



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

November 2, 2016

Cheryl A. Gayheart, Vice President
Southern Nuclear Operating Company, Inc.
Joseph M. Farley Nuclear Plant
7388 North State Highway 95
Columbia, AL 36319

**SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – NRC INTEGRATED INSPECTION
REPORT 05000348/2016003 and 05000364/2016003**

Dear Ms. Gayheart:

On September 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your plant Joseph M. Farley Nuclear Plant, Units 1 and 2. On October 17, 2016, the NRC inspectors 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. NRC inspectors documented three findings of very low safety significance (Green) in this report which involved violations of NRC requirements. One of these findings was associated with a Severity Level IV violation using the traditional enforcement process. Further, inspectors documented a licensee-identified violation which was determined to be a Severity Level IV violation. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the 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 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 Joseph M. Farley Nuclear Plant, Units 1 and 2.

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 Joseph M. Farley Nuclear Plant, Units 1 and 2.

C. Gayheart

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This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Shane R. Sandal, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos.: 50-348, 50-364
License Nos.: NPF-2, NPF-8

Enclosure:
IR 05000348/2016003 and 05000364/2016003
w/Attachment: Supplemental Information

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C. Gayheart

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C. Gayheart

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Letter to Cheryl A. Gayheart from Shane R. Sandal dated November 2, 2016

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT – NRC INTEGRATED INSPECTION
REPORT 05000348/2016003 and 05000364/2016003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-348, 50-364

License Nos.: NPF-2, NPF-8

Report No.: 05000348/2016003; and 05000364/2016003

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Joseph M. Farley Nuclear Plant

Location: Columbia, Alabama

Dates: July 1, 2016 through September 30, 2016

Inspectors: P. Niebaum, Senior Resident Inspector
K. Miller, Resident Inspector
D. Bacon, Senior Operations Engineer (1R11)
R. Baldwin, Senior Operations Engineer (1R11)
J. Dymek, Reactor Inspector (1R05)

Approved by: Shane R. Sandal, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000348/2016003; and 05000364/2016003, July 1, 2016 through September 30, 2016; Joseph M. Farley Nuclear Plant, Units 1 and 2, Fire Protection, Licensed Operator Requalification, Follow up of Events

The report covered a three-month period of inspection by resident inspectors and regional inspectors. There are three NRC-identified violations documented in this report. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," (SDP) dated April, 29, 2015. The cross-cutting aspects are determined using IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated August 1, 2016. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6. Documents reviewed by the inspectors which are not identified in the Report Details are identified in the List of Documents Reviewed section of the Attachment.

Cornerstone: Mitigating Systems

- Green: An NRC-identified Severity Level IV NCV of 10 CFR 50.9(a), "Completeness and accuracy of information," and an associated Green NCV of 10 CFR 50.48(c) and National Fire Protection Association Standard (NFPA) 805, Section 3.9.1, was identified for the licensee's failure to accurately evaluate and report non-compliance with code requirements for the design and installation of the Unit 1 pre-action sprinkler system 1A-36. The licensee's failure to comply with code requirements for the design and installation of the Unit 1 pre-action sprinkler system, 1A-36 was a performance deficiency. The licensee entered the issue into their corrective action program (CR 10261278).

The performance deficiency was more than minor because it was associated with the protection against external factors (i.e. fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inadequate design and installation of the sprinkler system represented a degradation of a fire suppression component which degraded the fire protection defense in depth element to rapidly detect and suppress fires that occur. The inspectors determined that the finding was of very low safety significance (Green) because the affected fixed fire suppression system would still be able to suppress a fire such that no additional equipment important to safety would be affected by a fire. The inspectors determined the cause of this finding was not associated with a cross-cutting area because it was not reflective of current licensee performance. (Section 1R05)

- Green: An NRC-identified non-cited violation (NCV) of 10 CFR 55.49, "Integrity of examinations and tests," was identified for the licensee's failure to adhere to examination procedure standards that require the use of sequestering and examination security measures to prevent compromise when the same examination is administered to multiple crews on the same day. While observing simulator exam scenarios, the inspectors identified that neither of two crews scheduled to be evaluated on the same scenario that day were sequestered following completion of the first scenario. Both crews were in the same building and were not being monitored. The first crew was placed on the same Examination Security Agreement as examination developers and evaluators prior to participating in the scenario, as a means to prevent compromise of the examination. The licensee Examination Security Agreement Brief allows discussion of the exam with individuals that are on the

Examination Security Agreement. The inspectors informed the licensee of this issue prior to the same scenario being administered to the second crew. The licensee subsequently administered a different scenario to the second crew to prevent any potential examination compromise and entered the issue into their corrective action program (CR 10271868).

This performance deficiency was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to adhere to examination security standards adversely affected the integrity of the administration of the operating exams, which tests licensed operator performance in order to ensure timely and correct mitigating actions after an event. Using the Licensed Operator Requalification Significance Determination Process, this finding was determined to be of very low safety significance (Green) because no known compromise of the examinations occurred. The inspectors determined the finding had a cross-cutting aspect of Resources in the cross-cutting area of Human Performance because the licensee failed to ensure that adequate training procedures were available to meet industry standards and ensure that the potential for the compromise of regulatory examinations did not exist. [H.1] (Section 1R11)

- Green: An NRC-identified, non-cited violation of Technical Specification (TS) 3.8.9 "Distribution Systems – Operating," occurred when the shared 600 VAC 1-2R load center (LC) was inoperable for longer than allowed by technical specifications for Unit 1. The failure to perform adequate preventive maintenance on the ER05-2 circuit breaker cell switch in accordance with licensee procedure FNP-0-EMP-1322.01 was a performance deficiency. This event was entered in the licensee's corrective action program as CR 10209365. The licensee cycled the ER05-2 cell switch which cleaned the electrical contact enough to establish continuity to power the closing circuit for the ER02-1 supply circuit breaker and reenergize the 1-2R 600VAC load center. An additional corrective action to replace the cell switch is pending.

The performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective because inadequate preventive maintenance on the ER05-2 circuit breaker cell switch led to the inability to detect a degraded electrical contact which resulted in the inoperability of the 1-2R 600 VAC load center on April 13, 2016. This finding required a detailed risk evaluation because it represented an actual loss of function of a single train for greater than the TS allowed outage time. The inspectors used the NRC SPAR model for plant Farley to evaluate the significance of this finding. The regional senior reactor analyst reviewed this evaluation and determined that the increase in risk as a result of the performance deficiency was less than 1E-6 per year, a GREEN finding of very low safety significance. This finding was associated with the cross-cutting aspect of Field Presence in the Human Performance area because if deviations from standards and expectations were corrected promptly, the practice of checking a single electrical contact during the cell switch continuity verification would not have existed. [H.2] (Section 4OA3)

One Severity Level IV violation, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and the corrective action tracking number are listed in section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

Unit 1: Unit 1 started the report period at approximately 100 percent rated thermal power (RTP). Unit 1 maintained approximately 100 percent RTP through the end of the report period.

Unit 2: Unit 2 started the report period at approximately 100 percent RTP. Unit 2 maintained approximately 100 percent RTP through the end of the report period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

Impending Adverse Weather Conditions: The inspectors reviewed the licensee's preparations to protect risk-significant systems from adverse weather conditions expected during the week of August 8, 2016. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of the adverse weather conditions. The inspectors verified that operator actions specified in the licensee's adverse weather procedure maintain readiness of essential systems. The inspectors also verified that the licensee implemented periodic equipment walkdowns or other measures to ensure that the condition of plant equipment met operability requirements.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial Walkdown: The inspectors verified that critical portions of the following systems were correctly aligned by performing partial walkdowns. The inspectors determined the correct system lineup by reviewing plant procedures and drawings listed in the Attachment.

- Unit 1, 1B component cooling water pump and heat exchanger
- Unit 1, 1B penetration room filtration train following maintenance
- Unit 2, containment spray system "A" train
- Unit 1, shared "C" diesel generator (DG) while the "1B" DG was out of service (OOS) for maintenance

Complete Walkdown: The inspectors verified the alignment of the Unit 2 125 Volt D.C. Auxiliary Building Distribution System by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors also reviewed records related to the system outstanding design issues, maintenance work requests, and deficiencies.

