



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

May 2, 2013

Tom A. Lynch  
Vice President - Farley  
Southern Nuclear Operating Company, Inc.  
7388 North State Highway 95  
Columbia, AL 36319

**SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000348/2013002; AND 05000364/2013002**

Dear Mr. Lynch:

On March 31, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Joseph M. Farley Nuclear Plant, Units 1 and 2. The enclosed inspection report documents the inspection results, which were discussed on April 8, 2013, with you and other members of your staff.

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

One NRC-identified finding of very low safety significance (Green) was identified during this inspection. This finding was determined to involve a violation of NRC requirements. Additionally, the NRC has determined that this finding was associated with a traditional enforcement Severity Level IV violation. Further, one licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Joseph M. Farley Nuclear Plant.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region II; and the NRC Resident Inspector at Joseph M. Farley Nuclear Plant.

T. Lynch

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In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be available electronically for public inspection in the NRC public document room or from the publicly available records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html> (the public electronic reading room).

Sincerely,

*/RA/*

Frank Ehrhardt, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000348/2013002; and 05000364/2013002;  
w/Attachment: Supplemental Information

cc w/encl.: (See page 3)

T. Lynch

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cc w/encl:

C. Russ Dedrickson  
Fleet Support Supervisor  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

Cheryl A. Gayheart  
Plant Manager  
Joseph M. Farley Nuclear Plant  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

S. Kuczynski  
Chairman, President and CEO  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

Leigh Perry  
SVP & General Counsel-Ops & SNC  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

D. G. Bost  
Chief Nuclear Officer  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

Dennis R. Madison  
Vice President  
Edwin I. Hatch Nuclear Plant  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

Paula Marino  
Vice President  
Engineering  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

T. E. Tynan  
Site Vice President  
Vogtle Electric Generating Plant  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

Mark Williams  
Commissioner  
Georgia Department of Natural Resources  
Electronic Mail Distribution

B. D. McKinney, Jr.  
Regulatory Response Manager  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

D. W. Daughhetee  
Licensing Engineer  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

T. D. Honeycutt  
Regulatory Response Supervisor  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

Bradley J. Adams  
Vice President  
Fleet Operations Support  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

N. J. Stringfellow  
Licensing Manager  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

L. P. Hill  
Licensing Supervisor  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

L. L. Crumpton  
Administrative Assistant, Sr.  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

William D. Oldfield  
Principal Licensing Engineer  
Joseph M. Farley Nuclear Plant  
Electronic Mail Distribution

(cc w/encl cont'd – See next page)

T. Lynch

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cc w/encl cont'd:  
Todd L. Youngblood  
Vice President  
Fleet Oversight  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

John G. Horn  
Site Support Manager  
Joseph M. Farley Nuclear Plant  
Southern Nuclear Operating Company, Inc.  
Electronic Mail Distribution

Senior Resident Inspector  
U.S. Nuclear Regulatory Commission  
Joseph M. Farley Nuclear Plant  
U.S. NRC  
P. O. Box 620  
Ashford, AL 36312

Cynthia A. Sanders  
Radioactive Materials Program Manager  
Environmental Protection Division  
Georgia Department of Natural Resources  
Electronic Mail Distribution

James C. Hardeman  
Environmental Radiation Program Manager  
Environmental Protection Division  
Georgia Department of Natural Resources  
Electronic Mail Distribution

Mr. Mark Culver  
Chairman  
Houston County Commission  
P. O. Box 6406  
Dothan, AL 36302

James L. McNees, CHP  
Director  
Office of Radiation Control  
Alabama Dept. of Public Health  
P. O. Box 303017  
Montgomery, AL 36130-3017

State Health Officer  
Alabama Dept. of Public Health  
P.O. Box 303017  
Montgomery, AL 36130-3017

Chuck Mueller  
Manager  
Policy and Radiation Program  
Georgia Department of Natural Resources  
Electronic Mail Distribution

T. Lynch

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Letter to T. A. Lynch from Frank Ehrhardt dated May 2, 2013

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC INTEGRATED INSPECTION  
REPORT 05000348/2013002; AND 05000364/2013002

Distribution w/encl:

C. Evans, RII

L. Douglas, RII

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION II**

Docket Nos.: 05000348, 05000364

License Nos.: NPF-2, NPF-8

Report No.: 05000348/2013002; and 05000364/2013002

Licensee: Southern Nuclear Operating Company, Inc.

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

Location: Columbia, AL

Dates: January 1, 2013 through March 31, 2013

Inspectors: J. Sowa, Senior Resident Inspector (Acting)  
T. Lighty, Resident Inspector (Acting)  
W. Loo, Senior Health Physicist (2RS6, 4OA1)  
C. Dykes, Health Physicist (2RS7, 4OA1)  
D. Berkshire, Emergency Preparedness Inspector (1EP2, 1EP3,  
1EP5, 4OA1, 4OA6, 4OA7)  
M. Speck, Senior Emergency Preparedness Inspector (1EP2,  
1EP3, 1EP5, 4OA1, 4OA6, 4OA7)  
J. Rivera-Ortiz, Senior Reactor Inspector, Team Lead (1R17)  
T. Chandler, Resident Inspector (Vogtle) (1R17)  
T.C. Su, Reactor Inspector (1R17)  
M. Coursey, Reactor Inspector (1R17)

