BROOKHAVEN NATIONAL LABORATORY

DEPARTMENT OF ADVANCED TECHNOLOGY
ENGINEERING TECHNOLOGY DIVISION

TECHNICAL EVALUATION OF
PUBLIC SERVICE ELECTRIC AND GAS COMPANY (PSE&G)
RESPONSES DATED JUNE 19, 1996 AND DECEMBER 2, 1996
TO
NRC OFFICE OF NUCLEAR REACTOR REGULATION REPORT
"SAFE SHUTDOWN CAPABILITY REASSESSMENT FOR SALEM NUCLEAR
GENERATING STATION UNITS 1 AND 2," DATED JANUARY 25, 1996

Revision 1
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Prepared For: U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation

1. Background

By letter dated January 25, 1996, the NRC Office of Nuclear Reactor Regulation (NRR) forwarded its report "Safe Shutdown Capability Reassessment for Salem Nuclear Generating Station, Units 1 and 2," to the licensee, Public Service Electric and Gas (PSE&G). This evaluation incorporated the results of an independent assessment performed by Brookhaven National Laboratory (BNL), as documented in BNL Technical Evaluation Report (TER) dated November 9, 1995. The scope of the BNL evaluation concentrated on a review of the licensing basis of the Salem Nuclear Power Station with respect to Section III.G and L of Appendix R to 10 CFR 50. Specific issues evaluated by BNL during this review include:

(1) The level of approval granted by NRR regarding the current alternative shutdown system design's reliance on the use of repairs to achieve and maintain safe shutdown capability; and

(2) The licensee's assumptions and methodology pertaining to the plant's ability to cope with spurious equipment actuations that may occur as a result of fire damage in accordance with the guidance presented in Generic Letters 81-12 and 86-10; and

(3) PSE&G evaluation of staff concerns for the potential loss of alternative shutdown capability due to fire-induced circuit faults as described in Information Notice 92-18.

As a result of an evaluation of the fire protection licensing basis of the Salem Nuclear Generating Station, the BNL TER concluded:

1. The post-fire alternative shutdown system design reliance on repair activities to achieve and maintain hot standby conditions, does not appear to have been accepted by NRR for use as a long-term compliance strategy.

2. The licensee's assumption of one spurious operation per fire event is inconsistent with established guidance disseminated by the staff and does not appear to satisfy the regulatory intent of Sections III.G. and III.L of Appendix R to 10 CFR 50.

3. The licensee's evaluation and disposition of staff concerns described in IN 92-18 is inconsistent with established guidance disseminated by the staff, and does not appear to satisfy the regulatory intent of Sections III.G. and III.L of Appendix R to 10 CFR 50.

On February 7, 1996, each of the issues described above was discussed in detail at a public meeting held between NRC, BNL and PSE&G representatives at NRC Headquarters, Rockville, Maryland. At the meeting PSE&G characterized its perspective of each issue and described evaluations and design changes being implemented at Salem to address staff concerns.

By letter dated June 19,1996 PSE&G provided a formal response to the staff's January 25, 1996 report and issues discussed during the February 7, 1996 meeting at NRC Headquarters. A review of this submittal determined that certain clarifications and additional information would be necessary in order to complete the review. Accordingly, by letter dated October 30, 1996, the staff forwarded a request for additional information (RAI) to the licensee, and by letter dated December 2, 1996 the licensee provided its response. The following paragraphs provide the results of the BNL assessment of resolutions proposed by PSE&G to address each of the issues described in the staff's January 25, 1996 report.

2. Evaluation of Issues

2.1 Alternative Shutdown System Design Reliance on the Use of Repairs to Achieve and Maintain Hot Shutdown Conditions

2.1.1 Discussion

To provide assurance that cabling required for or associated with the alternative shutdown capability can be made to be physically and electrically separated (independent) from the affects of fire, alternative shutdown system designs typically incorporate the use of isolation/transfer switches. Once activated, these devices, which are located outside of the fire affected area, enable the control and/or monitoring of required shutdown systems to be transferred to an area of the plant that is independent (physically and electrically) of the fire affected area(s).

At Salem the alternative shutdown system design did not incorporate the use of isolation/transfer switches. In lieu of providing this capability, the licensee had developed abnormal operating procedures which direct operators to perform repair activities (e.g. cutting/lifting leads, installing jumpers, and fuse replacement) as necessary to isolate potentially affected circuits and establish local control and monitoring capability for required shutdown systems.

