Public Service
Electric and Gas
Company

Stanley LaBruna

Vice President - Nuclear Operations

Public Service Electric and Gas Company P.O. Box 236, Hancocks Bridge, NJ 08038 609-339-4800

August 2, 1991
NLR-N90202

Ref: LCR 90-15

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

Gentlemen:

REQUEST FOR AMENDMENT
SALEM GENERATING STATION
UNIT NOS. 1 AND 2
FACILITY OPERATING LICENSE NOS. DPR-70 AND DPR-75
DOCKET NOS. 50-272 AND 50-311

In accordance with the requirements of 10CFR50.90, Public Service Electric and Gas Company (PSE&G) hereby transmits a request for amendment of Facility Operating Licenses DPR-70 and DPR-75 for Salem Generating Station (SGS), Unit Nos. 1 and 2.

The proposed change would delete Fire Protection Program (FPP) elements from the SGS Technical Specifications (TS) in accordance with the provisions and guidance of Generic Letter 86-10, "Implementation of Fire Protection Requirements." A description of the requested amendment, supporting information and analyses for the change, and the basis for a no significant hazards consideration determination are provided in Attachment 1. The TS pages affected by the proposed change are marked-up in Attachment 2.

Additionally, this submittal contains, in Attachments 3 and 4, changes which require NRC approval for inclusion in our approved FPP. NRC approval of these modifications is required, in accordance with the guidance of Generic Letter 86-10, prior to the issuance of this requested amendment. These changes address the SGS Fire Protection Program status as of April, 1991 and impose requirements for fire protection systems at SGS, Units 1 and 2, consistent with those in place at PSE&G's Hope Creek Generating Station (HCGS). In addition, the requirements have been updated to incorporate the actual field conditions at the station. Any subsequent changes to the FPP would be performed under the provisions of 10CFR50.59 and the License Condition proposed in this request for amendment.

Add

	LTR	ENCL
NSIC	1	1
NRR/DST/SPLB	1	1
NRR/DST 8E2	1	1
NRR/DET/ECMB 9H	2	2
NRR/WERMEIL, J.	1	0

A009
1/1

090054

Upon NRC approval of the requested changes herein, the FPP requirements currently defined in the TS, in conjunction with the additional proposed changes to those TS and to the SGS Updated Facility Safety Analysis Report (UFSAR) in Attachments 3 and 4, would be embodied within a periodic testing and surveillance program described in the SGS UFSAR and would entail shifting of the testing requirements from TS surveillance procedures to periodic test procedures. The proposed License Condition and additional Special Report requirements in TS Section 6.9.3 would provide adequate administrative control of FPP elements to ensure that station capabilities to achieve and maintain safe shutdown in the event of a fire remain at an equivalent level of fire protection as currently provided with the FPP in the TS.

Pursuant to the requirements of 10CFR50.91(b)(1), PSE&G has provided a copy of this amendment request to the State of New Jersey.

Upon NRC approval of this proposed change, PSE&G requests that the amendment be made effective on the date of issuance, but implementable within sixty days to provide sufficient time for associated administrative activities.

Should you have any questions regarding this transmittal, please do not hesitate to contact us.

Sincerely,

A. Louis Storz

Attachments

C Mr. T. Martin, Administrator
Region I

Mr. J. C. Stone
Licensing Project Manager

Mr. T. Johnson
Senior Resident Inspector

Mr. Kent Tosch, Chief
New Jersey Department of Environmental Protection
Bureau of Nuclear Engineering

REF: NLR-N91202

STATE OF NEW JERSEY)
) SS.
COUNTY OF SALEM)

Stanley LaBruna, being duly sworn according to law deposes and says:

I am Vice President - Nuclear Operations of Public Service Electric and Gas Company, and as such, I find the matters set forth in our letter dated AUG 2 1991 , concerning the Salem Generating Station, are true to the best of my knowledge, information and belief.

S. LaBruna

Subscribed and Sworn to before me
this 2 day of August, 1991

Elizabeth J. Kidd
Notary Public of New Jersey

My Commission expires on 4/25/95

ELIZABETH J. KIDD
Notary Public of New Jersey
My Commission Expires April 25, 1995

50-272 SALEM 1 PSE&GCO

PROPOSED CHANGE TO TECH SPECS RE FIRE PROTECTION REQUIREMENTS

REC'D W/LTR DTD 08/02/91....9108120209

ATTACHMENT 1

PROPOSED CHANGES TO FACILITY OPERATING LICENSE DPR-70 AND DPR-75
SALEM GENERATING STATION, UNIT NOS. 1 AND 2

PROPOSED CHANGES
FACILITY OPERATING LICENSE NOS. DPR-70 AND DPR-75
SALEM GENERATING STATION UNIT NOS. 1 AND 2
DOCKET NOS. 50-272 AND 50-311

DESCRIPTION OF THE CHANGES

Pursuant to the guidance of Generic Letters 86-10 and 88-12, add the following as replacements for the entire current License Condition 2.C.(5) to the Salem Unit No.1 Facility Operating License and License Condition 2.C.(10) of the Salem Unit No.2 Facility Operating License:

"PSE&G shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility through Amendment 12 and as described in its submital dated August 2, 1991 and as approved in the SER dated (..... to be inserted by NRC.....), subject to the following provision:

PSE&G 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."

From both Salem Units' Technical Specifications (TS), remove in their entirety, Sections 3/4.3.3.6 (Fire Detection Instrumentation), Table 3.3-10 (Fire Detection Instruments), 3/4.7.10 (Fire Suppression Systems), 3/4.7.11 (Penetration Fire Barriers), Specification 6.2.2.e and reference to Fire Brigade in associated footnote "#" (Facility Staff), Specification 6.4.2 (Training), Bases Sections B3/4.3.3.6, B3/4.7.10, and B3/47.11, and Index page references to the foregoing sections.

Additionally, insert the following Special Report requirement as a new TS Section 6.9.3:

"6.9.3 Violations of the requirements of the fire protection program described in the Updated Final Safety Analysis Report which would have adversely affected the ability to achieve and maintain safe shutdown in the event of a fire shall be submitted to the U. S. Nuclear Regulatory Commission, Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator of the Regional Office of the NRC via the License Event Report System within 30 days."

REASON FOR THE PROPOSED CHANGE

Generic Letters 86-10 and 88-12 provide guidance to utilities seeking license amendments that recognize approved Fire Protection Programs and that remove Surveillance/Limiting Conditions for Operation from the TS. The purpose of this amendment request is to remove the Fire Protection Program, which satisfies the criteria of the Generic Letters, from the Salem TS (after NRC review and approval of the comprehensive and up-to-date Fire Protection Program that is provided in Attachments 3 and 4). PSE&G is making this change request to improve the overall Fire Protection Program at Artificial Island.

JUSTIFICATION FOR THE PROPOSED CHANGES

The enhancements made to TS through this Attachment reflect actual plant conditions. The incorporation of Standard Technical Specification (STS) requirements and approved Hope Creek variations allow a consistent fire protection program to be applied at Artificial Island. By removing inconsistent requirements, the probability of errors in surveillance requirements is reduced. The NRC review and approval of the proposed changes will then satisfy the criteria of Generic Letters 86-10 and 88-12 and permit the removal of the Salem Fire Protection Program (as approved by NRC) from the TS following the guidelines provided by the Generic Letters. The removal of the Fire Protection Program from the TS has been reviewed by the NRC staff as part of the issuance of the Generic Letters and been found acceptable provided that the criteria established in the Generic Letters are met.

SIGNIFICANT HAZARDS ANALYSIS CONSIDERATION

The proposed changes to the technical specifications do not involve a significant increase in the probability or consequences of any accident previously evaluated.

Upon NRC approval of the requested changes herein, the FPP requirements currently defined in the TS, in conjunction with these additional proposed changes to those TS and to the SGS Updated Facility Safety Analysis Report (UFSAR) in Attachment 4, would be embodied within a periodic testing and surveillance program described in the SGS UFSAR that would entail shifting of the testing requirements from TS surveillance procedures to periodic test procedures. The Attachment 1-proposed License Condition and additional Special Report requirements in TS Section 6.9.3 would provide adequate administrative control of FPP elements to ensure that station capabilities to achieve and maintain safe shutdown in the event of a fire remain at an equivalent level of fire protection as currently provided with the FPP in the TS.

Since station fire protection capabilities will remain at an equivalent level with the FPP removed from the TS, it can be concluded that the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to the technical specifications do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes represent enhancements to existing TS. The majority of significant changes are to Unit 1 TS to provide consistency with Unit 2. The changes to both units' TS are in accordance with approved generic Westinghouse STS and variations approved for Hope Creek Generating Station. No physical plant modifications or operating configurations result from these changes. The proposed changes do not affect the design or operation of any system or component important to safety. Upon NRC approval of the Fire Protection Program, as modified herein, the removal of the elements of that program from TS and incorporation in the UFSAR in accordance with the provisions and guidelines of Generic Letters 86-10 and 88-12 will not create any new or different accident from any previously evaluated.

The proposed changes to the technical specifications do not involve a significant reduction in a margin of safety.

The proposed changes affect the control of periodic testing and surveillances for fire protection systems and components. The changes do not affect any analysis of design bases accidents or Appendix R Hazards Consideration. The proposed changes provide a consistent approach to assuring operability and availability of existing fire protection systems for safety-related areas at Salem Generating Station.

The proposed License Condition and requirements placed in TS Section 6.9.3 will ensure that the station fire protection capabilities, following removal of the FPP from the TS, remain at an level equivalent to that level currently in place with the FPP in the TS.
Therefore, removal of the fire protection program elements from the TS will not involve a significant reduction in a margin of safety.

CONCLUSION

Based on the information provided above, PSE&G has concluded that the proposed changes satisfy the criteria for a no significant hazards consideration.

Ref: LCR 90-15

ATTACHMENT 2

INSERTS AND MARKED-UP TS PAGES

Reference: LCR 90-15

INSERTS FOR LICENSE CONDITIONS AND
TECHNICAL SPECIFICATION - 6.9.3

INSERT 1 - LICENSE CONDITION 2.C.(5) FOR UNIT 1 AND 2.C.(10) FOR UNIT 2

"PSE&G shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility through Amendment 12 and as described in its submital dated August 2, 1991 and as approved in the SER dated (..... to be inserted by NRC.....), subject to the following provision:

PSE&G may make changes to the approved fire protection program with out 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."

INSERT 2 - TS 6.9.3

"6.9.3 Violations of the requirements of the fire protection program described in the Updated Final Safety Analysis Report which would have adversely affected the ability to achieve and maintain safe shutdown in the event of a fire shall be submitted to the U. S. Nuclear Regulatory Commission, Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator of the Regional Office of the NRC via the License Event Report System within 30 days."

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

BASES

SECTION PAGE

3/4.3.3.6 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

3/4.3.3.7 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the Recommendations of Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident," December 1975.

3/4.3.3.8 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50. The purpose of tank level indicating devices is to assure the detection and control of leaks that if not controlled could potentially result in the transport of radioactive materials to UNRESTRICTED AREAS.

3/4.3.3.9 RADIOACTIVE GASEOUS EFFLUENT MONITORING INSTRUMENTATION

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents. The alarm/trip setpoints for these instruments shall be calculated and adjusted in accordance with the procedures in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. This instrumentation also includes provisions for monitoring (and controlling) the concentrations of potentially explosive gas mixtures in the waste gas holdup system. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63, and 64 of Appendix A to 10 CFR Part 50.

SNUBBERS (Continued)

To provide assurance of snubber functional reliability, a representative sample of the installed snubbers will be functionally tested during plant shutdowns at 18-month intervals. Observed failures of these sample snubbers shall require functional testing of additional units.

Permanent or other exemptions from the surveillance program for individual snubbers may be granted by the Commission if a justifiable basis for exemption is presented and, if applicable, snubber life destructive testing was performed to qualify the snubbers for the applicable design conditions at either the completion of their fabrication or at a subsequent date. Snubbers so exempted shall be listed in the list of individual snubbers indicating the extent of the exemptions.

Hydraulic snubbers and mechanical snubbers may each be treated as a different entity for the above surveillance program.

The service life of a snubber is evaluated via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubber, seal replaced, spring replaced, in high radiation area, in high temperature area, etc...). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.

3/4.7.10 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, CO_2, and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety-related equipment and is a major element in the facility fire protection program.

In the event that portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service.

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant. The requirement for a 24 hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

3/4.7.11 PENETRATION FIRE BARRIERS

The functional integrity of the penetration fire barriers ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. The penetration fire barriers are a passive element in the facility fire protection program and are subject to periodic inspections.

During periods of time when the barriers are not functional, a continuous fire watch is required to be maintained in the vicinity of the affected barrier until the barrier is restored to functional status.

6.1 RESPONSIBILITY

6.1.1 The General Manager - Salem Operations shall be responsible for overall facility operation and shall delegate in writing the succession to this responsibility during his absence.

6.1.2 The Senior Nuclear Shift Supervisor or, during his absence from the Control Room, a designated individual shall be responsible for the Control Room command function. A management directive to this effect, signed by the Vice President - Nuclear, shall be reissued to all station personnel on an annual basis.

6.2 ORGANIZATION

OFFSITE

6.2.1 The offsite organization for facility management and technical support shall be as shown on Figure 6.2-1.

FACILITY STAFF

6.2.2 The Facility organization shall be as shown on Figure 6.2-2 and:

a. Each on duty shift shall be composed of at least the minimum shift crew composition shown in Table 6.2-1.

b. At least one licensed Operator shall be in the control room when fuel is in the reactor. In addition, at least one licensed Senior Reactor Operator shall be in the Control Room area at all times.

c. A health physics technician# shall be on site when fuel is in the reactor.

d. ALL CORE ALTERATIONS shall be observed and directly supervised by a licensed Senior Reactor Operator who has no other concurrent responsibilities during this operation.

e. ~~A site Fire Brigade of at least 5 members shall be maintained onsite at all times#. The Fire Brigade shall not include 4 members of the minimum shift crew necessary for safe shutdown of the unit or any personnel required for other essential functions during a fire emergency.~~

f. The amount of overtime worked by plant staff members performing safety-related functions must be limited in accordance with the NRC Policy Statement on working hours (Generic Letter No. 82-12).

#The health physics technician ~~and Fire Brigade~~ composition may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence of the health physics technician and/or Fire Brigade members provided immediate action is taken to restore the health physics technician and/or Fire Brigade to within the minimum requirements.

6.2.3 SHIFT TECHNICAL ADVISOR

6.2.3.1 The Shift Technical Advisor shall serve in an advisory capacity to the Shift Supervisor on matters pertaining to the engineering aspects assuring safe operation of the unit.

6.2.3.2 The Shift Technical Advisor shall have a Bachelor's Degree or equivalent in a scientific or engineering discipline with specific training in plant design and response and analysis of the plant for transients and accidents.

6.3 FACILITY STAFF QUALIFICATIONS

6.3.1 Each member of the facility staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions and the supplemental requirements specified in Sections A and C of Enclosure 1 of the March 28, 1980 NRC letter to all licensees, except for the Radiation Protection Engineer who shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

6.4 TRAINING

6.4.1 A retraining and replacement training program for the facility staff shall be coordinated by each functional level manager (Department Head) at the facility and maintained under the direction of the Manager - Nuclear Training and shall meet or exceed the requirements and recommendations of Section 5.5 of ANSI N18.1-1971 and Appendix "A" of 10 CFR Part 55 and the supplemental requirements specified in Sections A and C of Enclosure 1 of the March 28, 1980 NRC letter to all licensees, and shall include familiarization with relevant industry operational experience.

6.4.2 A training program for the Fire Brigade shall be maintained under the direction of the Manager - Nuclear Training and shall meet or exceed the requirements of Section 27 of NFPA Code-1975, except for Fire Brigade training sessions which shall be held at least quarterly.

e. Type of container (e.g., LSA, Type A, Type B, Large Quantity), and

f. Solidification agent or absorbent (e.g., cement, urea formaldahyde).

