PSNH

SEABROOK STATION
Engineering Office

Public Service of New Hampshire

New Hampshire Yankee Division

December 2, 1985
SBN- 904
T.F. B7.1.2

United States Nuclear Regulatory Commission
Washington, DC 20555

Attention: Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Reference: (a) Construction Permits CPPR-135 and CPPR-136, Docket Nos. 50-443 and 50-444

Subject: Fire Protection of Safe Shutdown Capability - Revised Report

Dear Sir:

Enclosed please find a copy of our revised reports entitled, "Fire Protection of Safe Shutdown Capability (10CFR50, Appendix R)," and "Fire Protection Program - Evaluation and Comparison to BTP APCSB9.5-1, Appendix A." These reports were updated in preparation for the NRC's fire protection site audit, as indicated to the NRC staff in our discussions during the past several months.

In addition to the deviations identified in Appendix R Report, also provided herewith as Attachment A are additional deviations from 10CFR50, Appendix R (i.e., deviations for doors, detectors, dampers, etc.). Further, the information your staff requested regarding plant areas containing more than six cable trays is provided in Attachment B.

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

Very truly yours,

John DeVincentis, Director
Engineering and Licensing

Enclosure

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ATTACHMENT A

Fire Protection of Safe Shutdown Capability - Additional Deviations from 10CFR50, Appendix R

Seabrook Station - Unit 1

ATTACHMENT A

Fire Protection of Safe Shutdown Capability - Additional Deviations from 10CFR50, Appendix R

Deviation No. 1

A deviation from the requirement for three-hour fire dampers between exhaust ducts serving fire areas in the Waste Processing Building, Primary Auxiliary Building (PAB-F-4-Z, El. 81'; PAB-F-1-A, El. 51'), Containment Enclosure Ventilation Area (CE-F-1-A) and the Fuel Storage Building (FSB-F-1-A, El. 64') at their points of connection to the unit plant vent.

This request is based upon our assertion that smoke and heat will not enter other buildings from a fire in one of the fire areas since:

(1) Duct run geometry is such that ducts from the various buildings extend with a generous number of fittings to change the direction of the duct runs in both the horizontal and vertical directions. At the plant vent, ducts from the various buildings connect to the plant vent at different elevations.

(2) Long duct runs help the exhaust air lose its temperature.

(3) Back draft dampers are provided for some of the exhaust fans discharging to the plant vent, which prevent air flow from one building passing into another.

(4) Manual operations to start exhaust fans, if required, can preclude smoke and heat from entering other buildings.

Deviation No. 2

A deviation from the requirement for automatic fire detection per Section III-F of Appendix R to 10CFR, Part 50, in the following areas which contain safety-related components:

(A) DCT-F-1A-0 Duct Bank	Electrical Tunnel to Service Water Pump House - A Train
(B) DCT-F-1B-0 Duct Bank	Electrical Tunnel to Service Water Pump House - B Train
(C) DCT-F-2A-0 Duct Bank	Primary Auxiliary Building to Cooling Tower - A Train
(D) DCT-F-2B-0 Duct Bank	Primary Auxiliary Building to Cooling Tower - B Train
(E) DCT-F-3A-0 Duct Bank	Control Building to Primary Auxiliary Building - A Train

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Fire Protection of Safe Shutdown Capability - Additional Deviations from 10CFR50, Appendix R
(Continued)

(F) DCT-F-3B-0 Duct Bank	Control Building to Primary Auxiliary Building - B Train
(G) SW-F-2-0	Service Water Pump House Intake and Discharge Structures
(H) TF-F-1-0	Tank Farm (RWST)
(I) MUA-F-1-0	Air Makeup Pit, East/West
(J)	Condenser Storage Tank Valve Rooms, West/South
(K) C-F-1-Z, C-F-2-Z	Containment Building [El. (-)26'-0", El. 0'-0"]
(L) CE-F-1-A	Containment Annulus

This request is based upon our assertion that Areas (A) - (F) duct banks are buried structures with controlled personal access through concrete missile/tornado maintenance plugs. Each duct bank is a segregated train, either A or B, and loss of a duct bank due to fire would not impact safe shutdown.

