Amp Fuses (2)	G06	DG-F-2A-A																	
	DG-G07-R43R5	Selector Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A																	
	EDE-CS-9820-2	Control Switch (Push Button)	G10	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-ES1	Emergency Start Relay	G29	DG-F-2A-A																	
	DG-G29-ES2	Emergency Start Relay	G29	DG-F-2A-A																	
	DG-SS-9585	Selector Switch	G07	DG-F-2A-A																	
	DG-ZL-9580-11	Field Flash Signal Indicating Light	G10	DG-F-2A-A																	
	DG-G07-R43M1	Selector Switch Auxiliary Latch Relay (Maintenance)	G07	DG-F-2A-A																	
	DG-G29-5A	DG - Shutdown Relay	G29	DG-F-2A-A																	
	DG-G06-LSRX	Low Speed Auxiliary Relay	G06	DG-F-2A-A																	
	DG-G06-LSRXX	Time Delay Relay	G06	DG-F-2A-A																	
	EDE-CS-9801-1	Push Button	G10	DG-F-2A-A																	
	EDE-CS-9801-2	Push Button	G10	DG-F-2A-A																	
	DG-G06-SERV-PC	Static Exciter Voltage Regulator Power Chassis	G06	DG-F-2A-A																	
	DG-G10-MM	Null Meter	G10	DG-F-2A-A																	
	EDE-SS-9700	Selector Switch	G06	DG-F-2A-A																	
	EDE-CS-9821-2	Control Switch	G10	DG-F-2A-A																	
	EDE-CS-9822-2	Control Switch	G10	DG-F-2A-A																	
	DG-G10-RR	Regulator Relay	G10	DG-F-2A-A																	
	DG-G10-SERV-CC	Static Exciter Voltage Regulatory Control Chassis																			
	DG-G10-CF-8	Loss of Power Relay	G10	DG-F-2A-A																	
	DG-G07-R43R5	Selector Switch Auxiliary Relay (Remote)																			

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.18-7
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FUNCTION: DIESEL GENERATORS																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
	DG-DG-1A (Continued)											DG-G07-R43R4	Select Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A				
												DG-G07-R43R5	Select Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A				
												DG-G07-R43R6	Select Switch Auxiliary Relay (Remote)	G07	DG-F-2A-A				
												DG-G06-64F	Generator Field Ground Relay	G06	DG-F-2A-A				
												DG-G10-64FX	Generator Field Ground Auxiliary Relay	G10	DG-F-2A-A				
												DG-G07-64FXA	Generator Field Ground Auxiliary Relay	G07	DG-F-2A-A				
												EDE-CS-9824-2	Control Switch	G10	DG-F-2A-A				
												DG-G10-23	Thermostat	G10	DG-F-2A-A				
												DG-G10-23X	Thermostat Auxiliary Relay	G10	DG-F-2A-A				
												DG-G07-R-DNA	Diesel Motor Available Auxiliary Relay	G07	DG-F-2A-A				
												DG-G07-R-B/I	S.W.C.T Bypass/INOP Auxiliary Relay	G07	DG-F-2A-A				
												DG-G10-IDR1	Isochronous Droop Relay	G10	DG-F-2A-A				
												DG-G10-IDR2	Isochronous Droop Relay	G10	DG-F-2A-A				
												DG-G10-IDR3	Isochronous Droop Relay	G10	DG-F-2A-A				
												EDE-ZL-9802-2	Indicating Light	G07	DG-F-2A-A				
												DG-G10-IDR4	Isochronous Droop Relay	G10	DG-F-2A-A				
												EDE-SS-9700	Select Switch	G06	DG-F-2A-A				
												EDE-SNS-9736-2	Synchronizing Switch	G06	DG-F-2A-A				
												EDE-A51-52S	Circuit Breaker	A51	CB-F-1A-A				
												EDE-A52-52S	Operated Contact Circuit Breaker	A52	CB-F-1A-A				
												EDE-A54-52S	Operated Contact Circuit Breaker	A54	CB-F-1A-A				
												EDE-A69-60AX	Operated Contact Voltage Balance Auxiliary Relay	A69	CB-F-1A-A				
												DG-ZL-9580-3	Indicating Light	G07	DG-F-2A-A				
												DG-ZL-9518-2	Indicating Light	G07	DG-F-2A-A				
												EDE-ZL-9824-1	Indicating Light	G10	DG-F-2A-A				
												EDE-ZL-9824-2	Indicating Light	G10	DG-F-2A-A				
												DG-ZL-9580-2	Indicating Light	G07	DG-F-2A-A				
												DG-ZL-9580-4	Indicating Light	G07	DG-F-2A-A				
												DG-ZL-9580-5	Indicating Light	G07	DB-F-2A-A				
												DG-G10-CF8	Loss of Control Power Relay	G10	DG-F-2A-A				
												DG-G10-CF9	Loss of Control Power Relay	G10	DG-F-2A-A				
												DG-G10-CF10	Loss of Control Power Relay	G10	DG-F-2A-A				
												DG-G10-CR45	Annunciator Auxiliary Relay	G10	DG-F-2A-A				
												DG-G10-CR42	Annunciator Auxiliary Relay	G10	DG-F-2A-A				

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.18-8
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
2	DG-TK-45A	Starting Air Compressor Skid Air Receiver Tank	DG-20460	A	310524	DG-F-2A-A	X	X	-	-	HM2	-	-	-	-	-	-	-	-	DG-TK-45C	Notes 1 and 5
3	DG-TK-45B	Starting Air Compressor Skid Air Receiver Tank	DG-20460	A	310524	DG-F-2A-A	X	X	-	-	HM2	-	-	-	-	-	-	-	-	DG-TK-45D	Notes 1 and 5
4	DG-MM-8A	Exhaust Silencer	DG-20462	A	310525	DG-F-3E-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-MM-8B	Note 1
5	DG-F-36A	Air Intake Filter	DG-20462	A	310525	DG-F-3E-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-F-36B	Note 1
6	DG-TK-26A	Fuel Oil Storage Tank	DG-20459	A	310525 202264	DG-F-1A-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TK-26B	Notes 1 and 2
7	DG-TK-78A	Fuel Oil Day Tank	DG-20459	A	310525	DG-F-3C-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TK-78B	Note 1
8	DG-P-38A	Fuel Oil Transfer Pump	DG-20459	A	310524 202265	DG-F-1A-A	X	X	X	-	H75	DG-BM-52 DG-CS-9503 DG-LS-FLC DG-BM7-42 DG-BM7-49 DG-BM7-FU	460 V AC Circuit Breaker Control Switch with Indication Fuel Low Level Control Switch Motor Starter Thermal Overload Relay Fuse	BM7 BE4 RT8 BM7 BM7 BM7	CB-F-1A-A DG-F-2A-A DG-F-3C-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	BE4-BM7 BM7-RT8 BM7-N75	BM7a 310857 BM7c	CBA-FN-19 CBA-FN-20 DAH-FN-25A DAH-FN-26A EDE-MCC-521	DG-P-38B		
9	DG-P-119A	Engine-Driven Fuel Oil Pump	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-P-119B	Notes 1 and 4
10	DG-P-115A	Engine-Drive Fuel Oil Pump	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-P-115B	Notes 1 and 4
11	DG-TK-102A	Lube Oil Reservoir	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-TK-102B	Notes 1 and 4
12	DG-P-228A	Engine-Driven Rocker Arm Lube Pump	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-P-228B	Notes 1 and 4
13	DG-E-41A	Lube Oil Heat Exchanger	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	JA1	-	-	-	-	-	-	-	-	DG-E-41B	Notes 1 and 4
14	DG-TK-46A	Diesel Generator 1A Component Cooling Water Expansion Tank	DG-20461	A	310525	DG-F-3C-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TK-46B	Notes 1 and 4
15	DG-E-42A	Diesel Generator 1A Component Cooling Water Heat Exchanger	DG-20461	A	310767 805217	PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	DG-E-42B	Notes 1 and 3
16	DG-P-121A	Engine-Driven Jacket Coolant Pump	DG-20461	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-P-121B	Notes 1 and 4
17	DG-P-231A	Engine-Driven Air Coolant Pump	DG-20461	A	310524	DG-20461	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-P-231B	Notes 1 and 4
17a	DG-C-2a	DG Starting Air Compressor	DG-220460	A	310524	DG-F-2A-A	X	X	X	-	NC3	DG-BM3-52 DG-CS-9559 DGA-PS-APCI DG-PS-APCZ DG-HR2-HR9 DG-BM3-42 DG-BM3-49 DG-BM3-FU	460 v AC Circuit Breaker Control Switch Pressure Switch Pressure Switch EPS Relay Motor Starter Thermal O. L. Fuse	BM3 BM3 HM2 HM2 HR2 BM3 BM3 BM3	DG-F-2A-A DG-F-2A-A DG-F-2A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	BM3-NC3 BM3-HM2 BM3-HR2	BM3a 310857 BM3c	DAH-FN-25A DAH-FN-26A EDE-MCC-511	DG-C-2-B	Note 5	

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FUNCTION: DIESEL GENERATORS																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
	DG-DG-1B (Continued)											DG-FY-AS1	Air Start Solenoid Valve	G30	DG-F-2B-A				
												DG-G20-OP3	Oil Pressure Relay	G30	DG-F-2B-A				
												DG-G30-CR2	Ready for Auto Start Relay	G30	DG-F-2B-A				
												DG-G30-TACH	Tachometer	G30	DG-F-2B-A				
												DG-G30-4B	Start Relay	G30	DG-F-2B-A				
												DG-G30-T2B	Cranking Time Control Time Delay Relay	G30	DG-F-2B-A				
												DG-ZL-9590-10	Start Ckt No 2 Signal Indicating Light	G19	DG-F-2B-A				
												DG-G30-ES2	Emergency Start Relay	G30	DG-F-2B-A				
												DG-FY-AS2	Air Start Solenoid Valve	G30	DG-F-2B-A				
												DG-G30-OP4	Oil Pressure Relay	G30	DG-F-2B-A				
												DG-G30-5E	Emergency Stop Relay	G30	DG-F-2B-A				
												DG-G30-5	Normal Stop Relay	G30	DG-F-2B-A				
												DG-G30-5A	Shutdown Relay	G30	DG-F-2B-A				
												DG-FY-SDS	Shutdown Solenoid Valve	G30	DG-F-2B-A				
												DG-FY-ACO	Air Supply Cutoff Solenoid	G30	DG-F-2B-A				
												DG-G30-T3A	Alarm Set Time Delay Relay	G30	DG-F-2B-A				
												DG-G30-TR	Engine Velocity Transmitter	G30	DG-F-2B-A				
												DG-G30-SG	Signal Generator	G30	DG-F-2B-A				
												DG-G30-HSR	High Speed Relay	G30	DG-F-2B-A				
												DG-G30-LSR	Low Speed Relay	G30	DG-F-2B-A				
												DG-G30-ASR	Starting Air Shutoff Relay	G30	DG-F-2B-A				
												DG-G30-ASA	Air Start Relay	G30	DG-F-2B-A				
												DG-G30-ASB	Air Start Relay	G30	DG-F-2B-A				
												DG-G30-BDR	Barring Device Relay	G30	DG-F-2B-A				
												DG-G30-SFR	Start Failure Relay	G30	DG-F-2B-A				
												DG-G30-SDR	Engine Trouble Shutdown Relay	G30	DG-F-2B-A				
												DG-G30-EOR	Engine Overspeed Relay	G30	DG-F-2B-A				
												EDE-A89-RLA	SI Signal Lockout Relay	A89	CB-F-1B-A				
												DG-G30-OTH	High Oil Temperature Relay	G30	DG-F-2B-A				
												EDE-A74-TD2	Test Device	A74	CB-F-1B-A				
												EDE-A89-TD2	Test Device	A89	CB-F-1B-A				
												DG-G30-EST	Emergency Start Time Delay Relay	G30	DG-F-2B-A				
												DG-G30-ESX	Emergency Start Auxiliary Relay	G30	DG-F-2B-A				
												DG-G30-RA1	Air Pressure Auxiliary Relay	G30	DG-F-2B-A				
												DG-G30-RA2	Air Pressure Auxiliary Relay	G30	DG-F-2B-A				
												DG-G30-CF3	Power Available Relay	G30	DG-F-2B-A				
												DG-G30-CF4	Power Available Relay	G30	DG-F-2B-A				
												DG-G19-R43L1	Selector Switch Auxiliary Latch Relay (Local)	G19	DG-F-2B-A				