The inspectors reviewed corrective action documents, including condition reports and outstanding work orders, to verify the licensee was identifying and resolving equipment alignment discrepancies. The inspectors also reviewed periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

Quarterly Inspection: The inspectors evaluated the adequacy of fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program the following four fire areas.

- Unit 1, Room 210 – Corridor, Fire Area 1-020, Fire Zone 0210
- Unit 1, Room 211 – Corridor, Fire Area 1-020, Fire Zone 0211
- Unit 1, Room 228 – Corridor, Fire Area 1-020, Fire Zone 0228
- Unit 1, Room 234 – Hallway, Fire Area 1-020, Fire Zone 0234

The inspectors assessed the following:

- control of transient combustibles and ignition sources
- fire detection systems
- water-based fire suppression systems
- gaseous fire suppression systems
- manual firefighting equipment and capability
- passive fire protection features
- compensatory measures and fire watches
- issues related to fire protection contained in the licensee's corrective action program
- material condition and operational status of fire protection equipment

Fire Brigade Observation: The inspectors observed the licensee's fire brigade performance during an actual fire in the owner controlled area on September 22, 2016 and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance:

- capability of fire brigade members
- leadership ability of the brigade leader
- proper use of turnout gear and fire-fighting equipment
- team effectiveness
- compliance with site procedures

The inspectors also assessed the ability of control room operators to combat the fire including identifying the location of the fire, dispatching the fire brigade, and sounding alarms.

b. Findings

Introduction: An NRC-identified Severity Level IV NCV of 10 CFR 50.9(a), "Completeness and accuracy of information," and an associated Green NCV of 10 CFR 50.48(c) and National Fire Protection Association Standard (NFPA) 805, Section 3.9.1, was identified for the licensee's failure to accurately evaluate and report non-compliance with code requirements for the design and installation of the Unit 1 pre-action sprinkler system 1A-36. The sprinkler system design and installation did not meet the requirements of the code of record (COR). The engineering equivalency evaluations for non-rated steel hatches in 3-hour rated floors lacked sound technical basis, as specified in RG 1.205.

Description: On July 11, 2016, the inspectors performed an inspection of Unit 1 Fire Area 1-020 in the Auxiliary Building, Elevation 121'. This fire area is protected by pre-action sprinkler system 1A-36. The inspectors noted several examples of non-compliance with the COR, NFPA-13, 1978 Edition. This COR was identified in the Functional System Description document, A-181017, and the licensee's design specification for the new system. The licensee stated in their NFPA 805 license amendment request (LAR) response to Request for Additional Information (RAI) FPE 06, that code compliance had been determined based on NFPA Code Compliance Reviews, incorrectly noting that NFPA-13, 1975 Edition was the COR. In response to RAI FPE 10, the licensee stated that NFPA code compliance reviews were performed as part of NFPA 805 Transition and non-compliances identified as part of the review were either justified within the code compliance evaluation or identified for the licensee to bring the element into compliance. No other actions were taken to bring the 1A-36 system into COR compliance. The licensee code compliance evaluation, SM-C051326701-007, prepared by an NFPA 805 contractor, reviewed Farley sprinkler systems, referring initially to the requirements of NFPA-13, 2007 Edition, which differ in some aspects to the NFPA-13, 1975 Edition. The contractor then performed a review comparing compliance (and non-compliance) with the 2007 code to the 1975 code, which was inappropriate for system 1A-36. No additional actions were taken to review code compliance with the actual COR, as part of the NFPA 805 transition.

The NFPA 805 Fire Protection Program Design Basis Document, A-181805, Appendix D, Fundamental Fire Protection Program and Minimum Design Elements, stated that the system shall be installed in accordance with the appropriate NFPA standards including NFPA-13. According to General System Design, A-181017, Farley pre-action systems were hydraulically designed and based upon the extra hazard design occupancy classification with minimum design density requirements of 0.3 gpm per square foot (equivalent to the COR Extra Hazard, Group 1). However, the original hydraulic calculation, U-416424, prepared in January 1979 for pre-action sprinkler system 1A-36, documented that the 6 spray nozzles, in the Fire Zone 0210 – Corridor, did not meet this minimum density requirement. Also, there was no graph sheet included with the calculation showing the water supply curve and system requirements, plus the 500 gallons per minute (gpm) hose stream demand, and there was no supply calculation to verify the total system demand could be met. A combination of 1/2-inch (standard orifice) and 3/8-inch (reduced orifice) GEM Protectospray Model EA-1 spray nozzles were used instead of standard upright and pendent sprinkler heads in system 1A-36. The manufacturer's instructions for the Protectospray nozzles did not provide assurance

that these spray nozzles were approved or listed for NFPA-13 applications. Also, according to the COR, small orifice sprinklers were not permitted for use on pre-action systems. Due to obstructions at or near the ceiling, six spray nozzle deflectors were located below the COR limit of 1 inch to 12 inches below the ceiling. Room 213 (Fire Zone 0213 – Battery Service Room) has large HVAC obstructions without sprinkler coverage below, although the COR required that sprinklers shall be installed beneath ducts over 4 feet wide. The licensee entered these issues into the corrective action program as CRs 10230166, 10254023, 10254025, 10254026, 10254029, 10261278, 10263219, and 10268774 to address non-compliance with the COR.

A hoistway was located between floors at the south end of Fire Zone 0234 – Hallway, adjacent to the elevator and stairwell. Both the elevator and stairwell were provided with 1-½ hour rated fire doors. The hoistway openings (8' X 11') in the 3-hour rated floor and ceiling were normally covered with unprotected 1/4 inch thick steel diamond plate. RG 1.189, Section 4.2.1.1, required that openings through fire barriers that separate fire areas should be sealed or closed to provide a fire-resistance rating equal to the barrier itself. Also, there were no adequate fire protection provisions to protect these openings when the steel plates are removed. In the licensee's NFPA 805 license amendment request (LAR) response to RAI FPE 08, the licensee stated that unrated fire area barriers were documented in "engineering equivalency evaluations" within the calculation. The calculation stated that there was reasonable assurance that a fire would not propagate through the steel covers. The evaluation only considered in-situ fire severity and did not consider that transient combustibles could provide an additional challenge to the unprotected steel. There was no technical basis for that determination since there was no demonstration of an equivalent level of fire protection as defined by RG 1.205, Section 2.3.2. The evaluation also did not consider the adverse effect of fire hazards on adjacent fire areas with the hatch covers removed (no physical separation in the 8' X 11' opening). The licensee prepared a technical evaluation (TE 331659), stating that system 1A-36 had a water curtain and the system was used to protect non-rated hatches. The evaluation stated that closely spaced sprinklers (water curtain) and draft stops were not provided in the locations. No subsequent actions were taken by the licensee to resolve this issue. The installed fire protection provided in the vicinity of the hoistway opening below the hatch cover at elevation 139' were three Sidewall sprinkler heads, which were prohibited by the COR for use in system 1A-36. These sidewall sprinklers were located below the COR limit which could impact their ability to function properly.

Analysis: The licensee's failure to comply with code requirements for the design and installation of the Unit 1 pre-action sprinkler system, 1A-36 was a performance deficiency. The performance deficiency affected fire protection defense-in-depth strategies involving fixed fire suppression. The performance deficiency was more than minor because it was associated with the protection against external factors (i.e. fire) attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the inadequate design and installation of the sprinkler system represented a degradation of a fire suppression component which degraded the fire protection defense in depth element to rapidly detect and suppress fires that occur. The significance of this finding was evaluated using IMC 0609, Appendix F, "Fire Protection Significance Determination Process", dated September 20, 2013. Using IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," the inspectors determined that the finding was of very low safety significance (Green) because the affected fixed fire suppression system would still be able to suppress a fire such that no additional

equipment important to safety would be affected by a fire. The inspectors determined the cause of this finding was not associated with a cross-cutting area because it was not reflective of current licensee performance.

