UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

August 24, 2012

Mr. Tom E. Tynan
Vice President
Southern Nuclear Operating Company, Inc.
Vogtle Electric Generating Plant
7821 River Road
Waynesboro, GA 30830

SUBJECT: VOGTLE ELECTRIC GENERATING PLANT - NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000424/2012007 and 05000425/2012007

Dear Mr. Tynan:

On July 12, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Vogtle Electric Generating Plant. The enclosed inspection report documents the inspection results, which were discussed with Mr. W. Bargeron, Plant Manager, and other members of your staff on July 12, 2012.

The inspection examined activities conducted under your license as they related to safety and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The report documents two NRC-identified findings of very low safety significance (Green) that were also determined to involve violations of NRC requirements. The NRC is treating these as non-cited violations (NCVs) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-001; with copies to the Regional Administrator Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Vogtle Electric Generating Plant.

In addition, if you disagree with the cross-cutting aspects assigned to the findings in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, RII, and the NRC Senior Resident Inspector at the Vogtle Electric Generating Plant.

T. Tynan

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its Enclosures, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov./reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Michael F. King, Chief
Engineering Branch 2
Division of Reactor Safety

Docket No: 50-424 and 50-425
License No: NPF-68 and NFP-81

Enclosure:
Inspection Report 05000424/2012007 and 05000425/2012007
w/Attachment: Supplemental Information

cc w/encls: (See pages 3-5)

T. Tynan

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cc w/encls: (See pages 3-5)

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ADAMS: **X** Yes ACCESSION NUMBER: ML12237A175 **X** SUNSI REVIEW COMPLETE **X** FORM 665 ATTACHED

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DATE	8/ 20 /2012	8/ 23 /2012	8/ 20 /2012	8/ 14 /2012	8/ 20 /2012	8/ 20 /2012	8/ 22 /2012
E-MAIL COPY	**YES** NO	**YES** NO	**YES** NO	**YES** NO	**YES** NO	**YES** NO	**YES** NO

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DATE	8/ 15 /2012
E-MAIL COPY	**YES** NO

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No:	50-424, 50-425
License No:	NPF-68, NPF-81
Report No:	05000424/2012007 and 05000425/2012007
Licensee:	Southern Nuclear Operating Company, Inc. (SNC)
Facility:	Vogtle Electric Generating Plant, Units 1 and 2
Location:	Waynesboro, GA 30830
Dates:	June 18 - 22, 2012 (Week 1) July 9 - 12, 2012 (Week 2)
Inspectors:	P. Braxton, Reactor Inspector (Lead Inspector) J. Dymek, Reactor Inspector J. Montgomery, Reactor Inspector R. Rodriguez, Senior Reactor Inspector
Accompanying Personnel:	K. Ellis, Resident Inspector, Oconee (Training) D. Jones, Senior Reactor Inspector (Training)
Approved by:	Michael F. King, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000424/2012007, 05000425/2012007; 06/18 - 22/2012 and 07/09 - 12/2012; Vogtle Electric Generating Plant, Units 1 and 2; Fire Protection.

This report covers an announced two-week period of inspection by a triennial fire protection team composed of six regional inspectors. Two Green non-cited violations (NCV) were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after U.S. Nuclear Regulatory Commission (NRC) management review. Cross-cutting aspects are determined using IMC 0310, "Components Within The Cross-Cutting Areas." The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green: An NRC-identified non-cited violation of Vogtle Unit 2, Operating License Condition 2.G, was identified for the licensee's failure to identify and repair an inoperable fire penetration seal. The NCV was associated with the licensee's failure to identify and repair Auxiliary Feedwater Pumphouse penetration seal 2-59-031-1 that was missing half of 1" damming board material on one side of the seal. The inoperable fire penetration seal is in a 3-hour fire rated wall of the Auxiliary Feedwater Pumphouse. The licensee took immediate corrective actions to declare the penetration seal inoperable, entered the issue in their corrective action program as CR 467932, established a continuous fire watch, and repaired the penetration seal to its design condition. Additionally, the licensee performed an extent of condition inspection of the Auxiliary Feedwater Pumphouse to verify that there were not any other penetration seals in the same degraded condition.

The inoperable fire penetration seal represented a performance deficiency, since the partial missing damming board would be expected to be identified and corrected by the licensee during performance of Procedure 29144-C, Fire Boundaries and Fire Rated Penetration Seals-18 Month Visual Inspection. The finding adversely affected the fire containment capability defense-in-depth element. The finding was determined to be more than minor because it was associated with the protection against external events attribute, (i.e., fire), and degraded the Mitigating Systems cornerstone objective to ensure the availability of systems that respond to initiating events. Using NRC IMC 0609, Appendix F, Fire Protection SDP Phase 1 Worksheet, the inspectors conducted a screening and determined the finding to be of very low safety significance (Green) because the remaining penetration seal depth and damming material provided at least 2-hours of fire resistance. The team identified a cross-cutting aspect in the resources component of the human performance area because the licensee did not ensure that personnel and procedures were available, and adequate to assure nuclear safety. Specifically, because the licensee did not identify any work activities that may have damaged the seal since the completion of the most recent inspection, it was reasonable to assume that the deficiency was missed during the surveillance performed on May 9, 2012. [H.2(c)] (Section 1R05.02)

Green: An NRC-identified non-cited violation of Vogtle Unit 1, Operating License Condition 2.G, was identified for the licensee's failure to provide proper freeze protection for an 8" diameter above ground fire water line located along side the Unit 1 Main Steam Valve Room. The NCV was associated with exposed fire protection lines and piping that was not provided electrical freeze protection or insulated. Specifically, Design Basis Document DC-2301, Fire Protection Water System Section 3.3.6 stated, in part, that exposed lines shall be electrically freeze-protected and insulated. Vogtle's NFPA codes of record, NFPA-14 (1983 Edition) and NFPA-24(1984 Edition), required proper safeguards to be provided to prevent freezing for areas that were unheated and that exposed lines and equipment shall be electrically freeze protected and insulated. The licensee documented the deficiency in their corrective action program as CR482524. No immediate compensatory measures were needed because the temperature at the time of the discovery was well above freezing.

The licensee's failure to provide freeze protection for the Unit 1 fire protection piping, as required by the design bases document and applicable NFPA codes, was a performance deficiency. The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of Protection Against External Events and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to provide freeze protection for exposed sections of fire protection piping could result in the unavailability of fire suppression capability during a fire event. In accordance with NRC IMC 0609, Appendix F, Fire Protection (SDP) Phase 1 Worksheet, the inspectors conducted a screening and determined the finding to be of very low safety significance (Green) because temperatures at Vogtle are normally well above freezing and there was a low likelihood of complete loss of suppression capability; therefore, the deficiency was determined to be low degradation. No cross cutting aspect was assigned to this finding because the NRC concluded the finding did not reflect current licensee performance. (Section 1R05.03)

B. Licensee Identified Violations

None.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R05 Fire Protection

This report documents the results of a triennial fire protection inspection of the Vogtle Electric Generating Plant, Units 1 and 2. The inspection was conducted in accordance with NRC Inspection Procedure (IP) 71111.05T, "Fire Protection (Triennial)," dated October 28, 2011. The objective of the inspection was to review a minimum sample of three risk-significant fire areas to verify implementation of the fire protection program (FPP), and to verify site-specific implementation of at least one mitigating strategy from Section B.5.b of NRC Order EA-02-026, "Order for Interim Safeguards and Security Compensatory Measures" (commonly referred to as B.5.b), as well as the storage, maintenance, and testing of B.5.b mitigating equipment. Four fire areas (FAs) and associated fire zones (FZs) were selected after reviewing available risk information as analyzed by a senior reactor analyst from Region II, previous inspection results, plant walkdowns of fire areas, relational characteristics of combustible material to targets, and location of equipment needed to achieve and maintain safe shutdown (SSD) of the reactor. In selecting the B.5.b mitigating strategy sample, the team reviewed licensee submittal letters, safety evaluation reports, licensee commitments, B.5.b implementing procedures, and previous NRC inspection reports. Section 71111.05-02 of the IP specifies a minimum sample size of three fire areas and one B.5.b implementing strategy for addressing large fires and explosions. This inspection fulfilled the requirements of the procedure by selecting four fire zones in three separate fire areas, and three B.5.b mitigating strategy. The specific FAs/FZs chosen for review were:

