



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II**

245 PEACHTREE CENTER AVENUE NE, SUITE 1200  
ATLANTA, GEORGIA 30303-1257

February 3, 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 05000348/2015004; AND 05000364/2015004**

Dear Ms. Gayheart:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Joseph M. Farley Nuclear Plant, Units 1 and 2. On January 25, 2016, the NRC inspectors discussed the results of this inspection with Mr. J.J. Hutto and other members of your staff.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. Further, inspectors documented licensee-identified violations, which were determined to be of very low safety significance, in this report. 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 these 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 Farley.

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 Farley.

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 NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

***/RA/***

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

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

Enclosure:  
IR 05000348/2015004; 05000364/2015004  
w/Attachment: Supplementary Information

cc: Distribution via ListServ

C. Gayheart

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Sincerely,

/RA/

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C. Gayheart

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Letter to Cheryl A. Gayheart from Shane Sandal Dated February 03, 2016.

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000348/2015004; AND 05000364/2015004

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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.: 05000348/2015004; and 05000364/2015004

Licensee: Southern Nuclear Operating Company, Inc.

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

Location: Columbia, Alabama

Dates: October 1, 2015 through December 31, 2015

Inspectors: P. Niebaum, Senior Resident Inspector  
K. Miller, Resident Inspector  
R. Patterson, Reactor Inspector, 1R21

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

Enclosure

## SUMMARY OF FINDINGS

IR 05000348/2015004; and 05000364/2015004, October 1, 2015, through December 31, 2015; Joseph M. Farley Nuclear Plant, Units 1 and 2, Maintenance Effectiveness

The report covered a 3-month period of inspection by resident inspectors and regional inspectors. There was one NRC identified violation and one self-revealing finding identified and 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 January 28, 2013 and revised February 4, 2015. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5. Documents reviewed not specifically identified in the Report Details are listed in the List of Documents Reviewed section of the Attachment.

Cornerstone: Mitigating Systems

- Green: A self-revealing, non-cited violation of Technical Specification 5.4 "Procedures," was identified for the failure to provide an adequate procedure for installing the 2A service water (SW) pump motor cable connections. As a result, the connection degraded over time, which degraded the Raychem insulation that caused the circuit breaker to trip on overcurrent. The licensee repaired the 2A SW pump motor cable connection under WO SNC717176 and returned the pump to service on October 16, 2015. This event was entered in the licensee's corrective action program with CR 10135057.

The performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective because the inadequate procedure resulted in the pump circuit breaker trip due to an overcurrent condition. The significance of this finding was determined to be of very low safety significance (Green). This finding was associated with the cross-cutting aspect of Evaluation in the Problem Identification and Resolution area. [P.2] (Section 1R12)

Violations of very low safety significance that were identified by the licensee have been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

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

Unit 2 started the report period at approximately 100 percent RTP. On November 7, Unit 2 was shut down for a planned maintenance outage to repair through-wall cracks on the 2A and 2C steam generator vent pipes. The unit was restarted on November 12 and achieved approximately 100 percent RTP on November 15. 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 severe weather and an area tornado watch on November 18, 2015. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures, including operator staffing, before the onset of and during 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 verified that required surveillances were current, or were scheduled and completed, if practical, before the onset of anticipated adverse weather conditions. 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 three systems or trains were correctly aligned by performing partial walkdowns. The inspectors selected systems for assessment because they were a redundant or backup system or train, were important for mitigating risk for the current plant conditions, had been recently realigned, or were a single-train system. The inspectors determined the correct system lineup by reviewing plant procedures and drawings.

- Unit 2 Train “B” Penetration Room Filtration System
- “1-2A” emergency diesel generator (EDG) while “1B” EDG was out of service (OOS) for corrective maintenance
- “2A” residual heat removal (RHR) train configured for shutdown cooling while the “2B” RHR train was OOS for corrective maintenance

Complete Walkdown: The inspectors verified the alignment of the Unit 1 4160 Volt Emergency Electrical Buses. The inspectors selected this system for assessment because it is a risk-significant mitigating system. The inspectors determined the correct system lineup by reviewing plant procedures, drawings, the updated final safety analysis report, and other documents. The inspectors reviewed records related to the system outstanding design issues, maintenance work requests, and deficiencies. The inspectors verified that the selected system was correctly aligned by performing a complete walkdown of accessible components. To verify the licensee was identifying and resolving equipment alignment discrepancies, the inspectors reviewed corrective action documents, including condition reports and outstanding work orders. 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 (71111.05Q)

a. Inspection Scope

Quarterly Inspection: The inspectors evaluated the adequacy of selected fire zone data sheets by comparing the data sheets to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire zone data sheets, the inspectors assessed the following items:

- 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

The inspectors toured the following four fire areas to assess material condition and operational status of fire protection equipment.

- Unit 1 Train “A” Cable Tunnels, Fire Area 1-075
- Unit 1 Train “B” Cable Tunnels, Fire Area 1-076
- Unit 2 Train “A” Cable Tunnels, Fire Area 2-075
- Unit 2 Train “B” Cable Tunnels, Fire Area 2-076



b. Findings

No findings were identified.

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, RHR Heat Exchanger Room, Room 2128

Underground Cables: The inspectors reviewed related flood analysis documents and inspected the areas listed below containing cables whose failure could disable risk-significant equipment. The inspectors directly observed the condition of cables and cable support structures and, as applicable, verified that dewatering devices and drainage systems were functioning properly. In addition, the inspectors verified the licensee was identifying and properly addressing issues using the corrective action program.