The Radioactive Effluent Release Reports shall include a list of description of unplanned releases from the site to UNRESTRICTED AREAS of radioactive materials in gaseous and liquid effluents made during the reporting period.

The Radioactive Effluent Release Reports shall include any changes made during the reporting period to the PROCESS CONTROL PROGRAM (PCP) and to the OFFSITE DOSE CALCULATION MANUAL (ODCM), as well as a listing of new locations for dose calculations and/or environmental monitoring identified by the land use census pursuant to Specification 3.12.2.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Administrator of the Regional Office within the time period specified for each report.

INSERT 2

6.10 RECORD RETENTION

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retined for at least the minimum period indicated.

6.10.1 The following records shall be retained for at least five years:

a. Records and logs of unit operation covering time interval at each power level.

b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.

c. ALL REPORTABLE OCCURRENCES submitted to the Commission.

d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.

e. Records of reactor tests and experiments.

f. Records of changes made to Operating Procedures required by Specification 6.8.1.

g. Records of radioactive shipments.

h. Records of sealed source and fission detector leak tests and results.

i. Records of annual physical inventory of all sealed source material of record.

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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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BASES

3/4.3.3.2 MOVABLE INCORE DETECTORS

The OPERABILITY of the movable incore detectors with the specified minimum complement of equipment ensures that the measurements obtained from use of this system accurately represent the spatial neutron flux distribution of the reactor core. The OPERABILITY of this system is demonstrated by irradiating each detector used and normalizing its respective output.

For the purpose of measuring $F_Q(Z)$ or $F^N_{\Delta H}$ a full incore flux map is used. Quarter-core flux maps, as defined in WCAP-8648, June 1976, may be used in recalibration of the excore neutron flux detection system, and full incore flux maps or symmetric incore thimbles may be used for monitoring the QUADRANT POWER TILT RATIO when one Power Range Channel is inoperable.

3/4. 3.3.3 SEISMIC INSTRUMENTATION

NOT REQUIRED

3/4.3.3.4 METEOROLOGICAL INSTRUMENTATION

NOT REQUIRED

3/4.3.3.5 REMOTE SHUTDOWN INSTRUMENTATION

The OPERABILITY of the remote shutdown instrumentation ensures that sufficient capability is available to permit shutdown and maintenance of HOT STANDBY of the facility from locations outside of the control room. This capability is required in the event control room habitability is lost and is consistent with General Design Criterion 19 of 10 CFR Part 50.

3/4.3.3.6 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

3/4.3.3.7 ACCIDENT MONITORING INSTRUMENTATION

The OPERABILITY of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables following an accident. This capability is consistent with the Recommendations of Regulator Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following and Accident," December 1975 and NUREG-0578, "TMI-2 Lessons Learned Task Force Status Report and Short-Term Recommendations."

SNUBBERS (Continued)

The service life of a snubber is evaluated via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubber, seal replaced, spring replaced, in high radiation area, in high temperature area, etc. . .). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review not intended to affect plant operation.

3/4.7.10 FIRE SUPPRESSION SYSTEMS

The OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire suppression system consists of the water system, spray, and/or sprinklers, CO_2, and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety-related equipment and is a major element in the facility fire protection program.

In the event that portions of the fire suppression system are inoperable, alternate backup fire-fighting equipment is required to be made available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire-fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression.

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant. The requirement for a 24 hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

3/4.7.11 PENETRATION FIRE BARRIERS

The OPERABILITY of the penetration fire barriers ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. The penetration fire barriers are a passive element in the facility fire protection program and are subject to periodic inspections.

Fire barrier penetrations, including cable penetration barriers, fire doors and dampers are considered OPERABLE when the visually observed condition is the same as the as-designed condition. For those fire barrier penetrations that are not in the as-designed condition, an evaluation shall be performed to show that the modification has not degraded the fire rating of the fire barrier penetration.

During periods of time when a barrier is inoperable, either 1) a continuous fire watch is required to be maintained in the vicinity of the affected barrier, or 2) the fire detectors on at least one side of the affected barrier must be verified OPERABLE and an hourly fire watch patrol established, until the barrier is restored to OPERABLE status.

6.1 RESPONSIBILITY

6.1.1 The General Manager - Salem Operations shall be responsible for overall facility operation and shall delegate in writing the succession to this responsibility during his absence.

6.1.2 The Senior Nuclear Shift Supervisor or, during his absence from the Control Room, a designated individual shall be responsible for the Control Room command function. A management directive to this effect, signed by the Vice President - Nuclear, shall be reissued to all station personnel on an annual basis.

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6.2.2 The Facility organization shall be as shown on Figure 6.2-2 and:

a. Each on duty shift shall be composed of at least the minimum shift crew composition shown in Table 6.2-1.

b. At least one licensed Operator shall be in the control room when fuel is in the reactor. In addition, at least one licensed Senior Reactor Operator shall be in the Control Room area at all times.

c. A health physics technician# shall be on site when fuel is in the reactor.

d. ALL CORE ALTERATIONS shall be observed and directly supervised by a licensed Senior Reactor Operator who has no other concurrent responsibilities during this operation.

e. ~~A site Fire Brigade of at least 5 members shall be maintained onsite at all times#. The Fire Brigade shall not include 4 members of the minimum shift crew necessary for safe shutdown of the unit or any personnel required for other essential functions during a fire emergency.~~

f. The amount of overtime worked by plant staff members performing safety-related functions must be limited in accordance with the NRC Policy Statement on working hours (Generic Letter No. 82-12).

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b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.

c. ALL REPORTABLE OCCURRENCES submitted to the Commission.

d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.

e. Records of reactor tests and experiments.

f. Records of changes made to Operating Procedures required by Specification 6.8.1.

g. Records of radioactive shipments.

h. Records of sealed source and fission detector leak tests and results.

i. Records of annual physical inventory of all sealed source material of record.

ATTACHMENT 3

PROPOSED CHANGES TO FIRE PROTECTION PROGRAM REQUIREMENTS PRIOR TO REMOVAL FROM THE SALEM GENERATING STATION, UNIT NOS. 1 AND 2 TECHNICAL SPECIFICATIONS

DESCRIPTION OF THE CHANGES

A. GENERAL

Standard Technical Specifications (STS) for Westinghouse Pressurized Water Reactors, Revision 5 was used as a basis for these changes. Specific system parameters currently contained in the existing Salem Technical Specifications (TS) were extracted and introduced into the STS wording.

The requirements for Salem Generating Station contained in this attachment reflect consistency with the Fire Protection Program requirements of PSE&G's Hope Creek Generating Station wherever possible. This approach was taken recognizing that one common organization is responsible for fire protection system surveillance testing and compensatory measures for both stations. By having a consistent set of guidelines for Salem and Hope Creek, the possibility for errors is reduced. Therefore, where significant differences exist between the STS and the requirements previously approved for Hope Creek (as contained in NUREG-1186), the Hope Creek requirements were adopted.

In addition, other than assigning the major Section numbers, as contained in the existing TS, to the appropriate Sections in this submittal, no attempt was made to correlate Subsection numbering or Table designations. Subsection numbers were assigned in the order contained in the STS and Table designations reflect the designations of the STS unless otherwise specifically noted in the Summary of Changes below. Where entire Sections or paragraphs have been deleted, subsequent paragraphs have been renumbered sequentially. Specific comments are included in the following Summary of Changes.

B. SUMMARY OF CHANGES

Section	Description
3.3.3.6	STS Table 3.3-10 has been numbered to be consistent with current TS to avoid disruption of other tables in the Section. This table has been completely reformatted to more clearly identify detection zones and detector functions...either as an early-warning alarm only or as a suppression system actuation. In contrast to the HCGS format which includes a generic statement for determining minimum detector operability based on detector function, the actual minimum number of detectors required to be operable has been included consistent with both existing TS and STS. This format was selected to avoid revising technical information contained in the existing TS unless there was a subsequent modification to a zone or the number or type of detectors was clearly in error based on a field walkdown. Since the arrangement of detectors at Salem is primarily localized or spot coverage rather than area coverage as provided at HCGS, the generic statement for determining minimum operable detectors is not appropriate.

Section	Description
4.3.3.6.1	The testing requirements for testing restorable spot-type thermal detectors, as contained in this section, were adopted from the HCGS requirements and represent a change from the requirements of both STS and existing TS.
4.3.3.6.2	The intent of this section, as contained in STS Section 4.3.3.3.8.2 and the HCGS requirements is to ensure that the supervisory function of NFPA 72D supervised circuits is OPERABLE. As presented in the existing TS Section 4.3.3.6.2, the circuit itself is tested every 92 days. This, in effect, duplicates Section 4.3.3.6.1. Therefore, STS and the 6 month frequency are incorporated in this submittal.
3.7.10.1	This section has been rephrased to reflect STS and establishes consistency with Hope Creek requirements. It should be noted that Section 3.7.10.1.c, as included in existing Unit 1 TS as "Automatic initiation logic for the fire pump" has been significantly rephrased. This does not suggest, however, that automatic logic is no longer required, Surveillance Requirement 4.7.10.1.1.e, as contained in this submittal, requires functional testing to demonstrate the system Operable which includes "...simulated automatic actuation of the system..."
4.7.10.1.1	STS Section 4.7.11.1.1.b has been deleted as not applicable and subsequent paragraphs re-lettered. It should be noted that this paragraph is contained in the existing TS. The pump run time reflected in STS, however, suggests that the requirement was not intended to apply to both electric and diesel driven pumps. Salem does not use electric driven pumps. The requirements for running diesel driven pumps are contained in STS Section 4.7.11.1.2.
4.7.10.1.1.b	This Section corresponds to existing TS 4.7.10.1.1.c. Currently, Unit 1 only requires valve position verification for valves that are not locked, sealed, or otherwise secured. Neither Salem Unit TS nor STS includes this relief. However, a review of Section 4.3.3.6.1 indicates that relief has been provided for equipment not readily accessible during operating conditions (in this case, fire detection instruments). At the Salem plants, several fire protection valves are installed in inaccessible areas, such as in the containment. Therefore, relief has been introduced in this Section (for those valves) that is consistent with the extent of the relief provided in Section 4.3.3.6.1.
4.7.10.1.1.c	The frequency of this requirement, as contained in STS Section 4.7.11.1.1.d, has been revised from 6 months to 12 months for consistency with both Hope Creek requirements and NFPA requirements.
4.7.10.1.2	Existing Unit 1 TS includes Section 4.7.10.1.2.c.2. However, since it is repetitive of Section 4.7.10.1.2.a.2 and is not contained in STS, this requirement has not been included in this submittal.

Section	Description
4.7.10.1.2.a.2	The pump run time contained in existing Unit 1 TS Section 4.7.10.1.2.a.2 is 20 minutes. This requirement is extended in this submittal to 30 minutes to be consistent with existing Unit 2 TS, Hope Creek Station TS, and STS requirements.
3.7.10.2	The listing of Hazard Areas has been updated to clearly reflect all safety-related areas protected by water suppression systems.
4.7.10.2.a	This section, contained in STS 4.7.11.2.a, is not included in existing Unit 1 Tech Specs. This requirement is consistent with existing Unit 2 TS and Hope Creek requirements and is, therefore, included in this submittal. Additionally, the same relief for inaccessible valves discussed in 4.7.10.1.1.b above has been included in this Section.
4.7.10.2.c.1.b	This section, not contained in existing TS, represents relief for cycling inaccessible valves every 18 months rather than every 12 months. The 18 month frequency corresponds to the refueling cycle. This requirement reflects both STS and the Hope Creek requirements.
4.7.10.2.c.3	This requirement is currently numbered 4.7.10.2.b.3 in existing Unit 1 TS and 4.7.10.2.c.3 in Unit 2 TS. In addition to renumbering the requirement to permit introduction of a new Section 4.7.10.2.a for Unit 1 (discussed above), the requirement, as stated, reflects STS. The function of nozzle blockage inspection is addressed by Section 4.7.10.2.d.
3.7.10.3	The listing of Hazard Areas has been updated to clearly reflect all safety related areas protected by CO_2 suppression systems.
4.7.10.3.1	This section, contained in Standard Tech Specs as 4.7.11.3.1, is not included in existing Unit 1 TS. This requirement is consistent with existing Unit 2 TS and HCGS requirements and is, therefore, included in this submittal.
4.7.10.3.2.a	The existing TS include CO_2 storage tank level and pressure requirements in the Limiting Conditions for Operation. This surveillance section now contains these specific requirements.
3/4.7.10.4	This section is a new section included to address requirements for the halon systems installed for protection of the Relay Rooms. Because system operation associated with the halon system provided for the Hope Creek Control Room Console Pit is significantly different than the halon systems for the Salem Relay Rooms, the requirements contained in STS were included in the submittal with no changes for similarity to Hope Creek.
4.7.10.4.a	This section, contained in STS as 4.7.11.4.a, is not included in existing Salem TS. This requirement is consistent with Hope Creek requirements and is, therefore, included in this submittal.

Section	Description
3.7.10.5	This section corresponds to existing Section 3.7.10.4 for fire hose stations. In contrast to the fire hose station listing provided in the existing TS, this listing includes all fire hose stations required to protect safety-related areas regardless of the fire hose station unit designation. Where one fire hose station is required for protection of areas contained in both Units, it is included in the submittal for each Unit.
3.7.10.5.a	This section, as contained in existing TS as 3.7.10.4.a and STS requires the routing of fire hoses which can create recognizable hazards. The corresponding HCGS requirement permits hoses to be stored in a roll, ready for use, at the outlet of an OPERABLE hose station where the routing of the hose would result in a recognizable hazard. In consideration of the safety elements involved, this Section was worded to incorporate the provisions of the corresponding HCGS requirement.
4.7.10.5.a	This section, as contained in existing Unit 1 TS 4.7.10.4.a, does not include relief from 31 day inspections of inaccessible fire hose stations. Because this relief is contained in STS, existing Unit 2 TS, and HCGS requirements, it is included in this submittal.
4.7.10.5.c.2	This section, in existing Unit 2 TS as 4.7.10.4.c.2, requires hydrostatic testing of fire hoses at 50 psig greater than the maximum fire main pressure or 300 psig, which ever is greater. Existing Unit 1 TS call for a pressure of at least 50 psig greater than the maximum pressure available at the hose station. STS stipulate 150 psig or 50 psig above maximum fire main pressure, whichever is greater. Because the 300 psig contained in existing Unit 2 TS is both greater than the maximum operating pressure plus 50 psig and in conflict with the maximum pressures required by NFPA 1962 for service pressure tests, the requirement has been revised to agree with the STS.
3/4.7.10.6	This section is new and not included in existing TS. Because there are two fire hydrants called out in the Salem Fire Protection Report as being required for coverage of safety-related areas including the Service Water Intake Structure and the Fuel Handling Buildings, this section is included. There is no corresponding HCGS requirement.
3.7.11	The phrasing used to identify the equipment governed by this specification reflects both the STS and the HCGS requirements. This wording results in the inclusion of fire area boundaries governed by existing TS and any other barriers within those boundaries. This would include, as an example, one hour fire wraps on cable trays. In addition, compensatory ACTION a.3, for daily fire watches, based on available detection on both sides of the barrier (not included in STS) has been included as currently approved in the HCGS requirements.

Section	Description
4.7.11	These surveillance requirements have been significantly revised from their counterparts in existing TS. These changes are consistent with both STS and HCGS requirements. These changes result in relief from some requirements, but add surveillances as a result of other requirements.

REASON FOR THE PROPOSED CHANGE

PSE&G has been implementing the Fire Protection Improvement Program for Salem Generating Station as committed to NRC. As part of that program, it was realized that, in some cases, Technical Specifications currently in effect for Salem Units 1 and 2 do not reflect actual plant conditions. In addition, the inconsistencies between both Units' TS for similar equipment has the potential for causing errors in implementing required surveillances and actions.

