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PSEG Nuclear LLC

LR-N03-0249

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

REQUEST FOR APPROVAL OF CHANGES TO THE POST-FIRE SAFE SHUTDOWN STRATEGY FOR FIRE AREAS 2-FA-AB-64B, 2-FA-AB-84C, AND 2-FA-AB-84B
SALEM GENERATING STATION UNIT 2
DOCKET NO. 50-311
FACILITY OPERATING LICENSE NO. DPR-75

In accordance with Salem Unit 2 License Condition 2.C.10, PSEG Nuclear LLC (PSEG) requests the review and approval of changes to the Salem Generating Station Unit 2 post-fire Safe Shutdown (SSD) strategy for Fire Areas 2-FA-AB-64B, 2-FA-AB-84C, and 2-FA-AB-84B. The specific requests are provided as Attachments 1 through 3.

Salem Unit 2 Licensing Condition 2.C.10 states that, "PSEG Nuclear LLC may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire." This request for Salem Unit 2 is similar to the 10 CFR 50 Appendix R exemptions requested on May 1, 2002 for Salem Unit 1 and represents a change to the established licensing commitment for Salem Unit 2. Therefore PSEG has determined that these changes require NRC approval prior to implementation. These changes to the post-fire SSD strategy for fire areas 2-FA-AB-64B, 2-FA-AB-84C, and 2-FA-AB-84B are being submitted as the result of a re-analysis of post-fire SSD capability and recent plant modifications implemented in response to resolution of Electrical Raceway Fire Barrier System (ERFBS) issues at Salem.

The fire areas and the specific requests requiring NRC review and approval are summarized as follows:

Fire Area	Description	Deviation From Requirement
2-FA-AB-64B	Reactor Plant Auxiliary Bldg. – Elev. 64'	From the fixed suppression requirement of Section III.G.3 of Appendix R and from the loss of offsite power requirement of Section III.L.3 of Appendix R

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Fire Area	Description	Deviation From Requirement
2-FA-AB-84C	21 CCW Pump and Heat Exchanger Area – Elev. 84'	From the fixed suppression requirement of Section III.G.3 of Appendix R
2-FA-AB-84B	Reactor Plant Auxiliary Equipment Area – Elev. 84'	From the loss of offsite power requirement of Section III.L.3 of Appendix R and the use of distance separation in an alternate shutdown area

The new compliance strategies for these areas rely on the recently completed plant modifications, safe shutdown procedure revisions, and administrative controls revisions for both safe shutdown equipment and combustible material controls.

The plant modifications performed to support the revision to the post-fire SSD analysis were the installation of the Chemical & Volume Control System (CVCS) cross-tie, relocation of the local/remote switch for the A-channel Service Water pumps from the Hot Shutdown Panel to another fire area and installation of 8-hour emergency lights for local actions.

Attachment 4 provides a description of the CVCS cross-tie modification. As stated in attachment 4, this modification restored the use of the CVCS positive displacement pump (PDP) to support post-fire safe shutdown of the opposite unit. Essentially the Unit 1 PDP is used to support post-fire SSD in the event of a fire in Unit 2 and the Unit 2 PDP is used to support post-fire SSD in the event of a fire Unit 1. Currently, the PDP has been isolated from service to its own unit due to concerns with ECCS leakage outside containment following a loss of coolant accident. The current CVCS cross-tie modification is based on the PDP being isolated from its own unit and the normal charging function being performed utilizing the centrifugal charging/safety injection (C/SI) pumps.

Attachments 5, 6, and 7 provide the current combustible loadings in these fire areas. Combustible loading and changes to combustible loading are controlled in accordance with the Fire Protection Program.

Attachment 8 provides additional information concerning manual actions performed in the revised post-fire SSD strategy for these areas.

Attachments 9 and 10 provide a listing of Safe Shutdown Components in these fire areas. It should be noted that fire area 2-FA-AB-64B does not contain any safe shutdown components (valves, pumps, etc.).

Approval of the changes to the Salem Unit 2 post-fire SSD strategy for fire areas 2-FA-AB-64B, 2-FA-AB-84C, and 2-FA-AB-84B is required prior to implementing these changes. As part of the completion of the ERFBS activities, PSEG is

scheduled to remove electrical raceway fire wrap that is no longer credited in the new analyses beginning in August 2003. Therefore PSEG requests approval of this submittal by August 1, 2003.

Should you have any questions regarding this request, please contact Brian Thomas at (856) 339-2022.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

D.F. Garchow

Executed on 6/16/03

D. F. Garchow
Vice President – Projects and Licensing

Attachments (10)
Figures (6)

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Attachment 1
LR-N03-0249

Request to Revise Post-Fire Safe Shutdown Strategy for Fire Area 2-FA-AB-64B Reactor Plant Auxiliary Building – Elevation 64'

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

Request

In accordance with Salem Unit 2 License Condition 2.C.10, PSEG Nuclear LLC (PSEG) requests NRC approval of changes to the post-fire safe shutdown (SSD) strategy for Fire Area 2-FA-AB-64B. The new SSD strategy changes this area from a normal shutdown area (10 CFR 50 Appendix R III.G.2) to an alternate shutdown area (10 CFR 50 Appendix R III.G.3). The requirements of 10 CFR 50, Appendix R, Section III.G.3 are being deviated from in that a fixed suppression system is not installed for an area where alternative shutdown capability is provided. Specifically, Fire Area 2-FA-AB-64B, Reactor Plant Auxiliary Building – Elevation 64', is not provided with a fixed suppression system.

In addition, PSEG is deviating from the requirements of 10 CFR 50 Appendix R, Section III.L.3 to the extent that alternative shutdown capability must accommodate conditions where offsite power is not available for 72 hours. Specifically, Fire Area 2-FA-AB-64B, Reactor Plant Auxiliary Building – Elevation 64', relies upon offsite power for alternative shutdown capability.

Discussion

The Reactor Plant Auxiliary Equipment Area (Elevation 64') of the Auxiliary Building contains waste gas compressors, waste gas tanks, storage tank recirculation pumps, and holdup tanks and pumps. See Figure 1.

Fire Protection Features and Systems

The fire area consists of many concrete rooms. Each room contains either a single component or groups of similar components. The floor, ceiling, and walls in this area are constructed of reinforced concrete, designated as fire area boundaries. The following features were identified as adequate for the hazard as discussed in the NRC's July 20, 1989 Safety Evaluation Report:

- Ventilation duct penetrations (with and without dampers), and
- 1-1/2 hour rated fire doors, and
- Steel hatches

Some of the ventilation duct fire dampers are mounted external to the fire barrier with fire wrap protecting the section of duct between the barrier and the dampers. These damper configurations have been evaluated in accordance with the guidance of Generic Letter 86-10 as being adequate for the fire hazards.

The in-situ combustibles in this area consist of lubricating oil in pumps and motors, paper, plastic in electrical cabinets, cable insulation and FS-195 fire wrap. The area contains limited ignition sources and paths for fire propagation. Attachment 5 provides a summary of combustible loading in this area from the Fire Hazards

Analysis. Changes to the combustible loading in this area are controlled by the Fire Protection Program.

A partial fire detection system is installed in the area with the exception of the Holdup Tank Rooms, No. 2 Pump Waste Monitor Hold-Up Tank Pump Room, the Waste Evaporator Feed Pump Room, and the unused space formerly designated as the Gas Analyzer Area (See Figure 2). These rooms are separated from the remainder of the area by concrete walls. The concrete walls have open doorways for access to the tanks. The detectors are located near the major hazards in the area. The detection system has been evaluated, in accordance with the guidance of Generic Letter 86-10, as adequate for the hazards in this area. In addition, the staff previously concluded in their July 20, 1989 Safety Evaluation for fire area 2-FA-AB-64B, that the summary analyses contained in PSEG's July 15, 1988 request was sufficient to satisfy the Generic Letter 86-10 partial detection evaluation guidelines.

Manual fire alarm stations are provided in the area. Detectors and manual fire alarm stations alarm in the Control Room.

Manual fire suppression capability is provided in the form of portable fire extinguishers and manual hose stations.

Given the in-situ combustibles and the fire protection features provided, it is unlikely that a fire of significant magnitude or duration would develop within the area. The lack of a suppression system in this area was previously approved (as a III.G.2 area) in the July 20, 1989 NRC Safety Evaluation.

Safe Shutdown Capability

Cabling associated with the following safe shutdown functions and systems is in the area:

Functions	Potentially Affected Systems
Reactor Coolant Inventory Control and Reactivity Control	Chemical and Volume Control System
Decay Heat Removal	Auxiliary Feedwater System Residual Heat Removal System
Process Monitoring	Auxiliary Feedwater System Chemical and Volume Control Main Feedwater System Main Steam System Reactor Coolant System

Functions	Potentially Affected Systems
Mechanical Support	Chilled Water System Component Cooling Water System Control Air System Service Water System
Electrical Support	Electrical Distribution System
HVAC	Auxiliary Building Ventilation System Containment Building Ventilation System Control Area Ventilation System Service Water Ventilation System Switchgear and Penetration Area Ventilation System

There are no safe shutdown components (valves, pumps, etc.) located in this area.

In the unlikely event of a fire damaging safe shutdown cables within the area prior to control and extinguishment of the fire by the on-site fire department, the ability to achieve and maintain hot standby for this area consists of the following:

- Use of alternative shutdown capability, independent of the fire area, in the form of the Chemical and Volume Control System (CVCS) cross-tie from the unaffected unit for seal injection, boration, and inventory control (modification discussed in Attachment 4).
- Use of off-site power. A fire in this area has the potential to result in a loss of the emergency diesel generators to the 4160V vital buses. However, offsite power to the 4160V vital buses has been evaluated and is not affected by a fire in this area and therefore, will remain available to provide power to safe shutdown components. The use of offsite power, in lieu of on-site emergency diesel generators, is considered an acceptable alternative to the requirements of Section III.L.3 of 10 CFR 50 Appendix R.

Manual operator actions relied upon to achieve hot standby and cold shutdown are limited and are practical, reasonable and achievable under the expected environmental conditions. Summaries of the major manual actions associated with the shutdown are:

- Positive Control of the affected unit's CVCS flowpath.
- Aligning the Service Water system from the unaffected unit.
- Aligning the Control Area HVAC systems.
- Aligning the Residual Heat Removal (RHR) system.
- Aligning the Component Cooling Water (CCW) system.

The actions can be accomplished prior to the plant reaching an unrecoverable condition. Operator action locations and the associated pathways, for actions that

must occur within the first 8 hours, are being provided with 8-hour battery backed emergency lighting. Operator staffing level is sufficient to accomplish the actions required. Plant procedures will address the potential operator actions. Operations staff will be trained, as necessary, on the use of these procedures. A listing of the Hot Standby operator actions, personnel on shift performing the action and the time necessary to perform the action is contained in Attachment 8.

The ability to achieve and maintain cold shutdown for this area includes repairs to restore power to Component Cooling Water system components.

Repairs relied upon to ensure cold shutdown capabilities are practical, reasonable and achievable. Repair procedures govern the performance of the repairs. Materials needed to implement the repairs are dedicated for use and are stored onsite. These repairs can be performed and cold shutdown can be achieved within 72 hours of a fire event.

Evaluation

A deviation from:

1. The requirements of Sections III.G.3 of 10 CFR 50 Appendix R to provide a fixed suppression system in an area provided with alternative shutdown capability, and
2. The requirements of Section III.L.3 of 10 CFR 50 Appendix R that alternative shutdown capability accommodate post fire conditions where offsite power is not available for 72 hours

is based on the following:

- The area has low combustible loading and limited ignition sources.
- The area is provided with a detection system that is adequate for the fire hazards within the area. The detection system would alert operators to summon the on-site plant fire department to rapidly extinguish the fire.
- Alternative shutdown capability, independent of the fire area, is provided to ensure post-fire safe shutdown.
- Offsite power remains available for a fire in this area.

Conclusion

It is, therefore, PSEG's position that a level of protection equivalent to Sections III.G.3 and III.L.3 of Appendix R to 10 CFR 50 is provided. The installation of a fixed suppression system would not significantly enhance the level of fire protection for safe shutdown capability. The use of offsite power, in lieu of on-site emergency diesel generators, is considered an acceptable alternative.

This request demonstrates that an equivalent level of fire protection safety will be provided through alternate means. The alternate means consist of a combination of use of offsite power, a detection system, low combustible loading, and alternative shutdown capability.