Area (G), SW-F-2-0, contains limited combustibles, piping and valves, and motor-operated valves. Loss of the intake and discharge structures due to fire in either or both areas would not impact safe shutdown since the cooling towers, a separate fire area, would provide the ultimate heat sink for safe shutdown. Access to these areas is controlled through missile/tornado doors.

Area (H), TF-F-1-0, contains limited combustibles, i.e., all cables are in conduits and motor-operated valves containing lubrication. The refueling water storage tank is enclosed by a partial concrete dike. Loss of this area due to fire would not impact safe shutdown since the boric acid storage tanks are available as a borated water source to maintain the plant in hot standby and to cooldown until the unit is in cold shutdown.

Area (I), MUA-F-1-0, contains limited combustibles, piping and instrumentation (i.e., radiation monitoring and smoke opacity detection). The air makeup pits, east/west, are concrete structures with controlled access through a 30" maintenance manway cover and security fence around the structure. Loss of either or both makeup air pits due to fire does not impact safe shutdown since the Control Room HVAC would be placed on a recirculation mode and doors would be opened, if needed, into the Turbine Building, which would not be affected by the fire in either makeup air pit.

Area (J), Condensate Storage Tank (CST) Valve Rooms, west/south, contain limited combustibles, piping, manual valves, cable in conduit and CST level temperature instrumentation.

ATTACHMENT A

Fire Protection of Safe Shutdown Capability - Additional Deviations from 10CFR50, Appendix R
(Continued)

The West Valve Room is separated from the South Valve Room. A fire in either Valve Room, west or south, would not affect safe shutdown since the suction to the Emergency Feed System is normally aligned with manual valves in level locally and in the Control Room, but does not affect the suction to the two feedwater pumps. There is sufficient storage capacity in the CST (Technical Specification water volume) to maintain the unit in hot standby and cooldown, if needed. CST level can be checked by an operator using the upper manway on top of the CST with a weighted drop string during cooldown, if required.

Area (L): A deviation from the requirement of area detection is requested for the zones below the operating floor of the Containment Building [Zone C-F-1-Z, El. (-) 26'-0" and Zone C-F-2-Z, El. 0'-0"].

A deviation has been granted in the SER (Page 9-44) for any detection (area or spot) for the operating floor (Zone C-F-3-Z, El. 25'-0") based upon the absence of fuel loading and/or safety-related equipment and the existence of a huge volume with accompanying air movement.

The use of spot detection for the limited combustibles that exist in the remaining zones (C-F-1-Z and C-F-2-Z) is more effective than area detection for the following reasons:

1. Spot detection will provide a more rapid and specific indication of smoke, whereas area detection would be retarded by the large volume and rapid air movement in containment and would not be as effective in indicating the potential problem area.

2. Detectors are provided over areas of cable concentration, such as cable trays and the electrical penetrations.

3. Detectors are provided in the reactor coolant pump areas.

Area (K): A deviation from the requirement for detection for the containment annulus is requested. The annulus is the space between the primary containment wall and the secondary containment wall. There is approximately five feet of clear space separating the two walls. The space contains a limited number of pipes, conduit and air-operated isolation valves.

Detection for the annulus can be omitted for the following reasons:

1. The annulus has a large volume and contains no combustible loading.

2. The safety-related equipment located there, which consists of containment isolation valves for the containment air purge and containment on-line purge systems, is air-operated and fails in the closed position.

3. No cable trays are located in the annulus. All cable that does exist is in conduit.

These deviations are justified based on our assertion that additional modifications would not enhance plant safety.

ATTACHMENT A

Fire Protection of Safe Shutdown Capability - Additional Deviations from 10CFR50, Appendix R
(Continued)

Deviation No. 3

A deviation from the requirement for a rated penetration of a fire-rated wall between the Service and Circulating Water Pump House is requested. A 2' x 1'8" trash trough runs the length of the Service Water Pump House (SW-F-1E-Z) through a 1 1/2-hour fire-rated wall between Fire Areas SW-F-1E-Z and SW-F-1A-Z, and the length of Circulating Water Pump House (SW-F-1A-Z). This trough receives debris from the service water and circulation water traveling screens and screen wash water supplied by the screen wash pumps. Normally, screen wash will be operating; thus, this trough will contain water. Area-wide detection is provided in Fire Area SW-F-1E-Z.