By updating, with these changes, the Fire Protection Program - with the STS as a guide, and incorporating clarifications of specific Fire Protection Program requirements approved for Hope Creek Generating Station, the organization responsible for implementing the Fire Protection Programs at Artificial Island can apply uniform procedures at all three units.

In addition, Generic Letters 86-10 and 88-12 provide guidance to utilities seeking license amendments to recognize approved Fire Protection Programs and remove Surveillance/Limiting Conditions for Operation from the Technical Specifications. However, the assumption made by NRC for that type of amendment request is that the operability requirements imposed by existing TS are accurate. PSE&G has determined that, due to recent fire protection system enhancements and due to the above mentioned TS inconsistencies, Salem Unit Nos. 1 and 2 presently do not meet that criteria.

The purpose of this amendment request is to submit a comprehensive and up-to-date Fire Protection Program that, upon NRC review and approval, will satisfy the criteria of the Generic Letters and ultimately permit the removal of the Fire Protection Program from the Salem Technical Specifications as requested in Attachment 1.

JUSTIFICATION FOR THE PROPOSED CHANGES

As previously indicated, the proposed revisions permit consistency of requirements to be imposed on Fire Protection systems for both Salem units. Clarifications to requirements previously approved for Hope Creek Generating Station have been incorporated as well. Approval of these changes allow uniform programmatic requirements to be applied to all three units on Artificial Island by a common organization.

There are cases involving either relief from existing surveillance requirements and compensatory measures or conversely, more restrictive surveillance requirements. However, no attempt was made to tailor this submittal to gain relief from standard surveillance requirements or compensatory measures.

PSE&G is making this change request to improve the overall Fire Protection Program at Artificial Island.

SIGNIFICANT HAZARDS ANALYSIS CONSIDERATION

The proposed changes to the technical specifications do not involve a significant increase in the probability or consequences of any accident previously evaluated.

The enhancements made to Technical Specifications through this Attachment reflect actual plant conditions. The incorporation of Standard Technical Specification requirements and approved Hope Creek variations allow a consistent fire protection program to be applied at Artificial Island. By removing inconsistent requirements, the probability of errors in surveillance requirements is reduced. The NRC review and approval of the proposed changes will then satisfy the criteria of Generic Letters 86-10 and 88-12 and permit the removal of the Salem Fire Protection Program (as approved by NRC) from the Technical Specifications following the guidelines provided by the Generic Letters. The removal of the Fire Protection Program from the TS has been reviewed by the NRC staff as part of the issuance of the Generic Letters and been found acceptable provided that the criteria established in the Generic Letters are met.

Upon NRC approval of the requested changes herein, the FPP requirements currently defined in the TS, in conjunction with these additional proposed changes to those TS and to the SGS Updated Facility Safety Analysis Report (UFSAR) in Attachment 4, would be embodied within a periodic testing and surveillance program described in the SGS UFSAR and would entail shifting of the testing requirements from TS surveillance procedures to periodic test procedures. The Attachment 1-proposed License Condition and additional Special Report requirements in TS Section 6.9.3 would provide adequate administrative control of FPP elements to ensure that station capabilities to achieve and maintain safe shutdown in the event of a fire remain at an equivalent level of fire protection as currently provided with the FPP in the TS.

Since station fire protection capabilities will remain at an equivalent level with the FPP removed from the TS, it can be concluded that the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes to the technical specifications do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes represent enhancements to existing technical specifications. The majority of significant changes are to Unit 1 technical specifications to provide consistency with Unit 2. The changes to both units' technical specifications are in accordance with approved generic Westinghouse Standard Technical Specifications and variations approved for Hope Creek Generating Station. No physical plant modifications or operating configurations result from these changes. The proposed changes do not affect the design or operation of any system or component important to safety.

Upon NRC approval of the Fire Protection Program, as modified herein, the removal of the elements of that program from Technical Specifications and incorporation in the UFSAR in accordance with the provisions and guidelines of Generic Letters 86-10 and 88-12 will not create any new or different accident from any previously evaluated.

The proposed changes to the technical specifications do not involve a significant reduction in a margin of safety.

The proposed changes affect the control of periodic testing and surveillances for fire protection systems and components. The changes do not affect any analysis of design bases accidents or any Appendix R Hazards Consideration. The proposed changes provide a consistent approach to assuring operability and availability of existing fire protection systems for safety-related areas at Salem Generating Station.

The proposed License Condition and requirements placed in TS Section 6.9.3 will ensure that the station fire protection capabilities, following removal of the FPP from the Technical Specifications, remain at an level equivalent to that level currently in place with the FPP in the Technical Specifications. Therefore, removal of the fire protection program elements from the Technical Specifications will not involve a significant reduction in a margin of safety.

CONCLUSION

Based on the information provided above, PSE&G has concluded that the proposed changes satisfy the criteria for a no significant hazards consideration.

ENCLOSURE 1

SALEM UNIT 1 TECHNICAL SPECIFICATIONS CHANGES

INSTRUMENTATION

3/4.3.6 FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-10 shall be operable.

APPLICABILITY: Whenever equipment protected by the fire detection instrumentation is required to be OPERABLE.

ACTION:

With the number of OPERABLE fire detection instrument(s) less than the minimum number OPERABLE requirement of Table 3.3-10:

a. Within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect the containment at least once per 8 hours or monitor the containment air temperature at least once per hour at the locations listed in Specifcation 4.6.1.5.

b. Restore the inoperable instrument(s) to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the instrument(s) to OPERABLE status.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.6.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months by performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST except for restorable spot type thermal heat detectors, which shall be tested such that at least one detector on each signal-initiating circuit will be tested at least once per 6 months, such that all detectors are tested in 5 years. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

4.3.3.6.2 The NFPA Standard 72D supervised circuits supervision associated with the detector alarms of each of the above required fire detection instruments shall be demonstrated OPERABLE at least once per 6 months.

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
*61	Service Building Cable Vaults (Note 3)	12			
	1A & 1B Cable Vaults, El. 113'		3		2
	1C & 1D Cable Vaults, El. 113'		3		2
	2A & 2B Cable Vaults, El. 113'		3		2
	2C & 2D Cable Vaults, El. 113'		3		2
62	Battery Rooms El. 100'	7			
	1A 125VDC El. 100'		2		1
	1 250VDC El. 100'		3		2
	1B 125VDC El. 100'		2		1
63	Radiation Monitor Enclosure El. 120'	1	1		1
64	No. 1 Control Console	2	2		1
66	Computer Room	2	2		1
*67	Control Room & Peripheral Areas Ceiling Void	12	12		8
	Control Rm & Computer Rm, Det's 67-1, 67-2, & 67-9 to 67-1		6		4
	Corridor, Det's 67-3 to 67-5		3		2
	Shift Supv Offices, Det's 67-6 to 67-8		3		2
*68	Control Room Peripheral Areas	14			
	Aux Equip Area, Det's 68-1 to 68-8, & 68-14		9		6
	Corridor & Shift Supv Office, Det's 68-9 to 68-13		5		4
69	Fuel Handling Building	13			
	Vent Equip Room		3		2
	Elect Control Area		2		1
	New/Spent Fuel Storage Area		5		4
	Storage and Service Area		3		2
70	1A,1B,1C Diesel Gen Control Rms	3			
	1A Control Room		1		1
	1B Control Room		1		1
	1C Control Room		1		1
*71	Equip Rm, Ladies Rm, Spare Office El. 122'	2	2		2

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
72	Panel 335 El. 100'	3	3		2
75	Switchgear Rooms & Penet Area Ventitation	3			
	Electrical Penet Area Vent System		2		2
	Switchgear Room Vent System		1		1
76	Relay Room & Control Room Air Conditioning	3	3		3
77	Aux B ldg East Aisle 1 El. 84'	4	4		4
78	Aux Bldg West Aisle 1 El. 84'	6	6		6
79	Aux Bldg #1 LTDN/Seal Wtr Hx Entry El. 84'	2	2		2
81	Switchgear & Battery Rooms El. 64'	20			
	Switchgear Room El. 64'		18		16
	1C 125VDC Battery Room El. 64'		2		1
82	Switchgear Room El. 84'	18	18		10
83	Electrical Penetration Area El. 78'	13	13		7
85	Diesel F.O. Transfer Pumps El 84	2			
	No 11 Diesel F.O. Transfer Pump Room			1	1
	No 12 Diesel F.O. Transfer Pump Room			1	1
86	No. 11 Diesel F.O. Storage Tank El 84	2		2	1
87	No. 12 Diesel F.O. Storage Tank El 84	2		2	1
88	1A Diesel Gen Area El. 100'	7			
	1A Diesel Gen Room El. 100'			4	3
	1A Control Room El. 100'			1	1
	1A Day Tank Room El. 120'			2	2
89	1B Diesel Gen Area El. 100'	7			
	1B Diesel Gen Room El. 100'			4	3
	1B Control Room El. 100'			1	1
	1B Day Tank Room El. 120'			2	2
90	1C Diesel Gen Area El. 100'	7			
	1C Diesel Gen Room El. 100'			4	3
	1C Control Room El. 100'			1	1
	1C Day Tank Room El. 120'			2	2

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
91	Relay Room (ZIU 91, odd numbered detectors)	9		9	17 (Note 5)
91	Relay Room (ZIU 96, even numbered detectors)	9		9	
92	Aux Feed Pumps El. 84' Detection Only No Discharge	5		5	4
97	Switchgear Room El. 84'	14		14	13
98	Electrical Penetration Area El. 78'	6		5	5
101	No. 12 Fuel Hdlg Area Exhaust El 100	1		1	1
102	Containment Pressure Relief El 100	1		1	1
103	No. 11 Iodine Removal El 78	1		1	1
104	No. 12 Iodine Removal El 78	1		1	1
105	Control Room Air Cond'g El 100	1		1	1
106	Aux Bldg Air Cond'g El 100	1		1	1
121	South Penetration El. 92'-6" & 100'	6	6		5
122	Elect Penetration El. 100'	6	6		4
123	Mech Penet. East El. 100'	6	6		4
124	Mech Penet. West El. 100'	5	5		4
125	Aux Bldg Elev 100 Col 11.8-14 FF-NN	21	21		
	Corridor Det's 125-1 to 125-5, & 125-15		6		5
	Boric Acid Evap Rm, Det's 125-6 to 125-8		3		2
	Misc Areas, Det's 125-9 to 125-14		6		6
	Lab El 100' & 110', Det's 125-16 to 125-21		6		6
126	Aux Bldg Boric Acid Trans Pumps El. 100'	3	3		2
127	Containment Fan Coil Unit 11 & 12 El. 130'	12			
	12 Ring Duct by 11 FCU		2		2
	Ring Duct by 12 FCU		2		2
	Above 11 FCU		4		3
	Above 12 FCU		4		3
128	Containment Fan Coil Unit 13 & 14 El. 130'	12			
	12 Ring Duct by 13 FCU		2		2
	Ring Duct by 14 FCU		2		2
	Above 13 FCU		4		3
	Above 14 FCU		4		3

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
129	Containment Fan Coil Unit 15 El. 130'	6			
	Ring Duct by 15 FCU		2		2
	Above 15 FCU		4		3
130	Containment RCP 11 Bel El. 130'	4	4		3
131	Containment RCP 12 Bel El. 130'	4	4		3
132	Containment RCP 13 Bel El. 130'	4	4		3
133	Containment RCP 14 Bel El. 130'	4	4		3
134	Aux Bldg #1 A/C Equip Rm El. 122'	5	5		4
135	Aux Bldg #1 A/C Room El. 122'	9	9		7
136	Aux Bldg Resin Storage Area El. 122'	4	4		3
137	Aux B ldg E Aisle 1 El. 64'	4	4		4
138	Aux B ldg W Aisle 1 El. 64'	8			
	W Aisle El. 64'		7		7
	In Duct - CVCS Hold Up Tanks Vent System		1		1
141	Aux Bldg 11 & 12 Waste Gas Compr Area El. 64'	7	7		6
142	Aux Bldg 11 & 12 RHR Pumps Elev 45	7			
	11 RHR Pump El. 45'		4		3
	12 RHR Pump El. 45'		4		3
143	Aux Bldg El. 55'	7	7		7
144	SIP-CCP El. 84'	6			
	Component Cooling		3		2
	Safety Injection		3		2
145	CO2 Equip Rm Chg Pump & SIP CS Pmp Elev 84	8			
	Containment Spray		3		2
	CHG - SIP		3		3
	CO2 Equip Room		2		2
146	Piping Penetration El. 78'	8	8		6
147	No 11,12,13 Service Wtr Pump Bay	7	7		5
148	No 21,22,23 Service Wtr Pump Bay (Note 6)	7	7		5
149	No 14,15,16 Service Wtr Pump Bay	7	7		5
150	No 24,25,26 Service Wtr Pump Bay (Note 6)	7	7		5
151	No 11,12,13 Service Wtr Pump Control Room	1	1		1

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
152	No 21,22,23 Service Wtr Pump Control Room (Note 6)	1	1		1
153	No 14,15,16 Service Wtr Pump Control Room	1	1		1
154	No 24,25,26 Service Wtr Pump Control Room (Note 6)	1	1		1
157	Aux Bldg #11 & 12 Monitor Tank El. 64'	4	4		4
158	Aux Bldg #11 Waste Hold-up Tank El. 64'	2	2		2
159	Aux Bldg #12 Waste Hold-up Tank El. 64'	2	2		2
160	Aux Bldg #1 Waste Monitor El. 64'	2	2		2

* - Indicates detection zones containing both Unit 1 and Unit 2 equipment or cables or detection zones covering a portion of a Fire Area containing both Unit 1 and Unit 2 equipment which may directly expose both Units. In the event that the zone is rendered INOPERABLE, ensure that the equipment required to be OPERABLE for both Units, not just the Unit to which the zone alarms. Additionally, in the event that a fire alarm is received from any of these zones, ensure that both Control Rooms are alerted to the condition to ensure that any necessary operational actions are taken.

Note 1 - Type "A" detectors are for early warning indication only.

Note 2 - Type "B" detectors are for suppression system actuation.

Note 3 - Where the minimum detectors OPERABLE indicated is less than one less than the total number of detectors for the zone, no two INOPERABLE detectors shall be adjacent to each other.

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Note 4 - Zone 61, monitored by the Unit 1 Control Room, contains Unit 2 Cable Vaults. Upon confirmation that the alarm received is from a Unit 2 Cable Vault detector, Unit 1 Control Room personnel shall notify Unit 2 Control Room personnel to ensure any necessary operational actions are taken. In the event that this zone is rendered INOPERABLE, Unit 1 Control Room personnel shall notify Unit 2 Control Room personnel and the appropriate action statement shall be logged against both Units 1 & 2.

Note 5 - Zone 91 is a cross zoned detection system used for the actuation of the halon suppression system for the Relay Room. Therefore, the minimum detectors OPERABLE is based on 18, the combined number of detectors for both zones of the cross zoned system.

Note 6 - Zones 148, 150, 152, & 154, monitored by the Unit 1 Control Room, protect Unit 2 Service Water Pump Bays and Control Rooms. Upon receipt of an alarm from any of these zones, Unit 1 Control Room personnel shall notify Unit 2 Control Room personnel to ensure any necessary operational actions are taken. In the event that any of these zones are rendered INOPERABLE, Unit 1 Control Room personnel shall notify Unit 2 Control Room personnel and the appropriate action statement shall be logged, as a minimum, against Unit 2.

PLANT SYSTEMS

3/4.7.10 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.10.1 The fire suppression water system shall be OPERABLE with:

a. Two OPERABLE fire suppression pumps, each with a capacity of 2500 gpm, with their discharge aligned to the fire suppression header,

b. Separate water supplies, each with a minimum contained volume of 300,000 gallons, and

c. An OPERABLE flow path capable of taking suction from either or both of the fire water storage tanks and transferring the water through the distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves, the last valve ahead of the water flow alarm device on each sprinkler or hose standpipe, and the last valve ahead of the deluge valve on each deluge or spray system required to be OPERABLE per Specifications 3.7.10.2, 3.7.10.5, and 3.7.10.6.

