



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

August 8, 2016

Mr. Mano Nazar
President and Chief Nuclear Officer
Nuclear Division
NextEra Energy
P.O. Box 14000
Juno Beach, FL 33408-0420

SUBJECT: ST. LUCIE NUCLEAR STATION, UNITS 1 AND 2 – NRC TRIENNIAL FIRE
PROTECTION INSPECTION REPORT 05000335/2016011 AND
05000389/2016011

Dear Mr. Nazar:

On June 24, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your St. Lucie Plant, Units 1 and 2 and discussed the results of this inspection with Mr. M. Jones and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented three findings of very low safety significance (Green) in this report. These findings involved violations of NRC requirements; two of these violations were determined to be Severity Level IV under the traditional enforcement process. Because of the very low safety significance, and because the issues were entered into your corrective action program (CAP), the NRC is treating these issues as Non-Cited Violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

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 Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; 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 St. Lucie Plant.

If you disagree with a 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 St. Lucie Plant.

In accordance with Title 10 of the *Code of Federal Regulations* 2.390 "Public Inspections Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). Adams is

accessible from the NRC Web site 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.: 50-335 and 50-389
License Nos.: DPR-67 and NPF-16

Enclosure:
Inspection Reports 05000335/2016011 and 05000389/2016011
w/Attachment: Supplemental Information

cc: Distribution via Listserv

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Letter to Mr. Mano Nazar from Scott M. Shaeffer dated August 8, 2016.

SUBJECT: ST. LUCIE NUCLEAR STATION, UNITS 1 AND 2 – NRC TRIENNIAL FIRE
PROTECTION INSPECTION REPORT 05000335/2016011 AND
05000389/2016011

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-335 and 50-389

License Nos.: DPR-67 and NPF-16

Report Nos.: 05000335/2016011 and 05000389/2016011

Licensee: Florida Power & Light

Facility: St. Lucie Plant, Units 1 and 2

Location: Jensen Beach, FL 34957

Dates: June 06 – June 10, 2016
June 20 – June 24, 2016

Inspectors: P. Braaten, Reactor Inspector
J. Dymek, Reactor Inspector
R. Fanner, Senior Reactor Inspector
D. Jones, Senior Reactor Inspector (Lead)

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

Enclosure

SUMMARY

IR 05000335/2016011 and 05000389/2016011; 06/06/2016 – 06/10/2016 and 06/20/2016 – 06/24/2016; St. Lucie Plant Units 1 and 2; Fire Protection - NFPA 805 (Triennial)

This report covers an announced two-week triennial fire protection inspection by a team of four regional inspectors. Three findings of very low safety significance were identified by the inspectors. The findings were considered Non-Cited Violations (NCVs) of NRC requirements, and two of the NCVs were associated with traditional enforcement Severity Level IV violations. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, or Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated April 29, 2015. Cross-cutting aspects were determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements were dispositioned in accordance with the NRC's Enforcement Policy dated August 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Cornerstone: Mitigating Systems

- SL IV. Inspectors identified a Severity Level IV violation of 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805," for failing to maintain adequate documentation and quality of analyses. Specifically, the NRC identified multiple examples when the licensee failed to comply with site quality assurance procedures. The issue was entered into the site's corrective action program as ARs 2139768, 2139986, and 2139993.

The licensee's failure to maintain adequate documentation and quality of analyses to maintain configuration control, such that they could be checked for adequacy and accuracy, was a performance deficiency (PD). The inspectors determined that the issue was more than minor because the ability of the NRC to verify aspects of the licensee's NFPA 805 program was impacted. The inspectors determined that the Fire Protection Significance Determination Process (IMC 0609, Appendix F) was not suitable for screening this issue. Traditional enforcement was applied because the PD impacted a regulatory oversight function. In accordance with the NRC Enforcement Manual, Part II, Section 2.2, "Actions Involving Fire Protection," the inspectors evaluated this finding to be a Severity Level IV violation. A cross-cutting aspect was not applicable because the issue was associated with a traditional enforcement violation. (Section 1R05.06)

SL IV. Inspectors identified a Severity Level IV violation of 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805," for the licensee's failure to modify the Unit 2A and 2B diesel oil storage tank (DOST) overflow lines as required by a fire protection license requirement. The issue was entered into the site's corrective action program as AR 2140024.

The licensee's failure to notify the NRC of changes to a licensed activity that was stipulated in the fire protection license condition (Table S-1) was a performance deficiency. The inspectors determined the PD was more than minor because the licensee failed to notify the NRC that the Unit 2 DOSTs' overflow lines would not be modified; and, subsequently failed to request an exemption from the requirements of NFPA 30. Traditional enforcement was applied because the PD impacted the ability of the NRC to perform its regulatory oversight function. In accordance with the NRC Enforcement Manual, Part II, Section 2.2, "Actions

Involving Fire Protection,” the inspectors evaluated this finding to be a Severity Level IV violation. The inspectors determined that a cross-cutting aspect was not applicable because the issue was associated with a traditional enforcement violation. (Section 1R05.14)

Green. Inspectors identified a Green, non-cited violation (NCV) of 10 CFR 50.48(c), “National Fire Protection Association Standard NFPA 805,” for the licensee’s failure to comply with the combustible control requirements for work platforms that were located in the Intake Cooling Water (ICW) Pump House. The issue was entered into the site’s corrective action program as AR 2137088.

The licensee’s failure to adequately implement combustible material control requirements in procedures ADM-27.11 and Procedure 0010434 was a performance deficiency (PD). The (PD) adversely impacted the Initiating Events cornerstone attribute of Protection Against External Factors (Fire) and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during plant operations. Additionally, if left uncorrected, the deficiencies in the combustibles control program could result in wood platforms being staged in other areas of the plant. The finding was screened in accordance with NRC IMC 0609, “Significance Determination Process,” dated June 19, 2012, Attachment 4, “Initial Characterization of Findings,” dated June 19, 2012, which determined that, an IMC 0609, Appendix F, “Fire Protection Significance Determination Process,” dated September 20, 2013, review was required because it was a fire prevention finding. The finding was determined to be of very low safety significance (Green), at Step 1.4.1.B because the impact of a fire would be limited to no more than one train of equipment important to safety. The inspector identified a cross-cutting aspect in work management because the licensee failed to ensure that the site’s combustible control requirements were met during the installation and use of wood platforms in the ICW pump house (H.5). (Section 4OA5)

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 (TFPI) at the St. Lucie Plant, Units 1 and 2. The inspection was conducted in accordance with NRC Inspection Procedure (IP) 71111.05XT, "Fire Protection - NFPA 805 (Triennial)," issued January 31, 2013. Additionally, IP 71111.17T, "Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications," issued November 13, 2015, was used to review a sample of engineering changes (ECs). These ECs were associated with completion of the transition to full compliance with 10 CFR 50.48(c) in accordance with the transition license condition. The objective of the inspection was to review a minimum sample of two risk-significant Fire Areas (FAs)/Fire Zones (FZs) to verify implementation of the St. Lucie Fire Protection Program (FPP). An additional objective was to review site specific implementation of 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. Section 71111.05-05 of the IP specifies a minimum sample size of two FAs/FZs and one B.5.b mitigating strategy for addressing large fires and explosions. The team selected three FAs based on available risk information as analyzed onsite by a senior reactor analyst from Region II, data obtained from in-plant walk-downs regarding potential ignition sources, location and characteristics of combustibles, and location of equipment needed to achieve and maintain the reactor in a safe and stable condition. Other considerations for selecting the FAs were the relative complexity of the post-fire safe shutdown (SSD) procedures, information contained in FPP documents, and results of prior NRC TFPIs. 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. This inspection fulfilled the requirements of the procedure by selecting a sample of three FAs and one B.5.b mitigating strategy.

