UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323

Report No.: 50-424/86-88

Licensee: Georgia Power Company
P. O. Box 4545
Atlanta, GA 30302

Docket No.: 50-424 License No.: CPPR-108

Facility Name: Vogtle 1

Inspection Conducted: October 6-10, 1986

Inspectors: M D Hunt 11/24/86
M. D. Hunt Date Signed

C. J. Fillion 11/24/86
P. J. Fillion Date Signed

W. H. Miller 11-20-86
W. H. Miller, Jr. Date Signed

L. E. Nicholson 11-24-86
L. E. Nicholson Date Signed

G. R. Wiseman 11-24-86
G. R. Wiseman Date Signed

Approved by: T E Conlon 11-24-86
T. E. Conlon, Section Chief Date Signed
Engineering Branch
Division of Reactor Safety

SUMMARY

Scope: A special announced inspection was conducted on site in the areas of fire protection and the licensee's actions regarding the implementation of the plant safe shutdown guidance provided in Standard Review Plan 9.5.1, positions C.5.b and C.5.c.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*P. Bemis, Manager, Engineering
*C. E. Belflower, Quality Assurance Site Manager - Operations
*G. Bockhold, General Manager
*R. Burns, Plant Engineer - Electrical
*D. Crouch, Labelling Coordinator
*D. Crowe, Labelling Coordinator
*W. Davis, Civil Engineering Supervisor
*J. Derryberry, Fire Protection Procedures
*T. Green, Plant Manager
*E. Groover, QA Site Manager - Construction
*G. Hutcherson, Plant Operator - Nuclear Operations
*D. Innes, Civil Section Supervisor - Construction
*W. Kitchens, Operations Manager - Nuclear Operations
*D. Kochery, Engineering Supervisor - Electrical, Nuclear Operations
*G. Lee, Operations Supervisor - Nuclear Operations
*N. Malato, Project Engineer, Nuclear Operations (Westinghouse)
*P. Rushton, Superintendent Nuclear Training, Nuclear Operations
*B. Sloan, Senior Plant Engineer, Nuclear Operations
*R. Sprankle, Senior Engineer - Fire Protection, Nuclear Operations

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, mechanics, and office personnel.

Other Organizations

*J. Bailey, Licensing Manager, Southern Companies Services (SCS)
*R. George, Project Engineering Manager, SCS
*J. Maddry, Fire Protection Engineer, SCS
*J. McLeod, Licensing, SCS
*C. Foster, Senior Engineer - Mechanical, Bechtel-HOE
*J. Holmes, Electrical Systems Group Leader, Bechtel-HOE
*M. L. Larson, Fire Protection Group Leader, Bechtel-HOE
*D. Love, Engineering Specialist - Electrical, Bechtel-HOE
*T. Luke, Engineering Supervisor, Bechtel-HOE
*R. Shpall, Fire Protection Staff Engineer, Bechtel-HOE
*A. Strunk, Fire Protection Group Leader, Bechtel-HOE
*B. Woodley, Fire Protection Coordinator, Bechtel-HOE

NRC Resident Inspectors

*H. Livermore
*J. Rogge
R. Schepens

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on October 10, 1986, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below. No dissenting comments were received from the licensee. The following items were identified:

a. Inspector Followup Item (424/86-88-01), Verification of Installation of Access Ladder and Platform to Fire Zone 73 - paragraph 5.a.(2).

b. Inspector Followup Item (424/86-88-02), Review of the Installation of Additional Smoke Detection for Fire Zone 80 - paragraph 5.a.(4).

c. Inspector Followup Item (424/86-88-03), Review of Surveillance Procedures for Fire Area Boundaries Required for Safe Shutdown Cable Separations - paragraph 5.a.(11).

d. Inspector Followup Item (424/86-88-04), Revise Control Fuses in 4KV Switchgear - paragraph 5.b.(5).

e. Inspector Followup Item (424/86-88-05), Justify Repairs Required to Maintain Hot Shutdown - paragraph 5.b.(6).

f. Inspector Followup Item (424/86-88-06), Revise Repair Procedure 27579-C - paragraph 5.b.(6).

g. Inspector Followup Item (424/86-88-07), Review Operator Training and Staffing for Fire Response - paragraph 5.c.(1).

h. Inspector Followup Item (424/86-88-08), Incorporate Identified Items Into Proper Procedures - paragraph 5.c.(2).

i. Inspector Followup Item (424/86-88-09), Verify Proper Administrative Controls to Prevent Loss of Diesel Generator Building Ventilation - paragraph 5.c.(2).

j. Inspector Followup Item (424/86-88-10), Review Corrective Actions for Labeling Deficiencies - paragraph 5.c.(2).

k. Inspector Followup Item (424/86-88-11), Verify Acceptance of Non-Dedicated S/G Pressure Indication on Remote Shutdown Panel B - paragraph 5.c.(2).

l. Inspector Followup Item (424/86-88-12), Review Access Plan for 125 VDC Distribution Cabinets - paragraph 5.c.(2).

m. Inspector Followup Item (424/86-88-13), Review Access to AFW Pump Steam Valve HV-3009 - paragraph 5.c.(2).

n. Inspector Followup Item (424/86-88-14), Eight-Hour Battery-Powered Emergency Lighting Units are not Provided for the Control Room and Exterior Routes to Safe Shutdown Components - paragraph 6.a.

o. Inspector Followup Item (424/86-88-15), Verify Isolation of Sound Powered Telephone System from Control Room for a Control Room Fire - paragraph 6.b.

p. Inspector Followup Item (424/86-88-16), Area Smoke Detectors are not Provided Within Containment As Stated by FSAR - paragraph 5.a.(14).

These items are identified as Inspector Followup Items in lieu of enforcement items since the plant is not yet licensed. The licensee committed in the exit interview to complete the corrective action on these items prior to fuel load.

The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during the inspection.