The inspectors also determined that the licensee's failure to accurately respond to NFPA 805 LAR RAIs was a violation of 10 CFR 50.9(a). Because this violation of 10 CFR 50.9(a) had the potential to impact the NRC's ability to perform its regulatory function, the inspectors evaluated this violation using traditional enforcement (TE). Since the TE violation was associated with a green reactor oversight process violation, and the misinformation was identified after the NRC relied on it for issuing an operating license amendment, the TE violation was determined to be a Severity Level IV violation, consistent with the language of the NRC Enforcement Policy, Section 2.3.11, "Inaccurate and Incomplete Information." Traditional Enforcement violations are not assessed for cross cutting aspects.

Enforcement: Farley Nuclear Plant, Unit 1, Operating License Condition 2.C.(4), required, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program (FPP) that comply with 10 CFR 50.48(c), as specified in the license amendment request dated September 25, 2012, and supplements dated December 20, 2012; September 16, 2013; October 30, 2013; November 12, 2013; April 23, 2014, May 23, 2014; July 3, 2014; August 11, 2014; August 29, 2014; October 13, 2014; January 16, 2015, and as approved in the safety evaluation report (SER) dated March 10, 2015. The 2001 Edition of NFPA-805, Section 3.9.1, Automatic and Manual Water-Based Fire Suppression Systems, required that the automatic water-based fire suppression system shall be installed in accordance with the appropriate NFPA standards including NFPA-13.

Contrary to the above, the licensee failed to comply with the NFPA 805 code requirements for the Unit 1 pre-action sprinkler system, 1A-36. Additionally, the NFPA 805 Fire Protection Program Design Basis Document, A-181805, Appendix D, Fundamental Fire Protection Program and Minimum Design Elements, stated that the system shall be installed in accordance with the appropriate NFPA standards including NFPA-13. This condition has likely existed since January of 1979, when the licensee received the hydraulic design calculation from the installation contractor.

Additionally, 10 CFR 50.9(a), "Completeness and accuracy of information," requires, in part, that "Information provided to the Commission by an applicant for a license...be maintained by the applicant or licensee shall be complete and accurate in all material respects." Contrary to the above, on September 16, 2013 (ADAMS ML14038A019) under the NFPA 805 LAR, the licensee failed to provide complete and accurate information responding to RAIs FPE 06, FPE 08, and FPE 10. Specifically, the incorrect NFPA-13 edition was evaluated, as applied to system 1A-36, there was no apparent licensee effort to bring the 1A-36 system into code compliance, and engineering equivalency evaluations for nonrated steel hatches were inadequate.

Because the finding is of very low safety significance, the associated traditional enforcement violation was screened as Severity Level IV, and each violation has been entered into the licensee's corrective action program as CR 10261278, this finding will be treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000348/2016003-01, Failure to Comply with NFPA-13 for Pre-action Fire Suppression System 1A-36 and provide NRC Staff Complete and Accurate Information)

1R06 Flood Protection Measures (71111.06)a. Inspection Scope

Internal Flooding: The inspectors reviewed related flood analysis documents and walked down the area(s) listed below containing risk-significant structures, systems, and components susceptible to flooding. The inspectors verified that plant design features and plant procedures for flood mitigation were consistent with design requirements and internal flooding analysis assumptions. The inspectors also assessed the condition of flood protection barriers and drain systems. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program.

- Unit 2, Auxiliary Building 100' elevation, "2A" and "2B" Motor Driven Auxiliary Feedwater (MDAFW) Pump rooms

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the periods of July 13-14 and August 22-26, 2016, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors also evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations using ANSI/ANS-3.5-1985, "American National Standard for Nuclear Power Plant Simulators for use in Operator Training and Examination." The inspectors observed two crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watch standing records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are documented in the List of Documents Reviewed.

Resident Inspector Quarterly Review of Licensed Operator Requalification:

The inspectors observed an evaluated simulator scenario administered to an operating crew as part of the annual requalification operating test required by 10 CFR 55.59, "Requalification" on September 8, 2016.

The inspectors assessed the following:

- licensed operator performance
- the ability of the licensee to administer the scenario and evaluate the operators

- the quality of the post-scenario critique
- simulator performance

b. Findings

Introduction: A Green NRC-identified NCV of 10 CFR 55.49, “Integrity of examinations and tests,” was identified for the licensee’s failure to adhere to requirements in NMP-TR-424, “License Operator Continuing Training Exam Development.”

Description: While observing simulator exam scenarios administered on August 24, 2016, the inspectors identified that neither of two crews scheduled to be evaluated on the same scenario that same day were sequestered following completion of the first scenario. Both crews were in the same building and were not being monitored. The first crew was placed on the same Examination Security Agreement as examination developers and evaluators prior participating in the scenario. The inspectors informed the licensee of their observation prior to the scenario being administered to the second crew. The licensee subsequently administered a different scenario to the second crew to prevent any potential for examination compromise. The licensee entered the issue into their corrective action program as CR 10271868.

The licensee’s procedure, NMP-TR-424, Version 4.1, Section 4.1, Overview, Step 1, states, “Regulatory exams SHALL be written to meet the requirements of NUREG-1021, ACAD 07-001, and NRC 71111.11.” ACAD 07-001, January 2007, “Guidelines for the Continuing Training of Licensed Personnel,” Section 5.5, Duplication of Annual Operating and Comprehensive Written Examination Items, states, in part, “Multiple crews and individuals evaluated on the same day may have the same examination as long as sequestering and examination security measures are used to prevent compromise.”

NMP-TR-424, Version 4.1, Section 4.4.3, Scenario Administration, states, in part, “Multiple crews and examinees that are evaluated on the same day may have the same exam as long as Exam Security Measures are used to prevent any compromise (e.g., sequester or exam security agreements).” This contradicts the requirements of ACAD 07-001, which requires the use of sequestering and exam security measures.

The licensee placed the first crew on the same Examination Security Agreement as examination developers and evaluators prior to participating in the scenario as a means to prevent compromise of the examination.

NMP-TR-424-001, “Operator License Regulatory Exam Security Administration,” Version 1.3, Attachment 1, states, in part, “Do NOT discuss the exam with any individual except those on the Exam Security Agreement. In addition, when discussing the exam ensure that NO ONE can overhear the conversation that is NOT on the Exam Security Agreement.” The wording of the Examination Security Agreement and the Examination Security Agreement Brief would not necessarily prevent individuals that were on the agreement from discussing the examination.

NMP-TR-424-001, Section 4.2, Exam Development Area Setup, Step 12 states, “PRIOR TO administering any exam, the individual administering the exam SHALL verify that NO examinees are in the exam preparation and approval chain. This can be accomplished by comparing the names on the Examination Security Agreement with individuals present for the exam.” This step should prohibit examinees from being on the Examination Security Agreement for the examination that they are taking.

Contrary to NMP-TR-424, Section 4.1 and ACAD-001, Section 5.5, the licensee planned to administer two scenarios during the same day without sequestering to prevent examination compromise. Although the licensee placed the first crew on an exam security agreement as allowed by NMP-TR-424, Section 4.4.3, this contradicts the guidance given in ACAD-001. Additionally, the NMP-TR-424-001 procedure for exam security agreements would not prevent examination compromise when exam developers, evaluators, and individuals taking the exam were signed on to the same examination security agreement.

The licensee's planned administration of the same scenario to two different crews on the same day, without sequestering either crew, would have, but for detection, compromised the integrity of the 2016 annual operating exam because the potential existed for the licensed operators to gain specific knowledge of requalification examination content prior to taking the examination.