- Fire Area 2B, Cable Spread Room/ Unit 2, RAB, 43' Elevation [Performance Based]
- Fire Area 2O, RAB Hallway/ Unit 2, RAB, -.05' Elevation [Performance Based]
- Fire Area 2QQ, 2B Turbine Switchgear Room/ Unit 2 Turbine Building [Deterministic]

For each of the selected FAs/FZs, the team evaluated the licensee's FPP against applicable NRC requirements and licensee design basis documents. Documents reviewed by the team are listed in the Attachment.

.01 Protection of Safe Shutdown Capabilities

a. Inspection Scope

The team examined Plant St. Lucie (PSL) fire response Abnormal Operating Procedures (AOPs), current safe shutdown analysis (SSA) and compared them to Fire Risk Evaluations (FREs), systems flow diagrams, and other design basis documents to

determine if equipment required to achieve post-fire safe and stable plant conditions was properly identified and adequately protected from fire damage in accordance with the requirements of 10 CFR 50.48(c) and the PSL approved FPP. The team reviewed cable routing information for a selected sample of SSD equipment and components to verify that the associated cables would not be damaged, or that the licensee's analysis and risk insights determined that the fire damage would not prohibit achieving safe and stable plant conditions. A list of SSD components examined for cable routing is included in the Attachment. Fire response AOPs that were reviewed are listed in the Attachment.

The team reviewed the AOPs for the selected FAs to verify that the shutdown methodology properly identified the components and systems necessary to achieve and maintain safe and stable plant conditions. The team performed in-plant walk-throughs of the procedures to verify their adequacy. The team verified that licensee personnel credited for implementing the procedures were adequately trained and would be available to respond to a fire event. The team conducted interviews of plant operators to ascertain their knowledge of procedural actions. The team also reviewed risk required recovery actions and defense-in-depth recovery actions to verify that the specified actions could be completed within the time required time limits.

b. Findings

No findings were identified.

.02 Passive Fire Protection

a. Inspection Scope

The team conducted walk-down inspections and examined the material condition and as-built configuration of accessible passive barriers, both surrounding and within the FAs selected for review, to evaluate the adequacy of their fire resistance in accordance with NFPA 805 calculations. Fire barriers inspected included masonry walls, poured concrete ceilings, floors and walls and installed mechanical and electrical penetration seals, fire doors and fire dampers. The team compared the as-built installed barrier configurations to the approved construction details and supporting fire endurance test data, which established the rating of the fire barriers. Fire doors and dampers were examined for attributes such as their material condition, clearances, operation, Underwriters Laboratory (UL) labels on the door and frame, and the method of attachment to the rated barrier. Doors were examined to verify that modifications had not been performed to void their UL listing. The team reviewed licensing basis documentation such as 10 CFR 50.48(a), 10 CFR 50.48(c) and the NRC NFPA 805 Safety Evaluation Report (SER) to verify that passive fire protection features met licensing commitments. In addition, a sample of completed surveillances and maintenance procedures for selected fire doors, fire dampers and penetration seals were reviewed to ensure that these passive barriers were being properly inspected and maintained.

b. Findings

No findings were identified.

.03 Active Fire Protection

a. Inspection Scope

The team reviewed the licensee's fire detection systems, manual and automatic water-based fire suppression systems and firefighting standpipe and hose systems protecting the selected FAs. The team also reviewed fire brigade pre-plans, training and fire response procedures for these areas. The team reviewed the adequacy of the design, installation and operation of the fire detection and alarm systems to promptly detect fires in the selected fire areas, and to annunciate to the fire alarm control panel in the control room. The review included walk-downs of as-built configurations and an examination of the type of detectors, detector spacing, the licensee's technical evaluations of the detectors location relative to ignition sources, room geometry and fixed obstructions to assess whether the areas were protected in accordance with code of record requirements. The team also reviewed the licensee's fire alarm response procedures, fire protection design basis document (DBD), NFPA 805 License Amendment Request (LAR) submittals and associated NRC NFPA 805 SER to verify that the fire detection and alarm systems for the selected FAs were installed in accordance with the design and licensing basis for the plant.

The team inspected the material condition, operational configuration, design and testing of standpipe hose systems and pre-action dry pipe sprinkler systems in the Unit 2 cable spreading room (FA 2B) and the U2 RAB hallway (FA 2O). This review consisted of reviewing the system layout drawings and calculations against field installations, and confirmatory field walk-downs to check sprinkler head nozzles for proper orientation and clearance from obstructions that would inhibit water spray patterns. The team also reviewed code compliance evaluations to assess code deviations for these systems.

The team reviewed the firefighting pre-plans and fire response procedures for the selected FAs to determine if appropriate information was provided to fire brigade members to facilitate suppression activities. These plans were reviewed and confirmed by field walk-downs to verify that they accurately reflected current plant configurations and firefighting equipment locations. These walk-downs also confirmed that fire hose and extinguisher access was properly maintained throughout the plant. The team evaluated whether the fire response procedures and pre-plans could be implemented as intended and that they addressed equipment important to safety, ventilation of heat and smoke from a fire and drainage/runoff from installed fixed fire suppression systems and manual hose streams. Additionally, fire brigade drill records for recently run drills in each area were reviewed to confirm drill scenarios addressed specific hazards to likely be encountered in the areas and to verify actual fire brigade response times supported the fire brigade response time performance basis criteria. A walk-down of staged fire brigade personal protective equipment (PPE) was performed, with gear selected for inspection for its proper physical condition. An operating shift fire brigade was randomly selected to confirm that all members were currently qualified with regard to their medical and fire brigade training records, and that mutual aid agreements with St. Lucie County Fire District had been renewed.

b. Findings

No findings were identified.

.04 Protection from Damage from Fire Suppression Activities

a. Inspection Scope

The team inspected the selected FAs to evaluate whether the ability to achieve the nuclear safety performance criteria could be adversely affected due to damage from fire suppression activities or from the rupture or inadvertent operation of fire suppression systems. The team addressed the possibility that a fire in one FA could lead to the migration of smoke or hot gasses to other plant areas. Airflow paths out of the selected fire areas were reviewed to verify that inter-area migration of smoke or hot gases would not inhibit necessary local operator recovery actions required for the selected FAs. The team also evaluated whether the manual firefighting activities could adversely affect the credited nuclear safety equipment and/or adversely affect local operator recovery actions for the selected fire areas. Additionally, the team checked that the firefighting water would either be contained in the fire affected area or be safely drained off through floor drains or stairwells. A review of potential flooding through unsealed floor cracks and absorption of water through penetration seals to areas beneath the selected FAs was conducted. This portion of the inspection was carried out through a combination of walk-downs, and reviews of drawings, calculations and installation records.

b. Findings

No findings were identified.