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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1B (Continued)											DG-G19-R43L2	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43L4	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R43H1	Selector Switch Auxiliary Latch Relay (Maintenance)	G19	DG-F-2B-A						
												DG-G30-FU	10 Amp Fuses (10)	G30	DG-F-2B-A						
												DG-G19-R43R1	Selector Switch Auxiliary Latch Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R2	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-G19-R43R5	Selector Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A						
												DG-HR4-PR1	EPS Auxiliary Relay	HR4	CB-F-1B-A						
												DG-HR4-PR1X	EPS Auxiliary Relay	HR4	CB-F-1B-A						
												DG-SS-EOS	Engine Overspeed Switch	G30	DG-F-2B-A						
												DG-PS-APL1	Air Pressure Low Switch	G30	DG-F-2B-A						
												DG-PS-APL2	Air Pressure Low Switch	G30	DG-F-2B-A						
												DG-PS-CPS	Coolant Pressure Switch	G30	DG-F-2B-A						
												DG-PS-OPL2	Oil Low Pressure Switch	G30	DG-F-2B-A						
												DG-PS-OPL3	Oil Low Pressure Switch	G30	DG-F-2B-A						
												DG-G19-FU	10 Amp Fuses (20)	G19	DG-F-2B-A						
												DG-G19-R43L5	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-PS-OPL4	Oil Low Pressure Switch	G30	DG-F-2B-A						
												DG-TS-CTHA	Coolant High Temperature Switch	G30	DG-F-2B-A						
												DG-TS-OTHA	Oil High Temperature Switch	G30	DG-F-2B-A						
												DG-ZS-BD1	Barring Device Position Switch	G30	DG-F-2B-A						
												DG-G30-D1	P-N Junction Diode	G30	DG-F-2B-A						
												DG-ZS-BD2	Barring Device Position Switch	G30	DG-F-2B-A						
												EDE-A74-86DP	DG Primary Protection Lockout Relay	A74	CB-F-1B-A						
												EDE-A89-86DB	DG Backup Protection Lockout Relay	A89	CB-F-1B-A						
												EDE-A74-TS	Test Start Control Switch	A74	CB-F-1B-A						
												DG-G30-CF1	Power Available Relay	G30	DG-F-2B-A						
												DG-G30-CF2	Power Available Relay	G30	DG-F-2B-A						

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.18-12
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FUNCTION: DIESEL GENERATORS																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
	DG-DG-1B (Continued)											EDE-ZL-9594	Monitoring Circuit Indicating Light	G19	DG-F-2B-A				
												EDE-ZL-9594-1	Monitoring Circuit Indicating Light	G30	DG-F-2B-A				
												DG-PS-OPL1	Oil Low Pressure Switch	G30	DG-F-2B-A				
												DG-G30-OP1	Oil Pressure Relay	G30	DG-F-2B-A				
												DG-PS-FPLA	Fuel Low Pressure Switch	G30	DG-F-2B-A				
												DG-G30-FPL	Fuel Pressure Relay	G30	DG-F-2B-A				
												DG-PS-CPLA	Jacket Coolant Low Pressure Switch	G30	DG-F-2B-A				
												DG-G30-CPL	Jacket Coolant Pressure Relay	G30	DG-F-2B-A				
												DG-PS-IPLA	Intercooler Low Pressure Switch	G30	DG-F-2B-A				
												DG-G30-IPL	Intercoolant Pressure Relay	G30	DG-F-2B-A				
												DG-G30-CF5	Power Available Relay	G30	DG-F-2B-A				
												DG-G30-OPC	Oil Pump Control Relay	G30	DG-F-2B-A				
												DG-G30-FPC	Auxiliary Fuel Oil Pump Control Relay	G30	DG-F-2B-A				
												DG-G30-CPC	Coolant Pump Control Relay	G30	DG-F-2B-A				
												DG-G30-SB	Shutdown Auxiliary Relay	G30	DG-F-2B-A				
												DG-G30-TRP	TR Control Power Relay	G30	DG-F-2B-A				
												DG-FY-CSV-B	Jacket Coolant Auxiliary Valves Solenoid	G30	DG-F-2B-A				
												DG-G30-IPC	Coolant Pump Control Relay	G30	DG-F-2B-A				
												DG-FY-ISV-B	Intercoolant Auxiliary Valves Solenoid	G30	DG-F-2B-A				
												EDE-G19-FU-17, 18	6 Amp Fuses (2)	G19	DG-F-2B-A				
												EDE-SS-9710	Selector Switch	G18	DG-F-2B-A				
												DG-G19-CF6	Auxiliary Relay	G19	DG-F-2B-A				
												DG-G19-R43L1	Selector Switch Auxiliary Latch Relay (Local)	G19	DG-F-2B-A				
												DG-G19-R43L2	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A				
												DG-G19-R43L3	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A				
												DG-G19-R43L4	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A				
												DG-G19-R43L5	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A				
												DG-G19-R43R1	Selector Switch Auxiliary Latch Relay (Remote)	G19	DG-F-2B-A				
																DPI-G20	310102 G19/2a G19/2b DP1A G19/2g G19/2c DP1b	DAH-FN-25B DAH-FN-26B DG-CP-75B EDE-SWG-11B	

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FUNCTION: DIESEL GENERATORS																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
	DG-DG-1B (Continued)											DG-G19-R43M1	Select Switch Auxiliary Latch Relay (Maintenance)	G19	DG-F-2B-A				
												DG-G19-R43R2	Select Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A				
												DG-G19-R43R3	Select Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A				
												DG-G19-R43R4	Select Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A				
												DG-G19-R43R5	Select Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A				
												DG-G19-R43R6	Select Switch Auxiliary Relay (Remote)	G19	DG-F-2B-A				
												DG-G19-R43L6	Select Switch Auxiliary Relay (Local)	G19	DG-F-2B-A				
												DG-G19-FU17B, 18B	6 Amp Fuses (2)	G19	DG-F-2B-A				
												EDE-G18-FU-9, 10	50 Amp Fuses	G18	DG-F-2B-A				
												DG-A89-XFMR	Grounding Transformer	A89	CB-F-1B-A	A89-G18	310102 HA2a HA2c HA2b HA2d DP1a DP1b	DAH-FN-25B DAH-FN-26B CBA-FN-32 CBA-FN-33 EDE-SWG-11B	
												DG-HF8-XF	D-F Field	HF8	DG-F-2B-A	G18-HF8			
												DG-G18-SEVR-PC	Static Exciter Voltage Regulator Power Chassis	G18	DG-F-2B-A	A89-HP1 DP1-G20			
												DG-SM-9587	Governor Control (2301A)	G18	DG-F-2B-A				
												DG-G20-SEVR-CC	Voltage Regulator Control Chassis	GT4	DG-F-2B-A				
												DG-GT4-PT1	Potential Transformer	GT4	DG-F-2B-A				
												DG-GT4-PT2	Potential Transformer	GT4	DG-F-2B-A				
												DG-GT4-PPT4	Power Transformer	GT4	DG-F-2B-A				
												DG-GT4-CCT	Current Transformer	GT4	DG-F-2B-A				
												DG-G20-IDR1	2000/5 Isochronous Droop Relay	G20	DG-F-2B-A				
												EDE-A89-60	Voltage Balance Relays	A89	CB-F-1B-A				
												DG-G20-64F	Generator Field Failure Relay	G20	DG-F-2B-A				
												DG-HP1-NCB	DG Neutral Connection Box	HP1	DG-F-2B-A				
												DG-GT4-XCT1, 2, 3	Generator Current Transformers (2000/5) ΦA, ΦB, ΦC						
												DG-VM-9712-2	Field Voltmeter	G20	DG-F-2B-A				
												DG-G20-DCT	Field Voltage Transducer	G20	DG-F-2B-A				
												DG-G18-SH	50 mV Field Shunt	G18	DG-F-2B-A				
												DG-AM-9712-2	DG Field Ammeter	G20	DG-F-2B-A				
												DG-G20-ATR	Current Transducer	G20	DG-F-2B-A				
												DG-G20-CF10	Loss of Power Relay	G20	DG-F-2B-A				
												DG-A89-64	Ground Fault Sensing Relay	A89	CB-F-1B-A				