Loss of the Service Water Pump House due to fire would not impact safe shutdown since the cooling towers, a separate fire area, would provide the ultimate heat sink for safe shutdown.

This deviation is justified based on our assertion that additional modifications would not enhance plant safety.

Deviation No. 4

All Fire Protection System components, except the Fire Tank Heating System and fire hydrant isolation valves are UL or FM approved for fire protection service (see SBN-799). However, valves for the Fire Protection Systems which serve Seismic Category I standpipes are not UL-listed or FM-approved per FSAR, Section 9.5-1.

Steel valves, without UL listing, were used to replace UL listed 150 pound cast iron valves for the Fire Protection Systems, which serve Seismic Category I standpipes. A seismic analysis of the standpipe could not be performed with cast iron valves in the lines. The replacement valves are of a higher quality than the specified cast iron valves.

Deviation No. 5

A deviation from the requirement for a three-hour fire-rated door is requested. Door No. C-100 is a twin leaf, tornado missle-rated assembly mounted in a three-hour rated wall separating Fire Area CB-F-1A-A (Train A Switchgear Room) from Fire Area NES-F-1A-Z (Nonessential Switchgear Room). The door is ten feet high, eight feet wide and is constructed of two-inch solid ASTM-A36 steel with 1/2" x 3" ASTM-A36 steel astragal. Each leaf is secured in the closed position via a gear-driven retractable steel pin (top) and steel plate (bottom). All hardware is surface mounted. Area-wide detection is provided on both sides of the door.

This request is based upon our assertion that the door design features and the provision of area-wide detection constitute a level of protection equivalent to that required by Appendix R to 10CFR50.

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Fire Protection of Safe Shutdown Capability - Additional Deviations from 10CFR50, Appendix R
(Continued)

Deviation No. 6

A deviation from the requirement for a three-hour door is requested. Door No. C-300 is a twin leaf, tornado missle-rated assembly mounted in the three-hour fire-rated wall separating Fire Area CB-F-3A-A (Control Room) from the Turbine Building air lock, which is an extension of the turbine generator operating floor. The door is seven feet high, six feet wide and is constructed of two-inch solid ASTM-A36 steel with a 1/2" x 3" ASTM-A36 steel astragal. Each leaf is secured in the closed position via a gear-driven retractable steel pin (top) and steel plate (bottom). All hardware is surface mounted.

Area-wide detection is provided on both sides of the door. The airlock is separated from the turbine generator operating floor by a nonfire-rated wall and door; fixed suppression is provided in the corridor leading to the airlock. The airlock is also separated from the Area TB-F-3-Z (Electronic Work Room) by a 1-1/2 hour fire-rated barrier and door; area-wide detection is provided in TB-F-3-Z. The Control Room is continuously manned.

This request is justified by our assertion that the door design features, the provision of area-wide detection on both sides of the door and continuous Control Room manning provide a level of protection equivalent to that required

Deviation No. 7

A deviation from the requirement for a three-hour rated door is requested. Door No. W400 is a twin leaf, dutch style tornado resistant, alarmed door located on El. 25' between the area of PAB-F-1K-Z and a 45 foot walkway leading to the Waste Processing Building.

This request is based upon our assertion that a fire in the Waste Processing Building will not travel and communicate into the Primary Auxiliary Building, Area (PAB-F-2C-Z) due to the following:

1. Limited combustibles on the west side of Door No. W404 which is kept in the closed position.

2. A 45-foot walkway leading from Door No. W404 to Door No. W400.

3. Walkway is of non-combustible material, with a 17-foot dike wall on the north side and a 5-foot dike on the south side of the walkway.

4. Combustible fire load in walkway is limited to two lightly loaded cable trays at El. 42' which is above top of doors.

5. On either side of dike walls, storage consists of refueling, reactor makeup and waste water in steel tanks. Ceiling height in this area is at El. 81'.

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Fire Protection of Safe Shutdown Capability - Additional Deviations from 10CFR50, Appendix R
(Continued)

6. Area on the east side of Door No. W400 PAB-F-1K-Z is non-combustible material.

7. On the east side of PAB-F-1K-Z, is Door No. P405 which is a twin leaf dutch style, bullet resistant alarmed door, kept in the closed position.