5. Compliance with NUREG 0800, Standard Review Plan 9.5.1, Positions C.5.b, Fire Protection of Safe Shutdown Capability and C.5.c, Alternative Shutdown Capability

An inspection was conducted to determine if the proposed fire protection features for structures, systems, and components important to safe shutdown at the Vogtle facility will be in compliance with Standard Review Plan (SRP) 9.5.1, positions C.5.b and C.5.c. The scope of this inspection determined if the proposed fire protection features as described in the licensee's Fire Hazards Analysis (Section 9.5.1 of the Vogtle FSAR) which will be provided for reactor coolant system inventory control, steam generator inventory control, and reactor coolant system pressure control would be capable of limiting potential fire damage so that one train of these systems essential to achieving and maintaining hot standby from either the control room or emergency control stations are free from fire damage.

On the basis of the above licensee documents and commitments and SRP 9.5.1 criteria, the inspectors made an inspection of the cabling and components associated with the Chemical Volume Control system (CVCS), Auxiliary Feedwater System (AFW), Main Steam System (MS), Component Cooling Water System (CCW), Nuclear Service Cooling Water System (NSCW), Reactor Coolant System (RCS), Diesel Generator System, and Electrical Distribution system.

Conclusion

The safe shutdown components, both redundant functions and trains, which were reviewed during this inspection will, upon completion of the cable installation and construction of fire protection systems and features, meet one of the following classifications:

- safe shutdown trains (equipment, components and cabling) are to be located in separate fire areas that will be separated from each other by 3-hour fire rated construction;

- redundant shutdown trains will be located in the same fire area but will be separated by more than 20 feet with no intervening combustibles and with an automatic fire suppression system and smoke detection system provided in the fire area;

- cabling for both redundant safe shutdown trains are to be located in the same fire area and one of the cable raceways for one train will be enclosed within a 3-hour fire rated barrier; and

- safe shutdown trains within containment will be separated from each other by either 3-hour fire rated construction, noncombustible radiant energy shield, or by a horizontal distance of more than 20 feet with no intervening combustibles (FSAR contains a deviation for intervening combustibles).

a. Fire Protection of Safe Shutdown Systems/Components

Vogtle Unit 1, upon completion of construction, will be divided into approximately 117 separate fire areas. An inspection was made of a sample of these fire areas to determine if redundant cabling, equipment, and/or components required to achieve or maintain hot standby and cold shutdown conditions are going to be provided with adequate separation and/or protection in accordance with SRP 9.5.1, position C.5.b.

Included in the review was an evaluation of the acceptability of the barrier or enclosure construction configuration as a fire rated barrier as used in the plant. Also, the review verified the adequacy of the penetration sealing systems, and fire dampers/fire doors with respect to installation and completeness, physical condition, and fire test documentation.

Within the following fire areas, the cable routings for redundant safe shutdown and the fire protection features afforded were reviewed:

(1) Fire Area 1-CB-LB-D - Control Building (Fire Zones 60, 62, 65, 66, 67, 68, 70, 144), Elevation (Portions) 180'-0"

Fire area 1-CB-LB-D includes Train B portions of Level B of the control building and electrical tunnel 1T4B. Penetrations through the area boundary are to be sealed with protection equivalent to a 3-hour fire resistance rating except the containment boundary, exterior walls, and a common 2-foot ventilation shaft interconnecting tunnel 1T4B (Fire Zone 144) and Fire Area 1-CB-LB-A (Fire Zone 143). Deviation requests are submitted to NRR regarding these existing separations conditions. Smoke detection systems are installed in all rooms containing safe shutdown equipment or appreciable combustible materials. Portions of the fire area are to be provided with automatic preaction suppression systems. Interior hose stations are located throughout the fire area.

An inspection was made to verify that the following safe shutdown related cabling would be protected in accordance with SRP 9.5.1, position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Letdown path to Pressurizer Tank Valve 1HV-0442B	N/A	1BR0442BSB/ 1BE311TUAB
Nuclear Service Cooling Water PT-11742	14RV289XA/1DE311RX141	N/A
Auxiliary Feedwater Turbine Driven Steam Inlet Valve 1-HV-5106	1CD1M05LA/ 1CD1M05LB/*1CE321KPH01 *1CE7C3KPH01 *1CE7C3KPH02 *1CE7C3KPH03 *1CE321KXH01	N/A

* Raceway to be protected with three hour fire barrier enclosure
** Redundant safe shutdown circuits are located in a separate fire area (See 5.a.(4)
N/A Spurious operation consideration

The cables to be protected in this area are located in floor embedded pull boxes located within the fire area. The inspectors reviewed the design details of the TSI Thermo-lag 330 Fire Barrier for protection of these floor pull boxes. The inspectors were concerned that the TSI material was not attached to the fire barrier structure but simply press-fit into the opening. During the inspection, the licensee issued FCRs M-FCRB-15;149 and -15;150 to revise the floor pull box design to indicate that Thermo-lag material will be attached to the side of the enclosure with protected fasteners so that the barrier support is not dependent on the steel plate enclosure cover. This revised support design is similar to the approved TSI design for standard cable pull boxes and is therefore considered adequate for fire barrier enclosure protection for the safe shutdown cables.

The inspectors reviewed the design details of the floor-ceiling assembly that separates fire area 1-CB-LB-D from fire area 1-CB-LB-A and verified that the concrete floor ceiling assembly is a reinforced 12-inch concrete slab which appears to provide a three-hour fire resistance. The inspectors reviewed the design of fire barrier penetration seals nos. 101-1-11-544B and 101-1-11-545B within the fire area boundary. These fire barrier penetrations appear to exceed the largest size approved by the manufacturer of the penetration seal material and have been subdivided with a fiber board material. This item requires a FSAR deviation request and is an open item under review by NRC/NRR. This item is identified by previous NRC items IFI 424/86-13-03 and IFI 424/86-64-06. These items remain open pending the licensee's FSAR documentation of the fire barrier penetration seal design and NRR approval of these penetration seals.

In the event of a fire in this plant area, safe shutdown train A would be utilized. The A train cabling to the turbine driven AFW pump steam inlet valve 1-HV-5106 is to be protected in this area to preclude undesired operation of the pump. A fire in this area could cause other spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions to be addressed by operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection in fire area 1-CB-LB-D should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(2) Fire Area 1-CB-LB-A - Control Building (Fire Zones 59, 69, 72, 73, 143), Elevations (Portions) 180'-0", 220'-0", and 240'-0"

Fire area 1-CB-LB-A includes train A portions of level B of the control building, HVAC rooms and electrical tunnel 1T4A. Penetrations through the area boundary are to be sealed with protection equivalent to a three-hour fire resistance rating except for the exterior walls, unlabeled fire doors, and a common two-foot ventilation shaft interconnecting this fire area and fire area 1-CB-LB-D. Deviation requests have been submitted to NRR regarding these existing separations.