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FUNCTION: DIESEL GENERATORS																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
DC-DG-1B (Continued)												DG-G20-FU-22, 23 DG-G19-IL10 DG-G20-K2	1 Amp Fuses Diode Failure Light Field Flashing Contactor	G20 G19 G20	DG-F-2B-A DG-F-2B-A DG-F-2B-A				
												EDE-G18-FU-1, 2, 1B, 2B DG-G19-R34R5	10 Amp Fuses (4) Selector Switch Auxiliary Relay (Remote)	G18 G19	DG-F-2B-A DG-F-2B-A	G18-G30/5 DP1-G20	310102 G18/1a G18/1b G18/1c G18/1d DP1a	G18/1f	DAH-FN-25B DAH-FN-26B DC-CP-75B EDE-SWG-11B
												EDE-CS-9825-2	Control Switch (Push Button)	G20	DG-F-2B-A		DP1b		
												DG-G30-HSR DG-G30-LSR DG-G30-ES1 DG-G30-ES2	High Speed Relay Low Speed Relay Emergency Start Relay Emergency Start Relay	G30 G30 G30 G30	DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A				
												DG-GS-9587 DG-ZL-9590-11	Selector Switch Field Flash Signal Indicating Light	G19 G20	DG-F-2B-A DG-F-2B-A				
												DG-G19-R43M1	Selector Switch Auxiliary Latch Relay (Maintenance)	G19					
												DG-G30-5A DG-G18-LSRX	DG Shutdown Relay Low Speed Auxiliary Relay	G30 G30	DG-F-2B-A DG-F-2B-A				
												DG-G18-LSRXX EDE-CS-9811-1 EDE-CS-9811-2 DG-G18-SEVR-PC	Time Delay Relay Push Button Push Button Static Exciter	G18 G18 G20	DG-F-2B-A DG-F-2B-A DG-F-2B-A				
													Voltage Regulator Power Chassis						
												EDE-G20-NM EDE-SS-9710 EDE-CS-9826-2 EDE-CS-9827-2	Null Meter Selector Switch Control Switch Control Switch	G20 G18 G20 G20	DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A				
												DG-G20-RR DG-G20-SEVR-CC	Regulator Relay Static Exciter	G20 G20	DG-F-2B-A DG-F-2B-A				
													Voltage Regulator Control Chassis						
												DG-G20-CF8 DG-G19-R43R6	Loss of Power Relay Selector Switch Auxiliary Relay (Remote)	G20 G19	DG-F-2B-A DG-F-2B-A				
												EDE-G18-FU-3, 4, 3B, 4B DG-G20-IDR1 DG-G20-IDR2	6 Amp Fuses (4) Isochronous Droop Relay Isochronous Droop Relay	G18 G20 G20	DG-F-2B-A DG-F-2B-A DG-F-2B-A	G18-G30/6 G18-G30/9 G18-G30/A ED9-G20 ED9-G19 ED9-HR4 DP1-G20	G18/2a G18/2b G18/2e	G18/2d	DAH-FN-25B DAH-FN-26B DC-CP-75B EDE-SWG-75B
												DG-G30-SZ-9587	Governor Actuator	G30	DG-F-2B-A		DP1a	DP1b	

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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
	DG-DG-1B (Continued)											DG-SC-9587	Digital Reference Unit (DRU)	G18	DG-F-2B-A						
												DG-SM-9587	2301A Governor Controller	G18	DG-F-2B-A						
												DG-ST-9587	Magnetic Pickup (MPU-1)	G30	DG-F-2B-A						
												DG-SS-9587	Selector Switch	G19	DG-F-2B-A						
												DG-G20-TSR1	Test Start Relay	G20	DG-F-2B-A						
												DG-G20-TSR2	Test Start Relay	G20	DG-F-2B-A						
												DG-G20-TSR3	Test Start Relay	G20	DG-F-2B-A						
												DG-G20-R21	Speed Adjust	G20	DG-F-2B-A						
												DG-G20-RDT	Auxiliary Relay								
												DG-G20-IOT	Ramp Down Time Relay	G20	DG-F-2B-A						
													Idle Operate Time Relay	G19	DG-F-2B-A						
												EDE-SS-9710	Selector Switch	G18	DG-F-2B-A						
												EDE-CS-9828-2	Control Switch	G18	DG-F-2B-A						
												DG-G18-LSRX	Auxiliary Relay	G18	DG-F-2B-A						
												DG-G30-ES1	Emergency Start	G30	DG-F-2B-A						
													Auxiliary Relay								
												DG-G19-ESS	Emergency Start	G19	DG-F-2B-A						
													Auxiliary Relay								
												DG-G30-ES2	Emergency Start	G30	DG-F-2B-A						
													Auxiliary Relay								
												DG-G20-CF-9	Loss of Power Relay	G20	DG-F-2B-A						
												DG-G19-R43R3	Selector Switch	G19	DG-F-2B-A						
													Auxiliary Relay (Remote)								
												DG-HR4-PR1	EPS Auxiliary Relay	HR4	CB-F-1B-A						
												DG-HR4-HR8	EPS Auxiliary Relay	HR4	CF-F-1B-A						
												DG-ED9-R1	Auxiliary Relay	ED9	CB-F-1B-A						
												DG-G20-IDR4	Isochronous Droop Relay	G20	DG-F-2B-A						
												EDE-G20-FU-7, 8, 7B, 8B	10 Amp Fuses (4)	G20	DG-F-2B-A	A74-G20/1 G20-G30 A89-G20 DP1-G20	G20a G20b G20c DP1a	G20e DP1b	DAH-FN-25B DAH-FN-26B CBA-FN-32 CBA-FN-33 DG-CP-75B EDE-SWG-11B		
												DG-G30-CR1	Auto Start Ready Relay	G30	DG-F-2B-A						
												DG-G30-CR2	Auto Start Ready Relay	G30	DG-F-2B-A						
												DG-G30-RA1	Air Pressure Auxiliary Relay	G30	DG-F-2B-A						
												DG-G30-RA2	Air Pressure Auxiliary Relay	G30	DG-F-2B-A						
												DG-G19-R43L6	Selector Switch Auxiliary Relay (Local)	G19	DG-F-2B-A						
												DG-G19-R-DNA	Diesel Motor Available Auxiliary Relay	G19	DG-F-2B-A						
												DG-G19-R-B/I	S.W.C.T Bypass/Inoperable Auxiliary Relay	G19	DG-F-2B-A						

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FUNCTION: DIESEL GENERATORS																			
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE	
	DG-DG-1B (Continued)											DG-G19-R43L3	Select Switch	G19	DG-F-2B-A				
												DG-G19-ESS	Auxiliary Relay	G19	DG-F-2B-A				
												DG-G20-RR	Emergency Start	G20	DG-F-2B-A				
												DG-G19-R43L4	Auxiliary Relay	G19	DG-F-2B-A				
													Auxiliary Relay (Local)						
												DG-G19-R43L5	Select Switch	G19	DG-F-2B-A				
													Auxiliary Relay (Local)						
												DG-G19-R43R3	Select Switch	G19	DG-F-2B-A				
													Auxiliary Relay (Remote)						
												DG-G19-R43R4	Select Switch	G19	DG-F-2B-A				
													Auxiliary Relay (Remote)						
												DG-G19-R43R5	Select Switch	G19	DG-F-2B-A				
													Auxiliary Relay (Remote)						
												DG-G19-R43R6	Select Switch	G19	DG-F-2B-A				
													Auxiliary Relay (Remote)						
												DG-G18-64F	Generator Field	G18	DG-F-2B-A				
													Ground Relay						
												DG-G20-64FX	Generator Field	G20	DG-F-2B-A				
													Ground Auxiliary Relay						
												DG-G19-64FXA	Generator Field	G19	DG-F-2B-A				
													Ground Auxiliary Relay						
												EDE-CS-9829-2	Control Switch	G20	DG-F-2B-A				
												DG-G19-23	Thermostat	G19	DG-F-2B-A				
												DG-G20-23X	Thermostat Auxiliary Relay	G20	DG-F-2B-A				
												DG-G20-IDR1	Relay						
													Isochronous Droop	G20	DG-F-2B-A				
												DG-G20-IDR2	Relay						
													Isochronous Droop	G20	DG-F-2B-A				
												DG-G20-IDR3	Relay						
													Isochronous Droop	G20	DG-F-2B-A				
												DG-G20-IDR4	Relay						
													Isochronous Droop	G20	DG-F-2B-A				
												EDE-SS-9710	Select Switch	G18	DG-F-2B-A				
												EDE-SNS-9737-2	Synchronizing Switch	G18	DG-F-2B-A				
												EDE-A71-52S	Circuit Breaker	A71	CB-F-1B-A				
													Operated Contact						
												EDE-A72-52S	Circuit Breaker	A72	CB-F-1B-A				
													Operated Contact						
												EDE-A74-52S	Circuit Breaker	A74	CB-F-1B-A				
													Operated Contact						
												EDE-A89-60AX	Voltage Balance	A89	CG-F-1B-A				
													Auxiliary Relay						

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FUNCTION: DIESEL GENERATORS																						
ITEM NO	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
	DG-DG-1B (Continued)											DG-ZL-9590-2 DG-ZL-9590-3 DG-ZL-9528-2 EDE-ZL-9829-1 EDE-ZL-9812-2 EDE-ZL-9829-2 DG-ZL-9590-4 DG-ZL-9590-5 DG-G20-CF8 DG-G20-CF9 DG-G20-CF10 DG-G20-CR45 DG-C20-CR42	Indicating Light Indicating Light Indicating Light Indicating Light Indicating Light Indicating Light Indicating Light Indicating Light Loss of Control Power Relay Loss of Control Power Relay Loss of Control Power Relay Annunciator Auxiliary Relay Annunciator Auxiliary Relay	G19 G19 G20 G19 G19 G20 G19 G19 G20 G20 G20 G20 G20	DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A							
18a	DG-C-18A	DG Backup Operating Air Compressor	DG-20460	A	310524	DG-F-2A-A	X	X	X	-	ML7	DG-BS3-52 DG-BS3-42 DG-BS3-49 DG-BS3-FU DG-CS-9526 DGA-PS-APC3 DG-PS-APC4 DG-V-325A	460 v AC Ckt Bkr. Motor Starter Thermal O. L. Fuse Control Switch Pressure Switch Pressure Switch Unloader Sol. Vlv.	B53 B53 B53 B53 B53 HM2 HM2 UB0	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-G-2A-A DG-F-2A-A	B53-ML7 B53-HM2	310857 BS3a, BS3c	DAH-FN-25A DAH-FN-26A EDE-MCC-511	DG-C-18B	Note 5		
19	DG-TK-45C	Starting Air Compressor Skid Air Receiver Tank	DG-20465	B	310524	DG-F-2B-A	X	X	-	-	HM3	-	-	-	-	-	-	-	-	DG-TK-45A	Notes 1 and 7	
20	DG-TK-45D	Starting Air Compressor Skid Air Receiver Tank	DG-20465	B	310524	DG-F-2B-A	X	X	-	-	HM3	-	-	-	-	-	-	-	-	DG-TK-45B	Notes 1 and 7	
21	DG-MM-8B	Exhaust Silencer	DG-20467	B	310525	DG-F-3F-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-MM-8A	Note 1	
22	DG-F-36B	Air Intake Filter	DG-20467	B	310525	DG-F-3F-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-F-36A	Note 1	
23	DG-TK-26B	Fuel Oil Storage Tank	DG-20464	B	310524 202264	DG-F-1B-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TK-26A	Notes 1 and 2	
24	DG-TK-78B	Fuel Oil Day Tank	DG-20459	B	310525	DG-F-3D-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TK-78A	Note 1	
25	DG-P-38B	Fuel Oil Transfer Pump	DG-20464	B	310524 202264	DG-F-1B-A	X	X	X	-	N76	DG-BP7-52 DG-CS-9506 DG-LS-FLC DG-BP7-42 DG-BP7-49 DG-BP7-FU	460 V AC Circuit Breaker Control Switch with Indication Fuel Low Level Control Switch Motor Starter Thermal Overload Relay Fuse	BP7 BE5 RU1 BP7 BP7 BP7	DB-F-1B-A DG-F-2B-A DG-F-3D-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	BE5-BP7 BP7-RU1 BP7-N76	310857 BP7a BP7c	CBA-FN-32 CBA-FN-33 DAH-FN-25B DAH-FN-26B	DG-F-38A	-		
26	DG-P-119B	Engine-Driven Fuel Oil Pump	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-P-119A	Notes 1 and 6	
27	DG-P-115B	Engine Driven Lube Oil Pump	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-P-115A	Notes 1 and 6	
28	DG-TK-102B	Lube Oil Reservoir	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-TK-102A	Notes 1 and 6	
29	DG-P-228B	Engine-Driven Rocker Arm Lube Pump	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-P-228A	Notes 1 and 6	