- Unit 1 Train "A" DG cable tunnel
- Unit 1 Train "B" DG cable tunnel
- Unit 2 Train "A" DG cable tunnel
- Unit 2 Train "B" DG cable tunnel

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance (71111.11)

a. Inspection Scope

Resident Inspector Quarterly Review of Licensed Operator Regualification: The inspectors observed a simulator scenario to be used for training of an operating crew for regualification on December 9, 2015. The inspectors assessed the following:

- scenario realism and feasibility
- the ability of the licensee to administer the scenario
- the quality of the post-scenario critique
- simulator performance

Resident Inspector Quarterly Review of Licensed Operator Performance: The inspectors observed licensed operator performance in the main control room during a high risk activity, shutdown and cooldown of Unit 2 for a planned maintenance outage on November 7 and 8, 2015. The inspectors assessed the following:

- use of plant procedures
- control board manipulations
- communications between crew members
- use and interpretation of instruments, indications, and alarms
- use of human error prevention techniques
- documentation of activities
- management and supervision

Annual Review of Licensee Requalification Examination Results: On November 20, 2015, the licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the Code of Federal Regulations 55.59(a)(2), "Requalification Requirements," of the NRC's "Operator's Licenses." The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with Inspection Procedure (IP) 71111.11, "Licensed Operator Requalification Program." These results were compared to the thresholds established in Section 3.02, "Requalification Examination Results," of IP 71111.11.

b. Findings

No findings were identified.

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.

- Unit 2, flow control valve 602B for the 2B RHR pump failed to open
- Unit 2, 2A service water pump tripped on overcurrent

b. Findings

Introduction: A Green self-revealing, non-cited violation of Technical Specification 5.4 "Procedures," was identified for the failure to provide an adequate procedure for installing the 2A service water (SW) pump motor cable connections. As a result, the connection degraded over time, which degraded the Raychem insulation that caused the circuit breaker to trip on overcurrent.

Description: On October 14, 2015, the 2A SW pump motor circuit breaker tripped on overcurrent. The licensee determined the direct cause of the trip was due to degraded Raychem insulation on the phase 2 motor cable connection which allowed an electrical arc to ground inside the motor termination box. This failure was attributed to an incorrect installation of the motor cable connection that occurred in January 2013 following corrective maintenance. The licensee determined that licensee procedure FNP-0-EMP-1370.01, "Cable Termination, Splicing and Repair [EQ]," Ver. 17.0, did not contain adequate guidance for making a proper motor connection. The inspectors concluded that the procedure was inadequate because a document that specified a proper bolted-lug connection for 4kV safety related motors could not be found.

While inspecting the 2A SW pump motor cable connection under work order (WO) SNC321649 in January 2013, maintenance personnel discovered melted Raychem electrical insulation on one phase of the 2A SW pump motor cable connection and degraded insulation on the other two phases. WO SNC 458479 re-lugged the motor cable connections, and replaced the degraded Raychem insulation. The licensee also noted a phase 3 lug was broken from heat. Condition reports (CRs) 573450 and 573509 were written to document this condition, but neither CR documented the broken lug on the phase 3 motor cable connection and the basic cause determination (BCD) stated the affected cables did not have any bad connections. The inspectors concluded this contributed to the licensee's failure to assess motor cable connections as a possible cause of the connection insulation overheating and degradation at that time.

Analysis: The licensee's failure to provide adequate guidance in procedure FNP-0-EMP-1370.01, Ver. 17.0, for installing the 2A service water pump motor cable connections was a performance deficiency. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective because the inadequate procedure resulted in an inadequate motor cable connection in January 2013, which led to the pump circuit breaker trip due to an overcurrent condition on October 14, 2015. 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 was determined to be of very low safety significance (Green) because it was not a design or qualification deficiency; it did not represent a loss of system safety function of a single train for greater than its Technical Specification allowed outage time; and it did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. This finding was associated with the cross-cutting aspect of Evaluation in the Problem Identification and Resolution area because the licensee failed to adequately evaluate the cause of degraded Raychem electrical insulation on the motor cable connections for the 2A SW pump motor following an inspection performed per WO SNC321649 in January, 2013. [P.2]

Enforcement: Technical Specifications 5.4, "Procedures," required, in part, that written procedures shall be established, implemented and maintained covering activities recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A. Section 9.a of RG 1.33 recommended in part, that maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, instructions, or drawings appropriate to the circumstances. Contrary to the above, the licensee failed to have maintenance procedures that were appropriate to the circumstances for performing motor connections on safety-related SW pumps. In January 2013, electrical maintenance craft used procedure FNP-0-EMP-

1370.01 and work order SNC458479 to make motor cable connections for the safety related 2A SW pump which did not contain guidance to ensure the motor cable connections were adequate. The inadequate motor cable connections degraded over time, which resulted in overheating and damage to the Raychem insulation causing the 2A SW pump motor circuit breaker to trip on October 14, 2015. This event was entered in the licensee's corrective action program with CR 10135057. The licensee repaired the 2A SW pump motor cable connection under WO SNC717176, returned the pump to service on October 16, 2015, and performed extent-of-condition inspections and necessary repairs on all SW pump motor cable connections. Corrective actions are planned to revise procedure FNP-0-EMP-1370.01 "Cable Termination, Splicing Repair," to confirm cable gage on both the power supply and motor leads before lugging. 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 Section NRC Enforcement Policy. NCV 2015-004-01, "Failure to Provide Adequate Instructions for the 2A Service Water Pump Motor Cable Connections".

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

a. Inspection Scope

The inspectors reviewed the two 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.

- Units 1 and 2, October 21, 2015, 1-2A EDG inoperable for emergent work
- Unit 2, October 29, 2015, "A" and "B" containment coolers isolated for troubleshooting and 2A motor driven auxiliary feedwater (MDAFW) pump surveillance testing

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors selected the two 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.

- Unit 2 Containment Sump in-leakage, CR 10135083
- Unit 2 turbine driven auxiliary feedwater (TDAFW) pump Uninterruptible Power Supply (UPS) Battery, CR 10143210

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 four 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.