Approved by: Frank Ehrhardt, Chief  
Reactor Projects Branch 2  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000348/2013002; and 05000364/2013002; January 1, 2013, through March 31, 2013; Joseph M. Farley Nuclear Plant; Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

The report covered a three-month period of inspection by resident and regional inspectors. One Severity Level (SL) IV/Green non-cited violation (NCV) was identified. 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 June 2, 2011. The cross-cutting aspect was determined using IMC 0310, "Components Within The Cross-Cutting Areas" dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated January 28, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### Cornerstone: Mitigating Systems

Green. An NRC-identified Green finding and associated Severity Level IV, NCV, of 10 CFR 50.59(d)(1), were identified for the failure to perform an evaluation of a turbine-driven auxiliary feed water (TDAFW) pump governor modification on Units 1 and 2 against the criteria in 10 CFR 50.59(c)(2), as directed by site procedure NMP-AD-010 and the self-imposed industry guidelines in Nuclear Energy Institute document NEI 96-07, Revision 1, for the implementation of 10 CFR 50.59. The licensee entered the issue in the corrective action program as condition report (CR) 606427 and addressed the operability of the TDAFW pumps. In addition, one of the corrective actions of the CR is the completion of the required 50.59 evaluation.

The licensee's failure to perform a 50.59 evaluation as required by 10 CFR 50.59(d)(1) was a performance deficiency. This performance deficiency was more-than-minor because it is associated with the design control 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 (i.e., core damage). Specifically, the licensee did not fully demonstrate that the availability, reliability, and capability of the TDAFW pump would be maintained through the modification of the pump governor. Additionally, the failure to perform a 50.59 evaluation was determined to be more-than-minor in accordance with the guidance in the NRC Enforcement Manual for traditional enforcement violations because there was a reasonable likelihood that the change could require Commission review and approval prior to implementation. The inspectors evaluated the significance of the finding using Inspection Manual Chapter 0609, "Significance Determination Process (SDP)," and determined the finding was of very low safety significance (Green). In accordance with the NRC Enforcement Policy, the violation of 10 CFR 50.59 was determined to be a Severity Level IV violation because it resulted in a condition evaluated as having very low safety significance (i.e., Green) by the SDP. This finding has a cross cutting aspect in the decision making component of the human performance area because the most significant causal factor of the performance

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deficiency was that the licensee did not use conservative assumptions in the determination of whether the TDAFW governor modification introduced adverse effects that required a 50.59 evaluation. [H.1(b)]. (Section 1R17)

A violation of Severity Level IV that 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 corrective action tracking number is listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

Unit 1 started the report period at 100 percent rated thermal power (RTP). The unit completed an unplanned power reduction to 51 percent RTP on February 18 due to a loss of isophase bus duct cooling. The unit returned to 100 percent RTP on February 19 and remained at 100 percent RTP for the remainder of the inspection period.

Unit 2 started the report period at 100 percent RTP. The unit remained at or near 100 percent RTP until the licensee started a reactor coolant system temperature coast down on March 12 for the refueling outage. At the end of the inspection period, Unit 1 was at 78 percent RTP and coasting down for the refueling outage.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### a. Inspection Scope

##### .1 Seasonal Extreme Weather Conditions

The inspectors conducted a detailed review of the station's adverse weather procedures written for extreme low temperatures. The inspectors verified that weather related equipment deficiencies identified during the previous year had been corrected prior to the onset of seasonal extremes. The inspectors evaluated the licensee's implementation of adverse weather preparation procedures and compensatory measures before the onset of seasonal extreme weather conditions. Documents reviewed are listed in the Attachment. The inspectors evaluated the following risk-significant systems:

- Units 1 and 2 condensate storage tanks
- Units 1 and 2 service water

##### .2 Impending Adverse Weather Conditions

The inspectors reviewed the licensee's preparations to protect risk-significant systems from high winds expected on January 30, 2013. 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 reviewed the licensee's plans to address the ramifications of potentially lasting effects that may result from high winds. 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

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onset of anticipated adverse weather conditions. The inspectors also verified the licensee implemented periodic equipment walk-downs or other measures to ensure that the condition of plant equipment met operability requirements. Documents reviewed are listed in the Attachment.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial Walk-Down:

The inspectors verified that critical portions of selected risk-significant systems were correctly aligned. The inspectors selected systems for assessment because they were a redundant or backup system/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. The inspectors verified that critical portions of the selected systems were correctly aligned by performing partial walkdowns. Documents reviewed are listed in the Attachment. The inspectors selected the following four system/trains to inspect:

- Unit 1 service water
- Unit 1 "A" train DC switchgear
- Unit 2 auxiliary feedwater
- Unit 1 auxiliary feedwater

Complete Walkdown

The inspectors verified the alignment of the Units 1 and 2 control room air conditioning system. 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. In order to identify any deficiencies that could affect the ability of the system to perform its functions, the inspectors reviewed records related to outstanding design issues and maintenance work requests. The inspectors verified that the selected system was correctly aligned by performing a complete walk down 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, as well as periodic reports containing information on the status of risk-significant systems, including maintenance rule reports and system health reports. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05AQ)

a. Inspection Scope

Quarterly Inspection

The inspectors evaluated the adequacy of selected fire plans by comparing the fire plans to the defined hazards and defense-in-depth features specified in the fire protection program. In evaluating the fire plans, the inspectors assessed the following items: (1) control of transient combustibles and ignition sources, (2) fire detection systems, (3) water-based fire suppression systems, (4) gaseous fire suppression systems, (5) manual firefighting equipment and capability (6) passive fire protection features, (7) compensatory measures and fire watches, and (8) issues related to fire protection contained in the licensee's corrective action program. The inspectors toured the following seven fire areas and Units 1 & 2 carbon dioxide bottle room to assess material condition and operational status of fire protection equipment. Documents reviewed are listed in the Attachment.