Section III.G.1.b and III.L.5 of Appendix R to 10 CFR 50 establishes the criteria for cold shutdown system repairs. Repairs (e.g., cutting or lifting leads, installing jumpers, pulling and replacing fuses) of post-fire safe shutdown systems required for achieving and maintaining hot shutdown or hot standby are not allowed.

During the initial licensing process for Salem Unit 2, the NRC had accepted the use of such repair actions on an interim basis during the plant's startup testing program. A May 1981 Safety Evaluation (SE) documents the staff's approval of this approach as a short-term temporary measure, with long-term compliance pending staff review of the licensee's compliance with Appendix R (Ref.:NUREG-0517, Supplement No.6, "Safety Evaluation Report Related to the Operation of Salem Nuclear Generating Station, Unit No. 2" and NRC's "Report on PSE&G Cable Separation Study," included as Attachment G to the May 1981 SER).

2.1.2 Evaluation

In its June 16, 1982 submittal, the licensee informed the staff that Salem's alternative shutdown procedures do not require the use of electrical jumpers or pneumatic bypasses. In a subsequent Safety Evaluation Report (SER), dated May 31, 1983, the staff stated the following: *"No repairs or modifications are required to effect hot or cold shutdown utilizing the alternate shutdown methods."* With regard to this statement, in its June 19, 1996 submittal, the licensee states: *"PSE&G has interpreted this to refer to repairs in the fire zone and to exclude the replacement of fuses, the installation of jumpers, and lifting of leads."* In this submittal, PSE&G also requested the staff to revise the 1983 SER as follows:

From: *"No repairs or modifications are required to effect hot or cold shutdown utilizing the alternate shutdown methods."*

To : *"No repairs or modifications in the fire zone are required to attain hot standby utilizing the alternate shutdown methods."*

The requested change in wording of this statement represents a significant change in the level of protection provided. Specifically, the staff was concerned that the proposed change could be interpreted as allowing the licensee to make repairs necessary to achieve and maintain hot shutdown in areas other than the fire affected area and allow repair activities in the fire affected zone as necessary to maintain hot shutdown conditions. On this basis, the staff determined that the licensee's request to revise the Safety Evaluation Report was not acceptable.

In its June 19, 1996 response, the licensee further states that it has initiated a design change to install isolation/transfer switches. PSE&G states that the installation of these devices will *"eliminate the use of jumpers as a method for achieving and maintaining post-fire hot standby conditions,"* and *"the design input for the change considered NRC guidance documents such as Generic Letter 81-12 and 86-10."*

In its response to the staff's October 30, 1996 request for additional information (Ref: PSE&G letter dated December 2, 1996), the licensee states that the post-fire safe shutdown analysis for normal

shutdown from within the control room (where the fire analysis is governed by the requirements of Section III.G.2 of Appendix R to 10 CFR 50) does not employ any repair activities to achieve and maintain hot-standby conditions. With regard to the alternative shutdown capability, PSE&G states that pneumatic jumpers are not required to achieve and maintain post-fire hot-standby conditions and that design changes to install isolation/transfer switches will eliminate the need for repairs to electric circuits (e.g., electrical jumpers, lifting leads, and replacing fuses) in order to achieve and maintain post-fire hot-standby conditions. The licensee states that following the installation of proposed design changes, no repairs will be required to achieve and maintain hot-standby conditions when either normal shutdown systems controlled from the control room, or the alternative shutdown capability, controlled from the emergency control stations outside the control room, are used to accomplish post-fire safe shutdown conditions.

2.1.3 Conclusion

For fire events which do not require implementation of the alternative shutdown capability, the licensee states that hot shutdown conditions can be achieved and maintained from the control room without repairs. For fire events requiring control room evacuation and implementation of the alternative shutdown capability, the licensee states that its proposed modifications (i.e., installation of isolation/transfer switches) will eliminate the need for repairs to achieve and maintain hot shutdown conditions. This approach provides an appropriate means of conforming to the requirements of Appendix R to 10 CFR 50, and is, therefore, acceptable.