Analysis: The inspectors determined that the licensee's failure to adhere to examination security standards listed in NMP-TR-424 during the 2016 annual operating exams was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Human Performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to adhere to examination security standards adversely affected the integrity of the administration of the operating exams, which test licensed operator performance in order to ensure timely and correct mitigating actions after an event. The significance determination was performed in accordance with Manual Chapter 0609, Significance Determination Process, Appendix I, Licensed Operator Requalification Significance Determination Process (SDP). Question 10, in Appendix I, asked if the finding was related to requalification exam security. The answer to this question was "YES" because the finding was related to preventing communication of examination information between examinees who had completed a test item or items from those who had yet to complete the same test item or items. Question 11 asks if there was an actual effect on the equitable and consistent administration of any examination required by 10 CFR 55.59. Because the licensee administered a different scenario to the second crew to prevent any potential for examination compromise, the answer to Question 11 was "NO." The inspectors also reviewed the results from previous annual simulator exams and could find no evidence of examination compromise. Because there was no evidence that a licensed operator had actually gained an unfair advantage on an examination required by 10 CFR 55.59, this finding was characterized as having very low safety significance (Green). The finding was related to the cross-cutting aspect of Resources in the cross-cutting area of Human Performance because the licensee failed to ensure that adequate training procedures were available to meet industry standards and ensure that the potential for the compromise of regulatory examinations did not exist. Even though NMP-TR-424, Section 4.1, listed a requirement that would prevent examination compromise and meet industry standards, Section 4.4.3 contained contradictory guidance that is not sufficient to prevent examination compromise. [H.1]

Enforcement: 10 CFR 55.49 states that applicants, licensees, and facility licensees shall not engage in any activity that compromises the integrity of any application, test, or examination required by this part. The integrity of a test or examination is considered compromised if any activity, regardless of intent, affected, or, but for detection, would have affected the equitable and consistent administration of the test or examination. This includes activities related to the preparation and certification of license applications and all activities related to the preparation, administration, and grading of the tests and

examinations required by this part. Activities covered by this part include the requirements stated in 10 CFR 55.59, "Requalification." The annual operating exam administered to all licensed operators is required by 10 CFR 55.59. Contrary to the above, on August 24, 2016, during the licensed operator requalification cycle, licensee personnel engaged in an activity that compromised the integrity of the annual operating examination, in that personnel failed to adhere to examination procedure standards for examination security, and but for detection, this activity would have affected the equitable and consistent administration of the 2016 operating examination. Because this issue is of very low safety significance and has been entered into the licensee's corrective action program, CR 10271868, the violation is being treated as a Non-Cited Violation consistent with Section 2.3.2.a. of the NRC Enforcement Policy. (NCV 05000348, 364/2016003-02, Failure to Maintain Requalification Examination Integrity)

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors assessed the licensee's treatment of the two issues listed below to verify the licensee appropriately addressed equipment problems within the scope of the maintenance rule (10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants"). The inspectors reviewed procedures and records to evaluate the licensee's identification, assessment, and characterization of the problems as well as their corrective actions for returning the equipment to a satisfactory condition. The inspectors also interviewed system engineers and the maintenance rule coordinator to assess the accuracy of performance deficiencies and extent of condition.

- Unit 2, "2B" containment spray pump motor - quality control for replacement of electrical cable bolted splices on motor leads
- Unit 1, "1B" penetration room filtration (PRF) system valve Q1V48HV3538B failure

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed the four maintenance activities listed below to verify that the licensee assessed and managed plant risk as required by 10 CFR 50.65(a)(4) and licensee procedures. The inspectors assessed the adequacy of the licensee's risk assessments and implementation of risk management actions. The inspectors also verified that the licensee was identifying and resolving problems with assessing and managing maintenance-related risk using the corrective action program. Additionally, for maintenance resulting from unforeseen situations, the inspectors assessed the effectiveness of the licensee's planning and control of emergent work activities.

- Unit 2, July 6 & 8, 2016, troubleshoot and replace RCS Loop C Flow Channel 3 Flow Transmitter (FT-436)
- Unit 1, July 27, 2016, "1A" residual heat removal (RHR) pump OOS
- Unit 2, July 27, 2016, solid state protection system (SSPS) surveillance testing
- Unit 1, August 15, 2016, "B" motor-driven auxiliary feedwater pump OOS

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

Operability Determinations and Functionality Assessments Review:

The inspectors selected the five operability determinations or functionality evaluations listed below for review based on the risk-significance of the associated components and systems. The inspectors reviewed the technical adequacy of the determinations to ensure that technical specification operability was properly justified and the components or systems remained capable of performing their design functions. To verify whether components or systems were operable, the inspectors compared the operability and design criteria in the appropriate sections of the technical specification and updated final safety analysis report to the licensee's evaluations. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with operability evaluations.

- CR 10247524, Starter for valve Q1P16V593B not functioning properly
- CR 10252744, Penetration room boundary door propped open
- CR 10267089, Unit 1 DRPI indication for Rod P8 is suspect
- CR 10250792, Oil sample results for the "2B" residual heat removal (RHR) pump
- CR 10273130, Unit 2 RHR valves MOV8887A and B stroked closed

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors either observed post-maintenance testing or reviewed the test results for the six maintenance activities listed below to verify the work performed was completed correctly and the test activities were adequate to verify system operability and functional capability.

- Work Order (WO) SNC801864, Replace starter for circuit breaker Q2R17BKRFTD5
- WO SNC800858, Troubleshoot and replace RCS Loop C Flow Channel 3 Flow Transmitter Q2B21FT0436
- WO SNC663709, Calibrate "1A" RHR pump miniflow switch, Q1E11FIS0602A
- WO SNC676427, Unit 2 TDAFW pump oil sample
- WO SNC503829, "2A" Penetration Room Filtration Fan Unit Inspection, Q2E15F001A
- WO SNC808471, Replace NLP card C3-441 for steam pressure channel PT-475

The inspectors evaluated these activities for the following:

- Acceptance criteria were clear and demonstrated operational readiness.
- Effects of testing on the plant were adequately addressed.
- Test instrumentation was appropriate.
- Tests were performed in accordance with approved procedures.
- Equipment was returned to its operational status following testing.
- Test documentation was properly evaluated.

Additionally, the inspectors reviewed a sample of corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with post-maintenance testing.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the three surveillance tests listed below. The surveillance test was either observed directly or test results were reviewed to verify testing activities and results provide objective evidence that the affected equipment remain capable of performing their intended safety functions and maintain their operational readiness consistent with the facility's current licensing basis. The inspectors evaluated the test activities to assess for:

- preconditioning of equipment,
- appropriate acceptance criteria,
- calibration and appropriateness of measuring and test equipment,
- procedure adherence, and
- equipment alignment following completion of the surveillance.

Additionally, the inspectors reviewed a sample of significant surveillance testing problems documented in the licensee's corrective action program to verify the licensee was identifying and correcting any testing problems associated with surveillance testing.

Routine Surveillance Tests

- FNP-2-STP-201.15, Reactor Coolant System Q2B21FT0436 Loop Calibration and Operational Test, Ver. 29.0

In-Service Tests (IST)

- FNP-1-STP-22.16, Turbine Driven Auxiliary Feedwater Pump Quarterly Inservice Test, Ver. 64

RCS Leakage Detection

- FNP-2-STP-9.0, RCS Leakage Test, Ver. 47.3

b. Findings

No findings were identified.

4. OTHER ACTIVITIES4OA1 Performance Indicator Verification (71151)a. Inspection Scope

The inspectors reviewed a sample of the performance indicator (PI) data, submitted by the licensee, for the Unit 1 and Unit 2 PIs listed below. The inspectors reviewed plant records compiled between July 2015 and June 2016 to verify the accuracy and completeness of the data reported for the station. The inspectors verified that the PI data complied with guidance contained in Nuclear Energy Institute 99-02, "Regulatory Assessment Performance Indicator Guideline," and licensee procedures. The inspectors verified the accuracy of reported data that were used to calculate the value of each PI. In addition, the inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with PI data.

Cornerstone: Mitigating Systems

- Safety system functional failures (2)

Cornerstone: Barrier Integrity

- Reactor coolant system (RCS) leakage (2)
- RCS activity (2)

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152).1 Routine Review

The inspectors screened items entered into the licensee's corrective action program in order to identify repetitive equipment failures or specific human performance issues for follow-up. The inspectors reviewed condition reports, attended screening meetings, or accessed the licensee's computerized corrective action database.

b. Findings and Observations

No findings were identified.

.2 Annual Follow-up of Selected Issuesa. Inspection Scope

The inspectors conducted a detailed review of condition report CR 10212825, Relay overheating in the "B2J" sequencer.

The inspectors evaluated the following attributes of the licensee's actions:

- complete and accurate identification of the problem in a timely manner
- evaluation and disposition of operability and reportability issues
- consideration of extent of condition, generic implications, common cause, and previous occurrences
- classification and prioritization of the problem
- identification of root and contributing causes of the problem
- identification of any additional condition reports
- completion of corrective actions in a timely manner

b. Findings

No findings were identified.