- SNC717179, 2A SW pump motor electrical termination connection repair
- SNC725508 and SNC726312, 1B EDG field flash K-4 relay replacement
- SNC731750, Unit 1 TDAFW pump controller temporary modification
- SNC731754, Unit 2 TDAFW pump controller temporary modification

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.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

For the Unit 2 maintenance outage from November 7, 2015 through November 13, 2015, the inspectors evaluated the following outage activities:

- outage planning
- shutdown, cooldown, refueling, heat-up, and startup
- containment closure

The inspectors verified that the licensee:

- considered risk in developing the outage schedule
- controlled plant configuration in accordance with administrative risk reduction methodologies
- developed mitigation strategies for loss of key safety functions
- adhered to operating license and technical specification requirements

Inspectors verified that safety-related and risk-significant structures, systems, and components not accessible during power operations were maintained in an operable condition. The inspectors also reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with outage activities.

b. Findings

No findings were identified.

1R21 Component Design Bases Inspection

.1 (Closed) Unresolved Item (URI) 05000348, 364/2014007-07, Potential Effects of an RCP Thermal Barrier Break to the CCW System Were Not Evaluated

During the 2014 Farley Component Design Bases Inspection (ML14209A904), the team identified an unresolved item (URI) regarding the lack of evaluations to ensure the component cooling water (CCW) system was capable of withstanding the forces resulting from a reactor coolant pump (RCP) thermal barrier break hydraulic transient. Specifically, this event could lead to a thermal-hydraulic transient and its effects were not evaluated.

The licensee performed a hydraulic and structural analysis of the CCW piping system and supports attached to the RCP 1A thermal barrier for four transients resulting from a postulated failure of the thermal barrier to address the URI. The analysis demonstrated that the CCW piping would remain capable of performing its safety function during and after the postulated thermal barrier failures. The inspectors' reviewed the structural evaluation and supporting analysis performed by the licensee and concluded that the CCW piping system would withstand the effects of the analyzed water-hammer event initiated by a postulated failure of the CCW thermal barrier heat exchanger.

The licensee's failure to evaluate the potential for a thermal-hydraulic transient and its effects on the CCW piping and supports was a performance deficiency. This performance deficiency was considered to be a minor violation of regulatory requirements in accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Screening," because the licensee was able to demonstrate that the CCW piping system could withstand the loads of a postulated water hammer event. Accordingly, no formal enforcement action is being taken.

#### 4. OTHER ACTIVITIES

##### 4OA1 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 November, 2014 and October, 2015 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

- high pressure injection system (Units 1 and 2)
- emergency AC power system (Units 1 and 2)
- heat removal system (Units 1 and 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.

###### .2 Semi-Annual Trend Review

###### a. Inspection Scope

The inspectors reviewed issues entered in the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on equipment performance issues and human performance trends, but also considered the results of inspector daily condition report screenings, licensee trending efforts, and licensee human performance results. The review nominally considered the 6-month period of July 2015 through December 2015 although some examples extended beyond those dates when the scope of the trend warranted. The inspectors compared their results with the licensee's analysis of trends. Additionally, the inspectors reviewed the adequacy of corrective actions associated with a sample of the issues identified in the licensee's trend reports. The inspectors also reviewed corrective action documents that were processed by the

licensee to identify potential adverse trends in the condition of structures, systems, and/or components as evidenced by acceptance of long-standing non-conforming or degraded conditions.

b. Findings and Observations

No findings were identified.

4OA3 Follow-up of Events (71153)

.1 (Closed) Licensee Event Report (LER) 05000348/2015-004: Pressurizer Safety Valve Setpoint Outside of Technical Specifications Tolerance Band

On August 11, 2015, a Pressurizer safety valve, removed from service at Farley Nuclear Plant Unit 1, was tested at an offsite facility. As-found lift testing determined that the valve opened at 2425 psig steam pressure, which was low outside the Plant Technical Specification allowable lift setting range of  $\geq 2460$  psig to  $\leq 2510$  psig. This valve was last refurbished and steam pressure tested at the offsite facility on October 27, 2011 with the last two lift test results of 2482 psig and 2494 psig, respectively. The valve was installed at Farley Nuclear Plant Unit 1 on April 9, 2012 and remained in service until removal on May 26, 2015, when it was replaced with a similar refurbished valve. The licensee determined that the safety valve low as-found lift set-point did not have an adverse impact on reactor coolant system over-pressurization protection, since the valve continued to perform its reactor coolant system over-pressure protection function to prevent the system from exceeding the design pressure of 2485 psig. Therefore, the plant remained bounded by the accident analysis in the FSAR, based on the as-found condition. The inspectors reviewed the event, associated documents, and licensee corrective actions.

.2 (Closed) Licensee Event Report 05000348/2015-003-00, Failure to meet a Technical Specification Completion Time for Reportability

The inspectors reviewed this LER, CRs, corrective action report and discussed this issue with licensee plant staff. Data indicated the "B" train delta temperature channel was inoperable on May 14, 2015 at 1423. The channel was declared inoperable and the TS action statement was entered on May 16, 2015 at 1115. TS 3.3.1, Reactor Trip System (RTS) Instrumentation, Condition E required actions were to place the channel in trip within 72 hours or be in mode 3 within 78 hours. The channel was placed in the trip position approximately 74 hours after the initial discovery of inoperable conditions. Using Farley TS example 1.3-6, the inspectors concluded that a TS violation did not occur because TS 3.3.1 Condition E.2 required completion time was 78 hours. The channel was rescaled and returned to operable status, and the LCO exited on May 18, 2015 at 1533. This issue was documented in the licensee's CAP as CR 10095579.