- FZ 91, Control Building (CB), Unit 2 Train A 4.16-kV switchgear room (FA 2-CB-LA-G)
- FZ 103, Control Building, Unit 2 Train A shutdown panel room (FA 2-CB-LA-G)
- FZ 78A, Control Building, Unit 2 Train A 125V-dc switchgear room (FA 2-CB-LB-N)
- FZ 80, Control Building, Unit 2 4.16-kV non-essential switchgear room (FA 2-CB-LC-B)

The inspectors evaluated the licensee's FPP against applicable requirements, including Operating License Condition 2.G; Title 10 of the *Code of Federal Regulations*, Part 50.48 (10 CFR 50.48); commitments to NRC Branch Technical Position (BTP) Chemical Engineering Branch 9.5-1; VEGP Updated Final Safety Analysis Report (UFSAR); related NRC safety evaluation reports (SERs) including all applicable supplements; and plant Technical Specifications. Specific documents reviewed by the team are listed in the Attachment. The review of the B.5.b mitigating strategies were based on the Vogtle Electric Generating Plant Operating Licensing Condition Unit 1C (10) and Unit 2 C (4),"Mitigation License Condition"; licensee B.5.b submittals; and related NRC SERs. The inspectors evaluated all areas of this inspection, as documented below, against these requirements. Specific licensing basis documents reviewed are listed in the Attachments.

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The inspectors reviewed the Fire Event Safe Shutdown Evaluation (FESSE). One objective of this review was to evaluate the completeness and depth of the analysis which determined the credited and fire-affected equipment for each of the four FA/FZs selected, and the strategy for accomplishing the various system functions necessary to achieve and maintain hot shutdown, accomplish long-term cooldown and achieve cold shutdown following a severe fire. Particular attention was paid to reactor coolant system inventory control, reactivity control, and steam generator inventory control. A secondary objective of reviewing the FESSE was to understand its details so it could be determined whether the operations post-fire shutdown procedure was consistent with the analysis.

Through a combination of design information review and in-plant inspection, the inspectors ascertained whether the fire protection features in place to protect the SSD capability satisfy the requirements mentioned above.

Methodology

Cable routing information by FA/FZs was reviewed for a selected sample of safe shutdown components to verify that the associated cables would not be damaged by a fire in the selected fire areas, or the licensee's analysis determined that the fire damage would not prohibit safe shutdown. The inspectors reviewed conduit and cable-tray layout drawings, as well as field walkdowns of the cable routing to confirm that at least one train of redundant cables routed in the FA/FZs were adequately protected from fire damage. The inspectors reviewed the FESSE for the selected FAs/FZs, and compared it to the fire response procedures (FRP) to verify that equipment identified in the FESSE and FRPs as being required for post-fire SSD was adequately protected from fire damage in accordance with the requirements of 10 CFR 50, Appendix R, Section III.G, "Fire Protection of Safe Shutdown Capability," and the FPP. In cases where local operator manual actions (OMAs) were credited in-lieu of cable protection of SSD equipment, the inspectors reviewed the OMAs to verify that the OMAs were feasible utilizing the guidance of NRC IP 71111.05T, paragraph 02.02.j.2.

Operational Implementation

The inspectors reviewed applicable sections of fire response procedures for FZ's 91, 103, 78A, and 80, to verify that the shutdown methodology properly identified the systems and components necessary to achieve and maintain SSD conditions. The inspectors performed a walk-through of the procedure steps to ensure the implementation and human factors adequacy of the procedures. The inspectors verified that licensee personnel credited for procedure implementation had procedures available, were trained on implementation, and were available in the event a fire occurred. The inspectors also reviewed selected operator actions to verify that the operators could reasonably be expected to perform the specific actions within the time required to maintain plant parameters within specified limits.

b. Findings

No findings were identified.

.02 Passive Fire Protection

a. Inspection Scope

For the selected FA/FZs, the inspectors evaluated the adequacy of fire barrier walls, ceilings, floors, mechanical and electrical penetration seals, fire doors, and fire dampers. The inspectors walked down accessible portions of the selected FA/FZs to observe the material condition of the fire barriers to identify any potential degradation or non-conformances. The inspectors compared the installed configurations to the approved construction details contained in design packages, and supporting laboratory fire endurance test data, which established the fire resistance ratings of the selected fire barriers to ensure that the respective fire barriers met the requirements of 10 CFR 50, Appendix R, Section III.G, and Appendix A of BTP APCSB 9.5-1 . In addition, the team reviewed licensing bases documentation, such as VEGP-FSAR 9.5.1, FPP, to verify that passive fire protection features met license commitments.

Additionally, a sample of completed surveillance and maintenance procedures for selected fire doors, fire dampers, and penetration seals were reviewed to ensure that these passive fire barriers were being properly inspected and maintained.

b. Findings

Introduction: An NRC-identified Green non-cited violation (NCV) of Unit 2 Operating License Condition 2.G was identified for the licensee's failure to identify and repair an inoperable fire penetration seal. The NCV was associated with an inoperable fire penetration seal in the 3-hour fire rated wall of the Auxiliary Feedwater Pumphouse.

Description: During a fire inspection walkdown of the Unit 2 Auxiliary Feedwater Pumphouse, the inspectors identified penetration seal 2-59-031-1 was missing half of its damming board. The penetration seal is a 3-hour fire barrier (Fire Areas 2-AFB-A and C) that separates the train B and train C auxiliary feedwater pump rooms. As viewed from the train C auxiliary feedwater pump room, the piping penetration was missing approximately half of the 1" damming material on one side of the fire penetration seal. Design drawing V-M-01-01, Fire, Air and Water Seal Pipe or Silicone Foam Floor/Wall, required the penetration seal have a minimum of 7" depth of silicone room temperature vulcanizing (RTV) foam seal with 1" thick damming material. A note on the design drawing stated that the damming board was required for both sides of wall penetrations. The licensee inspected the integrity of penetration seals in fire barriers on an 18-month interval, and the team noted that the penetration was last inspected on May 9, 2012, as recorded in work order SNC335849, "18 Month, Fire Area Boundaries Visual Inspection." The licensee's inspection did not identify any discrepancies for penetration 2-59-031-1. After the issue was identified by the NRC inspectors, Licensee personnel promptly evaluated the condition; declared the fire penetration inoperable; initiated a continuous fire watch in accordance with the Fire Protection Plan, Table 9.5.1-10; and documented the condition in the corrective action program as CR 467932. The inspectors verified that the licensee completed the permanent repair of the penetration seal (work order SNC409815) during the course of the inspection. Additionally, licensee personnel performed an extent of condition inspection for the Auxiliary Feedwater Pumphouse and determined that there were not any other penetration seals that were in the same degraded condition.

Analysis: The inoperable fire penetration seal represented a performance deficiency, since the partial missing damming board would be expected to be identified and corrected by the licensee during performance of Procedure 29144-C, Fire Boundaries and Fire Rated Penetration Seals-18 Month Visual Inspection. The finding adversely affected the fire containment capability defense-in-depth (DID) element. The finding is greater than minor because it is associated with the protection against external events attribute, (i.e., fire), and degraded the Mitigating Systems cornerstone objective to ensure the availability of systems that respond to initiating events. With this degraded fire penetration, a fire in area 2-AFB-C could impact components in the Auxiliary Feedwater Pumphouse that are utilized to respond to initiating events.