- Unit 1 service water pump room, fire zone 72A
- Unit 1 service water pump room, fire zone 72D
- Unit 1 service water pump room, fire zone 72E
- Unit 1 service water pump room, fire zone 74
- Unit 2 service water pump room, fire zone 72B
- Unit 2 service water pump room, fire zone 72C
- Unit 2 service water pump room, fire zone 73

Annual Inspection

The inspectors evaluated the licensee's fire brigade performance during a drill on January 8, 2013, and assessed the brigade's capability to meet fire protection licensing basis requirements. The inspectors observed the following aspects of fire brigade performance: (1) capability of fire brigade members, (2) leadership ability of the brigade leader, (3) use of turnout gear and fire-fighting equipment, (4) team effectiveness, and (5) compliance with site procedures. The inspectors also assessed the ability of control room operators to combat potential fires, including identifying the location of the fire, dispatching the fire brigade, and sounding alarms. The inspectors evaluated the licensee's ability to declare the appropriate emergency action level and make required notifications in accordance with NUREG 0654 and 10 CFR 50. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)a. Inspection ScopeUnderground Cables

The inspectors reviewed related flood analysis documents and inspected the areas listed below that contain cables whose failure could disable risk significant equipment. The inspector 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 their corrective action program. Documents reviewed are listed in the Attachment.

- Unit 1/2, A1M54/A2M53 pullboxes
- Unit 1/2, A1M49/A2M49 pullboxes

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)a. Inspection Scope:.1 Resident Inspector Quarterly Review of Licensed Operator Regualification

The inspectors observed a simulator scenario conducted for training of an operating crew for continuing training on February 12, 2013. The inspectors assessed licensed operator performance, the ability of the licensee to administer the scenario and evaluate the operators, the quality of any post-scenario critique, any follow-up actions taken by the facility licensee, and the performance of the simulator. Documents reviewed are listed in the Attachment.

.2 Resident Inspector Quarterly Review (Licensed Operator Performance):

The inspectors observed licensed operator performance in the main control room during a Unit 2 Yellow risk condition on February 7, 2013. Inspectors observed licensed operator performance to assess 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

Documents reviewed are listed in the Attachment.

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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 in order to verify the licensee appropriately addressed equipment problems within the scope of the Maintenance Rule (10 CFR 50.65). The inspectors reviewed procedures and records in order 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. Documents reviewed are listed in the Attachment.

- Condition Report (CR) 433777, emergency diesel generator test start relay (TSR) needs a preventative maintenance strategy to ensure oxidation of contacts does not occur
- CR 611302, component cooling water (CCW) heat exchanger relief valve failure

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the six maintenance activities listed below to verify 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. Documents reviewed are listed in the Attachment.

- Unit 1, January 7, 2013, YELLOW risk condition while 1B residual heat removal (RHR) pump out of service for planned maintenance
- Unit 2, January 23, 2013, elevated GREEN risk condition while 2A motor driven auxiliary feedwater pump (MDAFWP) out of service for planned maintenance
- Unit 2, February 7, 2013, YELLOW risk condition while A train spent fuel pool cooling out of service for maintenance
- Unit 2, February 12, 2013, elevated GREEN risk condition while 2A MDAFWP out of service for planned maintenance

- Unit 2, March 6, 2013, Yellow risk condition while B train MDAFWP out of service for planned maintenance
- Unit 1, March 8, 2013, Yellow risk condition while B train MDAFWP out of service for planned maintenance

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the six operability evaluations listed below in order to verify the requirements of licensee procedures NMP-OS-007, "Conduct of Operations" and NMP-AD-012, "Operability Determinations (ODs) and Functionality Assessments" were met. The scope of this inspection also included a review of the technical adequacy of the evaluations, the adequacy of compensatory measures, and the impact on continued plant operation.

- CR 538899, Unit 1 and Unit 2, "A" train control room air conditioning system (CRACS) outboard bearing degradation noted during ultrasound data collection
- CR 569630, Unit 1 turbine driven auxiliary feedwater pump (TDAFWP) steam supply from 1B steam generator (SG) has solenoid valve not properly mounted to valve actuator
- CR 580126, Unit 2 condensate storage tank conduit stanchions has degraded seismic support
- CR 579766, 1SW-11A/B supervisory air check valves leaking by; water dripping from the Fisher controller boxes for SW AOV's.
- CR 589394, Unit 1 TDAFWP steam supply valve failed to open during surveillance testing
- CR 585492, Unit 2 2C service water pump start failure

b. Findings

No findings were identified.