Attachment 2
LR-N03-0249

Request to Revise Post-Fire Safe Shutdown Strategy for Fire Area 2-FA-AB-84C 21 CCW Pump and Heat Exchanger Area Elevation 84'

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

Fire Area 2-FA-AB-84C
21 Component Cooling Water Pump and Heat Exchanger Area
Elevation 84'

Request

In accordance with Salem Unit 2 License Condition 2.C.10, PSEG Nuclear LLC (PSEG) requests NRC approval of changes to the post-fire safe shutdown (SSD) strategy for Fire Area 2-FA-AB-84C. The new SSD strategy changes this area from a normal shutdown area (10 CFR 50 Appendix R III.G.2) to an alternate shutdown area (10 CFR 50 Appendix R III.G.3). The requirements of 10 CFR 50, Appendix R, Section III.G.3 are being deviated from in that a fixed suppression system is not installed for an area where alternative shutdown capability is provided. Specifically, Fire Area 2-FA-AB-84C, 21 Component Cooling Water Pump and Heat Exchanger Area – Elevation 84', is not provided with a fixed suppression system.

Discussion

The Component Cooling Water Pump Area (Elevation 84') of the Auxiliary Building, contains the 21 Component Cooling Water (CCW) Pump and Heat Exchanger. See Figure 2.

Fire Protection Features and Systems

The floor, ceiling, and walls in this area are constructed of reinforced concrete, designated as fire barriers and have been evaluated, in accordance with the guidance in Generic Letter 86-10, as adequate for the fire hazard. The following features were identified as adequate for the hazard as discussed in the NRC's July 20, 1989 Safety Evaluation Report:

- Ventilation duct penetrations sealed to the thickness of the barrier with ventilation ducts that do not contain fire dampers, and
- 1-1/2 hour rated fire doors.

The in-situ combustibles in this area consist of lubricating oil in the CCW pump and motor, cable insulation, and FS-195 fire wrap. The area contains limited ignition sources and limited paths for propagation. Attachment 6 provides a listing of the current combustible loading in this area from the Fire Hazards Analysis. Changes to the combustible loading in this area are controlled by the Fire Protection Program.

An area wide detection system is installed in the area (See Figure 4). The detection system has been evaluated as adequate for the hazards. Detectors alarm in the Control Room.

Manual fire alarm stations are provided in the corridor outside the area. The manual fire alarm stations alarm in the Control Room.

Manual fire suppression capability is provided in the form of portable fire extinguishers and manual hose stations located in the corridor outside the area.

Given the in-situ combustibles and the fire protection features provided, it is unlikely that a fire of significant magnitude or duration would develop within the area.

Safe Shutdown Capability

Cabling/equipment associated with the following safe shutdown functions and systems is in the area:

Functions	Potentially Affected Systems
Reactor Coolant Inventory Control and Reactivity Control	Chemical and Volume Control System
Decay Heat Removal	Auxiliary Feedwater System Main Steam System Residual Heat Removal System
Process Monitoring	Main Feedwater System Main Steam System Reactor Coolant System
Mechanical Support	Component Cooling Water System Service Water System
Electrical Support	Electrical Distribution System
HVAC	Auxiliary Building Ventilation System Containment Building Ventilation System Service Water Ventilation System Switchgear & Penetration Area Ventilation System

A listing of safe shutdown components in this area is provided in Attachment 9 with the room locations identified in Figure 3.

In the unlikely event of a fire damaging safe shutdown cables within the area prior to control and extinguishment of the fire by the on-site fire department, the ability to achieve and maintain hot standby for this area consists of the following:

- Use of alternative shutdown capability, independent of the fire area, in the form of the Chemical and Volume Control System (CVCS) cross-tie from the unaffected unit for seal injection, boration, and inventory control (modification discussed in Attachment 4).

Other than the CVCS cross-tie, hot standby will be achieved using normal shutdown systems.

Manual operator actions relied upon to achieve hot standby and cold shutdown are limited and are practical, reasonable and achievable under the expected environmental conditions. Summaries of the major manual actions associated with the shutdown are:

- Positive Control of the affected unit's CVCS flow path.
- Aligning the Component Cooling Water (CCW) system.

The actions can be accomplished prior to the plant reaching an unrecoverable condition. Operator action locations and the associated pathways, for actions that must occur within the first 8 hours, are being provided with 8-hour battery backed emergency lighting. Operator staffing level is sufficient to accomplish the actions required. Plant procedures will address the potential operator actions. Operations staff will be trained, as necessary, on the use of these procedures. A listing of the Hot Standby operator actions, personnel on shift performing the action and the time necessary to perform the action is contained in Attachment 8.

Evaluation

A deviation from:

1. The requirements of Sections III.G.3 of 10 CFR 50 Appendix R to provide a fixed suppression system in an area provided with alternative shutdown capability

is based on the following:

- The area has low combustible loading and limited ignition sources.
- The area is provided with a detection system that is adequate for the fire hazards within the area. The detection system would alert operators to summon the plant fire department to rapidly extinguish the fire.
- Alternative shutdown capability, independent of the fire area, is provided to ensure post-fire safe shutdown.

Conclusion

It is, therefore, PSEG's position that a level of protection equivalent to Section III.G.3 of Appendix R to 10 CFR 50 will be provided following the proposed alternative shutdown modifications. The installation of a fixed suppression system would not significantly enhance the level of fire protection for safe shutdown capability.

This request demonstrates that an equivalent level of fire protection safety will be provided through alternate means. The alternate means consist of a combination of a detection system, low combustible loading, and alternative shutdown capability.

Attachment 3
LR-N03-0249

Request to Revise Post-Fire Safe Shutdown Strategy for Fire Area 2-FA-AB-84B Reactor Plant Auxiliary Building – Elevation 84'

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

Fire Area 2-FA-AB-84B
Reactor Plant Auxiliary Equipment Area – Elevation 84'

Request

In accordance with Salem Unit 2 License Condition 2.C.10, PSEG Nuclear LLC (PSEG) requests NRC approval of changes to the post-fire safe shutdown (SSD) strategy for Fire Area 2-FA-AB-84B. The new SSD strategy changes this area from a normal shutdown area (10 CFR 50 Appendix R III.G.2) to an alternate shutdown area (10 CFR 50 Appendix R III.G.3). The requirements of 10 CFR 50, Appendix R, Section III.L.3 are being deviated from in that alternative shutdown capability must accommodate post fire conditions where offsite power is not available for 72 hours. Specifically, Fire Area 2-FA-AB-84B, Reactor Plant Auxiliary Equipment Area - Elevation 84', relies upon offsite power for alternative shutdown capability. Also, separation of Service Water cables is being relied upon

Discussion

The Reactor Plant Auxiliary Equipment Area (Elevation 84') of the Auxiliary Building, contains pumps, heat exchangers, tanks and control centers for the chemical and volume control, component cooling, safety injection, containment spray, auxiliary feedwater, waste disposal, and spent fuel pool cooling systems. See Figures 3 and 4.

Fire Protection Features and Systems

The floor, ceiling, and walls in this area are constructed of reinforced concrete, designated as fire area boundaries. The fire area consists of many concrete rooms. Each room contains either a single component or groups of similar components. The following features were identified as adequate for the hazard as discussed in the NRC's July 20, 1989 Safety Evaluation Report:

- Ventilation duct penetrations (with 1-1/2 hour dampers), and
- 1-1/2 hour rated fire doors, and
- Steel hatches

Some of the ventilation duct fire dampers are mounted external to the fire barrier with fire wrap protecting the section of duct between the barrier and the dampers. These dampers have been evaluated in accordance with the guidance of Generic Letter 86-10 as being adequate for the fire hazards.

The in-situ combustibles in this area consist of lubricating oil in pumps and motors, flammable liquids stored in cabinets, cable insulation, and FS-195 fire wrap. The area contains limited ignition sources and paths for fire propagation. Attachment 7 contains a summary listing of the combustible loading in this area from the Fire Hazards Analysis. Changes to the combustible loading in this area are controlled by the Fire Protection Program.

Partial area detection is provided in the ceiling in the Safety Injection and Component Cooling Water pump areas, Charging and Containment Spray Areas, Spent Fuel Pool Heat exchanger areas as well as various corridors (See Figure 4). Detectors are located in the vicinity of major hazards. The fire detection system has been evaluated in accordance with Generic Letter 86-10 and is considered adequate for the fire hazards in the area. In addition, the staff concluded in their July 20, 1989 Safety Evaluation that the summary analyses contained in the exemption requests were sufficient to satisfy the Generic Letter 86-10 partial detection evaluation guidelines.

Fire suppression is provided for the Auxiliary Feedwater pumps by automatically actuated redundant pre-action sprinkler systems. Fire suppression is provided for the charging pump area by a wet pipe sprinkler system. (See Figure 4) The fire suppression systems have been evaluated in accordance with Generic Letter 86-10 and are considered adequate for the fire hazards in the area. In addition, the staff concluded in their July 20, 1989 Safety Evaluation that the summary analyses contained in the exemption requests were sufficient to satisfy the Generic Letter 86-10 partial suppression evaluation guidelines.

Manual fire alarm stations are provided in the area. Detectors and manual fire alarm stations alarm in the Control Room.

Manual fire suppression capability is provided in the form of portable fire extinguishers and manual hose stations.

Given the in-situ combustibles and the fire protection features provided, it is unlikely that a fire of significant magnitude or duration would develop within the area.

Safe Shutdown Capability

Cabling associated with the following safe shutdown functions and systems is in the area:

Functions	Potentially Affected Systems
Reactor Coolant Inventory Control and Reactivity Control	Chemical and Volume Control System
Decay Heat Removal	Auxiliary Feedwater System Main Feedwater System Main Steam System Residual Heat Removal System Safety Injection Isolation

Fire Area 2-FA-AB-84B
Reactor Plant Auxiliary Equipment Area – Elevation 84'

Functions	Potentially Affected Systems
Process Monitoring	Reactor Coolant System Main Steam System Auxiliary Feedwater System Main Feedwater System Chemical and Volume Control
Mechanical Support Mechanical Support	Component Cooling Water System Chilled Water System Control Air System Service Water System
Electrical Support	Electrical Distribution System
HVAC	Auxiliary Building Ventilation System Containment Building Ventilation System Control Area Ventilation System Service Water Ventilation System Switchgear and Penetration Area Ventilation System

A listing of safe shutdown components in this area is provided in Attachment 10 with the room locations identified in Figure 3.

In the unlikely event of a fire damaging safe shutdown cables within the area prior to control and extinguishment of the fire by the on-site fire department, alternative shutdown capability, independent of the fire area, will be provided as described below with the exception of the service water system.

The ability to achieve and maintain hot standby for this area consists of the following:

- Use of alternative shutdown capability, independent of the fire area, in the form of the Chemical and Volume Control System (CVCS) cross-tie from the unaffected unit for seal injection, boration, and inventory control (modification discussed in Attachment 4).
- Use of off-site power. A fire in this area has the potential to result in a loss of the emergency diesel generators to the 4160V vital buses. However, offsite power to the 4160V vital buses has been evaluated and is not affected by a fire in this area and therefore, will remain available to provide power to safe shutdown components. The use of offsite power, in lieu of on-site emergency diesel generators, is considered an acceptable alternative to the requirements of Section III.L.3 of 10 CFR 50 Appendix R.
- Use of the Main Feedwater System for decay heat removal
- Use of the Service Water system as described below.

Other than the CVCS cross-ties, hot standby will be achieved using normal shutdown systems.

The Service Water system cabling for all six Service Water pumps is routed through this area (see Figure 5). Service Water is required to bring the plant to hot standby and cold shutdown. To ensure the availability of the Service Water for hot standby, an evaluation has been performed that demonstrates that at least two Service Pumps would remain available due to a distance separation of over 75 horizontal feet with intervening combustible loads. This distance separation ensures that either the A-channel Service Water pumps or the B and C-channel Service Water pumps would remain available as discussed below:

- The B-channel and C-channel Service Water pumps would remain available due to a fire in the vicinity of the A-channel Service Water cables.
- The A-channel Service Water pumps would remain available due to a fire in the vicinity of the B and/or C-channel service water cables.

The basis of the acceptability of the separation evaluation is as follows:

- With the use of offsite power, each 4 KV bus has the capability to power the two Service Water pumps associated that bus.
- Detection is provided in the area of the A, B, and C-channel Service Water cabling.
- Partial suppression is provided over the major hazards.
- Manual fire suppression capabilities exist.
- Based on the combustible loading in the vicinity of the A-channel Service Water cables, sufficient time exists to allow manual fire suppression activities to control and suppress the fire prior to the fire propagating and damaging the redundant B and/or C-channel Service Water pump cables.
- Based on the combustible loading in the vicinity of the B and C-channel Service Water cables, the partial suppression, sufficient time exists to allow manual fire suppression activities to control and suppress the fire prior to the fire propagating and damaging the redundant A-channel Service Water cables.

To support the above separation evaluation, a review of spurious actuations was conducted to assess the affect on the Service Water function. Based on this review a modification has been performed to the Hot Shutdown Panel to relocate the remote/manual selector switches for the A-channel Service Water pumps. These switches have been relocated out of the Hot Shutdown Panel into another fire area to eliminate any spurious actuations from affecting the ability to use the A-channel Service Water pumps.