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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
30	DG-E-41B	Lube Oil Heat Exchanger	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-E-41A	Notes 1 and 6
31	DG-TK-46B	Diesel Generator 1B Component Cooling Water Expansion Tank	DG-20466	B	310525	DG-F-3D-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-TK-46A	Note 1
32	DG-E-42B	Diesel Generator 1B Component Cooling Water Heat Exchanger	DG-20466	B	310767 805217	PAB-F-3A-Z	X	X	-	-	-	-	-	-	-	-	-	-	Service Water	DG-E-42A	Notes 1 and 3
33	DG-P-121B	Engine-Driven Jacket Coolant Pump	DG-20466	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-P-121A	Notes 1 and 4
34	DG-P-231B	Engine-Driven Air Coolant Pump	DG-20466	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-F-231A	Notes 1 and 6
35	DG-PV-7A-2	Lube Oil Cooler Differential Pressure Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-PT-7A-3 DG-PT-7A-4 DG-PDT-7A-2 DG-PDC-7A-2	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA1 HA1 HA1 HA1	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A	-	-	-	DAH-FN-25A DAH-FN-26A D/G Starting Air	DG-PV-7B-2	Note 8
36	DG-TCV-7A-2	Air Cooler Coolant Temperature Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-TT-7A-2 DG-TC-7A-2	Temperature Transmitter Temperature Controller	HA1 HA1	DG-F-2A-A DG-F-2A-A	-	-	-	DAH-FN-25A DAH-FN-26A D/G Starting Air	DG-TCV-7B-2	Note 8
37	DG-PV-7A-1	Jacket Coolant Differential Pressure Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-PT-7A-1 DG-PT-7A-2 DG-PDT-7A-1 DG-PDC-7A-1	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA1 HA1 HA1 HA1	DG-F-2A-A DG-F-2A-A DG-F-2A-A DG-F-2A-A	-	-	-	DAH-FN-25A DAH-FN-26A D/G Starting Air	DG-PV-7B-1	Note 9
38	DG-TCV-7A-1	Air Cooler Coolant Temperature Control Valve	DG-20461	A	310524	DG-F-2A-A	X	X	-	X	HA1	DG-TT-7A-1 DG-TC-7A-1	Temperature Transmitter Temperature Controller	HA1 HA1	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	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-F-64B	Notes 1 and 4
40	DG-F-23A	Lube Oil Duplex Filter	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-F-23B	Notes 1 and 4
41	DG-S-4A	Lube Oil Strainer	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-S-4B	Notes 1 and 4
42	DG-S-85A	Lube Oil Sump Suction Strainer	DG-20458	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-S-85B	Notes 1 and 4
43	DG-S-5A	Fuel Oil Storage Tank Duplex Strainer	DG-20459	A	310524 202264	DG-F-1A-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-S-5B	Notes 1 and 2

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table RSS 3.1.3.18-19
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
44	DG-S-6A	Fuel Oil Day Tank Duplex Strainer	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-S-6B	Notes 1 and 4
45	DG-F-65A	Fuel Oil Duplex Filter	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-F-65B	Notes 1 and 4
46	DG-TK-110A	Fuel Oil Accumulator Tank	DG-20459	A	310524	DG-F-2A-A	X	X	-	-	HA1	-	-	-	-	-	-	-	-	DG-TK-110B	Notes 1 and 4
47	DG-PV-7B-2	Lube Oil Cooler Differential Pressure Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-PT-7B-3 DG-PT-7B-4 DG-PDT-7B-2 DG-PDC-7B-2	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA2 HA2 HA2 HA2	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	DC-PV-7A-2	Note 10
48	DG-TCV-7B-2	Air Cooler Coolant Temperature Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-TT-7B-2 DG-TC-7B-2	Temperature Transmitter Temperature Controller	HA2 HA2	DG-F-2B-A DG-F-2B-A	-	-	-	DAH-FN-25B DAH-FN-26B D/G Starting Air	DG-TCV-7A-2	Note 10
49	DG-PV-7B-1	Jacket Coolant Differential Pressure Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-PT-7B-1 B-2 DG-PDT-7B-1 DG-PDC-7B-1	Pressure Relay Pneumatic Transmitter Pressure Relay Pneumatic Transmitter Differential Pressure Transmitter Differential Pressure Controller	HA2 HA2 HA2 HA2	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-1	Note 11
50	DG-TCV-7B-1	Jacket Coolant Temperature Control Valve	DG-20466	B	310524	DG-F-2B-A	X	X	-	X	HA2	DG-TT-7B-1 DG-TC-7B-1	Temperature Transmitter Temperature Controller	HA2 HA2	DG-F-2B-A DG-F-2B-A	-	-	-	DAH-FN-25B DAH-FN-26B D/G Starting Air	DG-TCV-7A-1	Note 11
51	DG-F-64B	Lube Oil Filter	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-F-64A	Notes 1 and 6
52	DG-F-23B	Lube Oil Duplex Filter	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-F-23A	Notes 1 and 6
53	DG-S-4B	Lube Oil Strainer	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-S-4A	Notes 1 and 6
54	DG-S-85B	Lube Oil Sump Suction Strainer	DG-20463	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-S-85A	Notes 1 and 6
55	DG-S-5B	Fuel Oil Storage Tank Duplex Strainer	DG-20464	B	310524 202264	DG-F-1B-A	X	X	-	-	-	-	-	-	-	-	-	-	-	DG-S-5A	Notes 1 and 2
56	DG-S-6B	Fuel Oil Day Tank Duplex Strainer	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-S-6A	Notes 1 and 6
57	DG-F-65B	Fuel Oil Duplex Filter	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-F-65A	Notes 1 and 6
58	DG-TK-110B	Fuel Oil Accumulator Tank	DG-20464	B	310524	DG-F-2B-A	X	X	-	-	HA2	-	-	-	-	-	-	-	-	DG-TK-110A	Notes 1 and 6

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.18-20
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FUNCTION: DIESEL GENERATORS																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
59	DG-C-2B	DG Starting Air Compressor	DG-220465	B	310524	DG-F-2B-A	X	X	X	-	NC4	DG-BP3-52 DG-CS-9569 DGB-PS-APCI DGB-PS-APCZ DG-HR4-HR9 DG-BP3-42 DG-BP3-49 DG-BP3-FU	460 v AC Circuit Breaker Control Switch Pressure Switch Pressure Switch EPS Relay Motor Starter Thermal O. L. Fuse	BP3 BP3 HM3 HM3 HR3 BP3 BP3 BP3	D6-F-2B-A D6-F-2B-A D6-F-2B-A D6-F-2B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	BP3-NC4 BP3-HM3 BP3-HR4	310857 BP3a	BP3c	DAH-FN-25B DAH-FN-26B EDE-MCC-611	DG-C-2A	Note 7
59a	DG-C-18B	DG Backup Operating Air Compressor	DG-20465	B	310524	DG-F-2B-A	X	X	X	-	ML8	DG-B55-52 DG-B55-42 DG-B55-49 DG-B55-FU DG-CS-9536 DGB-PS-APC3 DGB-PS-APC4 DG-V-325B	460 v AC Ckt Bkr. Motor Starter Thermal O. L. Fuse Control Switch Pressure Switch Pressure Switch Unloader Sol. Vlv.	B55 B55 B55 B55 B55 HM3 HM3 UB1	DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A	B55-ML8 B55-HM3	310857 B55a	B55c	DAH-FN-25B DAH-FN-26B EDE-MCC-611	DG-C-18A	Note 7
60	DG-SKD-17B	Diesel Generator 1B Starting Air Compressor Skid	DG-20465	B	310524	DG-F-2B-A	X	X	X	-	HM3	DG-E47/4-52 DG-HM3-52 DG-HM3-ATM DG-V-253B DG-HM3-ICT DG-V-279B DG-V-280B DG-V-285B DG-V-288B DG-V-289B DG-V-HM3-KR DG-BP3-42	120 v AC Circuit Breaker 120 v AC Circuit Breaker Auto Drain Timer Auto Drain Solenoid Vlv. Motor Synchronous Timer Left Chamber inlet Sol. Vlv. Right Chamber inlet Sol. Vlv. Repressurizing Sol. Vlv. Left Chamber Exhaust Sol. Vlv. Right Chamber Exhaust Sol. Vlv. Aux. Relay Motor Starter	E47 HM3 HM3 HM3 HM3 HM3 HM3 HM3 HM3 HM3 HM3 BP3	DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A DG-F-2B-A CB-F-1B-A	E47-HM3 BP3-HM3/1	310857 E47/4a	E47/4b	DAH-FN-25B DAH-FN-26B EDE-MCC-E611 120 v AC Dist. Panel	DG-SKD-17A	Note 7

NOTES

- The equipment is mechanical with no electrical requirement.
- Electrical conduit plan drawing, 310524, is listed only to show the fire zone corresponding to the location of this equipment in the Diesel Generator Building as identified in 202263.
- Electrical conduit plan drawing, 310767, is listed only to show fire zone corresponding to the location of this equipment in the Primary Auxiliary Building as identified in 805217.
- This equipment is located in the Diesel Generator Skid DG-SKD-7A.
- This equipment is located in the Diesel Generator Skid DG-SKD-17A.
- This equipment is located in the Diesel Generator Skid DG-SKD-7B.
- This equipment is located in the Diesel Generator Skid DG-SKD-17B.
- The pneumatic control diagram of this equipment is shown in the DG air cooler water control loop diagram, 506403.
- The pneumatic control diagram of this equipment is shown in the diesel engine jacket cooling water control loop diagram, 506404.
- The pneumatic control diagram of this equipment is shown in the DG air cooler water control loop diagram, 506405.
- The pneumatic control diagram of this equipment is shown in the DG diesel engine jacket cooling water loop diagram, 506406.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability	Revision 9 Table RSS 3.1.3.19-1
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FUNCTION: COMMUNICATION																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	SPC-RSS	Remote Safe Shutdown Sound Powered Telephone Loop	1-NHY-311868	A	310816 301820 301841	CB-F-1A-A CB-F-1B-A DG-F-2A-A DG-F-2B-A RHR-F-4A-Z RHR-F-4B-Z	X	X	X	-	G07 G19 G2G G2J GK0 GQ1 GSX GSY	SPC-J-1 SPC-J-2 SPC-J-3 SPC-J-4 SPC-J-5 SPC-J-6 SPC-J-7 SPC-J-8	SPC JACK	G07 G19 G2G G2J GK0 GQ1 GSX GSY	DG-F-2A-A SG-F-2B-A CB-F-1A-A CB-F-1B-A RHR-F-4B-Z RHR-F-4A-Z DG-F-2A-A DG-F-2B-A	G06-G5Y G06-G81 G19-G5X G19-XM9 G2J-GK0 G2J-XM9 G81-G2J GK0-GQ1	RSS 311868 RSSa, b	-	-		