4OA3 Follow-up of Events (71153)

1. (Closed) Licensee Event Report (LER) 05000364/2016-001: Manual Reactor Trip due to High Steam Generator Level

a. Inspection Scope

On May 11, 2016, Farley Nuclear Plant, Unit 2, was synchronized to the electrical grid, in Mode 1 with plant startup to full power in progress, following the 2R24 refueling outage. One of the three condensate pumps was in operation, supplying both turbine-driven steam generator feedwater pumps (SGFP). The 'A' SGFP was feeding all three steam generators (SG) while the 'B' SGFP was operating in the 'boiler control' mode, discharging to the main condenser hotwell. With increasing reactor power and steam production and increasing demand for SG feedwater flow to maintain SG water levels in the required range, startup of a second condensate pump was necessary before further increasing power. A second condensate pump was started by the reactor operator, resulting in a rapid increase in SG feedwater flow, which raised SG water levels to the Hi-Hi SG level trip setpoint. This caused an automatic main turbine generator trip and the automatic trip of both the 'A' and 'B' SGFPs. The reactor operator then followed the procedure to immediately actuate a manual reactor trip, rapidly inserting all control and shutdown bank rods. Following the manual reactor trip from 29% reactor power, the resident inspectors reported to the main control room and verified all necessary equipment operated and performed their design functions.

The inspectors reviewed the root cause report (CAR 265128), evaluated corrective actions, and discussed the issue with licensee staff. Licensee Event Report 05000364/2016-001 is closed.

b. Findings

No findings were identified.

2. (CLOSED) Licensee Event Report (LER) 05000348/2016-001, Condition Prohibited by Technical Specifications Due to 600V Load Center Inoperable Longer than Allowed by Technical Specifications

a. Inspection Scope

This LER describes an issue with the shared 600 VAC 1-2R load center (LC). On April 13, 2016, the 1-2R LC was inadvertently deenergized following maintenance on the Unit

2 feeder circuit breaker for this LC. The Unit 1 supply circuit breaker to this LC tripped open and would not reclose. Technical Specification 3.8.9, Distribution Systems – Operating, Condition A was entered at 0456 and exited at 0938 on April 13, 2016. The subsequent licensee investigation attributed the cause to dirty electrical contacts on the cell switch located in the Unit 2 feeder circuit breaker. The inspectors reviewed this LER, the corrective action report, associated technical evaluations (TEs) and interviewed plant personnel. LER 05000348/2016-001 is closed.

b. Findings

Introduction: An Green NRC-identified, non-cited violation of Technical Specification (TS) 3.8.9 “Distribution Systems – Operating,” occurred when the shared 600 VAC 1-2R load center (LC) was inoperable for longer than allowed by technical specifications for Unit 1. The 1-2R LC was inoperable because a cell switch electrical contact on the Unit 2 supply circuit breaker ER05-2 was degraded which prevented the Unit 1 supply circuit breaker (ER02-1) from closing and re-energizing the 1-2R LC. The failure to perform adequate preventive maintenance on the ER05-2 breaker cell switch in accordance with licensee procedure FNP-0-EMP-1322.01 was a performance deficiency.

Description: On April 13, 2016, at 0456 following maintenance on the Unit 2 supply circuit breaker ER05-2 to the 600 VAC 1-2R LC, the Unit 1 supply circuit breaker ER02-1 tripped open when the control power fuses were restored and the circuit breaker would not close. TS 3.8.9 Condition “A” was entered for Unit 1 at 0456 and exited at 0938 on April 13, 2016. Since Unit 2 was in Mode 5, LCO 3.8.9 was not applicable. The licensee determined that a degraded electrical contact associated with the cell switch for the Unit 2 supply circuit breakers ER05-2 prevented the Unit 1 supply circuit breaker (ER02-1) from closing. Circuit breakers ER02-1 and ER05-2 contain permissive interlocks (cell switch electrical contacts) that prevent both of the supply circuit breakers from closing at the same time. This ensures the shared 600 VAC 1-2R LC is only powered from a single Unit supply circuit breaker at one time. Farley TS Bases Table B 3.8.9-1 lists the 1-2R 600 VAC LC as a Train “A” AC safety bus.

The licensee’s subsequent investigation determined that cell switch electrical contact “A1-B1” associated with the ER05-2 circuit breaker was the degraded electrical contact. This electrical contact acts as the permissive to allow closure of the ER02-1 circuit breaker because the electrical contact should be closed when the ER05-2 circuit breaker is racked out. However, because the electrical contact was dirty/degraded, it did not exhibit sufficient continuity to make up the permissive to allow closure of the ER02-1 circuit breaker. As a result, the 1-2R 600 VAC load center remained de-energized. The licensee’s investigation also determined that the 1-2R LC was inoperable when the ER05-2 circuit breaker was racked out for maintenance on April 12, 2016, at 0312 until the ER02-1 supply circuit breaker was reclosed on April 13, at 0938. T.S. 3.8.9 “Distribution Systems – Operating,” Condition “A” required restoration of the AC electrical power distribution system to operable status within 8 hours and within 16 hours from discovery of failure to meet the limiting condition of operability (LCO). Because the degraded electrical contact would have prevented the ER02-1 circuit breaker from reclosing during a loss of offsite power between April 12 at 0312 and April 13 at 0938, the 1-2R 600 VAC LC was inoperable for longer than allowed by T.S. 3.8.9. The licensee submitted LER 05000348/2016-001 on June 9, 2016.

The licensee evaluated this issue using an equipment reliability checklist under corrective action report (CAR) 264492. A corrective action was being developed to replace applicable circuit breaker cell switches on a 12-year frequency. Administrative

controls were in place to ensure the 1-2R LC is declared inoperable when the ER05-2 breaker is racked out until the cell switch can be replaced. Since the ER05-2 circuit breaker normal position is racked in, the affected electrical contact is not typically in the closing circuit for the ER02-1 circuit breaker. Also, the licensee determined that preventive maintenance (PM) on the affected cell switch conducted under work order (WO) SNC549110 was performed on April 12, 2016. Licensee procedure FNP-0-EMP-1322.01, "Westinghouse and Cutler-Hammer DS-206 and DS-416 Circuit Breakers", Version 39, section 12.c was used during the PM on the cell switch. This section required in part, "Verifying the switch contacts change state as indicated by an ohmmeter". After discussing this issue with the site circuit breaker electricians and circuit breaker engineer, it was determined that the normal practice verified one electrical contact in the cell switch will change state. This practice of checking one electrical contact in the cell switch assembly has been in place for several years. The inspectors determined that the licensee could have identified the degraded electrical contact that led to the inoperable 1-2R LC if they had conducted the PM in accordance with the procedure and checked the other cell switch electrical contacts. Because the licensee considered the inadequate performance of the PM, but did not develop appropriate corrective actions to address this issue, the inspectors determined this was an NRC-identified violation.

Analysis: The failure to perform adequate preventive maintenance on the ER05-2 circuit breaker cell switch in accordance with licensee procedure FNP-0-EMP-1322.01 version 39 was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective because inadequate preventive maintenance on the ER05-2 circuit breaker cell switch led to the inability to detect a degraded electrical contact which resulted in the inoperability of the 1-2R 600 VAC load center on April 13, 2016. The significance of this finding was evaluated using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for findings at Power," dated June 19, 2012. This finding required a detailed risk evaluation because it represented an actual loss of function of a single train for greater than the TS allowed outage time. The inspectors used the NRC SPAR model for plant Farley to evaluate the significance of this finding. This finding was modelled as the operator failing to align the 1C DG to the 1H 4kV bus for a duration of 30 hours because this event resembled the condition of the plant. The dominant sequence was a station blackout with late auxiliary feedwater failure after battery depletion leading to loss of core heat removal and core damage. The risk was mitigated by the short exposure period and the remaining mitigation equipment. The regional senior reactor analyst reviewed this evaluation and it was determined that the increase in risk as a result of the performance deficiency was less than 1E-6 per year, a GREEN finding of very low safety significance. This finding was associated with the cross-cutting aspect of Field Presence in the Human Performance area because if deviations from standards and expectations were corrected promptly the practice of checking a single electrical contact during the cell switch continuity verification would not have existed. [H.2]