Using NRC IMC 0609, Appendix F, Fire Protection SDP, the inspectors assessed the DID element of the fire barrier degradation in the fire confinement category. Based on missing half of the 1" thick damming material on one of two sides, the seal degradation level was categorized as Moderate A degradation per IMC 0609, Appendix F, Attachment 2, Table A.2.2. However, because the inspectors judged that the remaining seal depth of a minimum of 7" depth of silicone RTV foam seal with 1" damming material on one side (a total seal depth of 8") provided at least 2-hours fire resistance, the degradation level was categorized as low, in accordance with Task 1.3.2 of IMC 0609, appendix F, Attachment 1. Consequently, the finding was determined to be of very low safety significance (Green).

The team identified a cross-cutting aspect in the resources component of the human performance area because the licensee did not ensure that personnel and procedures were available and adequate to ensure nuclear safety. Specifically, because the licensee did not identify any work activities that may have damaged the seal since the completion of the most recent inspection, it was reasonable to assume that the deficiency was missed during the surveillance performed on May 9, 2012. [H.2(c)]

Enforcement: Vogtle Unit 2 Operating License Condition 2.G, requires that the licensee implement and maintain in effect all provisions of the approved FPP as described in the UFSAR for the facility, as approved in the NRC SER (NUREG -1137) through Supplement 9. The approved FPP is documented in UFSAR Section 9.5.1 and associated Appendices 9A and 9B. UFSAR Appendix 9B, Section C.5.a, "Building Design," states, in part, that penetration seals shall be used to seal openings through fire barriers that separate fire areas. The seal shall provide a fire resistance rating at least equal to the barrier itself.

Contrary to the above, on June 6, 2012, it was identified that the licensee failed to seal an opening through a fire barrier for a pipe. Specifically, the licensee failed to identify and correct an inoperable piping penetration seal in the 3-hour fire rated wall between the train B and C auxiliary feedwater pump rooms that was missing half of one side of 1" damming material, thereby causing the fire barrier to be less than the required fire resistance rating. Because this finding is of very low safety significance, and because it was entered into the licensee's corrective action program as CR 467932, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. NCV 05000425/2012007-01, Failure to Identify and Repair an Inoperable Fire Penetration Seal.

.03 Active Fire Protection

a. Inspection Scope

For the selected FA/FZs, the team performed in-plant observations of the material condition and operational lineup of fire detection, fire protection water supply, automatic water and Halon fire suppression systems, manual fire hose, and standpipe systems. The team reviewed the fire detection and suppression methods for the types of fire hazards existing in the selected fire areas. The team also compared the fire detection and fire suppression systems to the applicable National Fire Protection Association (NFPA) Standard(s) for the selected FA/FZs by reviewing design documents and observing their as-installed configurations as part of performing the in-plant walkdowns. The team compared the testing and maintenance program for the fire detection and suppression systems to the testing and maintenance requirements of the VEGP FPP. Fire protection system health reports and corrective actions associated with a fire header depressurization event, that occurred in November 2010, were also reviewed.

For the selected FA/FZs, the team compared fire fighting pre-plan strategies to existing plant layout, equipment configuration, and the fire response procedures. The team assessed the condition of fire fighting and smoke control equipment by inspecting equipment located at fire brigade staging and dress out areas. The team evaluated fire brigade staffing, qualification and training, and conducted a review of applicable drill records for 2010 and 2011. Specific attributes of fire brigade conduct was evaluated by the team, that included the witnessing of a fire drill on June 20, 2012, which observed the proper selection and implementation of appropriate strategy and tactics, command and control, communications, and use of fire brigade equipment.

b. Findings

Introduction: An NRC identified Green non-cited violation of Unit 1 License Condition 2.G, was identified for the licensee's failure to provide proper freeze protection for an 8" above ground fire water line, located along side the Unit 1 Main Steam Valve Room. The NCV was associated with exposed fire protection lines and piping that was not provided electrical freeze protection or insulated. Vogtle's NFPA codes of record, NFPA-14 (1983 Edition) and NFPA-24 (1984 Edition), required proper safeguards to be provided to prevent freezing for areas that were unheated and that exposed lines and equipment shall be electrically freeze protected and insulated

Description: A fire protection walkdown of exterior buildings identified an 8" diameter above ground section of fire protection yard piping that traversed the Unit 1 Main Steam Valve Room. Discussions with the licensee revealed that the exposed piping was neither insulated nor provided any type of freeze protection. Design Basis Document DC-2301, Fire Protection Water System Section 3.3.6 stated, in part, that exposed lines shall be electrically freeze-protected and insulated. The licensee informed the inspectors that the uninsulated fire protection piping existed since initial installation of the piping. CR 482524 was written to address the issue. No immediate compensatory measures were needed because the temperature at the time of the discovery was well above freezing.

Analysis: The licensee's failure to provide freeze protection, or insulation, for the exposed Unit 1 fire protection piping, as required by the design bases document and applicable NFPA codes, was a performance deficiency. The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to provide freeze protection for exposed sections of fire protection piping could result in the unavailability of fire suppression capability during a fire event.

In accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process (SDP), Phase 1 Worksheet, the inspectors conducted a screening and determined the finding to be of very low safety significance (Green), because temperatures at Vogtle are normally well above freezing and there was a low likelihood of complete loss of suppression capability; therefore, the deficiency was determined to be low degradation. No cross cutting aspect was assigned to this finding because the NRC concluded the finding did not reflect current licensee performance.

Enforcement: Vogtle Unit 1 Operating License Condition 2.G, requires that the licensee implement and maintain in effect all provisions of the approved FPP, as described in the UFSAR for the facility, and submittals dated July 2, August 4 and 13, October 10 and 24, and November 4, December 19, 1986 and January 2, 1987, as approved in the NRC SER (NUREG -1137) through Supplement 5. The approved FPP is documented in UFSAR Section 9.5.1 and associated Appendices 9A and 9B. UFSAR Appendix 9B, Section C.6.b(1), states, in part, that the yard fire main loop should be installed in accordance with the requirements of NFPA 24 (1984 Edition), Private Fire Service Main and their Appurtenances. Additionally, UFSAR Appendix 9B Section C.5.c (4), states, in part, that interior manual hose stations should be installed in accordance with the requirements of NFPA 14 (1983 Edition), Installation of Standpipe and Hose Systems. NFPA 24-1984, Section 8-2.1, states, in part, that where it is impracticable to burypipe, it may be laid above ground, provided the pipe is protected from freezing. NFPA 14-1983 Section 7-4.1, states, in part, that when standpipe risers or horizontal standpipe runs pass through unheated areas, proper safeguards shall be provided to prevent freezing.

Contrary to the above requirements, on June 19, 2012, it was identified that the licensee failed to install fire protection piping in accordance NFPA standards. Specifically, the licensee failed to protect exposed sections of 8" diameter fire protection piping by providing proper safeguards and/or installing freeze protection. Because this finding is of very low safety significance and because it was entered into the licensee's corrective action program as CR482524, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. NCV 05000424/2012007-01, Failure to Install Freeze Protection for Exposed Fire Protection Piping.

.04 Protection From Damage From Fire Suppression Activities

a. Inspection Scope

The team evaluated whether manual fire fighting activities or installed fire suppression sprinkler and/or Halon systems for the selected FA/FZs could adversely affect equipment credited for SSD, inhibit access to alternate shutdown equipment, or adversely affect local operator actions required for SSD. The team reviewed documentation related to flooding analysis and spray effects on components, as well as potential flooding through unsealed concrete floor cracks. The team reviewed VEGP evaluations addressing concerns identified in Information Notice (IN) 98-31entitled “Fire Protection System Design Deficiencies and Common Mode Flooding of Emergency Core Cooling System Rooms at Washington Nuclear Project Unit 2.” The team reviewed pre-fire plans, fire brigade training procedures, and fire abnormal operating procedures to verify that the draining of water, or the ventilation of heat and smoke, was addressed so that operator manual actions may be performed.

b. Findings

No findings were identified.