8. The area east of Door No. P405, which is a portion of fire area PAB-F-2C-Z, is covered by a suppression system and detection.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays

Seabrook Station - Unit 1

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays

SCOPE

The NRC staff has requested that Seabrook Station provide them with information on which areas of the plant contain "more than six cable trays in an area." This is a portion of a guideline contained in BTP CMEB 9.5-1, formerly BTP ASB 9.5-1. This attachment responds to the whole guideline for cable protection contained in the BTP.

In our response, we have addressed each designated plant fire area or fire zone, discussed how it meets the BTP guidelines and, where necessary, justified why a particular area need not meet the guidelines.

DISCUSSION

Our interpretation of the guidelines expressed in the BTP are that redundant safety-related cable systems located outside the Cable Spreading Room should be:

1. Separated from each other and from fire exposure hazards by a minimum three-hour rated barrier,

2. Have continuous line-type heat detectors in the trays,

3. Be accessible for manual fire fighting, and

4. Allow wetting down of the cables without faulting.

If they have all the above, they should also have automatic area water suppression in the area where a fire could occur.

If they do not have access for manual fire fighting, they must also have a deluge/spray suppression system providing water into each cable tray.

The above is the basic set of guidelines for protection of all redundant safety-related cable tray outside the Cable Spreading Room.

There are two options available to us in our design. We do not need to provide automatic suppression if we meet the four criteria expressed above (three-hour separation, continuous line-type heat detectors, manual fire fighting accessibility, and cables which allow wetting down) plus:

1. The number of cable trays in a given fire area is six or less,

2. The cabling is not required to achieve and maintain hot shutdown, and

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

3. Smoke detectors are provided.

This option is the basis of the NRC request to list those plant areas which contain "more than six cable trays in an area."

The other available option is that we do not need three-hour barrier separation if:

1. The barrier is not there because of nuclear safety concerns with a barrier,

2. The trays are protected with a deluge/spray system within the trays,

3. Automatic area fire suppression is provided, and

4. We have evaluated and justified the ability to achieve and maintain safe shutdown both with and without actuation of the suppression systems.

The above criteria comprise the basic guidelines and the available options. Our response to these criteria follows.

With respect to the basic criteria:

1. Redundant safety-related cable systems outside the Cable Spreading Room are separated from each other and from fire exposure hazards by a combination of space and barriers, not just barriers. This is discussed with respect to each specific fire area or zone in the subsequent sections of this document.

2. We do not provide continuous line-type heat detectors in any cable trays in the plant. Our method of fire detection is the use of appropriate combinations of ionization, photo electric, infra red, ultraviolet and heat detectors throughout most fire areas and zones in the plant. Those areas and zones without detection are noted in the subsequent sections of this document.

3. With few exceptions, we have judged that all areas of cable tray concentrations are accessible for manual fire fighting. Those exceptions are discussed in subsequent sections of this document.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

4. All cables are designed to allow wetting down without faulting.

Using the above responses as a basis, we have analyzed all the fire areas and zones in the plant that contain redundant safety-related cable. Each has been evaluated for:

1. The presence of redundant cable tray systems,

2. Separation of redundant trays from each other,

3. The concentration of cable trays,

4. Separation of redundant trays from potential fire hazards including the probability of the presence of quantities of transient combustibles,

5. The presence of rated fire barriers,

6. The presence of detection, and

7. Accessibility for manual fire fighting.

A concentration of cable trays was considered to be:

1. Seven or more trays in a stack, or

2. A group of seven closer than twenty feet to each other with the presence of intervening combustibles or fire hazards.

Analysis

1. Containment

Fire Zones C-F-1-Z
C-F-2-Z
C-F-3-Z

Within containment, an option of separating cables and equipment and associated nonsafety circuits of redundant trains by a noncombustible radiant energy shield having a minimum fire rating of one-half hour is available [BTP Section C.7.a.(1).b]. Seabrook Station has chosen this option for the containment.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

The containment does contain areas within each zone where concentrated cable trays exist. Each of these areas is discussed in detail in Tabulation 3.1.4.1 of our 10CFR50, Appendix R Report. The discussion includes a listing of those areas where we have deviated from the requirements of Appendix R. Because for containment, the Appendix R requirements are essentially the same as the BTP guidelines, these deviations also apply to the BTP Guideline C.7.a.(1).b.