Enforcement: Technical Specifications 3.8.9 "Distribution Systems – Operating," required that Train "A" and Train "B" AC, DC and AC vital bus electrical power distribution subsystems shall be OPERABLE and was applicable in Modes 1 through 4. Farley TS Bases Table B 3.8.9-1 lists the 1-2R 600 VAC LC as a Train "A" AC safety bus. Condition "A" of LCO 3.8.9 required restoration of the inoperable AC subsystem within 8 hours AND within 16 hours from discovery of failure to meet the LCO. When Condition "A" cannot be met, Condition "D" required the Unit to be placed in Mode 3 within 6 hours AND Mode 5 within 36 hours. Contrary to the above requirements, with Unit 1 in Mode 1

from April 12, 2016 at 0312 until April 13, 2016 at 0938, the 1-2R 600 VAC load center was inoperable because a degraded electrical contact in the cell switch associated with circuit breaker ER05-2 would have prevented re-energizing the 1-2R LC during a loss of offsite power event. The cell switch electrical contact was degraded because the licensee failed to perform adequate preventive maintenance on the ER05-2 circuit breaker cell switch in accordance with licensee procedure FNP-0-EMP-1322.01, "Westinghouse and Cutler-Hammer DS-206 and DS-416 Circuit Breakers", Version 39 on April 12, 2016. This event was entered in the licensee's corrective action program as CR 10209365. The licensee cycled the ER05-2 cell switch which cleaned the electrical contact enough to establish continuity to power the closing circuit for the ER02-1 supply circuit breaker and reenergize the 1-2R 600VAC load center. Additional corrective actions to replace the cell switch and address the inadequate performance of the cell switch preventative maintenance were pending. The licensee entered the issue into the corrective action program (CR 10265379). Because this finding was of very low safety significance and has been entered into the corrective action program, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy. (NCV 2016003-03, Failure to perform adequate preventive maintenance on circuit breaker cell switch)

4OA6 Meetings, Including Exit

On October 17, 2016, the resident inspectors presented the inspection results to Cheryl Gayheart and Scott Briggs and other members of the licensee's staff. The inspectors confirmed that proprietary information provided or examined during the inspection period was properly controlled.

4OA7 Licensee-Identified Violations

The following Severity Level IV violation was identified by the licensee and was a violation of NRC requirements which met the criteria of the NRC Enforcement Policy, for being dispositioned as a non-cited violation.

10 CFR55.21, "Medical examination," states, in part, that a licensee shall have a medical examination by a physician every two years. Contrary to the above, on August 30, 2016, the licensee identified that a licensed operator did not complete the required biennial NRC medical examination by May 2016, which was the two year due date. The due date for the licensed operator's medical examination was incorrectly entered into the licensee's learning management system (LMS) database when the operator received his previous physical while in the initial license training program to upgrade to a senior operator. The inspectors determined that the violation was consistent with a Severity Level IV violation because the licensed operator was not actively performing licensed duties in the control room. This issue was entered in the licensee's corrective action program as CR 10267379.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

S. Briggs, Plant Manager
J. Carroll, Shift Operations Manager
V. Flowers, Performance Improvement Supervisor
B. Freeman, Engineering Supervisor
C. Gayheart, Site Vice President
S. Henry, Operations Director
J. Horn, Maintenance Director (acting)
R. Hruby, Engineering Director
N. Koteel, Operations Support Manager
D. Simmons, EP Supervisor
B. Taylor, Regulatory Affairs Manager
E. Williford, Licensing Supervisor
B. Reed, Training Director
D. Williams, Operations Training Manager
J. McDonald, Interim Work Maintenance Director
J. Collier, Licensing Engineer
J. McLean, Licensing Engineer
D. Hobson, Shift Manager
R. Norris, Shift Manager
B. Payne, Shift Manager
B. Mitchell, Shift Manager
C. Barefield, Shift Manager
K. Brown, Chemistry Manager
K. Baity, Site Design Manager
S. Sampson, Radiation Protection Manager
J. Wheat, Regulatory Affairs Manager
R. Odom, Lead Instructor
A. Walden, Medical Services Coordinator
J. Dykes, Operations Peer
B. Thornton, Operations Instructor – Lead
M. Galle, Simulator Coordinator
G. Ohmstede, Fleet Exam Manager

LIST OF REPORT ITEMS

Opened and Closed

- | | |
|-----------------|--|
| NCV 2016003-001 | Failure to Comply with NFPA-13 for Pre-action Fire Suppression System 1A-36 and Provide NRC Staff Complete and Accurate Information (1R05) |
| NCV 2016003-002 | Failure to Maintain Requalification Examination Integrity (1R11) |
| NCV 2016003-003 | Failure to Perform Adequate Preventive maintenance on Circuit Breaker Cell Switch (4OA3.2) |

Closed

- | | |
|-----------------------|---|
| LER 05000364/2016-001 | Manual Reactor Trip due to High Steam Generator Level (4OA3.1) |
| LER 05000348/2016-001 | Condition Prohibited by Technical Specifications Due to 600 VAC Load Center Inoperable Longer than Allowed by Technical Specifications (4OA3.2) |

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures:

FNP-0-SOP-0.22, Water Intrusion Monitoring, Ver. 1
FNP-0-SOP-0.16, Containment Temperature Summer Contingencies, Ver. 6
NMP-GM-025, Summer Readiness Process, Ver. 4.1

Condition Reports:

10261357, 10260491

Section 1R04: Equipment Alignment

Drawings:

D-175002, Unit 1 P&ID – Component Cooling Water System, Sheet 1, Ver. 49
D-175002, Unit 1 P&ID – Component Cooling Water System, Sheet 2, Ver. 28
D-175002, Unit 1 P&ID – Component Cooling Water System, Sheet 3, Ver. 14
D-175022, Unit 1 P&ID – HVAC, Penetration Room Filtration System, Ver. 30
D-205038, Unit 2 P&ID – Safety Injection System, Sheet 1, Ver. 39
D-205038, Unit 2 P&ID – Safety Injection System (Containment Spray), Sheet 3,
Ver. 32
D-207082, Unit 2 – Single Line – DC Distribution System 2A, Ver. 26.0
D-207083, Unit 2 – Single Line – DC Distribution System 2B, Ver. 32.0
D-207133, Unit 2 – Interlock Schematic – Battery Charger 2C, Rev. 1

Procedures:

FNP-1-SOP-23.0, Component Cooling Water System, Ver. 94.2
FNP-1-SOP-60.0A, Penetration Room Filtration System, Ver. 6
FNP-2-SOP-9.0, Containment Spray System, Ver. 37.2
FNP-2-AOP-9.0A, Containment Spray System, Ver. 8
FNP-0-SOP-38.0, Diesel Generators, Ver. 125
FNP-0-SOP-38.0C, 1C Diesel Generator, Ver. 13
FNP-2-SOP-37.1, Unit 2 125 Volt D.C. Auxiliary Building Distribution System, Ver. 55.0
FNP-2-SOP-37.1A, Unit 2 Auxiliary Building 125V DC Distribution System, Ver. 4.0

Documents:

Clearance Tagouts: 1-DT-16-P17-00495, 1-DT-16-P17-00494, 1-DT-16-E15-0050

Condition Reports:

CR 10027733, 10045126, 10067142, 10200627, 10219497, 10230069,

Section 1R05: Fire Protection Annual/Quarterly

Drawings:

D170909, Unit 1 - Fire Protection Sprinkler System 1A-36, West Corridor Ortho, Rev. 5
D170924, Unit 1 - Fire Protection Sprinkler System 1A-36, West Corridor Iso, Rev. 5
U187675, Unit 1 - System 1A-36, Aux. Bldg. West Corridor EI 121'- 0", Rev. 7
U187673, Unit 1 – As-Built Isometric - System 1A-36, Aux. Bldg. West Corridor, Rev. 9
D170873, Sheet 1, Unit 1 – Fire Protection – P&ID, Sprinkler System 1A-36, Rev. 13
D-508573, Sheet 1, Unit 1 – Fire Protection – Sprinkler System Spray Shield Details, Rev. No. 0
D-176026, Sheet 2, Unit 1 – Architectural – Auxiliary Building Door Schedule, Ver. 6.0