.3 (Closed) Licensee Event Report 05000364/2015-001-00 and -01, Turbine Driven Auxiliary Feedwater Pump in a Condition Prohibited by Technical Specification due to a Design Issue

The inspectors reviewed the LER and the supplement, associated CRs, cause determination reports and discussed this issue with licensee staff. The licensee



determined that a design vulnerability existed with the Unit 2 TDAFW pump which was the cause of a start failure during surveillance testing in April and November 2014. Specifically, during second start attempts, the vulnerability introduced a shutdown signal from the turbine control circuit that overrode the start signal which prevented the TDAFW pump from starting. According to CAR 219727, Ver. 2, the magnetic speed pickup (MPU) override timer setting of 10 seconds contributed to the cause of the start failures. This vulnerability existed since the Unit 2 TDAFW pump governor modification was installed in April of 2010. A corrective action was completed in January 2015 which increased the MPU override timer setting to eliminate the design vulnerability. This issue was documented in the licensee's CAP as Condition Report (CR) 10009536. The enforcement aspects are discussed in Section 4OA7.

#### 4OA5 Other Activities

##### .1 Operation of an Independent Spent Fuel Storage Installation (ISFSI) (60855.1)

###### a. Inspection Scope

The inspectors performed a walkdown of the onsite ISFSI and monitored the activities associated with the dry fuel storage campaign completed for Unit 1 on November 12, 2015. The inspectors reviewed changes made to the ISFSI programs and procedures, including associated 10 CFR 72.48, "Changes, Tests, and Experiments," screens and evaluations to verify that changes made were consistent with the license or certificate of compliance. The inspectors reviewed records and observed the loading activities to verify that the licensee recorded and maintained the location of each fuel assembly placed in the ISFSI. The inspectors also reviewed surveillance records to verify that daily surveillance requirements were performed as required by technical specifications.

###### b. Findings

No findings were identified.

#### 4OA6 Exit Meeting

On January 25, 2016, the resident inspectors presented the inspection results to Mr. J.J. Hutto 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 violations of very low safety significance (Green) or Severity Level IV were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy, for being dispositioned as a Non-Cited Violation.

- 10 CFR 50, Appendix B, Criterion III, Design Control, required in part, design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews. Contrary to these requirements, the licensee failed to ensure the MPU override timer setting was documented and reviewed for impacts during the initial design implementation of the governor for the Unit 2 TDAFW pump in 2010 and during a subsequent design change that installed a

parallel start circuit in 2011. This issue was documented in the licensee's CAP as Condition Report (CR) 10009536. A detailed risk evaluation was performed in accordance with NRC IMC 0609 Appendix A using the Farley SPAR model and fire risk data from the licensee's Farley Fire Probabilistic Risk Assessment model. The major analysis assumptions included: recovery credit for TDAFW pump restart, a short exposure interval, actual TDAFW pump failure data for Unit 2, and no credit for the reactor coolant pump shutdown seals. The dominant sequence was a loss of service water with a failure of the TDAFW pump and a failure to recover the pump leading to core damage. The result was a finding of very low safety significance (Green).

- Technical Specification 5.7.1 requires each HRA, as defined in 10-CFR20, in which the intensity of the radiation is greater than 100 mrem/hr but less than 1000 mrem/hr, be barricaded and conspicuously posted. Contrary to this requirement, on November 9, 2015, during a planned maintenance outage on Unit 2, access to a HRA inside the bio-shield on the 105' elevation was not posted or barricaded as required by TS 5.7.1. The dose rate on the Pressurizer Relief Tank inside the bio-shield was 240 mrem/hr. The license entered the event in the corrective action program as CR 10145090. This finding was of very low safety significance (Green) because there was no substantial potential for overexposure due to the fact that the external dose rates were low and no workers exceeded the dose or dose rate alarm setpoints established by the radiation work permit (RWP) for access to non-HRAs in containment while the area was unposted.

ATTACHMENT: SUPPLEMENTARY INFORMATION

## **SUPPLEMENTARY INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee Personnel

J. Andrews, Maintenance Director  
K. Baity, Site Design Engineering Manager  
G. Bell, Licensing Supervisor  
E. Berry, Site Systems Engineering Manager  
J. Carroll, Shift Operations Manager  
C. Gayheart, Site Vice President  
D. Hall, EP Supervisor  
S. Henry, Operations Director  
R. Hruby, Engineering Director  
J. Hutto, Plant Manager  
T. Rennhack, Electrical Maintenance Supervisor  
B. Reed, Training Director  
D. Reed, Site Engineering Programs Manager  
S. Sampson, Radiation Protection Manager  
B. Taylor, Regulatory Affairs Manager  
C. Thornell, Site Projects Manager

#### NRC Personnel

W. Pursely, Health Physicist

### **LIST OF REPORT ITEMS**

#### Opened and Closed

NCV 05000364/2015004-001      Failure to Provide Adequate Instructions for the 2A Service Water Pump Motor Cable Connections (Section 1R12)

#### Closed

LER 05000348/2015-004-00      Pressurizer Safety Valve Setpoint Outside of Technical Specifications Tolerance Band (Section 4OA3.1)

LER 05000348/2015-003-00      Failure to meet a Technical Specification Completion Time for Reportability (Section 4OA3.2)

LER 05000364/2015-001-00, 01      Turbine Driven Auxiliary Feedwater Pump in a Condition Prohibited by Technical Specifications (Section 4OA3.3)

URI 05000348, 364/2014007-07      Potential Effects of an RCP Thermal Barrier Break to the CCW System Were Not Evaluated (Section 1R21.i)

## LIST OF DOCUMENTS REVIEWED

### **Section 1R01: Adverse Weather Protection**

#### Procedures:

FNP-0-AOP-21.0, Severe Weather, Rev. 41.1

NMP-OS-017, Severe Weather, Ver. 1.1

CR 10149115

### **Section 1R04: Equipment Alignment**

#### Drawings:

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

D-205013, Unit 2 – HVAC Process Flow Diagram Penetration Room Filtration System, Ver. 7