.05 Shutdown from a Primary Control Station

a. Inspection Scope

For postulated fire scenarios in FA 2B, the ability to control the plant from the main control room (MCR) is potentially impaired due to the impact on functions. As a result, the licensee credited shutdown from primary control stations to achieve safe and stable plant conditions. This would involve transferring plant controls from the MCR to the alternate control station. The team reviewed samples of electrical schematics to verify that circuits for SSD equipment, which could be damaged due to fire, were isolated by disconnect switches and by swapping power supplies for selected MCCs. The team reviewed the transfer switch testing methodology to assess the functionality of the isolation feature of the transfer switches. The team also reviewed the licensee's FPP, system flow drawings, electrical drawings, and other supporting documents. The reviews focused on ensuring that the required functions for post-fire safe and stable conditions and the corresponding equipment necessary to perform those functions were included in the fire response procedures and AOPs. The review included assessing whether safe and stable plant conditions from the primary control stations outside the MCR could be implemented, and that transfer of control from the MCR to the remote shutdown panel could be accomplished in accordance with procedures. This review also included verification that safe and stable conditions could be achieved and maintained from the primary control station both with and without the availability of offsite power.

b. Findings

No findings were identified.

.06 Circuit Analysis

a. Inspection Scope

The inspectors reviewed the licensee's FRE, Ignition Source Report (ISR), Fire Scenario Report (FSR), UFSAR, safe shutdown circuit drawings, post-fire procedures, electrical schematics and system flow diagrams to gain an understanding of the licensee's SSD strategy. The inspectors assessed whether the licensee had properly identified required and associated circuits that could impact the ability to achieve and maintain safe and stable conditions for the selected FAs. The inspectors assessed whether the licensee identified structures, systems and components (SSCs) important to meeting the performance criteria described in NFPA 805. Walk-downs of the selected FAs were done to independently verify the assumptions and results of the licensee's fire scenario development analysis.

The team verified, on a sample basis, that cables associated with safe shutdown equipment was protected from the adverse effects of fire damage or were analyzed to show that fire induced cable faults would not prevent shutdown to safe and stable conditions. The team reviewed flow diagrams for safe shutdown systems to assess the licensee's review of potential flow diversions or mal-operations that may impact nuclear safety performance criteria.

The team also reviewed, on a sample basis, breaker/fuse coordination study documents and several engineering change packages to ensure adequate coordination existed between load and supply breakers. The inspectors reviewed the licensee's electrical breaker coordination study calculation to determine if power supplies were susceptible to fire damage, which would potentially affect the credited components for the FAs chosen for review. The inspectors also reviewed cable routing drawings, electrical one-line diagrams, component block diagrams, penetration and conduit plan drawings, and electrical control wiring diagrams for the selected SSD components to determine if these cables had either been adequately protected from the potential adverse effects of fire damage or analyzed to show that fire induced faults would not prevent post-fire SSD.

In addition, the team reviewed cable routing information to verify that fire protection features were in place to satisfy the requirements specified in the fire protection licensing basis. The team reviewed licensee's evaluations for spurious circuit failure scenarios (single and/or multiple) specified in the circuit analysis to determine if the sample list of components challenged the assumptions made in the SSD analysis. The specific components and references reviewed are listed in the Attachment.

b. Findings

Introduction: Inspectors identified a Severity Level IV violation of 10 CFR 50.48(c) "National Fire Protection Association Standard NFPA 805," for failing to maintain adequate documentation and quality of analyses. Specifically, the NRC identified multiple examples when the licensee failed to comply with site quality assurance procedures.

Description: NFPA 805, Section 2.7, Program Documentation, Configuration Control, and Quality, states, in part, that *“the analyses performed to demonstrate compliance with this standard shall be documented for each nuclear power plant (NPP). The intent of the documentation is that the assumptions be clearly defined and that the results be easily understood, that results be clearly and consistently described, and that sufficient detail be provided to allow future review of the entire analyses. Documentation shall be maintained for the life of the plant and be organized carefully so that it can be checked for adequacy and accuracy either by an independent reviewer or by the [authority having jurisdiction].”*

NRC’s SER (dated March 31, 2016) for St. Lucie’s NFPA 805 FPP states, in part, that *“the licensee stated that the design analysis and calculation procedures provide the methods and requirements to ensure that design inputs and assumptions are clearly defined, results are easily understood by being clearly and consistently described, and that sufficient detail is provided to allow future review of the entire analysis. The licensee further stated that the process includes provisions for appropriate design and engineering review and approval, and that the approved analyses are considered controlled documents, and are accessible via [St. Lucie’s] document control system. The licensee further stated that the documents are also subject to review and revision consistent with the other plant calculations and analyses, as required by the plant design change process.”*

The inspectors identified multiple deficiencies that adversely affected the NRC’s ability to check the adequacy and accuracy of St. Lucie’s NFPA 805 program.

a) FPL Letter L-2015-251 (dated October 2015), a licensing basis document that was listed in the fire protection license requirement, was supported by technical information from the following contractor prepared documents:

- ERIN, Report 0493060006.105, St. Lucie Nuclear Plant, Fire PRA Summary Report, NUREG/CR-6850, Task 16, Rev. 7, dated 04/30/2014
- ERIN, Summary of PSL Due to New VFDRs and PP-118/119 Lack of Coordination, Rev. 1, dated 10/14/2015
- ERIN, St. Lucie Unit 1 and 2, Fire Ignition Frequency Development FP&L NFPA 805 Transition, Rev. 4

St. Lucie’s contract for NFPA 805 vendor support, stated that work shall be performed in accordance FPL’s QA program requirements and nuclear engineering procedures. The contract also stated that the contractor would provide design documentation for FPL’s review. The inspectors noted that the licensing bases documents had not been approved or reviewed by an FPL employee, and that the site had not performed an owner’s acceptance review as described in procedure EN-AA-100-1003, “Control of Design Interfaces,” Rev. 2. Additionally, the inspectors noted that the same contractor individual(s) signed as reviewer and approver on two of the documents, and the documents were not accessible via St. Lucie’s document control system.

b) St. Lucie’s FRE, PSL-FPER-11-001, “St. Lucie Power Plant Fire Risk Evaluations,” Rev. 1, had not been updated since March 2013. Additionally, the inspectors noted that the FPL signature block for fire PRA was deemed not required.

NRC's SER for St. Lucie's NFPA 805 FPP, Section 3.4.1, stated that the FRE contained details of the licensee's review of safety margins for each performance based fire area; and, that the FRE was the licensee's internal record of the systems required to meet the Nuclear Safety Capability Assessment (NSCA) and defense in depth (DID) requirements of NFPA 805. During the inspection, the inspectors determined that the FRE (PSL-FPER-11-001) contained outdated information.

c) The licensee failed to retain contractor documentation associated with the identification of ignition sources. The stated purpose of procedure PI-07-006, "Fire Ignition Frequency Development," Rev. 0 was to identify and quantify information used to develop the plant specific fire ignition frequency estimates. Procedure, PI-07-006, Section 2.3.4.1 stated that the "... walk-down sheets should be retained for the life of the project to facilitate tasks such as scenario development."

d) The team noted that in-plant cable and cable tray nomenclature did not match the nomenclature that was used in St. Lucie's NFPA 805 design documents, and it was noted that a similar observation had been documented in St. Lucie's NFPA 805 Transition Report, Table V-2, "St. Lucie PRA Fire PRA Peer Review Results Summary," dated March 22, 2013. The peer review results included the following:

- "...there [was] no documented methodology for cable location to fire areas,"
- "...the documentation for new cable selection and cable routing [was] highly fragmented,"
- "In the documents that were reviewed, there [were] no references to the plant source documents and document revisions to provide traceability."