2.2 Analysis Assumptions Pertaining to the Plant's Ability to Cope with Fire-initiated Spurious Signals

2.2.1 Discussion

During the period of May 17 through May 21, 1993, the NRC conducted an inspection of Salem Nuclear Power Plant for compliance with Sections III.G, J., L., and O., of Appendix R to 10 CFR 50. As a result of its review, the inspection team concluded that the licensee's analysis of the potential effect of fire-initiated spurious signals was not sufficiently conservative, to the extent that the analysis, and the resulting post-fire shutdown methodology, assumed only one spurious actuation to occur as a result of fire in any area, regardless of the number, or operational significance, of unprotected circuits that may be susceptible to common-cause damage due to fire. In response to the inspection team's concern, the licensee stated that this assumption was based on its interpretation of the NRC response provided to Question 5.3.10(a) of Generic Letter 86-10, which states, in part: *"The safe shutdown capability should not be adversely affected by any one spurious actuation or signal resulting from a fire in any plant area."*

The licensee's application of the single spurious actuation assumption was found to be applied in its evaluation of all fire areas. That is, this assumption was applied in the evaluation of fire areas requiring alternative shutdown capability as well as areas where it had determined that the level of protection provided was sufficient to ensure that one train of systems necessary to achieve and maintain hot shutdown conditions would remain free of fire damage (i.e., fire areas satisfying the separation and protection criteria of Section III.G.2).

During the February 1996 meeting and in its October 1996 Request for Additional information (RAI) the staff informed PSE&G that its assumption of one spurious operation per fire event was inconsistent with established guidance and does not appear to satisfy regulatory intent of III.G. and III.L.

2.2.2 Evaluation

Appendix R to 10 CFR 50 establishes fire protection features deemed necessary to provide reasonable assurance that one train of systems necessary to achieve and maintain hot shutdown conditions remains free of fire damage. On February 20, 1981 the NRC forwarded Generic Letter 81-12 (GL 81-12) to all reactor licensees with plants licensed to operate prior to January 1, 1979. With regard to the protection of systems and equipment required for hot standby, GL 81-12 provides the following staff positions:

1) The equipment and systems used to achieve and maintain hot standby should be free of fire damage and capable of maintaining such conditions for an extended time period if equipment required to achieve and maintain cold shutdown is not available due to fire damage; and,

2) Wiring, including power sources for the control circuit and equipment operation for the alternate shutdown method, must be independent of equipment wiring in the area to be avoided; and

3) Cabling required for or associated with the alternative method of hot shutdown for each fire area, must be physically separated by the equivalent of a three-hour rated fire barrier from the fire area.

As a result of its review of licensee submittals following the issuance of GL 81-12, the staff developed and promulgated additional clarifying information (Ref: Enclosure 1 of NRC memorandum dated March 22, 1982, from R. J. Mattson to D. G. Eisenhut). This document was forwarded to PSE&G as Enclosure 3 of an NRC letter dated April 20, 1982. With regard to circuits of equipment whose spurious operation could affect the alternative safe shutdown capability, the clarification provided by the staff states that an adequate level of protection may be achieved through implementation of one of the following methods:

1. Provide protection for circuits of concern per Section III.G.2 of Appendix R, or

2. Provide a means to isolate the equipment of concern from the fire area prior to the fire (an example of this approach is pre-fire strategies which de-energize equipment whose fire-initiated spurious operation could adversely affect safe shutdown); or,

3. Provide electrical isolation that prevents spurious operation (e.g., isolation/transfer switch schemes); or

4. Provide a means to detect spurious operations and then procedures to defeat the maloperation of equipment (an example would be procedural guidance to establish manual control of a Motor Operator Valve that may spuriously operate as a result of a fire-induced failures in its control circuitry).

In April 1986, the staff issued Generic Letter 86-10, "Implementation of Fire Protection Program Requirements." This document presents the Commission's position on certain specific issues in the form of responses to questions posed by the industry during a series of Regional Workshops on the implementation of NRC fire protection requirements at nuclear power plants. In Section 5 of this document, the NRC provides responses to specific questions related to Alternative and Dedicated Shutdown Capability. In Question 5.3.10 the staff is requested to define the plant transients that must be considered in the design of the alternative shutdown system. Inherent in the staff's response to this question, is the expectation that potential spurious equipment operations have been identified, and a suitable method of protection, as required by regulatory criteria (Appendix R Sections III.G.1, III.G.3, III.L.3 and III.L.7), has been provided.

The guidance of GL 86-10 is design basis transient criteria for determining the capacity and capability of the alternative shutdown system and its application is based on the system being physically and electrically independent of the fire area of concern and that hot shorts, shorts to ground, and open circuits in associated circuits will not prevent the operation of safe shutdown equipment. In order for the alternative shutdown capability to perform its design function, the shutdown equipment that it relies on must be capable of performing its function once it has been electrically isolated from the control room or the cable spreading room.