Manual operator actions, relied upon to ensure hot standby and cold shutdown capability, are limited and are practical, reasonable and achievable under the

expected environmental conditions. Summaries of the major actions associated with the shutdown are:

- Positive Control of the affected Unit's CVCS flow path.
- Aligning the Component Cooling Water (CCW) system.
- Aligning the Control Area HVAC systems.
- Aligning the Residual Heat Removal (RHR) system.

The actions can be accomplished prior to the plant reaching an unrecoverable condition. Operator action locations and the associated pathways are being provided with 8-hour battery backed emergency lighting. Operator staffing level is sufficient to accomplish the actions required. Plant procedures will address the potential operator actions. Operations staff will be trained, as necessary, on the use of these procedures. A listing of the Hot Standby operator actions, personnel on shift performing the action, and the time necessary to perform the action are contained in Attachment 8.

Evaluation

A deviation from:

1. The requirements of Section III.L.3 of 10 CFR 50 Appendix R that alternative shutdown capability accommodate post fire conditions where offsite power is not available for 72 hours

is based on the following.

- Offsite power remains available for a fire in this area.
- The area has low combustible loading and limited ignition sources.
- The area is provided with detection and suppression systems that are adequate for the fire hazards within the area. The staff concluded in their July 20, 1989 Safety Evaluation that the summary analyses contained in the exemption requests were sufficient to satisfy the Generic Letter 86-10 partial suppression evaluation guidelines. The detection system would alert operators to summon the on-site plant fire department to rapidly extinguish the fire.
- Alternative shutdown capability, independent of the fire area, is provided to ensure post-fire safe shutdown.
- Service Water capability is ensured by adequate separation, detection and manual fire suppression activities.

Conclusion

It is, therefore, PSEG's position that a level of protection equivalent to III.L.3 of Appendix R to 10 CFR 50 will be provided following the proposed alternative shutdown modifications.

This request demonstrates that an equivalent level of fire protection safety will be provided through alternate means. The alternate means consist of a combination of an adequate detection system, suppression system, low combustible loading, and alternative shutdown capability.

Attachment 4
LR-N03-0249

Salem Unit 1 and 2 Chemical and Volume Control System (CVCS) Cross-Tie Modification

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

Attachment 4
Salem Unit 1 and 2 Chemical and Volume Control System (CVCS) Cross-Tie Modification

As discussed with the NRC in the public meetings held on April 5, 2001 and September 6, 2001, PSEG Nuclear informed the NRC that an alternative approach is being taken to replacing fire wrap in certain areas of the plant. A determination was made that the overall plant safety could be improved, if charging capability could be provided independent of the fire area in which the fire occurred. To achieve this goal for certain fire areas, ensuring charging capability independent of the fire area was pursued by cross tying the charging systems between Salem Unit 1 and Unit 2 as described below.

The Salem Chemical and Volume Control System (CVCS) design includes three charging pumps. Two centrifugal pumps and one positive displacement (PD) pump. The two (2) Charging/Safety Injection (C/SI) pumps are centrifugal pumps that can be used for normal operation and for Emergency Core Cooling System (ECCS) safety injection function (accident mitigation). The single PD pump is a lower flow, positive displacement pump that is not credited for accident mitigation. Except for the pressure boundary, the PD pump is not safety related. The PD pump was originally credited for normal power operation for Reactor Coolant System (RCS) make-up, RCP seal injection, and boration for Safe Shutdown (SSD). The PD pump is powered from a safety related bus with emergency diesel back-up power. Currently the PD pump in each unit has been isolated from service due to concerns with ECCS leakage outside the containment following a loss of coolant accident.

An inter-unit cross-tie of the CVCS has been installed to permit restoration of the PD pump's design capabilities to provide charging system safe shutdown functions (see Figure 6). Essentially this proposal establishes a "swap" of PD pumps between the Salem units. The pumps remain isolated from the ECCS recirculation flow path of the unit they reside in but are available to provide reactivity control, RCP seal injection, and RCS make-up for normal cool down to the other unit for Safe Shutdown (SSD) evolutions. The change allows the PD pump to serve as one of the charging pumps available to support safe shutdown activities of the opposite unit by providing a source of high pressure borated water that is available following the loss of the fire affected units' charging pumps.

The following are the functional changes being implemented in the modification:

- The 13 PD pump will be a SSD, charging pump for Unit 2. When the 13 PD pump is used, Unit 1 is referred to as the "operating" unit and Unit 2 will be referred to as the "SSD" unit.
- The 23 PD pump will be a SSD, charging pump for Unit 1. When the 23 PD pump is used, Unit 2 is referred to as the "operating" unit and Unit 1 will be referred to as the "SSD" unit.

- The cross-ties cannot be used to restore the PD pump for power operation of either the associated unit or the opposite unit. The PDP boundary valves must remain isolated.
- The sources of water for the PD pump will initially be the operating unit's Refueling Water Storage Tank (RWST) and then after manual alignments are made, the SSD unit's Boric Acid Storage Tanks will be used.
- When relying on the Boric Acid Transfer pump, the PD pump will be operated at the Boric Acid Transfer pump flow. However, the RWST suction will not be shut to ensure PD pump suction is not inadvertently lost if the BAT pump fails.
- When a unit is in modes 1-4, its C/SI pumps are not aligned to the cross-tie. The PD pump boundary valves maintain isolation that prevents the C/SI pumps from being aligned to the cross-tie during modes 1-4.
- When a unit is in mode 5, 6 or defueled, one of its C/SI pumps may be substituted for the PD pump if the PD pump is unavailable. This requires the appropriate suction valve to be open.
- The modification includes a test line to allow the PD pump to be periodically tested with the unit at power.

Figure 6, depicts the CVCS Cross-connect in its normal alignment.

Attachment 5
LR-N03-0249

Fire Area 2-FA-AB-64B
Reactor Plant Auxiliary Building – Elevation 64'

Combustible Loading

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

SALEM GENERATING STATION

FIRE HAZARDS ANALYSIS

COMBUSTIBLE LOADING SUMMARY SHEET

FIRE AREA: 2FA-AB-64B

AUXILIARY BUILDING, ELEVATION 64'-0"

In-Situ Combustible Heat Loads		
Cable Heat Load	224,852,287	Btu
FS-195 Heat Load	18,239,368	Btu
Other In-Situ Combustible Heat Loads	42,893,600	Btu
Subtotal	**285,985,255**	**Btu**

Transient Combustible Heat Load		
Transient Combustible Heat Load	4,480,000	Btu
	4,480,000	**Btu**

FPPCN's Incorporated in this Revision	**1,429,000**	**Btu**
Pending FPPCN's for this Revision	**0**	**Btu**
Additional 10% Buffer	**29,189,426**	**Btu**
Total Combustible Heat Load	**321,083,681**	**Btu**
Floor Area	**13,080**	**Sq. Ft.**
Total Distributed Combustible Loading	**24,548**	**Btu/sq. ft.**
Existing Equivalent Fire Severity	**< 45**	**Minutes**

SALEM GENERATING STATION
FIRE HAZARDS ANALYSIS

In-Situ and Transient Combustibles Summary

FIRE AREA: 2FA-AB-64B

AUXILIARY BUILDING, ELEVATION 64'-0"

In-Situ Combustibles			
Room No.	**Room Designation**	**BTU's**	**Access**
25304	Aisle No. 2	3,601,200	Yes
25305	Storage Area	8,332,600	Yes
25306	Monitor Tank No. 21 & 22	4,353,600	Yes
25307	Waste Evap. Feed Pump No. 2	2,211,625	Yes
25308	No. 21 Waste Hold-up Tank	120,000	No - Rad Pro
25309	No. 22 Waste Hold-up Tank	120,000	No - Rad Pro
25310	No. 2 Waste Monitor Holdup Tank Pump	829,325	Yes
25311	No. 23 Waste Hold-up Tank	120,000	No - Rad Pro
25312	Gas Analyzer Room	654,650	Yes
25313	Aisleway Gas Compressor Rooms	200,000	Yes
25314	No. 21 Gas Compressor	1,049,425	Yes
25315	No. 21 & 22 Concentrates Holding Tank Pumps	170,250	Yes
25316	No. 22 Gas Compressor	460,325	Yes
25317	Water Recirculation Heater Room	13,462,025	Yes
25319	Gas Decay Tank Corridor	800,000	Yes
25320	Spare Gas Decay tank Room	200,000	Yes
25321	No. 21 Gas Decay Tank	0	Yes
25322	No. 22 Gas Decay Tank	0	Yes
25323	No. 23 Gas Decay Tank	0	Yes
25324	No. 24 Gas Decay Tank	0	Yes
25325	Hold-Up Tank Corridor	400,000	Yes
25326	No. 21 Hold-Up Tank	840,000	No - Rad Pro
25327	No. 22 Hold-Up Tank	840,000	No - Rad Pro
25328	No. 23 Hold-Up Tank	840,000	No - Rad Pro
25329	Hold-Up Tank Recirculation Pump Room	2,032,325	Yes
25330	Gas Stripper Feed Pumps Room	1,256,250	Yes
	Insitu-Loading	**42,893,600**	

Transient Combustibles			
	Assumed Transient Load	4,480,000	
	Transient Loading	**4,480,000**	
	TOTAL	47,373,600	

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25304 **BUILDING:** Aux. 2
DESCRIPTION: Aisle No. 2
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
1 - 2FLA 21B - 10' (1)	Electrical Panel	1	--	800,000	800,000
1 - Hoop Ring (40)	Plastic/Paper	40	lbs	20,000	800,000
2 - Ladder - 8' (15)	Fiberglass	30	lbs	12,830	384,900
6 - Light Fixtures (10)	Plastic	60	lbs	20,000	1,200,000
1 -Rad Alarm Cart	Plastic	2	lbs	20,000	40,000
	Cable	5	lbs	12,000	60,000
1 - 2" Dia. Hose - 10' (1)	Plastic Hose	10	lbs	20,030	200,300
2 - Work Boxes (0)	Metal Enclosed	0	lbs	0	0
1 - Phone & 10' Cord (.5)	Plastic	5	lbs	20,000	100,000
1 - Hose Reel Cover	Cloth	1	lbs	16,000	16,000
				Fixed Combustible Loading	3,601,200

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25305 **BUILDING:** Aux. 2
DESCRIPTION: Storage Area
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
3 - Light Fixtures (10)	Plastic	30	lbs	20,000	600,000
Crane Hoist	Grease	1	gal.	150,000	150,000
Welding Machine	Cable	25	lbs	12,000	300,000
Large Filters	Cable	5	lbs	12,000	60,000
	Plastic	5	lbs	20,000	100,000
Portable Meeters	Cable	3	lbs	12,000	36,000
	Plastic	3	lbs	20,000	60,000
Misc. Cable	Cable	100	lbs	12,000	1,200,000
Fork Lift	Plastic	50	lbs	20,000	1,000,000
	Grease	5	gal.	150,000	750,000
2-Comp. Monitor(10)	Plastic	20	lbs	20,000	400,000
2 - Computers (5)	Plastic	10	lbs	20,000	200,000
Computer Cable	Cable	10	lbs	12,000	120,000
15 - Local Rad Carts (2) , (5)	Plastic	30	lbs	20,000	600,000
	Cable	75	lbs	12,000	900,000
2 - Ladders (10)	Fiberglass	20	lbs	12,830	256,600
10 - Portable Fans (5) , (5)	Plastic	50	lbs	20,000	1,000,000
	Cable	50	lbs	12,000	600,000
				Fixed Combustible Loading	8,332,600

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25306 Monitor Tank No. 21 & 22 **BUILDING:** Aux. 2

FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Pump - 21CVCS	Lube Oil	0.188	gal	150,000	28,125
Pump - 22CVCS	Lube Oil	0.188	gal	150,000	28,125
7 - Light Fixtures (10)	Plastic	70	lbs	20,000	1,400,000
2 - Hoop Ring (40)	Plastic/Paper	80	lbs	20,000	1,600,000
1 - 1/2" RP Rope - 26' (1)	RP Rope	60	ft	1,400	84,000
1 - 1" Dia. Hose - 30' (1)	Plastic Hose	30	lbs	20,030	600,900
1 - Ladder - 8' (15)	Fiberglass	15	lbs	12,830	192,450
1 - Plant Page	Plastic	5	lbs	20,000	100,000
1 - Cleaning Bucket	Plastic	10	lbs	20,000	200,000
Misc. Cable	Cable	10	lbs	12,000	120,000
				Fixed Combustible Loading	4,353,600

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25307 **BUILDING:** Aux. 2

DESCRIPTION: Waste Evap. Feed Pump No. 2

FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Locked - Gate
No Entry w/o RP
Approval