The inspectors noted that Procedure EN-AA-213-1000, "Engineering Risk Assessment and Mitigation," Rev. 0, stated that issues identified during third-party reviews should be dispositioned prior to the approval and issuance of an engineering product. The inspectors determined that the cable deficiencies described in the peer review had not been adequately corrected. As a result, the inspectors determined that the accuracy of the site's identification of cables in relationship to ignition sources was not easily verifiable.

e) The results of an expert panel meeting was documented in a contractor document (ERIN, Appendix Q, Expert Panel Review of Fire Risk Evaluations, Rev. 8). The panel assessed whether any changes were necessary for NFPA 805 recovery actions. The cover page stated that if Table G-1 of the LAR required revision that changes would be documented. The inspectors determined that the documentation in Appendix Q was inadequate to ascertain that changes had been implemented.

Analysis: The licensee's failure to maintain adequate documentation and quality of analyses to maintain configuration control, such that they could be checked for adequacy and accuracy, was a performance deficiency (PD). The inspectors determined that the issue was more than minor because the ability of the NRC to verify aspects of the licensee's NFPA 805 program was impacted. The inspectors determined that the Fire Protection Significance Determination Process (IMC 0609, Appendix F) was not suitable for screening this issue. Traditional enforcement was applied because the PD impacted a regulatory oversight function. In accordance the NRC Enforcement

Manual, Part II, Section 2.2, "Actions Involving Fire Protection," the inspectors evaluated this finding to be a Severity Level IV violation. A cross-cutting aspect was not applicable because the issue was associated with a traditional enforcement violation. (Section 1R05.06)

Enforcement: St. Lucie Nuclear Station Units 1 and 2, Renewed Facility Operating License Condition 3.E, required the licensee to implement and maintain in effect all provisions of the approved FPP that complied with Title 10 CFR 50.48 (c), "National Fire Protection Association Standard NFPA 805," as specified in the NRC SER dated March 22, 2013.

NFPA 805, Section 2.2.(j), stated, in part, that the performance-based fire protection design requirements shall be ensured by maintaining adequate documentation and quality of analyses to maintain configuration control of the plant consistent with Section 2.7.

NFPA 805, Section 2.7, required, in part, that analyses performed to demonstrate compliance with this standard shall be documented and maintained for the life of the plant and be organized carefully so that it can be checked for adequacy and accuracy either by an independent reviewer or by the authority having jurisdiction (i.e. the NRC).

Contrary to the above, since 2013, the licensee failed to document and maintain analyses performed to demonstrate compliance with the NFPA 805 standard. Specifically, the site failed to implement adequate quality controls to ensure that St. Lucie personnel adequately reviewed, approved, and maintained NFPA 805 documents. As a result, the NRC's ability to check fire protection program documents for adequacy and accuracy was impacted.

Because this violation was entered into the corrective action program as ARs 2139768, AR 2139986, and AR 2139993 to ensure compliance would be restored in a reasonable amount of time, and the violation was not repetitive or willful, this Severity Level IV violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: (NCV 05000335, 389/2016011-01, Failure to meet the Quality Requirements specified by NFPA 805.)

.07 Communications

a. Inspection Scope

The inspectors reviewed plant communications, as described in PSL UFSAR, Section 9.5.2, "Communications," to ensure that credited systems were adequate to support plant personnel during fire events. The team performed interviews and plant walk-downs with the plant personnel to assess the credited method of communications for the selected FAs. The team also reviewed the adequacy of the communication system to support plant personnel in the performance fire brigade duties. The inspectors reviewed the communication systems that would be relied upon to support fire event notification and fire brigade firefighting activities to verify their availability at those locations.

Additionally, a walk-down of the Fire Brigade Storage Room was conducted to verify the material condition status of the Fire Brigade's and SSD team's communication equipment. The inspectors reviewed preventive maintenance and surveillance test

records to verify that the communication equipment was being properly maintained and tested. The team also verified that the design and location of communications equipment would not cause a loss of communications during a fire.

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 MCR Emergency Lighting, as required by the PSL 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 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 samples of completed test records of ELU discharge tests. These completed surveillances, and preventive maintenance activities were performed to ensure batteries were sized, tested, rated for at least an 8-hour capacity and maintained consistent with vendor guidance, license requirements, and licensee commitments. The inspectors reviewed the vendor manual to verify that the ELUs were being maintained consistent with the manufacturer's recommendations, and that vendor's guidance for battery storage conditions and maintenance practices were met. Specific documents reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

.09 Cold Shutdown Repairs

a. Inspection Scope

The nuclear safety goal is provided in NFPA 805 to establish reasonable assurance that a fire during any operational mode and plant configuration will not prevent the plant from achieving and maintaining the fuel in a safe and stable condition. The licensee defines safe and stable conditions as maintaining reactor coolant temperature at or below hot standby conditions, or fuel coolant temperature less than boiling. The licensee does not require transitioning to cold shutdown to achieve the safe and stable condition, and therefore does not require cold shutdown repairs to be implemented.

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 compensatory measures that had been established in these areas were compared to those specified in the FPP for the applicable fire protection feature. The team verified that the risk associated with removing the fire protection feature from service was properly assessed and the compensatory measures were implemented in accordance with the approved FPP. Also, the team observed licensee personnel performance fire watches to verify that that were conducted as stipulated by the site's compensatory actions log.

b. Findings

No findings were identified.

.11 Radiological Release

a. Inspection Scope

The team reviewed possible radiological release paths to any unrestricted area due to the direct effects of fire suppression activities for each of the selected FAs. Appendix I of the DBD, Radioactive Release Summary, was reviewed for each FA. FAs 2B, 2O and 2QQ were outside the Radiological Control Area and were concluded to not have any release paths. FA, 2B, Unit 2 Cable Spread Room, had floor drains routed to the radioactive waste processing system. Fire pre-plans addressed ventilation paths and specified monitoring of contamination levels of smoke. Fire brigade training reinforced pre-plan use and satisfied performance requirements of NFPA 805 for radioactive release.

b. Findings

No findings were identified.

.12 Non Power Operations

a. Inspection Scope

This area was not inspected. The NFPA 805 transition license condition stated that the licensee has 12 months (from March 31, 2016) to implement non power operations.

b. Findings

No findings were identified.

.13 Monitoring Programa. Inspection Scope

This area was not inspected. The NFPA 805 transition license condition stated that the licensee has 12 months (from March 31, 2016) to implement the monitoring program.

b. Findings

No findings were identified.