Smoke detection systems are installed in all areas containing safe shutdown equipment and cables. Portions of the fire area are to be provided with automatic preaction suppression systems. Interior hose stations are located throughout the fire area.

In the event of a fire in this plant fire area, safe shutdown train B would be utilized. Fire damage to the reactor trip switchgear would necessitate ensuring reactor trip by operator actions to deenergize the control rod drive motor-generator (MG) sets. A fire in this area could cause other spurious operations of safe shutdown Power Operated Relief Valves (PORVs) and the reactor vessel head letdown path valves. These are to be mitigated through other various operator actions to be addressed by Operations procedures.

During the fire area walkdown, the inspectors noted that personnel access to the electrical mezzanine level of fire zone 73 is provided only through an opening located above several levels of cable trays and approximately 11 feet above floor level. No means of fire emergency access for the fire brigade to this plant area had been provided and prefire plan 92773 failed to recognize that access to this room is not at floor level. During the inspection the licensee committed to provide fire brigade access to the room by installation of a permanent ladder and platform over the cable trays. Also, the prefire plan will be revised to accurately describe fire brigade access to the area. These modifications are scheduled to be completed prior to fuel load of Unit 1. This is identified as Inspector Followup Item (424/86-88-01), Verification of Installation of Access Ladder and Platform to Fire Zone 73 and will be reviewed during a subsequent NRC inspection.

Based on the review of the licensee's safe shutdown analysis and the routings of safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection in fire area 1-CB-LB-A should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(3) Fire Area 1-CB-LB-H - Control Building (Fire Zone 71), Elevation 180'-0"

Fire area 1-CB-LB-H includes the train B switchgear room. Penetrations through the area boundary are to be sealed with protection equivalent to a three-hour fire resistance rating. A smoke detector system is provided in the switchgear room. An interior hose station is located in Fire Zone 67 at column line CG4/C16 to provide manual fire fighting capability for the area. This area contains only train B safe shutdown cables and equipment. In the event of a fire in this plant area safe shutdown train A would be utilized.

Based on the review of the licensee's safe shutdown analysis and the routings of the safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection in fire area 1-CB-LB-H should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(4) Fire Area 1-CB-LC-B - Control Building (Fire Zones 58, 80, 138), Elevations (Portions) 160'-0" and 180'-0"

Fire area 1-CB-LC-B includes the non-train switchgear rooms and HVAC room on elevation 180'-0" and the electrical chase down to elevation 160'-0". Penetrations through the area boundary are to be provided with protection equivalent to a three-hour fire resistance rating except for an unrated fire door. A deviation request has been submitted to NRR regarding this existing separation. Interior manual hose stations are located within the fire area. A partial-coverage automatic preaction suppression system is provided in fire zone 80.

An inspection was made to verify that the following safe shutdown related cabling would be protected in accordance with SRP 9.5.1, position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Reactor Coolant System (RCS) Over-pressure relief valve 1PV-0456A	N/A	1BR0456ALA/ *1BE311RM 156

Function	Train A Cable/Raceway	Train B Cable/Raceway
Electrical Distribution System		
480V Switchgear 1BB06	**	1BD11025A/*1BE311 RS123
480V Switchgear 1AP04	1AD1102SA/1AE301TRAJ 1AE301TRAK	**
Switchgear 1BB07	**	1BD1103SA/*1BE311 RS123
Switchgear 1AB05	1AD1103SA/1AE301TRAK	**

NOTE: Refer to paragraph 5.a for defintion of **

The cable raceways to be protected in this area are located in the open mezzanine area, (Fire Zone 80) above the channel 2 and channel 4 battery rooms (Fire Zones 79A, 79B, and 56A). The inspectors noted during the walkthrough of this area that the ceiling level smoke detection system for fire zone 80 did not extend into these mezzanine areas as required by National Fire Protection Association (NFPA) Standard 72E. During the inspection, the licensee committed to install additional detectors in this area in accordance with NFPA-72E standards. This item is identified as Inspector Followup Item (424/86-88-02), Review of the Installation of Additional Smoke Detection for Fire Zone 80, and will be reviewed during a future NRC inspection.

In the event of a fire in this plant fire area safe shutdown train B would be utilized. Fire damage to the Train B Control Building CBSF battery room exhaust ventilation system may require the use of manual portable ventilation of these areas at some time after 48 hours into a fire event. A fire in this area could cause other spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions to be addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection in fire area 1-CB-LC-B should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(5) Fire Area 1-CB-L2-E - Control Building (Fire Zones 122A, 122B, 133B, 134, 182) Elevation (Portion) 240'-0"

Fire area 1-CB-L2-E includes plant areas surrounding the Unit 1 cable spreading room (Fire Area 1-CB-L2-B) such as HVAC rooms, storage rooms, laboratory storage rooms, and the instrument calibration laboratory. Penetrations through the area boundary are to be sealed with protection equivalent to a three-hour fire resistance rating except for several fire doors and exterior walls. Deviation requests are submitted to NRR regarding these existing separation conditions.

Portions of the fire area are provided with automatic smoke detection systems and partial preaction suppression systems. Interior hose stations are located within the fire area such that any location can be reached with at least one effective hose stream. Within this fire area, a temporary three-hour rated fire barrier (plaster partition) is to be installed on column line CE/C9-C10 to provide unit separation during Unit 1 operation and Unit 2 construction. The inspectors reviewed the design detail drawings for this barrier and verified that the design conforms to the Underwriter's Laboratories (UL) design U-431 criteria for a three-hour rated plaster partition. These fire barriers are to be included in the fire area boundary control and surveillance procedures for Unit 1.