APPLICABILITY: At all times

ACTION:

a. With one pump and/or one water supply inoperable, restore the inoperable equipment to OPERABLE status within 7 days or, in lieu of any other report required by specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the plans and procedures to be used to restore the inoperable equipment to OPERABLE status or to provide an alternate backup pump or supply. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

b. With the fire suppression water system otherwise inoperable:

1. Establish a backup fire suppression water system within 24 hours, and

2. In lieu of any other report required by Specification 6.9.1, submit a Special Report in accordance with Specification 6.9.2:

   a) By telephone within 24 hours,

   b) Confirming by telegraph, mailgram or facsimile transmission no later than the first working day following the event, and

   c) In writing within 14 days following the event, outlining the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.7.10.1.1 The fire suppression water system shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying the contained water supply volume.

b. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path which is accessible during plant operation is in its correct position. Valves which are locked, sealed, or otherwise secured and not accessible during plant operation shall be verified to be in the correct position during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 31 days.

c. At least once per 12 months by performance of a system flush.

d. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

e. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:

1. Verifying that each automatic valve in the flow path actuates to its correct position,

2. Verifying that each pump develops at least 2500 gpm at a system head of 250 feet,

3. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and

4. Verifying that each fire suppression pump starts (sequentially) to maintain the fire suppression water system pressure greater than or equal to 135 psig.

f. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th edition, published by the National Fire Protection Association.

4.7.10.1.2 The fire pump diesel engines shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying:

1. Each fuel storage tank contains at least 300 gallons of fuel, and

2. Each diesel starts from ambient conditions and operates for at least 30 minutes on recirculation flow.

b. At least once per 92 days by verifying that a sample of diesel, fuel from the fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM D975-74 when checked for viscosity, water and sediment.

c. At least once per 18 months, during shutdown, by subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturers recommendations for the class of service.

4.7.10.1.3 The fire pump diesel starting 24-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The electrolyte level of each battery is above the plates, and

2. The overall battery voltage is greater than equal to 24 volts.

b. At least once per 92 days by verifying that the specific gravity is appropriate for continued service of the battery.

c. At least once per 18 months by that:

1. The batteries, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration, and

2. The battery-to-battery and terminal connections are clean, tight free of corrosion and coated with anti-corrosion material.

PLANT SYSTEMS

SPRAY AND/OR SPRINKLER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.2 The following spray and/or sprinkler systems shall be OPERABLE:

HAZARD AREA

Containment

- No. 11 Reactor Coolant Pump Lube Oil System
- No. 12 Reactor Coolant Pump Lube Oil System
- No. 13 Reactor Coolant Pump Lube Oil System
- No. 14 Reactor Coolant Pump Lube Oil System
- No. 11 Containment Iodine Removal Charcoal Filter
- No. 12 Containment Iodine Removal Charcoal Filter
- Panel 335

Auxiliary Building

- Auxiliary Building Ventilation Removal Charcoal Filter
- Control Room Emergency Ventilation Charcoal Filter
- Containment pressure Relief Charcoal Filter
- No. 11 Diesel Fuel Oil Storage Tank Room
- No. 12 Diesel Fuel Oil Storage Tank Room
- No. 11, 12, & 13 Charging Pumps
- No. 11, 12, & 13 Auxiliary Feedwater Pumps (electrically actuated preaction sprinkler system)
- No. 11, 12, & 13 Auxiliary Feedwater Pumps (pneumatically actuated preaction sprinkler system)

APPLICABILITY: Whenever equipment protected by the spray/sprinkler system is required to be OPERABLE.

ACTION:

a. With one or more of the above required spray and/or sprinkler systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.2 Each of the above required spray and/or sprinkler systems shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path which is accessible during plant operation is in its correct position. Valves which are locked, sealed, or other secured and not accessible during plant operation shall be verified to be in the correct position during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 31 days.

b. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

c. At least once per 18 months:

1. By performing a system functional test which includes simulated automatic actuation of the system, and:

a) Verifying that the automatic valves in the flow path actuate to their correct positions on a test signal, and

b) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

2. By a visual inspection of the dry pipe spray and sprinkler headers to verify their integrity, and

3. By a visual inspection of each sprinkler or deluge nozzle's spray area to verify spray pattern is not obstructed.

d. At least once per 3 years by performing an air flow test through each open head spray/sprinkler header and verifying each open head spray/sprinkler nozzle is unobstructed.

CO_2 SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.3 The following low pressure CO_2 systems shall be OPERABLE:

Auxiliary Building

- 1A Diesel Generator Area
- 1B Diesel Generator Area
- 1C Diesel Generator Area
- No. 11 Diesel Fuel Oil Storage Tank Room
- No. 12 Diesel Fuel Oil Storage Tank Room
- No 11 & 12 Diesel Fuel Oil Transfer Pump Rooms
- 460 VAC Switchgear Room
- 4160 VAC Switchgear Room

Electrical Penetration Area

- Lower Electrical Penetration Area

APPLICABILITY: Whenever equipment protected by the CO_2 systems is required to be OPERABLE.

ACTION:

a. With one or more of the above required CO_2 systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.3.1 Each of the above required CO_2 systems shall be demonstrated OPERABLE at least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.

4.7.10.3.2 Each of the above required low pressure CO_2 systems shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying the CO_2 storage tank level to be greater than 50% and pressure to be greater than 285 psig, and

b. At least once per 18 months by verifying:

1. The system valves and associated ventilation dampers and fire door release mechanisms actuate manually and automatically, upon receipt of a simulated actuation signal, and

2. Flow from each nozzle during a "Puff Test."

HALON SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.4 The following Halon system shall be OPERABLE.

Auxiliary Building

- Relay Room

APPLICABILITY: Whenever equipment protected by the Halon system is required to be OPERABLE.

ACTION:

a. With the above required halon system inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.4 The above required Halon system shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.

b. At least once per 6 months by verifying the Halon storage tank weight to be at least 95% of full charge weight (or level) and pressure to be at least 90% of the full charge pressure.

c. At least once per 18 months by:

1. Verifying the system, including associated ventilation dampers and fire door release mechanisms, actuates manually and automatically, upon receipt of a simulated actuation signal, and

2. Performance of a flow test through headers and nozzles to assure no blockage.

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.10.5 The fire hose stations shown in TABLE 3.7-5 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the ares protected by the fire hose stations is required to be OPERABLE.

ACTION:

a. With one or more of the fire hose stations shown in Table 3.7-5 inoperable, provide gared wye(s) on the nearest OPERABLE hose station(s). One outlet of the wye shall be connected to the standard length of hose provided at the hose station. The second outlet of the wye shall be connected to a length of hose sufficient to provide coverage for the area left unprotected by the inoperable hose station. Where it can be demonstrated that the physical routing of the fire hose would result in a recognizable hazard to operating technicians, plant equipment, or the hose itself, the fire hose shall be stored in a roll at the outlet of the OPERABLE hose station. Signs shall be mounted above the wye(s) to identify the proper hose to use. The above ACTION requirement shall be accomplished within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise establish the additional hose capability within 24 hours.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.5 Each of the fire hose stations shown in Table 3.7-5 shall be demonstrated OPERABLE:

a. At least once per 31 days by a visual inspection of the fire hose stations accessible during plant operations to assure all required equipment is at the station.

b. At least once per 18 months by:

1. Visual inspection of the stations not accessible during plant operations to assure all required equipment is a the station,

2. Removing the hose for inspection and re-racking, and

3. Inspecting all gaskets and replacing any degraded gaskets in the couplings.

c. At least once per 3 years by:

1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.

2. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above maximum fire main operating pressure, whichever is greater.

TABLE 3.7-5

FIRE HOSE STATIONS

LOCATION*		HOSE VALVE
ELEVATION	COLUMN	IDENTIFICATION
Auxiliary Building		
122'	BB-13.8	1FP277
122'	GG-14	1FP138
122'	NN-14	1FP76
100'	AA-14.2	2FP231
100'	EE-14	2FP283
100'	GG-14	1FP137
100'	NN-14	1FP75
84'	AA-14.2	2FP230
84'	GG-14	1FP136
84'	NN-14	1FP74
64'	AA-14.2	2FP229
64'	GG-14	1FP135
64'	NN-14	1FP73
55'	GG-14	1FP134
Mechanical Penetration Area		
100'	KK-10.4	1FP279
Containment		
130'	A6	1FP89
130	A17	1FP96
78'	A6	1FP88
78'	A17	1FP97

* List all Fire Hose Stations required to ensure the OPERABILITY of safety-related equipment.

YARD FIRE HYDRANTS AND HYDRANT HOSE HOUSES

LIMITING CONDITION FOR OPERATION

3.7.10.6 The yard fire hydrants and associated hose houses shown in Table 3.7-6 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the yard fire hydrants is required to be OPERABLE.

ACTION:

a. With one or more of the yard fire hydrants shown in Table 3.7-6 inoperable, within 1 hour have sufficient additional lengths of 2 1/2 inch diameter hose located in an adjacent OPERABLE hydrant hose house to provide service to the unprotected area(s) if the inoperable fire hose is the primary means of fire suppression; otherwise, provide the additional hose within 24 hours. Restore the hydrant or hose house to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the hydrant or hose house to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.6 Each of the yard fire hydrants and associated hydrant hose houses shown in Table 3.7-6 shall be demonstrated OPERABLE:

a. At least once per 31 days by visual inspection of the hydrant house to assure all required equipment is at the hose house.

b. At least once per 6 months (once during March, April, or May and once during September, October, or November) by visually inspecting each yard fire hydrant and verifying the hydrant barrel is dry and that the hydrant is not damaged.

c. At least once per 12 months by:

1. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above maximum fire main operating pressure, whichever is greater.

2. Inspecting all gaskets and replacing any degraded gaskets in the couplings.

3. Performing a flow check of each hydrant to verify its OPERABILITY.

TABLE 3.7-6

YARD FIRE HYDRANTS AND ASSOCIATED HYDRANT HOSE HOUSES

LOCATION*	HYDRANT NUMBER
Fuel Handling Building, Southwest yard	16FP50
Service Water Intake Structure	1FP50

* List all Yard Hydrants and Hydrant Hose Houses required to ensure the OPERABILITY of safety-related equipment.

PLANT SYSTEMS

3/4.7.11 FIRE RATED ASSEMBLIES

LIMITING CONDITION FOR OPERATION

3.7.11 All fire rated assemblies (walls, floor/ceilings. cable tray enclosures and other fire barriers) separating safety related fire areas or separating portions of redundant systems important to safe shutdown within a fire area and all sealing devices in fire rated assembly penetrations (fire doors, fire windows, fire dampers, cable and piping penetration seals and ventilation seals) shall be OPERABLE.

APPLICABILITY: At all times

ACTION:

a. With one or more of the above required fire rated assemblies and/or sealing devices inoperable, within one hour:

   1. Verify the OPERABILITY of the fire detectors on both sides of the affected penetration and establish a daily fire watch patrol, or

   2. Verify the OPERABILITY of fire detectors on at least one side of the affected penetration and establish an hourly fire watch patrol, or

   3. Establish a continuous fire watch on at least one side of the affected penetration.

b. Restore the inoperable fire rated assembly and sealing device to OPERABLE status within 7 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the fire rated assembly and sealing device to OPERABLE status.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

ENCLOSURE 2

SALEM UNIT 2 TECHNICAL SPECIFICATION CHANGES

INSTRUMENTATION

3/4.3.6 FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.6 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-10 shall be operable.

APPLICABILITY: Whenever equipment protected by the fire detection instrumentation is required to be OPERABLE.

ACTION:

With the number of OPERABLE fire detection instrument(s) less than the minimum number OPERABLE requirement of Table 3.3-10:

a. Within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect the containment at least once per 8 hours or monitor the containment air temperature at least once per hour at the locations listed in Specifcation 4.6.1.5.

b. Restore the inoperable instrument(s) to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the instrument(s) to OPERABLE status.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.6.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months by performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST except for restorable spot type thermal heat detectors, which shall be tested such that at least one detector on each signal-initiating circuit will be tested at least once per 6 months, such that all detectors are tested in 5 years. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

4.3.3.6.2 The NFPA Standard 72D supervised circuits supervision associated with the detector alarms of each of the above required fire detection instruments shall be demonstrated OPERABLE at least once per 6 months.

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
*61	Aux Bldg Cooridor Area El 100		6	6	4
61	Service Bldg Cable Vaults (Note 4)		6		
	2A & 2B Cable Vaults, El. 113'		3		2
	2C & 2D Cable Vaults, El. 113'		3		2
62	Battery Rooms El. 100'	7			
	2A 125VDC El. 100'		2		1
	2 250VDC El. 100'		3		2
	2B 125VDC El. 100'		2		1
63	Radiation Monitor Enclosure El. 120'	1	1		1
65	No. 2 Control Console	2	2		1
66	Computer Room	2	2		1
67	Control Area Ceiling Void Space	6	6		4
68	Control Aux Equip Room	9	9		6
69	Fuel Handling Building	13			
	Vent Equip Room		3		2
	Elect Control Area		2		1
	New/Spent Fuel Storage Area		5		4
	Storage and Service Area		3		2
70	2A, 2B, 2C Diesel Gen Control Rms	3			
	2A Control Room		1		1
	2B Control Room		1		1
	2C Control Room		1		1
71	Maint & Test Equip Room El. 122' BB-15.7	1	1		1
75	Swgr Rooms & Penet Area Ventitations	3			
	Electrical Penet Area Vent System		2		2
	Switchgear Room Vent System		1		1
76	Relay Room & Control Room Air Cond'g	3	3		3
77	Aux Bldg East Aisle 2 El. 84	4	4		4
78	Aux Bldg West Aisle 2 El. 84	6	6		6
79	Aux Bldg #2 LTDN/Seal Hx Entry El. 84	2	2		2

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
81	Switchgear & Battery Rooms El. 64'	20			
	Switchgear Room El. 64'		18		16
	2C 125VDC Battery Room El. 64'		2		1
82	Switchgear Room El. 84	18	18		16
83	Electrical Penetration Area El. 78'	13	13		11
85	Diesel F.O. Transfer Pumps El. 84	2			
	No 22 Diesel F.O. Transfer Pump			1	1
	No 21 Diesel F.O. Transfer Pump			1	1
86	No. 21 Diesel F.O.Storage Tank El. 84'	2		2	1
87	No. 22 Diesel F.O.Storage Tank El. 84'	2		2	1
88	2A Diesel Gen Area El. 100'	7			
	2A Diesel Gen Room El. 100'			4	3
	2A Control Room El. 100'			1	1
	2A Day Tank Room El 120'			2	2
89	2B Diesel Gen Area El. 100'	7			
	2B Diesel Gen Room El. 100'			4	3
	2B Control Room El. 100'			1	1
	2B Day Tank Room El. 120'			2	2
90	2C Diesel Gen Area El. 100'	7			
	2C Diesel Gen Room El 100'			4	3
	2C Control Room El. 100'			1	1
	2C Day Tank Room El. 120'			2	2
91	Relay Room (ZIU 91, odd numbered detectors)	9		9	17 (Note 5)
91	Relay Room (ZIU 96, even numbered detectors)	9		9	
97	Switchgear Room El. 84	14		14	13
98	Electrical Penetration Area El. 78'	6		6	5
101	No. 22 Fuel Hdlg Area Exhaust El 100	1		1	1
102	Containment Pressure Relief El 100	1		1	1
103	No. 21 Iodine Removal El 78	1		1	1