D-170800, P&ID – Lube Oil System for Diesel Generator 1-2A, Ver. 14.0

D-170802, P&ID – Intercooler Water System for Diesel Generator 1-2A, Ver. 12.0

D-170804, P&ID – Jacket Coolant System for Diesel Generator 1-2A, Ver. 20.0

D-170806, P&ID – Air Start System for Diesel Generator 1-2A, Ver. 22.0

D-170808, P&ID – Fuel Oil System for Diesel Generator 1-2A, Ver. 12.0

D-172772, Elem. Diagram Diesel Gen. No. 1-2A Relaying, Ver. 15.0

D-172774, Elem. Diagram Diesel Gen. No. 1-2A, Start, Stop & Shutdown, Ver. 23.0

D-172775, Elem. Diagram Diesel Gen. No. 1-2A, Exciter & Miscellaneous Controls, Ver. 18.0

D-177001, Unit 1 Single Line – Electrical Auxiliary System (Emergency 4160V & 600V), Ver. 22.0

D-177005, Unit 1 Single Line Protection and Metering - 4160V Switchgear Bus 1F (Emergency), Ver. 17.0

D-177006, Unit 1 Single Line Protection and Metering - 4160V Switchgear Bus 1G (Emergency), Ver. 16.0

D-177018, Unit 1 Single Line Protection and Metering - 4160V Switchgear Bus 1H (Emergency), Ver. 13.0

D-177027, Unit 1 Single Line Protection and Metering - 4160V Switchgear Bus 1J (Emergency), Ver. 2.0

C-177043, Unit 1 Single Line Protection and Metering - 4160V Switchgear Bus 1K (Emergency), Rev. 5

C-177044, Unit 1 Single Line Protection and Metering - 4160V Switchgear Bus 1L (Emergency), Rev. 5

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

D-205038, Unit 2 P&ID – Safety Injection System, Sheet 1, Ver. 38

D-205037, Unit 2 P&ID – Reactor Coolant System, Sheet 1, Ver. 29.0

D-205041, Unit 2 P&ID – Residual Heat Removal System, Sheet 1, Ver. 19

#### Procedures:

FNP-1-SOP-36.0, Plant Electrical Distribution Line Up, Ver. 17.0

FNP-1-STP-27.1, AC Source Verification, Ver. 38.1

FNP-2-SOP-60.0A, Penetration Room Filtration System, Ver. 6.0

FNP-0-SOP-38.0A, 1-2A Diesel Generator, Ver. 18.0

FNP-2-SOP-7.0, Residual Heat Removal System, Ver. 96.0

FNP-2-SOP-7.0A, Residual Heat Removal System, Ver. 10.0

Documents:

WO SNC57441, SNC57442, SNC59469, SNC59471, SNC59652, SNC62648, SNC62647, SNC62648, SNC62651, SNC62651, SNC62653, SNC62660, SNC62662, SNC62663, SNC62665, SNC62666, SNC62667, SNC62668, SNC63895, SNC84428, SNC86793, SNC86798, SNC97525, SNC316779, SNC375997, SNC375999, SNC376000, SNC376001, SNC376004, SNC531362, SNC533190, SNC538906, SNC538906, SNC538907, SNC538908, SNC538913, SNC538937, SNC540586, SNC560210, SNC560221, SNC560222, SNC560227, SNC560231, SNC560232, SNC595565, SNC595798, SNC597794, SNC617177, SNC618442, SNC634888, SNC650045, SNC675437

**Section 1R05: Fire Protection Annual/Quarterly**Drawings:

A-508651, Fire Zone Data Sheets Unit 1 Tunnels "A" & "B", Sheet 15, Rev. 1  
 A-508651, Fire Zone Data Sheets Unit 1 Tunnels "A" & "B", Sheet 16, Rev. 1  
 A-508651, Fire Zone Data Sheets Unit 2 Tunnels "A" & "B", Sheet 17, Rev. 1  
 A-508651, Fire Zone Data Sheets Unit 2 Tunnels "A" & "B", Sheet 18, Rev. 1  
 A-508651, Fire Zone Data Sheets Unit 2 Tunnels "A" & "B", Sheet 19, Rev. 1  
 A-508651, Fire Zone Data Sheets Unit 2 Tunnels "A" & "B", Sheet 20, Rev. 1  
 A-508651, Fire Zone Data Sheets Unit 2 Tunnels "A" & "B", Sheet 21, Rev. 1

Procedures:

FNP-0-SOP-0.4, Fire Protection Operability and LCO Requirements, Ver. 95  
 FNP-0-ACP-35.2, Control of Flammable and Combustible Material, Ver. 23  
 FNP-0-FPP-2.0, Protected Area Pre-Fire Plans, Ver. 1

Documents:

A-181805, NFPA 805 Fire Protection Program Design Basis Document, Ver. 1

**Section 1R06: Flood Protection**Procedures:

FNP-0-AOP-79.0, Plant Flooding, Rev. 3  
 FNP-2-ARP-3.2, Annunciator Response Procedure for Balance of Plant (BOP) Panel N. Ver. 24.1  
 FNP-2-SOP-50.2, Liquid Waste Processing System Sump Pump System Operation, Ver. 30  
 NMP-ES-051-004, Pull Box Inspection Procedure, Ver. 3.4  
 NMP-ES-051-GL01, Cable Monitoring Program Scope, Ver. 3.2  
 NMP-ES-051, Cable Monitoring Program, Ver. 7.3  
 NMP-ES-051-003, Adverse Localized Equipment Environment Walkdown, Ver. 2.3

Drawings:

D-205004, P&ID, Drains & vents, CTMT & Aux. Bldg. – Radioactive, Sht. 1 Ver. 33  
 D-205004, P&ID, Drains & vents, CTMT & Aux. Bldg. – Radioactive, Sht. 2 Ver. 21

Documents:

BM-99-1932-001, Internal Flooding Assessment, Ver. 6  
 CRs 10014996, 10114553

**Section 1R11: Licensed Operator Requalification Program**Documents:

16-S0102, LOCT 14-16 Segment 16-1, Licensed Operator Continuing Training Simulator Exercise Guide, Ver. 0

Procedures:

NMP-TR-416, Licensed Operator Continuing Training Program Administration, Ver. 6  
 NMP-TR-214, Systematic Approach to Training Development Phase, Ver. 8  
 NMP-OS-007, Conduct of Operations, Ver. 11  
 NMP-OS-007-001, Conduct of Operations Standards and Expectations, Ver. 14.3  
 FNP-0-SOP-0.0, General Instructions to Operations Personnel, Ver. 161  
 NMP-EP-110-GL01, FNP EALs – ICs, Threshold Values and Basis, Ver. 9.0

**Section 1R12: Maintenance Effectiveness**Documents:

Corrective Action Reports (CARs): 258951, 196833, 260729, and 206037  
 NUMARC-93-01, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Rev. 4A  
 Regulatory Guide 1.160, Monitoring the Effectiveness of Maintenance at Nuclear Power Plants, Rev. 3

Condition Reports:

10145120, 10135057, 573450, 10150313, 10154478, 10155836, 10156475, 10147863, 10145060, 10138568, 10134152, 330461, 573509, 2009101610,

Technical Evaluations:

931093, 938088, 941222, 941848

Work Orders:

SNC72072, SNC321649, SNC717179, SNC458479, SNC717888

Drawings:

D-205037, Unit 2 P&ID – Reactor Coolant System, Ver. 29  
 D-205038, Unit 2 P&ID – Safety Injection System, Sheet 2, Ver. 24  
 D-205038, Unit 2 P&ID – Safety Injection System, Sheet 1, Ver. 38  
 D-205041, Unit 2 P&ID – Residual Heat Removal System, Sheet 1, Ver. 17  
 A-172398, Units 1 & 2 Cable Termination Detail, Ver. 6  
 A-172389, Units 1 & 2 Cable Working Specification, Ver. 6  
 A-172392, Units 1 & 2 Termination of Cable at Equipment, Ver. 3

Procedures:

NMP-ES-027, Maintenance Rule Program, Ver. 4.0  
 NMP-ES-027-001, Maintenance Rule Implementation, Ver. 6.0  
 FNP-2-ESP-1.3, Transfer to Cold Leg Recirculation, Rev. 22  
 SJ-98-1796-001, Uncertainty Calculation of RHR miniflow control, flow indicating switch, Rev. 1  
 FNP-0-EMP-1370.01, Cable Termination, Splicing and Repair [EQ], Ver. 17  
 ERS-E-001, Equipment Repair Spec for 4kV and Higher Electric Motors, Ver. 5 and Ver. 8

**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

**Documents:**

Unit 1, EOOS Operator's Risk Report, dated October 21, 2015  
 Unit 2, EOOS Operator's Risk Report, dated October 21, 2015  
 Unit 1, EOOS Integrated Risk Report, October 21, 2015  
 Unit 2, EOOS Operator's Risk Report, dated October 29, 2015  
 Unit 1, EOOS Integrated Risk Report, October 29, 2015  
 CR 10137317

**Section 1R15: Operability Determinations and Functionality Assessments****Documents:**

TE 929713  
 U-735430, C&D Battery Installation and Operating Instructions, Ver. 1  
 IEEE 450-2002, Recommended Practice for Maintenance, Testing and Replacement of Vented Lead-Acid Batteries or Stationary Applications  
 CRs 10014153, 10016896, 10084787, 10099013, 10131058, 10135083, 10133069

**Procedures:**

NMP-AD-012, Operability Determinations and Functionality Assessments, Ver. 12.6  
 FNP-2-STP-70.0, Containment Sump Surveillance, Ver. 7.0

**Section 1R19: Post Maintenance Testing****Procedures:**

FNP-0-EMP-1701.01, Electrical Equipment Condition Testing (Megger), Ver. 22.0  
 FNP-0-EMP-1530.03, Motor On-Line Emax Testing (PdMA System), Ver. 10.0  
 FNP-2-STP-24.1, 2A, 2B, and 2C Service Water Pump Quarterly In-service Test, Ver. 67.0  
 FNP-1-STP-80.1, Diesel Generator 1B Operability Test, Ver. 52.3  
 FNP-1-STP-80.6, Diesel Generator 1B 24 Hour Load Test, Ver. 33.1  
 FNP-1-STP-22.16, Turbine Driven Auxiliary Feedwater Pump Quarterly In-service Test, Ver. 63.0  
 FNP-2-STP-22.16, Turbine Driven Auxiliary Feedwater Pump Quarterly In-service Test, Ver. 67.1

**Work Orders:**

SNC717179, SNC71788, SNC725508, SNC726312, SNC609213, SNC731750, SNC731754

**Documents:**

SNC725517, 1-2A, 1B, 2B, 1C, and 2C EDG K4 Relay Replacement, Ver. 1.0 & 2.0  
 SNC731742, Unit 1 Turbine Driven Auxiliary Feedwater Pump Controller Low Idle Setpoint Temporary Modification, Ver. 1.0  
 SNC731753, Unit 2 Turbine Driven Auxiliary Feedwater Pump Controller Low Idle Setpoint Temporary Modification, Ver. 1.0  
 CRs 10135057, 10135961, 10142852, 10144241, 10149716, 10149818, 10150044, 10150140

**Drawings:**

D-172776, Elem. Diagram Diesel Gen. No. 1B Relaying, Ver. 12.0

D-172778, Elem. Diagram Diesel Gen. No. 1B, Start, Stop & Shutdown, Ver. 24.0  
 D-172779, Elem. Diagram Diesel Gen. No. 1B, Exciter & Miscellaneous Controls, Rev. No. 14  
 U-184627, Diesel Engine Generators Electrical Schematic Gen. Panel (PC-2), Ver. 3.0