In the event of a fire in this plant area, safe shutdown train A would be utilized. A fire in this area could cause spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions to be addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection in fire area 1-CB-L2-E should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(6) Fire Area 1-AB-LA-E - Auxiliary Building, Wing Area - Level A, 1 and 2 (Fire Zones 39A and 45)

Fire area 1-AB-LA-E contains the feedwater penetration, and main steam valve rooms. This area is separated from the remainder of the plant and the redundant shutdown train by construction having a three-hour or equivalent fire resistant rating, except the containment building boundary separation and exterior boundary separation are not fire rated. This deviation is described by

the FSAR. All fire barrier penetrations are to be sealed by construction features or seals which are equivalent to a three-hour fire resistant rating, except for an unrated watertight type door. This deviation is described by the FSAR. These fire boundary deviations are being reviewed by NRC/NRR. A smoke detection system is provided for this area and a preaction type sprinkler system provides partial coverage for fire zone 45. Interior fire hose stations are located either within the area or adjacent fire areas and provide sufficient coverage.

An inspection was made to verify that the following safe shutdown related cabling would be protected in accordance with SRP 9.5.1, Position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Auxiliary Feedwater (AFW) to S/G 1&4 Isolation Valves		
HV 5137	1ABB37LB/1AE424RL218	**
HV 5139	1ABB17LB/1AE424RL218	**
Main Feedwater By-Pass Valve HV 15196B	1AW15196ASF/1AE425TQAB	1BW5196BSF/ 1BB425TRAA
Main Feedwater By-Pass Valve HV15199B	1AW15199ASF/1AE425TQAB	1BW5199BSF/ 1BB425TRAA
Main Feedwater Isolation Valves		
HV 5227	1AW5227SE/1AE425TQAB	1BW5227SE/ 1BB425TRAA
HV 5230	1AW5230SE/1AE425TQAB	1BW5230SE/ 1BB425TRAA

NOTE: Refer to paragraph 5.a (1) for definition of **

In the event of a fire in this plant area, safe shutdown train B would be utilized. However, isolation of steam flow from steam generators 1 and 4 would be required by alternative means other than the closure of the isolation and bypass valves. Also,

isolation of the main feedwater flow to steam generators 1 and 4 by alternative means other than the closure of the main feedwater isolation and bypass valves would be required. These special alternative operator actions are to be addressed by operations procedures. A fire in this area could cause other spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features and operation procedures for this plant area, the level of fire protection should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(7) Fire Area 1-AB-LC-C - Auxiliary Building (Fire Zone 18), Elevation 153'-2"

Fire area 1-AB-LC-C includes the train A RHR heat exchanger room. This area is to be separated from the remainder of the plant and from redundant shutdown components by a three-hour fire rated boundary. All penetrations are to be sealed by construction or seals which are equivalent to a three-hour fire resistance rating. Smoke detection is to be provided for the area.

An inspection was made to verify that the following safe shutdown related cabling would be protected in accordance with SRP 9.5.1, Position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Nuclear Service Cooling Water (NSCW) PT-11742 to Valves HV1669A & HV1669B	N/A	C14RV289XA/ *1DE413KXJ02

NOTE: Refer to paragraph 5.a (1) for defintion of *

The cables to be protected are located in a wall-mount pull box located within the fire area. In the event of a fire in this plant area, safe shutdown train B would be utilized. A fire in this area could cause spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions addressed by operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection in fire area 1-AB-LC-C should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(8) Fire Area 1-AB-LC-D - Auxiliary Building, Level C (Fire Zone 20)

Fire area 1-AB-LC-D includes train A CVCS charging pump room. This area is to be separated from remainder of plant and from redundant shutdown components by three-hour fire rated boundary. All penetrations are to be sealed by construction or seals which are equivalent to a three-hour fire resistance rating. Smoke detection and automatic preaction type sprinkler systems are to be provided for the area. Interior fire hose stations are located adjacent to the area and provide sufficient coverage.

In the event of a fire in this plant area, safe shutdown train B would be utilized. A fire in this area could cause spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions which are to be addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(9) Fire Area 1-AB-LC-E - Auxiliary Building, Level C (Fire Zone 19)

Fire area 1-AB-LC-E includes train B CVCS charging pump room. This area is to be separated from remainder of plant and redundant shutdown components by three-hour fire rated boundary. All penetrations are to be sealed by construction or seals which are equivalent to a three-hour fire resistance rating. Smoke detection and automatic preaction type sprinkler systems are to be provided for the area. Interior fire hose stations are located adjacent to the area and provide sufficient coverage.

In the event of a fire in this plant area, safe shutdown train A would be utilized. A fire in this area could cause spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions which are to be addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(10) Fire Area 1-AB-LD-A - Auxiliary Building - Central Area - Levels A, C, and D (Fire Zones 9 and 11A)

Fire area 1-AB-LD-A contains the non-train pipe chase and train B pipe chase, RHR pump room, and electrical chase. This area is separated from the remainder of plant and from redundant shutdown components by three-hour fire rated boundary. All penetrations are to be sealed by construction features or seals which are equivalent to a three-hour fire resistance rating, except for several unrated watertight doors and unlabeled oversized fire dampers in some of the fire barrier and unrated exterior fire area boundary walls, floors, and ceilings. These deviations are described by the FSAR and are being reviewed by NRC/NRR. A smoke detection system is to be provided for the area and preaction type sprinkler systems are to provide total coverage for fire zone 9 and partial coverage for fire zone 11A. Interior fire hose stations are located adjacent to the area and provide sufficient coverage.