2. Emergency Feedwater Pump Building

Fire Area EFP-F-1A

The Emergency Feedwater Pump Building contains redundant safety-related cables. However, all cables are routed in conduit. Therefore, there are no areas which contain concentrations of cable.

3. Main Steam and Feedwater Pipe enclosure

a. East

Fire Zones MS-F-1A-Z
MS-F-2A-Z
MS-F-3A-Z
MS-F-4A-Z
MS-F-5A-Z

The enclosure as a whole contains cabling and equipment from both redundant trains. One fire zone, MS-F-5A-Z, contains seven trays from one single train. The zone is surrounded by concrete barriers with openings allowing access to other parts of the enclosure. The zone has detection, portable fire extinguishers and stand pipe and hose reel for manual fire suppression. Access to the area is restricted.

This area is discussed in our 10CFR50, Appendix R Report under Tabulation 3.1.4.32. We believe that the low fuel loading, limited access and presence of detection in the area provide sufficient fire protection.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

b. West

Fire Zones MS-F-1B-Z
MS-F-2B-Z
MS-F-3B-Z

These zones contain cabling from two redundant safety trains. However, all cables are routed in conduit. There is no concentration of cables in the area.

4. RHR, Containment Spray and SI Equipment Vault

Fire Zones RHR-F-1A-Z
RHR-F-1B-Z
RHR-F-1C-Z
RHR-F-1D-Z
RHR-F-2A-Z
RHR-F-2B-Z
RHR-F-3A-Z
RHR-F-3B-Z
RHR-F-4A-Z
RHR-F-4B-Z

The two safety trains in the vault are separated by a three-hour barrier. Each zone in the vault contains detection.

Two zones, RHR-F-4A-Z and RHR-F-4B-Z, contain five trays. These zones run from the bottom of the vault to the top and contain the stairways. The trays run vertically on the wall and are fire-stopped every 25 feet.

At one point, the trays divide so that there appears to be more than six in a concentrated area. However, the trays still contain the same amount of total cable. Therefore, we do not consider this to be an area of concentrated cables as defined in our criteria.

Each zone contains only one redundant train of cables and is separated from the other zone by a three-hour rated barrier. In the event of a fire in each zone, access is through the alternate stairwell and through fire doors.

These zones are discussed in the 10CFR50, Appendix R Report under Tabulations 3.1.4.47 and 3.1.4.48. They conform to Appendix R with the exception of the installation of eight-hour emergency lights.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

Due to the existence of separation from the redundant counterpart, fire detection, limited access, low fire loading and the ability to reach hot and cold shutdown without the use of this zone, we believe no further fire protection measures are necessary.

5. Control Building

a. Switchgear Room A

Fire Area CB-F-1A-A

Switchgear Room A contains one train of redundant safety-related equipment. It is separated from its redundant counterpart by a three-hour rated barrier. It contains concentrations of cable trays.

The Switchgear Room is provided with portable fire extinguishers with a standpipe and hose reels for back-up manual suppression. Ionization detection is provided. The plant is able to reach safe shutdown without this area, and it meets Appendix R.

We believe that with separation from the redundant counterpart, the detection provided, the access to the room for manual suppression activities and the conformance to Appendix R, no further fire protection measures are necessary.

b. Switchgear Room B

Fire Area CB-F-1B-A

See Switchgear Room A.

c. Battery Rooms

Fire Areas CB-F-1D-A
CB-F-1E-A
CB-F-1F-A
CB-F-1G-A

Each Battery Room contains a single train of redundant cables and is separated from its redundant counterpart by three-hour rated barriers. All cabling is routed in conduit, therefore, there is no concentration of cables.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

d. Mechanical Room North

Fire Area CB-F-2B-A

This fire area contains a single train of safety-related cables and is separated from its redundant counterpart by a three-hour rated barrier. The area has detection.