* Table notes on last page of table

SEABROOK STATION FIRE PROTECTION OF SAFE SHUTDOWN CAPABILITY (10CFR50, APPENDIX R)

TABLES



SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table 3.2.3-1
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
1	FW-P-113	Start-up Feedwater Pump	CO-20426	A	310326	TB-F-1A-Z	X	X	X	-	M12	FW-A93-52	4160 V AC Circuit Breaker	A93	CB-F-1A-A	A47-A93	310844	A93g	EDE-SWG-5	FW-P-37B	
												FW-A93-FU	Fuses	A93	CB-F-1A-A	A47-A93/1	A93a	A93g	CBA-FN-19		
												FW-CS-4268-1	Control Switch with Indication	F60	CB-F-3A-A	A47-A93/2	A93b	A93h	CBA-FN-20		
												FW-SS-4268	Selector Switch	A47	NES-F-1A-Z	A47-A93/3	A93c				
												FW-A93-CS	Test Control Switch	A93	CB-F-1A-A	A47-N12	A93d	A47g			
												FW-A93-G,R,W	Indicating Lights	A93	CB-F-1A-A	A47-P82					
												EDE-A53-94-2	Bus Undervoltage	A53	CB-F-1A-A	A93-F60/1					
												FW-A93-R1	Auxiliary Relay	A93	CB-F-1A-A	A93-F60/2					
												FW-PSLH-PS5	Lube Oil Pressure Switch	P82	TB-F-1A-Z	A93-F60/3					
												FW-A93-PS5X	Pressure Switch	A93	CB-F-1A-A	A93-F60/4					
												FW-A93-52S	Auxiliary Relay	A93	CB-F-1A-A	A93-ED7					
												FW-A93-52H	Mechanically Operated Contact	A93	CB-F-1A-A	A93-G8L					
												FW-A93-62	Truck Operated Contact	A93	CB-F-1A-A	A93-HR2					
												FW-A93-62	P85 Starting Blocking Time Delay Relay	A93	CB-F-1A-A	G8L-P2V					
												FW-ED7-2	Pre-Lube Pump Starting Auxiliary Time Delay Relay	ED7	TB-F-2A-Z	(Non-CASP)					
												FW-A93-86	Lockout Relay	A93	CB-F-1A-A						
												FW-A93-TD2	Lockout Relay Test Device	A93	CB-F-1A-A						
												FW-A93-CT	Current Transformers 300/5A	A93	CB-F-1A-A						
												FW-A93-TD1	CT Test Device	A93	CB-F-1A-A						
												FW-A93-50/51	Inst./Time Overcurrent Relays 0A, 0C	A93	CB-F-1A-A						
												FW-A93-AM	Ammeter	A93	CB-F-1A-A						
												FW-A93-AS	Ammeter Switch	A93	CB-F-1A-A						
												FW-A93-ATR	Transducer	A93	CB-F-1A-A						
												FW-AM-4268-1	Ammeter	F60	CB-F-3A-A						
												FW-A47-52	4160 V AC Circuit Breaker	A47	NES-F-1A-Z						
												FW-A93-51GS	Ground Sensor Relay	A93	CB-F-1A-A						
												FW-PSL-4233-2	Pressure Switch Low Suction	P2V	TB-F-1A-Z						
												FW-A93-R2	Auxiliary Relay	A93	CB-F-1A-A						
												FW-HR2-RMO	EPS Manual Override Relay (K27)	HR2	CB-F-1A-A						
												FW-CS-4233	Suction Pressure Bypass Switch	G8L	TB-F-1A-Z						

1. This equipment is mechanical with no electrical requirements.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table 3.2.3-2
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
2	FW-P-161	Start-up Feedwater Pump FW-P-113 Prelube Pump	CO-20426	A	310326	TB-F-1A-Z	X	X	X	-	NU0	FW-CN1-52 FW-CN1-FU FW-CS-4268 FW-SS-4268 FW-CS-4268-1 FW-CS-4278 FW-ED7-2 FW-PSLH-PS4 FW-CN1-42 FW-CN1-49 FW-FB7-K620A FW-ED7-3 FW-EA1-3A FW-EA1-3B	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Control Switch Pump Starting Time Delay Relay Lube Oil Pressure Switch Motor Starter Overload Relays SSPS Output Relay Time Delay Relay Auxiliary Relay Auxiliary Relay	CN1 CN1 F60 A47 F60 F60 ED7 P81 CN1 CN1 FB7 ED7 EA1 EA1	TB-F-2-Z TB-F-2-Z CB-F-3A-A NES-F-1A-Z CB-F-3A-A CB-F-3A-A TB-F-2-Z TB-F-1A-Z TB-F-2-Z TB-F-2-Z CB-F-3A-A TB-F-2-Z CB-F-1A-A CB-F-1A-A	CNA-NU0 CN1-F60 CN1-F81 A47-F60/4 EA1-F60 F60-FB7/5	CN1a 310844 CN1c	EDE-MCC-523	None		
3	FW-FV-4214A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2E	FW-B3V-52 FW-B3V-FU FW-CS-4214-A2 FW-SS-4214-A FW-CS-4214-A1 FW-B3V-42/0,C FW-B3V-49 FW-ZS-4214-A FW-4214AX FW-E3P-62-1 FW-E3C-R1 FW-E3P-62-2 FW-E3C-R2 FW-E3P-62-3 FW-E3C-R3 FW-E3P-62-4 FW-E3C-R4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Timing Relay Auxiliary Relay (FYY-4214-2) Timing Relay Auxiliary Relay (FYY-4224-4) Timing Relay Auxiliary Relay (FYY-4234-2) Timing Relay Auxiliary Relay (FYY-4244-4)	B3V B3V G2G G2G F51 B3V B3V V2E E3C E3P E3C E3P E3C E3P E3C E3P E3C	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A EFP-F-1-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 CB-F-1A-A CB-F-1A-A CB-F-1A-A	B3V-V2E B3V-V2E/1 E3C-G2G G2G-V2E E3C-F51 F51-G2G	B3Va 310844 B3Vd B3Ve	CBA-FN-19 CBA-FN-20 EDE-MCC-515	FW-FV-4214B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table 3.2.3-3
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
4	FW-FV-4214B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2J	FW-B3Z-52 FW-B3Z-FU FW-CS-4214-B2 FW-SS-4214-B FW-CS-4214-B1 FW-B3Z-42/0,C FW-B3Z-49 FW-ZS-4214-B FW-4214BX FW-E3Q-62-1 FW-E3D-R1 FW-E3Q-62-2 FW-E3D-R2 FW-E3Q-62-3 FW-E3D-R3 FW-E3Q-62-4 FW-E3D-R4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Timing Relay Auxiliary Relay (FYY-4214-4) Timing Relay Auxiliary Relay (FYY-4224-2) Timing Relay Auxiliary Relay (FYY-4234-4) Timing Relay Auxiliary Relay (FYY-4244-2)	B3Z B3Z G2J G2J F51 B3Z B3Z V2J E3D E3Q E3D E3Q E3D E3Q E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	B3Z-V2J B3Z-V2J/1 E3D-G2J G2J-V2J E3D-F51 F51-G2J B3Z-G2J	B3Za 310844 B3Zd B3Ze	CBA-FN-32 CBA-FN-33 EDE-MCC-615	FW-FV-4214A		
5	FW-FV-4224A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2F	FW-B3W-52 FW-B3W-FU FW-CS-4224-A2 FW-SS-4224-A FW-CS-4224-A1 FW-B3W-42/0,C FW-B3W-49 FW-ZS-4224-A FW-4224AX FW-E3C-R1 FW-E3C-R2 FW-E3C-R3 FW-E3C-R4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Auxiliary Relay (FYY-4214-2) Auxiliary Relay (FYY-4224-4) Auxiliary Relay (FYY-4234-2) Auxiliary Relay (FYY-4244-4)	B3W B3W G2G G2G F51 B3W B3W V2F E3C E3C E3C E3C E3C E3C	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A EFP-F-1-A CB-F-1A-A CB-F-1A-A CB-F-1A-A	B3W-V2F B3W-V2F/1 E3C-G2G/1 G2G-V2F E3C-F51/1 F51-G2G/1	B3Wa 310844 B3Wd B3We	CBA-FN-19 CBA-FN-20 EDE-MCC-515	FW-FV-4224B		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table 3.2.3-4
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
6	FW-FV-4224B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2K	FW-B4A-52 FW-B3W-FU FW-CS-4224-B2 FW-SS-4224-B FW-CS-4224-B1 FW-B4A-42/0,C FW-B4A-49 FW-ZS-4224-B FW-4224BX FW-E3D-R1 FW-E3Q-62-1 FW-E3D-R2 FW-E3Q-62-2 FW-E3D-R3 FW-E3Q-62-3 FW-E3D-R4 FW-E3Q-62-4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Auxiliary Relay (FYY-4214-4) Timing Relay Auxiliary Relay (FYY-4224-2) Timing Relay Auxiliary Relay (FYY-4234-4) Timing Relay Auxiliary Relay (FYY-4244-2) Timing Relay	B4A B4A G2J G2J F51 B4A B4A V2K E3D E3D E3Q E3D E3Q E3D E3Q E3D E3Q	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A EFP-F-1-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 CB-F-1B-A CB-F-1B-A	B4A-V2K B4A-V2K/1 E3D/G2J/1 G2J-V2K E3D-F51/1 F51-G2J/1 B4A-G2J	B4Aa 310844 B4Ad B4Ae	CBA-FN-32 CBA-FN-33 EDE-MCC-615	FW-FV-4224A		
7	FW-FV-4234A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2G	FW-B3X-52 FW-B3X-FU FW-CS-4234-A2 FW-SS-4214-A FW-CS-4234-A1 FW-B3X-42/0,C FW-B3X-49 FW-ZS-4234-A FW-4234AX FW-E3C-R1 FW-E3P-62-1 FW-E3C-R2 FW-E3P-62-2 FW-E3C-R3 FW-E3P-62-3 FW-E3C-R4 FW-E3P-62-4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Auxiliary Relay (FYY-4214-2) Timing Relay Auxiliary Relay (FYY-4224-4) Timing Relay Auxiliary Relay (FYY-4234-2) Timing Relay Auxiliary Relay (FYY-4244-4) Timing Relay	B3X B3X G2G G2G F51 B3X B3X V2G E3C E3C E3Q E3C E3Q E3C E3Q E3C E3Q	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A EFP-F-1-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 CB-F-1A-A CB-F-1A-A	B3X-V2G B3X-V2G/1 G2G-V2G E3C-G2G/2 E3C-F51/2 F51-G2G/2	B3Xa 310844 B3Xd B3Xe	CBA-FN-19 CBA-FN-20 EDE-MCC-515	FW-FV-4234B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table 3.2.3-5
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
8	FW-FV-4234B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2L	FW-B4B-52 FW-B4B-FU FW-CS-4234-B2 FW-SS-4214-B FW-CS-4234-B1 FW-B4B-42/0,C FW-B4B-49 FW-ZS-4234-B FW-4234BX FW-E3D-R1 FW-E3D-R2 FW-E3D-R3 FW-E3D-R4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Auxiliary Relay (FYY-4214-4) Auxiliary Relay (FYY-4224-2) Auxiliary Relay (FYY-4234-4) Auxiliary Relay (FYY-4244-2)	B4B B4B G2J G2J F51 B4B B4B V2L E3D E3D E3D E3D	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A EFP-F-1-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A	B4B-V2L B4B-V2L/1 E3D/G2J/2 G2J-V2L E3D-F51/2 F51-G2J/2 B4B-G2J	310844 B4Ba B4Bd B4Be	CBA-FN-32 CBA-FN-33 EDE-MCC-615	FW-FV-4234A		
9	FW-FV-4244A	Emergency Feedwater Header Flow Valve	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	V2H	FW-B3Y-52 FW-B3Y-FU FW-CS-4244-A2 FW-SS-4224-A FW-CS-4244-A1 FW-B3Y-42/0,C FW-B3Y-49 FW-ZS-4244-A FW-4244AX FW-E3C-R1 FW-E3P-62-1 FW-E3C-R2 FW-E3P-62-2 FW-E3C-R3 FW-E3P-62-3 FW-E3C-R4 FW-E3P-62-4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Auxiliary Relay (FYY-4214-2) Timing Relay Auxiliary Relay (FYY-4224-4) Timing Relay Auxiliary Relay (FYY-4234-2) Timing Relay Auxiliary Relay (FYY-4244-4) Timing Relay	B3Y B3Y G2G G2G F51 B3Y B3Y V2H E3C E3C E3P E3C E3P E3C E3P E3C E3P	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A EFP-F-1-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 CB-F-1A-A CB-F-1A-A CB-F-1A-A	B3Y-V2H B3Y-V2H/1 E3C-G2G/3 G2G-V2H E3C-F51/3 F51-G2G/3	310844 B3Ya B3Yd B3Ye	CBA-FN-19 CBA-FN-20 EDE-MCC-515	FW-FV-4244B		

