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

June 3, 2016

EA-16-119

Mr. David Vineyard
Vice President
Southern Nuclear Operating Company, Inc.
Edwin I. Hatch Nuclear Plant
11028 Hatch Parkway North
Baxley, GA 31513

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT - NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000321/2016007 AND 05000366/2016007 AND EXERCISE OF ENFORCEMENT DISCRETION

Dear Mr. Vineyard:

On April 22, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Edwin I. Hatch Nuclear Plant, Units 1 and 2, and discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

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 team reviewed selected procedures and records, observed activities, and interviewed personnel.

The NRC inspectors identified and documented two findings that were considered of more than minor significance. The noncompliances were based upon your implementation of the fire protection requirements and standards consistent with commitments specified by the conditions of your license. The findings identified by the NRC were also violations of the NRC requirements. The NRC is treating these violations as noncited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

The inspectors screened the violations and determined that one violation warranted enforcement discretion. This discretion decision was based on the Interim Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues, and Section 11.05(b) of Inspection Manual Chapter 0305 "Operating Reactor Assessment Program." The enclosed report documents one of the noncompliances for which the NRC is exercising enforcement discretion in accordance with Section 9.1 of the NRC Enforcement Policy, "Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48)."

If you contest the violations or significance of 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the E. I. Hatch Nuclear Plant.

If you disagree with the cross-cutting aspect assignment 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, Region II; and the NRC resident inspector at the E. I. Hatch Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, 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/

Scott M. Shaeffer, Chief
Engineering Branch 2
Division of Reactor Safety

Docket Nos.: 50-321, 50-366
License Nos.: DPR-57, NPF-5

Enclosures:
Inspection Report 05000321/2016007, 05000366/2016007
w/Attachment: Supplementary Information

cc: Distribution via Listserv

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Letter to David Vineyard from Scott M. Shaeffer dated June 3, 2016.

SUBJECT: EDWIN I. HATCH NUCLEAR PLANT - NRC TRIENNIAL FIRE PROTECTION INSPECTION REPORT 05000321/2016007 AND 05000366/2016007 AND EXERCISE OF ENFORCEMENT DISCRETION

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-321, 50-366
License Nos.:	DPR-57, NPF-5
Report Nos.:	2016007
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Edwin I. Hatch Nuclear Plant
Location:	Baxley, GA 31513
Dates:	April 4 – 8, 2016 (Week 1) April 18 – 22, 2016 (Week 2)
Inspectors:	Rodney J. Fanner, Senior Reactor Inspector (Lead Inspector) David A. Jones, Senior Reactor Inspector John L. Dymek, Reactor Inspector Philipp J. Braaten, Reactor Inspector Melana J. Singletary, Reactor Inspector
Approved by:	Scott M. Shaeffer, Chief Engineering Branch 2 Division of Reactor Safety

Enclosure

SUMMARY

IR 05000321/2016-007, 05000366/2016-007; 04/04-08/2016 and 04/18-22/2016; E.I. Hatch Nuclear Plant, Units 1 and 2; Fire Protection (Triennial).

This report covers an announced two-week triennial fire protection inspection (TFPI) by a team of five regional inspectors, from the U. S. Nuclear Regulatory Commission's (NRC's) Region II office located in Atlanta, Georgia. Two Green NCVs were identified. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using IMC 0609, "Significance Determination Process," dated April 2015. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross Cutting Areas," dated December 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated February 4, 2015. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5, dated February 2014. Inspectors may omit portions of this statement as deemed appropriate to the circumstances discussed in the report

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

Green: The NRC identified a Green non-cited violation (NCV) violation of Hatch Technical Specifications 5.4.1.d, "Procedures," for Units 1 and 2, for not ensuring manual action feasibility for actions in fire area (FA) 0024. Specifically, the licensee failed to provide reasonable assurance that a credited manual action to ensure emergency power was both feasible and reliable in response to a fire event. The licensee plans to assess the issue and entered this violation into their Corrective Action Program (CAP) based upon CR10209664, CR10213119, & CR10212821.

The licensee's failure to provide reasonable assurance that Appendix R time critical operator actions (TCOAs) associated with fire events can be completed in a timely manner was a performance deficiency (PD). The PD was more than minor because if left uncorrected, it could to lead to a more significant safety concern. Specifically, the exclusion of TCOAs from a validation process could lead to plant or program changes that prohibit the completion of actions required to meet the licensing basis. Using the guidance of IMC 0609, App. F, the finding was screened as Green because the finding did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event. The deficiency was screened with IMC 0310, "Aspects Within Cross Cutting Areas," to determine if any cross-cutting areas were applicable. The team concluded cross-cutting was applicable to the problem identification and resolution (PI&R) area, evaluation attribute due the licensee's failure to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance (P.2). (Section 1R05.05)

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 TFPI of the E.I. Hatch Nuclear Plant (HNP) Units 1 and 2. The inspection was conducted in accordance with the guidance provided in NRC Inspection Procedure 71111.05T, "Fire Protection (Triennial)," dated January 31, 2013. The objective of the inspection was to review a minimum sample of three risk-significant FAs to evaluate implementation of the Hatch Fire Protection Program (FPP). The inspection also had an additional objective, which was to review the site-specific implementation of one mitigating strategy. This mitigation strategy was based upon 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. The sample FAs were chosen based on a review of available risk information as analyzed by a senior reactor analyst (SRA) from Region II, a review of previous inspection results, plant walkdowns of FAs, consideration of relational characteristics of combustible material to targets, and location of equipment needed to achieve and maintain safe shutdown (SSD) of the reactor. In selecting a B.5.b mitigating strategy sample, the team reviewed licensee submittal letters, safety evaluation reports (SERs), licensee commitments, B.5.b implementing procedures, and previous NRC inspection reports. Section 71111.05-05 of the IP specifies a minimum sample size of three FAs and one B.5.b mitigating strategy for addressing large fires and explosions. This inspection fulfilled the requirements of the procedure by selecting a sample of three FAs and one B.5.b mitigating strategy. The FAs and B.5.b strategy were:

- Main Control Room – Fire Area 0024C
- Diesel (D.G) Switchgear Room 2E – Fire Area 2404
- West D.C. Switchgear Room 2A – Fire Area 2018
- The B.5.b mitigating strategy selected for review is associated with the Manual Operation of reactor core isolation cooling (RCIC)

For each of the selected FAs, the team evaluated the licensee's FPP against applicable NRC requirements and licensee design basis documents. For the B.5.b strategy, the team evaluated the strategy implementation against the commitments for the 10 CFR 50.54hh requirements. Applicable licensing and design basis documents reviewed by the team are listed in the Attachment to this report.

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team reviewed the licensee's FPP referenced in the Unit 2 Updated Final Safety Analysis Report (UFSAR) Section 9.5; the licensee's safe shutdown analysis report (SSAR); fire hazards analysis (FHA); plant procedures; piping and instrumentation

drawings (P&IDs); electrical drawings; training materials; and other supporting documents. The team performed the review to verify that hot and cold shutdown would be achieved and maintained from the main control room (MCR) for postulated fire events within the selected samples. The review included verification that shutdown from the MCR could be performed both with and without the availability of offsite power. The team performed in-plant inspections to verify that the plant configuration was consistent with that described in the FHA and SSAR. The team reviewed the licensee's shutdown methodology to verify that it properly identified the components and systems necessary to achieve and maintain SSD conditions for postulated fires resulting in shutdown from the MCR. The team focused their inspection activities on systems specified in the SSAR for reactivity control, reactor coolant makeup, and decay heat removal, as well as process monitoring instrumentation and necessary support systems.

The team reviewed and performed a walkthrough of procedure steps used for post-fire SSD to ensure the technical and human factors adequacy of the procedures. The team verified the licensee personnel credited for performance of procedures were available in the event a fire occurred, had procedures available, and were trained on implementation. The team also verified that operators could reasonably be expected to perform the procedure actions in order to maintain plant parameters within specified limits. The team reviewed and walked down applicable sections of Abnormal Operating Procedure (AOP) 34AB-X43-001-2, "Fire Procedure" for FAs 2404 and 2018. The team reviewed operator actions to ensure these actions could be implemented in accordance with plant procedures in a manner necessary to support the SSD method for the applicable fire area.

b. Findings

No findings were identified.