1R17 Evaluations of Changes, Tests, and Experiments and Permanent Plant Modifications (71111.17T)

a. Inspection Scope

The inspectors reviewed selected samples of plant changes, tests, or experiments to verify compliance with plant procedures, self-imposed industry standards, and the regulatory requirements in 10 CFR 50.59. The inspectors selected a number of plant changes that were initiated or fully implemented since the last triennial modifications inspection in 2010 and interviewed plant personnel involved in the design and

implementation of these changes. The inspection sample selection considered permanent plant changes, design changes, set point changes, equivalency evaluations, suitability analyses, calculations, and commercial grade dedications. The inspectors selected the samples based on their safety significance, risk significance, and complexity. For plant changes that the inspectors determined to be substantial, the inspectors performed a vertical slice review to verify that affected documents were properly updated. The selected plant changes were reviewed in one of three categories: (a) changes that were evaluated against the criteria in 10 CFR 50.59 (i.e. 50.59 evaluations), (b) changes that the licensee determined did not require 50.59 evaluations (i.e. changes that “screened out”), and (c) permanent plant modifications.

The inspectors reviewed a sample of 50.59 evaluations and plant changes that “screened out” and did not include a 50.59 evaluation to confirm that the licensee’s conclusions to not submit a license amendment to the NRC or not perform a 50.59 evaluation were correct and supported with sufficient analysis and technical information. The inspectors verified that any safety issues identified during the development and implementation of the modification had been resolved. The inspectors also verified that design and licensing basis documents had been updated to reflect the design and licensing basis of the facility after the change had been implemented.

Additionally, the inspectors reviewed a sample of permanent plant modifications to verify that design and licensing basis documents had been updated to reflect the design and licensing basis of the facility after the change had been implemented. The inspectors also used the guidance in NRC inspection procedure 71111.18 to verify that other design basis features affected by the modification, such as structural, flooding, and environmental qualification, had been adequately accounted for. The inspectors also verified that procedures, training plans, and test program documentation had been adequately updated to reflect the plant change. Finally, the inspectors verified that post-modification testing adequately verified system operability and functionality.

For all selected samples, the documents reviewed as part of the licensing and design basis review included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the updated final safety analysis report (UFSAR), supporting analyses, functional system descriptions, technical specifications, and technical specification basis, as applicable.

The inspectors also reviewed selected CRs and recent self-assessments associated with modifications and screening/evaluation issues to confirm that problems were identified at an appropriate threshold, were entered into the corrective action program, and appropriate corrective actions had been initiated and tracked to completion.

The review of plant changes, tests, or experiments described in this section fulfilled the triennial requirement in the NRC’s baseline inspection program. The samples selected for review consisted of eight evaluations against 10 CFR 50.59, 23 plant changes that

were “screened out” by the licensee, and 13 permanent plant modifications. The selected inspection samples, design attributes, and supporting documents reviewed are listed in the report attachment.

b. Findings and Observations

.1 (SL-IV) Failure to Perform 50.59 Evaluation for Replacement of TDAFW Pump Governor

Introduction: An NRC-identified Green finding and associated SL-IV non-cited violation of 10 CFR 50.59(d)(1) were identified for the failure to perform an evaluation of a turbine-driven auxiliary feedwater (TDAFW) pump governor modification on Units 1 and 2 against the criteria in 10 CFR 50.59(c)(2), as directed by site procedures and the self-imposed industry guidelines for the implementation of 10 CFR 50.59.

Description: Licensee procedure NMP-AD-010, “10 CFR 50.59 Screenings and Evaluations,” Ver. 8.0 (8/05/2010), Section 1.0, stated that the purpose of this procedure was to describe the process for compliance with the requirements of 10 CFR 50.59 using the guidelines contained in the Nuclear Energy Institute document NEI 96-07, “Guidelines for 10 CFR 50.59 Evaluations,” Revision 1. Procedure NMP-AD-010, Section 6.2, listed the screening questions to be used to determine whether a plant change required an evaluation against the criteria in 10 CFR 50.59(c)(2). Question 1 asked whether the activity involved a modification, addition to, or removal of a structure, system and component (SSC) such that a design function as described in the UFSAR is adversely affected. Procedure NMP-AD-010, Section 6.2, also directed the user to refer to NEI 96-07, Revision 1, Section 4, for additional guidance on how to answer the screening questions.

Section 4 of NEI 96-07, Revision 1, stated that a 10 CFR 50.59 evaluation is required when a change adversely affects an evaluation that demonstrates that intended design functions of a SSC described in the UFSAR will be accomplished. The guidance also states that if a change has both positive and adverse effects, the change should be “screened in” and the 50.59 evaluation should focus on the adverse effects.

The UFSAR for Farley Nuclear Plant, Chapters 6 and 8, Revision 22, described the design function of the TDAFW pumps, including their control systems. Section 6.5.1 of the UFSAR stated that no alternating current power is required for 2 hours for operation of the TDAFW pump following a station blackout event. Section 8.3.3.2 of the UFSAR also stated that the TDAFW system contains an uninterruptible power supply (UPS) that consisted, in part, of a 48-volt nominal battery containing 24 calcium-lead-acid cells, electrically connected in series, and rated to supply the UPS inverter at full load for 2 hours. The design function of the TDAFW pump UPS was supported by licensee calculation SE-02-9834-001, “Battery Capacity Calculation for TDAFW-UPS,” Ver. 3.0, which contained the evaluation to demonstrate that the intended design function of the TDAFW UPS battery will be accomplished as described in the UFSAR.