.05 Alternative Shutdown Capability

a. Inspection Scope

The inspectors reviewed the mitigating strategies the licensee had in place for alternative shutdown capability. This review was accomplished by reviewing the licensee’s corrective actions for NCV 05000424,425/2011005-02: Failure to Ensure Unit 1 and Unit 2 Reactor Coolant Process Variable Can Be Maintained within Those Predicted Due to a Loss of Normal AC Power for a Large Main Control Room Fire, as referenced in Section 4OA2.

b. Findings

No findings were identified.

.06 Circuit Analyses

a. Inspection scope

The inspectors assessed whether the licensee identified the structures, systems, and components important to meeting the 10 CFR Part 50.48 requirements consistent with the established licensing basis. The inspectors reviewed the UFSAR and system flow drawings to assess the potential for flow diversion paths, loss of function, or other scenarios that would adversely impact the plant’s ability to achieve and maintain safe

shutdown (SSD) conditions. The inspectors reviewed the licensee's post-fire SSD procedures and compared them with the post-fire SSD analysis and component separation analysis for the selected FA/FZs.

The inspectors then reviewed a sample of SSD components to verify that the components specified in the post-fire SSD procedures were available for a postulated fire in any of the selected FA/FZs. The inspectors reviewed the electrical control wiring diagrams for the selected SSD components to identify combinations of individual circuit conductors which, if shorted together due to fire damage, could cause spurious operation or non-operation. The inspectors also identified the cables associated with the SSD components and examined in detail the cable routing. For instances, where cables traversed through the selected FA/FZs, the inspectors performed more detailed circuit analysis to verify fire induced damage would not adversely impact the credited SSD methodology. In cases where the circuit analysis indicated resolution of a potential problem was needed, the team inspected the implementation of that resolution. The specific components reviewed are listed in the Attachment.

Potential common power supply concerns were addressed by the team through a review of overcurrent protective device coordination. The criterion for this review was that fire-induced faults on non-SSD circuits would not result in tripping of any SSD power source.

b. Findings

No findings were identified.

.07. Communications

a. Inspection Scope

The inspectors reviewed the communication capabilities required to support plant personnel in the performance of OMAs to achieve and maintain safe shutdown, as credited in UFSAR Section 9.5.2. The inspectors verified the capability of the sound-powered phone system, and verified that cables for communication equipment would not be affected by a fire in the selected FA/FAs. The inspectors reviewed preventative maintenance and surveillance test records to verify that the communication equipment was being properly maintained. The team also verified that the design and location of communications equipment, such as repeaters and transmitters, would not cause a loss of communications during a fire.

b. Findings

No findings were identified.

.08 Emergency Lighting

a. Inspection Scope

The inspectors reviewed maintenance and design aspects of the fixed 8-hour battery pack emergency lighting units (ELUs) required by the licensee's FPP. The inspectors performed plant walkdowns of the post-fire SSD procedures for the selected FA/FZs to observe the placement and coverage area of the ELUs throughout the selected FA/FZs. The inspectors also evaluated the adequacy of the ELUs to illuminate access and egress pathways, and any equipment requiring local operation and/or instrumentation monitoring for post-fire SSD. The inspectors reviewed preventive maintenance procedures and completed surveillance tests to verify that adequate surveillance testing was in place. The inspectors reviewed vendor manuals to ensure that the ELUs were being maintained consistent with manufacturer's recommendations.

b. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed the SSA and plant procedure for responding to fires and implementing safe shutdown activities in order to determine if any repairs were required to achieve cold shutdown. The licensee had designated one system (an emergency diesel generator fuel oil pump) potentially requiring repair, in the form of a control circuit emergency jumper, in order to reach cold shutdown based on the safe shutdown methodology implemented. The team verified that the jumper was available and the procedure to install it worked. The team also evaluated whether cold shutdown could be achieved within the required time using the licensee's procedures and repair methods. Specific documents reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

The team reviewed the administrative controls for out-of-service, degraded and/or inoperable fire protection features (e.g., detection and suppression systems and passive fire barriers). The team reviewed selected items from the impairment list and compared them to the FA/FZs selected for the inspection. The team also observed performance of a fire protection surveillance activity, including the implementation of compensatory

measures. The team interviewed continuous fire watch personnel stationed in Control Building that were posted for fire suppression systems made inoperable by the closing of isolation valves associated with the replacement of sprinkler system alarm check valves. The team reviewed the VEGP Fire Protection LCO and Transient Combustible Permit Log for applicable activities performed on 7/11/2012 to determine programmatic requirements were in compliance.

b. Findings

No findings were identified.

.11 Review and Documentation of Fire Protection Program Changes

a. Inspection scope

The inspectors reviewed a sample of FPP changes made during the previous three years to assess the licensee's effectiveness to determine if the changes to the FPP were in accordance with the fire protection license condition, and had no adverse effect on the ability to achieve SSD.

b. Findings

No findings were identified.

.12 Control of Transient Combustibles and Ignition Sources

a. Inspection Scope

The inspectors reviewed the controls for combustibles and ignition sources throughout the plant to verify that they complied with the VEGP FPP. The inspectors verified that the transient combustible materials, and locations of transient combustible materials, were being controlled in accordance with the licensee's administrative control procedures and the licensee's fire hazards analysis. The inspectors also discussed the duties of prescribed for roving, continuous, and hot work type fire watch personnel to determine that such duties would be accomplished in accordance with the licensee's administrative control procedures.

b. Findings

No findings were identified.

.13 B.5.b Inspection Activities

a. Inspection Scope

The inspectors reviewed procedure NMP-EP-404, Plant Vogtle Emergency Management Guideline, Version 12, to verify the adequacy of procedural guidance for three mitigating

strategies: (1) makeup to the condensate storage tank, (2) containment flooding, and (3) reactor vessel vent head strategy. The inspectors requested and reviewed inventory and maintenance records of required equipment. Through discussions with plant staff, review of documentation, and plant walkdowns, the inspectors verified the engineering basis to establish reasonable assurance that the makeup capacity could be provided using the specified equipment and water sources. The inspectors performed a walkdown of the storage and staging areas for the B.5.b equipment to verify that equipment identified for use in the current procedures were available, calibrated, and maintained. The inspectors conducted an independent audit and inventory of required equipment and a visual inspection of the dedicated credited power and water source. The inspectors reviewed training records of the licensee's staff to verify that operator training/familiarity with the strategy objectives and implementing guidelines were accomplished according to the established training procedures. The inspectors verified, by review of records and physical inspection, that B.5.b equipment was currently being properly stored, maintained, and tested in accordance with the licensee's B.5.b program procedures.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed recent independent licensee audits for thoroughness, completeness, and conformance to requirements. The inspectors reviewed other corrective action program (CAP) documents, including completed corrective actions documented in selected CRs, to verify that industry-identified fire protection problems potentially or actually affecting the plant were appropriately entered into, and resolved by the CAP process. The CRs were reviewed with regard to the attributes of timeliness and apparent cause determination to ensure that proposed corrective actions addressed the apparent cause, reportability, and operability determination.

Specifically, the inspectors reviewed the licensee corrective actions related NCV 05000424, 525/2011002-02: Depressurization of Main Feedwater Header and NCV 05000424, 425/2011005-02: Failure to Ensure Unit 1 and Unit 2 Reactor Coolant Process Variable Can Be Maintained within Those Predicted Due to a Loss of Normal AC Power for a Large Main Control Room Fire and confirmed that the associated corrective actions had been implemented.

b. Findings

No findings were identified.

4OA5 (Closed) Unresolved Item (URI) 05000424, 425/2010005-02: Licensing Basis for Multiple Spurious Operations and Adequacy of Related Compensatory Measures

a. Inspection Scope

This URI was opened for resolution of issues pertaining to Vogtle Electric Generating Plant (VEGP) licensing basis for multiple spurious operations (MSOs) and the adequacy of related compensatory measures implemented to address potential non-compliances related to multiple circuit faults. The issues were identified as an Unresolved Item in the VEGP 2010006 triennial fire protection inspection report (ML110900693), and remained opened pending further NRC review of information related to the plant fire protection licensing/design basis.