.02 Passive Fire Protection

a. Inspection Scope

The team walked down the selected FAs and fire zone (FZ) to evaluate the adequacy of the fire resistance of concrete walls, ceilings, and floors. This evaluation also included fire barrier cement block walls, penetration seals, fire doors, and fire dampers to ensure that at least one train of SSD equipment would be maintained free of fire damage. Construction detail drawings and fire tests were reviewed as necessary. Where applicable, the team observed the installed barrier assemblies and compared the as-built configurations to the approved construction details. The team also reviewed supporting fire endurance test data, licensing basis commitments and licensee adherence to standard industry practices.

b. Findings

Introduction: The NRC identified a Green NCV of Hatch Renewed Operating License Conditions (OLCs) 2.C.(3) and 2.C.(3)(a), for Units 1 and 2 respectively, because the licensee failed to adhere to branch technical position (BTP) Auxiliary and Power Conversion Systems Branch (APCSB) 9.5-1. Specifically, the licensee failed to implement the NFPA 80, "Fire Doors and Windows," requirements to ensure fire confinement, thus affecting the defense in depth (DID) aspects.

Description: During walkdowns of the chosen fire areas, the inspectors assessed whether the passive fire protection features adhered to the NFPA code commitments specified in the current licensing basis. Based upon the walkdown of the West DC Switchgear Room 2A (FZ 2018) and the adjacent access corridor (FZ 2014), the inspectors observed what they determined to be inadequate fire protection program implementation which would result in a degraded fire confinement ability between two fire zones. The code states, in part, that when doors are installed on only one face of a fire wall, heat responsive units shall be located on each side of the wall and interconnected so that the actuation of any one of them will permit the door to close. In this case, the heat responsive units were fusible metallic links designed to melt at a specific temperature and initiate door closure. The fusible links were not installed as required on both sides of the credited fire door between FZ 2018 and FZ 2014. Specifically, a link was only on one side of door 2L482C10. No link was installed on the side of the door in FZ 2014. The door in question was considered to be a Class A fire door and was designed to provide at least 3-hours of fire resistance between adjacent fire zones for a postulated fire event. Neither of these fire zones were protected with automatic suppression capability. In addition, there were existing exemptions in place for not meeting the 10 CFR Appendix R, III.G.2 requirements as referenced by the FHA. This further supported the need for ensuring the DID measures were adequate for fire confinement.

In the second example, on October 15, 2015, the NRC resident inspector observed that an issue existed with the installation of an electro-thermal link designed to close the 2C EDG rolling fire door which separated FA 2407 from FA 0401. Specifically, it was noted that the device was installed in an improper configuration and that the electro-thermal link was mounted directly to the wall and secured using a nut and washer. In this configuration, the washer overlapped the seam of the electro-thermal link and hampered the links ability to separate and automatically close the door. The licensee declared the electro-thermal link non-functional and performed a functionality assessment. The assessment concluded that additional links designed to release the door in the event of a fire would have eventually fused, releasing the door. In addition, the gaseous carbon dioxide (CO2) fire suppression system protecting the 2C EDG would have retained the required CO2 gas concentration using the air control louvers, which were installed in series with the rolling fire door. The degraded electro-thermal link was corrected on November 10, 2015.

Analysis: The licensee's failure to ensure the DID aspects of the FPP were implemented consistent with the NFPA 80 requirement as specified by the current fire protection licensing basis was a PD. The PD was more than minor because it impacted the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences, and the related attribute of protection against external factors such as fire. Specifically, the lack of a required link above the fire door between the West DC Switchgear Room 2A and the adjacent access corridor fire zone and the improperly installed link between EDG Room 2C and the adjacent access corridor would have negatively impacted the expected response time of each of the fire doors to close. In addition, review of historical work orders and condition reports indicated problems with the air balance louvers coincident with the degraded ETL controlling the closure of the fire door would have impacted the likelihood of confining the CO2 gas at the required design concentration. In both these instances, the finding had a negative impact on the program DID aspects for the fire confinement category. In accordance with NRC IMC

0609, “Significance Determination Process,” Appendix F, the inspectors performed a Phase 1 analysis and determined the finding resulted in very low significance, Green, based on question 1.4.3-A since, in each case, the combustible loading on both sides of the barrier wall represented a fire duration less than 1.5 hours (i.e., less than 120,000 Btu/ft2).

The team determined that no cross-cutting attributes were applicable based upon the issue being associated with meeting the original NFPA 80 design criteria at licensing.

Enforcement: Hatch Operating License Condition (OLC) 2.C.(3) and 2.C.(3)(a), for Units 1 and 2 respectively, stated, in part, that Southern Nuclear shall implement and maintain in effect all provisions of the fire protection program, which is referenced in the Updated Final Safety Analysis Report (UFSAR) for the facility. The E. I. Hatch UFSAR, Unit 2, Section 9.5, stated in part the plant fire protection system is described in the Edwin I. Hatch Nuclear Plant Units 1 and 2 Fire Hazards Analysis and Fire Protection Program (incorporated by reference into the FSAR). FHA Section 9.0, Appendix A Compliance Matrix, stated the licensee complied with the applicable sections of BTP APCSB 9.5-1. The General Guideline for Plant Protection section stated that the NFPA 80, “Fire Doors and Windows” was applicable for fire doors.

Contrary to the above, the team identified two instances that were not consistent with the stated commitments. The licensee documented this issue with condition reports CR10085883, CR 10135493, CR 10144100, and CR10022283. The team reviewed the DID and the fire confinement provisions of NFPA 805 as referenced by Sections A.4.4.6.4 and 7.3.7. In addition, Section 5.11.3.1, which states in part that passive fire protection devices such as doors and dampers shall conform to the following NFPA standards, as applicable unless otherwise permitted by 5.11.3.2.

Because Hatch committed to adopt NFPA 805 and the aforementioned issues meet the criteria as stated in the NRC Enforcement Policy (Policy), Section 9.1, “Enforcement Discretion for Certain Fire Protection Issues (10 CFR 50.48),” the NRC will disposition the violations in accordance with the Policy and grant enforcement discretion. The NRC will also disposition the associated findings in accordance with Inspection Manual Chapter 0305, Section 11.05, “Treatment of Items Associated with Enforcement Discretion.”

.03 Active Fire Protection

a. Inspection Scope

The team reviewed the adequacy of the fire protection water sources and fire pumps to confirm they were installed in accordance with the National Fire Protection Association (NFPA) codes of record and NRC requirements. The team performed in-plant observations of the material condition and operational lineup of the fire water pumps and fire protection water supply distribution piping, including manual fire hose and standpipe systems for the selected FAs/FZ. Using operating and valve cycle/alignment procedures, as well as engineering drawings, the team examined the electric motor-driven and the diesel-driven fire pumps and accessible portions of the fire main piping system to evaluate operational status, accuracy of as-built configurations, and to verify correct system valve lineups (i.e. position of valves). The team compared the fire detection and fire suppression systems for the selected FAs/FZ to the applicable NFPA

standard(s) by reviewing design documents; and observed the as-installed configurations of the systems during plant walkdowns. The team reviewed selected fire protection vendor equipment specifications, drawings, and engineering calculations to determine whether the fire detection and suppression methods were appropriate for the types of fire hazards that existed in the selected FAs. During plant walkdowns, the team observed the placement of the fire hose stations, fire extinguishers, fire hose nozzle types, and fire hose lengths, as designated in the firefighting pre-plan strategies, to verify they were not blocked, and that adequate reach and coverage was provided consistent with the firefighting strategies and FPP documents. The team reviewed completed periodic surveillance testing and maintenance program procedures for the fire detection and suppression systems and compared them to operability requirements, testing criteria, and compensatory measures. This review was to assess whether the test program was sufficient to validate proper operation of the fire detection and suppression systems in accordance with their design requirements.