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
104	No. 22 Iodine Removal El 78	1		1	1
105	Control Room Air Cond'g El 100	1		1	1
106	Aux Bldg Air Cond'g El 100	1		1	1
121	North Penetration El. 92'-6" & 100'	6	6		5
122	Elect Penetration El. 100'	6	6		4
123	Mech Penet. East El. 100'	6	6		4
124	Mech Penet. West El. 100'	5	5		4
125	Aux Bldg Elev. 100 Col 14-16.2 FF-LL	22			
	Corridor, det's 125-1 to 125-5, & 125-17		6		5
	Boric Acid Evap Rm, Det's 125-11 to 125-13		3		2
	Radio Chemistry Lab, Det's 125-18, 125-19, 125-21, & 125-22		4		3
	Misc Areas, Det's 125-6 to 125-10, 125-14 to 125-16, & 125-20		9		9
126	Aux Bldg Boric Acid Trans Pumps El. 100'	3	3		2
127	Containment Fan Coil Unit 21 & 22 El. 130'	12			
	Ring Duct by 21 FCU		2		2
	Ring Duct by 22 FCU		2		2
	Above 21 FCU		4		3
	Above 22 FCU		4		3
128	Containment Fan Coil Unit 23 & 24 El. 130'	12			
	Ring Duct by 23 FCU		2		2
	Ring Duct by 24 FCU		2		2
	Above 23 FCU		4		3
	Above 24 FCU		4		3
129	Containment Fan Coil Unit 25 El. 130'	6			
	Ring Duct by 25 FCU		2		2
	Above 25 FCU		4		3
130	Containment RCP 21 Bel El. 130'	4	4		3
131	Containment RCP 22 Bel El. 130'	4	4		3
132	Containment RCP 23 Bel El. 130'	4	4		3

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
133	Containment RCP 24 Bel El. 130'	4	4		3
134	Aux Bldg #2 A.C. Equip Room El. 122'	5	5		4
135	Aux Bldg #2 A.C. Room El. 122'	10	10		8
136	Aux Bldg Resin Storage Area El. 122'	4	4		3
137	Aux Bldg East Aisle El. 64'	4	4		4
138	Aux Bldg West Aisle El. 64'	8			
	W Aisle El. 64'		7		7
	In Duct - CVCS Hold Up Tanks Vent Syst		1		1
141	Aux Bldg 21 & 22 Waste Gas Compr Area El. 64'	7	7		6
142	Aux Bldg 21 & 22 RHR Pumps Elev 45	7			
	21 RHR Pump El.45'		4		3
	22 RHR Pump El.45'	4	4		3
143	Aux Bldg El. 55'	7	7		7
144	SIP-CCP El. 84'	6			
	Component Cooling		3		2
	Safety Injection		3		2
145	CO2 Equip Rm Chg PMP & SIP CS Pump Elev 84	8			
	Containment Spray		3		2
	CHG - SIP		3		3
	CO2 Equip Room		2		2
146	Piping Penetetration El. 78'	8	8		6
147	Aux Feed Pumps El.84'	5		5	4
*148	Control Area East Corridor	7			
	Janitor Closet		1		1
	Work Control Center & Corridor		6		4
148	No. 21,22,23 Service Wtr Pump Bay (Note 6)	7	7		5
*149	Control Area East Corridor - Ceiling Void	7			
	Janitor Closet		1		1
	Work Control Center & Corridor		6		4
*150	Service Wtr Pipe Tunnel Area El. 88	16	16		14
150	No 24,25,26 Service Wtr Pump Bay (Note 6)	7	7		5

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Zone	Description Area Breakdown	Total No. of Detectors	Type "A" Detectors (Note 1)	Type "B" Detectors (Note 2)	Minimum Detectors Operable (Note 3)
152	No 21,22,23 Service Wtr Pump Control Room (Note 6)	1	1		1
154	No 24,25,26 Service Wtr Pump Control Room (Note 6)	1	1		1
157	Aux Bldg #21 & 22 Monitor Tank El. 64'	4	4		4
158	Aux Bldg #21 Waste Hold-up Tank El. 64'	2	2		2
159	Aux Bldg #22 Waste Hold-up Tank El. 64'	2	2		2
160	Aux Bldg #2 Waste Monitor El. 64'	2	2		2

* - Indicates detection zones containing both Unit 1 and Unit 2 equipment or cables or detection zones covering a portion of a Fire Area containing both Unit 1 and Unit 2 equipment which may directly expose both Units. In the event that the zone is rendered INOPERABLE, ensure that the action statement is logged and compensatory measures are established based on the equipment required OPERABLE for both Units, not just the Unit to which the zone alarms. Additionally, in the event that a fire alarm is received from any of these zones, ensure that both Control Rooms are alerted to the condition to ensure that any necessary operational actions are taken.

Note 1 - Type "A" detectors are for early warning indication only.

Note 2 - Type "B" detectors are for suppression system actuation.

Note 3 - Where the minimum detectors OPERABLE indicated is less than one less than the total number of detectors for the zone, no two detectors shall be adjacent to each other.

TABLE 3.3-10

FIRE DETECTION INSTRUMENTS

Note 4 - This zone is provided for Cable Vaults for both Units 1 and 2. Alarm indication, however, is received in the Unit 1 Control Room only. Upon confirmation that the alarm received is from a Unit 2 Cable Vault, detector, Unit 1 Control Room personnel shall notify Unit 2 Control Room personnel to ensure any necessary operational actions are taken. In the event that this zone is rendered INOPERABLE, Unit 1 Control Room personnel shall notify Unit 2 Control Room personnel and the appropriate action statement shall be logged against both Units 1 & 2.

Note 5 - Zone 91 is a cross zoned detection system used for actuation of the halon suppression system for the Relay Room. Therefore, the minimum detectors OPERABLE is based on 18, the combined number of detectors for both zones of the cross zoned system.

Note 6 - Zones 148, 150, 152, & 154, monitored by the Unit 1 Control Room, protect Unit 2 Service Water Pump Bays and Control Rooms. Upon receipt of an alarm from any of these zones, Unit 1 Control Room personnel shall notify Unit 2 Control Room to ensure any necessary operational actions are taken. In the event that any of these zones are rendered INOPERABLE, Unit 1 Control Room personnel shall notify Unit 2 Control Room personnel and the appropriate action statement shall be logged, as a minimum, against Unit 2.

PLANT SYSTEMS

3/4.7.10 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.10.1 The fire suppression water system shall be OPERABLE with:

a. Two OPERABLE fire suppression pumps, each with a capacity of 2500 gpm, with their discharge aligned to the fire suppression header,

b. Separate water supplies, each with a minimum contained volume of 300,000 gallons, and

c. An OPERABLE flow path capable of taking suction from either or both of the fire water storage tanks and transferring the water through the distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves, the last valve ahead of the water flow alarm device on each sprinkler or hose standpipe, and the last valve ahead of the deluge valve on each deluge or spray system required to be OPERABLE per Specifications 3.7.10.2, 3.7.10.5, and 3.7.10.6.

APPLICABILITY: At all times

ACTION:

a. With one pump and/or one water supply inoperable, restore the inoperable equipment to OPERABLE status within 7 days or, in lieu of any other report required by specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the plans and procedures to be used to restore the inoperable equipment to OPERABLE status or to provide an alternate backup pump or supply. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

b. With the fire suppression water system otherwise inoperable:

1. Establish a backup fire suppression water system within 24 hours, and

2. In lieu of any other report required by Specification 6.9.1, submit a Special Report in accordance with Specification 6.9.2:

   a) By telephone within 24 hours,

   b) Confirming by telegraph, mailgram or facsimile transmission no later than the first working day following the event, and

   c) In writing within 14 days following the event, outlining the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.7.10.1.1 The fire suppression water system shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying the contained water supply volume.

b. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path which is accessible during plant operation is in its correct position. Valves which are locked, sealed, or otherwise secured and not accessible during plant operation shall be verified to be in the correct position during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 31 days.

c. At least once per 12 months by performance of a system flush.

d. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

e. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:

1. Verifying that each automatic valve in the flow path actuates to its correct position,

2. Verifying that each pump develops at least 2500 gpm at a system head of 250 feet,

3. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and

4. Verifying that each fire suppression pump starts (sequentially) to maintain the fire suppression water system pressure greater than or equal to 135 psig.

f. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th edition, published by the National Fire Protection Association.

4.7.10.1.2 The fire pump diesel engines shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying:

1. Each fuel storage tank contains at least 300 gallons of fuel, and

2. Each diesel starts from ambient conditions and operates for at least 30 minutes on recirculation flow.

b. At least once per 92 days by verifying that a sample of diesel, fuel from the fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM D975-74 when checked for viscosity, water and sediment.

c. At least once per 18 months, during shutdown, by subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturers recommendations for the class of service.

4.7.10.1.3 The fire pump diesel starting 24-volt battery bank and charger shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying that:

1. The electrolyte level of each battery is above the plates, and

2. The overall battery voltage is greater than equal to 24 volts.

b. At least once per 92 days by verifying that the specific gravity is appropriate for continued service of the battery.

c. At least once per 18 months by that:

1. The batteries, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration, and

2. The battery-to-battery and terminal connections are clean, tight free of corrosion and coated with anti-corrosion material.

PLANT SYSTEMS

SPRAY AND/OR SPRINKLER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.2 The following spray and/or sprinkler systems shall be OPERABLE:

HAZARD AREA

Containment

- No. 21 Reactor Coolant Pump Lube Oil System
- No. 22 Reactor Coolant Pump Lube Oil System
- No. 23 Reactor Coolant Pump Lube Oil System
- No. 24 Reactor Coolant Pump Lube Oil System
- No. 21 Containment Iodine Removal Charcoal Filter
- No. 22 Containment Iodine Removal Charcoal Filter

Auxiliary Building

- Auxiliary Building Ventilation Removal Charcoal Filter
- Control Room Emergency Ventilation Charcoal Filter
- Containment pressure Relief Charcoal Filter
- No. 21 Diesel Fuel Oil Storage Tank Room
- No. 22 Diesel Fuel Oil Storage Tank Room
- No. 21, 22, & 23 Charging Pumps
- No. 21, 22, & 23 Auxiliary Feedwater Pumps (electrically actuated preaction sprinkler system)
- No. 21, 22, & 23 Auxiliary Feedwater Pumps (pneumatically actuated preaction sprinkler system)

APPLICABILITY: Whenever equipment protected by the spray/sprinkler system is required to be OPERABLE.

ACTION:

a. With one or more of the above required spray and/or sprinkler systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

4.7.10.2 Each of the above required spray and/or sprinkler systems shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path which is accessible during plant operation is in its correct position. Valves which are locked, sealed, or other secured and not accessible during plant operation shall be verified to be in the correct position during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 31 days.

b. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

c. At least once per 18 months:

1. By performing a system functional test which includes simulated automatic actuation of the system, and:

a) Verifying that the automatic valves in the flow path actuate to their correct positions on a test signal, and

b) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.

2. By a visual inspection of the dry pipe spray and sprinkler headers to verify their integrity, and

3. By a visual inspection of each sprinkler or deluge nozzle's spray area to verify spray pattern is not obstructed.

d. At least once per 3 years by performing an air flow test through each open head spray/sprinkler header and verifying each open head spray/sprinkler nozzle is unobstructed.

CO_2 SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.3 The following low pressure CO_2 systems shall be OPERABLE:

Auxiliary Building

- 2A Diesel Generator Area
- 2B Diesel Generator Area
- 2C Diesel Generator Area
- No. 21 Diesel Fuel Oil Storage Tank Room
- No. 22 Diesel Fuel Oil Storage Tank Room
- No 21 & 22 Diesel Fuel Oil Transfer Pump Rooms
- 460 VAC Switchgear Room
- 4160 VAC Switchgear Room

Electrical Penetration Area

- Lower Electrical Penetration Area

APPLICABILITY: Whenever equipment protected by the CO_2 systems is required to be OPERABLE.

ACTION:

a. With one or more of the above required CO_2 systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.3.1 Each of the above required CO_2 systems shall be demonstrated OPERABLE at least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.

4.7.10.3.2 Each of the above required low pressure CO_2 systems shall be demonstrated OPERABLE:

a. At least once per 7 days by verifying the CO_2 storage tank level to be greater than 50% and pressure to be greater than 285 psig, and

b. At least once per 18 months by verifying:

1. The system valves and associated ventilation dampers and fire door release mechanisms actuate manually and automatically, upon receipt of a simulated actuation signal, and

2. Flow from each nozzle during a "Puff Test."

HALON SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.10.4 The following Halon system shall be OPERABLE.

Auxiliary Building

- Relay Room

APPLICABILITY: Whenever equipment protected by the Halon system is required to be OPERABLE.

ACTION:

a. With the above required halon system inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.4 The above required Halon system shall be demonstrated OPERABLE:

a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.

b. At least once per 6 months by verifying the Halon storage tank weight to be at least 95% of full charge weight (or level) and pressure to be at least 90% of the full charge pressure.

c. At least once per 18 months by:

1. Verifying the system, including associated ventilation dampers and fire door release mechanisms, actuates manually and automatically, upon receipt of a simulated actuation signal, and

2. Performance of a flow test through headers and nozzles to assure no blockage.

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.10.5 The fire hose stations shown in TABLE 3.7-5 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the ares protected by the fire hose stations is required to be OPERABLE.

ACTION:

a. With one or more of the fire hose stations shown in Table 3.7-5 inoperable, provide gared wye(s) on the nearest OPERABLE hose station(s). One outlet of the wye shall be connected to the standard length of hose provided at the hose station. The second outlet of the wye shall be connected to a length of hose sufficient to provide coverage for the area left unprotected by the inoperable hose station. Where it can be demonstrated that the physical routing of the fire hose would result in a recognizable hazard to operating technicians, plant equipment, or the hose itself, the fire hose shall be stored in a roll at the outlet of the OPERABLE hose station. Signs shall be mounted above the wye(s) to identify the proper hose to use. The above ACTION requirement shall be accomplished within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise establish the additional hose capability within 24 hours.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.5 Each of the fire hose stations shown in Table 3.7-5 shall be demonstrated OPERABLE:

a. At least once per 31 days by a visual inspection of the fire hose stations accessible during plant operations to assure all required equipment is at the station.

b. At least once per 18 months by:

1. Visual inspection of the stations not accessible during plant operations to assure all required equipment is a the station,

2. Removing the hose for inspection and re-racking, and

3. Inspecting all gaskets and replacing any degraded gaskets in the couplings.

c. At least once per 3 years by:

1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.

2. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above maximum fire main operating pressure, whichever is greater.

TABLE 3.7-5

FIRE HOSE STATIONS

LOCATION*		HOSE VALVE
ELEVATION	COLUMN	IDENTIFICATION
Auxiliary Building		
122'	BB-13.8	1FP277
122'	GG-14	2FP138
122'	NN-14	2FP76
100'	AA-14.2	2FP231
100'	EE-14	2FP283
100'	GG-14	2FP137
100'	NN-14	2FP75
84'	AA-14.2	2FP230
84'	GG-14	2FP136
84'	NN-14	2FP74
64'	AA-14.2	2FP229
64'	GG-14	2FP135
64'	NN-14	2FP73
55'	GG-14	2FP134
Mechanical Penetration Area		
100'	KK-18	2FP279
Containment		
130'	B6	2FP89
130	B16	2FP96
78'	B6	2FP88
78'	B16	2FP97

* List all Fire Hose Stations required to ensure the OPERABILITY of safety-related equipment.

YARD FIRE HYDRANTS AND HYDRANT HOSE HOUSES

LIMITING CONDITION FOR OPERATION

3.7.10.6 The yard fire hydrants and associated hose houses shown in Table 3.7-6 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the yard fire hydrants is required to be OPERABLE.