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Waste Evaporator Feed Pump	Lube Oil	0.188	gal	150,000	28,125
1 - TV Monitor	Plastic	10	lbs	20,000	200,000
2 - Hoop Ring (40)	Plastic/Paper	80	lbs	20,000	1,600,000
1 - 50' Elec. Cord	Electrical Cord	50	ft	1,270	63,500
1 - Light Fixtures (10)	Plastic	10	lbs	20,000	200,000
Misc. Cable	Cable	10	lbs	12,000	120,000
				Fixed Combustible Loading	2,211,625

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25308**	**BUILDING:**	**Aux. 2**	Danger High Radiation Area No Entry w/o RP Approval
DESCRIPTION:	**No. 21 Waste Hold-up Tank**			
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**	

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Misc. Cable	Cable	10	lbs.	12,000	120,000
Could Not Access. Combustibles assumed from previous revision.					
				Fixed Combustible Loading	120,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25309**	**BUILDING:**	**Aux. 2**	Danger High Radiation Area No Entry w/o RP Approval
DESCRIPTION:	**No. 22 Waste Hold-up Tank**			
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**	

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Misc. Cable	Cable	10	lbs.	12,000	120,000
Could Not Access. Combustibles assumed from previous revision.					
				Fixed Combustible Loading	120,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25310 **BUILDING:** Aux. 2
DESCRIPTION: No. 2 Waste Monitor Holdup Tank Pump
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Pump - 2WLE7	Lube Oil	0.188	gal	150,000	28,125
1 - 2" Dia. Hose - 40' (1)	Plastic Hose	40	lbs	20,030	801,200
--					
				Fixed Combustible Loading	829,325

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25311**	**BUILDING:**	**Aux. 2**	Danger High Radiation Area No Entry w/o RP Approval
DESCRIPTION:	**No. 23 Waste Hold-up Tank**			
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**	

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Misc. Cable	Cable	10	lbs.	12,000	120,000
Could Not Access. Combustibles assumed from previous revision.					
				Fixed Combustible Loading	120,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25312 **BUILDING:** Aux. 2
DESCRIPTION: Gas Analyzer Room
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
1 - 1.5" Dia. Hose - 25' (1)	Rubber	25	lbs	18,186	454,650
1 - Light Fixtures (10)	Plastic	10	lbs	20,000	200,000
–					
				Fixed Combustible Loading	654,650

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25313 **BUILDING:** Aux. 2
DESCRIPTION: Aisleway Gas Compressor Rooms
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
1 - Light Fixtures (10)	Plastic	10	lbs	20,000	200,000
–					
				Fixed Combustible Loading	200,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25314 **BUILDING:** Aux. 2
DESCRIPTION: No. 21 Gas Compressor
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Gas Compressor Pump (2WGE18)	Lube Oil	0.188	gal	150,000	28,125
1 - Ladder - 16' (30)	Fiberglass	30	lbs	12,830	384,900
1 - 1/2" RP Rope - 26' (1)	RP Rope	26	ft	1,400	36,400
3 - Light Fixtures (10)	Plastic	30	lbs	20,000	600,000
				Fixed Combustible Loading	1,049,425

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25315 **BUILDING:** Aux. 2
DESCRIPTION: No. 21 & 22 Concentrates Holding Tank Pumps
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2 Concentrates Holding Tank Transfer Pumps	Lube Oil	0.375	gal	150,000	56,250
1 - 1/2" RP Rope - 10' (1)	RP Rope	10	ft	1,400	14,000
1 - Rad Container	Plastic	2	lbm	20,000	40,000
Misc. Cable	Cable	5	lbm	12,000	60,000
				Fixed Combustible Loading	170,250

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25316**	**BUILDING:**	**Aux. 2**
DESCRIPTION:	**No. 22 Gas Compressor**		
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**

Equipment of Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Gas Compressor Pump (2WGE19)	Lube Oil	0.188	gal	150,000	28,125
2 - Light Fixtures (10)	Plastic	20	lbs	20,000	400,000
1 - 1/2" RP Rope - 23' (1)	RP Rope	23	ft	1,400	32,200
				Fixed Combustible Loading	460,325

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25317**	**BUILDING:**	**Aux. 2**
DESCRIPTION:	**Water Recirculation Heater Room**		
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Pump - 2SJE10	Lube Oil	0.188	gal	150,000	28,125
Pump - 2WRE11	Lube Oil	0.188	gal	150,000	28,125
Pump - 2AFE2	Lube Oil	0.188	gal	150,000	28,125
Panel 104-2 (H=90", W=132", D=48")	Electrical Panel	2	–	800,000	1,600,000
2 - Plastic Stand - Over Drain	Plastic	2	lbs	20,000	40,000
4 - Buffer Cords 25'	Electrical Cord	100	ft	1,270	127,000
1 - Vacuum	Plastic	15	lbs	20,000	300,000
1 - 2" Dia. Hose - 40' (1)	Plastic Hose	40	lbs	20,030	801,200
28 - Buffer Pads (1)	Plastic	28	lbs	20,000	560,000
1 - Plastic Roll 3' Long	Plastic	25	lbs	20,000	500,000
3 - 50' Electrical Cords	Electrical Cord	150	ft	1,270	190,500
1 - Plastic Trash Can	Plastic	15	lbs	20,000	300,000
1 - Packet of RP Wipes	Cloth	2	lbs	16,000	32,000
4 - Wood Mop Handles	Wood	5	lbs	9,000	45,000
Metal Cabinet	Paper	100	lbs	7,800	780,000
1 - Foam Chair Calc!! 19.1	Foam Chair	18.8	lbs	10,000	188,000
1 - Metal Desk w/paper	Paper	20	lbs	7,800	156,000
1 - Telephone	Plastic	5	lbs	20,000	100,000
1 - Eberline HFM[7] Frisker	Plastic	25	lbs	20,000	500,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25317**	**BUILDING:**	**Aux. 2**
DESCRIPTION:	**Water Recirculation Heater Room**		
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**

1 - Ops Spare Part Locker	Metal Enclosed	0	lbs	0	0
1 - 5 Gal. RP Plastic Jug	Plastic	10	lbs	20,000	200,000
1 - 50' Electrical Cord (1)	Electrical Cord	50	ft	1,270	63,500
1 - Plastic Binder w/2" Paper	Plastic	1	lbs	20,000	20,000
	Paper	5	lbs	7,800	39,000
8 - Light Fixtures (10)	Plastic	80	lbs	20,000	1,600,000
1 - 1" Dia. Hose - 15' (1)	Plastic Hose	15	lbs	20,030	300,450
1 - 1" Dia. Hose - 20' (1)	Plastic	20	lbs	20,000	400,000
4 - 5 Gallon Buckets Urethane	Plastic	10	lbs	20,000	200,000
	Urethane	20	gal	100,000	2,000,000
4 - Cabinets	Plastic	25	lbs	20,000	500,000
	Paper	25	lbs	7,800	195,000
1 - 5 Gal. Bucket	Plastic	10	lbs	20,000	200,000
1 - 1" Dia. Hose - 20' (1)	Plastic	20	lbs	20,000	400,000
1 - 1" Dia. Hose - 50' (1)	Plastic	50	lbs	20,000	1,000,000
1 - Plastic Funnel	Plastic	2	lbs	20,000	40,000
					0
				Fixed Combustible Loading	13,462,025

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25319 **BUILDING:** Aux. 2
DESCRIPTION: Gas Decay Tank Corridor
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
4 - Light Fixtures (10)	Plastic	40	lbs	20,000	800,000
--					
				Fixed Combustible Loading	800,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25320 **BUILDING:** Aux. 2
DESCRIPTION: Spare Gas Decay tank Room
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
1 - Light Fixtures (10)	Plastic	10	lbs	20,000	200,000
--					
				Fixed Combustible Loading	200,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25321 **BUILDING:** Aux. 2
DESCRIPTION: No. 21 Gas Decay Tank
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
No Combustibles	No Combustibles	0	Btu/lb	0	0
–					
				Fixed Combustible Loading	0

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25322 **BUILDING:** Aux. 2
DESCRIPTION: No. 22 Gas Decay Tank
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
No Combustibles	No Combustibles	0	Btu/lb	0	0
--					
				Fixed Combustible Loading	0

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25323 **BUILDING:** Aux. 2
DESCRIPTION: No. 23 Gas Decay Tank
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
No Combustibles	No Combustibles	0	Btu/lb	0	0
--					
				Fixed Combustible Loading	0

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25324 **BUILDING:** Aux. 2
DESCRIPTION: No. 24 Gas Decay Tank
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
No Combustibles	No Combustibles	0	Btu/lb	0	0
–					
				Fixed Combustible Loading	0

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25325 **BUILDING:** Aux. 2
DESCRIPTION: Hold-Up Tank Corridor
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2 - Light Fixtures (10)	Plastic	20	lbs	20,000	400,000
--					
				Fixed Combustible Loading	400,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25326**	**BUILDING:**	**Aux. 2**	Cannot Access
DESCRIPTION:	**No. 21 Hold-Up Tank**			> 1000 mr/hr
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**	

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light Fixtures	Plastic	30	lbs	20,000	600,000
Misc. Cable	Cable	20	lbs	12,000	240,000
				Fixed Combustible Loading	840,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25327**	**BUILDING:**	**Aux. 2**	Cannot Access
DESCRIPTION:	**No. 22 Hold-Up Tank**			> 1000 mr/hr
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**	

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light Fixtures	Plastic	30	lbs	20,000	600,000
Misc. Cable	Cable	20	lbs	12,000	240,000
				Fixed Combustible Loading	840,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25328**	**BUILDING:**	**Aux. 2**	Cannot Access
DESCRIPTION:	**No. 23 Hold-Up Tank**			> 1000 mr/hr
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**	

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light Fixtures	Plastic	30	lbs	20,000	600,000
Misc. Cable	Cable	20	lbs	12,000	240,000
				Fixed Combustible Loading	840,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25329 **BUILDING:** Aux. 2
DESCRIPTION: Hold-Up Tank Recirculation Pump Room
FIRE AREA: 2FA-AB-64B **ELEVATION:** 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Holding Tank Recirculation Pump	Lube Oil	0.188	gal	150,000	28,125
2 - Hoop Rings (40)	Plastic/Paper	80	lbs	20,000	1,600,000
2 - Light Fixtures (10)	Plastic	20	lbs	20,000	400,000
1 - 1/2" RP Rope - 3' (1)	RP Rope	3	ft	1,400	4,200
--					
				Fixed Combustible Loading	2,032,325

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM:	**25330**	**BUILDING:**	**Aux. 2**
DESCRIPTION:	**Gas Stripper Feed Pumps Room**		
FIRE AREA:	**2FA-AB-64B**	**ELEVATION:**	**64'-0"**

Equipment of Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Gas Stripper Feed Pump	Lube Oil	0.188	gal	150,000	28,125
Gas Stripper Feed Pump	Lube Oil	0.188	gal	150,000	28,125
1 - Hoop Rings (40)	Plastic/Paper	40	lbs	20,000	800,000
2 - Light Fixtures (10)	Plastic	20	lbs	20,000	400,000
				Fixed Combustible Loading	1,256,250

TRANSIENT COMBUSTIBLE LOADING DATA SHEET

ROOM: **All Rooms**

FIRE AREA: 2FA-AB-64B
AUXILIARY BUILDING, ELEVATION 64'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Assumed Transient Load	N/A	N/A	N/A	#N/A	4,480,000
Custodial Locker Calc!! 29.1	Custodial Locker	1	Locker	750,000	750,000
Rad Pro Locker Calc!! 29.2	Rad Pro Locker	1	Locker	1,000,000	1,000,000
Cloth Calc!! 7.2	Protective Clothing	441	lbs	16,000	7,059,360
			Transient Combustible Loading		13,289,360

Attachment 6
LR-N03-0249

2-FA-AB-84C
21 CCW Pump and Heat Exchanger Area
Elevation 84'

Combustible Loading

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

SALEM GENERATING STATION

FIRE HAZARDS ANALYSIS

COMBUSTIBLE LOADING SUMMARY SHEET

FIRE AREA: 2FA-AB-84C

AUXILIARY BUILDING, ELEV. 84'-0"

In-Situ Combustible Heat Loads		
Cable Heat Load	9,129,482	Btu
FS-195 Heat Load	3,571,904	Btu
Other In-situ Combustible Heat Loads	478,750	Btu
Subtotal	**13,180,136**	**Btu**

Transient Combustible Heat Load		
Transient Combustible Heat Load	4,480,000	Btu
	4,480,000	**Btu**

FPPCN's Incorporated in this Revision	**0**	**Btu**
Pending FPPCN's for this Revision	**0**	**Btu**
Additional 10% Buffer	**448,000**	**Btu**
Total Combustible Heat Load	**18,108,136**	**Btu**
Floor Area	**635**	**Sq. Ft.**
Total Distributed Combustible Loading	**28,517**	**Btu/sq. ft.**
Existing Equivalent Fire Severity	**< 45**	**Minutes**