The licensee performed a multiple circuit fault analysis using the guidance in NEI 00-01, Appendix G, "Generic List of MSOs," and "PWR Generic List of Fire-Induced Multiple Spurious Operation Scenarios," Revision 1 (preliminary), that resulted in the identification of 78 MSO scenarios at VEGP Units 1 & 2. During the Vogtle 2010-006 TFPI, the NRC questioned if the identified MSOs were non-compliances and if the compensatory measures (i.e., operator rounds) implemented at Vogtle for the MSO concerns constituted sufficient compensation as intended by NRC Enforcement Guidance Memorandum (EGM) 09-002. The licensee countered that their list of MSO scenarios did not represent any non-compliances, as the consideration of the multiple circuit faults was outside of the fire protection licensing/design basis for VEGP.

An in-office review of Vogtle's fire protection licensing and design basis documents was performed by regional inspectors, and NRC staff from the Fire Protection Branch in the Office of Nuclear Reactor Regulation. The documents reviewed are listed in the Attachments. Relative to MSOs, the inspection team did not identify a performance deficiency. Although the licensee did implement compensatory measures, they are not required because there is no non-compliance. The licensee informed the inspectors that based on recent industry experience and regulatory guidance; they are actively reviewing and revising their design basis documents to consider multiple circuit faults.

b. Findings

No findings were identified. This unresolved item is now closed.

4OA6 Meetings, Including Exit

On July 12, 2012, the lead inspector presented the summary of inspection results to Mr. W. Bargeron, Plant Manager, and members of the licensee's staff. The licensee acknowledged the findings. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
W. Bargeron, Plant Manager
P. Goodman, Fire Protection Engineer
G. Gunn, Nuclear Licensing
M. Hickox, MSPI System Supervisor
T. Honeycutt, Licensing Supervisor, SNC Corporate
L. Hughes, Fleet Fire Protection Program Engineer, SNC Corporate
D. Jenkins, Operations
J. Lattner, Principal Fire Protection Engineer, SNC Corporate
B. Lewis, Fire Protection Training
C. Martin, Senior Safe Shutdown Engineer, SNC Corporate
D. McCary, Operations Manager
J. Robinson, Engineering Programs Manager
J. Shannon, Fire Protection Systems Engineer
J. Singleton, Fire Protection Engineer
B. Stewart, Emergency Lighting Engineer
D. Sutton, Site Project Manager
J. Todd, Nuclear Oversight Manager
K. Walden, Fire Protection Program Engineer, SNC Corporate
S. Waldrup, Engineering Director
J. Whitt, Fire Protection Engineer, SNC Corporate

NRC Personnel

M. Cain, Senior Resident Inspector, Vogtle Electric Generating Plant
T. Chandler, Resident Inspector, Vogtle Electric Generating Plant
M. King, Chief, Engineering Branch 2, Region II

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000425/2012007-01	NCV	Failure to Identify and Repair an Inoperable Fire Penetration Seal (Section 1R05.02)
05000424/2012007-01	NCV	Failure to Install Freeze Protection for Exposed Fire Protection Piping (Section 1R05.03)

Closed

05000424, 425/2010005-02	URI	Licensing Basis for Multiple Spurious Operations and Adequacy of Related Compensatory Measures (Section 4OA5)

Discussed
None

LIST OF COMPONENTS REVIEWED
(Refer to Report Section 1R05.01 / 1R05.06 – Circuit Analyses)

Component Identification	Description
2-HV-8146	Normal charging path valve
2-HV-8509A	Train "B" miniflow valve
2-HV-8000A	Pressurizer PORV block valve
2-HV-8110	Seal water heat exchanger valve
2-HV-8111A	Train "A" miniflow valve
2-HV-8111B	Train "B" miniflow valve
2-HV-8508A	Train "A" miniflow valve
2-HV-8508B	Train "A" miniflow valve
2-HV-8509B	Train "B" miniflow valve
2-PV-0455A	Pressurizer PORV

LIST OF DOCUMENTS REVIEWED

Licensing Basis Documents

VEGP-FSAR 9.5.1 Fire Protection Program, Rev. 17
NUREG-0800, Standard Review Plan, Rev. 3 dated July 1981
VEGP-FSAR-9.5.1, Appendix 9A, Fire Hazards Analysis, Rev. 14
VEGP-FSAR-9.5.1, Appendix 9B, Comparison of VEGP Units 1 and 2 with Requirements of the BTP CMEB 9.5-1, Rev. 13
VEGP-FSAR-9.5.2, Communications Systems, Rev. 16
Letter dated November 14, 1986 (File: X7N00-28, Log: GN-1141) regarding Units 1 and 2 FSAR Amendment 28
Letter dated June 13, 1986 (File: X7N00-28, Log: GN-929) regarding Units 1 and 2 FSAR Amendment 24
Letter dated September 29, 1988 (File: X7BC35, Log: GN-1496) regarding Fire Protection Inspection of Compliance
Letter dated September 15, 1988 regarding Inspection of Compliance with NUREG-0800, Section 9.5.1
Letter dated August 4, 1986 (File: X7BC35, Log: GN-1025) regarding SER open item 7 fire protection
Letter dated July 2, 1986 (File: X7BC35, Log: GN-976) regarding Units 1 and 2 SER open item 7 fire protection
Letter dated November 5, 1986 (File: X3BL01, Log: GN-1155) regarding SER open item 7 fire protection
Letter dated October 10, 1986 (File: X3BL01, Log: GN-1108) regarding Units 1 and 2 fire protection
Letter dated October 24, 1986 (File: X3BL01, Log: GN-1136) regarding Units 1 and 2 open item 7 fire protection
Letter dated August 13, 1986 (File: X7BC35, Log GN-1042) regarding Units 1 and 2 SER Confirmatory Item 10- high Energy Pipe Analysis
NUREG-1137, Supplement 4, Safety Evaluation Report Related to the Operation of Vogtle Electric Generating Plant Units 1 and 2, December 1986
NUREG-1137, Supplement 5, Safety Evaluation Report Related to the Operation of Vogtle Electric Generating Plant Units 1 and 2, January 1987
NUREG-1137, Supplement 7, Safety Evaluation Report Related to the Operation of Vogtle Electric Generating Plant Units 1 and 2, January 1988
NUREG-1137, Supplement 8, Safety Evaluation Report Related to the Operation of Vogtle Electric Generating Plant Units 1 and 2, February 1989

Procedures

13011-2, Residual Heat Removal System, Rev. 64.2
27579-C, Emergency Diesel Generator Fuel Oil Pump Control Circuit Emergency Jumper Installation, Rev. 3.3
13006-2, Chemical & Volume Control System, Rev. 90.1
14999-C, Quarterly Performance Check Communications Equipment Required In Shutdown Locations, Rev. 9.2
14961-C, Emergency Lighting Surveillance, Rev. 40