ACTION:

a. With one or more of the yard fire hydrants shown in Table 3.7-6 inoperable, within 1 hour have sufficient additional lengths of 2 1/2 inch diameter hose located in an adjacent OPERABLE hydrant hose house to provide service to the unprotected area(s) if the inoperable fire hose is the primary means of fire suppression; otherwise, provide the additional hose within 24 hours. Restore the hydrant or hose house to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the hydrant or hose house to OPERABLE status.

b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.10.6 Each of the yard fire hydrants and associated hydrant hose houses shown in Table 3.7-6 shall be demonstrated OPERABLE:

a. At least once per 31 days by visual inspection of the hydrant house to assure all required equipment is at the hose house.

b. At least once per 6 months (once during March, April, or May and once during September, October, or November) by visually inspecting each yard fire hydrant and verifying the hydrant barrel is dry and that the hydrant is not damaged.

c. At least once per 12 months by:

1. Conducting a hose hydrostatic test at a pressure of 150 psig or at least 50 psig above maximum fire main operating pressure, whichever is greater.

2. Inspecting all gaskets and replacing any degraded gaskets in the couplings.

3. Performing a flow check of each hydrant to verify its OPERABILITY.

TABLE 3.7-6

YARD FIRE HYDRANTS AND ASSOCIATED HYDRANT HOSE HOUSES

LOCATION*	HYDRANT NUMBER
Fuel Handling Building, Northwest yard	18FP50
Service Water Intake Structure	1FP50

* List all Yard Hydrants and Hydrant Hose Houses required to ensure the OPERABILITY of safety-related equipment.

PLANT SYSTEMS

3/4.7.11 FIRE RATED ASSEMBLIES

LIMITING CONDITION FOR OPERATION

3.7.11 All fire rated assemblies (walls, floor/ceilings. cable tray enclosures and other fire barriers) separating safety related fire areas or separating portions of redundant systems important to safe shutdown within a fire area and all sealing devices in fire rated assembly penetrations (fire doors, fire windows, fire dampers, cable and piping penetration seals and ventilation seals) shall be OPERABLE.

APPLICABILITY: At all times

ACTION:

a. With one or more of the above required fire rated assemblies and/or sealing devices inoperable, within one hour:

   1. Verify the OPERABILITY of the fire detectors on both sides of the affected penetration and establish a daily fire watch patrol, or

   2. Verify the OPERABILITY of fire detectors on at least one side of the affected penetration and establish an hourly fire watch patrol, or

   3. Establish a continuous fire watch on at least one side of the affected penetration.

b. Restore the inoperable fire rated assembly and sealing device to OPERABLE status within 7 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the fire rated assembly and sealing device to OPERABLE status.

c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.1 At least once per 18 months the above required fire rated assemblies and penetration sealing devices shall be verified OPERABLE by:

a. Performing a visual inspection of the exposed surfaces of each fire rated assemblies.

b. Performing a visual inspection of each fire window, fire damper and associated hardware.

c. Performing a visual inspection of at least 10 percent of each type of sealed penetration. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 10 percent of each type of sealed penetration shall be made. This inspection process shall continue until a 10 percent sample with no apparent change in appearance or abnormal degradation is found. Samples shall be selected such that each penetration seal will be inspected at least once per 15 years.

4.7.11.2 Each of the above required fire doors shall be verified OPERABLE by inspecting the automatic hold-open, release and closing mechanisms and latches at least once per 6 months, and by verifying:

a. The position of each closed fire door at least once per 24 hour.

b. That doors with automatic hold-open and release mechanisms are free of obstructions at least once per 24 hours.

c. The position of each locked closed fire door at least once per 7 days.

d. The OPERABILITY of the fire door supervision system by performing a TRIP ACTUATING DEVICE OPERATIONAL TEST at least once per 31 days.

ATTACHMENT 4

PROPOSED CHANGES TO FIRE PROTECTION PROGRAM DESCRIPTION
IN THE SALEM GENERATING STATION, UNIT NOS. 1 AND 2
UPDATED FINAL SAFETY ANALYSIS REPORT

The attached UFSAR pages, in conjunction with the proposed revised Technical Specification in Attachment 3, would, upon review and approval by the USNRC, form the basis for removal and relocation of the fire protection program from the Technical Specifications in accordance with the provisions of Generic Letters 86-10 and 88-12.

9.5.1 Fire Protection

9.5.1.1 Fire Protection Program

The Salem Generating Station Fire Protection Program has been established to prevent significant fires, to ensure the capability to shutdown the reactors and maintain them in a safe shutdown condition, and to minimize radioactive releases to the environment in the event of a significant fire. The Fire Protection Program implements the philosophy of defense-in-depth protection against the hazards of fire and its associated affects on equipment important to safety by:

1. Preventing fires from starting.

2. Rapidly detecting, controlling, and promptly extinguishing those fires that do occur.

3. Providing protection for structures, systems, and components important to safety so that a fire that is not promptly extinguished by the fire suppression activities will not prevent the safe shutdown of the plant.

The Salem Generating Station Fire Protection Program consists of design features, equipment, personnel, and procedures that provide defense-in-depth protection of the public health and safety. The Salem Fire Protection Program is described in several documents:

- A program description which establishes the basis for the fire protection program at the Salem Generating Station. The Report identifies and documents principal fire protection commitments made between the Nuclear Regulatory Commission and Public Service Electric & Gas Co. through a narrative description of the Fire Protection Program. The report also provides a comparison to Appendix A of BTP APCSB 9.5-1.

- A report which establishes the basis for demonstrating a capability to achieve and maintain post-fire safe shutdown in accordance with Appendix R to 10 CFR 50. This report, also establishes the information and format of the information to be utilized for long-term compliance to Appendix R to 10 CFR 50.

- A report which identifies the cables and the routing of the cables that were utilized in the assessment of post-fire safe shutdown.

- A report which outlines the Fire Hazards Analysis performed for Salem Generating Station in accordance with USNRC Branch Technical Position BTP-APCSB 9.5-1 Appendix A "Guidelines for Fire Protection for Nuclear Power Plants".

- A report which defines and assesses the adequacy of the fire area boundaries in the Salem Generating Station as recommended by Generic Letter 86-10.

The information contained in these reports is summarized in the following sections.

9.5.1.1.1 **Organization for Fire Protection**

The Vice President and Chief Nuclear Officer is the upper level offsite management position who has management responsibility for the formulation, implementation, and assessment of the effectiveness of the Fire Protection Program for Artificial Island.

The Manager - Nuclear Engineering Design is the offsite management position who is responsible for formulating and implementing a program or programs to control and maintain the design aspects of the Fire Protection program.

The Nuclear Engineering Sciences Manager reporting to the Manager - Nuclear Engineering Design is responsible for establishing program requirements for implementing and maintaining the design related aspects of the Fire Protection Program.

The Vice President - Nuclear Operations is the offsite management position who is responsible for formulating and implementing a program or programs to control and maintain fire prevention aspects of the Fire Protection Program and the readiness to detect and suppress fires and safely shut down the plant.

The General Managers - Salem and Hope Creek Operations reporting to the Vice President - Nuclear Operations are responsible for maintaining procedures for safely shutting down the plant in the event of a fire and providing trained operators in support of safe shutdown and fire brigade activities.

The General Manager - Nuclear Services reporting to the Vice President - Nuclear Operations is responsible for establishing a method of tracking and correcting Fire Protection Program deficiencies.

The Manager - Site Protection reporting to the General Manager - Nuclear Services is responsible for establishing program requirements for implementing the aspects of the Fire Protection Program relative to fire prevention and housekeeping and readiness to detect and suppress fires.

The Manager - Nuclear Training reporting to the General Manager - Nuclear Services is responsible for ensuring that personnel designated to operate the plant are trained such that they can safely shut down the plant and maintain it in a safe shutdown condition in the event of a fire.

The Manager - Site Services reporting to the General Manager - Nuclear Services is responsible for ensuring any required maintenance of fire protection systems is completed in a prompt and effective fashion.

The General Manager - Quality Assurance/Nuclear Safety Review is the offsite management position responsible for defining a QA program for fire protection and for conducting independent verification and review for compliance with Fire Protection Program requirements.

9.5.1.1.2 Use of Combustible Materials

The use of combustible materials at the Salem Generating Station is controlled by station procedures. Administrative controls are established to minimize the quantity of combustibles that a safety related area may be exposed to.

Procedures outline the methods to be used to ensure safe handling and limitations on the use of combustibles.

The use of ordinary combustibles such as paper, wood and plastic is minimized in the station. When wood is used for scaffolding, it is of the flame retardant type.

The bulk storage of hydrogen is in a separate area, outside plant structures. Additional hydrogen storage is in the Turbine Building and on the Auxiliary Building Roof. Signs are posted in the storage areas prohibiting smoking, open flames, and spark producing equipment.

Bulk Class A materials, such as charcoal filter medium, are not stored in safety related areas of the station.

Chemicals are stored in the primary and secondary water chemistry laboratories. The quantities of chemicals stored in the labs are minimal, and are stored in metal cabinets.

9.5.1.1.3 Control of Ignition Sources

Procedures are established to ensure safe operating practices whenever hot-work operations are performed. Hot-work permits and fire watches are required to protect safety related equipment from fire damage or loss resulting from work involving ignition sources, welding, cutting, grinding, and open flame type work. Procedures also prohibit the use of combustion by-products for ventilation leak testing.

Smoking is prohibited in vital plant areas.

9.5.1.1.4 Testing and Maintenance of Fire Protection Systems

The Salem Generating Station suppression and detection systems are periodically tested in accordance with station procedures to verify their operability. Systems that do not satisfy acceptance criteria are restored to operable condition in a timely fashion. As specified in Generic Letters 86-10 and 88-12, fire protection system requirements were removed from the Salem Technical Specifications after the FSAR was updated to incorporate the Fire Protection Program. The limiting Conditions for Operations and Surveillance Requirements formally contained within Technical Specifications have been adapted into Administrative and Surveillance Procedures respectively.

9.5.1.1.5 Quality Assurance Program for Fire Protection

The Quality Assurance Program at Salem Generating Station assures that the requirements for design, procurement, installation, testing, and administrative controls for the fire protection program for safety related areas are satisfied.

The QA program for fire protection is part of the overall station QA program and contains the following elements:

DESIGN CONTROL AND PROCUREMENT DOCUMENT CONTROL

Design control and procurement document control measures are established to assure that applicable NRC guidelines are included in design and procurement, and that design changes and deviations are adequately reviewed and approved.

INSTRUCTIONS, PROCEDURES, AND DRAWINGS

Instructions, procedures, and drawings govern the fire protection program of inspection, tests, administrative controls, fire drills, and training.

CONTROL OF PURCHASED MATERIAL, EQUIPMENT AND SERVICES

Control of purchased material, equipment, and services are established to assure that these items conform to procurement documents.

INSPECTIONS

A program for the inspection of activities affecting fire protection is established to verify conformance to documented installation drawings and test procedures.

TEST AND CONTROL

A test program is established to ensure that testing is performed and verified by inspection and audit to demonstrate conformance with fire protection requirements.

INSPECTION, TEST AND OPERATING STATUS

Inspection, test, and operating status measures are established to provide for the identification of items that have satisfactorily passed required tests and inspections.

NONCONFORMING ITEMS

Measures are established to control items that do not conform to specified requirements to prevent inadvertent use in fire protection installations.

CORRECTIVE ACTION

Corrective action measures are established at the station to ensure that conditions adverse to fire protection such as failures, malfunctions, deficiencies, deviations, defective components, uncontrolled combustible materials, and non-conformances are promptly identified, reported, and corrected.

RECORDS

Records are prepared and maintained to furnish evidence that the QA program criteria are being met for those activities affecting the fire protection program.

AUDITS

Audits of activities affecting quality are performed by the PSE&G Quality Assurance Department and by the Station QA Engineer.

9.5.1.1.6 Fire Brigade

The Salem Fire Brigade consists of full time dedicated fire fighting personnel with a minimum of five trained fire fighting personnel onsite at all times with provisions for a 2-hour call out to cover emergency absences. At least three of the on-shift fire brigade members are knowledgeable in Salem's safety systems to understand the effects of fire and fire suppressants on safe shutdown capability.

9.5.1.1.7 Fire Brigade Training and Drills

The fire brigade training program ensures that the capability to fight potential fires is established and maintained. The program consists of classroom training, fire fighting practice, and fire drills.

The fire brigade training is provided by individuals who are knowledgeable and qualified by previous training, and experienced in the use of available equipment and in fighting the fires which could occur at the Salem Station.

9.5.1.1.8 Fire Drills

Fire brigade drills are conducted quarterly for each fire brigade shift. The drills are conducted in areas where simulated fires of the type, size, and arrangement that could reasonably occur and develop during the response and organization time of the fire brigade. Drills are conducted so that each fire brigade member can participate in each drill, but must participate in at least two drills per year. At least one drill per year is held on the back-shift. At least one drill per year is unannounced.

A randomly scheduled unannounced drill is critiqued by an engineer who is qualified for Member Grade in the Society of Fire Protection Engineers and who is not an employee of PSE&G. This drill is conducted at 3 year intervals as part of the Triennial Fire Protection Program audit and inspection.

9.5.1.1.9 Fire Brigade Equipment

The fire brigade is provided with complete personal protective gear, emergency communication equipment, portable lights, portable ventilation equipment, and self-contained breathing units.

9.5.1.1.10 Off-Site Fire Department

Training of the plant fire brigade is coordinated with the local fire department to ensure that the responsibilities and duties of the brigade and the offsite fire departments are delineated in advance of any fire.

9.5.1.2 Plant Construction Features

9.5.1.2.1 Fire Areas and Barriers

Fire areas are established to separate redundant trains of safe shutdown equipment from each other, to isolate safety-related systems from fire hazards in non-safety related areas,

to separate Salem Unit 1 from Salem Unit 2 and to limit the spread of fire through the station by compartmentalization.

Fire area boundaries have been defined and evaluated as part of the Salem Fire Protection Program. Construction which does not meet specific rating criteria is either evaluated by an engineering evaluation in accordance with Generic Letter 86-10 or is included in an approved exemption request.

9.5.1.2.2 Penetration Seals

At Salem Generating Station, openings through fire barriers for pipe, conduit, and cable trays which separate fire areas are sealed or closed to provide a fire resistance rating equal to that required of the barrier or have been evaluated and determined adequate to withstand the fire hazard in the area in accordance with Generic Letter 86-10. In some areas, exemption requests rather than engineering evaluations form the basis for approval of specific seals.

9.5.1.2.3 Fire Doors

Doors which are installed in fire area boundaries carry the UL label, with the exception of oversize doors, which cannot be tested. Fire area boundary doors, enclosing fire areas which are not normally locked, are either provided with a time delay alarm to indicate when the door has been left open, or are routinely inspected. Reliability of the fire doors are enhanced by inspections and administrative controls, which ensure the operability of the fire doors.

PSE&G has been granted a generic exemption from the requirements of 10 CFR 50 Appendix R Section III.G.2(a) which allows the use of 1-1/2 hour fire rated doors in 3 hour barriers based on maintaining a limited combustible loading in the affected areas.

9.5.1.2.4 Fire Dampers

At Salem Generating Station, 1-1/2 hour and 3 hour rated fire dampers are installed in locations where HVAC ducts pass through fire area boundaries. Most of the fire dampers installed at Salem Generating Station are located within the HVAC duct and are not within the plane of the penetrated fire barrier.

PSE&G has been granted a generic exemption from the requirements of 10 CFR 50 Appendix R Section III.G.2(a) which allows this installation as well as the use of 1 - 1/2 hour fire rated dampers, 1 hour rated ventilation ducts and ventilation duct penetration seals in 3 hour barriers based on maintaining a limited combustible loading in the affected areas.

9.5.1.2.5 Cable Wrap

Cable wraps are used at Salem Generating Station to enclose redundant cabling in a 1 hour fire rated barrier. In the 4160V Switchgear Room, cable wraps are also used to cover open cable trays so that the cabling would not be considered as an "intervening combustible".

The cable wraps used at Salem has been approved by the NRC as a 1 hour rated material.