Documents:

U187597, Instruction Manual – Addition to Fire Protection Sprinkler System, Ver. 3.0
RER 03-0033-01, Response to NRC Information Notice 2002-24: Potential Problems With Heat
Collectors on Fire Protection Sprinklers

Work Orders: SNC477417, SNC539087, SNC563241, SNC635129, SNC609495, SNC441422, SNC569801, SNC710456

Procedures:

FNP-1-FPP-1.0, Unit 1 Auxiliary Building Pre-Fire Plan, Ver. 1.0
 FNP-1-FSP-405.0, Pre-action Sprinkler System (Annual), Ver. 16.0
 FNP-1-FSP-65.2, Fire Doors Functional Inspection Auxiliary Building – Diesel Building – Service Water, Ver. 12.0
 FNP-1-FSP-65.2B, Fire Doors Functional Inspection Auxiliary Building – Diesel Building – Service Water Building Train “B”, Ver. 3.0
 FNP-1-FSP-63.7, Visual Inspection of Penetration Fire Barriers (Auxiliary Building - Battery Rooms, Battery Charger Rooms, DC SWGR. Room), Ver. 7.0
 FNP-1-FSP-307.0 – Smoke Detectors – Biennial Operability and Adjustment, Ver. 18.0
 FNP-1-FSP-207.0 – Hose Station Flow and Valve Operability Test, Ver. 3.0
 FNP-1-FSP-403.0 – Fire Hose Station Inspection, Ver. 6.0
 FNP-1-FSP-58.0 – Fire Hose Stations, Ver. 12.0

Condition Reports:

10230170, 10254023, 10254025, 10254026, 10254029, 10261278, 10263219, 10264014, 10268774

Section 1R06: Flood Protection Measures

Procedures:

FNP-0-AOP-79.0, Plant Flooding, Rev. 3.1

Condition Reports:

CR 10049218, 10219082, 10220554,

Section 1R11: Licensed Operator Regualification Program

Documents:

Operations Training Simulator Exam Scenario, Scenario #39, September 6, 2016

Procedures:

NMP-EP-110-GL01, FNP EALs – ICs, Threshold Values and Basis, Ver. 10.1
 NMP-OS-007, Conduct of Operations, Ver. 11
 NMP-OS-007-001, Conduct of Operations Standards and Expectations, Ver. 14.4
 NMP-TR-416, Licensed Operator Continuing Training Program Administration, Ver. 6
 NMP-TR-422, Simulator Configuration Control, Version 6.1, 5/20/2016.
 NMP-TR-422-001, Simulator Certification Instruction, Version 3.1, 5/20/2016.
 NMP-TR-422-003-1, Plant Farley Simulator Testing Instruction, First Year Tests, Version 1.0, 1/25/2012.
 NMP-TR-423-F17, Simulator Security Checklist, Version 8.0, 6/2/2016.
 NMP-TR-424, License Operator Continuing Training Exam Development, Version 4.1, 7/14/2016.
 NMP-TR-424-001, Operator License Regulatory Exam Security Administration, Version 1.3, 12/04/2015.
 NMP-TR-424-F06, Annual Simulator Exam Briefing and Grading instructions, Ver. 1.3
 NMP-TR-424-F07, Annual Simulator Exam Crew Evaluation Form, Ver. 1.1

Records:

License Reactivation Packages (4)
 LORP Training Attendance records (14)
 Medical Files (9)

Remedial Training Records (9)
Remedial Training Examinations (5)

Written Examinations:

3SRO Exams, 05/19/2016.

Simulator Tests:

CTG-1.0, Plant Operations, Startup of Unit from Cold Shutdown to Hot Standby (NMP-TR-422-003-1, Attachment 25, version 1.0), 11/19/2012, with the following plant surveillance tests attached:

FNP-1-STP-1.0, Operations Daily and Shift Surveillance Requirements, Version 106.1, 10/3/2012.
FNP-1-STP-35.0, Reactor Coolant System Pressure and Temperature/Pressurizer Temperature Limits Verification, Version 21.1, 5/2/2012.
FNP-1-STP-11.7, Verifying RHR Relief Valve Isolations are Open, 10/19/2012.
FNP-1-10.01, ECCS MOV Power Isolation Verification, Version 8.0, 7/5/2011.
FNP-1-STP-71.0, Main Control Room Remote Valve Verification, Version 20.0, 11/13/2012.
FNP-1-STP-61.0, Reactor Coolant Pump and RHR Loop Operability Verification, Version 8, 5/4/2011.
FNP-1-STP-11.7, Verifying RHR Relief Valve Isolations are Open, Version 11.0, 11/14/2012.
FNP-1-STP-31.0, Accumulator Motor Operated Valve Power Isolation Verification, Version 14, 11/14/2012.
FNP-0-CTG 1.8, Simulator Operating Limits Test, NMP-TR-422-003, Version 2.0, performed 3/31/2015.
FNP-0-CTG-2.3, Malfunction: CCW1 CCW PUMP Trip, NMP-TR-422-003-1, Version 1.0, performed 11/29/2012.
FNP-0-CTG- 2.30-2015, Plant Farley Simulator Testing Instruction Fourth Year Tests. NMP-TR-422-003-4, Version 1.0, performed 11/25/2015.
FNP-0CTG-2.39, Plant Farley Simulator Testing Instruction First Year Tests, NMP-TR-422-003-1, Version 1, performed 11/29/2012.
Inadvertent Reactor Trip CTG-2.50, Steam Generator Tube Leak CTG-2.50, First year test.
FNP-0-CTG-3.6, Main Turbine Trip < P-9, NMP-TR-422-003-1, Version 1.0, performed 11/21/2012
FNP-0-CTG-3.2 Simultaneous Trip of All Feed water Pumps, NMP-TR-422-003, Version 2.0, performed 3/6/2016
FNP-0-CTG-3.5, Trip of Any Single Reactor Coolant at less than P 8. CTG-3.05-2015A, NMP-TR-422-003, Version 2.0, performed 3/6/2016
FNP-0-CTG-3.9, Maximum Size Unisolable Main Line Rupture, NMP-TR-422-003, Version 2.0, performed 3/6/2016
FNP-1-STP-101.1, Low Power Reactor Physics Testing, Version 25.0, dated 1/7/2015

Scenario Packages:

Simulator Scenario #2, 8/18/2016.
Simulator Scenario #7, 8/18/2016.
Simulator Scenario #23, 8/23/2016.
Simulator Scenario #27, 8/23/2016.

JPM Packages:

CRO-33A, Perform The Corrective Actions For Recovery Of A Misaligned Rod, Version 1, 6/29/2016.
CRO-043B, Start the 1C RCP with High Vibrations, Version 0, 5/12/2016.
SS-200B, Provide an Updated Protective Action Recommendation (PAR), Version 0, 5/13/2016.

SO-449D, Supply Emergency Air To Steam Generator Atmospheric Relief Valves From Emergency Air Compressors on Unit 2, Version 0, 5/18/2016.

SO-095B, Align RHT To Drain To FDT/WHT, Version 0, 5/18/2016.

SO-590, Place the SJAЕ Filtration Unit In Service, Version 0, 6/28/2016.

SO-351B, Manual Emergency Start A 4075 KW Diesel Generator, Version 0, 5/16/2016.

SO-386B, Commence A Waste Gas Release, Version 0, 5/16/2016.

CRO-328B, Restore Instrument Air after an LOSP, Version 0, 7/18/2016.

SO-344D, Start Up An Instrument Inverter, Version 0, 7/13/2016.