An inspection was made to verify that the following safe shutdown related cabling would be protected in accordance with SRP 9.5.1, Position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Charging Pump Power 1-1208-P6-003	**	ECIBA0313EA/ ETIBE412TGCP
Suction Valve to Charging Pump 1LV-D112E	**	ECIBBD08LA/ ETIBE412
Train A NSCW Bypass Interlock PT-11741	B13RV288XA/*ICE422RX229	N/A

NOTE: Refer to paragraph 5.a (1) for definition of **

In the event of a fire in this plant area, safe shutdown train A would be utilized. A fire in this area could cause spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions which are to be addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(11) Fire Area 1-AB-LD-G - Auxiliary Building, Wing Area - Levels D, C, B, A, 1 and 2 (Fire Zones 3, 5, 14A, 14B, 14C, 14D, 21, 22, 26A, 30, 32, 36, 48, 49 and 54)

Fire area 1-AB-LD-G includes the boric acid transfer pump and tank rooms, train A pipe penetration room, train A auxiliary component cooling water (ACCW) pump room, train A safety injection pump room, train A component cooling water (CCW) pump room, and train A ACCW and CCW heat exchangers. This area is separated from the remainder of the plant and the redundant shutdown train by construction having a three-hour or equivalent fire resistant rating, or a deviation has been identified. All penetrations of the fire barriers are to be sealed by construction features or seals which are equivalent to a three-hour fire resistant rating, except for several unrated watertight type doors and an unrated equipment hatch to adjacent fire areas. These deviations are described by the FSAR and are being reviewed by NRC/NRR. Smoke detection systems are to be provided for this area. Preaction sprinkler systems are to provide total zone coverage for fire zones 5, 14C, 14D, 21, 26A, 30, and 36, and partial zone protection for zones 3, 32, 48, 49 and 54. Interior fire hose stations are located within the area or adjacent fire areas and provide sufficient coverage.

An inspection was made to verify that the following safe shutdown related cabling would be protected in accordance with SRP 9.5.1, Position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
A Train Charging Pump Power 1-1208-P6-002	1AA0213/1EA422TEAC	
B Train Charging Pump Power 1-1208-P6-003		1BA0313EA/ 1BE422TGCR

Function	Train A Cable/Raceway	Train B Cable/Raceway
Suction Valves from RWST		
1LV-0112D	1ABD08LB/1EA422TLAK	
1LV-0112E		1BBD088A/ 1BE422TUCR

NOTE: Refer to paragraph 5.a (1) for definition of *

For a fire in fire zone 14C, safe shutdown train A would be utilized. For a fire in the other zones within this fire area, safe shutdown train B would be utilized. Fire zone 14C contains train B shutdown cables and communicates with adjacent fire areas via zone 14A which is not provided with an automatic fire suppression system or a three-hour fire rated barrier. This deviation is described in the FSAR and is being reviewed by NRC/NRR. The safe and alternate shutdown separation analysis for this area takes credit for the three-hour rated wall separating fire zones 14C and 14D of fire area 1-AB-LD-G and the three-hour rated floor of fire zone 14C. The inspectors were concerned that these types of fire barriers were not included in the fire area boundary control and surveillance procedures for Unit 1. The licensee indicated that these barriers had been overlooked in developing the plant fire barrier surveillance procedures. However, during the inspection, the licensee committed to include in the plant fire barrier surveillance procedures all fire rated barrier boundaries as shown on the fire area drawings and the following additional noted barriers:

- The three-hour rated wall separating fire zones 14C and 14D of fire area 1-SB-LD-G (Level C)
- The three-hour rated floor of fire zone 14C of fire area 1-AB-LD-G (Level C)
- The CMEB 9.5-1 raceway wrap defined on drawing CX3DF013
- The CMEB 9.5-1 radiant energy shields for PT-403 and LT-459

This is identified as Inspector Followup Item (50-424/86-88-03), Review of Surveillance Procedures for Fire Area Boundaries and Fire Barriers Required for Safe Shutdown Cable Separations, and will be reviewed during a subsequent NRC inspection.

A fire within this fire area could cause spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions which are to be addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection should maintain one train of systems necessary to achieve and maintain not standby free from fire damage.

(12) Fire Area 1-AFB-A and 1-AFB-B - Auxiliary Feedwater Pumphouse (Fire Zones 155 and 156)

These plant areas include the Auxiliary Feedwater Pump Rooms train A and train B. Penetrations through the fire area boundary wall between fire areas 1-AFB-A and 1-AFB-B are to be provided with seal protection equivalent to a three-hour fire resistance rating. Ionization smoke detection systems are provided in each of the fire areas. Pre-action sprinkler systems are provided for these areas.

An inspection was made to verify that the following safe shutdown related cabling would be protected or separated in accordance with SRP 9.5.1, Position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Auxiliary Feedwater Pump Motor A 1-1302-P4-003	1AA0217EB/1AA0217M	**
Auxiliary Feedwater Pump Motor B 1-1302-P4-002	**	1BA0321EB/ 1BWJB4867

NOTE: For notes see paragraph 5.a(1)for definition of **

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for these plant areas, the level of fire protection in fire areas 1-AFB-A and 1-AFB-B should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(13) Fire Areas 1-NSP-LA-A and 1-NSP-LA-B - Nuclear Service Cooling Water (NSCW) Pumphouse (Fire Zones 145, 160A, 146, 160B)

These plant areas include the Nuclear Service Water Pumphouse train A and train B and their associated cable tunnels 1T3A and 1T5B. Fire areas 1-NSP-LA-A and 1-NSP-LA-B are to be provided fire area boundary seal penetration protection equivalent to a three-hour fire resistance rating. Ionization smoke detection systems are provided in each NSCW pumphouse and electrical cable tunnels. Partial coverage preaction sprinkler suppression systems are provided in the electrical cable tunnels.

An inspection was made to verify the following safe shutdown related cabling would be protected or separated in accordance with SRP 9.5.1, Position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Power to NSCW Valve 1668A	1ABB09LA/ATLBF ATLBA ARL047	**
Control to NSCW Valve 1668A	1ABB09SC/RS046	**
Power to NSCW Valve 1669A	**	1BB09LA/RL092 BTLDF BTLDA
Control to NSCW Valve 1669A	**	1BB09SC/RL093

NOTE: Refer to paragraph 5.a (1)for definition of **

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for these plant areas, the level of fire protection in fire areas 1-NSP-LA-A and 1-NSP-LA-B should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

(14) Fire Area 1-CTB - Containment Building (Fire Zones 140, 140A, 140B, and 140C)