### **Section 1R20: Refueling and Other Outage Activities**

#### Procedures

FNP-2-UOP-2.4, Planned Reactor Shutdown and Cooldown to Cold Shutdown, Ver. 18.2  
 FNP-2-UOP-3.1, Power Operation, Ver. 110.0  
 FNP-1-UOP-1.1, Startup of Unit from Cols Shutdown to Hot Standby, Ver. 103  
 FNP-2-STP-35.0, Reactor Coolant System pressure and Temperature/Pressurizer Temperature Limits Verification, Ver. 22  
 FNP-2-UOP-1.2, Startup of Unit from Hot Standby to Minimum Load, Ver. 102  
 FNP-2-STP-29.6, Calculation of Estimated Critical Condition, Ver. 15

#### Documents

Outage Defense-In-Depth Assessment per FNP-UOP-4.0, ver. 51 for Nov. 9, 2015  
 CRs 10145090, 10145128, 10145338, 10145345, 10146146, 10146130, 10146129, 10145949

#### Drawings

D-515003, Unit 2 Main Steam System – N11 Containment Building, El. 181, Rev. 1

### **Section 1R21: Component Design Bases Inspection**

#### Drawings

J-300-5, Control Valve Data Sheet, Rev. 6  
 V512L-16, Parts List for HV-3045, Rev. 0  
 V512L-15A, Outline Drawing of Flow Control Valve with Pneumatic Actuator, Rev. 6  
 V512L-15A, Outline Drawing of Flow Control Valve with Pneumatic Actuator, Rev. 7

#### Calculations

A15021-C-001, Reactor Coolant Pump Thermal Barrier Leakage Transients, Rev. 0  
 A15021-C-002, CCW Piping Evaluation for RCP Thermal Barrier Failure Transients, Rev. 0  
 A15021-LR-001, CCW Piping Evaluation for RCP Thermal Barrier Failure Transients, dated 10/09/2015

### **Section 2RS1: Radiological Hazard Assessment and Exposure Controls**

#### Procedures, Guidance Documents, and Manuals:

FNP-2-RCP-11, Checklist for Unit 2 Containment Entry at Power (Critical) and for Initial Entry after Reactor Shutdown (Non-Critical) and Guidelines for Containment Postings during Outages

#### Records and Data Reviewed:

RWP 15-4409, Maintenance: All Activities in support of the U2 Planned Maintenance Outage to include work in High Radiation Areas and other work classified as "Medium Risk," Rev. 0  
 RWP 15-4444, Maintenance: Repairs, Inspections, PMs in the Rx Vessel Maintenance Sump in support of the U2 Planned Maintenance Outage," Rev. 0  
 Radiological Survey #109651, Plant Farley U-2 105ft Containment (2CB105)  
 Radiological Survey #109652, Plant Farley U-2 CTMT 105 ft. inside Biowall (2CB105)  
 Radiological Survey #109660, U2 C RCP BAY (2CB129)  
 Radiological Survey #109661, U2 B RCP BAY (2CB129)



Radiological Survey #109662, U2 C S/G Platforms (2CB105)  
 Radiological Survey #109663, U2 A RCP BAY (2CB129)  
 Radiological Survey #109665, U2 B S/G Platforms (2CB105)  
 Radiological Survey #109666, U2 A S/G Platforms (2CB105)  
 RWP Dose Report for RWP 15-4409 for entries performed Nov 7-9, 2015.  
 RWP Dose Report for RWP 15-4444 for entries performed Nov 7-9, 2015.  
 CR 10145090

#### **Section 40A1: Performance Indicator Verification**

##### Procedures:

NMP-AD-034, Key Performance Indicators, Ver. 3.0  
 FNP-0-AP-54, Preparation and Reporting of NRC Performance Indicator Data and NRC  
 Operating Data, Ver. 15.0

##### Documents:

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 7  
 FNP-0-M-151.0, NRC Mitigating Systems Performance Index (MSPI) Basis Document, Ver. 10  
 FNP-0-M-151.0, NRC Mitigating Systems Performance Index (MSPI) Basis Document, Ver. 9  
 MSPI Derivation Report, Unit 1, MSPI Emergency AC Power System, Unavailability Index (UAI),  
 Nov. 2014  
 MSPI Derivation Report, Unit 1, MSPI Emergency AC Power System, Unavailability Index (UAI),  
 Oct. 2015  
 MSPI Derivation Report, Unit 1, MSPI Emergency AC Power System, Unreliability Index (URI),  
 Oct. 2015  
 MSPI Derivation Report, Unit 1, MSPI Emergency AC Power System, Unreliability Index (URI),  
 Nov. 2014  
 MSPI Derivation Report, Unit 1, MSPI Emergency AC Power System, Performance Limit  
 Exceeded (PLE), Nov. 2014  
 MSPI Derivation Report, Unit 1, MSPI Emergency AC Power System, Performance Limit  
 Exceeded (PLE), Oct. 2015  
 MSPI Derivation Report, Unit 2, MSPI Emergency AC Power System, Unavailability Index (UAI),  
 Nov. 2014  
 MSPI Derivation Report, Unit 2, MSPI Emergency AC Power System, Unavailability Index (UAI),  
 June 2015  
 MSPI Derivation Report, Unit 2, MSPI Emergency AC Power System, Unreliability Index (URI),  
 Nov. 2014  
 MSPI Derivation Report, Unit 2, MSPI Emergency AC Power System, Unreliability Index (URI),  
 June 2015  
 MSPI Derivation Report, Unit 2, MSPI Emergency AC Power System, Performance Limit  
 Exceeded (PLE), Nov. 2014  
 MSPI Derivation Report, Unit 2, MSPI Emergency AC Power System, Performance Limit  
 Exceeded (PLE), June 2015  
 MSPI Evaluation Form for CR 888634, Nov. 3, 2014  
 CR 888634, Water Intrusion Into 1B Emergency Diesel generator Rocker Arm Lube Oil System  
 CAR 213485  
 TE 905697, Revise MSPI Evaluation for CR 888634  
 MSPI Derivation Report, Unit 1, Heat Removal System, Unavailability Index (UAI), Nov. 2014  
 MSPI Derivation Report, Unit 1, Heat Removal System, Unavailability Index (UAI), Oct. 2015