Aspects of fire brigade readiness were reviewed, including, but not limited to, the fire brigade's medical and training records, personal protective equipment, self-contained breathing apparatuses, portable communications equipment, and other fire brigade equipment to determine accessibility, material condition and operational readiness of equipment. During plant walkdowns, the team compared firefighting pre-plan strategies to existing plant layout and equipment configurations and to fire response procedures for the selected FAs/FZ. This was done to verify that firefighting pre-fire plan strategies and drawings were consistent with the fire protection features. In addition, the team assessed potential fire conditions within the area to determine if appropriate information was provided to fire brigade members to facilitate credited with initiation of suppression activity of an exposure fire that could impact the SSD strategy.

b. Findings

No findings were identified.

04. Protection from Damage from Fire Suppression Activities

a. Inspection Scope

The team evaluated whether water-based manual firefighting activities could adversely affect equipment credited for SSD, inhibit access to alternate shutdown equipment, or adversely affect local operator manual actions (OMAs) required for SSD in the selected FAs/FZ. The team reviewed available documentation related to flooding analysis from fire protection activities, being sensitive to potential flooding through unsealed concrete floor cracks.

The team reviewed firefighting pre-plan strategies; fire brigade training procedures; fire damper locations; heating, ventilation and air conditioning (HVAC) drawings; and fire response procedures to verify that inter-area migration of ventilation of gaseous heat and smoke was addressed, and access to SSD equipment and OMAs would not be inhibited by smoke migration from the affected fire area to adjacent plant areas used to accomplish SSD.

b. Findings

No findings were identified.

.05 Alternative Shutdown Capability

a. Inspection Scope

Methodology

The team reviewed the licensee's FPP, the SSA, P&IDs, electrical drawings, and other supporting documents for postulated fires in FAs 0024. The reviews focused on ensuring that the required functions for post-fire SSD and the corresponding equipment necessary to perform those functions were included in the procedures. The review included assessing whether hot and cold shutdown from outside the MCR could be implemented, and that transfer of control from the MCR to the auxiliary shutdown panel could be accomplished.

Plant walkdowns were performed to verify that the plant configuration was consistent with that described in the SSA. These inspection activities focused on ensuring the adequacy of systems selected for reactivity control, reactor coolant makeup, reactor heat removal, process monitoring instrumentation and support systems functions. The team reviewed the systems and components credited for use during this shutdown method to verify that they would remain free from fire damage.

Operational Implementation

The team reviewed procedure 34AB-X43-001-2, "Fire Procedure", Rev. 17, to verify the adequacy of this procedure to mitigate a fire in the Main Control Room (MCR). Additionally, the team reviewed 31RS-OPS-001-2, "Shutdown From Outside Control Room", Rev. 6.2, to verify the adequacy of this procedure to safely shutdown the plant using the alternate shutdown capability. The team reviewed training materials for licensed and non-licensed operators to verify that training reinforced the shutdown methodology that is utilized in the FPP and operating procedures.

The team performed a walk-through of procedure steps with operations personnel to assess the implementation and human factors adequacy of the procedures and shutdown strategy to evaluate the ambient conditions, difficulty, and operator familiarization associated with each OMA. The team reviewed the systems and components credited for use during this shutdown methodology to verify that they would remain free from fire damage. The team 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. In cases where a repair action was used in lieu of adequate isolation, the team reviewed the exemption request for the specific repair, the procedural guidance for the repair, and any training associated with it to ensure that the action could be accomplished as described in the NRC Safety Evaluation Report that granted exemption for the repair activity.

b. Findings

Introduction: The NRC identified a Green non-cited violation (NCV) of Hatch Technical Specification 5.4.1.d, "Procedures," for Units 1 and 2, for not ensuring manual operator action feasibility for actions based on a fire in FA 0024. Specifically, the licensee failed to provide reasonable assurance that a credited manual action to ensure emergency power was both feasible and reliable in response to a fire.

Description: Hatch procedure NMP-OS-014, "Time Critical Operator Action Program," and procedure NMP-OS-014-02, "HNP Time Critical Operator Action Program," defined a Time Critical Operator Action (TCA) as "A manual action or series of actions that Operators must complete within a specified time to meet the plant licensing basis." Additionally, procedure 34AB-X43-001-2, Fire Procedure, directed operators to take numerous actions to mitigate the impact of a fire induced circuit failure. These actions included removing power from critical components by opening breakers to manually bypassing faults with jumpers. Several of the actions specified in licensee response procedures have required timelines that must be completed as detailed below.

The NRC issued a Safety Evaluation Report (SER) in January of 1987. This SER addressed an exemption request the licensee made with respect to utilizing repair actions to achieve and maintain hot stand-by of the plant. The exemption to perform the repair action was granted by the NRC and stated that the licensee can restore function to the diesel generator voltage regulators within 15 minutes. To accomplish this action the licensee directed the operator to perform the action consistent with Fire Procedure, Attachment 1, Step 5.15.5 and 5.15.6.

The team reviewed licensee calculation AA001/RP/001, "Hatch MSO MAAP4 Analysis," which also identified numerous scenarios that would require mitigating actions in a timely manner. In this instance, Hatch fire procedure 34AB-X43-001-2, Step 5.15.4 was provided to mitigate the postulated spurious operations.

The licensee provided NMP-ES-035-005, Fire Protection Alternative Compensatory Measures, Version 6.0, as a means of establishing the methodology for performing and documenting evaluations of alternative compensatory actions for inoperable fire protection features or post-fire Safe Shutdown capability. In section 8.1, the procedure stated in part that the feasibility of the manual action would need to document and address the criteria outlined by the NRC. This criteria included an evaluation of emergency lighting, communications, diagnostic instrumentation, accessibility, environmental considerations, staffing, special tools, training, and verification and validation. These attributes were described in NRC technical report (NUREG) -1852, "Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire." The inspectors reviewed procedure NMP-ES-035, "Fire Protection Program," Version 5.0, which was applicable for the maintenance, implementation and continuing improvement of the FPP for the Farley Nuclear Plant (FNP), Hatch Nuclear Plant (HNP), Vogtle Electric Generating Plant 1 and 2 (VEGP 1-2), and SNC Corporate. The procedure referenced the NUREG-1852 criteria.

Given the guidance from the licensee's own procedures, the NRC, and industry, the team determined that the current program exclusion of the action to install jumpers at the Emergency Diesel Generators does not ensure the feasibility of a credited operator manual action in response to a fire.

Analysis: The licensee's failure to provide reasonable assurance that Appendix R TCOAs associated with fire events can be completed in a timely manner is a PD. The PD was more than minor because if left uncorrected, could to lead to a more significant safety concern. Specifically, the exclusion of these actions from a validation process could lead to plant or program changes that prohibit the completion of actions required to meet the licensing basis and place the plant in an unanalyzed condition.

Using the guidance of IMC 0609, App. F, the finding was screened as Green because the finding did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event (Task 1.4.5-B). The deficiency was screened with IMC 0310 to determine if any cross-cutting areas were applicable.

The team concluded cross-cutting was applicable to the problem identification and resolution (PI&R) area, evaluation attribute due the licensee's failure to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance (P.2).

Enforcement: Hatch Technical Specifications section 5.4.1 stated, in part, that procedures shall be established, implemented, and maintained covering activities including Fire Protection Program implementation. Hatch procedure NMP-OS-014, "Time Critical Operator Action Program," and procedure NMP-OS-014-02, "HNP Time Critical Operator Action Program," defined a Time Critical Operator Action (TCA) as "A manual action or series of actions that Operators must complete within a specified time to meet the plant licensing basis." 34AB-X43-001-2, Fire Procedure, directed operators to take numerous actions to mitigate the impact of a fire induced circuit failure.

Contrary to the above, on April 19, 2016, the inspectors identified that the licensees failed to adequately implement and maintain procedures that support the fire protection program implementation by verifying manual operator actions were feasible and reliable in response to a fire. This violation is being treated as an NCV, consistent with section 2.3.2 of the NRC Enforcement Policy because it was of very low safety significance and was entered into the licensee's corrective action program as CR10209664, CR10213119, & CR10212821 (NCV 05000321 and 05000366/2016007-01, "Failure to provide reasonable assurance that Appendix R time critical operator actions (TCOAs) can be completed in a timely manner.")

.06 Circuit Analyses

a. Inspection Scope

This segment was suspended for plants that have been in transition to NFPA 805 for less than 3 years because a more detailed review of cable routing and circuit analysis will be conducted as part of the FPP transition to NFPA 805.