Fire Area 1-CTB contains both shutdown trains. In general, redundant trains are provided with spacial separation, radiation energy shields, or fire barriers to assure that one shutdown train

will be free of fire damage in the event of fire. The containment is separated from the remainder the plant by an unrated fire area boundary with unrated containment penetrations. These deviations were identified by the FSAR and are being evaluated by NRC/NRR. Infrared type flame detectors are to be provided for each reactor coolant pump. Line type heat detectors are to be provided for safety-related cable trays and trays containing pressurizer heater power feeder cables. Thermal detectors are to be provided for the charcoal filter units. FSAR Section 9.B, Item C.7.a(1)(c) states that photoelectric detectors are to be provided for containment area coverage; however, FSAR Section 9.A.1.111 does not indicate that this type detection is to be provided nor do the construction drawings show these detectors. This FSAR deviation is identified as Inspector Followup Item (424/86-88-16), Area Smoke Detectors Are Not Provided Within Containment as stated by FSAR, pending resolution by the licensee. A manual water spray system has been provided for each charcoal filter unit. Each reactor coolant pump is provided with an oil collection system. Interior hose stations are located throughout the area. A fire suppression system is not provided within containment for protection of combustibles between shutdown trains. This deviation is identified by the FSAR and is being reviewed by NRC/NRR.

Where redundant trains are not provided with adequate spacial separation, components, raceways, and cabling are to be protected by radiant energy shields of three-hour fire rated barriers. An inspection was made to verify that the following safe shutdown related cabling would be protected in accordance with SRP 9.5.a, Position C.5.b:

Function	Train A Cable/Raceway	Train B Cable/Raceway
Pressurizer Level	11CQPS1AXV/*1AE51ARX321	12CQPS2AXV/
	11CQPS1AXW/*1AE51ARX323	1BE51ARX386
		12CQPS2AXW/
		1BE51ARX158
RCS Pressure	11CQPS1AXB/1AE512RX199	12CQPS2AXB/
		*1BE513RX059
	11CQPS1AXC/1AE512RX093	12CQPS2AXC/
		*1BE513RX065

NOTE: Refer to paragraph 5.a for notes.

In the event of a fire in this area, the undamaged safe shutdown train would be utilized. The spacial separation and use of radiant energy shields or fire barriers should assure that one shutdown train would be available for shutdown in the event of fire within containment. However, a fire in this area could cause spurious operations of safe shutdown equipment. These are to be mitigated through various operator actions to be addressed by Operations procedures.

Based on the review of the licensee's safe shutdown analysis and the routings of the above sampled safe shutdown related cables, it appears that, upon completion of the fire protection features for this plant area, the level of fire protection should maintain one train of systems necessary to achieve and maintain hot standby free from fire damage.

b. Associated Circuits of Concern

(1) General

An inspection was made of associated circuits as defined in Generic Letter (GL) 81-12 of February 20, 1981, and Supplement to GL-81-12 issued in the spring of 1982. An analysis of these associated circuits of concern was performed for the Vogtle Electric Generating Plant in accordance with NRC Generic Letter 81-12 and subsequent NRC clarification. Associated circuits of concern are defined as those circuits that have a physical separation less than that required by Standard Review Plan 9.5.1, Position C.5.6, and have one of the following:

(a) A common power source (common bus) with the shutdown equipment and the power source is not electrically protected from the circuit of concern by coordinated breakers, fuses, or similar devices; or

(b) A connection to circuits of equipment where spurious operation (spurious signal) would adversely affect the shutdown capability; or

(c) A common enclosure with the shutdown cables, and

(Type 1) are not electrically protected by circuit breakers, fuses, or similar devices, or

(Type 2) will allow propagation of the fire into the enclosure.

(2) Associated Circuits by Common Power Supply (Common Bus)

Circuits and cables associated by common power supply are non-safe shutdown cables where fire-induced failure would cause the loss of a power source (bus, distribution panel, or MCC) that is necessary to support safe shutdown. This problem could exist for power, control, or instrumentation circuits. The problem of associated circuits of concern by common power supply is resolved by ensuring adequate electrical coordination between the safe shutdown power source supply breaker and the component feeder breaker or fuses.

The inspectors reviewed Bechtel Calculation X3CT08, Rev. 3, which includes a coordination study for the safe shutdown buses, and concluded that the concern of associated circuits by common power supply is resolved.

(3) Associated Circuits Causing Spurious Operation (Spurious Signals)

Circuits associated because of spurious operation are those that can, by fire-induced failures cause safe shutdown equipment or non-safe shutdown equipment to maloperate in a way that defeats the function of safe shutdown systems or equipment. Examples include the uncontrolled opening or closing of valves, or of circuit breakers, due to fire-induced damage to non-safe shutdown instrument and control circuits that affect the control circuit interlocks of the safe shutdown components.

The inspectors reviewed plant-specific design features, control circuits, and the licensee's safe shutdown analysis to determine that the concern of possible spurious operations is resolved. Particular attention was given to Hi/Low pressure interface valves that are part of the Residual Heat Removal System and similar systems.

The analysis of spurious operations considered equipment (safe shutdown and non-safe shutdown) that could affect safe shutdown of the plant. The potential effects of associated circuits of concern were considered in the spurious operations analysis. The spurious operation of equipment and valves were mitigated by redundancy, proper separation, protection of cables, or operator actions.

(4) Associated Circuits by Common Enclosure

A circuit, whether safety-related or not, is classified as an associated circuit of concern if it shares a common enclosure (e.g., cable tray, conduit, panel or junction box) with a "Required Circuit", and, is not adequately protected by circuit breakers, fuses, or similar devices, or could allow fire propagation into the Shared Common Enclosure.

At the Vogtle Electric Generating Plant, the concern was answered satisfactorily when a sample of circuits selected were all found to be electrically protected. Fire stops are designed to be installed whenever a cable penetrates the boundary of a fire area. IEEE383 qualified cable is installed in areas where safe shutdown cables are routed.