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table 3.2.3-6
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
10	FW-FV-4244B	Emergency Feedwater Header Flow Valve	FW-20688	B	310708	EFP-F-1-A	X	X	X	-	V2M	FW-B4C-52 FW-B4C-FU FW-CS-4244-B2 FW-SS-4224-B FW-CS-4244-B1 FW-B4C-42/0,C FW-B4C-49 FW-ZS-4244-B FW-4244BX FW-E3D-R1 FW-E3Q-62-1 FW-E3D-R2 FW-E3Q-62-2 FW-E3D-R3 FW-E3Q-62-3 FW-E3D-R4 FW-E3Q-62-4	460 V AC Circuit Breaker Fuse Control Switch with Indication Selector Switch Control Switch with Indication Motor Starters Overload Relays Valve Position Switch Auxiliary Relay Auxiliary Relay (FYY-4214-4) Timing Relay Auxiliary Relay (FYY-4224-2) Timing Relay Auxiliary Relay (FYY-4234-4) Timing Relay Auxiliary Relay (FYY-4244-2) Timing Relay	B4C B4C G2J G2J F51 B4C B4C V2M E3D E3D E3Q E3D E3Q E3D E3Q E3D E3Q	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A EFP-F-1-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 CB-F-1B-A CB-F-1B-A	B4C-V2M B4C-V2M/1 E3D/G2J/3 G32-V2M E3D-F51/3 F51-G2J/3 B4C-G2J	B4Ca 310844 B4Cd B4Ce	CBA-FN-32 CBA-FN-33 EDE-MCC-615	FW-FV-4244A		
11	FW-V-156	Start-up Feed Pump to EFW Header Valve	FW-20688	A	310589	MS-F-1B-Z	X	X	X	-	V3L	FW-B4S-52 FW-F4S-FU FW-CS-4261 FW-B4S-42/0,C FW-B4S-49 FW-ZS-V156	460 V AC Circuit Breaker Fuse Control Switch with Indication Motor Starters Overload Relays Valve Position and Open/Close Torque Switches	B4S B4S F60 B4S B4S V3L	CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A MS-F-1B-Z	B4S-V3L B4S-V3L/1 B4S-F60 B4S-F60/1	B4Sa 310844 B4Sc	CBA-FN-19 CBA-FN-20 EDE-MCC-531	None		
12	FW-V-163	Start-up Feed Pump Bypass to EFW Pump Valve	FW-20687	A	310326	TB-F-1A-Z	X	X	X	-	V3M	FW-C2R-52 FW-C2R-FU FW-CS-4262 FW-C2R-42/0,C FW-C2R-49 FW-ZS-V163	460 V AC Circuit Breaker Fuse Control Switch with Indication Motor Starter Overload Relays Valve Position and Open/Close Torque Switches	C2R C2R F60 C2R C2R V3M	TB-F-2A-Z TB-F-2A-Z CB-F-3A-A TB-F-2A-Z TB-F-2A-Z TB-F-1A-Z	C2R-V3M C2R-V3M/1 C2R-F60	C2Ra 310844 C2Rc	EDE-MCC-523	None		
13	FW-E3C	Emergency Feedwater Valves Train "A" Vital Controls Relay Compt. (MCC-515)	-	A	310442	CB-F-1A-A	X	X	X	-	E3C	FW-E3E-52 FW-E3C-R1 FW-E3C-R2 FW-E3C-R3 FW-E3C-R4 FW-CS-4241-A1 FW-CS-4224-A1 FW-CS-4234-A1 FW-CS-4244-A1 MM-CP-279A	120 V AC Circuit Breaker Auxiliary Relay (FYY-4214-2) Auxiliary Relay (FYY-4224-4) Auxiliary Relay (FYY-4234-2) Auxiliary Relay (FYY-4244-4) Control Switch Control Switch Control Switch Control Switch "A" Train BOP-PCC	E3E E3C E3C E3C E3C F51 F51 F51 F51 FK0	CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	E3C-FK0 E3C-F56 E3E/1a 310844 E3E/1c	CBA-FN-19 CBA-FN-20 EDE-MCC-515 120 V AC Distribution Panel	None			

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability																Revision 9 Table 3.2.3-7
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
14	FW-E3D	Emergency Feedwater Valves Train "B" Vital Controls Relay Compt. (MCC-615)	-	B	310442	CB-F-1B-A	X	X	X	-	E3D	FW-E3F-52 FW-E3D-R1 FW-E3D-R2 FW-E3D-R3 FW-E3D-R4 FW-CS-4241-B1 FW-CS-4224-B1 FW-CS-4234-B1 FW-CS-4234-B1 MM-CP-279B	120 V AC Circuit Breaker Auxiliary Relay (FYY-4214-4) Auxiliary Relay (FYY-4224-2) Auxiliary Relay (FYY-4234-4) Auxiliary Relay (FYY-4244-2) Control Switch Control Switch Control Switch Control Switch "B" Train BOP-PCC	E3F E3D E3D E3D E3D F51 F51 F51 F51 FL2	CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A CB-F-3A-A	E3D-FL2 E3D-F51/4	310844 E3F/1a E3F/1c	CBA-FN-32 CBA-FN-33 EDE-MCC-615 120 V AC Distribution Panel	None		
15	FW-FT-4214-2	RC-E-11A Emergency Feedwater Header Flow Transmitter	FW-20688	A	310708	EFP-F-1-A	X	X	X	-	GL3	MM-CP-297A	"A" Train BOP Process Control Panel	FK0	CB-F-3A-A	FK0-GL3	310844 FP 72179 FK0a	MM-CP-297A	FW-LT-501		
16	FW-FT-4214-4	RC-E-11A Emergency Feedwater Header Flow Transmitter	FW-20688	B	310708	EFP-F-1A-A	X	X	X	-	GL4	MM-CP-297B	Train "B" BOP Process Control Panel	FL2	CB-F-3A-A	FL2-GL4	310844 FP 72181 FL2a				
17	FW-FT-4224-4	RC-E-11B Emergency Feedwater Header Flow Transmitter	FW-20688	A	310708	EFP-F-1A-A	X	X	X	-	GL3	MM-CP-297A	Train "A" BOP Process Control Panel	FK0	CB-F-3A-A	FK0-GL3	310844 FP 72179 FK0a				
18	FW-FT-4224-2	RC-E-11B Emergency Feedwater Header Flow Transmitter	FW-20688	B	310708	EFP-F-1A-A	X	X	X	-	GL4	MM-CP-297B	Train "B" BOP Process Control Panel	FL2	CB-F-3A-A	FL2-GL4	310844 FP 72181 FL2a	MM-CP-297B	FW-LT-502		
19	FW-FT-4234-2	RC-E-11C Emergency Feedwater Header Flow Transmitter	FW-20688	A	310708	EFP-F-1A-A	X	X	X	-	GL3	MM-CP-297A	Train "A" BOP Process Control Panel	FK0	CB-F-3A-A	FK0-GL3	310844 FP 72179 FK0a	MM-CP-297A	FW-LT-503		
20	FW-FT-4234-4	RC-E-11C Emergency Feedwater Header Flow Transmitter	FW-20688	B	310708	EFP-F-1A-A	X	X	X	-	GL4	MM-CP-297B	Train "B" BOP Process Control Panel	FL2	CB-F-3A-A	FL2-GL4	310844 FP 72181 FL2a				
21	FW-FT-4244-4	RC-E-11D Emergency Feedwater Header Flow Transmitter	FW-20688	A	310708	EFP-F-1A-A	X	X	X	-	GL3	MM-CP-297A	Train "A" BOP Process Control Panel	FK0	CB-F-3A-A	FK0-GL3	310844 FP 72179 FK0a				
22	FW-FT-4244-2	RC-E-11D Emergency Feedwater Header Flow Transmitter	FW-20688	B	310708	EFP-F-1A-A	X	X	X	-	GL4	MM-CP-297B	Train "B" BOP Process Control Panel	FL2	CB-F-3A-A	FL2-GL4	310844 FP 72181 FL2a	MM-CP-297B	FW-LT-504		
23	FW-LT-501	RC-E-11A SG Wide Range Level Transmitter	FW-20686	A	310576	C-F-1-Z	X	X	X	-	R1D	FW-LQY-501 FW-LI-501 EDE-MM-120 MM-CP-1	Signal Converter Level Indicator Electrical Penetration PPC #1	FA1 F51 H44 FA1	CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A	FA1-H44 H44-R1D F56-FA1 F56-FA1/4	310942 FP 55315 FA1h Sh. 13	MM-CP-1	-		