The team did review a sample of cables and components credited for safe shutdown of the plant to ensure that a fire would not prevent safe shutdown of the plant. For the selected samples, the team conducted walkdowns, reviewed drawings and circuits, and interviewed the licensee about their shutdown strategy and the credited equipment to ascertain that credited equipment would not be adversely impacted by a fire.

b. Findings

No findings were identified.

.07 Communications

a. Inspection Scope

The team verified that portable radio communications and fixed emergency communication systems were available, operable, and adequate for the performance of designated activities. Through document review and interviews with the licensee personnel, the team verified that there were diverse means of communication in the event of a fire. 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. In addition, the team reviewed the periodic testing of the radios to verify proper operation of the systems.

b. Findings

No findings were identified.

.08 Emergency Lighting

a. Inspection Scope

The inspectors verified the adequacy of the plant's emergency lighting systems through review of design and maintenance aspects and inspection walk-downs of the fixed 8-hour battery pack emergency lighting units (ELUs) and required by the site's FPP. Specifically, the team reviewed the adequacy of the ELUs used to support plant personnel during post-fire safe shutdown for the selected FAs. The team performed plant walk-downs and observed the placement and coverage area of fixed 8-hour battery pack emergency lights credited for SSD, to evaluate their adequacy for illuminating access and egress pathways and any equipment requiring local operation and/or instrumentation monitoring for post-fire SSD. The inspectors also reviewed completed test records of ELU battery 8-hr discharge tests, completed surveillances, and preventive maintenance procedures to ensure that they were sized, tested, rated for at least an 8-hour capacity and maintained consistent with vendor guidance, license requirements, and licensee commitments.

b. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The team reviewed the licensee's FHA and SSAR to verify that the licensee had evaluated the need for cold shutdown repairs. The team determined from the review that the licensee did not take credit for repairs to cold shutdown components in order to achieve cold shutdown.

b. Findings

No findings were identified.

.10 Compensatory Measures

a. Inspection Scope

(1) Compensatory Measures for Degraded Fire Protection Components

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) to verify that short-term compensatory measures adequately compensated for the degraded function or feature until appropriate corrective actions could be taken.

(2) Operator Manual Actions as Compensatory Measures for Safe Shutdown

The team reviewed the site's "Technical Requirements Manual, Units 1 and 2, Fire Watches (dated 04/062016)," which included out-of-service, degraded, and/or inoperable fire protection features (e.g., detection and suppression systems and passive fire barriers); and cable separation deficiencies that the site identified during the ongoing NFPA 805 transition project. The team verified the adequacy of assigned compensatory measures through (1) the review of applicable corrective action documents; and (2) through the assessment of the assigned compensatory measures, which included the site's implementation of fire watches, procedure changes, and interim guidance for MCR operators. Documents reviewed by the team are listed in the Attachment.

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 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. The following modifications were reviewed:

- SNC335503, 10 CFR 50 Appendix R Emergency Light Modifications for MSO Issues, Ver. 3.0
- SNC 595832, Temporary Modification – U2 Div. II Station Service Battery Chargers DCP, dated 12/22/2014
- LCDR 2010018, Procedure NMP-ES-035-005, Fire Protection Alternative Compensatory Measures, dated 04/23/2010

b. Findings

No findings were identified.

.12 Control of Combustibles and Ignition Sources

a. Inspection Scope

The team reviewed the administrative control of combustible materials and ignition sources to verify that the FPP performance requirements were satisfied. Plant administrative procedures were reviewed to determine if adequate controls were in place to control the type and amount of transient combustibles as well as potential ignition sources associated with welding, cutting, grinding, temporary use of heating equipment, etc. The team walked down numerous areas in the plant, including the selected FZs, for control of combustible materials, storage of in-plant materials, transient combustibles, and general housekeeping. The team verified that containers with combustibles were UL or Factory Mutual listed. A specific hot work activity was observed on the Refuel floor during the course of the inspection. Fire watch personnel assigned to the activity were interviewed at ascertain familiarity with the duties assigned and that training and medical records were current to perform the job.

b. Findings

No findings were identified.

.13 B.5.b Inspection Activities

a. Inspection Scope

The team reviewed, on a sample basis, the licensee's mitigation measures for reactor pressure vessel depressurization and injection for large fires and explosions to verify that the measures were feasible, personnel were trained to implement the measures, and equipment was properly staged and maintained.

The team reviewed surveillance and completed test records to verify that required equipment was adequately maintained and aligned for credited operation. Through discussions with plant staff, review of documentation, and plant walkdowns, the team verified the engineering basis to establish reasonable assurance that the makeup capability could be provided using the specified equipment and water sources.

The team reviewed inventory records and performed a walkdown of the storage and staging areas for the B.5.b equipment to verify that equipment identified for use in the procedures was available and maintained.

The team conducted an independent audit and inventory of required equipment and a visual inspection of the dedicated credited power and water source. The team reviewed training records to verify that operations and security personnel training/familiarity with the strategy objectives and implementing guidelines were accomplished according to the established training procedures.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team reviewed recent independent licensee audits, self-assessments, and system/program health report for thoroughness, completeness and conformance to FPP requirements. The team also reviewed corrective action program (CAP) documents to ascertain whether industry identified fire protection issues (actual or potential) affecting HNP were appropriately entered into the CAP for resolution. The team reviewed applicable NRC information such as NRC Information Notices (INs), Regulatory Issue Summaries (RISs), and NRC technical reports (NUREGs), to ascertain how this information was incorporated into the fire protection program implementation. The team evaluated the effectiveness of the corrective actions for the identified issues. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4OA3 Follow-up of Events

Licensee Event Report (LER) 50-366/ 2015-001-00, Unanalyzed Conditions for a Postulated Fire Identified During NFPA 805 Transition

On June 4, 2015, in preparation for transitioning the Plant Hatch Fire Protection Licensing Basis from 10 CFR 50.48(b) (Appendix R) to 10CFR50.48(c) (NFPA 805), an update to the Plant Hatch Appendix R Safe Shutdown Analysis (SSA) was being performed for the Unit 1 and Unit 2 Reactor Buildings, Turbine Buildings, and Diesel Generator Building. This updated analysis identified circuit configurations in several Fire Areas where an Appendix R postulated fire could affect the ability to achieve safe shutdown conditions. While these impairments represent unanalyzed conditions for Appendix R, the described scenarios are only possible given a fire has occurred in the associated Fire Areas. These examples were identified as part of the licensee's transition efforts to reconstitute its SSA utilizing Regulatory Guide (RG) 1.189, Revision 2 and the NRC endorsed portions of NEI 00-01, Revision 2. Because of the issues identified, the licensee initiated various corrective actions and implemented compensatory measures to address the issue described in LER 2015-001.

The team began a review of information associated with this issue. The team is currently in review of a risk significance determination of the issue. Based upon the information reviewed, the team raised questions relevant to the credited mitigating actions and assumptions reached. The team shared these questions with the licensee staff to better understand the basis of the mitigating actions and the impact thereof to the credited assumptions in the risk determination calculations. The licensee has established a combination of fire watches and applicable administrative controls as compensatory actions for these issues. This LER remains open pending further NRC review.