In November, 2010, the licensee performed a 50.59 screening for design change package (DCP) 1060862601, "Unit 1 TDAFW Pump Governor Replacement." This screening was performed in accordance with licensee procedure NMP-AD-010. The proposed design change replaced the existing analog/hydraulic governor on the Unit 1 TDAFW pump with a new digital electronic governor speed control system (EGSCS). During the design stage, the licensee identified that the new EGSCS required more than twice the power consumption than the original control system. The proposed change intended to utilize the existing UPS battery for the new TDAFW pump EGSCS. The licensee determined that the projected new battery load would not be acceptable within the bounds and assumptions of the original calculation SE-02-9834-001. The inspectors identified that the licensee changed some elements of the calculation, which involved changing the calculation method and reducing analytical margin, in order to justify the use of the existing UPS battery with the new EGSCS. The licensee's final conclusion in the 50.59 screening was that the design function of the TDAFW pump was not adversely affected by the proposed modification and therefore an evaluation against the criteria in 10 CFR 50.59(c)(2) was not required. The licensee performed a similar 50.59 screening to evaluate the same modification in Unit 2 (DCP 2060862701, latest revision dated December 2, 2010). The modification was implemented on both Units and battery load tests were conducted to confirm the capability of the UPS battery to support the 2-hour mission time for the Unit 1 and Unit 2 TDAFW pumps. The functional testing of the Unit 1 and Unit 2 TDAFW pump governor replacement were completed on November 14, 2010 and May 15, 2010, respectively.

The inspectors determined that the increase in battery load by more than twice the original load and the need to change the battery load calculation methodology to accommodate the new EGSCS constituted an adverse effect to the existing evaluation that demonstrated that the intended design function of the TDAFW pumps will be accomplished as described in the UFSAR. The inspectors concluded that the energy needs for the proposed modification were not bound by the existing design basis calculation and therefore the UPS battery load calculation was negatively affected by the change in calculation methodology and decrease in safety margin. Consequently, an adverse effect was introduced by the modification, which required evaluation against the criteria in 10 CFR 50.59(c)(2) as prescribed by the self-imposed guidance in NEI 96-07, Revision 1.

Analysis: The licensee's failure to perform a 50.59 evaluation as required by 10 CFR 50.59(d)(1) was a performance deficiency. This performance deficiency was more-than-minor because it is associated with the design control 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 (i.e., core damage). Specifically, the licensee did not fully demonstrate that the availability, reliability, and capability of the TDAFW pump would be maintained through the modification of the pump governor. Additionally, the failure to perform a 50.59 evaluation was determined to be more-than-minor in accordance with the guidance in the NRC Enforcement Manual for traditional enforcement violations, because there was a reasonable likelihood that the change could require Commission review and approval prior to implementation. The failure constitutes a violation of 10 CFR 50.59, which impacts the regulatory process and therefore, was evaluated through

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the traditional enforcement process. The SDP, which was used to evaluate this performance deficiency, does not specifically consider the impact on the regulatory process. Thus, although related to a common regulatory concern, it is necessary to address both the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated performance deficiency.

The inspectors used IMC 0609, "Significance Determination Process," dated June 2, 2011, to determine the safety significance of the finding. Using IMC 0609, Attachment 4, "Initial Characterization of Findings," dated June 19, 2012, the inspectors determined that the finding affected the mitigation systems cornerstone. As directed by IMC 0609, Attachment 4, the inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated June 19, 2012. Based on the design and functional testing information for the modification, the inspectors answered "No" to all the screening questions in Exhibit 2, Section A, Mitigating Systems, and determined that the finding was of very low safety significance (Green).

The violation of 10 CFR 50.59 impacted the ability of the NRC to perform its regulatory oversight function and was dispositioned using traditional enforcement. This violation was determined to be a Severity Level IV violation per Section 6.1.d.2 of the NRC Enforcement Policy, dated January 28, 2013, because the associated finding was evaluated by the SDP as having very low safety significance (i.e., Green finding).

The NRC concluded that the finding reflected current licensee performance and assessed the finding for cross cutting aspects using IMC 0310, "Components Within The Cross-Cutting Areas" dated October 28, 2011. This finding has a cross cutting aspect in the decision making component of the human performance area because the most significant causal factor of the performance deficiency was that the licensee did not use conservative assumptions in the determination of whether the TDAFW governor modification introduced adverse effects that required a 50.59 evaluation. [H.1(b)]

Enforcement: 10 CFR 50.59 (d)(1) states, in part, that the licensee shall maintain records of changes in the facility made pursuant to paragraph (c) of 10 CFR 50.59. These records must include a written evaluation which provides the bases for the determination that the change does not require a license amendment pursuant to 10 CFR 50.59 (c)(2).

Contrary to the above, the licensee's 50.59 screening evaluation documented in DCPs 1060862601 (November, 2010) and 2060862701 (December 2010) did not include a written evaluation with sufficient information to provide the bases for the determination that the TDAFW governor modification did not require a license amendment pursuant to 10 CFR 50.59 (c)(2). Specifically, the DCPs did not include a 50.59 evaluation to demonstrate that the TDAFW governor control modification did not meet the criteria in 10 CFR 50.59(c)(2) and that the design change could be implemented without prior NRC review and approval.

Because this violation was determined to be a SL IV violation and the licensee entered the issue in their corrective action program as CR 606427. This violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy, dated 01/28/13. As part of the CR, the licensee addressed the operability of the TDAFW pumps and will perform the required 50.59 evaluation. This finding will be tracked as NCV 05000348, 05000364/2013002-01; Failure to Perform 50.59 Evaluation for Replacement of TDAFW Pump Governor.