29101-C, Emergency Lighting Surveillance (FSAR Fire Protection Surveillance), Rev. 44.6
29144-C, Fire Boundaries and Fire Related Penetration Seals 18 Month Visual Inspection, Rev. 28
NMP-ES-035-001, Fire Protection Program Implementation, Ver. 7
NMP-ES-035-004, Fire Protection Documentation of Engineering Judgments and Calculations, Ver. 3
NMP-ES-035-GL01, Fire Protection Program Guideline, Ver. 1
NMP-EP-404, Plant Vogtle Emergency Management Guideline, Version 12
17103A-C, Annunciator Response Procedures for Fire Alarm Computer, Rev. 36
18038-1, Operation from Remote Shutdown Panels, Rev. 33.3
18038-2, Operation from Remote Shutdown Panels, Rev. 26.2
NMP-TR-415-003, Plant Vogtle 1-2 Systems Operator Training Program Instruction, Rev. 9.0
NMP-TR-416-003, Plant Vogtle 1-2 License Operator Continuing Training Program Instruction, Rev. 1.0
NMP-TR-417-003, Plant Vogtle 1-2 Initial License Training Program Instruction, Rev. 9.0
10001-C, Logkeeping, Rev. 51
00012-C, Shift Manning Requirements, Rev 17.2
19000-C, E-0 Reactor Trip or Safety Injection, Rev. 36
19010-C, E-1 Loss of Reactor or Secondary Coolant, Rev. 34.1
92780-2, Zone 80 – Control Building – Level B Fire Fighting Preplan, Rev. 2.0
92005-C, Fire Response Procedure, Rev. 29.4
11877-1, Cold Weather Checklist, Rev. 23

Drawings

AX4DJ8047, Fire Areas Auxiliary Feedwater Pump House Roof and Floor Plan Details, Rev. 3
2X1D59J043**,** Auxiliary Feedwater Pump House Architectural Penetration Seal Interior Elevations Level 1 Unit 2. Rev. 3
AX1AG11-11-7, Fire, Air and Water Seal Silicone Foam Floor/Wall, Rev. 6
2X3D-BD-C02F, Elementary Diagram-Chemical & Volume Control System 2LV-0112B, Rev. 5
2X3D-AA-A01A, Main One Line Unit 2, Rev. 19.0
2X3D-AA-G01A, Main One Line Class 1E 125V DC & 120V Vital AC Systems, Rev. 7.0
1K2-2301-071-02, Fire Protection Water System Fabrication Isometric Control Building Area 2E, 2F, & 5C Level A, Rev. 7
1K2-2301-071-03, Fire Protection Water System Fabrication Isometric Control Building Area 2E, Level A, Rev. 8
1K2-2301-263-01, Fire Protection Water System Fabrication Isometric Control Building Area 2E, Level A, 1, Rev. 6
1K2-2301-335-01, Fire Protection Water System Fabrication Isometric Control Building Area 2E, Level 1, Rev. 4
1K4-2301-263-01, Fire Protection Water System Fabrication Isometric Equipment Building Area 4E, Level 1, Rev. 7
1X4DB100, P & ID's and Flow Diagram Legend, Ver. 20
1X4DB174-2, P & I Diagram Fire Protection Water Systems, System No. 2301, Ver. 28
1X4DB174-3, P & I Diagram Fire Protection Water Systems, System No. 2301, Ver. 25
1X4DB174-4, P & I Diagram Fire Protection Water Systems, System No. 2301, Ver. 23
2X4DB174-3, P & I Diagram Fire Protection Water Systems, System No. 2301, Ver. 25
2X4DB174-4, P & I Diagram Fire Protection Water Systems, System No. 2301, Ver. 24
2X4DE317, Equipment Location Layout CTMT- Control & Fuel Handling Bldg. Unit 2 Plan Level 1 El. 220'-0", Ver. 22

2X4DE318, Auxiliary Building Unit 2 Equipment Location Layout Level 1, Plan – El.220'-0" To El. 240'-0", Ver. 14
2X4DE320, Equipment Location Layout Containment, Control & Fuel Handling Bldg. Unit 2 Plan Level A El. 200'-0", Rev. 24
2X4DE322, Equipment Location Layout Containment, Control & Fuel handling Bldg. Unit 2 Plan Level B El. 200'-0", Rev. 23
2X3DF35A, Conduit / Tray Section Area 5, El. 180'-0" Level B Control Building Unit 2, Ver.9.0
AX1D11A02-1, Control Building Floor Plan El. 180 ft.-0 in, Level B Sheet 2 of 2, Ver.13
AX1D11A34-2, Control Building Miscellaneous Details, Ver.0
AX2094V047, Typical Wall Mounted Detail Sheet-2, Rev. 2
AX4DJ8023, Fire Areas Control Building Floor Plan El. 180'-0, Level B, Ver.12
AX4DJ8025, Fire Areas Control Building Floor Plan El. 200'-0, Level A, Ver.11
AX4DJ8044, Fire Areas Containment Building and Equipment Building Floor Plan El. 220' 0", Level 1, Ver. 4.0
CX4DB173-1, P & I Diagram Fire Protection Pump House No. 1 & 2, System 2301, Ver.41
CX4DB173-2, P & I Diagram Fire Protection Pump House No. 1 & 2, System 2301, Ver.29
CX3DF013, Exposure Fire Barriers and Separation Barriers, Ver. 8.0
2X3D-BD-B01A, Elementary Diagram Reactor Coolant System 2-1201-P6-001-M01, Rev. 14
2X3D-BD-B01D, Elementary Diagram Reactor Coolant System 2-1201-P6-004-M01, Rev. 11
2X3D-BD-B01N, Elementary Diagram Reactor Coolant System 2-1201-P6-001-M01, Rev. 12
2X3D-BD-B01Y, Elementary Diagram Reactor Coolant System 2-1201-P6-004-M01, Rev. 7
2X3D-BD-C03H, Elementary Diagram Chemical & Volume Control System 2-HV-8106, Rev. 5
2X3D-BD-C03T, Elementary Diagram Chemical & Volume Control System 2-HV-8106, Rev. 4
2X3D-AA-A01A, Main One Line Unit 2, Rev. 19
2X3D-BA-D03D, Elementary Diagram 4160V Incoming Breaker from EDG 2B, Rev. 9
2X3D-BD-B02A, Elementary Diagram Reactor Coolant System 2HV-8000A, Rev. 7
2X3D-BD-B02B, Elementary Diagram Reactor Coolant System 2HV-8000B, Rev. 4
2X3D-BD-B03F, Elementary Diagram Reactor Coolant System 2PV-0456A, Rev. 6
2X3D-BD-B03H, Elementary Diagram Reactor Coolant System 2PV-0455A, Rev. 8
2X3D-BD-C01T, Elementary Diagram Chemical & Volume Control System 2HV-8508A, Rev. 4
2X3D-BD-C01U, Elementary Diagram Chemical & Volume Control System 2HV-8508B, Rev. 3
2X3D-BD-C03J, Elementary Diagram Chemical & Volume Control System 2HV-8110, Rev. 7
2X3D-BD-C03K, Elementary Diagram Chemical & Volume Control System 2HV-8111A, Rev. 7
2X3D-BD-C05L, Elementary Diagram Chemical & Volume Control System 2HV-8111B, Rev. 4
2X3D-BD-D02L, Elementary Diagram Safety Injection System 2HV-8804A, Rev. 6
2X3D-AA-D03B, One Line Diagram 4160V Switchgear 2BA03, Rev. 7
2X3D-BB-B01V, Elementary Diagram Electrical System Generator Tripping, Rev. 7
2X3D-CE-H01A, Wring Diagram Protective Relay Panel 2-1816-U3-008, Rev. 4
2X3D-BB-B01P, Elementary Diagram Electrical System Generator Tripping, Rev. 3
2X3D-BB-B01M, Elementary Diagram Electrical System Generator Tripping, Re. 8
2X3D-BB-B01R, Elementary Diagram Electrical System Generator Tripping, Rev. 2
2X3D-BB-B01U, Elementary Diagram Electrical System Generator Tripping, Rev. 6
2X3D-BB-B01M, Elementary Diagram Electrical System Generator Tripping, Rev. 8
2X3D-BA-D02B, Elementary Diagram 4160V SWGR 2AA02 INCM BRKR 2NXRA, Rev. 8
2X3D-BA-D03C, Elementary Diagram 4160V SWGR 2BA03 INCM BRKR 2NXRA, Rev. 7
2X3D-BB-B01T, Elementary Diagram Electrical System Generator Tripping, Rev. 6
2X3D-BB-B01L, Elementary Diagram Electrical System Generator Tripping, Rev. 8
2X3DF340, Conduit Plan Area 4 El. 180'-0" Level B Control Bldg. Unit 2, Rev. 22