Condition Reports:

10203085, 10199898, 10135036, 10079900, 10221924, 10065362

Section 1R12: Maintenance Effectiveness

Documents:

CAR 266415

Technical Evaluations:

966431,

Work Orders:

SNC772714, 756353, 808738

Condition Reports:

10270861, 10260766, 10273469

Procedures:

NMP-ES-027, Maintenance Rule Program, Ver. 5

NMP-ES-027-001, Maintenance Rule Implementation, Ver. 7

Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation

Procedures:

NMP-GM-031, On-Line Configuration Risk Management Program, Ver. 3.0

NMP-GM-031-001, Online Maintenance Rule (a)(4) Risk Calculations, Ver. 3.0

NMP-DP-001, Operational Risk Awareness, Ver. 14.2

NMP-OS-010, Protected Train/Division and Protected Equipment Program, Ver. 7.2

Condition Reports:

10065337, 10244637, 10246262, 10246296, 10246527

Documents:

Unit 2 Operator's EOOS Risk Report 7/6/2016

Unit 2 Operator's EOOS Risk Report 7/8/2016

Unit 1 Operator's EOOS Risk Report 7/27/2016

Unit 2 Operator's EOOS Risk Report 7/27/2016

Unit 1 Operator's EOOS Risk Report 8/15/2016

Section 1R15: Operability Determinations and Functionality Assessments

Drawings:

D-170119, Unit 1 Service Water System P&ID, Diesel Generator Building, Ver. 19

D-200013, Unit 2 Service Water System P&ID, Diesel Generator Building, Ver. 18

D-205022, Unit 2 P&ID, HVAC – Penetration Room Filtration System, Ver. 27

D-205038, Unit 2 P&ID, Safety Injection System, Sht. 1, Ver. 39

D-205038, Unit 2 P&ID, Safety Injection System, Sht. 2, Ver. 24

Documents:

BM-98-1624-001, Maximum penetration room filtration (PRF) breach, June 1998
 Analytical Ferrography Report for the 2B RHR pump, Analysts, Inc., sample # 1606300632, June 30, 2016
 2B RHR pump oil sample analysis report, Analysts Inc., 201606300632, July 1, 2016
 Main Control Room Logs, September 13, 2016
 NL-01-1368, Quarterly RHR Pump Testing Evaluation, August 5, 2005
 NL-03-1208, Transmittal of Evaluation of Components Necessary for 100% Equivalent ECCS Flow, May 30, 2003

Procedures:

FN-P-0-SOP-0.13, Recording Limiting Condition for Operations, Ver. 32
 FN-P-0-SOP-0.0, General Instructions to Operations Personnel, Ver. 162.1
 FN-P-1-STP-5.0, Full Length Control Rod Operability Test, Ver. 31.0
 FN-P-0-GMP-30.1, Tribology Program, Ver. 24 and 24.1
 FN-P-2-SOP-7.1, Residual Heat Removal Pump Lubrications Procedure, Ver. 9
 FN-P-0-SOP-0.13, Recording Limiting Conditions For Operations, Ver. 32

Condition Reports:

542800, 10253721, 10267089, 10267504, 10273931, 10273251

Section 1R19: Post Maintenance TestingCondition Reports:

10247524, 10065337, 10244637, 10246262, 10246296, 10246527, 10254166, 10254180, 10253975, 10260195, 10260192

Procedures:

NMP-MA-014-001, Post Maintenance Testing Guidance, Ver. 4.2
 FN-P-0-GMP-30.1, Tribology Program, Ver. 24
 FN-P-0-EMP-1530.01, General Motor Maintenance, Ver. 24.0
 FN-P-0-EMP-1210.05, Belt Driven Air handling Unit General Inspection and Testing, Ver. 10.0
 FN-P-0-EMP-1122.01, General Inspection Penetration Room Filer Units, Ver. 3.0
 FN-P-2-AOP-100, Instrumentation Malfunction, Ver. 17
 FN-P-2-STP-213.11, Steam Generator 2A Q2N11PT0475 Loop Calibration and Operational Test Ver. 31

Work Orders:

SNC77324, SNC800858, SNC711257, SNC503829

Documents:

FN-P-0-STP-24.17, Diesel Generator Service Water Valves Remote Position Indication Inservice Test, Ver. 9, performed on 7/13/2016
 FN-P-2-STP-201.15, Reactor Coolant System Q2B21FT0436 Loop Calibration and Operational Test, Ver. 29.0
 FN-P-1-STP-11.1, 1A RHR Pump Quarterly Inservice Test, Ver. 60.2, performed 7/27/2016
 ASME OM Code-2001, Code for Operation and Maintenance of Nuclear Power Plants
 FN-P-2-STP-20.0, Penetration Room Filtration System Train A and Train B Quarterly Operability and Valve Inservice Test, Ver. 40.0, performed on 7/27/2016

Drawings:

U-207612, Process Control System Steam Pressure Loops 1& 2, Protection III, Ver. 3

Section 1R22: Surveillance TestingCondition Reports:

10065337, 10244637, 10246262, 10246296, 10246527

Procedures:

NMP-ES-013, Inservice Testing Program, Ver. 7

FNP-2-STP-201.15, Reactor Coolant System Q2B21FT0436 Loop Calibration and Operational Test, Ver. 29.0

Documents:

ASME OM Code-2001, Code for Operation and Maintenance of Nuclear Power Plants

Section 4OA1: Performance Indicator VerificationProcedures:

FNP-0-AP-54.0, Preparation and Reporting of NRC Performance Indicator Data and NRC Operating Data, Ver. 15

FNP-1-STP-746, Primary Coolant System Dose Equivalent Iodine-131 Determination, Ver. 28

FNP-0-CCP-25, Dose Equivalent Iodine-131 Determination, Ver. 15

FNP-2-CCP-42, Primary Coolant Liquid Gamma Spectroscopy Analysis, Ver. 26.1

FNP-2-CCP-651.1, Routine Sampling of The Reactor Coolant System, Ver. 19.2

FNP-2-STP-741.0, Primary Coolant System Gross Activity Determination, Ver. 81

FNP-1-STP-9.0, RCS Leakage Test, Ver. 51.2

Documents:

Main Control Room logs, various dates

Chemistry Surveillance logs, various dates

Farley Key Performance Indicators Report, August 2016

FNP-1-STP-9.0, RCS Leakage Test, May 26, 2016

FNP-2-STP-9.0, RCS Leakage Test, June 5, 2016

Section 4OA2: Problem Identification and ResolutionProcedures:

NMP-GM-002, Corrective Action Program, Ver. 14

NMP-ES-001, Equipment Reliability Process Description, Ver. 9.3

NMP-ES-005, Scoping and Importance Determination for Equipment Reliability, Ver. 15

NMP-ES-006, Preventive Maintenance Implementation and Continuing Equipment Reliability Improvement, Ver. 9

NMP-ES-006-001, PM Template Management and PM Optimization Guidance, Ver. 3.2

NMP-ES-006-004, Preventive Maintenance Oversight Group, Ver. 2

NMP-ES-074, Condition Based Maintenance Program, Ver. 2.1

Condition Reports:

CR10280004

Documents:

CAR265033

PM Template for Control Relays, Rev. 1, Approved May 4, 2010

Maintenance Strategy for Q2R43E0501B27J231

Maintenance Strategy for Q2R43E0501BJ131

D-207660, Elementary Diagram – Sequencer B2J, Bus 2J Load Shedding Circuit, Ver. 13

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion**Documents:**

A-181001, Service Water System Functional System Description, Ver. 64
Main Control Room Logs, April 13, 2016
A-506250, Unit 1 Load List, Ver. 88
CARs: 264492, 264264
Tagout 2-PDT-R24-R16-13032 for ER05 Agastat Relay 2T replacement
Tagout 2-DT-R24-R16-10661 for ER05 Agastat Relay 62, 2T and 3T replacement
Work Order: SNC549110
EN #51918
LER 05000364/2016-001
CAR 265128

Procedures:

FNP-2-STP-27.2, Onsite AC Distribution, Ver. 23
FNP-0-SOP-0.13, Recording Limiting Conditions For Operations, Ver. 32
FNP-2-UOP-1.2, Startup of Unit From Hot Standby to Minimum Load, Ver. 103
FNP-2-UOP-3.1, Power Operations, Ver. 112

Condition Reports:

10209365, 10219692, 10220001, 10220512, 10220593, 10221924, 10222246, 10226187,
10234140, 10238309, 10238320, 10238328, 10241309

Drawings:

D-177677, Unit 1, Single Line Protection & Metering, 600V Load Center 1R, Ver. 2
D-172831, Unit 1, Elementary Diagram 600V Busses 1R & 1S, Ver. 4
D-202831, Unit 2, Elementary Diagram 600V Busses 1R & 1S, Ver. 5