SALEM GENERATING STATION
FIRE HAZARDS ANALYSIS

In-Situ and Transient Combustibles Summary

FIRE AREA: 2FA-AB-84C

AUXILIARY BUILDING, ELEV. 84'-0"

In-Situ Combustibles			
Room No.	**Room Designation**	**BTU's**	**Access**
25407	No.21 CC Heat Exch. & Pump Room	478,750	Yes
	Insitu-Loading	**478,750**	

Transient Combustibles			
	Assumed Transient Load	4,480,000	
	Transient Loading	**4,480,000**	

TOTAL	4,958,750

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25407
DESCRIPTION: No.21 CC Heat Exch. & Pump Room

FIRE AREA: 2FA-AB-84C
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2CCE2	Lube Oil	0.125	gal	150,000	18,750
ALS Conduit	Plastic	2	lbs	20,000	40,000
Temp. Cables	Cable	10	lbs	12,000	120,000
Misc. Cable	Cable	25	lbs	12,000	300,000
				Fixed Combustible Loading	478,750

Attachment 7
LR-N03-0249

Fire Area 2-FA-AB-84B
Reactor Plant Auxiliary Building – Elevation 84'

Combustible Loading

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

SALEM GENERATING STATION

FIRE HAZARDS ANALYSIS

COMBUSTIBLE LOADING SUMMARY SHEET

FIRE AREA: 2FA-AB-84B

AUXILIARY BUILDING, ELEV. 84'-0"

In-Situ Combustible Heat Loads		
Cable Heat Load	180,668,826	Btu
FS-195 Heat Load	52,885,504	Btu
Other In-situ Combustible Heat Loads	81,563,060	Btu
Subtotal	**315,117,390**	**Btu**

Transient Combustible Heat Load		
Transient Combustible Heat Load	4,480,000	Btu
	4,480,000	**Btu**

FPPCN's Incorporated in this Revision	**3,491,340**	**Btu**
Pending FPPCN's for this Revision	**0**	**Btu**
Additional 10% Buffer	**32,308,873**	**Btu**
Total Combustible Heat Load	**355,397,603**	**Btu**
Floor Area	**10,109**	**Sq. Ft.**
Total Distributed Combustible Loading	**35,157**	**Btu/sq. ft.**
Existing Equivalent Fire Severity	**< 45**	**Minutes**

SALEM GENERATING STATION
FIRE HAZARDS ANALYSIS

In-Situ and Transient Combustibles Summary

FIRE AREA: 2FA-AB-84B

FIRE AREA: 2FA-AB-84B

In-Situ Combustibles

Room No.	Room Designation	BTU's	Access
25404	Aisle No. 2 East Section	14,130,390	Yes
25405	Spent Fuel Pit Heat Exchanger & Pit Pump Room	8,590,730	Yes
25406	No. 21 & 22 Safety Injection Pump Room	2,750,000	Yes
25408	Valve Room	260,000	Yes
25409	No. 22 Comp. Cooling Heat Exchanger & Pumps	377,500	Yes
25410	No. 21 & 22 Auxiliary Feed Water Pumps	11,275,000	Yes
25411	No. 2 Let Down Heat Exchanger	1,195,940	Partial
25412	No. 2 Seal Water Heat Exchanger	715,940	Yes
25413	Electrical Control Center Panel	7,600,000	Yes
25414	No. 2 Concenrates Holding Tank	1,135,940	Yes
25415	Valve Compartment Room	1,057,800	Yes
25417	No. 21 & 22 Ctmnt. Spray Pumps & Spray Add Tank	8,013,810	Yes
25418	Corridor	840,930	Yes
25419	Pipe Alley	0	No - Rad Pro
25420	Storage Area for Charging Pump	1,690,000	Yes
25421	No. 21 Charging & Safety Injection Pump Room	4,943,880	Yes
25422	No. 22 Charging & Safety Injection Pump Room	4,747,940	Yes
25423	No. 23 Charging & Safety Injection Pump Room	7,111,940	Yes
25424	Valve Alley	1,515,940	Yes
25425	Corridor	1,231,880	Yes
25426	Spent Resin Storage Tank Room	220,000	Yes
25427	Spent Resin Transfer Pump Room (Future)	1,820,000	No - Rad Pro
25445	No. 23 Auxiliary Feed Water Pump	337,500	No - Rad Pro
25509	Vent Duct Shaft (No floor)	0	No - Rad Pro
	Insitu-Loading	**81,563,060**	

Transient Combustibles

	Assumed Transient Load	4,480,000	
	Transient Loading	4,480,000	

TOTAL	**86,043,060**

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25404
DESCRIPTION: Aisle No. 2 East Section

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
MCC 2AY2AX (H=90", W=144", D=13")	Electrical Panel	6	--	800,000	4,800,000
2LT-TF-SW22 (H=60", W=30", D=18")	Electrical Panel	1	--	800,000	800,000
2FL22LD (H=45", W=30", D=7")	Electrical Panel	1	--	800,000	800,000
2FLA22B (H=53", W=20", D=6")	Electrical Panel	1	--	800,000	800,000
Inst. Panel 2R36 (H=30", W=24", D=18")	Electrical Panel	1	--	800,000	800,000
Inst. Panel 2R17A (H=30", W=24", D=18")	Electrical Panel	1	--	800,000	800,000
Inst. Panel 2R17B (H=30", W=24", D=18")	Electrical Panel	1	--	800,000	800,000
Inst. Panel 2R31 (H=30", W=24", D=18")	Electrical Panel	1	--	800,000	800,000
Egress Signs (2)	Plastic	4	lbs	20,000	80,000
Light Fixtures (7)	Plastic	70	lbs	20,000	1,400,000
Emergency Lights (3)	Plastic	15	lbs	20,000	300,000
ALS Conduit	Plastic	10	lbs	20,000	200,000
Fire Hose Reels (2)	Rubber	60	lbs	18,186	1,091,160
Fire Extinguishers (3)	Plastic	5	lbs	20,000	100,000
Wall Phone	Plastic	2	lbs	20,000	40,000
8' Ladder	Fiberglass	10	lbs	12,830	128,300
Floor Mat	Rubber	5	lbs	18,186	90,930
Misc. Cable	Cable	20	lbs	12,000	240,000
Welding Recepticles (2)	Cable	5	lbs	12,000	60,000
				Fixed Combustible Loading	14,130,390

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25405 **FIRE AREA: 2FA-AB-84B**

DESCRIPTION: Spent Fuel Pit Heat Exchanger & Pit Pump Room **AUXILIARY BUILDING, ELEV. 84'-0"**

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2SFE5	Lube Oil	0.188	gal	150,000	28,200
2SFE6	Lube Oil	0.188	gal	150,000	28,200
2EX3AX (H=90", W=96", D=13")	Electrical Panel	4.0	--	800,000	3,200,000
2EY3AX (H=90", W=72", D=13")	Electrical Panel	3.0	--	800,000	2,400,000
2E1 C.C. Transformer (H=25", W=24", D=12")	Electrical Panel	1.0	--	800,000	800,000
Hoop Ring (2)	Plastic/Paper	80	lbs	20,000	1,600,000
Light Fixture	Plastic	2.5	lbs	20,000	50,000
Radiological Signs (8)	Plastic	1	lbs	20,000	20,000
10' of 3/4" dia. Hose	Plastic	2	lbs	20,000	40,000
Drip Collector	Plastic	1	lbs	20,000	20,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
10' Ladder	Fiberglass	15	lbs	12,830	192,450
Step-off Pad	Plastic	1	lbs	20,000	20,000
Rad rope	Nylon	2	lbs	15,940	31,880
Misc. Cable	Cable	10	lbs	12,000	120,000
				Fixed Combustible Loading	8,590,730

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25406
DESCRIPTION No. 21 & 22 Safety Injection Pump Room

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2SJE2	Lube Oil	2.5	gal	150,000	375,000
2SJE3	Lube Oil	2.5	gal	150,000	375,000
Hoop Rings (2)	Plastic/Paper	80	lbs	20,000	1,600,000
Radiological Signs	Plastic	2	lbs	20,000	40,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
Misc. Cable	Cable	25	lbs	12,000	300,000
Step-off Pad	Plastic	1	lbs	20,000	20,000
				Fixed Combustible Loading	2,750,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25408
DESCRIPTION: Valve Room

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light fixture	Plastic	10	lbs	20,000	200,000
Misc. Cable	Cable	5	lbs	12,000	60,000
				Fixed Combustible Loading	260,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25409 **FIRE AREA: 2FA-AB-84B**

DESCRIPTION: No. 22 Comp. Cooling Heat Exchanger & Pumps **AUXILIARY BUILDING, ELEV. 84'-0"**

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2CCE3	Lube Oil	0.125	gal	150,000	18,750
2CCE4	Lube Oil	0.125	gal	150,000	18,750
Emergency Light	Plastic	5	lbs	20,000	100,000
ALS Conduit	Plastic	3	lbs	20,000	60,000
Misc. Cable	Cable	15	lbs	12,000	180,000
				Fixed Combustible Loading	377,500

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25410 — **FIRE AREA:** 2FA-AB-84B

DESCRIPTION: No. 21 & 22 Auxiliary Feed Water Pumps — **AUXILIARY BUILDING, ELEV. 84'-0"**

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2AFE4	Lube Oil	0.25	gal	150,000	37,500
2AFE5	Lube Oil	0.25	gal	150,000	37,500
MCC 2CY2AX (H=90", W=192", D=13")	Electrical Panel	8	--	800,000	6,400,000
UHF Manual Transfer (H=36", W=30", D=13")	Electrical Panel	1	--	800,000	800,000
Panel 205-2 (H=84", W=60", D=24")	Electrical Panel	1	--	800,000	800,000
Panel 206-2 (H=84", W=60", D=24")	Electrical Panel	1	--	800,000	800,000
Panel 207-2 (H=84", W=60", D=24")	Electrical Panel	1	--	800,000	800,000
Panel 213-2 (H=84", W=60", D=24")	Electrical Panel	1	--	800,000	800,000
Emergency Lights (3)	Plastic	15	lbs	20,000	300,000
ALS Conduit	Plastic	3	lbs	20,000	60,000
Misc. Cable	Cable	35	lbs	12,000	420,000
Metal tool boxes	Metal Enclosed	2	--	0	0
Strobe Light	Plastic	1	lbs	20,000	20,000
				Fixed Combustible Loading	11,275,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25411
DESCRIPTION: No. 2 Let Down Heat Exchanger

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Panel 210-2 (H=84", W=60", D=24")	Electrical Panel	1	--	800,000	800,000
Light Fixture	Plastic	10	lbs	20,000	200,000
ALS Conduit	Plastic	1	lbs	20,000	20,000
Misc. Cable	Cable	10	lbs	12,000	120,000
Radiological Posting	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	1	lbs	15,940	15,940
Step-off Pad	Plastic	1	lbs	20,000	20,000
				Fixed Combustible Loading	1,195,940

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25412
DESCRIPTION: No. 2 Seal Water Heat Exchanger

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light Fixtures (2)	Plastic	20	lbs	20,000	400,000
ALS Conduit	Plastic	1	lbs	20,000	20,000
Misc. Cable	Cable	20	lbs	12,000	240,000
Radiological Posting	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	1	lbs	15,940	15,940
Step-off Pad	Plastic	1	lbs	20,000	20,000
				Fixed Combustible Loading	715,940

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25413 — **FIRE AREA:** 2FA-AB-84B

DESCRIPTION: Electrical Control Center Panel — **AUXILIARY BUILDING, ELEV. 84'-0"**

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
MCC 2BY2AX (H=90", W=216", D=13")	Electrical Panel	9	–	800,000	7,200,000
Light Fixture	Plastic	10	lbs	20,000	200,000
Emergency Light	Plastic	5	lbs	20,000	100,000
ALS Conduit	Plastic	5	lbs	20,000	100,000
				Fixed Combustible Loading	7,600,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25414
DESCRIPTION: No. 2 Concenrates Holding Tank

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Hoop Ring (1)	Plastic/Paper	40	lbs	20,000	800,000
Step-off Pad	Plastic	1	lbs	20,000	20,000
Rad Postings	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	1	lbs	15,940	15,940
Light Fixture	Plastic	10	lbs	20,000	200,000
10' Hose	Plastic	2	lbs	20,000	40,000
Protective Cover	Plastic	2	lbs	20,000	40,000
				Fixed Combustible Loading	1,135,940

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25415
DESCRIPTION: Valve Compartment Room

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light Fixtures (2)	Plastic	20	lbs	20,000	400,000
ALS Conduit	Plastic	1	lbs	20,000	20,000
Misc. Cable	Cable	10	lbs	12,000	120,000
Radiological Posting	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	1	lbs	15,940	15,940
Crane hoist	Grease	2	lbs	150,000	300,000
Conductor Insulators	Rubber	10	lbs	18,186	181,860
				Fixed Combustible Loading	1,057,800