Fire Protection Pre-Plans

92778A-2, Zone 78A - Control Building-Level B Fire Fighting Preplan, Rev. 0.2
92780-2, Zone 80 - Control Building-Level B Fire Fighting Preplan, Rev. 2.0
92791-2, Zone 91 - Control Building-Level A Fire Fighting Preplan, Rev.3.2
92799-1, Zone 99 - Control Building-Level A Fire Fighting Preplan, Rev. 3.2
92799-2, Zone 99 - Control Building-Level A Fire Fighting Preplan, Rev. 4.1
92803-2, Zone 103 - Control Building-Level A Fire Fighting Preplan, Rev. 2.2
92804-2, Zone 104 - MSIV Room North-Level 1 Fire Fighting Preplan, Rev. 4.0
92804-1, Zone 104 - MSIV Room North-Level 1 Fire Fighting Preplan, Rev. 4.2
92745-2, Zone 45 - Auxiliary Building-Level 1 & 2 Fire Fighting Preplan, Rev. 1.2
92745-1, Zone 45 - Auxiliary Building-Level 1 & 2 Fire Fighting Preplan, Rev 2.2
92739A-1, Zone 39A - Auxiliary Building-Level A Fire Fighting Preplan, Rev. 4.0
92739A-2, Zone 39A - Auxiliary Building-Level A Fire Fighting Preplan, Rev. 3.1
92778B-2, Zone 78B - Control Building - Level B, Train 'A' Battery Room Fire Fighting Preplan, Rev. 1.2
92767-1, Zone 67 - Control Building - Level B Fire Fighting Preplan, Rev. 2.1
92770-1, Zone 70 - Control Building - Level B Fire Fighting Preplan, Rev. 5.0
92723-1, Zone 23 - Auxiliary Building - Electrical Chase Rooms Fire Fighting Preplan, Rev. 4.0
92752-1, Zone 52 - Auxiliary Building - Level 1 Fire Fighting Preplan, Rev. 2.0
92746-1, Zone 46 - Auxiliary Building - Level 1 Fire Fighting Preplan, Rev. 4.0

Design Changes

94-U2N0062, Thermo-lag Deletion, dated 8/06/99
94-V2N0062, Fire Endurance Test of 3M Interam™ Mat Fire Protection Envelopes, dated 6/28/98
97-VAM039, Electric Fire Pump Impeller Replacement, dated 7/28/97
03-V2M026, Remove Pressure Reducing Valves on Standpipes, dated 4/24/03

Applicable Codes and Standards

NFPA 13-1983, Sprinkler Systems
NFPA 14-1883, Standpipe and Hose Systems
NFPA 20-1983, Fire Pumps
NFPA 24-1984, Private Fire Service Mains and Their Appurtenances

Completed Surveillances

2102138901, Quarterly Performance Check Communications Equipment Required In Shutdown Locations, completed 12/9/10
2110329601, Quarterly Performance Check Communications Equipment Required In Shutdown Locations, completed 5/20/11
29601419, Fire Barrier Installation, completed 8/22/96
2070262201, 18 Month Emergency Lighting Surveillance, completed 8/28/08
2080993101, 18 Month Emergency Lighting Surveillance, completed 4/29/09
2090058301, 18 Month Emergency Lighting Surveillance, completed 4/7/10
2081664201, 18 Month Emergency Lighting Surveillance, completed 7/7/10
2091896701, 18 Month Emergency Lighting Surveillance, completed 8/11/10
2110734901, Quarterly Emergency Lighting Surveillance Unit 2 Aux. Building, completed 7/18/11

14952-303-1081897801, Fire Suppression System Annual System Pump Test, completed 7/31/10
14952-301-1092184201, Fire Suppression System Annual System Pump Test, completed 8/20/10
14952-302-C101802401, Fire Suppression System Annual System Pump Test, completed 8/21/10
14952-301-1102248901, Fire Suppression System Annual System Pump Test, completed 4/17/11
14952-303-SNC126927, Fire Suppression System Annual System Pump Test, completed 4/17/11
14952-302-SNC143229, Fire Suppression System Annual System Pump Test, completed 9/3/11
14954-301-SNC332205, Fire Suppression System-18 Month Flush, completed 3/30/12
14955-301-SNC324220, Fire Suppression Water System Flow Path Safe Shutdown Verification, completed 2/22/12
14955-302-SNC344917, Fire Suppression Water System Flow Path Safe Shutdown Verification, completed 5/21/12
14955-303-SNC322874, Fire Suppression Water System Flow Path Safe Shutdown Verification, completed 2/12/12
14955-304-SNC330511, Fire Suppression Water System Flow Path Safe Shutdown Verification, completed 3/20/12
29122-201-1092053601, 18-Month Halon System Pressure and Weight Verification, 4/7/11
29132-201-1070265401, 18-Month Halon System Inspection and Test, 10/14/10
14956-301-SNC323529, Fire Suppression System 5-Year Flow Verification, completed 6/14/12
29124-305-SNC315442, Fire Door Inspection, completed 12/05/11
29229-101-1092053601, 1-1813-Q3-F29 Fire and Smoke Detection Operational Test, completed 8/23/11
29229-102-1070265401, 1-1813-Q3-F29 Fire and Smoke Detection Operational Test, completed 10/24/08
29133-301-C102142001, Fire Hydrant Flow Test, Hose Hydro Test, Barrel Inspection and Lubrication, completed 6/15/11
29133-301-C102142501, Fire Hydrant Flow Test, Hose Hydro Test, Barrel Inspection and Lubrication, completed 6/07/11
29134-303-SNC332216, Portable Fire Extinguisher Inspection, completed 3/26/12
29143-305-SNC143364, 18-Month Fire Damper Visual Inspection, completed 12/27/11
29144-301-C100356001, 18-Month Fire Area Boundaries Visual Inspection, completed 12/22/11
29145-101-1100411901, 18-Month Fire Rated Cable Wrap and Radiant Energy Shield Assemblies Visual Inspection, completed 3/28/11
29145-201-SNC137064, 18-Month Fire Rated Cable Wrap and Radiant Energy Shield Assemblies Visual Inspection, completed 3/20/12
29152-104-1082055701, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 10/2/09
29152-204-2102471201, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 9/20/11
29152-301-1100071201, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 12/20/10
29152-302-C100077701, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 8/27/10
29152-303-C100078101, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 8/27/10

29152-304-C100077801, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 9/16/10
29152-305-C100078201, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 10/04/10
29152-306-C100078001, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 10/08/10
29152-307-C100077901, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 9/30/10
29152-308-C100071101, Fire Hose Station 3 Year Flow Verification and Hydrostatic Verification, completed 2/10/11

Fire Drills

2012 Q2-3 for Control Building, CB-408, (Observed)

Condition Reports/Action Items reviewed

CR 2011107580, No room checks for 14999-C
CR 2010113782, Loss of Fire Header Pressure
CR 2012470230, Fire Flow Target Test Pressures Not Met
CR 2011102915, Fire Protection Compensatory Measures
CR 160000, NOUE Declaration, Fire Alarms Received for Zone 170
CR 2010112114, Control Room Fire Alternate Shutdown Evaluation does not accurately reflect realistic plant response
AI 2010206778, Develop a series of simulations to obtain plant response during a postulated control room fire
NPM-GM-002-F02 Version 10.0, Apparent Cause Determination Report for failure to ensure plant parameters are maintained within those established for a loss of normal AC power
CR 2006109484, Enhancements to the fire pre-plans as a result of insights gained from the Operator Manual Action Feasibility Study
CR 2006109486, Enhancements to 17103A-C, Table 3, as a result of insights gained from the Operator Manual Action Feasibility Study
AI 2006204686, Track the revision to Fire Pre-plans