.14 Plant Change Evaluationa. Inspection Scope

The inspectors assessed two completed modifications that were stipulated by the NFPA 805 license condition. The inspectors assessed the design and installation features against applicable NFPA code and design requirements.

- EC 274456, Diesel Oil Storage Tanks 2A & 2B Overflow Line Modification
- EC 279419, PSL-1, NFPA 805 Install Ionization Detection System for Panels; CEDM Cabinets 1-18, Vital AC Supplies and Reactor Trip Switchgear.

b. Findings

Introduction: Inspectors identified a Severity Level IV violation of Title 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805," for the licensee's failure to modify the Unit 2A and 2B diesel oil storage tank overflow lines as required by a fire protection license requirement.

Description: St Lucie Unit 2 has two above ground atmospheric diesel oil storage tanks (DOSTs) nominally rated for 40,000 gallons each. The 2A and 2B DOSTs contained sufficient fuel to meet minimum Technical Specification run times for their respective Emergency Diesel Generator (EDG). Each DOST was located within a subdivided seismic Category 1 building that was sized to contain the contents of a rupture or inadvertent overflow of a tank. A safety-related diesel oil transfer pump was located adjacent to each DOST inside of the containment building. The tanks have a 3-inch fill line and a 3-inch overflow line. If a DOST was overfilled, the overflow line provided a flow path to the building floor and an associated sump. The inspectors noted that in approximately 2012, the licensee implemented a modification (EC 271287 "Diesel Oil Storage Tank Operating Margin") that allowed the 30 foot (with a 16 foot diameter) tanks be filled to a maximum level of 29 feet – 10 inches.

NFPA 805, Section 3.3.1.2(4), stated that the controls and use and storage of flammable and combustible liquids shall be in accordance with NFPA 30, "Flammable and Combustible Liquids Code, or other applicable NFPA standards." NFPA 30, Section 2140, required, in part, that tanks shall be designed with sufficient venting to prevent the development of vacuum or pressure sufficient to distort the tank or exceed the design pressure. St. Lucie document, PSL-FPER-11-005, "NFPA Code Compliance Evaluation

for NFPA 30,” determined that the Unit 2 DOSTs were not in full compliance with the code. The DOST did not meet the requirements of Section 2348, which stated “*Tanks storing Class I, Class II or Class IIIA liquids inside buildings shall be equipped with applicable devices or take other measures to prevent overflow into the respective building. The suitability of these devices to meet the requirements include, but are not limited to, a float valve, a preset meter on the flow line, a valve actuated by the weight of the tank contents, a low head pump which is incapable of producing overflow, or a liquid tight overflow pipe at least one pipe size larger than the fill pipe discharging by gravity back to the outside source of liquid or to an approved location.*”

During the NFPA 805 license process, St. Lucie committed, on the docket, to modify the Unit 2 DOST overflow lines which would restore compliance to NFPA 30. St. Lucie letter, L-2013-099, Transition to Title 10 CFR 50.48, dated March 22, 2013, stated that the licensee shall implement the modifications to its facility, as described in Table S-1, “Plant Modifications Committed.” Table S-1 listed Engineering Changes (ECs) 274451 and 274456, “Modify Diesel Fuel Oil Storage Tank (DOST) Overflow Line Modification.” Table S-1 indicated that the modifications had been completed.

The team reviewed EC 274456, “Unit 2 – NFPA 805 DOSTs 2A and 2B Overflow Line Modification,” which was completed on February, 13, 2014. The inspectors noted that the licensee did not modify the overflow pipe. Instead, the site installed a 2.5-inch ball valve in the 3-inch diameter fill pipe. After inspector questioning, the licensee determined that the installation of the 2.5 inch valve was not equivalent to a one pipe size reduction. As a result, the requirements of NFPA 30 were not met.

Analyses: The licensee’s failure to notify the NRC of changes to a licensed activity that was stipulated in the fire protection license condition (Table S-1) was a performance deficiency. The inspectors determined the PD was more than minor because the licensee failed to notify the NRC that the Unit 2 DOSTs’ overflow lines would not be modified; and, subsequently failed to request an exemption from the requirements of NFPA 30. Traditional enforcement was applied because the PD impacted the ability of the NRC to perform its regulatory oversight function. In accordance with the NRC Enforcement Manual, Part II, Section 2.2, “Actions Involving Fire Protection,” the inspectors evaluated this finding to be a Severity Level IV violation. To validate the SL IV determination, the finding was screened in accordance with NRC IMC 0609, “Significance Determination Process,” dated June 19, 2012, Attachment 4, “Initial Characterization of Findings,” dated June 19, 2012, which determined that, an IMC 0609, Appendix F, “Fire Protection Significance Determination Process,” dated September 20, 2013, review was required because it was a fire prevention finding. The finding was determined to be of very low safety significance (Green) - equivalent to Severity Level IV - at Step 1.4.1.B, because the impact of a fire at a DOST would be limited to no more than one train of equipment important to safety. The inspectors determined that a cross-cutting aspect was not applicable because the issue was associated with a traditional enforcement violation.

Enforcement: St. Lucie Nuclear Station, Unit 2, Renewed Facility Operating License Condition 3.E, Fire Protection, Transition License Condition, (2) required, in part, that the licensee shall implement the modifications to its facility, as described in Table S-1, “Plant Modifications Committed,” Attachment S, of Florida Power & Light letter L-2015-211,

dated August 21, 2015, to complete the transition to full compliance with Title 10 CFR 50.48(c).

St. Lucie Nuclear Station Unit 2 Renewed Facility Operating License Condition 3.E, Fire Protection, required the licensee to implement and maintain in effect all provisions of the approved FPP that complied with Title 10 CFR 50.48 (c), "National Fire Protection Association Standard NFPA 805," as specified in the NRC safety evaluation report (SER) dated March 22, 2013. NFPA 805, 2001 Edition," Section 3.3.1.2(4), required that "Controls on use and storage of flammable and combustible liquids shall be in accordance with NFPA 30, "Flammable and Combustible Liquids Code, or other applicable NFPA standards."

Contrary to the above, since 2014, the licensee failed to implement a NFPA 805 modification that was described in Table S-1, "Plant Modifications Committed." As a result, the licensee failed to ensure that the storage of flammable liquids was in accordance with NFPA 30. Specifically, the licensee failed to modify the DOST overflow in accordance with the 1973 edition of NFPA 30. The licensee initiated AR 2140024 to address the issue. This violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy. (NCV 05000389/2016011-02, "Failure to Modify the Diesel Oil Storage Tank Overflow Line as Required by a Fire Protection License Requirement.)

.15 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 of NFPA 805 Chapter 3 were satisfied. Plant administrative procedures were reviewed to determine if adequate controls were in place to control the potential ignition sources of welding and grinding and the handling of transient combustibles in the plant. The team walked down numerous areas in the plant, including the selected FAs, for control of combustible materials, storage of in-plant materials, transient combustibles, and general housekeeping. The team verified that containers with combustibles were Underwriter Laboratory (UL) or Factory Mutual (FM) listed.

b. Findings

No findings were identified.