The area has a stack of cable trays four high running through it. At one point, the stack divides so that there appears to be more than six in a concentrated area. However, the divided trays contain the same amount of cable as the stack of four. Therefore, we do not consider this to be an area of concentrated cables as defined in our criteria.

e. Mechanical Room South

Fire Area CB-F-2C-A

The same conditions exist in this fire area as with Fire Area CB-F-2B-A, except the trays are only three high. Again, because the total loading in the divided trays is the same as the stack of three, we do not believe it is an area of concentrated cable as defined in our criteria.

f. Cable Spreading Room

Fire Area CB-F-2A-A

The guidelines do not apply to this fire area.

g. Control Room

Fire Area CB-F-3A-A

The Control Room is addressed in detail in a previous deviation request with respect to the use of suppression in the room.

h. HVAC Equipment and Duct Area

Fire Area CB-F-3B-A

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

This area contains cables and equipment from both redundant safety-related trains. There are a total of six trays, three in each train. The area is separated from other plant areas by a three-hour rated barrier. No detection is provided. The area is not needed to safely shut down the plant.

Early warning detection will be added to this area. With the addition of detection, the lack of cable concentration, the three-hour separation from other plant areas, and the fact that the area is not needed to reach safe shutdown, we believe that further fire protection measures are not warranted.

i. Computer Room

Fire Area CB-F-3C-A

The computer Room has no safety-related cables, is separated from other plant areas by a three-hour rated barrier and is provided with a detection and automatic Halon 1301 suppression. No further analyses is needed.

6. Electrical Tunnels

Fire Areas ET-F-1A-A
ET-F-1B-A
ET-F-1C-A
ET-F-1D-A
ET-F-3-A

Each fire area contains only one train of safety-related cables. There are more than six cable trays per area. Each area has a preaction system with heads directed into the trays, detection, is separated from its redundant counterpart by a three-hour barrier, and meets the requirements of Appendix R.

We believe that this provides sufficient protection for the areas.

7. Diesel Generator Building

a. Fuel Oil Storage Tank Rooms

Fire Areas DG-F-1A-A
DG-F-1B-A

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

Each of these areas has a single train of safety-related cables and equipment and is separated from its redundant counterpart by a three-hour rated barrier. All cables are routed in conduit. No further analysis is required.

b. Diesel Generator Engine Rooms

Fire Areas DG-F-2A-A
DG-F-2B-A

Each fire area has a single train of safety-related cables and equipment and is separated from its redundant counterpart by a three-hour rated barrier. Neither area has more than six trays. There are no areas of cable concentration. Each room has a deluge system in the oil sump/trench area and is provided with a manually actuated sprinkler system. The system is supervised. Smoke, heat and flame detection is provide.

We believe this to be sufficient protection for these areas.

c. HVAC Area

Fire Zones DG-F-3A-Z
DG-F-3B-Z

These zones contain a total of seven cable trays. However, they are not grouped and are very lightly loaded. An analysis has been performed and submitted to NRC for these zones. Based upon the analysis, the area was accepted and is so listed in the SER.

d. Fuel Oil Day Tank Areas

Fire Areas DG-F-3C-A
DG-F-3D-A

Each area contains a single train of safety-related equipment and is separated from its redundant counterpart by a three-hour rated barrier. There is no cable in tray in these areas. No further analysis is needed.

e. Diesel Generator Air Intake and Exhaust Silencer Areas

Fire Areas DG-F-3E-A
DG-F-3F-A

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

Each of these fire areas has a single train of safety-related equipment and is separated from its redundant counterpart by a three-hour rated barrier. Neither area has more than six trays in it. The combustible loading is very low.

These areas are plenums which contain the air intake filters and the exhaust silencers. There is no detection or suppression. The three-hour separation and low fire load in each room precludes the need for suppression.

8. Primary Auxiliary Building (PAB)

The PAB is one large fire area divided into fire zones by concrete walls, concrete floors and spatial separation. While the walls and floors are concrete, they are not, with certain exceptions, rated fire barriers. They are penetrated by cable tray, conduit, piping, ventilation ducts, hatches and doorways, and these penetrations, with certain exceptions, are not sealed.

The PAB has been provided with fire detection throughout most of the building in those zones where it is felt a fire could reasonably develop. A preaction fire suppression system has been installed to provide area suppression in Fire Zone PAB-F-2C-Z over the primary component cooling pumps and under an area of high cable concentration. This system does not cover the whole zone. A drawing showing its coverage has been previously submitted to NRC for approval.