4OA6 Meetings, Including Exit

On April 22, 2016, the lead inspector presented the preliminary inspection results to Mr. David Vineyard and other members of the licensee's staff, who acknowledged the results. Following completion of additional reviews in the Region II office, a conference call was held with Mr. James C. Collins on May 30, 2016, to provide an update on changes to the preliminary inspection findings. The licensee acknowledged the findings. Proprietary information is not included in this inspection report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel
J. Bailey, SNC Licensing Engineer
A. Belcher, SNC NOSM
G. Brinson, SNC Maintenance Director
S. Britt, SNC Engineering Program Manager
L. Casella, SNC Corporate Fleet Fire Protection Program Lead
J. Collins, Southern Nuclear Company Licensing Supervisor
J. Curham, SNC NFPA 805
B. Deen, Training Director
A. Giancatarino, Engineering Director
A. Gardner, SNC Site Fire Marshal
G. Johnson, Regulatory Affairs Manager
J. Lattner, SNC Corporate Fire Protection Engineer
K. Long, SNC Work Management Director
C. Musgrove, SNC NFPA 805
C. Prandini, SNC Licensing Engineer
M. Terrill, SNC Engineering Supervisor
D. Vineyard, SNC Site Vice President
J. Vo, SNC Site Sr. Fire Protection Engineer
A. Wheeler, SNC Manager Site Projects

NRC Personnel
D. Hardage, Senior Resident Inspector
D. Retterner, Resident Inspector
S. Shaeffer, Chief, Engineering Branch 2, DRS, Region II

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened and Closed

05000321 & 05000366/2016007-01	NCV	Failure to provide reasonable assurance that Appendix R time critical operator actions (TCOAs) can be completed in a timely manner (Section 1R05.05)

Discussed

50-366/2015-001-00	LER	Unanalyzed Conditions for a Postulated Fire Identified During NFPA 805 Transition (Section 4OA3)

LIST OF FIRE BARRIER FEATURES INSPECTED

(Refer Report Section 1RO5.02- Passive Fire Barriers)

Fire Barriers Floors/Walls/Ceiling Identification	Description
Fire Rated Wall	2C EDG Switchgear Room 2E to EDG 2A
Fire Rated Wall	West DC SWGR Room 2A to Unit 2 Oil Conditioner Room
Fire Rated Wall	West DC SWGR Room 2A to Access Corridor

Fire Door Identification	Description
1L48D149	2C EDG Switchgear Room 2E to EDG 2A
1L48D135	2A EDG Room to Access Corridor
1L48D134	2A EDG Room to Access Corridor (Roll-up door)
2L482C07	East SWGR Room 2D to Access Corridor
2L482C08	TXMR 2CD Room to Access Corridor
2L482C09	West SWGR Room 2C to Access Corridor
2L482C10	West DC SWGR Room 2A to Access Corridor

Fire Damper Identification	Description
2X41CO24A	2A EDG Room to Battery Room 2A
2X41CO24C	2A EDG Room to Battery Room 2A
2X41CO30A	2A EDG Room to Access Corridor
2X41CO30C	2C EDG Room to Access Corridor

LIST OF COMPONENTS AND CABLES REVIEWED

Components

RHR shutdown cooling inboard isolation MOV: 2E11-F009
RHR minimum flow MOV: 2E11-F007B
LPCI inboard injection MOV: 2E11-F015B Shutdown Control
Remote Shutdown Panel
Diesel Generator Voltage Regulator: R43-S001

Cable Analysis

RSE703C07
RSE703C09
RIE702C02
EZE812C09
RUE802C07
EAE706C08
EAE706C09
TBE701C08
TBE701C13
PEE701C02
EAE701C16
EAE702C04
RIE726C08
SPX506M01

LIST OF DOCUMENTS REVIEWED

Procedures

NMP-AD-008, Applicability Determinations, Version 15.0
NMP-AD-012, Operability Determinations and Functionality Assessments, Version 12.7
NMP-AD-012-GL01, Prompt Determination of Operability Guideline, Version 4.0
NMP-AD-025, Quality Assurance and Non-Quality Assurance Records Administration, Version 5.0
NMP-AP-001-003, Review and Approval of Site Procedures, Version 9.2
NMP-ES-035, Fire Protection Program, Version 5.0
NMP-ES-035, Fire Protection Program, Version 5.1
NMP-ES-035-001, Fire Protection Program Implementation, Ver. 13
NMP-ES-035-003, Hot Work Fire Watch Time Log, Ver.1.0
NMP-ES-035-004, Fire Protection Documentation of Engineering Judgement and Calculations, Version 4.0
NMP-ES-035-005, Fire Protection Alternative Compensatory Measures, Ver. 6.0
NMP-ES-035-005-F01, Fire Protection Alternative Compensatory Measure Evaluation, Version 2.0
NMP-ES-035-006, Fire Protection Program Impact Screen and Detailed Reviews, Ver. 8.1
NMP-ES-035-007, Fleet Fire Watch Instruction, Version 2.0
NMP-ES-035-010, Fire Brigade, Ver. 4.0
NMP-ES-035-012, Fire Protection Work Reviews, Ver. 3.0
NMP-GM-002, Corrective Action Program, Version 12.1
NMP-GM-002, Corrective Action Program, Version 13.2
NMP-GM-002-001, Corrective Action Program Instructions, Version 31.1
NMP-GM-002-001, Corrective Action Program Instructions, Version 34.0
NMP-GM-003, Self-Assessment and Benchmark Procedure
NMP-OS-014, Time Critical, Version 2.0
NMP-TR-425, Fire Drill Program, Ver. 4.0
NMP-TR-426, Fire Training Program, Ver. 4.0
31EO-EOP-105-2, Primary Containment Water Level Determination, Ver. 3.6
31GO-OPS-011-0, FHA Operating Requirements, Version 3.11
31GO-OPS-026-0, Use, Control, and Storage of Flammable/Combustible Materials, Version 2.0
31RS-E41-001-2, Remote Shutdown Procedure, Rev. 3.0
34AB-R22-001-2, Loss of DC Buses, Version 6.2
34AB-R22-003-1, Station Blackout, Version 9.0
34AB-R43-001-2, Diesel Generator Recovery, Version 3.8
34AB-X43-001-2, Fire Procedure, Version 17.0
34SO-E41-001-2, High Pressure Coolant Injection (HPCI) System, Version 30.1
34SO-E51-001-2, Reactor Core Isolation Cooling (RCIC) System, Version 22.6
34SO-R43-001-2, Diesel Generator Standby AC System, Version 28.3
34SO-T47-001-2, Drywell Cooling System, Version 3.0
34SV-X43-001-1, Fire Pump Test (Monthly), Version 3.0
40AC-ENG-008-0, Fire Protection Program, Version 9.18
42FP-FPX-014-0, Installation and Repair of Silicone Foam Seals, Version 1.5
42SV-FPX-006-0, Fire Damper Surveillance, Version 2.0
42SV-FPX-008-0, Fire Protection Water Suppression System Flow Test (3-Year), Version 1.3
42SV-FPX-013-0, Rolling Fire Door Surveillance, Version 3.1
42SV-FPX-015-0, System Flush-Fire Protection Water, Version 1.10
42SV-FPX-021-0, Surveillance of Swinging Fire Doors, Version 1.17
42SV-FPX-022-0, Fire Hydrants and Hydrant Hose Houses, Version 2.7

42SV-FPX-023-0, Fire Hose Hydrostatic Testing, Version 5.4
42SV-FPX-032-0, Automatic Sliding Fire Door Surveillance, Version 4.0
42SV-FPX-035-1, Fire Protection Valve Cycling Surveillance, Version 5.7
42SV-FPX-036-0, Annual Fire Pump Capacity Test, Version 4.1
42SV-FPX-042-0, Inspection of Fire Tanks, Version 2.7
42SV-SUV-007-0, CO2 Fire Suppression Equipment Inspection, Version 1.5
52GM-MEL-003-0, Cable/Raceway Installation and Cable Terminations, Version 24.3

Calculations, Evaluations, & Specifications

A-46394, E. I. Hatch Nuclear Plant Unit No. 1 and 2 Combustible Load Calculation for Fire Area Hazards Analysis, Ver. 10.0
DOEJ-HR2102089601-M001, Evaluation of the Impact of Sprinkler Actuation in the Hatch Cable Spreading Rooms, Ver. 1.0
E.I. Hatch Nuclear Plant Unit 1 Fire Damper Drop Testing Applicability Evaluation, 2/09/2007
Hatch MSO MAAP4 Analysis, Rev. 1
LDCR 2011-067, Sliding Fire Door Fusible Links, 2/12/2012
RER SNC 778306, Diesel Generator Building CO2 System Design Basis and Functionality Review, 3/30/2016
SMNH-98-023, Fire Protection Pen Seal Deviation Analysis, Ver. 4.0
SMNH 93-058, Fire Protection Design Criteria, Rev. 0
SMNH-03-002, Circulating Water System Flooding Analysis, Ver. 1.0
SS-6914-14, Designing, Furnishing, Fabricating, Delivering and Erecting Fire Protection Sprinkler Systems for Plant Hatch Units 1 and 2, dated 12/14/1971
SS-6914-31, Fire Protection Suppression System Additions and Modifications for Plant Hatch Unit 1 and 2, dated 6/04/1986