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25417
DESCRIPTION: No. 21 & 22 Ctmnt. Spray Pumps & Spray Add Tank

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
No. 21 Waste Monitor Tank	Lube Oil	0.188	gal	150,000	28,200
No. 22 Waste Monitor Tank	Lube Oil	0.188	gal	150,000	28,200
2WRE9	Lube Oil	0.188	gal	150,000	28,200
2WRE10	Lube Oil	0.188	gal	150,000	28,200
2SFE1	Lube Oil	0.188	gal	150,000	28,200
2CSE1	Lube Oil	1.5	gal	150,000	225,000
2CSE2	Lube Oil	1.5	gal	150,000	225,000
MCC 2EX2AX (H=84", W=48", D=13")	Electrical Panel	2	--	800,000	1,600,000
MCC 2EY2AX (H=84", W=96", D=13")	Electrical Panel	4	--	800,000	3,200,000
2XFR2E8XY Transf (H=28", W=24", D=12")	Electrical Panel	1	--	800,000	800,000
Panel 211 (H=84", W=60", D=24")	Electrical Panel	1	--	800,000	800,000
ALS Conduit	Plastic	5	lbs	20,000	100,000
Misc. Cable	Cable	25	lbs	12,000	300,000
Radiological Posting	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	2	lbs	15,940	31,880
Rad Alarm Cart	Plastic	5	lbs	20,000	100,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25417
DESCRIPTION: No. 21 & 22 Ctmnt. Spray Pumps & Spray Add Tank

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Eyewash Unit	Plastic	10	lbs	20,000	200,000
Emergency Light	Plastic	5	lbs	20,000	100,000
Phone Unit (2)	Plastic	4	lbs	20,000	80,000
Floor tarp	Rubber	5	lbs	18,186	90,930
Work boxes	Metal Enclosed	2	--	0	0
				Fixed Combustible Loading	8,013,810

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25418
DESCRIPTION: Corridor

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment of Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light Fixture (3)	Plastic	30	lbs	20,000	600,000
Hoop Ring	Plastic/Paper	2.5	lbs	20,000	50,000
Misc. Cable	Cable	5	lbs	12,000	60,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
Conductor Insulators	Rubber	5	lbs	18,186	90,930
				Fixed Combustible Loading	840,930

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25419
DESCRIPTION: Pipe Alley

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
	No combustibles			0	0
				Fixed Combustible Loading	0

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25420 **FIRE AREA:** 2FA-AB-84B
DESCRIPTION: Storage Area for Charging Pump **AUXILIARY BUILDING, ELEV. 84'-0"**

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light Fixture	Plastic	2.5	lbs	20,000	50,000
Hoop rings (2)	Plastic/Paper	80	lbs	20,000	1,600,000
Radiological Posting	Plastic	1	lbs	20,000	20,000
Step-off Pad	Plastic	1	lbs	20,000	20,000
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
					0
				Fixed Combustible Loading	1,690,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25421
DESCRIPTION: No. 21 Charging & Safety Injection Pump Room

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2CVE20	Lube Oil	30	gal	150,000	4,500,000
Light Fixture	Plastic	10.0	lbs	20,000	200,000
Misc. Cable	Cable	10	lbs	12,000	120,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
Radiological postings	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	2	lbs	15,940	31,880
Oil Drip Cloths	Cloth	2	lbs	16,000	32,000
				Fixed Combustible Loading	4,943,880

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25422
DESCRIPTION: No. 22 Charging & Safety Injection Pump Room

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2CVE21	Lube Oil	30	gal	150,000	4,500,000
Strobe Light	Plastic	2.0	lbs	20,000	40,000
Misc. Cable	Cable	10	lbs	12,000	120,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
Rad Rope	Nylon	1	lbs	15,940	15,940
Oil Drip Cloths	Cloth	1	lbs	16,000	16,000
Floor Cloth	Cloth	1	lbs	16,000	16,000
				Fixed Combustible Loading	4,747,940

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25423
DESCRIPTION: No. 23 Charging & Safety Injection Pump Room

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2CVE22	Lube Oil	46	gal	150,000	6,900,000
Misc. Cable	Cable	10	lbs	12,000	120,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
Radiological postings	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	1	lbs	15,940	15,940
Oil Drip Cloths	Cloth	1	lbs	16,000	16,000
				Fixed Combustible Loading	7,111,940

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25424
DESCRIPTION: Valve Alley

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Misc. Cable	Cable	20	lbs	12,000	240,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
Radiological postings	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	1	lbs	15,940	15,940
Light Fixtures (2)	Plastic	20	lbs	20,000	400,000
Panel 216-2 (H=60", W=36", D=16")	Electrical Panel	1.0	--	800,000	800,000
				Fixed Combustible Loading	1,515,940

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25425
DESCRIPTION: Corridor

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
2R18 (H=30", W=24", D=18")	Electrical Panel	1	--	800,000	800,000
Misc. Cable	Cable	20	lbs	12,000	240,000
ALS Conduit	Plastic	2	lbs	20,000	40,000
Radiological postings	Plastic	1	lbs	20,000	20,000
Rad Rope	Nylon	2	lbs	15,940	31,880
Emergency Light	Plastic	5	lbs	20,000	100,000
				Fixed Combustible Loading	1,231,880

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25426
DESCRIPTION: Spent Resin Storage Tank Room

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Light fixture	Plastic	5	lbs.	20,000	100,000
Misc. Cable	Cable	10	lbs.	12,000	120,000
Room not accessed due to ALARA. Combustibles assumed from previous revision.					
				Fixed Combustible Loading	220,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25427
DESCRIPTION: Spent Resin Transfer Pump Room (Future)

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Hoop Rings (2)	Plastic/Paper	80	lbs	20,000	1,600,000
Light Fixture	Plastic	10	lbs	20,000	200,000
Step-off Pad	Plastic	1	lbs	20,000	20,000
				Fixed Combustible Loading	1,820,000

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25445
DESCRIPTION: No. 23 Auxiliary Feed Water Pump

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Aux Feed Pump	Lube Oil	0.250	gal	150,000	37,500
Misc. Cable	Cable	25	lbs.	12,000	300,000
				Fixed Combustible Loading	337,500

FIXED COMBUSTIBLE LOADING DATA SHEET

ROOM: 25509
DESCRIPTION: Vent Duct Shaft (No floor)

FIRE AREA: 2FA-AB-84B
AUXILIARY BUILDING, ELEV. 84'-0"

Equipment or Item Identification	Type of Item or Combustible	Quantity of Combustible	Units of Combustible	Heat of Combustion (BTU/Unit)	Combustible Loading (BTUs)
Inaccessible	No combustibles			0	0
				Fixed Combustible Loading	0

Attachment 8
LR-N03-0249

Manual Actions

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

MANUAL ACTIONS

Attachment 8
(Page 1 of 2)

2FA-AB-84B – AUXILIARY BUILDING EL. 84' [EXCEPT 21 CCHX ROOM]

Description	Available Personnel	Location(s)	Estimated Time
Establish RCS inventory control via CVCS cross-connect	RO	Control Room 12FA-AB-122A	0.1 hrs
Open Control Room area doors for ambient temperature control. [Loss of CAV or CH system components]	PO	Control Room 12FA-AB-122A	< 0.1 hrs
Close Main Steam supply isolation valves to the turbine driven AFW pump [21&23MS45]. [AFW isolation for the loss of flow control; MFW system is utilized]	NEO #1	Inner Piping Penetration area 2FA-PP-100H	0.5 hrs
Open Relay Room doors for ambient temperature control. [Loss of CAV or CH system components]		Auxiliary Building corridor 12FA-AB-100A	0.2 hrs
De-energize motor driven AFW pumps for AFW isolation. [Loss of flow control or loss of pumps; MFW system is utilized]	NEO #2	4kV Switchgear Room 2FA-AB-64A	0.5 hrs
De-energize 21, 22, and 23 CCW pumps to ensure availability of 21 CCW pump for CSD function. [System control function]			
De-energize 21 and 22 Charging pumps for RCS inventory control. [CVCS cross-connect is utilized; System control function]			
De-energize 2B West 230V MCC. [Preparation for operation of 2SJ4 & 2SJ12]	NEO #3	460/230V Switchgear Room 2FA-AB-84A	0.2 hrs
Close BIT flow path valves [2SJ4 or 2SJ12] for RCS inventory control. [Hot short spurious actuation]		Mechanical Penetration area 2FA-MP-78I	0.3 hrs

2FA-AB-84C – AUXILIARY BUILDING EL. 84' [21 CCHX ROOM]

Description	Available Personnel	Location(s)	Estimated Time
Establish RCS inventory control via CVCS cross-connect	RO	Control Room 12FA-AB-122A	0.1 hrs
Trip turbine driven AFW pump [2MS52] for AFW isolation. [Loss of pump control]	NEO #1	Auxiliary Building 2FA-AB-84B	0.5 hrs
De-energize 21, 22, and 23 CCW pumps to ensure availability of 22 or 23 CCW pump for CSD function. [System control function]	NEO #2	4kV Switchgear Room 2FA-AB-64A	0.4 hrs
De-energize 21 and 22 Charging pumps for RCS inventory control . [CVCS cross-connect is utilized; System control function]			

MANUAL ACTIONS

Attachment 8
(Page 2 of 2)

2FA-AB-64B – AUXILIARY BUILDING EL. 64'			
Description	**Available Personnel**	**Location(s)**	**Estimated Time**
Establish RCS inventory control via CVCS cross-connect	RO	Control Room 12FA-AB-122A	0.1 hrs
Open Control Room area doors for ambient temperature control. [Loss of CAV or CH system components]	PO	Control Room 12FA-AB-122A	< 0.1 hrs
De-energize 21, 22, and 23 CCW pumps to ensure availability of 22 or 23 CCW pump for CSD function. [System control function]	NEO #1	4kV Switchgear Room 2FA-AB-64A	0.5 hrs
De-energize 21 and 22 Auxiliary Feedwater pumps for SG inventory control. [23 AFW pump is utilized; System control function]			
De-energize 21 and 22 Charging pumps for RCS inventory control. [CVCS cross-connect is utilized; System control function]			
Open Relay Room doors for ambient temperature control. [Loss of CAV or CH system components]	NEO #2	Auxiliary Building corridor 12FA-AB-100A	0.2 hrs
Establish AFWST local level monitoring [Unit 2 only]	SMT	Outside [AFWST area]	0.5 hrs

Prepaired: _____ Badge #: 90076090 Date: 6/9/03
Paul L. Finch

Verified: _____ Badge #: 07-215 Date: 6/9/03
Kiran Mathur

Attachment 9
LR-N03-0249

2-FA-AB-84C
21 CCW Pump and Heat Exchanger Area
Elevation 84'

Safe Shutdown Components

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

Attachment 9

FIRE AREA 2FA-AB-84C COMPONENT LOCATION CHART

System	Equipment_ID	Equipment_Description	ROOM #
CC	21CC3	PUMP DISCHARGE CROSSTIE VALVE	25407
CC	2CC17	SUCTION VALVE	25407
CC	2CCE2	CCW PUMP 21	25407
SW	21SW122	#21 COMP CLNG HEAT XCHNGR INLET VALVE	25407
SW	21SW127	#21 COMP CLNG HEAT XCHNGR OUTLET THROTTLING VLV	25407
SW	2CCE5	#21 COMPONENT COOLING HEAT EXCHANGER	25407

Attachment 10
LR-N03-0249

Fire Area 2-FA-AB-84B
Reactor Plant Auxiliary Building – Elevation 84'