9.5.1.2.6 Partial Height, Partial Length Marinite Walls

At Salem Generating Station, partial height, partial length marinite walls are used to separate equipment needed for safe shutdown in the following areas:

- 4160V Switchgear Room (Fire Areas 1&2FA-AB-64A)
- 460V Switchgear Room (Fire Areas 1&2FA-AB-84A)

- Lower electrical penetration area (Fire Areas 1&2FA-EP-78C)

The technical justification for these partial walls separating safe shutdown equipment is provided in approved exemption requests.

9.5.1.2.7 Reactor Coolant Pump Oil Collection System

The reactor coolant pump bearing lube oil lift pumps are protected with fixed water fire suppression systems. The discharge from these systems is directed to four reactor coolant pump oil drain tanks which are designed to act as oil skimming tanks. These tanks retain the oil and allow the water to drain to the Containment sumps.

In addition, a reactor coolant pump lube oil collection system is provided. The oil collection system is engineered, designed and installed so that there is reasonable assurance that its failure will not lead to fire during normal or design basis accident conditions. The oil collection system consists of a series of collection pans and drainage piping that is capable of collecting lube oil from potential pressurized and unpressurized leakage points in the reactor coolant pump lube oil system. Oil leakage is drained and collected to vented closed containers. A flame arrester is provided in the vent systems of the oil collection tanks.

9.5.1.2.8 Radiant Energy Shields

Inside Containment, concentrations of electrical cables converge at the electrical penetration areas. Radiant energy shields are placed between the divisions so that radiant energy from a fire involving the cabling of one division would not damage cables of the other divisions.

9.5.1.3 Control of Combustibles

9.5.1.3.1 Storage of Flammable Liquids

Bulk quantities of flammable liquids are not stored at Salem. Combustible liquids stored in buildings containing safety related equipment are limited to the Diesel Generator Fuel Oil Storage Tanks and Day Tanks.

Each Diesel Generator Day Tank is located in a concrete enclosure and is protected by an automatic CO_2 flooding system. The tanks are vented to the outside and the vents are equipped with flame arresters.

Each Diesel Generator Fuel Oil Storage Tank is located in a separate room enclosed by fire barriers. The tanks are vented to the outside with provisions to prevent overpressurization. Each tank is located in an enclosure that is designed to hold the entire volume of the tank.

9.5.1.3.2 Electrical Cable Construction

Tests have been performed to demonstrate the flame retardant properties of the cables used at Salem Generating Station in accordance with IEEE 383, or the UL single conductor test.

Short sections of non-qualified cable may be used for lighting or communications circuits, or may be contained within vendor supplied panels or conduits.

9.5.1.4 Safe Shutdown Capability

9.5.1.4.1 Systems Required for Safe Shutdown

For the Salem units, the term "post-fire safe shutdown" refers both to the capability to achieve and maintain hot standby, as well as the capability to achieve and maintain cold shutdown. To demonstrate a post-fire safe shutdown capability, a number of discrete tasks were performed. For the first task, a safe shutdown methodology was established. The safe shutdown methodology essentially provides a scenario for shutting down the plant, i.e., the process by which reactivity is controlled and decay heat is removed. Utilizing the shutdown methodology, the systems (auxiliary feedwater) and components (pumps, valves) within the systems, necessary for safe shutdown, were identified for the second task.

Concurrent with this task, the plant was subdivided into "fire areas." The fire-rated boundaries provide reasonable assurance that a fire would be confined to the specific plant sections and would not spread beyond the boundaries. Because fire areas restrict the spread of fire, the overall task is reduced to demonstrating a post-fire shutdown capability for any one particular area at a time.

Utilizing both the fire areas and the identified shutdown components, the circuits/cables necessary to operate these components were identified along with the conduit and raceway routing of the cables. The conduits and raceways were then identified as to which fire area they were located. With the shutdown methodology and fire area boundaries defined, and the location of components and cables identified, the final task, the process of fire area assessments was initiated.

A fire area assessment evaluates the components and cables within a particular fire area to determine if the capability to achieve post-fire safe shutdown exists.

If it was determined that safe shutdown could not be achieved due to loss of equipment and cabling, fire protection measures were evaluated. Section III.G.2 of Appendix R, specifies fire protection measures which include separation, cable wrap (tray and conduit), suppression systems, detection systems, fire barriers, and combinations of these features. In addition, alternate fire protection measures were considered through the licensing

exemption process. In lieu of protecting the cables in the Control Room Complex, the Relay Room, and the ceiling of the 460V Switchgear Room, an alternative means of shutting down has been provided. For each fire area of the two units, the ability to achieve and maintain safe shutdown has been assured. Generally, the same level of protection was applied to the capability to achieve and maintain hot standby as the capability to achieve and maintain cold shutdown.

The shutdown model provides the overall methodology, scenario for shutting down the plant in the event of a fire. In developing a shutdown scenario several assumptions and initial conditions were utilized as follows:

a. At any given time, only one fire would occur.

b. A fire would not occur concurrent with other plant accidents or severe natural occurrences (seismic events).

c. During the course of the post-fire shutdown, the plant would not experience an additional, random single active failure.

These assumptions are consistent with the requirements of Appendix R. Further, the shutdown scenario considered that the units were operating at full power conditions and that offsite power may be available or unavailable for 72 hours. The shutdown model scenario addresses the Appendix R criteria for achieving and maintaining hot standby and cold shutdown conditions through the five basic performance goals delineated in Section III.L of Appendix R. The performance goals for post-fire shutdown are reactivity control, reactor coolant inventory control, decay heat removal, process monitoring and support functions. A sixth performance goal of reactor coolant system pressure control can also be inferred from the basic five performance goals.

In the event of a fire, the shutdown process begins with a plant trip. It is more than likely, that if a fire causes damage to the reactor protection system it would initiate a plant trip. Further, if a loss of offsite power was to occur, an automatic trip would also be initiated. However, in any case, a manual trip could be performed and a shutdown initiated. The process would continue with establishment of charging flow from at least one pump. Reactor coolant pump seal cooling would be established to prevent seal degradation.

On the secondary side, decay heat removal would be accomplished by use of the auxiliary feedwater system. At first, the rate of secondary side heat removal would be controlled by the main steam relief valves. As the shutdown process progressed, control would be provided by auxiliary feedwater flow and the main steam atmospheric dump valves. Long-term decay heat removal would be provided by one train of residual heat removal.

The above systems would be supported by essential room coolers (HVAC), component cooling and service water. Vital power would be provided by the vital power buses (125V DC, 120V AC, 230V AC, 460V AC and 4160V AC) supplied from the diesel generators or offsite sources. The entire shutdown process would be controlled and monitored with reactor coolant system instrumentation including pressurizer instrumentation and secondary side instrumentation. Specific details of the shutdown process are contained in the Salem Appendix R safe shutdown engineering document.

For modeling purposes, the five basic performance goals were subdivided into 22 shutdown functions. Shutdown functions are processes necessary during post-fire shutdown to accomplish the listed performance goals. For example, the shutdown function "Service Water" is utilized, in part, as a support function, one of the five performance goals.

To address the performance goal of reactivity control, the shutdown functions of Charging, Boric Acid Supply and Letdown are utilized.

To address the performance goal of reactor coolant inventory control as well as the inferred goal of reactor coolant system pressure control, the shutdown functions of Charging, Letdown, RCP Seal Cooling and Reactor Depressurization are used.

For the performance goal of decay heat removal, the shutdown functions of Auxiliary Feedwater, Main Feedwater Isolation, Main Steam Isolation, Residual Heat Removal and Secondary Depressurization are utilized.

The performance goal of process monitoring is provided by the shutdown functions of Auxiliary Feedwater, Pressurizer, and Steam Generator Instrumentation.

The performance goal for a support function is addressed by several shutdown functions. Motive power is addressed by the Air Supply, the DG Fuel Oil Transfer and the Power Distribution functions. These functions ensure the availability of vital electrical power and control air. Cooling water support is ensured by the shutdown functions of Chilled Water, Component Cooling and Service Water. Post-fire ventilation is ensured through the shutdown functions of HVAC-AFW, HVAC-Charging, HVAC-RHR, Containment Ventilation, and Service Water Ventilation.

9.5.1.4.2 Identification of Cables

As part of the Appendix R safe shutdown analysis process, a cable identification methodology was established to identify any cable that would be required for operation of a safe shutdown component or whose fire-induced damage may result in spurious actuation of a safe shutdown component. These cables are referred to as "safe shutdown cables."

The cable identification process for each device (component) identified the cables that:

1. Formed part of the control, power or required indication circuit for the component;

2. Provided a contact, interlock, etc., that can affect the operation of the component;

3. Provided power to the above circuits;

4. Shared a common power supply; and

5. In any way could affect the operation of the component.

The cable routings are traced to their termination or to an isolation device that would prevent the feedback of faults or spurious signals. Power cables are traced back to the switchgear, MCC, or distribution panel. The switchgear, MCC, and distribution panels are considered as separate components and devices.

The above process was utilized for all devices and fire areas, except for the diesel generator rooms and for the Safeguards and Solid State Protection Signals. Numerous cables exist between the diesel generators and their control panels. Each diesel generator and control panel are located in separate fire areas. For the most part, the wiring between the engine and generator and the control panels are contained within the respective fire areas. Therefore, only those cables which were routed outside the respective diesel generator and control panel areas were recorded on input forms and subsequently their routes traced throughout the plant. For devices associated with the Safeguards and Solid State Protection Signals, cabling was traced back to the cabinet or panel which provides the protective function.

9.5.1.4.3 Associated Circuits

The post-fire safe shutdown equipment is powered from the various levels of the vital power distribution system. Associated circuits with a common power source would, then, be limited to non-shutdown loads (loads which are not utilized for shutdown, such as containment spray pumps) from the vital buses. The non-vital buses are electrically separated from the vital buses. In general, electrical protection has been applied to all loads of the vital buses. Thus, the vital buses are electrically protected from the non-shutdown loads by coordinated breakers and fuses. In those instances where complete coordination has not been applied, the non-shutdown loads were considered equivalent to shutdown circuits and subjected to the separation/protection requirements of Section III.G of Appendix R.

For the spurious operation case of associated circuits, it was necessary to demonstrate that fire induced spurious actuation of equipment would not adversely impact the ability to achieve and maintain safe shutdown. The shutdown model identified for each shutdown function and flow path, those components whose spurious operation would adversely impact the particular function and/or flow path. These components were then treated as safe shutdown components. For example, if the spurious closure of a valve would block a service water flow path, then that valve was considered necessary for operation of that flow path. For each fire area, the unprotected spurious operation components were evaluated to Generic Letter 86-10 and 81-12 criteria. The cabling for these components was also evaluated with respect to the ability of fire-induced failures which could result in spurious actuations of the component. The cable failure modes considered included hot shorts, open circuits and shorts to ground. Power cables for motor-operated valves which do not have to be repositioned were not protected since loss of those cables cannot cause the valve to change position.

Special consideration was given to the suction valves of the charging pumps from the VCT. If the charging pump suction valves were to spuriously close, the normal operating charging pump could potentially be damaged due to loss of suction flow. For the alternate shutdown areas, the ability to utilize any of the three charging pumps is provided. For the remaining areas, separation and protection ensures post-fire availability of at least one charging pump.

In addition, special consideration was given to the valves comprising high-low pressure interfaces.

For the high-low pressure interfaces, five sets of interfaces were identified and evaluated, as follows: the pressurizer PORV and block valve lines, the reactor head vent lines, the residual heat removal suction lines, the letdown lines and the excess letdown lines. For the alternate shutdown capability areas, the procedures require the block valves to be verified closed or closed if they were observed to be open. For the remaining areas, either the cabling is protected or power could be de-energized to fail close the valves.

The reactor head vent lines are 3/4" lines and thus, do not pose an immediate concern. The charging system is more than capable of making-up the reactor coolant inventory losses through the reactor head vents. For protection of the residual heat removal suction valves, motive power to at least one of the valves has been de-energized at the motor control center in the electrical penetration area during normal power operation. Thus, failures of the control circuits would not result in spurious actuation.

In evaluating the normal letdown and excess letdown, it is important to note that numerous (five to seven) spurious valve operations would be necessary to result in uncontrolled loss of inventory. In addition, most of these valves are fail closed solenoid valves. Post-fire controllable letdown is desirable, thus only long-term loss of inventory is of concern. For

the alternate shutdown capability areas, the ability to control normal letdown has been ensured. For the remaining areas, at least one valve in the interface line has been protected. Similarly for the excess letdown, the alternate shutdown capability provides the ability to control two of the excess letdown valves as part of the RCP seal cooling function. For the remaining areas, fire damage would not result in spurious opening of all of the valves for excess letdown.

For the common enclosure case of associated circuits, it was necessary to demonstrate that fire-induced failure in non-shutdown cables would not electrically or physically propagate a fire to the shutdown cables. Design criteria provides for field routed cabling to meet IEEE-383 requirements. Essentially the cabling utilized will not result in propagation of a fire. As part of the safe shutdown cable identification process, cabling directly connected to the circuit of a safe shutdown component was considered part of the circuit unless it was separated by an isolation device. Thus, any non-electrically isolated circuit is considered part of the safe shutdown cables.

In addition, the cable separation requirements for Salem eliminates a common enclosure concern related to cable installation. The vital channels, "A," "B," "C," and "D" are required to be routed in separate trays and conduits. The electrical divisions 460V, 230V, and 4kV power are also required to be routed in a separate tray or conduit. In addition, channels of non-vital cabling "H," "E," "F," and "G" are designated such that they are routed with only one particular vital channel. Further, the rating of the cables utilized in the Salem units are such that fire-induced shorting or grounding would result in a blown fuse or a tripped breaker before significant degradation of the cabling itself.

9.5.1.4.4 Alternate Shutdown Capability

For the Salem units, alternate shutdown capability is utilized for the Control Room Complex, the Relay Rooms, and the upper portions of the 460V Switchgear Rooms. The alternate shutdown capability is primarily procedural control of the same post-fire shutdown equipment utilized for the other plant areas.

The alternate shutdown procedure directs use of the charging system and letdown lines for reactivity control and reactor coolant inventory control. Any two of the three charging pumps could be utilized, even though the procedure specifically states to start one centrifugal pump. Reactor coolant pressure control is provided by either the pressurizer heaters, if available, or the charging pumps. The pressurizer heaters are not considered required equipment. For depressurization, either letdown or auxiliary spray could be utilized. For initial decay heat removal, the procedure directs use of the turbine-driven auxiliary feedwater pump. If desired, the motor-driven auxiliary feedwater pumps could also be utilized. For long-term decay heat removal, a residual heat removal pump is utilized.

For support, the procedure directs start of the diesel generators, component cooling water system pumps and the service water system pumps. Any two of the three diesel generators could be utilized and any of the component cooling water pumps and service water pumps could be utilized. The procedure also addresses the start of room coolers, an air compressor and containment ventilation fans. The procedure addresses both the availability and unavailability of offsite power sources through the verification of the vital buses. Process monitoring is available at the Hot Shutdown Panel. The available instrumentation includes steam generator level and pressure, pressurizer pressure and level, reactor coolant hot and cold leg temperature and source range flux level.

Equipment operating instructions were developed to accomplish individual functions (pump start/stop operation, valve open/close operation, diesel operation, etc.) for use by the operator as necessary. Each function has its own specific instruction. The preferred method of operation of the various motor-operated valves is from the motor-control center, even though the necessary valves may be manually aligned. The procedures require that personnel be stationed at various locations to effect hot standby and to address contingent activities. The procedures can be accomplished utilizing onsite shift personnel, exclusive of the fire department personnel. Communication and emergency lighting has been provided to implement the shutdown process.