(5) Double Fusing for the Alternate Shutdown Panel

IE Information Notice 85-09, "Isolation Transfer Switches and Post-Fire Shutdown Capability" identifies a potential problem concerning fuses in control circuits associated with the alternate shutdown panel. Control circuits for equipment controlled from the alternate shutdown panel typically have wires that interconnect field devices, devices at the alternate shutdown panel, and devices in the main control room. Even though isolation transfer switches at the alternate shutdown panel will isolate interconnections with the control room, a system of double fusing must be utilized to ensure that a fire in the control room cannot disable control from the alternate shutdown panel. Review of relevant elementary diagrams revealed that the licensee's system of double fuses was not properly applied in 4KV breaker control circuits such as for the charging pumps. The licensee agreed to make the necessary modifications. NRC inspectors intend to review the modifications during future inspections and therefore, this matter is identified as Inspector Followup Item (424/86-88-04) Revise Control Fuses in 4KV Switchgear.

c. Damage Control Measures

Equipment (at least one train) necessary to bring the plant from power operation to a hot standby mode and maintain hot standby mode must be protected from fire damage. NRC guidelines do not allow the making of repairs in order to fulfill this requirement. However, the licensee's safe shutdown analysis calls for making some minor repairs to maintain hot shutdown. As stipulated in Vogtle Electric Generating Plant Abnormal Operating Procedures 1803-1, Rev. 2, "Operation from Remote Shutdown Panels", should the diesel generator (D/G) fuel storage tank pump become unavailable (which is an anticipated failure mode), Maintenance Procedure 27579-C must be initiated. This repair would involve disconnecting wires, adding jumpers, and replacing fuses at a motor control center in the diesel generator building. This repair is required to make the diesel generator fuel transfer pump operational to restore the D/G day tank fuel oil level. Indications are that this task must be performed within the first hour and one half of diesel generation operation.

Since NRC guidelines do not allow such repairs, this matter is identified as Inspector Followup Item (424/86-88-05), Justify Repair Required to Maintain Hot Shutdown.

Because of the possibility that the NRC may decide, at some future date, to grant an exception to the guidelines and approve Abnormal Operating Procedure 18038-1, Rev. 2, the Maintenance Procedure 27579-C was reviewed by the NRC inspectors. Comments on 27579-C were as follows:

(a) Eliminate prerequisite actions such as checking the Q status.

(b) Include reference to the appropriate schematic diagrams.

(c) Change the word "wireway" to "field wiring compartment".

(d) Motor control center (MCC) compartment numbers referred to in the procedure must be affixed to the MCC.

(e) In some cases, the procedure calls for lifting a wire from a particular terminal, but another wire on the same terminal must not be removed. Means must be provided to ensure that the proper wire is lifted.

The licensee agreed to incorporate the above comments into the repair procedure assuming that the NRC approves the use of limited repairs to maintain hot standby mode. This matter is identified as Inspector Followup Item (424/86-88-06), Revise Repair Procedure 27579-C.

d. Dedicated Shutdown Capabilities

The inspectors reviewed operating personnel training, shift staffing, and the licensee's use of operating and alternate shutdown procedures as these related to dedicated shutdown capabilities. These areas were reviewed to determine if the requirements of the Nuclear Regulatory Commission Branch Technical Position CMEB 9.5-1 as delineated in Appendix 9B of the FSAR for alternate or dedicated shutdown capability are being met.

(1) Shift Staffing and Training

The inspectors discussed the proposed operator training on the fire event safe shutdown with the licensee. A formal lesson plan and schedule for implementing this training has not yet been established; therefore, a meaningful inspection of operator training and shift staffing was not feasible during this inspection period. This subject will be tracked as Inspector Followup Item (424/86-88-07), Review Operator Training and Staffing for Fire Response.

(2) Abnormal and Operating Procedures

At the time of this inspection, the licensee had not developed Abnormal Operating Procedures and Fire Fighting Preplans for all safe shutdown fire areas.

The inspectors reviewed those Abnormal Operating Procedures and Fire Fighting Preplans that had been issued to verify the requirements as given below have been incorporated into applicable procedures:

- Achieve and maintain hot standby conditions
- Achieve and maintain subcritical reactivity conditions in the reactor
- Provide decay heat removal capabilities
- Maintain reactor coolant inventory and steam generator inventory
- Achieve and maintain cold shutdown conditions
- Provide direct readings of process variables necessary to control the above conditions

The following procedures were reviewed:

- Fire Response Procedure, 92005-C
- Operations from Remote Shutdown Panel, 18038-1
- Zone 94, Control Building - Level A Fire Fighting Preplan, 92794-C
- Zone 33, Auxiliary Building - Level B Fire Fighting Preplan, 92733-C
- Zone 91, Control Building - Level A Fire Fighting Preplan, 92791-C
- Zone 43, Auxiliary Building - Level I, Fire Fighting Preplan, 92743-C
- Zone 12, Auxiliary Building - Level D Fire Fighting Preplan, 92712-C

- Zone 95, Control Building - Level A Fire Fighting Preplan, 92795-C

- Zone 140, Containment Building - Levels B, A, 1 and 3 Fire Fighting Preplan, 92840-C

The review of the above procedures identified several minor procedural errors that were discussed with the licensee. Figures provided with each preplan procedure are of very poor quality, making then unusable in many cases. The inspectors also noted that the following two spurious actuations are not addressed in the appropriate procedures: 1) Procedure 18038-1, Operation From Remote Shutdown Panels, does not recognize tripping breaker 1AD11-08 to prevent spurious actuation of the steam generator blowdown isolation valve; and 2) Procedure 92795-C, Zone 95 Control Building - Level A Fire Fighting Preplan, does not provide corrective action for the spurious actuation of containment spray. The above items will be identified as Inspector Followup Item (424/86-88-08), Incorporate Identified Items Into Proper Procedures.

Paragraph 3.11 of the Control Room Fire Evaluation requires that breaker transfer switches 1BA0304 and 1BB0701 be placed in the local position during normal plant operation to prevent spurious loss of diesel generator building ventilation in a control room fire. The diesel generator room temperature can exceed equipment qualification temperatures within approximately five (5) minutes following a diesel start with no ventilation. No current procedure or administrative control is in place to assure the above breakers are in the required position. The licensee stated that a plant equipment clearance and hold tag will be placed on the switches. These will be designated as extended clearances with a quarterly surveillance per Administrative Procedure 00304-C. This item will be tracked as Inspector Followup Item (424/86-88-09), Verify Proper Administrative Controls to Prevent Loss of Diesel Generator Building Ventilation.