Safe Shutdown Components

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

Attachment 10

FIRE AREA 2FA-AB-84B COMPONENT LOCATION CHART

System	Equipment ID	Equipment Description	ROOM #
ABV	2ABS1-DMOP	2 AUX BLDG VENT LETDOWN HT EXCHG SUP DMOP	25410
ABV	2ABS2-DMOP	ABV TURBINE DRIVEN AFW PUMP AREA EXHAUST DAMPER	25410
ABV	2ABS3-DMOP	2 AUX BLDG VENT TURB DRIVEN AUX FEED PMP AREA ENCL EXH DMP	25410
ABV	2ABS4-DMOP	ABV TURBINE DRIVEN AFW PUMP SUPPLY DAMPER	25410
ABV	2ABS20-DMOP	2 AUX BLDG VENT TURB DRIVEN AUX FEED PUMP AREA ENCL SUP DMP	25410
ABV	2VHE33	NO.21 COMPONENT COOLING WATER PUMP ROOM COOLER FAN	25410
ABV	2VHE34	NO.22 COMPONENT COOLING WATER PUMP ROOM COOLER FAN	25410
ABV	2VHE36	NO.2 AFW PUMP ROOM COOLER FAN	25410
ABV	2VHE37	21 CHARGING PUMP ROOM COOLER FAN	25421
ABV	2VHE38	22 CHARGING PUMP ROOM COOLER FAN	25422
ABV	2VHE39	23 CHARGING PUMP ROOM COOLER FAN	25423
AFW	21AF11	AFW FLOW CONTROL VALVE	25445
AFW	21AF21	AFW FLOW CONTROL VALVE	25410
AFW	21AF40	RECIRCULATION VALVE	25410
AFW	21AF52	ALTERNATE SUCTION	25410
AFW	22AF11	AFW FLOW CONTROL VALVE	25410
AFW	22AF21	AFW FLOW CONTROL VALVE	25410
AFW	22AF40	RECIRCULATION VALVE	25410
AFW	22AF52	ALTERNATE SUCTION	25410
AFW	23AF11	AFW FLOW CONTROL VALVE	25445
AFW	23AF21	AFW FLOW CONTROL VALVE	25410
AFW	23AF52	ALTERNATE SUCTION	25410
AFW	24AF11	AFW FLOW CONTROL VALVE	25445
AFW	24AF21	AFW FLOW CONTROL VALVE	25410
AFW	2AFE4	MOTOR DRIVEN AFW PUMP 21	25410
AFW	2AFE5	MOTOR DRIVEN AFW PUMP 22	25410
AFW	2AFE6	STEAM DRIVEN AFW PUMP 23	25445
CC	22CC3	PUMP DISCHARGE CROSS TIE VALVE	25409
CC	2CC18	SUCTION VALVE	25409
CC	2CC30	SYSTEM CROSS TIE VALVE	25405
CC	2CC31	SYSTEM CROSS TIE VALVE	25405
CC	2CC71	LETDOWN HEAT EXCHANGER DISCHARGE VALVE	25411
CC	2CCE3	CCW PUMP 23	25409
CC	2CCE4	CCW PUMP 22	25409
CVCS	2CV139	MINI-RETURN FLOW VALVE	25412
CVCS	2CV140	MINI-RETURN FLOW VALVE	25412
CVCS	2CV18	LOW PRESSURE LETDOWN CONTROL VALVE	25411

Attachment 10

FIRE AREA 2FA-AB-84B COMPONENT LOCATION CHART

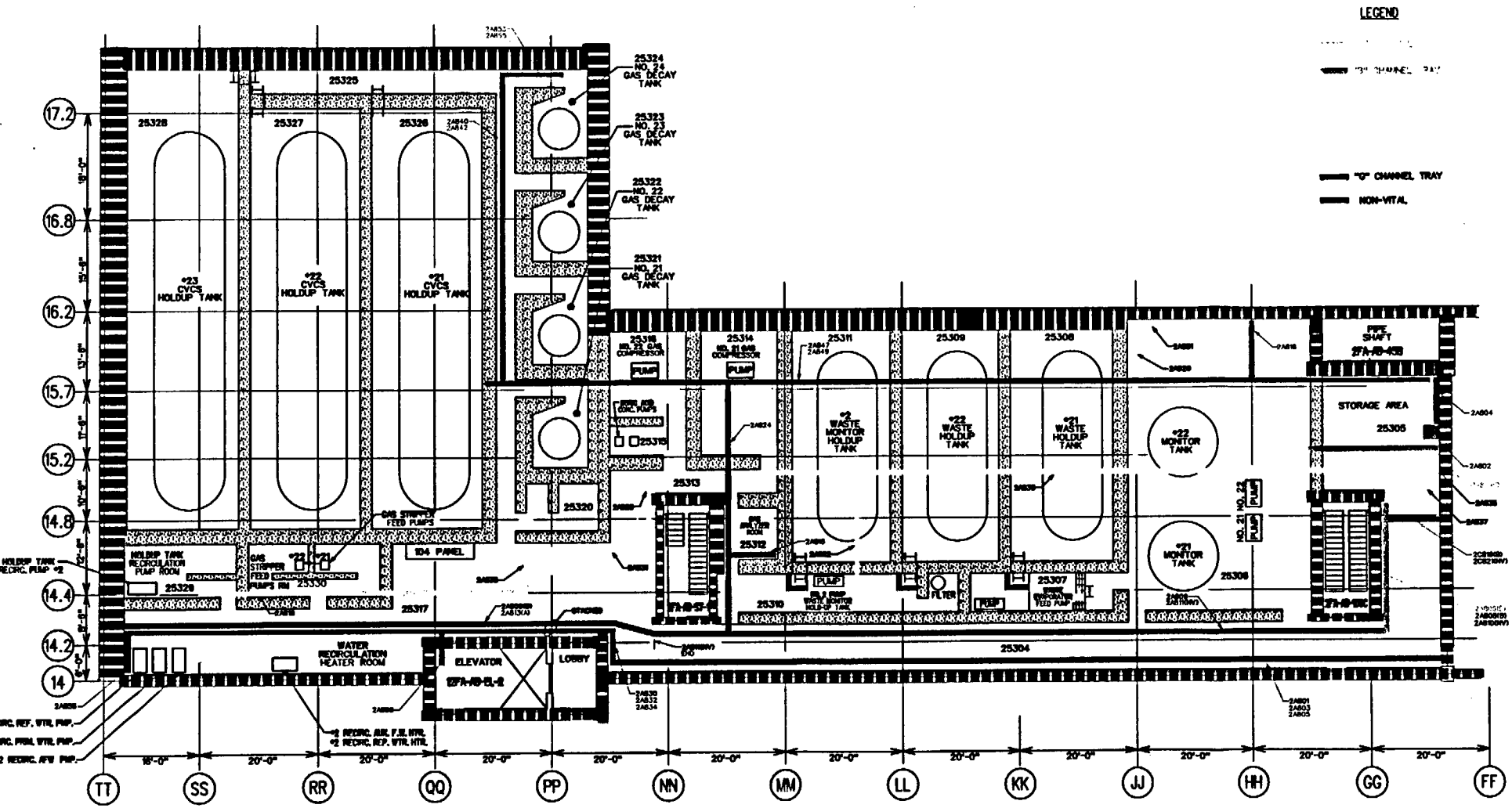
System	Equipment ID	Equipment Description	ROOM #
CVCS	2CV55	CHARGING PUMP FLOW CONTROL VALVE	25424
CVCS	2CVE20	CHARGING PUMP 21	25421
CVCS	2CVE21	CHARGING PUMP 22	25422
CVCS	2CVE22	CHARGING PUMP 23	25423
CVCS	2SJ1	CHARGING PUMP SUCTION FROM RWST BLOCK VALVE	25425
CVCS	2SJ2	CHARGING PUMP SUCTION FROM RWST BLOCK VALVE	25425
EP	I-2109	2B WEST VALVES & MISC. 230V VITAL CONTROL CENTER	25413
EP	I-2110	2C WEST VALVES & MISC. 230V VITAL CONTROL CENTER	25410
EP	I-2136	2A WEST VALVES & MISC. 230V VITAL CONTROL CENTER	25404
MS	2MS132	TURBINE STOP VALVE	25445
MS	2MS52	TURBINE TRIP VALVE	25445
MS	2MS53	GOVERNOR VALVE	25445
SW	21SW129	#21 COMP COOLING PUMP ROOM COOLER INLET VALVE	25410
SW	22SW122	#22 COMP COOLING HEAT EXCHANGER INLET VALVE	25409
SW	22SW127	#22 COMP COOLING HEAT EXCHANGER OUTLET VALVE	25409
SW	22SW129	#22 COMP COOLING PUMP ROOM COOLER INLET VALVE	25410
SW	2CCE6	#22 COMPONENT COOLING HEAT EXCHANGER	25409
SW	2CVE37	#21 CHARGING PUMP LUBE OIL COOLER	25421
SW	2CVE39	#22 CHARGING PUMP GEAR OIL COOLER	25422
SW	2CVE40	#22 CHARGING PUMP LUBE OIL COOLER	25422
SW	2CVE41	#21 CHARGING PUMP GEAR OIL COOLER	25421
SW	2SW137	#2 AUX FEED PUMP ROOM COOLER INLET VALVE	25410
SW	2SW185	#21 CHRGING PMP LUBE & GEAR OIL CLR INLET VALVE	25424
SW	2SW191	#21 CHARGING PUMP INLET VALVE	25424
SW	2SW199	#22 CHARGING PMP GEAR AND LUBE OIL CLR INLET VLV	25424
SW	2SW205	#22 CHARGIN PMP ROOM CLR INLET VALVE	25426
SW	2SW213	#23 CHRGING PMP ROOM CLR INLET VALVE	25424
SW	2SWE14	#22 CHARGING PUMP ROOM COOLER	25422
SW	2SWE16	#21 COMPONENT COOLING PUMP ROOM COOLER	25410
SW	2SWE17	#2 AUX FEEDWATER PUMP ROOM COOLER	25410
SW	2SWE18	#22 COMPONENT COOLING PUMP ROOM COOLER	25410
SW	2SWE20	#21 CHARGING PUMP ROOM COOLER	25421
SW	2SWE23	#23 CHARGING PUMP ROOM COOLER	25423

Figure 1

LR-N03-0249

Fire Area 2-FA-AB-64B
Reactor Plant Auxiliary Building
Elevation 64'

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311



SALEM NUCLEAR GENERATING STATION
UNIT 2 EL.64 PLAN VIEW

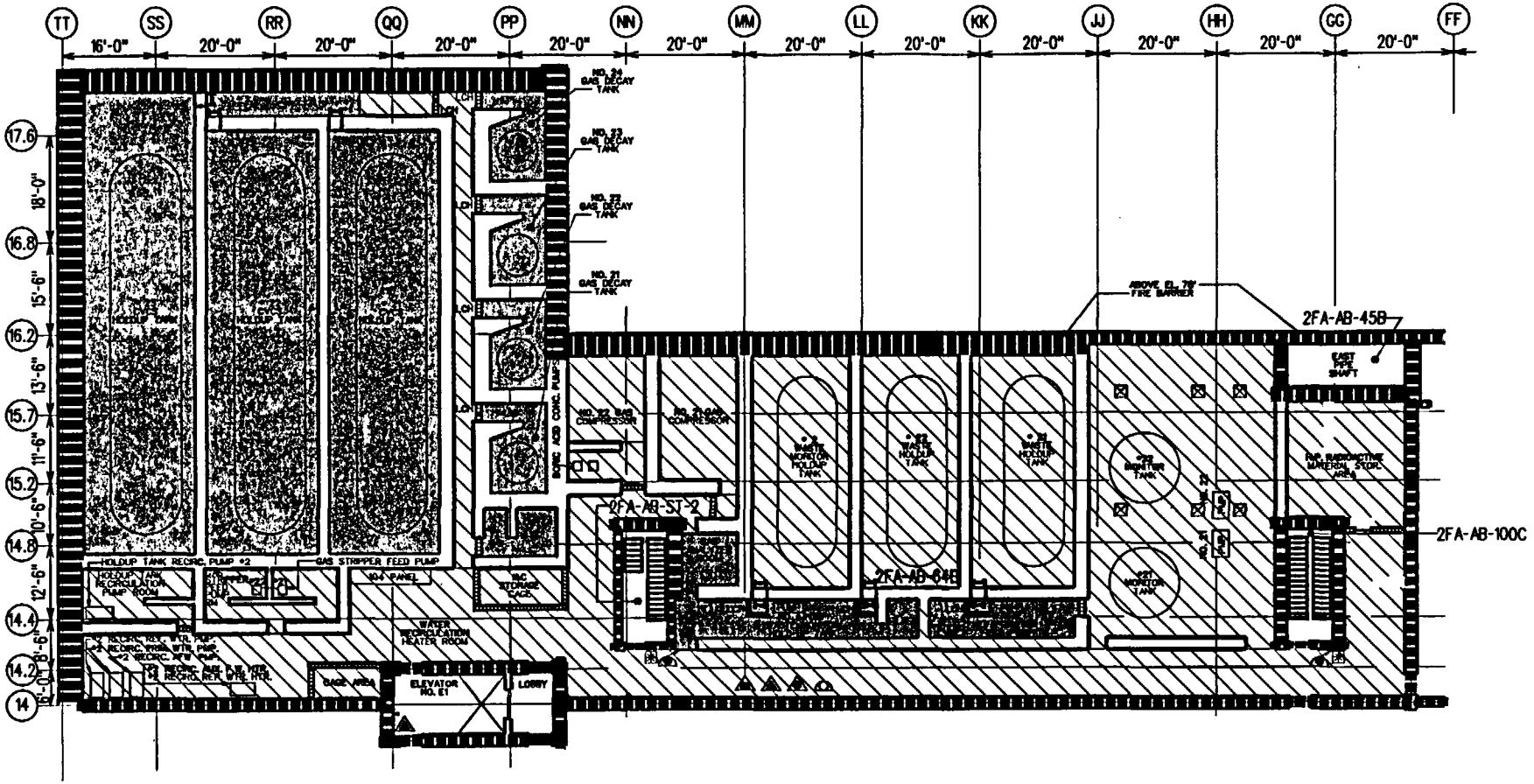
EXEMPTION REQUEST INFORMATION
FIRE AREA 2FA-AB-64B

Figure 2

LR-N03-0249

Fire Area 2-FA-AB-64B
Reactor Plant Auxiliary Building
Elevation 64'