9.5.1.4.5 Exemption Requests

PSE&G has received NRC approval of exemptions from the applicable requirements of Appendix R. The exemptions which have been granted by the NRC are described in a Safety Evaluation Report (SER) and summarized below:

a. Generic Exemption, Station Wide

This exemption is from Section III.G.2.a to the extent that 1-1/2 hour fire rated doors and dampers, 1 hour fire-rated ventilation ducts and their penetration seals, and non-rated equipment hatches do not provide 3 hour fire-rated barriers between areas containing redundant shutdown systems, equipment, cables and associated circuits.

b. Control Room Complex (Area 12 FA-AB-122A)

This exemption is from Section III.G.3 of Appendix R to 10 CFR Part 50 to the extent it requires a fixed fire suppression system for an area where alternate shutdown capability is provided. Specifically, the Salem Units 1 and 2 Control Room Complex does not have a fixed fire suppression system.

c. Reactor Plant Auxiliary Equipment Area - Elevation 100 ft. and 110 ft.
Upper Electrical Penetration Area (Areas 1 and 2 FA-EP-100G)*
Inner Piping Penetration Area (Areas 1 and 2 FA-PP-100H)
Reactor Plant Auxiliary Building - Elevation 64 ft. (Areas 1 and 2 FA-AB-64B)

These exemptions are from the requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 in the above-referenced areas to the extent that it requires the separation of redundant safe shutdown cables and equipment by 1 hour fire-rated barriers plus automatic fire suppression and detection systems. Specifically, these locations are not protected by automatic fire suppression systems or area-wide fire detection systems.

*Approval pending.

d. Mechanical Penetration Areas (Fire Areas 1 and 2 FA-MP-78I)

This exemption is from Section III.G.2 of Appendix R to 10 CFR 50 to the extent it requires the separation of redundant cables and equipment by 1 hour rated fire barriers plus area-wide suppression and detection. Specifically, Fire Areas 1 and 2 FA-MP-78I are not protected by automatic suppression systems and area-wide detection capability.

e. 460V Switchgear Room (Areas 1 and 2 FA-AB-84A)
Lower Electrical Penetration Area (Areas 1 and 2 FA-EP-78C)
4160V Switchgear Room (Areas 1 and 2 FA-AB-64A)

These exemptions are from the requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 in the above-referenced areas to the extent that it requires the separation of redundant safe shutdown equipment by 1 hour fire-rated barriers plus automatic suppression and detection systems. Specifically, redundant safe shutdown systems are not protected by complete, 1 hour fire barriers. In addition, the fire suppression system in the 4160V Switchgear Room is manually actuated.

f. Reactor Plant Auxiliary Equipment Area - Elevation 84 ft. (Areas 1 and 2 FA-AB-84B)

This exemption is from the requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 to the extent that it requires the separation of redundant safe shutdown cables and equipment by 1 hour fire-rated barriers plus automatic fire detection and suppression systems. Specifically, area-wide detection and suppression systems are not provided. Additionally, auxiliary feedwater (AFW) system and chemical and

volume control system (CVCS) equipment are not separated by complete fire rated barriers.

g. Residual Heat Removal Pump and Heat Exchanger Areas (Areas 1 and 2 FA-AB-45A and B)

This exemption is from the technical requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 to the extent that it requires the separation of redundant safe shutdown systems by complete 3 hour fire-rated barriers. Specifically, redundant cables in these areas are separated by 3 hour fire rated walls with open penetrations.

h. Containment (Areas 1 and 2 FA-RC-78)

This exemption is from the requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 to the extent that it requires that redundant cables and equipment within containment be separated by at least 20 feet of horizontal distance free of intervening combustibles or be separated by a radiant energy shield.

i. Pipe Tunnel - Elevation 84 feet (Area 12 FA-PT-84)

This exemption is from the technical requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 to the extent that it requires that redundant shutdown systems be separated by at least 20 feet free of intervening combustibles and be protected by automatic fire detection and suppression systems. Specifically, redundant systems are separated by less than 20 feet and the tunnel is not protected by an automatic fire suppression system.

j. CO_2 Equipment Room - Elevation 84 feet (Areas 1 and 2 FA-DG-84F)

This exemption is from the technical requirements of Section III.G.2 of Appendix R to 10 CFR Part 50 to the extent that it requires separation of redundant shutdown systems by 1 hour fire barriers and protection by automatic fire detection and suppression systems. Specifically, redundant shutdown cables are not protected by an automatic fire suppression system.

9.5.1.5 Support Equipment

9.5.1.5.1 Emergency Lighting

The lighting system at Salem Generating Station consists of normal lighting, emergency lighting, self-contained emergency battery lighting, and portable hand held lights. A description of the complete system is contained in Section 9.5.3.1 of the Salem UFSAR.

The emergency lighting provided for Appendix R safe shutdown is a fixed self-contained lighting system. Each unit consists of a battery, charger, lights, and electronics all contained within a box. The units are energized automatically upon loss of power, and are rated to supply 8 hours of lighting.

The emergency lighting units are located in access routes to and within areas where shutdown functions must be performed.

9.5.1.5.2 Portable Radios

A portable radio communication system as described in Section 9.5.2 of the Salem UFSAR is provided for use of the fire brigade as well as operations personnel involved in emergency activities. This system does not interfere with the communication equipment of the security force. For post fire safe shutdown, the operators will use portable hand held radios. The radio system including repeaters and power supplies has been designed to be available for a fire in any of the alternate shutdown areas.

9.5.1.5.3 Ventilation and Smoke Removal

Ventilation systems for the station were not specifically designed to provide automatic smoke and heat venting. Natural convection type ventilation is not used at this station. The station ventilation systems provide forced-convection flows for specific areas. Smoke and corrosive gases from a fire may be discharged directly to the outdoors by nature of the once-through ventilation design applied throughout the station (with the exception of the Reactor Containment).

Ventilation systems serving the safety related areas are controlled from the Control Room. Charcoal filters are provided in the exhaust ducts to absorb smoke and corrosive gases for public protection, except for the systems serving the service water intake, diesel-generator and fuel oil storage rooms, battery rooms, switchgear rooms and penetration areas. A special part of the Control Area Air Conditioning System, designated Emergency Air Conditioning System (EACS) contains special equipment to ensure habitability of the Control Room under all operating conditions.

9.5.1.6 Fire Detection

9.5.1.6.1 Fire Detection and Alarm System

The Salem Generating Station fire detection and alarm systems are designed and installed as a "Class B" supervised signaling system. The system is not a safety related system and is not designed to record system signals.

The primary purpose of the proprietary protective signaling system is to detect fire during its early stages of development and initiate an alarm to minimize the adverse impact of fire on buildings, systems, and components. In addition, these signal systems provide release of selected extinguishing systems.

Annunciation functions are displayed on the Fire Protection System Panel in each Control Room. The overhead annunciator in each Control Room indicates alarm and trouble signals, as well as loss of DC power.

Several different types of fire detectors are used at Salem Generating Station. The majority of detectors are ionization chamber smoke detectors. The detection system also utilizes other types of fire detectors such as rate of rise, fixed temperature heat detectors, and rate compensated detectors.

The number and placement of fire detectors was determined by considering the configuration of the space protected. NFPA 72E, Automatic Fire Detectors, was used as a guideline for the placement of fire detectors except where alternative spacing was judged acceptable by a Member grade fire protection engineer.

All of the fire detection systems are of the Class B supervised circuit type.

9.5.1.7 Fire Suppression Systems

9.5.1.7.1 Water Supply

Fresh water for fire protection is stored in two independent fresh water storage tanks. Each tank has a capacity of 350,000 gallons; 300,000 gallons of which are reserved for fire protection use and 50,000 gallons available for domestic service. The largest system demand is 1450 gpm at 70 psig for a main power transformer. Each tank is therefore capable of supplying the greatest system demand plus an additional 1000 gpm for hose streams for a minimum of 2 hours, representing 100% redundant capacity.

Two redundant diesel driven fire pumps are provided at Salem Generating Station, each rated for 2500 gpm at 135 psig. Each pump has its own driver with independent power supplies and controls mounted on a structural steel base and controlled by a combined manual and automatic panel. In addition, a pressure maintenance (jockey) pump provides system pressurization.

The fire pump suction piping and valve arrangement allows either pump to take water from either or both fresh water storage tanks. Isolation valves have been provided in the supply headers.

A separate discharge header from each fire pump connects to the underground yard fire main loop which encircles the station.

The two fire pumps and their associated fuel oil day tanks are located in one room. The room is provided with a wet pipe sprinkler system. Floor drains are provided which would limit the spread of oil in the event of a leaking oil tank. The fire pumps are mounted on a 12-inch high concrete pedestals. These alternative fire protection provisions were found acceptable by the NRC in lieu of locating the fire pumps in separate fire areas.

The pressure maintenance pump is used to supply water to makeup for minor system leaks, and to avoid frequent starting of the fire pumps from minor system fluctuations. Should the jockey pump be unable to maintain pressure, and the system pressure falls the first fire pump automatically starts. Once this pump starts, it will continue to run until it is manually shut off at its control cabinet located in the Fire Pump House. Should the first fire pump fail to start or if there is a large demand for fire water, and the system pressure continues to fall, the second fire pump automatically starts to maintain system pressure. The second fire pump, will also continue to pump until it is manually shut off at its control cabinet in the Fire Pump House.. The fire pumps can only be stopped at the fire pump controller with the manual switch.

Each of the fire pumps is equipped with operating alarms which appear on the fire pump Control Cabinet, and any one of these alarms will also sound the trouble alarm on the Unit 1 Control Room overhead annunciator.

The fire pumps discharge into an underground main surrounding the plant. Fire hydrants, installed in the station yard areas, tie into the fire main loop. Each hydrant is equipped with two 2-1/2 inch hose connectors. Hydrants in strategic locations within the protected area are also equipped with hose houses. A looped header located inside the plant buildings is also supplied from the underground loop. Connections from the underground distribution main enter the Turbine and Auxiliary Buildings to supply a header at the perimeter of the Turbine-Generator area, and another header through the center of the Auxiliary Building. The pipe is sectionalized by valves which permit the use of selected lengths in the event any section of piping is damaged. The indoor header supplies fire water to the various deluge water spray systems, sprinkler systems and standpipes located throughout the Auxiliary Building, Containment, Turbine Generator area, Service Building, Administrative Building and main transformer area.

Approved post indicator type valves or curb valves are provided in the yard main and in supply headers to the buildings to allow for isolating hydrants and portions of the piping system during maintenance and repair periods without shutting off the entire system. Each sprinkler, deluge and standpipe supply line is equipped with an approved gate valve. Valves in supply lines to fire water sprinkler systems, deluge system, and standpipe valves, located

inside buildings, are locked in the correct position and periodically checked by surveillance or periodic test procedures. Hose standpipe isolation valves and yard main post indicators are provided with locking devices. Supervision of key operated hydrant isolation valves (curb valves) which are not locked is maintained by strict control of the key wrenches which have been assigned to responsible station personnel. In addition, visual checks of all valves are performed periodically.

9.5.1.7.2 Sprinkler and Water Spray Systems

Three types of water based suppression systems are utilized at Salem Generating Station:

- Wet Pipe Sprinklers
- Dry Pipe Sprinklers
- Water Spray Systems

All systems are provided with alarms in the Control Room which indicate system operation.

The locations for each type of system are as follows:

- Wet Pipe Sprinklers

  Closed head wet pipe sprinkler systems are installed in the following areas:

  1. Service Building - Elevations 88, 100, 113, and 127
  2. Fire Pump House - Elevation 100
  3. Heating Boiler House - Elevation 100
  4. Turbine Perimeter - Elevations 88, 100, and 120
  5. Auxiliary Building Drumming & Baling Storage Area, and Truck Bay
  6. Auxiliary Building Resin Storage Area
  7. Cable Vaults carrying cable between the Auxiliary Building and Turbine Building
  8. Clean facilities building 0 Elevations 100, 119, and 132.

9. Auxiliary Building Charging and Safety Injection Pumps - Elevation 84

10. Auxiliary Feedwater pumps - Elevation 84

11. Administration Building, Elevation 100

- Dry Pipe Sprinklers

Two closed head dry pipe pre-action type sprinkler systems are provided for the protection of the Auxiliary Feedwater pumps on Elevation 84'. One system is electrically actuated and the other is pneumatically actuated in order to provide redundant protection.

- Water Spray Systems

Water spray systems consisting of open head deluge systems automatically released by either water (hydraulic), air (pneumatic), or electrical mechanisms are provided in the following locations:

Water Release Water Spray Systems

Water spray systems actuated by water filled pilot sprinklers are provided for the following equipment.

1. Turbine lubricating oil makeup tank.

2. Turbine lubricating oil storage tanks.

3. Turbine lubricating oil reservoir, coolers, and conditioner.

4. Seal oil unit.

5. Feedwater pump turbine lubricating oil coolers and tank.

6. Station air compressors.

Pneumatic Release Water Spray Systems

Water spray systems actuated by pneumatic air-pilot line sprinklers are provided for the following equipment:

1. Generator main transformer banks.

2. Auxiliary power transformers.

3. Station power transformers.

4. Heating boiler fuel oil pump and heater.

5. Reactor coolant pump lubricating oil lift pump and discharge lines.

6. Turbine and inboard generator bearing housings.

Electrical Release Water Spray Systems

Water spray systems actuated by continuous strip thermal detectors are provided for the following charcoal filter banks:

1. Control Room emergency air conditioning system.

2. Auxiliary Building exhaust - emergency filter bank.

3. Containment pressure-vacuum relief system.

4. Iodine removal system.

5. Fuel Handling Building Ventilation Unit Charcoal filters.

Water spray systems activated by thermal detectors are provided for the:

1. Diesel Fuel Oil Storage Tank Rooms

9.5.1.7.3 Hose and Standpipe Systems

Hose stations at the Salem Station are provided for the Reactor Containments, Auxiliary Building, Service Building, Turbine Building and Administration Building. Each hose station is equipped with 1-1/2 inch fire hose and an adjustable fog nozzle. Electrically safe nozzles are provided at specified locations. Additional lengths of hose are stored on hose racks at specific locations.

Hose stations are provided for all floors of these buildings, except on Elevation 45 ft. of the Auxiliary Building, and the Fuel Handling Building. These areas can be reached from existing hose stations in other areas.

Hose stations are not provided in the Service Water Pump House. Since access to each of the pump rooms is from outside, a fire hydrant is provided in the yard near the building.

All standpipes are 2-1/2 inch diameter. The individual branch supply to the hose reel is 1-1/2 inch diameter.

9.5.1.7.4 Other Suppression Systems

Foam System

At Salem Generating Station, a manually operated foam fire suppression system protects the Bulk Fuel Oil Storage Tank. This tank is a non-safety related facility, located above ground, outdoors, and approximately 400 feet south of the Turbine-Generator Building.

CO_2 Fire Suppression Systems

Low pressure carbon dioxide fire protection systems are provided for the Diesel-Generator Rooms and associated control rooms, day tanks, fuel oil storage tanks and pumps, and the Switchgear Rooms and the Lower Electrical Penetration Area. Each CO_2 tank contains a sufficient supply of carbon dioxide for two full discharges into the largest protected area. The largest area protected is the 4160 Volt Switchgear Room. There are three diesel-generator sets per unit at the Salem Generating Station. Each set is flooded by independent CO_2 actuation. Each Diesel-Generator Room and its associated control room and day tank area are actuated together. The two diesel fuel oil pump rooms for each unit are also actuated together.

Carbon dioxide fire protection for the Generator Exciter Enclosure for each unit is supplied from a separate refrigerated storage tank located in the Turbine Area.

Halon 1301 Fire Suppression Systems

Halon 1301 fire extinguishing systems are provided for the Relay Rooms. Each Relay Room has an independent extinguishing system capable of total discharge of either main or reserve charges of fire extinguishing agent within approximately ten seconds of activation. The Halon systems are designed to be activated either automatically or manually. Automatic actuation occurs upon receipt of signals from both zones of a cross-zone Fire Detection System. Manual actuation is accomplished by using remote pull stations.

A Halon 1301 system is also provided for the protection of the Dimension 2000 Telephone building.

Portable Fire Extinguishers

Portable fire extinguishers are provided at specific locations throughout the station. The selection and spacing of extinguishers at Salem is based upon NFPA 10 guidance for the type of hazard present.