The licensee's assumption that only one spurious actuation would occur as a result of any fire is not consistent with the regulatory requirements of Appendix R to 10 CFR 50 and guidance established by the staff in Generic Letter 81-12, and its subsequent clarification which was forwarded to the licensee as Enclosure 3 of NRC letter dated April 20, 1982.

In its June 19, 1996 response the licensee states that it has reanalyzed all fire areas where the single spurious actuation assumption was applied. For areas other than those requiring alternative shutdown

capability, this evaluation concluded that because the cabling in each application either met separation requirements, was adequately protected, or its function for the component(s) served would not lead to spurious actuation, dependence on the single spurious actuation assumption was no longer necessary. With regard to its application of the single spurious actuation assumption in areas requiring an alternative shutdown capability, in its December 1996 response PSE&G states that it has re-evaluated alternative shutdown systems necessary to achieve and maintain hot standby conditions, and as a result of this review, has initiated design modifications to provide isolation/transfer capability for components necessary to satisfy post-fire, alternative shutdown, functions. The specific components provided with isolation/transfer switches are depicted in the following tables:

SALEM UNIT 1 EQUIPMENT	SALEM UNIT 2 EQUIPMENT
1 AFW Room Cooler	2 AFW Room Cooler
11 Charging pump aux lube oil pump	21 Charging pump aux lube oil pump
11 Charging pump room cooler	21 Charging pump room cooler
11 Chiller	21 Chiller
11 Chilled Water Pump	21 Chilled Water Pump
11 Service Water Intake Vent Fan	21 Service Water Intake Vent Fan
11 Component Cooling Room Cooler	21 Component Cooling Room Cooler
12 Charging Pump Aux Lube Oil Pump	22 Charging Pump Aux Lube Oil Pump
12 Charging Pump room Cooler	22 Charging Pump room Cooler
12 Chiller	22 Chiller
12 Chilled Water Pump	22 Chilled Water Pump
12 Service Water Intake Vent Fan	22 Service Water Intake Vent Fan
12 Component Cooling Room Cooler	22 Component Cooling Room Cooler
13 Charging Room Cooler	23 Charging Room Cooler
13 Service Water Intake Vent Fan	23 Service Water Intake Vent Fan
13 Chiller	23 Chiller
14 Service Water Intake Vent Fan	24 Service Water Intake Vent Fan
1CV139 11 and 12 Charging pump mini-flow isolation valve	2CV139 21 and 22 Charging pump mini-flow isolation valve
1CV140 11 and 12 Charging pump mini-flow isolation valve	2CV140 21 and 22 Charging pump mini-flow isolation valve
1CV40 Charging pump suction from VCT isolation valve	2CV40 Charging pump suction from VCT isolation valve
1CV41 Charging pump suction from VCT isolation valve	2CV41 Charging pump suction from VCT isolation valve
1CV68 Charging Pump discharge to REGEN HX isolation valve	2CV68 Charging Pump discharge to REGEN HX isolation valve
1CV69 Charging Pump discharge to REGEN HX isolation valve	2CV69 Charging Pump discharge to REGEN HX isolation valve

SALEM UNIT 1 EQUIPMENT		SALEM UNIT 2 EQUIPMENT	
1PR6	Pressurizer relief stop valve	2PR6	Pressurizer relief stop valve
1PR7	Pressurizer relief stop valve	2PR7	Pressurizer relief stop valve
1SJ1	Charging pump suction from RWST isolation valve	2SJ1	Charging pump suction from RWST isolation valve
1SJ12	BIT isolation valve	2SJ12	BIT isolation valve
1SJ13	BIT Isolation valve	2SJ13	BIT Isolation valve
1SJ2	Charging pump suction from RWST isolation valve	2SJ2	Charging pump suction from RWST isolation valve
1SW26	Non-nuclear Service Water Isolation Valve	2SW26	Non-nuclear Service Water Isolation Valve

By facsimile dated 12/6/96, (From: B. Thomas, PSE&G, To: L. Olshan, NRC) PSE&G informed the staff that Unit 2 valves listed above have been provided with isolation/transfer switches. In addition, the following Unit 2 valves will have isolation/transfer switches installed by the end of the next refueling outage:

21SJ44	21 SI CONTMT sump isolation valve
22SJ44	22 SI CONTMT sump isolation valve
2CC30	CCW System cross-tie valve
2CC31	CCW System cross-tie valve
21SW21	Diesel Generator Header Isolation Valve
21SW22	Service Water Header Isolation Valve
21SW23	Service Water Header Crossover Valve
22SW21	Diesel Generator Header Isolation Valve
22SW22	Service Water Header Isolation Valve
22SW23	Service Water Header Crossover Valve
22SW20	Service Water Header Isolation Valve

The design for motor-operated valves (MOV's) at Salem utilizes 230V AC motor control centers (MCC's). Each MCC contains pans which hold the control circuitry for an MOV. Within each pan are such items as the main contactors, thermal overload (TOL) relay, auxiliary relay, control fuses, and field wiring terminal blocks. The typical MOV transfer circuit scheme utilizes two switches and two valve position indicating lights mounted within the pan. The first switch isolates wiring routed from the MCC to the fire area(s) of concern, inserts new fuses into the control circuit, and provides permissives to operate the MOV via the second switch. The second switch serves as an operate switch to open or close the valve. For motors, such as room coolers, one switch and one indicating light are used. The switch performs the function of isolating wiring routed from the MCC to the fire area(s) of concern, inserting new fuses into the control circuit, inserting an indicating light into the control circuit (to identify operation in the remote shutdown mode) and operating the motor.

2.2.3 Conclusion

The licensee has reanalyzed fire areas where the single spurious actuation assumption was applied. For areas other than those requiring an alternative shutdown capability, this re-evaluation has determined that because the cabling in each application either met separation requirements, was adequately protected, or its function for the component(s) served would not lead to spurious actuation, dependence on the single spurious actuation assumption was no longer necessary. With regard to areas where fire may require implementation of the alternative shutdown capability, PSE&G has initiated design modifications to provide isolation/transfer capability for components necessary to satisfy post-fire, alternative shutdown, functions.

The licensee's evaluation, in conjunction with its proposed modifications to provide electrical isolation from areas requiring an alternative shutdown capability, provide assurance that potential fire-induced spurious operations that could adversely affect the post-fire shutdown capability have been appropriately identified, evaluated and dispositioned. The licensee's approach satisfies Appendix R to 10 CFR 50 and is, therefore, acceptable.

2.3 PSE&G Evaluation and Disposition of Staff Concerns Regarding The Potential for Loss of Remote Shutdown Capability Following a Control Room Fire. (Information Notice (IN) 92-18)

2.3.1 Discussion

On February 28, 1992 the NRC Office of Nuclear Reactor Regulation (NRR) issued Information Notice (IN) 92-18 to alert licensees of conditions that could result in a loss of ability to maintain the reactor in a safe shutdown condition in the event of a control room fire. Specifically, IN 92-18

cautions licensees of the potential for a control room fire to cause an electrical short circuit between normally energized conductors and conductors associated with the control circuitry of motor-operated valves (MOVs) required to achieve post-fire safe shutdown conditions from outside the main control room. Such an event could cause the valve to spuriously actuate. Due to the electrical location of the circuit fault, the MOV torque and limit switches would be ineffective in stopping valve operation. Additionally, thermal overload protection has been bypassed at many facilities. Given these conditions, there is a potential for a fire-initiated spurious valve actuation to result in mechanical damage sufficient to prevent reactor operators from manually operating the valve.

At the time of the May 1993 Appendix R compliance inspection the licensee expressed its opinion that since in its view the conditions described in Information Notice 92-18 were not credible, no further evaluation was performed. However, during a June 3, 1993 telephone conference between the licensee and the staff the licensee committed to provide a formal response to the concerns described in the Information Notice.

2.3.2 Evaluation

By letter dated October 26, 1993, the licensee forwarded its response in a document titled: "Engineering Evaluation of SGS 1&2 Control Room Evacuation for Fire Induced MOV Hot Shorts as Discussed in NRC Information Notice 92-18", dated August 20, 1993. The evaluation identified a total of 65 valves as being specifically addressed within the Salem Control Room evacuation procedure and Safe Shutdown Analysis. As a part of its evaluation the schematics and wiring diagrams for all 65 valves were reviewed to determine which cables associated with the valves were routed in areas where control room evacuation may be required due to fire (i.e., the Control Room, Relay Room, or Ceiling of the 460V Switchgear Room). Of the 65 valves evaluated, 51 were found to be susceptible to the hot short conditions described in the Information Notice. However, the evaluation was found to conclude: *"due to system/component redundancies, at SGS 1&2. failure of any one (emphasis added) of these valves would not preclude a post-fire safe shutdown condition."*

The licensee's disposition of this concern was found to be predicated on its interpretation of staff guidance contained in Generic Letter 86-10. Specifically, the licensee had assumed that the evaluation of post-fire alternative shutdown capability need only consider one spurious valve actuation, irrespective of the number or post-fire shutdown significance of the potentially affected circuits. This interpretation was then extended to its evaluation of staff concerns described in IN 92-18. This led the licensee to conclude, without providing any further technical justification, that only one of the 51 potentially affected valves would spuriously actuate.