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311



LEGEND:

- MANUAL ALARM STATIONS
- HATCH FLOOR LEVEL
- HATCH CEILING LEVEL
- LADDER
- HOSE STATION CHARGED STANDPIPE
- VANE GATE
- LOCKED DOOR (S= SECURITY, H= HEALTH PHYSICS)
- PORTABLE DRY CHEM. EXTINGUISHER
- PORTABLE WATER EXTINGUISHER
- PORTABLE CO_2 EXTINGUISHER
- SPARE HOSE REEL
- FIRE AREA BOUNDARY

- NO DETECTION
- COVERAGE (DETECTION)

NOTE: THERE IS NO SUPPRESSION

FIGURE 2
FIRE AREA 2FA-AB-64B

Figure 3

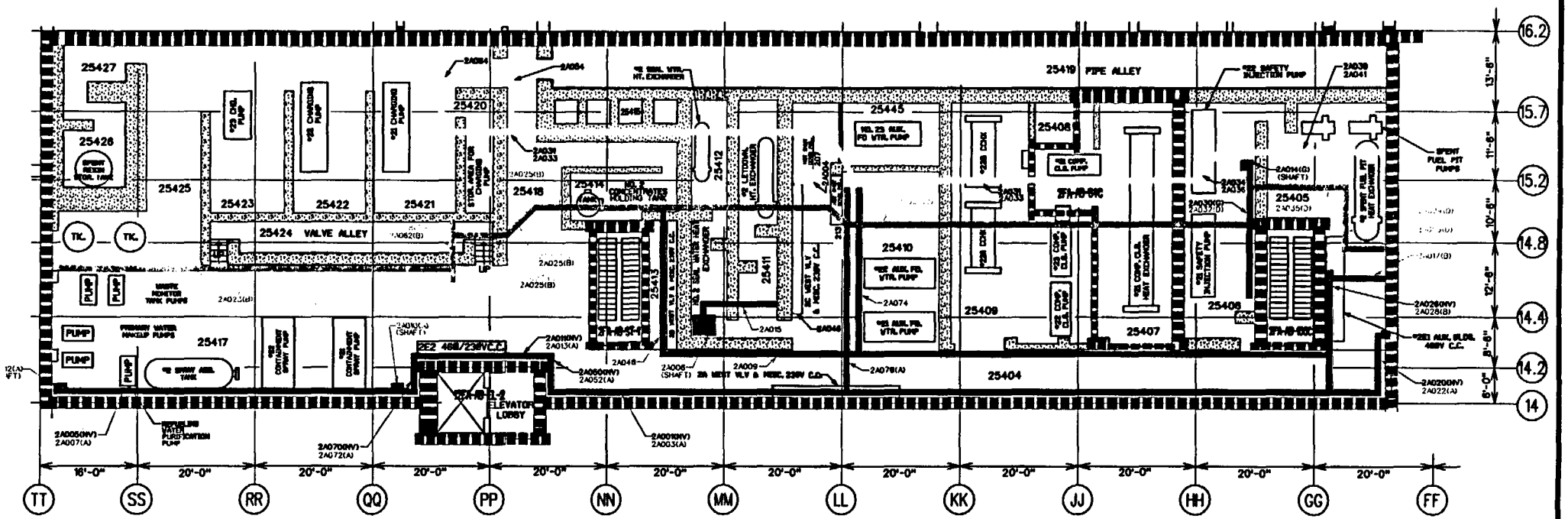
LR-N03-0249

Fire Area 2-FA-AB-84C
21 CCW Pump and Heat Exchanger Area
Elevation 84'

and

Fire Area 2-FA-AB-84B
Reactor Plant Auxiliary Building
Elevation 84'

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311



SALEM NUCLEAR GENERATING STATION

UNIT 2 EL.84 PLAN VIEW

NOTE:

1. TRAY CALLOUT REFLECTS ELEVATION POSITION.
   EXAMPLE: 1A005 (TOP TRAY)
   1A007 (BOTTOM TRAY)

LEGEND

- "A" CHANNEL TRAY
- "B" CHANNEL TRAY
- "D" CHANNEL TRAY
- "C" CHANNEL TRAY
- NON-VITAL

EXEMPTION REQUEST INFORMATION

FIRE AREA 2FA-AB-84B AND 2FA-AB-84C

Figure 4

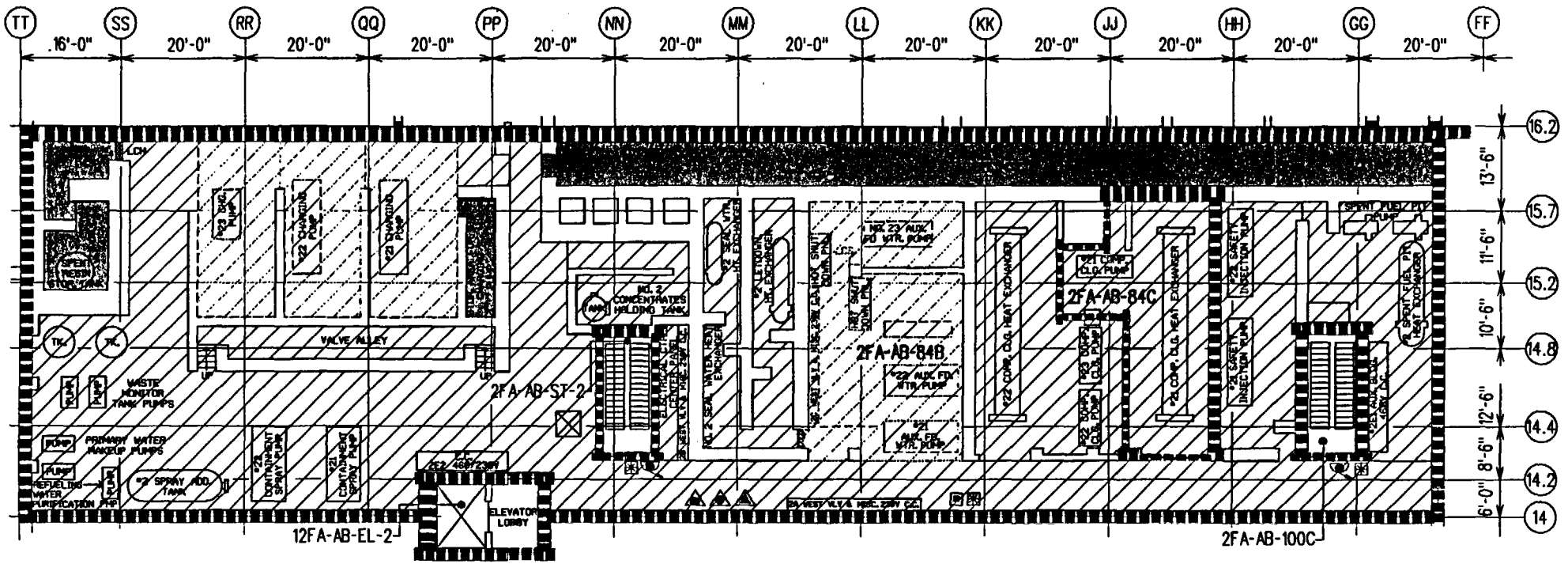
LR-N03-0249

Fire Area 2-FA-AB-84C
21 CCW Pump and Heat Exchanger Area
Elevation 84'

and

Fire Area 2-FA-AB-84B
Reactor Plant Auxiliary Building
Elevation 84'

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311



LEGEND:

- MANUAL ALARM STATIONS
- HATCH FLOOR LEVEL
- HATCH CEILING LEVEL
- LADDER
- HOSE STATION CHARGED STANDPIPE
- WIRE GATE
- AFW ACTUATION STATION
- LOCKED DOOR (S= SECURITY, H= HEALTH PHYSICS)
- PORTABLE DRY CHEM. EXTINGUISHER
- PORTABLE WATER EXTINGUISHER
- PORTABLE CO_2 EXTINGUISHER
- SPARE HOSE REEL
- FIRE AREA BOUNDARY

- NO DETECTION
- SPRINKLER COVERAGE
- COVERAGE (DETECTION)

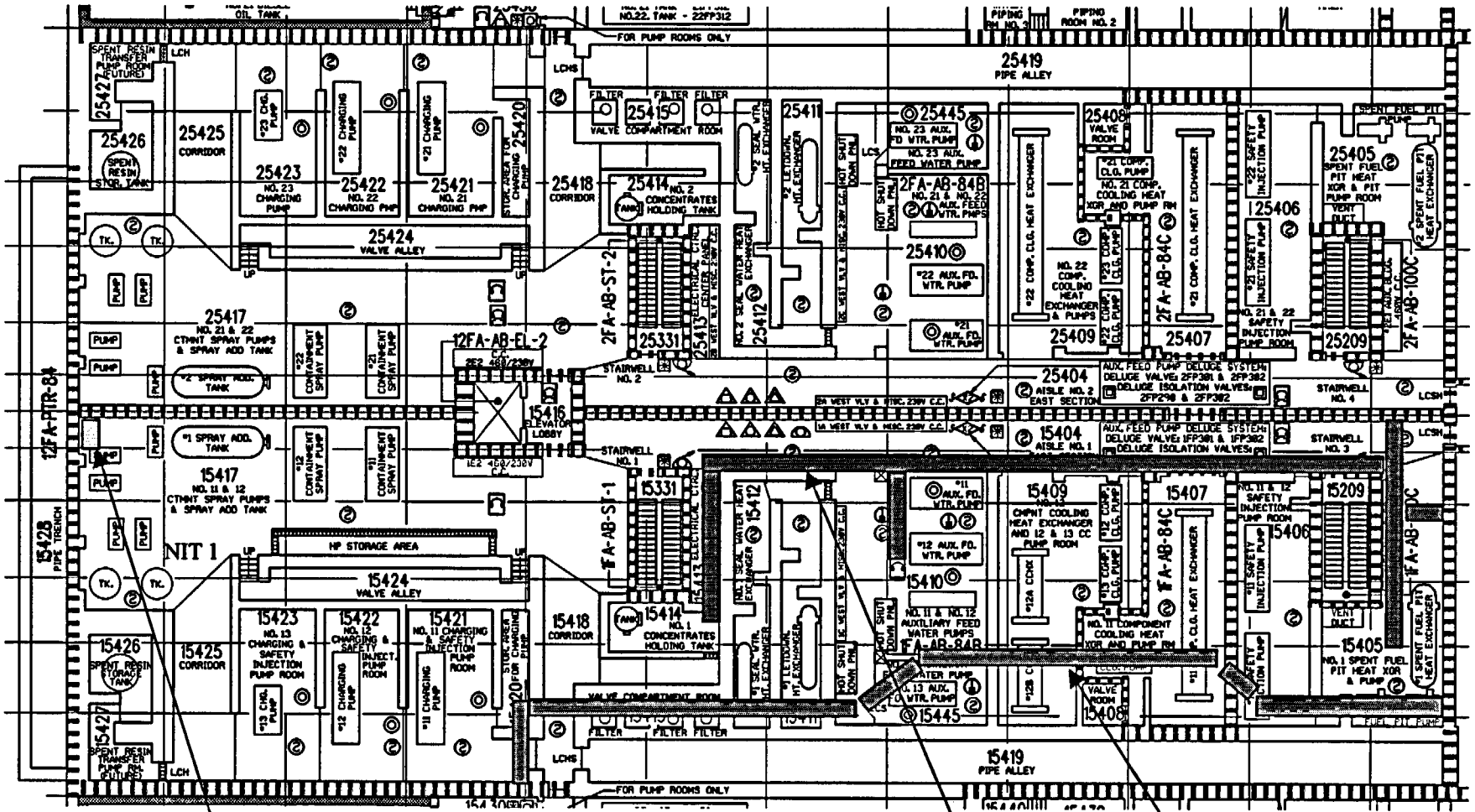
FIGURE 4
FIRE AREA 2FA-AB-84B AND 2FA-AB-84C

Figure 5

LR-N03-0249

Reactor Plant Auxiliary Building
Elevation 84'
Service Water Cable Separation

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311



1C

Figure 5. Locations of Service Water Cables (shown for Unit 1 only Unit 2 Similar).

Figure 6

LR-N03-0249

Chemical and Volume Control
Cross Tie

PSEG Nuclear LLC
Salem Generating Station Unit 2
Docket No. 50-311

FIGURE 6 CVCS CROSS TIE

This figure shows valves in normal configuration (both units in normal operation).
New lines are BOLD