MSPI Derivation Report, Unit 2, Heat Removal System, Unavailability Index (UAI), Nov. 2014  
 MSPI Derivation Report, Unit 2, Heat Removal System, Unavailability Index (UAI), Oct. 2015  
 MSPI Derivation Report, Unit 1, Heat Removal System, Unreliability Index (URI), Nov. 2014  
 MSPI Derivation Report, Unit 2, Heat Removal System, Unreliability Index (URI), Nov. 2014  
 MSPI Derivation Report, Unit 1, Heat Removal System, Unreliability Index (URI), Oct. 2015  
 MSPI Derivation Report, Unit 2, Heat Removal System, Unreliability Index (URI), June 2015  
 MSPI Derivation Report, Unit 2, Heat Removal System, Performance Limit Exceeded (PLE),  
 June 2015  
 MSPI Evaluation Form for CRs 796381 and 897986, Dec. 10, 2015  
 MSPI Evaluation Form for CR 10079240, June 4, 2015  
 CR 751064, 1C Charging Pump MOC Switch Operation  
 CAR 208298  
 TE 755340, Perform Maintenance Rule Evaluation for CR 751064  
 Main Control Room Logs, November 2014 to Oct. 2015  
 MSPI Derivation Report, Unit 1, High Pressure Injection System, Unavailability Index (UAI),  
 Nov. 2014  
 MSPI Derivation Report, Unit 1, High Pressure Injection System, Unavailability Index (UAI), Oct.  
 2015  
 MSPI Derivation Report, Unit 2, High Pressure Injection System, Unavailability Index (UAI),  
 Nov. 2014  
 MSPI Derivation Report, Unit 2, High Pressure Injection System, Unavailability Index (UAI), Oct.  
 2015  
 MSPI Derivation Report, Unit 1, High Pressure Injection System, Unreliability Index (URI), Oct.  
 2015  
 MSPI Derivation Report, Unit 1, High Pressure Injection System, Unreliability Index (URI), Nov.  
 2014  
 MSPI Derivation Report, Unit 2, High Pressure Injection System, Unreliability Index (URI), June  
 2015  
 MSPI Derivation Report, Unit 2, High Pressure Injection System, Unreliability Index (URI), Nov.  
 2014  
 MSPI Derivation Report, Unit 1, High Pressure Injection System, Performance Limit Exceeded  
 (PLE), Oct. 2015  
 MSPI Derivation Report, Unit 1, High Pressure Injection System, Performance Limit Exceeded  
 (PLE), Nov. 2014  
 MSPI Derivation Report, Unit 2, High Pressure Injection System, Performance Limit Exceeded  
 (PLE), Oct. 2015  
 MSPI Derivation Report, Unit 2, High Pressure Injection System, Performance Limit Exceeded  
 (PLE), Nov. 2014

#### **Section 40A2: Problem Identification and Resolution**

##### Procedures:

NMP-GM-013, Performance Assessment and Trending, Ver. 5.0

##### Technical Evaluations:

931153,

##### Documents:

Corrective action reports (CARs): 261325, 257912, and 258736

PIIM 2015-0224, Performance Improvement Integrated Matrix  
CRs 10104674, 10133863, 10146424, 10146472, 10126629, 10096542, 10079306

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

#### Documents:

WOs SNC62027, SNC63368, SNC465298, SNC347184  
CARs: 257219, 258836, 219727 Vers. 1.1 & 2, 192763 Vers. 2 & 3, 208430, 209960, 258602  
ODMI 920875  
Technical Evaluations (TEs): 932086, 935207, 928644, 934118, 934119, 934120, 934121, 934122, 934123, 938128, 934267, 934226, 934265, 341623, 908924, 909653, 908924, 901199, 906151, 910627  
NL -15-1685 and Enclosure: Justification of Cancellation of Unit 1 Event Report 2015-003-00  
Unit 2 TDAFW Past Operability Position Paper, dated July 8, 2015  
MCR Narrative Logs  
SNC417893, Review of the Unit 1 and Unit 2 TDAFWP new governor controls  
DCP 2060862701, Unit 2 TDAFWP governor modification, Ver. 7  
NMP-ES-022, DCP Site Approval, Implementation and Closure, Ver. 9.1  
A181010, Functional System Description – Auxiliary Feedwater System, Ver. 31  
CRs 10065279, 10108525, 10095579, 10117615, 897986, 10036789, 10027699, 796381, 897986, 10009536

#### Procedures:

FNP-2-STP-22.32, Turbine Driven Auxiliary Feedwater Pump Comprehensive and Pre-service Test, Ver. 6.0  
FNP-2-STP-22.16, Turbine Driven Auxiliary Feedwater Pump Quarterly In-service Test, Ver. 66.2  
FNP-2-SOP-22.0, Auxiliary Feedwater System, Ver. 73.0 and 73.1  
FNP-2-ARP-1.9, Annunciator Response Procedure, MCB Panel J, Ver. 35.2

#### Drawings:

D-205033, P&ID, Main Steam and Auxiliary Steam Systems, Ver. 24.0  
D-207188, Elem. Diagram, Turbine Driven Auxiliary Feedwater Pump, Ver. 17  
U-611504, ESI – Turbine Control Schematic, Ver. 3

### **Section 4OA5: Other Activities**

#### Procedures:

FNP-0-MP-110.0, Dry Fuel Storage Campaign Guidelines, Ver. 14.0  
FNP-0-MP-111.3, MPC Fuel Loading Operations, Ver. 24.0  
NMP-RE-004, Irradiated Fuel Assembly and Core Component Inspection, Ver. 3.0  
NMP-RE-006, Dry Cask Loading Verification, Ver. 1.0  
FNP-2-FHP-5.4, Spent Fuel Assembly Handling Tool, Ver. 23.0

#### Documents:

Certificate of Compliance, Certificate No. 1014, Amendment 9, dated March 10, 2014  
Work Order SNC716325  
Dry Fuel Storage Operations Resource Guide