.16 B.5.b Mitigating Strategy

a. Inspection Scope

The team reviewed the containment flooding with the portable diesel fire pump (PDFP) mitigating strategy to verify that the licensee met the requirements of their B.5.b license conditions and Title 10 CFR 50.54 (hh)(2). The team reviewed procedures to ensure that they were being maintained and were adequate; and, performed walk-downs with licensee staff to ensure that the actions were feasible, that the required equipment was properly staged, and that the staff was properly trained. The team also reviewed maintenance and testing records of credited equipment to ensure that the equipment

was being maintained consistent with vendor recommendations and licensee requirements.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team reviewed a sample of recent independent licensee audits, action requests (ARs), self-assessments, and system/program health reports for thoroughness, completeness and conformance to FPP requirements. Guidance for the independent audits are contained in Regulatory Guide 1.189, "Fire Protection for Operating Nuclear Power Plants," and Generic Letter 82-21, "Technical Specifications for Fire Protection Audits."

The team also reviewed other CAP documents, including completed corrective actions for selected ARs and operating experience program documents, to ascertain whether industry identified fire protection issues (actual or potential) affecting Plant St. Lucie were appropriately entered into the CAP for resolution. Items included in the operating experience program effectiveness review were NRC information notices, regulatory guides, regulatory issues summary, industry or vendor generated reports of defects and non-compliances submitted pursuant to Title 10 CFR Part 21, and vendor information letters. 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.

4OA5 Other Activities

During the 2016 St. Lucie Problem Identification and Resolution Inspection, an unresolved item (URI) was identified associated with the transient combustible heat load calculation for the Unit 1 and 2 intake cooling water (ICW) pump houses; and the basis for exclusion of "treated or fire retardant" wood. The URI was opened to review the licensee's evaluation and to determine if a PD existed.

The inspectors reviewed corrective action documentation, applicable photographs of the previously installed scaffolding, performed a walk-down of the ICW pump houses, reviewed St. Lucie fire protection program documents associated with combustible controls, interviewed station personnel, and reviewed applicable licensing requirements to determine whether a PD existed.

b. Findings

(Closed) Unresolved Item 05000335.389 / 2016007-01, Intake Cooling Water Pump House Transient Combustible Fire Loading Calculation

Introduction: Inspectors identified a Green, non-cited violation (NCV) of the 10 CFR 50.48(c), "National Fire Protection Association Standard NFPA 805," requirements. Specifically, the team identified the licensee's failure to comply with the combustible control requirements for work platforms that were located in the Intake Cooling Water Pump House.

Description: The safety-related ICW pumps were located in the Unit 1 and 2 ICW houses. On May 30, 2016, during the NRC's Problem Identification and Resolution (PI&R) inspection, inspectors observed that platforms were staged near the pumps. The platforms were used by plant personnel for surveillance activities. The platforms were constructed with chemically treated, fire retardant plywood and were located in an area subject to outdoor (wet) conditions. The licensee determined that approximately 1000 pounds of treated wood had been staged in the Unit 1 ICW pump room since June 18, 2015; and 520 pounds of treated wood had been staged in the Unit 2 ICW pump room since May 23, 2011. The licensee replaced the wood platforms with steel platforms in June 2016.

The inspection team noted that procedure ADM-27.11, Scaffold Control, Rev. 15, included a caution note that stated plywood shall be fire retardant and that plywood should only be used when work is being performed and removed immediately after. It was also noted that Procedure 0010434, "Plant Fire Protection Guidelines," Rev. 48, Section 8.2, Control of Combustibles, directed that additional fire protection equipment be brought to the job site when transient combustible materials exceed 100 pounds in a safety-related area. Additionally, inspectors reviewed the manufacturer's information for wood and noted that the wood was rated for interior applications involving dry conditions. Because the wood was not rated for outdoor use, the wood was not removed immediately after use, and additional fire protection equipment was not brought to the ICW pump houses; the inspectors determined that the licensee failed to adequately assess and control combustible materials at the Unit 1 and 2 ICW pump houses. The issue had been entered into the licensee's corrective action program as CR 02134308. Planned corrective actions included actions to revise procedures to include updating the site's definition of combustible materials and to provide additional training. As previously mentioned, the wood had been replaced with metal.

Analysis: The licensee's failure to adequately implement combustible material control requirements in procedures ADM-27.11 and Procedure 0010434 was a PD. The PD is more than minor because it adversely impacted the Initiating Events cornerstone attribute of Protection Against External Factors (Fire) and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during plant operations. Additionally, if left uncorrected, the deficiencies in the combustibles control program could result in wood platforms being staged in other areas of the plant. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process," dated June 19, 2012, Attachment 4, "Initial Characterization of Findings," dated June 19, 2012, which determined that, an IMC 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, review was required because it was a fire prevention finding. The

finding was determined to be of very low safety significance (Green, at Step 1.4.1.B because the impact of a fire would be limited to no more than one train of equipment important to safety. The inspector identified a cross-cutting aspect in work management because the licensee failed to ensure that the site's combustible control requirements were met during the installation and use of wood platforms in the ICW pump house (H.5).

Enforcement: St. Lucie Nuclear Station, Units 1 and 2, Renewed Facility Operating License Condition 3.E, Fire Protection, required the licensee to implement and maintain in effect all provisions of the approved FPP that complied with Title 10 CFR 50.48 (c), "National Fire Protection Association Standard NFPA 805," as specified in the NRC safety evaluation report (SER) dated March 22, 2013. NFPA 805, "Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants, 2001 Edition," section 3.3.1.2, "Control of Combustible Materials," required, in part, that procedures for the control of general housekeeping practices and the control of transient combustibles shall be developed and implemented.

Contrary to the above, since May 23, 2011, the licensee failed to implement procedures for the control of transient combustibles. Specifically, the licensee failed to adequately implement the requirements in procedures ADM-27.11, Scaffold Control, Rev. 15, and 0010434, "Plant Fire Protection Guidelines," Rev. 48 during the installation and usage of platforms in the safety-related ICW pump house. The licensee initiated AR 2137088 to address the issue. This violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy. (NCV 05000335 and 389/2016011-03, Failure to meet the Combustible Control Requirements specified by NFPA 805 for Work Platforms Located in the Intake Cooling Water Pump House.)

40A6 Meetings, Including Exit

On June 24, 2016, the inspection team leader presented the preliminary inspection results to Mr. C. Costanzo and other members of the licensee's staff on June 24, 2016; and the final inspection results were presented to Mr. M. Jones and other members of the licensee's staff on August, 4, 2016. No proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

C. Costanzo, Site Vice President
M. Jones, Engineering Director
E. Katzman, FPL Licensing Manager
R. McDaniel, Fire Protection Supervisor
R. Sciscente, Licensing Engineer
M. Snyder, Licensing Manager

NRC Personnel

A. Gody, Director, Division of Reactor Safety, Region II
P. Lain, Fire Protection Branch, NRR
T. Morrissey, Senior Resident Inspector - St. Lucie
R. Reyes, Resident Inspector, - St. Lucie
S. Shaeffer, Chief, Engineering Branch 2, Division of Reactor Safety, Region II

LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED

Opened and Closed

- 05000335, 389/2016011-01 SL IV Failure to Meet the Quality Requirements Specified By NFPA 805 (Section 1R05.06)
- 05000335, 389/2016011-02 SL IV Failure to modify the Diesel Oil Storage Tank Overflow Line as Required by a Fire Protection License Requirement.
- 05000335, 389/2016011-03 NCV Failure to Meet the Combustible Control Requirements Specified By NFPA 805 for Work Platforms Located in the Intake Cooling Water Pump House (Section 4OA5)

Closed

- 05000335, 389/2016007-01 URI Failure to Meet the Combustible Control Requirements Specified By NFPA 805 Section 3.3.1.2(1) (Section 4OA5)

Section 1R05.06: List of Safe Shutdown Components Inspected

Component Identification

BA MUP-2A

CHGGP-2A

CHGGP-2B

LPSI PP-2A

LPSI PP-2B

FCV-3301

FCV-3306

Description

Boric Acid Makeup Pump 2A

Charging Pump 2A

Charging Pump 2B

Low Pressure Safety Injection 2A

Low Pressure Safety Injection 2B

LPSI Discharge

LPSI Discharge

LIST OF DOCUMENTS REVIEWED

Completed Surveillance Test, Work Orders, Changes

EC DCR 221166
EC DCR 221167
EC DCR 221170
EC DCR 221171
EC DCR 221173
EC DCR 221174
EC 249965
U2 40315766, E lights Annual 1st Quarter 2016
U2 40325824, E lights Annual 3rd Quarter 2015
U2 40346016, E lights Annual 2nd Quarter 2015
U2 40347640, E lights Annual 4th Quarter 2015
2-OSP-61.02, "Sound Powered Phone Communication Test," Rev. 5
2-OSP-100.15, "Remote Shutdown Monitoring Monthly Channel Check," Rev. 26
2-OSP-100.16, "Remote Shutdown Components 18 Month Functional Test," Rev. 11

Codes and Standards

ASME/ANS RA-Sa-2009, "Addenda to ASME/ANS RA-S-2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications
ASME/ANS RA-Sa-2009, "Addenda to ASME/ANS RA-S-2008 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications
FAQ 07-0030, Establishing Recovery Actions, Rev. 4
NEI 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under Title 10 CFR 50.48(c)," Rev. 1
NEI 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under Title 10 CFR 50.48(c)," Rev. 1
NEI 04-02, Attachment C, Table B-3, Fire Area Transition
NFPA 13, Installation of Sprinkler Systems, 1973
NFPA14, Installation of Standpipe and Hose Systems, 1973
NFPA 30, Flammable and Combustible Liquids Code, 1973
NFPA 72A, Local Protective Signaling Systems, 1973
NFPA 196, Fire Hose, 1972
NFPA 805 Performance Based Standard for Fire Protection for Light Water Reactor Generating Plants (2001 Edition)

Completed Surveillance Test and Work Orders

FP-SP-15.01, Fire Barrier 18 Month Visual Inspection, 9/18/15
WO 40366182-01, U2 Annual Test of Smoke Detectors, 1/26/16
WO 40281324-01, U2 18 Month Fire Damper Inspections, 10/28/14
WO 40393088-01, U2 Fire Door Inspection, 4/04/16
WO 36612179-01, Station Service Transformer 2B2, Replace Oil to Proper Level, 5/19/06
0-OSP-15.15A, 1A Fire Pump Operability Test, 5/06/15
0-OSP-15.15B, 1B Fire Pump Operability Test, 7/14/15
0-OSP-15.17, Fire Protection System Triennial Flow Test, 9/26/13
1-OSP-100.27, Schedule of Periodic Tests, Checks and Calibrations, 6/07/22016

Corrective Action Documents Generated as a Result of this Inspection

2129678 (WR94139641) Emergency Lights EL-2-47-002 and EL-2-47-004 identified on walk-down with indication of "charger fault"

2136715, Unlabeled Cabinet in Unit 2 Cable Spreading Room
 2137278, Well Sealed Cabinets
 2136890, Unattached Ground Strap in Unit 2 Cable Spread Room
 2136897, Cable Tray Cover Not Correctly Secured
 2137033, CRI Actions for AB MCC
 2137088, Suggested Evaluation Content (Ref: CR2134308 - 2016 PI&R INSPECTION Fire Retardant Wood)
 2139546, Locked open SDC MOVs evaluated for IN 92-18 concern.
 2139733, 2016 FP NRC AUDIT B.5.B GAUGE LATE CALIBRATION DUE DATE
 2139768, MCC 1AB FPRA scenario report documentation deficiency
 2139986, Fire PRA Vendor Deliverables
 2139993, Fire PRA Walk-down Sheets Unavailable
 2140024, DOST Design Modification
 2140114, Breaker Coordination look back review for operability screening.

Corrective Action Documents Generated because of this Inspection

AR 2129678, (WR94139641) Emergency Lights EL-2-47-002 and EL-2-47-004 identified on walk-down with indication of "charger fault".
 AR 2136715, Unlabeled Cabinet in Unit 2 Cable Spreading Room
 AR 2136890, Unattached Ground Strap in Unit 2 Cable Spread Room
 AR 2136897, Cable Tray Cover Not Correctly Secured
 AR 2137033, CRI Actions for AB MCC
 AR 2137088, Suggested Evaluation Content (Ref: CR2134308 - 2016 PI&R INSPECTION Fire Retardant Wood)
 AR 2137278, Well Sealed Cabinets
 AR 2139733, 2016 FP NRC Audit B.5.B Gauge Late Calibration Due Date
 AR 2139546, Locked open SDC MOVs evaluated for IN 92-18 concern.
 AR 2139768, MCC 1AB FPRA scenario report documentation deficiency
 AR 2139986, Fire PRA Vendor Deliverables
 AR 2139993, Fire PRA Walk-down Sheets Unavailable
 AR 2140114, Breaker Coordination look back review for operability screening.
 AR 2140024, DOST design Modification

Corrective Action Documents (ARs/NCRs) Reviewed During This Inspection

CR 98-1303-4, Fire Water System Susceptibility to Water Hammer Event, 08/22/2000
 CR 2109231, Alarming Fire Panel and Associated Work Orders
 Condition Evaluation CE 02134308, Fire Treated Wood in Unit 1 and 2 ICW Pump Room, 6/08/2016
 AR 1625017
 AR 1625480
 AR 1625481
 AR 1648771
 AR 1648823
 AR 1649090
 AR 2134010
 AR 2134005
 AR 213079
 AR 544865