Condition Reports Generated

480128, Procedure 17103A-C directs the performance of action 1c in Table 3 for a fire in Zone 80 (Units 1 and 2)
465762, 2012 TFPI, Fire pre-plan revision
465765, 2012 TFPI, Design change request to meet NFPA 10 requirements
467932, 2012 TFPI, Penseal damming board needs repair
472764, Fire door closer broke
472765, Revision of preplan 92780-2
478822, Batteries used in SSD Emergency Lights
482524, 2012 TFPI, Unisulated Fire Protection Piping
482887, 2012 TFPI, Evaluate fleet differences in fire protection hose station flow testing methodology.
483009, We need to add extensive mitigation guidance coverage on a biennial frequency to NMP-TR-415-003
483329, TFPI 2012 Hose Station Signage
483018, TFPI 2012 Procedure 14958-C needs the following changes
483017, TFPI 2012 Procedure EP-404 needs the following changes

482614, 2012 TFPI calculation enhancement suggestion for X4C2301S306 to include NL-08-0845 as a reference
482613, 2012 TFPI procedure enhancement suggestion for NMP-404 to include NL-08-0845 as a reference
474816, I&C Equipment referenced in NMP-404 Appendix P is located in bin A04 and not bin F01
474801, B5B adaptor has wrong equipment tag
472823, 17103A-C, page 111, step 1a and step 1.b bolding is inconsistent for equivalent steps
472796, page 62, 17103A-C, table 1 – Unit 2, CR Operator Actions, needs to be corrected to read Group 2, not Group 20
472775, A-1418-U4-263, demineralized water 6 inch flush header isolation – the tag is faded and needs replacement

Calculations and Evaluations

X4C2301S033, Fire Event Safe Shutdown Evaluation (FESSE) – Control Building, Rev. 15.0
SEV-2966, Plant Response to IN 2003-008, Potential Flooding Through Unsealed Concrete Floor Cracks, 8/07/03
SEV 3074, Plant Response to IN 2005-030, Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design, 11/17/05
X4C2301S306, B.5.b Mitigation Strategy Flow Verification
X3CT08, Interrupting Device Coordination, Rev. 18

Audits and Self-Assessment Reports

NMP-GM-003-001, Focused Area Self Assessment Report, dated 4/20/12
V-FP-2010, Fleet Oversight Audit of Fire Protection, dated 9/22/10

Completed Work Orders

29601419, Fire Barrier Installation, 8/22/96
SNC323529, Fire Suppression Flow Verification, 6/12/12
SNC335849, 18 Month, Fire Area Boundaries Visual Inspection, dated 05/11/2012
C100356001, Fire Area Boundaries and Fire Rated Penetration Seals 18 Month Visual Inspection, dated 12/22/2010
SNC409815, TFPI 2012 Penseal Damming Board Needs Repair, dated 6/12/2012
SNC324313, Quarterly, Fire Brigade Equipment Inspection, dated 02/27/2012
SNC143182, HL4M DRI-Prine Pump Maint., dated 01/11/2012
SNC 317438, Quarterly Performance Check Communications Equipment Required In Shutdown Locations, completed 1/24/12
SNC 302024, Quarterly Emergency Lighting Surveillance Unit 2 Aux. Building, completed 12/30/11
SNC 324933, Quarterly Emergency Lighting Surveillance Unit 2 Aux. Building, completed 3/13/12
SNC 299150, Quarterly Emergency Lighting Surveillance Unit 2 Outside Area, completed 9/2/11
SNC 299822, Quarterly Emergency Lighting Surveillance Unit 2 Outside Area, completed 11/28/11
SNC 302025, Quarterly Emergency Lighting Surveillance Unit 2 Outside Area, completed 2/1/12

SNC 299824, Quarterly Emergency Lighting Surveillance Unit 2 Control Building, completed 8/23/11
SNC 302027, Quarterly Emergency Lighting Surveillance Unit 2 Control Building, completed 11/30/11
SNC 317096, Quarterly Emergency Lighting Surveillance Unit 2 Control Building, completed 2/2/11
SNC323529, Fire Suppression Flow Verification, completed 6/12/12
SNC 134226, 18 Month Emergency Lighting Surveillance, completed 2/17/12

Training Documents

V-OPS-EDMG, User Qualification Status Group by Qualification, dated 06/04/2012
V-RD-HO-40404-001, Training Handout, Emergency Management Guideline, Ver. 1
Training Lesson Plan, Godwin Model HL4M Trailer Mounted Diesel Driven Pump Operation, dated 04/17/2008

Miscellaneous Documents

AX3AN03-16, Holophane M-19 12VDC Power Pack Installation and Maintenance Instructions, 8/30/05
AX3AN03-00021, Instruction Manual For Birns Emergency Light Fixture, 12/22/04
Vogtle Unit 1 and Unit 2 Fire Protection LCO Log, 7/11/12
Vogtle Unit 1 and Unit 2 Transient Combustible Permit Log, 7/11/12
NMP-GM-002-F02, Apparent Cause Determination Report for Fire Header Depressurization Event, Ver. 6
DC-2301, Design Bases, Fire Protection Water Systems, Ver. 10
REA00-VAA013, NRC IN 98-31 Water Hammer Evaluation
REA00-VAA639, NRC IN 98-31 Water Hammer Evaluation
AX4DR001, Piping Material Classifications, Ver. 63
4XCYC38, Flooding Analysis and Spray Effects on Components-Unit 2, 8/11/06
CX4AF14-00013, Fire Protection Diesel and Electric Driven Pumps, Ver. 17.0
X4C23015302, Sprinkler Water Flow Flooding Considerations, 10/15/88
X6CYC32, Flooding Analysis Control Building Level A, 4/21/05
X6CXC33, Flooding Analysis Control Building Level B, 9/24/07
X6CYC33, Flooding Analysis Control Building Level B, 9/27/08
Underwriters Laboratory Fire Resistance Directory – 1992, Design Number U604, Non-Bearing Wall Rating – 3 HR.
System Health Report, 2301-Fire Protection Water System-, Q1-2012
System Health Report, 1813- Fire Detection System, Q1-2012
NPM-GM-002-F02, Apparent Cause Determination Report for failure of management to ensure performance related to the fire protection work order backlog, the fire protection work order prioritization process, and fire watch execution was at a high level, Version 10.0
Letter dated August 26, 2008 regarding Vogtle Electric Generating Plant Units 1&2 Safe Shutdown Time Critical Operator Actions in 18038-1/2 and 17103A-C
DC 2301, Fire Protection Water System, Rev. 10

LIST OF ACRONYMS AND ABBREVIATIONS

APCSB	Auxiliary and Power Conversion Systems Branch
B.5.b	Refers to a section of Interim Compensatory Measures Order, EA-02-026
BTP	Branch Technical Position
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CMEB	Chemical Engineering Branch
CR	Condition Report
ELU	emergency lighting unit
ESGR	emergency switchgear room
FA	fire area – a volume within the plant enveloped by 3-hour fire barriers
FCA	fire contingency action
FESSE	Fire Event Safe Shutdown Evaluation
FHA	fire hazards analysis
FPP	fire protection program
FPR	fire protection report
FZ	Fire Zone
Halon 1301	Bromotrifluoromethane gas effective for extinguishing fires
HVAC	heating, ventilating and air conditioning
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	inspection report
kV	kilovolts
MCR	main control room
NCV	non-cited violation
NFPA	National Fire Protection Association
NPF	Nuclear Power Facility
NRC	Nuclear Regulatory Commission
NUREG	An explanatory document published by the NRC
OSHA	Occupational and Safety Health Administration
P&ID	piping and instrumentation drawing
RTV	Room Temperature Vulcanizing
SCBA	self-contained breathing apparatus
SDP	significance determination process
SER	Safety Evaluation Report
SNC	Southern Nuclear Operating Company
SSD	safe shutdown
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
V	Volts
VEGP	Vogtle Electric Generating Plant