In addition to reviewing the above procedures, the inspectors conducted a walk-through of procedure 18038-1, Operations From Remote Shutdown. This procedure has been designated for use in placing the plant in a safe shutdown condition when operations cannot be conducted from the control room. The purpose for the procedure walk-through was to verify that:

- Identification plates installed on valves, components, and instrumentation agree with that called for in the procedure steps.

- Lighting of operating stations is adequate to perform the required function.

- Equipment and valves to be operated can be reached and are not obstructed.

- Steps of procedures are clear and can be accomplished

- Instrumentation identified in IEN 84-09 is available to monitor system process variables.

In the area of component labeling, the inspectors identified several discrepancies that need to be corrected. Prior to transfer of control to the remote shutdown panel, the procedure requires that all switches be placed in the "labeled position". This desired switch position is designated by placing a colored adhesive dot on each switch of the remote shutdown panels. A large number of these label dots were missing on the remote panels. The procedure also refers to major pumps such as the auxiliary feedwater (AFW) and coolant charging pumps using letter designations, while the labels on the remote shutdown panels specify numeric designations. For example, the operations procedure states to start AFW pump "A". The appropriate switch on the remote shutdown panel is labeled as pump "3". The inspectors also identified a concern with the 120V-ac panel 1BYC1. The procedure states to open breakers 10 and 12 in panel 1BYC1; yet, the approximately 40 breakers within that panel are not numbered. The licensee stated their intent to perform additional reviews and modifications of labels outside the control room. This item will be tracked as Inspector Followup Item (424/86-88-10), Review Corrective Actions for Labeling Deficiencies.

The inspectors noted that steam generator pressure indication on the remote shutdown panel is not isolated from the control room during a control room fire. The licensee stated that a deviation request has been submitted to allow use of reactor coolant system T-Cold in lieu of steam generator pressure. This item will be tracked as Inspector Followup Item (424/86-88-11), Verify Acceptance of Non-Dedicated S/G Pressure Indication on Remote Shutdown Panel "B".

A walk-through for access to required instrumentation and components was conducted to verify that equipment can be reached and operated in a safe and timely manner. The inspectors noted the following two areas of concern during this effort: 1) The 125VDC 1-E distribution panels have factory installed locks on the doors to prevent access to the breakers. No keys were available for these locks, thus requiring the operators to force the door

handle past the lock. The licensee committed to correct the situation by providing keys or possibly removing the entire lock. This item will be identified as Inspector Followup Item (424/86-88-12), Review Access Plan for 125 VDC Distribution Cabinets.

The access platform for the main steam feed to the auxiliary feedwater turbine valve HV-3009 is not adequate for access/safety purposes as required by the safe shutdown analysis. The licensee committed to improve the access to the valve. This item will be identified as Inspector Followup Item (424/86-88-13), Review Access to AFW Pump Steam Valve HV-3009.

6. Compliance with NUREG 0800, SRP 9.5.1, Position C.5.g, Lighting and Communication

a. Emergency Lighting

Fixed self-contained lighting units with individual 8-hour battery power supply are required in areas that must be manned for safe shutdown and for access and egress to and from all these fire areas.

The inspectors reviewed the design and installation of the 8-hour lighting units to be provided for Vogtle Unit 1. The lighting units are shown on the following drawings: 1X3DG301 through 1X3DG333A, Control Building Lighting and Communications Plan; 1X3DG415 through 1X3DG430, Auxiliary Building Lighting and Communications Plan; and 1X3DH7C5, 1X3DH7F4, 1X3DH7C4, and 1X3DH7D, Lighting and Communication Drawings for Detached Buildings and Structures. The drawings indicated that individual lighting units supplied by 8-hour battery supply are to be provided for all manned safe shutdown areas and for access and egress to and from all fire areas, except 8-hour battery powered lights are not provided for the control room complex and for the access and egress routes located on the exterior of the main plant structures. The licensee has identified these discrepancies and provided justification for these deviations. Pending NRC/NRR review and approval of these deviations, this is identified as Inspector Followup Item (424/86-88-14), Eight Hour Battery Powered Emergency Lighting Units Are Not Provided for the Control Room and Exterior Routes to Safe Shutdown Components. The lighting for the control room is supplied by lighting units supplied from the normal plant emergency power supplies. The lighting for the exterior routes is supplied from the security lighting system.

The lighting units being installed are Holophane Model M-19-2A-X-SEIS-PT-2. These are rated by manufacturer to provide a minimum discharge operation of 8-hours. A walkdown inspection verified that the lighting units will apparently provide sufficient illumination when the units are installed. The licensee estimated that approximately 90%

of the units have been installed. The inspector noted that approximately 40 light units had not yet been installed. However, these units were shown on the construction drawings and are to be installed prior to fuel load. These will be inspected during future NRC fire protection plant inspections.

The inspectors reviewed procedure 92401-C, Monthly Emergency Lighting Surveillance Test Procedure (Revision 0). This procedure requires a monthly visual inspection and test of all 8-hour battery powered lighting units and an annual 8-hour functional test. This procedure should assure that all of these lighting units will be functional if required for service and is to be implemented prior to fuel load.

b. Fixed Emergency Communications

Fixed emergency communications systems independent of the normal plant communication system are required to be provided at preselected shutdown stations.

The licensee has identified the locations within the plant in which a fixed independent communication system is required. These locations include the rooms containing the remote shutdown panels, diesel generator panels, switchgear and motor control center and tank level gauges. A review of the above listed lighting and communication drawings indicated that an independent sound powered telephone system was to be provided in each of the identified locations. During plant tours, the inspectors verified that the system had been installed for all of these areas, except the system had not yet been installed within Auxiliary Building Room C114, RWST Building, and Auxiliary Feedwater Pump House. The system is to be installed within these areas prior to fuel load and will be verified during future NRC routine fire protection inspections.

During the plant tours, the inspectors also noted that the safe shutdown dedicated sound powered telephone system was not isolated from the control room. The licensee will provide an isolation switch prior to fuel load to isolate the sound powered telephone stations in the control room from the remainder of the system in the event of a control room fire. This is identified as Inspector Followup Item (424/86-88-15), Verify Isolation of Sound Powered Telephone System From Control Room for A Control Room Fire.

Within the areas examined, no violations or deviations were identified.