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>	Revision 9 Table 3.2.3-8
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FUNCTION: EMERGENCY FEEDWATER PUMPHOUSE BUILDING																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
24	FW-LT-502	RC-E-11B SG Wide Range Level Transmitter	FW-20686	B	310576	C-F-1-Z	X	X	X	-	R1E	FW-LQY-502 FW-LI-502 EDE-MM-131 MM-CP-2	Signal Converter Level Indicator Electrical Penetration PPC #2	FA2 F51 H55 FA2	CB-F-3A-A CB-F-3A-A C-F-1-Z, ET-F-1C-A CB-F-3A-A	FA2-H55 H55-R1E F56-FA2/1	310942 FP 55316 FA2h Sh. 13	MM-CP-2	-		
25	FW-LT-503	RC-E-11C SG Wide Range Level Transmitter	FW-20686	A	310577	C-F-1-Z	X	X	X	-	R1F	FW-LQY-503 FW-LI-503 EDE-MM-123 MM-CP-3	Signal Converter Level Indicator Electrical Penetration PPC #3	FA3 F51 H47 FA3	CB-F-3A-A CB-F-3A-A C-F-2-Z, ET-F-1A-A CB-F-3A-A	FA3-H47/1 H47-R1F F56-FA3/2	310942 FP 55317 FA3h Sh. 13	MM-CP-3	-		
26	FW-LT-504	RC-E-11D SG Wide Range Level Transmitter	FW-20686	B	310577	C-F-1-Z	X	X	X	-	R1G	FW-LQY-504 FW-LI-504 EDE-MM-128 MM-CP-4	Signal Converter Level Indicator Electrical Penetration PPC #4	FA4 F51 H52 FA4	CB-F-3A-A CB-F-3A-A C-F-1-Z, ET-F-1C-A CB-F-3A-A	FA4-H52/1 H52-R1G F56-FA4	310942 FP 55318 FA4h Sh. 13	MM-CP-4			
27	CO-V-142	Condensate Tank Emergency Outlet Valve	CO-20426	A	310248 202319	CST-F-1-0	X	X	-	-	-	-	-	-	-	-	-	-	-	Note 1	
28	CO-LT-4096	CO-TK-25 Condenser Storage Tank Level	CO-20426	A	310828	CST-F-1-0	-	X	X	-	R53	CO-LI-4096 MM-CP-153	Level Indicator BOP-PCC	F61 FJ7	CB-F-3A-A CB-F-3A-A	FJ7-R53 F66-FJ8	310953 FJ7f FJ7g	MM-CP-153			

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>															Revision 9 Table 3.3.2-1
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FUNCTION: HIGH-LOW PRESSURE BOUNDARIES																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
1	CS-V-175	Excess Letdown Line Isolation Valve	CS-20722	B	310577	C-F-1-Z	X	X	X	X	L95	CS-E95/2-72 CS-CS-7418 CS-E4D-FU CS-SS-7418 CS-FY-7418 CS-ZS-V175 EDE-MM-115	125 V DC Circuit Breaker Control Switch with Indication Fuses Selector Switch Pilot Solenoid Valve Position Switch Electrical Penetration	E95 F41 E4D G5Y GE5 L95 H39	CB-F-1B-A CB-F-3A-A CB-F-1B-A DG-F-2B-A C-F-1-Z C-F-1-Z C-F-1-Z, ET-F-1C-A	E95-E4D F48-G5Y F48-H39/3 GE5-H39/1 GE5-L95/1 E4D-F48 F48-H39/2	310891 E95/2a E95/2c E95/2d	CBA-FN-32 CBA-FN-33	CS-V176	Note 1		
2	CS-V-176	Excess Letdown Line Isolation Valve	CS-20722	B	310577	C-F-1-Z	X	X	X	X	LA5	CS-E95/4-72 CS-CS-7417 CS-FY-7417 CS-ZS-V176 CS-E4D-FU EDE-MM-115	125 V DC Circuit Breaker Control Switch with Indication Pilot Solenoid Valve Position Switch Fuses Electrical Penetration	E95 F41 GE5 LA5 E4D H39	CB-F-1B-A CB-F-3A-A C-F-1-Z C-F-1-Z CB-F-1B-A C-F-1-Z, ET-F-1C-A	F48-H39/1 GE5-H39/5 E95-E4D/1 E4D-F26 F48-H39 GE5-H39/4 GE5-LA5/1	310891 E95/4a E95/4b E95/4d E95/4e E95/4f	CBA-FN-32 CBA-FN-33	CS-V175	Note 1		
3	RC-LCV-459	Regen. Heat Exchanger Letdown Isolation Valve (Outside Missile Barrier)	RC-20843	A	310577	C-F-1-Z	X	X	X	X	L99	RC-E89/17-72 RC-CS-459 RC-LY-459B RC-ZS-LCV-459 CS-ZS-V145 RC-LY/459-CX1 RC-E4F-FU RC-SS-459 EDE-MM-112	125 V DC Circuit Breaker Control Switch with Indication Pilot Solenoid Valve Position Switch Valve Position Switch Level Auxiliary Relay Fuses Selector Switch Electrical Penetration	E89 F40 GE5 L99 LH2 FB1 E4F G5X H36	CB-F-1A-A CB-F-3A-A C-F-1-Z C-F-1-Z C-F-1-Z CB-F-3A-A CB-F-1A-A DG-F-2A-A C-F-2-Z, ET-F-1A-A	F40-H36 GE5-L99 GE5-H36/2 GE5-LH2/1 L99-LH2 F40-FB1/2 F40-G5X E4F-G5X E89-34F/8	310882 E89/17a E89/17c E89/17d	CBA-FN-19 CBA-FN-20	RC-LCV-460	Note 1		
4	RC-LCV-460	Regen. Heat Exchanger Letdown Isolation Valve (Inside Missile Barrier)	RC-20843	A	310577	C-F-1-Z	X	X	X	X	LF7	RC-E89/1-72 RC-CS-460 RC-LY-460E RC-ZS-LCV-460 RC-LY/460-DX1 FC-E4F-FU EDE-MM-112 CS-ZS-V145	125 V DC Circuit Breaker Control Switch with Indication Pilot Solenoid Valve Position Switch Level Auxiliary Relay Fuses Electrical Penetration Valve Position Switch	E89 F40 GE4 LF7 FB1 E4F H36 LH2	CB-F-1A-A CB-F-3A-A C-F-1-Z C-F-1-Z CB-F-3A-A CB-F-1A-A C-F-2-Z, ET-F-1A-A C-F-1-Z	GE4-H36 GE4-LF7/1 E89-E4F E4F-F40 F40-FB1 F40-H36/1 F40-H36/3 GE4-LH2	310882 E89/1b E89/1d E89/1e E89/1f	CBA-FN-19 CBA-FN-20	RC-LCV-459	Note 1		
5	RC-FV-2881	Reactor Head Vent. Sol. Valve	RC-20845	B	310581	C-F-3-Z	X	X	X	X	U04	RC-E88/1-72 RC-CS-2881 RC-FV-2881 RC-GNO-R7 RC-ZS-FV-2881 RC-E4C-FU RC-SS-2881 EDE-MM-117 EDE-MM-115	125 V Circuit Breaker Control Switch with Indication Solenoid Valve Auxiliary Relay Valve Position Switch Fuses Selector Switch Electrical Penetration Electrical Penetration	E88 F31 U04 GNO U04 E4C G5Y H41 H39	CB-F-1B-A CB-F-3A-A C-F-3-Z CB-F-1B-A C-F-3-Z CB-F-1B-A DG-F-2B-A C-F-1-Z, ET-F-1C-A C-F-1-Z ET-F-1C-A	E88-E4C/4 E4C-GNO/5 F31-GNO F31-G5Y F31-H41/1 H41/U04 H39-U04 F26-H39	310882 E88/1g E88/1d E88/1e E88/1f	CBA-FN-32 CBA-FN-33	RC-V323	Note 1		

1. Electrical power and air are not required for support since the valve fails closed.
2. During normal operation, the valve is in its hot shutdown position. To prevent spurious operation, this equipment is permanently disabled (circuit breaker tripped).
3. These valves are fail open diaphragm valves. See Section 3.5.3.1.c for analysis.