Work Orders

2-DT-15-2R42-00081, Tagout Tag List Clearance for 2-DT-15-2R42-00081, dated 4/22/2016 08:33:22
SNC423101, 52SV-FPX-010-0, Fire Protection Control Building, Low Pressure CO2 System Surveillance, 10/03/2014
SNC423102, 52SV-FPX-010-0, Fire Protection Diesel Generator, Low Pressure CO2 System Surveillance, 9/03/2015
SNC548221, 42SV-FPX-024-0, 12 Month Hose Station Surveillance, Fire Hose Stations-Appendix B Areas, 10/27/2014
SNC553968, 42SV-FPX-032-0, Controlled Access, (All Doors), Automatic Sliding Fire Door Surveillance, 1/13/2015
SNC569066, 42SV-FPX-013-0, Control Room Fire Door Inspection, Rolling Fire Door Surveillance, 11/04/2014
SNC576983, 42SV-FPX-037-0, Fire Protection Reactor Building, Fire Detection Instrument Surveillance, 3/28/2015
SNC583035, 42SV-FPX-003-0, Emergency Light Surveillance Group 12, dated
SNC583035, 42SV-FPX-003-0, Emergency Light Surveillance Group 1, dated 01/19/15
SNC590307, 42SV-FPX-003-0, Emergency Light Surveillance Group 2, dated 02/14/15
SNC596217, 42SV-FPX-003-0, Emergency Light Surveillance Group 3, dated 03/26/15
SNC604862, 42SV-FPX-003-0, Emergency Light Surveillance Group 4, dated 04/14/15
SNC611075, 42SV-FPX-003-0, Emergency Light Surveillance Group 5, dated 05/08/15
SNC617996, 42SV-FPX-003-0, Emergency Light Surveillance Group 6, dated 06/11/15
SNC624503, 42SV-FPX-003-0, Emergency Light Surveillance Group 7, dated 07/08/15
SNC584383, 42SV-FPX-013-0, 2A Diesel Generator Room, Rolling Fire Door Surveillance, 3/31/2015

SNC625857, 42SV-FPX-013-0, Controlled Access (All Doors), Rolling Fire Door Surveillance, 7/13/2015
SNC627836, 42SV-FPX-013-0, Control Room Fire Door Inspection, Rolling Fire Door Surveillance, 7/23/2015
SNC631118, 42SV-FPX-003-0, Emergency Light Surveillance Group 8, dated 08/13/15
SNC642003, 42SV-FPX-003-0, Emergency Light Surveillance Group 9, dated 09/30/15
SNC647391, 42SV-FPX-003-0, Emergency Light Surveillance Group 10, dated 10/13/15
SNC657213, 42SV-FPX-003-0, Emergency Light Surveillance Group 11, dated 11/19/15
SNC664947, 52SV-FPX-010-0, CO2 Storage Tank 5-Ton, Low Pressure CO2 System Surveillance, 9/16/2015

Drawings

B-23811, Block Diagram – System 2R43C Diesel Generator 2C Sheet 1, Rev. 6
B-23801, Block Diagram – System 2R43A Diesel Generator 2A Sheet 2, Rev. 5
B-27635, Residual Heat Removal Sys 2E11 Block Diagram SH 4, Rev. 11
Dusing & Hunt Inc. Drawing 6767, Sheet 1 and 2, Door Schedule, Rev. 1
H-11922, Edwin I. Hatch Nuclear Plant Unit 1 & 2, Fire Protection System Annunciation Index Unit 1 Zones, Sheet No. 1, Ver. 6.0
H-11922, Edwin I. Hatch Nuclear Plant Unit 1 & 2, Fire Protection System Annunciation Index Unit 2 Zones, Sheet No. 2, Ver. 3.0
H-11033, Edwin I. Hatch Nuclear Plant No. 1, Fire Protection P & ID Pump House Layout, Sheet No. 1 Ver. 51.C
H-11033, Edwin I. Hatch Nuclear Plant No. 1, Yard Layout Main Pump House and Yard Mains, Sheet No. 2, Ver. 25.0
H-11033, Edwin I. Hatch Nuclear Plant No. 1, Diesel Fire Pump Engine layout, Sheet No. 4, Ver. 1
H-11035, Edwin I. Hatch Nuclear Plant No. 1, Turbine and Control Building, Ver. 23
H-12600, Edwin I. Hatch Nuclear Plant Unit 1, Architectural Fire Protection Pump House, Floor Plan and South and West Elevations, Rev. 4
H-12652, Edwin I. Hatch Nuclear Plant Unit 1, Architectural Special Door Schedule and Details, Rev. 4
H-16C41, Edwin I. Hatch Nuclear Plant Unit 1 & 2, Control Building, Ventilation Process Flow Diagram, Ver. 14
H-21074, Edwin I. Hatch Nuclear Plant Unit No. 2 Diesel Engine & Fuel Oil System P. & I.D., Version 54.0
H-23313, Single Line Diagram – Diesel Building, 600/208 V Essential MCC – 2 MP 2R24-S05, Version 35.0
H-23317, Single Line Diagram – Diesel Building 600/208V Essential MCC 2C MPL No 2R24-S027, Version 35.0
H-23022, Conduit Plan Diesel Generation Rm. 2A & 2C, Version 15.0
H-23023, Diesel Generator Bldg, Switchgear Rooms, COL A-C & 2-3, Rev. 18
H-23315, Single Line Diagram – Diesel Building 600/208V Essential MCC-2A, Ver. 35
H-23317, Single Line Diagram – Diesel Building 600/208V Essential MCC-2C, Ver. 35H
H-23350, Master Single Line Diagram, Version 13.0
H-23352, Single Line Diagram Emergency Station Service, Ver. 14
H-23356, Single Line Diagram 4160 Bus 2C & 2D, Version 22.0
H-23357, Single Line Diagram 4160 Bus 2E & 2F, Version 25
H-23358, Single Line Diagram, 4160V Bus 2G, Ver. 19
H-23362, Single Line Diagram 600V Bus 2C & 2D, Version 37.0
H-23512, Wiring Diagram 4160 Switchgear Bus – 2E Fr. 5, Revision 11
H-23668, Emergency Station Service System 2R20M, Elementary Diagram, Sh. 1 of 3, Ver. 17

H-23801, Elementary Diagram – 2R43A Diesel Generator 2A Sh. 1 of 7, Version 19.0
H-23803, Elementary Diagram – 2R43A Diesel Generator 2A Sh. 3 of 7, Version 18.0
H-23811, Elementary Diag. – 2R43C Diesel Generator 2C Sh. 1 of 7, Version 17.0
H-23813, Elementary Diagram – 2R43A Diesel Generator 2C Sh. 3 of 7, Version 16.0
H-24188, Wiring Diagram Diesel Building Junction Box 2JE2905, Revision 13
H-24635, 10 CFR 50 Appendix R Safe Shutdown Raceway Plan Diesel Generator Bldg, Revision 6
H-26036, Reactor Water Clean-up System PI&D, Sheet 1, Ver. 47
H-26037, Reactor Water Clean-up System PI&D, Sheet 2, Ver. 39
H-27637, Residual Heat Removal Sys. 2E11 Elementary Diagram Sheet 3, Version 29.0
H-27638, Residual Heat Removal Sys. 2E11 Elementary Diagram Sheet 4, Version 28
H-27639, Residual Heat Removal Sys. 2E11 Elementary Diagram Sheet 5, Version 16.0
H-27640, Residual Heat Removal Sys. 2E11 Elementary Diagram Sheet 6, Version 20.0
H-27641, Residual Heat Removal Sys. 2E11 Elementary Diagram Sheet 7, Version 29
H-27642, RHR System 2E11, Elementary Diagram Sheet 8, Ver. 16
H-27643, Residual Heat Removal Sys. 2E11 Elementary Diagram Sheet 9, Version 19
H-27660, Core Spray System 2E21A Elementary Diagram Sheet 3, Version 24
H-41508, Edwin I. Hatch Nuclear Plant Unit No. 1 Turbine & Control Building – Fire Protection Piping – CO2 System P&ID, Revision 8
H-52499, Residual Heat Removal Sys. 2E11 Elementary Diagram Sheet 25, Version 2.0
PSI-3073, Sheet No. 1 & 2, Penetration Details for Wall at Column TF Elevation 130'-0" Control Building 1-Hour Fire Rated PROMAT Assembly, Rev. 0