During the February 7, 1996 meeting, the licensee described a design change to preclude mechanical valve damage by reinstalling the previously bypassed thermal overload (TOL) protection on MOV's.

In its letter dated June 19, 1996, the licensee stated that this modification eliminates the concerns of IN 92-18 for Salem and that the thermal overload protection for these MOVs had been installed.

In its October 30, 1996 request for additional information the staff requested the licensee to demonstrate that the methodology and criteria for assuring that the TOL protection is sized properly and that it will adequately protect the subject MOVs from mechanical damage (e.g., deep seating and binding of the valve). In addition, the staff requested PSE&G to describe the typical isolation transfer circuit scheme for these MOVs and confirm that the tripping of the TOL protection devices does not render the subject MOVs inoperable and that once electrically isolated from the fire area of concern that they can be operated remotely from emergency control stations outside the control room.

In its December 1996 response, the licensee states that all safety related motor-operated valves (MOV's) at Salem have thermal overload relays in their circuitry which are designed to protect the power feed to the MOV while providing maximum protection of the valve operator motor. The methodology for determining thermal overload sizing takes into account the voltage and ambient temperature variations when plotting protection points for current at twice nominal torque and locked rotor withstand characteristics. The thermal overloads are sized to ensure that the MOVs will not spuriously trip while providing the maximum amount of motor protection. Upon further review of the TOL design change for mechanical valve damage, PSE&G noted that the TOLs for several valves have marginal values for motor torque capability at full voltage versus the valve assembly torque limit. The valves identified by this review which are required to achieve hot-standby are as follows: CV40; CV41; CV68; CV69; CV139; CV140; PR6; PR7; SJ1; SJ2; SJ13; and SW26. Also identified by this review were several valves whose TOL do not fully provide valve motor protection. These valves are as follows: CC30, CC31, SW21, SW22, SW23, 12/22SW20, and 14/24SW20.

The licensee states that it has initiated design changes to modify the circuits of the above referenced valves. Specifically, the control circuits of these valves will be modified to prevent hot-shorts from bypassing the torque and limit switches by electrically relocating the switches between the control room and MCC as recommended by the staff in Information Notice 92-18.

2.3.3 Conclusion

Based on the above, the licensee's stated methodology for resolving concerns identified in Information Notice 92-18, is directed at preventing mechanical damage to required MOVs by reinstalling the previously bypassed thermal overload (TOL) protection on MOV's. Where reliance on thermal overload protection was found to provide insufficient protection, the licensee has initiated modifications which will prevent hot-shorts from bypassing MOV torque and limit switches as recommended by the staff in Information Notice 92-18. Should valves spuriously actuate, operators would establish local control, and manual positioning of the MOV would not be precluded. This approach conforms to the requirements of Appendix R to 10 CFR 50 and is therefore, acceptable.

3. Overall Summary

As a result of its evaluation of the fire protection licensing basis of the Salem Nuclear Generating Station, the staff concluded in its report dated January 25, 1996:

1. The post-fire alternative shutdown system design reliance on repair activities to achieve and maintain hot standby conditions, does not appear to have been accepted by NRR for use as a long-term compliance strategy.

2. The licensee's assumption of one spurious operation per fire event is inconsistent with established guidance disseminated by the staff and does not appear to satisfy the regulatory intent of Sections III.G. and III.L of Appendix R to 10 CFR 50.

3. The licensee's evaluation and disposition of staff concerns described in IN 92-18 is inconsistent with established guidance disseminated by the staff, and does not appear to satisfy the regulatory intent of Sections III.G. and III.L of Appendix R to 10 CFR 50.

To resolve these issues in a manner consistent with established staff guidance, the licensee has performed engineering evaluations and, where necessary, has developed and scheduled additional plant modifications necessary to bring the plant into compliance.