Drawings

ENG-02154-148, "Control Wiring Diagram Stm Gen 2A Atm Stm Dump Valve MV-08-19A
 ENG-02154-149, "Control Wiring Diagram Stm Gen 2A Atm Stm Dump Valve MV-08-19A
 ENG-02154-150, "Control Wiring Diagram Stm Gen 2A Atm Stm Dump Valve MV-08-18A
 ENG-02154-151, "Control Wiring Diagram Stm Gen 2A Atm Stm Dump Valve MV-08-18A
 ENG-02154-152, "Control Wiring Diagram Stm Gen 2B Atm Stm Dump Valve MV-08-19B
 ENG-02154-153, "Control Wiring Diagram Stm Gen 2B Atm Stm Dump Valve MV-08-19B
 2998-B-048, Appendix "R" Safe Shutdown Analysis Report
 2998-B-327, Shutdown Cooling and Bypass Valve FCV-3306, Sheet 1516
 2998-G-071, General Arrangement R Reactor Auxiliary Building Plan Sheet 3, Rev. 30
 2998-G-390, Reactor Auxiliary Building El. -50' – Conduit Trays and Grounding, Sheet 1
 2998-G-391, Reactor Auxiliary Building El. -50' – Conduit Trays and Grounding, Sheet 2
 2998-B-327, Boric Acid Makeup Pump 2B, Sheet 175
 2998-B-327, Charging Pump 2A, Sheet 177
 2998-B-327, Charging Pump 2B, Sheet 178
 2998-B-327, Charging Pump 2C, Sheet 179
 2998-B-327, HP Safety Injection Pump 2A, Sheet 237
 2998-B-327, HP Safety Injection Pump 2b, Sheet 238
 2998-B-327, LP Safety Injection Pump 2A, Sheet 251
 2998-B-327, LP Safety Injection Pump 2B, Sheet 252
 2998-B-327, Containment Spray Pump 2A, Sheet 287
 2998-B-327, Boric Acid Makeup Pump 2A, Sheet 327

Drawings

EC274456-M-001 St. Lucie Plant-Unit No. 2, Flow Diagram Miscellaneous Systems, Rev. 0
 EC274456-M-002 St. Lucie Plant-Unit No. 2 Diesel Oil Piping, Rev. 2
 EC279419-C-001, St. Lucie Plant-Unit No.1, Ionization Detector Mounting Details Rev. 1
 EC279419-E-001, St. Lucie Plant-Unit No.1, CEDM Cab. Internal Wiring Field Sketch, Rev. 0
 2998-B-327, Charging Pump 2A, Sheet 177
 2998-B-327, Charging Pump 2B, Sheet 178
 2998-B-327, Charging Pump 2C, Sheet 179
 2998-B-327, HP Safety Injection Pump 2A, Sheet 237
 2998-B-327, HP Safety Injection Pump 2b, Sheet 238
 2998-B-327, LP Safety Injection Pump 2A, Sheet 251
 2998-B-327, LP Safety Injection Pump 2B, Sheet 252
 2998-B-327, Containment Spray Pump 2A, Sheet 287
 2998-B-327, Boric Acid Makeup Pump 2A, Sheet 327
 2998-B-327, Boric Acid Makeup Pump 2B, Sheet 175
 2998-G-060, General Arrangement Turbine Building, Rev 28
 2998-G-063, General Arrangement Turbine Building-Sections-Sheet 1, Rev. 20
 2998-G-078 Sheet 109, Flow Diagram Reactor Coolant System, Rev. 20
 2998-G-078 Sheet 100, Flow Diagram Symbols, Rev. 11
 2998-G-078 Sheet 110, Flow Diagram Reactor Coolant System, Rev. 14
 2998-G-078 Sheet 120, Flow Diagram Chemical and Volume Control System, Rev. 21
 2998-G-078 Sheet 121B, Flow Diagram Chemical and Volume Control System, Rev. 30
 2998-G-078 Sheet 122, Flow Diagram Chemical and Volume Control System, Rev. 30
 2998-G-078 Sheet 130A, Flow Diagram Safety Injection System, Rev. 24
 2998-G-078 Sheet 131, Flow Diagram Safety Injection System, Rev. 24
 2998-G-078 Sheet 132, Flow Diagram Safety Injection System, Rev. 11
 2998-G-079 Sheet 1, Flow Diagram Main Steam System, Rev. 44
 2998-G-079 Sheet 2, Flow Diagram Main Steam System, Rev. 44

2998-G-080 Sheet 29, Flow Diagram Feedwater & Condensate Systems, Rev. 39
 2998-G-082 Sheet 2, Flow Diagram Circulating & Intake Cooling Water System, Rev. 57
 2998-G-083 Sheet 1, Flow Diagram Component Cooling System, Rev. 47
 2998-G-083 Sheet 2, Flow Diagram Component Cooling System, Rev. 45
 2998-G-084 Sheet 1 & 2, Flow Diagram Domestic and Make-up Water Systems, Rev. 23
 2998-G-087 Sheet 1, Flow Diagram Miscellaneous Systems, Rev. 19
 2998-G-088, Flow Diagram Containment Spray and Refueling Water Systems, Rev. 22
 2998-G-272, Main One Line Wiring Diagram, Rev. 27
 2998-G-274 Sheet 1, Auxiliary One Line Diagram, Rev. 19
 2998-G-274 Sheet 2, Auxiliary One Line Diagram, Rev. 10
 2998-G-275 Sheet 1, 125V DC Panels One Line Diagrams Bus 2A & 2AA, Rev. 11
 2998-G-275 Sheet 2, 125V DC Panels One Line Diagrams Bus 2B & 2BB, Rev. 8
 2998-G-275 Sheet 3, 125V DC Panels One Line Diagrams Bus 2AB, PP-240, PP-254, PP-255,
 Rev. 7
 2998-G-275 Sheet 4, 125V DC Panels One Line Diagrams PP-218, PP-219, PP-236, PP-239,
 Rev. 6
 2998-G-275 Sheet 5, 125V DC Panels One Line Diagrams Bus MA, MB, MC, MD, Rev. 1
 2998-G-332, 480V Miscellaneous, 125V D-C and Vital A-C One Line, Rev. 19
 2998-G-332 Sheet 2, 480V Miscellaneous, 125V D-C and Vital A-C One Line, Rev. 8
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LIST OF ACRONYMS AND ABBREVIATIONS

APCSB	Auxiliary Power and Conversion Systems Branch
AOP	Abnormal Operating Procedure
AR	Action Request
CAP	Corrective Action Program
CFR	Code of Federal Regulations
DBD	Design Bases Document
DC	Direct Current
DID	Defense in Depth
DOST	Diesel Oil Storage Tank
EC	Engineering Change
ELU	Emergency Lighting Unit
FA	Fire Area
FHA	Fire Hazard Analysis
F&O	Findings and Observations
FPP	Fire Protection Program
FRE	Fire Risk Evaluation
FSR	Fire Scenario Report
FZ	Fire Zone
ICW	Intake Cooling Water
IMC	Inspection Manual Chapter
IP	NRC Inspection Procedure
ISR	Ignition Source Report
LAR	License Amendment Request
NCV	Non-Cited Violation
NFPA	National Fire Protection Association
NRC	United States Nuclear Regulatory Commission
NSCA	Nuclear Safety Capability Assessment
OMA	Operator Manual Actions
ONP	Off-Normal Procedure
PD	Performance Deficiency
PPE	Personal Protection Equipment
PDFP	Portable Diesel Fire Pump
PI&R	Problem Identification and Resolution
PRA	Probabilistic Risk Assessment
PSL	St. Lucie Nuclear Station
P&IDs	Piping and Instrumentation Diagrams
Rev	Revision
RSDP	Remote Shutdown Panel
SDP	Significance Determination Process
SER	Safety Evaluation Report
SL	Severity Level
SSC	Systems, Structures and Components
SSD	Safe Shutdown
TE	Traditional Enforcement
UFSAR	Updated Final Safety Analysis Report
UL	Underwriters Laboratory
WO	Work Order