Completed Surveillance Procedures, Test Records

DI-FPX-02-0693, Fire Fighting Equipment Inventory Inspection, 1/03/2015
DI-FPX-02-0693, Fire Fighting Equipment Inventory Inspection, 09/29/2015
WO SNC686050, Conduct A Radio Test With the Fire and Base, 1/27/16
WO SNC566431, Conduct A Radio Test With the Fire and Base, 10/19/14
WO SNC665776, Conduct A Radio Test With The Fire Band Base, 11/30/15
34SV-E51-002-1, RCIC Pump Operability, dated 3/20/16
34SV-E51-002-1, RCIC Pump Operability, dated 11/1/15
34SV-E51-004-1, RCIC Pump Operability 150 PSIG Test, dated 3/4/1634
34SV-E51-006-1, RCIC Logic System Functional Test, dated 2/10/16
34SV-SUV-018-1, ECCS Status Check, dated 3/25/16
34SV-SUV-018-2, ECCS Status Checks, dated 3/25/15
34SV-X43-001-1, Fire Pump Testing (Monthly), 1/04/2016
34SV-X43-001-1, Fire Pump Testing (Monthly), 1/25/2016
42SV-FPX-006-0, Fire Damper Surveillance, 12/21/2012
42SV-FPX-006-0, Fire Damper Surveillance, 11/26/2014
42SV-FPX-008-0, Fire Protection Water Suppression System Flow Test, 12/19/2013
42SV-FPX-008-0, Fire Protection Water Suppression System Flow Test, 7/15/2015
42SV-FPX-036-0, Annual Fire Pump Capacity Test, 10/15/2014
42SV-FPX-036-0, Annual Fire Pump Capacity Test, 8/04/2015

Plant Modifications and Engineering Changes, and Evaluations

ACME-SEQ003-FA 1205, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10079019
ACME-SEQ004-FA 2205, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10079022
ACME-SEQ006-FA 1104, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10084753

ACME-SEQ007-FA 2104, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10084757
ACME-SEQ009-DG-BLDG, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10088142
ACME-SEQ-016-FA 1408, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10113740
ACME-SEQ-017-FA 2408, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10113745
ACME-SEQ-020-FA 0031, Fire Protection Alternative Compensatory Measure Evaluation (ACME) for CR 10118345
SDP Package for LER NL-15-1829

Fire Fighting Preplan Strategies

A-43965, Sheet Nos. 3A-3F, E. I. Hatch Nuclear Plant –Unit 1 & 2 Pre-Fire Plan Power Block Areas Methodology, Rev. 0
A-43965, Sheet 4A, E. I. Hatch Nuclear Plant –Unit 1 & 2 Pre-Fire Plan Power Block Areas General Legend. Rev. 1.0
A-43965, Sheet 39A, E. I. Hatch Nuclear Plant – Unit 2 Pre-Plan W DC Switchgear Room 2A Control Building Elevation 130' – 0"
A-43965, Sheet 48B, E. I. Hatch Nuclear Plant – Unit 1 & 2 Pre-Fire Plan Control Room Control Building Elevation 164' – 0"
A-43965, Sheet 39A and 39B, E. I. Hatch Nuclear Plant – Unit 2 Pre-Fire Plan W. DC Switchgear Room 2A , Control Building Elevation 130' – 0", Ver. 5.0
A-43965, Sheet 44A and 44B, E. I. Hatch Nuclear Plant – Unit 2 Pre-Fire Plan Cable Spreading Room , Control Building Elevation 147' – 0", Ver. 5.0
A-43965, Sheet 48A and 48B, E. I. Hatch Nuclear Plant – Unit 1 & 2 Pre-Fire Plan Control Room Control Building Elevation 164' – 0", Ver. 6.0
A-43966, Sheet 21A and 21B, E.I. Hatch Nuclear Plant- Unit 1 & 2 Pre-Fire Plan, Switchgear Room 2E, Diesel Generator Building, Ver. 5.0

Applicable Codes & Standards

NFPA 10, Portable Fire Extinguishers, 1970 and 1975 Edition
NFPA 12, Carbon Dioxide Extinguishing Systems, 1973 Edition
NFPA 13, Standard for the Installation of Sprinkler Systems, 1976 Edition
NFPA 14, Standard for the Installation of Standpipe and Hose Systems, 1974 Edition
NFPA 20, Standard for the Installation of Centrifugal Fire Pumps, 1973 Edition
NFPA 24, Standard for the Installation of Private Fire Service Mains and Their Appurtenances
NFPA 30, Flammable Combustible Liquids Code, 1973 Edition
NFPA 72D, Standard for the Installation, Maintenance, and Use of Proprietary Protection Signaling Systems, 1975 Edition
NFPA 72E, Standard on Automatic Fire Detectors, 1974 Edition
NFPA 80, Standard on Fire Doors and Windows, 1975 Edition
NFPA 251, Fire Tests, Building Construction and Materials, 1975 Edition

Technical Manuals, Vendor Information and Fire Tests

BIRNS Emergency Lighting Fixture Instruction Manual – Model 4710, 11/23/2011
Kinnear Rolling Doors Model FM-A AKBAR Rolling Fire Door Service Manual Bulletin No. 139

Audits & Self-Assessments

Nuclear Oversight (NOS) Audit of Fire Protection (FP) – Fleet-FP-2014, dated September 24, 2014
14-4140.02, Southern Company Edwin I. Hatch Nuclear Plant Fire Protection Program Review, Revision 0
2016 NRC Fire Protection Triennial Focused Area Self-Assessment (FASA) Plan and Report, Version 1.0

License Basis Documents

Appendix A to Branch Technical Position (BTP) Auxiliary and Power Conversion Systems Branch (APCSB) 9.5-1, Guidelines for Fire Protection for Nuclear Power Plants, 05/01/76
E. I. Hatch UFSAR Section 9.5, Rev. 31
E. I. Hatch Nuclear Plant Fire Hazards Analysis and Fire Protection Program, Rev. 28
E. I. Hatch Nuclear Plant Fire Hazards Analysis and Fire Protection Program, Rev. 34
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E. I. Hatch Nuclear Plant, Unit No. 2, Renewed Facility Operating License NPF-5, Section C.3 (a), Fire Protection
E. I. Hatch Nuclear Plant Units 1 and 2, Evaluation of the Hatch Nuclear Plant Fire Protection Program, dated 10/27/76
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SNC-1, Southern Nuclear Operating Company, Inc. Quality Assurance Topical Report, Version 12.0
ML050540280, Edwin I. Hatch Nuclear Plant Fire Protection Inspection Evaluation and Conclusion
NRC SER dated April 18, 1984
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NL-06-2352, Southern Nuclear Operating Company Quality Assurance Topical Report, dated June 29, 2006

Other Documents

Communication Report, Edwin I Hatch Nuclear Plant In-building Enhancement Project, 6/26/2006
Dixie Engineering Report FP-LP CO2 Information for Cardox Hose Reels, 1964
Fire Drill Report, Alpha Shift, U2 H2 Seal Oil, 1/15/2016
Fire Drill Report, Bravo Shift, U1 Standby Gas Filter Train, 1/06/2016
Fire Drill Report, Charlie Shift, Weld Test Shop with Squad 42 (Outside Agency), 12/21/2015
Fire Drill Report, Delta Shift, U2 H2 Seal Oil, 11/30/2015
Fire Drill Report, Echo Shift, Diesel Fuel Oil Storage Tanks, 9/30/2015
Fire Brigade Team Leader Qualification Matrix, 3/03/2016
Fire Brigade Team Qualification and Curriculum Matrix, 3/03/2016
Fire Brigade Team Leader Qualification Matrix, 3/03/2016
Fire Brigade Team SCBA Qualification Matrix, 3/03/2016
Fire Protection Alternate Compensatory Measure – CR 10079022
Fire Protection Alternate Compensatory Measure – CR 10088142
Fire Protection Alternate Compensatory Measure – CR 10084757