A preaction system has been installed in PAB-F-1G-A, Electrical Cable Chase, providing coverage to the trays.

Throughout the PAB, in response to NRC Appendix R safe shutdown concerns, we have committed to:

a. Put all Train B cables needed for safe plant shutdown in conduit, and

b. Wrap all the Train B conduit containing cables needed for safe plant shutdown in a one-hour fire wrap.

A safe shutdown analysis of those PAB zones that contain cable and equipment needed to safely shut down the plant is included on the Seabrook 10CFR50, Appendix R submittal in Tabulations 3.1.4.35 through 3.1.4.42. For simplification, all analyses and discussions of deviations are contained in Tabulation 3.1.4.42.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

We have reviewed each individual PAB area and zone to ascertain which contain more than six grouped cable trays. The results of that review follow here:

a. PAB-F-1A-Z, Chiller Pump Zone - This zone contains only three layered trays.

b. PAB-F-1B-Z, Dimon, Filler, Valve Mount Zone - This zone contains only cable in conduit.

c. PAB-F-1C-A, Charging Pump 2A Area - This area contains only cable in conduit.

d. PAB-F-1D-A, Charging Pump 2B Area - This area contains only cable in conduit.

e. PAB-F-1E-A, Reciprocating Charging Pump Area - This area contains only cable in conduit.

f. PAB-F-1F-Z, Letdown Degassifier Zone - This zone contains only cable in conduit.

g. PAB-F-1G-A, Electrical Chase - This fire area contains cable for both safety-related trains. There are more than six cable trays in the area. The area has been provided with smoke detection and a preaction suppression system providing coverage in the trays, and meets Appendix R requirements.

h. PAB-F-1J-Z, Auxiliary Steam Condensate Zone - This zone contains only cable in conduit.

i. PAB-F-1K-Z, Non-Rad Pipe Tunnels and Pipe Chase - This zone contains only cables in conduit.

j. PAB-F-2A-Z, Resin Fill Tank Zone - This zone does not contain more than six cable trays.

k. PAB-F-2B-Z, Boric Acid Tank Zone - This zone does not contain more than six cable trays.

l. PAB-F-2C-Z, Primary Component Cooling Pump Zone - this zone contains more than six cable trays and is provided with an area preaction system as discussed above.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

m. PAB-F-3A-Z, Water Cooler Heat Exchanger Zone - This zone does not contain more than six cable trays.

n. PAB-F-3B-Z, PAB Supply and Exhaust Fan Zone - This zone does not contain more than six cable trays.

o. PAB-F-4-Z, Filter Zone - This zone does not contain more than six cable trays.

9. Fuel Storage Building

Fire Area FSB-F-1-A

The Fuel Storage Building is one large fire area. It contains both trains of safety-related equipment and cables. It is not needed to reach safe shutdown.

The area is locked with controlled access. It has been provided with fire detection.

There is one area of the building which contains more than six cable trays. These trays are very lightly loaded, with approximately 150 cables in the trays. The trays are high in the air with no combustibles near them and no chance of transient combustibles affecting them.

We believe there to be sufficient fire protection in the area.

10. Waste Processing Building

Fire Zones W-F-1A-Z
W-F-1B-Z
TF-F-1-O

Fire Zones W-F-1A-Z and W-F-1B-Z do not contain any safety-related cable. Fire Zone TF-F-1-O contains only cable in conduit. No further analysis is required.

11. Service Water Pump House

Fire Zones SW-F-1A-Z
SW-F-1E-Z

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

Fire Areas SW-F-1B-A
SW-F-1C-A
SW-F-1D-A

a. SW-F-1A-Z, Circ Water Pump Zone - This zone contains no safety-related cable.

b. SW-F-1B-A, Electrical Control Room A, and SWF-1C-A, Electrical Control Room B - These redundant fire areas contain equipment from one safety-related train only but cable and instrumentation from both. There are more than six cable trays in the areas. They are separated from each other by a three-hour rated barrier. Detection has been provided, access for manual fire suppression is good and neither area is needed for safe plant shutdown in case of a fire.