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table 3.3.2-2
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FUNCTION: HIGH-LOW PRESSURE BOUNDARIES																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
6	RC-V-323	Reactor Head Venting Valve	RC-20845	B	310581	C-F-3-Z	X	X	X	-	VB2	RC-BV9-52-1 RC-BV9-52-2 RC-CS-2885 RC-BV9-42-1(O) RC-BV9-42-1(C) RC-BV9-42-2 RC-BV9-49-1 RC-BV9-49-2 RC-ZS-V323 EDE-MM-91 EDE-MM-117 RC-BV9-FU	460 V AC Circuit Breaker 460 V AC Circuit Breaker Control Switch with Indication Motor Starter (Open) Motor Starter (Close) Motor Starter Overload Relay Overload Relay Valve Position Switch and Valve Open/Close Torque Switches Electrical Penetration Electrical Penetration Fuse	BV9 BV9 F31 BV9 BV9 BV9 BV9 BV9 VB2 H15 H41 BV9	CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A C-F-3-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-1B-A	BV9-F31 BV9-H41 BV9-H15 F31-H41/2 H41-VB2 H41-VB2/1 H15-VB2	BV9a 310882 BV9c BV9d	CBA-FN-32 CBA-FN-33	RC-FV-2881		
7	RC-V-22	RHR Inlet Isolation Valve	RC-20841	B	310582	C-F-1-Z	D	D	X	-	V27	RC-B54-52-1 RC-B54-52-2 RC-CS-7302-1 RC-CS-7302-2 RC-SS-7302 RC-B54-42-1(O) RC-B54-42-1(C) RC-B54-42-2 RC-B54-49-1 RC-B54-49-2 RC-FF9-K-734B RC-ZS-7302B RH-ZS-2465B EDE-MM-100 EDE-MM-115 RC-ZL-7302-1 RC-ZL-7302-2 RC-B54-FU	460 V AC Circuit Breaker 460 V AC Circuit Breaker Control Switch With Indication Control Switch With Indication Selector Switch Motor Starter (Open) Motor Starter (Close) Motor Starter Overload Relay Overload Relay SSPC Output Relay Valve Position Switch and Valve Open/Close Torque Switches RH-V35 Position Switch Electrical Penetration Electrical Penetration Pilot Light Pilot Light Fuse	B54 B54 F20 G23 G23 B54 B54 B54 B54 B54 FF9 V27 V53 H24 H39 G23 F20 B54	CB-F-1B-A CB-F-1B-A CB-F-3A-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 CB-F-3A-A C-F-1-Z RHR-F-4B-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A CB-F-1B-A	B54-G23 B54-G23/1 B54-H24 B54-H39 B54-V53 F20-G23 H24-V27 H39-V27 F20-FF9/2	B54a 310882 B54c B54d		RC-V-23	Note 2	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability															Revision 9 Table 3.3.2-3
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FUNCTION: HIGH-LOW PRESSURE BOUNDARIES																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE			
8	RC-V-23	RHR Inlet Isolation Valve	RC-20841	A	310576	C-F-1-Z	D	D	X	-	V25	RC-B53-52-1 RC-B53-52-2 RC-CS-7303-1 RC-CS-7303-2 RC-SS-7303 RC-ZL-7303-1 RC-ZL-7303-2 RC-B53-42-1(O) RC-B53-42-1(C) RC-B53-42-2 RC-B53-49-1 RC-B53-49-2 RC-FF8-K-734A RC-ZS-V23 RH-ZS-2465A EDE-MM-95 EDE-MM-112 RC-B53-FU	460 V AC Circuit Breaker 460 V AC Circuit Breaker Control Switch with Indication Control Switch with Indication Selector Switch Pilot Light Pilot Light Motor Starter (Open) Motor Starter (Close) Motor Starter Overload Relay Overload Relay SSPS Output Relay Valve Position Switch and Valve Open/Close Torque Switches RH-V35 Position Switch Electrical Penetration Electrical Penetration Penetration Fuse	B53 B53 F20 G2G G2G G2G F20 B53 B53 B53 B53 B53 FF8 V25 V53 H19 H36 B54	CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-1A-A CB-F-3A-A C-F-1-Z RHR-F-4B-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-1A-A	B53-G2G B53-G2G/1 B53-H19 B53-H36 B53-V53 F20-G2G F20-FF8/2 H19-V25 H36-V25/2	B53a B53c B53d		RC-V-22	Note 2	
9	RC-V-87	RHR Inlet Isolation Valve	RC-20844	B	310582	C-F-1-Z	D	D	X	-	V26	RC-B61-52-1 RC-B61-52-2 RC-CS-7310-1 RC-CS-7310-2 RC-SS-7310 RC-ZL-7310-1 RC-ZL-7310-2 RC-B61-42-1(O) RC-B61-42-1(C) RC-B61-42-2 RC-B61-49-1 RC-B61-49-2 RC-FF9-K-734B RC-ZS-V87 RH-ZS-2466B EDE-MM-100 EDE-MM-115 RC-B61-FU	460 V AC Circuit Breaker 460 V AC Circuit Breaker Control Switch with Indication Control Switch with Indication Selector Switch Pilot Light Pilot Light Motor Starter (Open) Motor Starter (Close) Motor Starter Overload Relay Overload Relay SSPS Output Relay Valve Position Switch and Valve Open/Close Torque Switches RH-E-9B to SI Pump Isolation Valve RH-V36 Position Switch Electrical Penetration Electrical Penetration Penetration Fuse	B61 B61 F20 G2J G2J G2J F20 B61 B61 B61 B61 B61 FF9 V26 V54 H24 H39 B61	CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-1B-A CB-F-3A-A C-F-1-Z RHR-F-2A-Z C-F-2-Z, ET-F-1C-A C-F-2-Z, ET-F-1C-A CB-F-1B-A	B61-G2J B61-G2J/1 B61-H24 B61-H39 B61-V54 F20-G2J/1 F20-FF9/1 H24-V26 H39-V26/2	B61a B61c B61d		RC-V-88	Note 2	

SEABROOK STATION	Fire Protection of Safe Shutdown Capability 10CFR50, Appendix R Safe Shutdown Capability														Revision 9 Table 3.3.2-4
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FUNCTION: HIGH-LOW PRESSURE BOUNDARIES																					
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC CODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC CODE	FIRE AREA/ZONE		SCHEM.	CABLE			
10	RC-V-88	RHR Inlet Isolation Valve	RC-20844	A	310577	C-F-1-Z	D	D	X	-	V28	RC-B62-52-1 RC-B62-52-2 RC-CS-7311-1 RC-CS-7311-2 RC-SS-7311 RC-ZL-7311-1 RC-ZL-7311-2 RC-B62-42-1(O) RC-B62-42-1(C) RC-B62-42-2 RC-B62-49-1 RC-B62-49-2 RC-FF9-K-734A RC-ZS-7311A RH-ZS-2466A EDE-MM-95 EDE-MM-112 RC-B62-FU	460 V AC Circuit Breaker 460 V AC Circuit Breaker Control Switch with Indication Control Switch with Indication Selector Switch Pilot Light Pilot Light Motor Starter (Open) Motor Starter (Close) Motor Starter Overload Relay Overload Relay SSPS Output Relay Valve Position Switch and Valve Open/Close Torque Switches RH-E-9B to SI Pump Isolation Valve RH-V36 Position Switch Electrical Penetration Electrical Penetration Fuse	B62 B62 F20 G2G G2G G2G F20 B62 B62 B62 B62 B62 FF8 V28 V54 H19 H36 B62	CB-F-1A-A CB-F-1A-A CB-F-3A-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 CB-F-1A-A CB-F-1A-A CB-F-3A-A C-F-1-Z RHR-F-2A-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A CB-F-1A-A	B62-G2G B62-G2G/1 B62-H19 B62-H36 B62-V54 F20-G2G/1 F20-FF8/3 H19-V28 H36-V28	B62a 310882 B62c B62d		RC-V-87	Note 2	
11	RC-PCV-456A	RC-E-10 Pressurizer Relief Control Valve	RC-20846	A	310581	C-F-3-Z	X	X	X	X	LD3	RC-E87/19-72 RC-CS-456A-1 RC-CS-456A-2 RC-SS-456A-1 RC-PCV-456A-20 RC-ZS-PCV-456A RC-PY-405CX RC-PY-455EX RC-PY-458BX RC-TY-413KX RC-SS-456A-2 RC-J3M-42 RC-E4A-FU EDE-TBX-X56 EDE-MM-94 EDE-MM-111	125 V DC Circuit Breaker Control Switch with Indication Control Switch with Indication Selector Switch Solenoid Operated Valve Valve Position Switch Auxilliary Relay Auxilliary Relay Auxilliary Relay Auxilliary Relay Selector Switch 125 V DC Contactor Fuses Terminal Box Electrical Penetration Electrical Penetration	E87 F31 G81 G81 LD3 LD3 FB1 FB1 FB1 FB1 G5X J3M E4A X56 H18 H35	CB-F-1A-A CB-F-3A-A CB-F-1A-A CB-F-1A-A C-F-3-Z C-F-3-Z CB-F-3A-A CB-F-3A-A CB-F-3A-A DG-F-2A-A DG-F-2A-A CB-F-1A-A C-F-3-Z C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A	F38-FB1/2 F38-G81/1 G81-H35 H35-X56/2 LD3-X56 E87-E4A/4 E4A-J3M G5X-J3M H18-J3M H18-LD3 G81-J3M	E87/19a 310882 E87/19c E87/19d	CBA-FN-19 CBA-FN-20 DAH-FN-25A DAH-FN-26A	RC-V122	Note 1	

SEABROOK STATION	<div>Fire Protection of Safe Shutdown Capability 10CFR50,</div> <div>Appendix R</div> <div>Safe Shutdown Capability</div>															Revision 9 Table 3.3.2-5
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FUNCTION: HIGH-LOW PRESSURE BOUNDARIES																						
ITEM NO.	EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	P&ID/1-LINE DRAWING NO.	TRAIN	PHYSICAL LOCATION DRAWING NO.	FIRE AREA/ZONE	REQUIRED FOR		POWER		ELEC NODE	SUPPORTING CONTROL AND INSTRUMENTATION EQUIPMENT				CABLES	ELECTRICAL DRAWING NO.		SUPPORTING SYSTEMS	REDUNDANT COUNTERPART	REMARKS	
							HOT STAND BY	COLD SHUT DOWN	ELEC	AIR		EQUIPMENT ID NO.	EQUIPMENT DESCRIPTION	ELEC NODE	FIRE AREA/ZONE		SCHEM.	CABLE				
12	RC-PCV-456B	RC-E-10 Pressurizer Relief Control Valve	RC-20846	B	310581	C-F-3-Z	X	X	X	X	LD4	RC-E88/19-72 RC-CS-456B-1 RC-CS-456B-2 RC-SS-456B-1 RC-PCV-456B-20 RC-ZS-PCV-456B RC-FT0-KA7 RC-SS-456B-1 RC-J3P-42 RC-E4C-FU EDE-TBX-X35 EDE-MM-100 EDE-MM-115	125 V DC Circuit Breaker Control Switch with Indication Control Switch with Indication Selector Switch Solenoid Operated Valve Valve Position Switch Isolation Relay Selector Switch 125 V DC Contactor Fuses Terminal Box Electrical Penetration Electrical Penetration	E88 F31 G20 G20 LD4 LD4 FT0 G5Y J3P E4C X35 H24 H39	CB-F-1B-A CB-F-3A-A CB-F-1B-A CB-F-1B-A C-F-3-Z C-F-3-Z CB-F-3A-A DG-F-2B-A DG-F-2B-A CB-F-1B-A C-F-3-Z C-F-1-Z, ET-F-1C-A C-F-1-Z, ET-F-1C-A	F31-FT0/2 F31-G20/2 G20-H39 H39-X35 LD4-X35 G20-J3P E88-E4C/7 E4C-J3P G5Y-J3P H24-J3P H24-LD4 E4C-G20/2	310882 E88/19a E88/19c E88/19d	CBA-FN-32 CBA-FN-33 DAH-FN-25B DAH-FN-26B	RC-V124	Note 1		
13	RC-V-122	RC-E-10 Pressurizer Relief Isolation Valve	RC-20846	A	310581	C-F-3-Z	X	X	X	-	V01	RC-B97-52-1 RC-B97-52-2 RC-CS-7313-1 RC-CS-7313-2 RC-SS-7313 RC-B97-FU RC-B97-42-1(O) RC-B97-42-1(C) RC-B97-42-2 RC-B97-49-1 RC-B97-49-2 RC-ZS-V122 RC-ED1-R1 EDE-MM-94 EDE-MM-111 EDE-TBX-X56	460 V AC Circuit Breaker 460 V AC Circuit Breaker Control Switch with Indication Control Switch with Indication Selector Switch Fuse Motor Starter (Open) Motor Starter (Close) Motor Starter Overload Relay Overload Relay Valve Position Switch and Valve Open/Close Torque Switches Auxiliary Relay Electrical Penetration Electrical Penetration Terminal Box	B97 B97 F31 G81 G81 B97 B97 B97 B97 B97 V01 ED1 H18 H35 X56	CB-F-1A-A CB-F-1A-A CB-F-3A-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 CB-F-1A-A C-F-3-Z CB-F-1A-A C-F-2-Z, ET-F-1A-A C-F-2-Z, ET-F-1A-A C-F-3-Z	B97-H18 B97-H35 ED1-F38 H18-V01 H35-X56 V01-X56 F38-G81/2 F38-G81/3 B97-G81 B97-G81/1	310882 B97a B97e B97c B97d	EDE-MCC-521 CBA-FN-19 CBA-FN-20	RC-PCV-456A			

SEABROOK STATION FIRE PROTECTION OF SAFE SHUTDOWN CAPABILITY (10CFR50, APPENDIX R)

FIGURES