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Hatch Unit 2 TRM, Table T6.0-1, Instrumentation and Controls Required For Remote Shutdown, Revision 7
HNP Hot Work Permit 2016-147 Unit 1 Refuel Floor, 4/19/2016
IMC 0326, Operability Determinations & Functionality Assessments for Conditions Adverse to Quality or Safety
LR-JP-39.37-02.1, Local Manual RCIC Start With a Loss of All AC & DC Power
ML070090060, NEI 06-12, B.5.b Phase 2 & 3 Submittal Guideline, Revision 2
ML073020676, NUREG-1852, Demonstrating the Feasibility and Reliability of Operator Manual Actions in Response to Fire, October 2007
ML092580550, RG 1.189, Fire Protection for Nuclear Power Plants, Revision 2
ML15029A148, NRC Enforcement Policy, dated February 4, 2015
Mutual Aid Agreement, SNC and Appling County Emergency Management Agency, 2/27/2015
Mutual Aid Agreement, SNC and Tattnall County Emergency Management Agency, 2/27/2015
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Mutual Aid Agreement, SNC and Jefferson Davis County Emergency Management Agency, 2/27/2015
NMP-T-214-F01, Operations Training Simulator Guide, Version 2.0
Operator Fundamentals Training
SEHN-15-007, Compliance Assessment by Scenario, Version 2
SNC Fire Brigade Team Training Course Matrix, 3/03/2016
SNC HNP Fire Barrier Penetration Seal Work Order and Work Status Matrix, 2/02/2016
SNC HNP Fire System Impairment Log, xxx
SNC HNP Fire Protection Screening Review Log 2013-2016
SNC HNP Fire Protection Program Health Report 3rd Quarter 2015
SNC HNP Fire Protection Program Health Report 4th Quarter 2015
SNC HNP Fire Protection Operating Experience Technical Evaluations Matrix 3/07/2016
SNC MSA Firehawk SCBA Lesson Plan, 10/28/2015
SO-LP-00023-2.0, Switchgear, Fuses, Breakers
System Health Report, R42 - App R Emergency Lights
Technical Requirements Manual, Units 1 and 2, Unit 2 Fire Watches, dated 04/06/2016
Transient Combustible Permit 1-16-0100, Area Under Main Condenser, 2/05/2016
Transient Combustible Permit 1-16-0102, North RB Elevation 158', 2/05/2016
Transient Combustible Permit 1-16-0104, Unit 1 Turbine Building, 2/05/2016
Transient Combustible Permit 1-16-0106, Oil Conditioner Room, 2/05/2016
Transient Combustible Permit 1-16-0107, North RB Elevation 158', 2/05/2016;
X43-FPS-LP-03601, Fire Protection Lesson Plan, Version 4.0

List of Condition Reports (CRs) Reviewed During Inspection

CR 692903, Safe Shutdown Inter-Cable Analyses Identify Unidentified Condition
CR 774920, Functional Failure Declared on Unit 1 R52 Function
CR 106005, Corrective actions to address emergency lighting issues identified during the 2006 NRC
CR 107922, The NRC Resident Inspector expressed concern over the Hose Station located inside the Cable Spread Room
CR 113113, The resident identified two areas of concern regarding the ability of the operator to utilize the temporary DC power
CR 364483, Unit 1 DCP for remote operation of 'B' Station Battery Chargers Unsat
CR 368246, Sliding Fire Door Fusible Links Unit 1
CR 368250, Sliding Fire Door Fusible Links Unit 2
CR 500623, Flammable left unattended at Intake

CR 700402, Missed opportunities led to delayed actions in responding to loss of fire suppression water system
CR 725792, Potential non-conforming penetration
CR 759497, Operator error on Master Feedwater Controller causing #4 runback
CR 820724, Feedwater Heater Alarms
CR 841493, 1Y43-F306E and 1Y43F306H stuck closed
CR 865615, NRC Resident Walkthru
CR 10000590, QCIR process
CR 10000607, Fire barrier surveillance inspection issue
CR 10003427, Fire Protection Assessment – Hydraulic Calculations
CR 10022283, Control Building Sliding Fire Doors
CR 10024952, An interim effectiveness review was completed for RCD 210278
CR 10063663, Non-Functional Cat II Fire Barrier FA 0014 – FA 0040 and 2015
CR 10072697, Control Room base station is not receiving from security or fire radios
CR 10075344, Hole Between Chem Lab Fire Area 0014H – FA 2105 B-19631, Sheet 230, 234
CR 10079025, Unanalyzed Condition Discovered During NFPA 805 Transition Issue – SEQ005
CR 10115444, Unanalyzed Condition Discovered During NFPA 805 Transition Issue – SEQ030
CR 10118328, Unanalyzed Condition Discovered During NFPA 805 Transition Issue – SEQ019
CR 10118333, Unanalyzed Condition Discovered during NFPA 805 Transition Issue –SEQ033
CR 10118338, Unanalyzed Condition Discovered During NFPA 805 Transition Issue – SEQ034
CR 10118345, Unanalyzed Condition Discovered During NFPA 805 Transition Issue – SEQ020
CR 10148194, Radio communication to the Simulator Bldg. would not work even on full power

List of Condition Reports (CRs) Generated as a Result of This Inspection

CR 10043416, Lesson Plans found in use without proper reviews/approvals
CR 10085883, Fire Door Fusible Link Extent of Condition Walkdown
CR 10135493, 1L48D134 Determined to be Nonfunctional
CR 10144100, Electro Thermal Links not installed properly
CR 10194577, Pendant Type Sprinkler on an Upright Sprinkler Head
CR 10194828, Question on Flex Conduit in Intake Structure
CR 10196682, Paint on Alison Thermal Detector (FA 2014)
CR 10206061, Drawing Error on P&ID H-21074
CR 10206681, A typographical error exists in 34AB-X43-001-2
CR 10201567, 4 operator manual actions were added to Fire procedures 34AB-X43-001-1/2 but are not required *Entered into CAP via Hatch review of procedures*
CR 10206980, 2A D/G Switchgear CO2 Evacuation Signage Enhancement
CR 10207145, PDMS routing error associated with LER 2015-001-01
CR 10207418, Slippery Plywood Walkway
CR 10209664, Evaluate DG Voltage Regulator for Inclusion into Time Critical Operator Action Program
CR 10210126, Clarification Needed for 34AB-R22-003
CR 10211440, Drawing revision needed on H26036 Rev 47
CR 10212251, Potential enhancement to Fire Protection Program
CR 10212326, Appendix R Lights surveillance criterion revision
CR 10212740, Documentation issue in the FHA
CR 10212821, NRC TFPI identified inconsistency between SSAR and SSD procedure
CR 10213009, Maintenance Rule Criterion definition for R42-07 needs clarification
CR 10213119, Manual Action Feasibility Needed
CR 10213121, Maintenance and Trending Practices Observations for Appendix R Lights
CR 10212251, 2016 NRC TFPI identified potential enhancement to Fire Protection Program
CR 10218977, New Evaluation Needed for NFPA 80 Deviation

LIST OF ACRONYMS AND ABBREVIATIONS

APCSB	Auxiliary and Power Conversion Systems Branch
BTP	Branch Technical Position
B.5.b	Refers to a section of Interim Compensatory Measures Order, EA-02-026
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
DID	Defense-in-Depth
ELU	Emergency Lighting Unit
FA	Fire Area
FHA	Fire Hazards Analysis
FPP	Fire Protection Program
FZ	Fire Zone
HVAC	Heating, Ventilation and Air Conditioning
IMC	Inspection Manual Chapter
LER	Licensee Event Report
MCR	Main Control Room
NCV	Non-cited Violation
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
NUREG	An NRC technical report designation published by the NRC
OLC	Operating License Condition
OMA	Operator Manual Action
PD	Performance Deficiency
P&ID	Piping and Instrumentation Drawing
RCIC	Reactor Core Isolation Cooling
RIS	Regulatory Issue Summary
ROP	Reactor Oversight Process
SDP	Significance Determination Process
SER	Safety Evaluation Report
SFP	Spent Fuel Pool
SRA	Senior Reactor Analyst
SSAR	Safe Shutdown Analysis Report
SSD	Safe Shutdown
TCOA	Time Critical Operator Action
TFPI	Triennial Fire Protection Inspection
UFSAR	Updated Final Safety Evaluation Report