.2 Unresolved Item (URI), Unit 1 Solid State Protection System Modifications

Introduction: The inspectors identified an URI associated with the implementation of the licensee's process to comply with 10 CFR 50.59 for a digital modification of the solid state protection system (SSPS) logic and control boards. This item remains unresolved pending further review by the NRC staff.

Description: The SSPS logic and control boards provide the coincidence logic to produce actuation signals for operation of the reactor protection system (RPS) and the engineered safety features actuation systems (ESFAS). Design Change Package 1071563201, "Unit 1 Solid State Protection System Modification – 1R24," Version 4.0, evaluated a digital modification to the existing SSPS logic and control boards. This modification replaced existing obsolete printed circuit boards (PCBs) with replacement boards supplied by Westinghouse. The modification replaced universal logic PCBs, safeguards driver PCBs, undervoltage driver PCB, and semi-automatic tester PCB in Unit 1. The original circuit boards used fixed logic devices (i.e. transistor-transistor logic) whereas the replacement circuit boards used programmable logic devices (i.e. complex programmable logic devices (CPLDs)) to perform the required logic operation for the design function of the SSPS.

The licensee performed a 50.59 screening for this modification in accordance with procedure NMP-AD-010. This procedure stated that its purpose was to describe the process for compliance with the requirements of 10 CFR 50.59 using the guidelines contained in NEI 96-07, "Guidelines for 10 CFR 50.59 Evaluations," Revision 1. The procedure included the screening questions to be used to determine whether a plant change required an evaluation against the criteria in 10 CFR 50.59(c)(2). Procedure NMP-AD-010, Section 6, directed the user to refer to NEI 96-07, Revision 1 and NEI 01-01, "Guideline on Licensing Digital Upgrades," Revision 1, for additional guidance on how to answer the screening questions.

Section 4 of NEI 96-07, Revision 1, stated that a 10 CFR 50.59 evaluation is required when a change adversely affects the design function or the method of performing or controlling a design function. The guidance also states that an example that would require an evaluation is a change that introduces a new type of accident or malfunction. The guidance also states that if a change has both positive and adverse effects, the change would require a 50.59 evaluation and should focus on the adverse effects.

Additionally, NEI 01-01, Revision 1, Section 4.3.2, stated that most digital upgrades to redundant safety systems should be conservatively treated as “adverse” and should require an evaluation. This section also states that some examples of adverse effects that should be evaluated are those that change functionality in a way that increases complexity and introduces different behavior or potential failure modes.

The licensee concluded in their 50.59 screening that the replacement of SSPS cards did not require an evaluation against the criteria in 10 CFR 50.59(c)(2), because the modification did not adversely affect the function of the SSPS as described in the UFSAR. The basis for that conclusion consisted, in part, of the following statements in the 50.59 screening:

- The Westinghouse-recommended SSPS replacement circuit boards (CPLD-based circuit boards) for the PCBs had been demonstrated to be a suitable replacement for the existing PCBs.
- The CPLD-based circuit boards were an equivalent form, fit and function replacement that contained no software (programmable code) and would not decrease the reliability of the SSPS.
- The main CPLD operated as a fixed logic device. The boards were not susceptible to software common mode failure, were fully testable, and were not considered digital upgrades.
- Existing SSPS redundancies, automatic actuation, system interactions (including testability), input and output signal levels, response times, seismic and environmental qualification were not adversely affected by the replacement boards.
- For the safeguards driver, universal logic, and undervoltage driver boards, although most of the failures had low probability of occurrence and low impact, there were certain board failures that could cause inadvertent equipment actuations and/or safety equipment inoperability. However, the risk of failure was comparable to that of the original-design circuit boards. The replacements continued to provide the coincidence logic to develop reactor trip and ESFAS signals.

The inspectors reviewed the 50.59 screening and Westinghouse supporting information for the replacement cards and identified various issues of concern associated with the design, testing, and operation of the replacement circuit boards, which could represent adverse effects to the design function of the SSPS as described in the UFSAR. These potential adverse effects would have required an evaluation against the criteria in 10 CFR 50.59(c)(2) as directed by site procedure NMP-AD-010, and the self-imposed NEI guidance (NEI 96-07 and NEI 01-01). Specifically, the inspectors identified that:

- The response time of the new design circuit boards were slower than the original PCBs. Slower response times could represent an adverse effect to the timing requirements of the design function of the SSPS to support the operation of the reactor trip system. The 50.59 screening did not contain sufficient information to determine if the difference in response times represented an adverse effect on the design function of the SSPS.
- Human system interface features such as dip switches, RS-232 communication ports, and indicating LEDs were added to the new cards. Section 4.3.4 of NEI 01-01, "Screening Human-System Interface Changes," indicates that changes that create new potential failure modes in the interaction of operators and maintenance personnel with the system could lead to potential adverse effects. The 50.59 screening did not contain sufficient information to determine if the new human system interface features represented an adverse effect to the design function, or the method of performing or controlling the design function of the SSPS.
- While the licensee concluded that the CPLD-based circuit boards contained no software because, the manufacturer used a "data file" or firmware set during initial configuration to program the logic gates in the device board. Section 5.3.3.2 of NEI 01-01, defined that type of feature as "Base Software." Additionally, NEI 01-01, section 4.3.2, "Software Considerations," indicates that digital modifications that involve the use of software applications should be conservatively treated as an "adverse effect," due to the potential introduction of new failure modes (software-based failures, including common cause failures (CCF) not previously evaluated, especially when modifications involve redundant safety systems (i.e. RPS, ESFAS). The 50.59 screening did not contain sufficient information to exclude the "data file" from the definition of "Base Software" and the associated design considerations in NEI 01-01.
- Second and third party commercial vendors were involved in the manufacturing of the CPLDs as well as the development of the "data file" software. The inspectors found that there was not sufficient information in the 50.59 screening and supporting vendor information to determine the level of quality assurance placed into the development of the CPLDs to ensure reliable operation of this logic device.
- The testing performed by the vendor for the development of the CPLDs only covered the combinations of inputs and outputs (hardware functional testing) required for the design function of the SSPS. However, the 50.59 screening and supporting vendor information did not contain sufficient information to determine if the testing performed by the vendor was sufficient enough to cover other possible sequence of device states due to the relative complexity of the CPLDs' operation. This would include software-induced states associated with the CPLDs themselves and the embedded "data file," which could result in malfunctions of the SSPS.

This issue remains unresolved pending NRC review of additional information to be provided by the licensee to address the five concerns described above, in order to determine the adequacy of the licensee's 50.59 screening and whether or not the issue represents a violation of 10CFR 50.59, "Changes, Tests, and Experiments." The licensee entered this issue in the corrective action program as CR 606581 to address operability of the SSPS and evaluate the need for a 50.59 evaluation. The licensee completed a prompt determination of operability (PDO). The resident inspectors reviewed the operability determination and did not identify any issues regarding the operability of the SSPS cards.

This issue is being tracked as a URI 05000348/2013002-02; "Unit 1 Solid State Protection System Modifications."

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the criteria contained in licensee procedures FNP-0-PMT-0.0, "Post-Maintenance Test Program," to verify post-maintenance test procedures and test activities for the following six systems/components were adequate to verify system operability and functional capability. The inspectors also witnessed the test or reviewed the test data to verify test results adequately demonstrated restoration of the affected safety functions. Documents reviewed are listed in the Attachment.

- FNP-2-STP-11.2, "2B RHR Pump Quarterly, Comprehensive, and In-service Test and Pre-service Test," following maintenance on 2B RHR Train
- FNP-1-STP-4.3, "1C Charging Pump Quarterly In-service Test," following maintenance on 1C charging pump
- FNP-2-STP-4.1, "2A Charging Pump Quarterly In-service Test," following maintenance on 2A charging pump
- FNP-0-STP-80.17, "Diesel Generator 2C Operability Test," following maintenance on the 2C EDG
- FNP-1-STP-4.2, "1B Charging Pump Quarterly In-service Test," following maintenance on 1B charging pump power supply breaker
- FNP-1-STP-21.3, "TDAFWP Steam Supply Valves Valve In-service Test," following replacement of TDAFWP steam admission valve solenoid

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)a. Inspection Scope

The inspectors reviewed the following surveillance tests and either observed the test or reviewed test results to verify testing adequately demonstrated equipment operability and met TS requirements. The inspectors reviewed the activities to assess for preconditioning of equipment, procedure adherence, and valve alignment following completion of the surveillance. The inspectors reviewed licensee procedures FNP-0-AP-24, "Test Control," FNP-0-M-050, "Master List of Surveillance Requirements," and NMP-OS-007, "Conduct of Operations," and attended selected briefings to determine if procedure requirements were met. Documents reviewed are listed in the Attachment.

Surveillance Tests

- FNP-2-STP-201.12, "Reactor Coolant System Q2B21FT0426 Loop Calibration and Operational Test"
- FNP-2-STP-16.2, "2B Containment Spray Pump Quarterly Inservice Test"
- FNP-2-STP-11.1, "2A RHR Pump Quarterly Inservice Test"
- FNP-1-STP-16.1, "1A Containment Spray Pump Quarterly Inservice Test"
- FNP-1-STP-22.16, "Turbine Driven Auxiliary Feedwater Pump Quarterly Inservice Test"

In-Service Test (IST)

- FNP-1-STP-22.1, "1A Auxiliary Feedwater Pump Quarterly Inservice Test"

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

1EP2 Alert and Notification System Evaluationa. Inspection Scope

The inspectors evaluated the adequacy of the licensee's methods for testing the alert and notification system in accordance with NRC Inspection Procedure 71114, Attachment 02, "Alert and Notification System Evaluation." The applicable planning standard, 10 CFR Part 50.47(b)(5), and its related 10 CFR Part 50, Appendix E, Section IV.D, requirements were used as reference criteria. The criteria contained in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, were also used as a reference.

The inspectors interviewed personnel, reviewed various documents, and observed performance of a weekly siren test. This inspection activity satisfied one inspection sample for the alert and notification system on a biennial basis. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System

a. Inspection Scope

The inspectors reviewed the licensee's Emergency Response Organization (ERO) augmentation staffing requirements and process for notifying the ERO to ensure the readiness of key staff for responding to an event and timely facility activation. The qualification records of key position ERO personnel were reviewed to ensure all ERO qualifications were current. A sample of problems identified from augmentation drills or system tests performed since the last inspection were reviewed to assess the effectiveness of corrective actions.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 03, "Emergency Response Organization Staffing and Augmentation System." The applicable planning standard, 10 CFR 50.47(b)(2), and its related 10 CFR 50, Appendix E requirements were used as reference criteria.