We believe there to be sufficient fire protection in these areas.

c. SW-F-1D-A, Fan Room - This area contains only cable in conduit.

d. SW-F-1E-Z, Service Water Pump Zone - This is a large zone with cable trays five high in it. It contains equipment and cable from both trains. Because of the separation that exists, there is no concentration of cable trays. The area is provided with detection and has good access for manual fire fighting. It is not needed for safe plant shutdown during a fire.

We believe there to be sufficient fire protection for the area.

12. Cooling Tower

Fire Areas CT-F-1A-A
CT-F-1B-A
CT-F-1C-A
CT-F-1D-A
CT-F-2A-A
CT-F-2B-A
CT-F-3-0

a. CT-F-1A and CT-G-1B, Switchgear Rooms, Unit 2, Train B and Unit 2, Train A, and CT-F-1C-A and CT-F-1D-A, Switchgear Rooms Unit 1, Train B and Unit 1 Train A - All these area contain a single train of safety-related equipment and cable in them, and are separated from their redundant counterpart by a three-hour rated barrier. The combustible loading is low, and neither area contains more than six cable trays. Detection is provided.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

We believe there to be sufficient fire protection for the areas.

b. CT-F-2A-A and CT-F-2B-A, Ventilation and Pump Room for Unit 2 and Ventilation and Pump Room for Unit 1 - Each of these rooms contain both trains for its respective unit. Train A contains three trays, Train B contains 4 trays. The trains are spatially separated within the rooms and located at the ceiling. The rooms are very large, 71.5 ft. x 50 ft. x 29.5 ft. Each room has a light fuel loading with no more than six trays in a concentrated area. Each room is provided with detection. The rooms are not needed for safe shutdown.

Based upon the above discussion, we believe there to be sufficient fire protection for the areas.

c. CT-F-3-0, Top of Cooling Tower - All cable in this zone is in conduit. No further analysis is needed.

13. Containment Enclosure Ventilation Area

Fire Area CE-F-1-A

There are a total of seven lightly loaded cable trays in one section of this area. The trays contain approximately 150 cables.

This area is discussed in detail under Tabulation 3.1.4.10 of the 10CFR50, Appendix R submittal. The area contains equipment and cable from both trains. Detection is provided in the area. Access is limited.

We believe there to be sufficient fire protection for the area.

14. Fire Pump House

Fire Areas FPH-F-1A-A
FPH-F-1B-A
FPH-F-1C-A

There is no safety-related equipment or cables in these areas.

15. Turbine Building

Fire Zones TB-F-1A-Z
TB-F-1C-Z
TB-F-2-A
TB-F-3-Z
Fire Area TB-F-1B-A

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

a. Fire Zones TB-F-1A-Z, TB-F-1C-Z and TB-F-2-Z are addressed in detail in the 10CFR50, Appendix R report under Tabulation 3.1.4.54.

TB-F-1A-Z has more than six cable trays. It is protected by a wet pipe sprinkler system.

TB-F-1C-Z is the Relay Room. It is separated from the balance of the Turbine Building by unrated concrete block walls. It does not have more than six trays in a concentrated area.

TB-F-2-Z has more than six cable trays. It is protected by a wet pipe sprinkler system.

We believe there to be sufficient fire protection for these zones.

b. TB-F-1B-A, Battery Room - There are no safety-related cables or equipment in this area.

c. TB-F-3-Z, SAS and Computer Room - There are no safety-related cables or equipment in this room.

16. Mechanical Penetration Area

Fire Zones 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

These zones are all in the radiation control area, with access limited to operator tours. The whole area is sectioned into zones by concrete walls with small openings for access. There are no zones which contain more than six cable trays. Detection is provided throughout the area, and all Train B safe shutdown cable is in conduit. A description of this area is contained in the 10CFR50, Appendix R report under Tabulation 3.1.4.46.

We believe that, due to the configuration of the area and the low combustible loading, sufficient fire protection exists for this area.

ATTACHMENT B

Additional Information Regarding Plant Areas
Containing More Than Six Cable Trays
(Continued)

17. Non-Essential Switchgear Area

Fire Area NES-F-1A-Z

The only safety-related equipment and cables in this area are Train A. The equipment and cables are separated from their redundant counterpart by a three- hour rated barrier. There are more than six cable trays in the zone. Access for manual fire suppression is good.

We believe that with the addition of fire detection to this room, sufficient fire protection will be provided.