This inspection activity satisfied one inspection sample for the ERO staffing and augmentation system on a biennial basis. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness

a. Inspection Scope

The inspectors reviewed the corrective actions identified through the emergency preparedness program to determine the significance of the issues, the completeness and effectiveness of corrective actions, and to determine if issues were recurring. The licensee's post-event after action reports, self-assessments, and audits were reviewed to assess the licensee's ability to be self-critical, thus avoiding complacency and degradation of their emergency preparedness program. The licensee's 10 CFR 50.54(q) change process and selected evaluations of emergency preparedness document revisions were reviewed to assess adequacy. The inspectors toured facilities and reviewed equipment and facility maintenance records to assess the licensee's adequacy in maintaining them. During tours of the control room, the inspectors observed licensee

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staff demonstrate the capabilities of radiation monitoring instrumentation used to support declaring emergency action levels. In addition, the inspectors reviewed licensee procedures and training for evaluating changes to the emergency plans.

The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 05, "Maintenance of Emergency Preparedness." The applicable 10 CFR 50.47(b), planning standards, and related 10 CFR 50, Appendix E requirements were used as reference criteria.

The inspectors reviewed various documents which are listed in the Attachment. This inspection activity satisfied one inspection sample for the maintenance of emergency preparedness on a biennial basis.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The NRC evaluated the conduct of the licensee routine emergency preparedness drill listed below to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation (PAR) development activities. The NRC observed emergency response operation in the simulated control room to verify event classification and notification were performed in accordance with FNP-0-EIP-9.0, "Emergency Classification and Actions." The NRC used procedure FNP-0-EIP-15.0, "Emergency Drills," as the inspection criteria. The NRC also evaluated the licensee drill critique to compare any inspector-observed weaknesses with those identified by the licensee in order to verify whether the licensee was properly identifying issues.

- February 12, 2013 – General Emergency due to a steam line break accident concurrent with a steam generator tube rupture and control rod failure.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

Cornerstones: Occupational Radiation Safety (OS) and Public Radiation Safety (PS)

2RS6 Radioactive Gaseous and Liquid Effluent Treatment

a. Inspection Scope

Radioactive Waste Treatment Systems The inspectors walked-down selected components of the gaseous and liquid radioactive waste (radwaste) processing and discharge systems. To the extent practical, the inspectors observed and evaluated the

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material condition of in-place waste processing equipment for indications of degradation or leakage that could constitute a possible release pathway to the environment. Inspected components included waste monitor tanks, floor drain tanks, evaporation equipment, waste gas decay tanks, ventilation filtration systems, vendor-supplied liquid waste processing equipment, and associated piping and valves. The inspectors interviewed cognizant licensee staff regarding radwaste equipment configuration and effluent monitor operation. The inspectors also reviewed surveillance testing records for auxiliary building ventilation filtration systems and for effluent flow rate measuring devices.

Effluents The inspectors observed the collection of airborne effluent samples from the Unit 1 containment atmospheric batch release and Unit 2 plant vent. Technician proficiency in collecting, processing, and counting the samples, as well as preparing the applicable release permits was evaluated. The inspectors reviewed recent liquid and gaseous release permits including pre-release sampling results, effluent monitor setpoints, and public dose calculations. The inspectors reviewed the 2010 and 2011 annual effluent release reports to evaluate reported doses to the public, review any anomalous events, evaluate groundwater sampling results, and to review Offsite Dose Calculation Manual (ODCM) changes. The inspectors also reviewed compensatory sampling data for time periods when selected radiation monitors were out of service. The inspectors reviewed the results of the 2011 and 2012 radiochemistry cross-check program to evaluate the quality of the radioactive effluent sample analyses. The inspectors discussed effluent source term evaluation and changes to effluent release points with licensee staff. Recent land use census results and meteorological data used to calculate doses to the public were evaluated during this program area review and as a part of Inspection Procedure (IP) 71124.07.

Ground Water Protection The inspectors reviewed the licensee's continued implementation of the industry's Ground Water Protection Initiative (NEI 07-07) and discussed any changes to the program. The inspectors discussed program guidance for dealing with spills, leaks, and unexpected discharges with licensee staff and reviewed recent entries into the 10 CFR 50.75(g) decommissioning file. The inspectors reviewed and discussed the licensee's program for monitoring of structures, systems, and components with the potential to release radioactive material to the environment, including selected portions of the liquid radwaste system. Potential effluent release points due to onsite surface water bodies were also evaluated.

Radwaste system operation, effluent processing activities, and groundwater protection efforts were evaluated against requirements and guidance documented in the following: 10 CFR 20; 10 CFR 50 Appendix I; ODCM; Updated Final Safety Analysis Report (UFSAR) Section 11; Regulatory Guide (RG) 1.21, "Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants," RG 1.109, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50 Appendix I," and Technical Specification (TS) Section 5. Procedures and records reviewed during the inspection are listed in the Attachment.

Problem Identification and Resolution The inspectors reviewed selected Corrective Action Program (CAP) documents in the areas of gaseous and liquid effluent processing and release activities. The inspectors evaluated the licensee's ability to identify and resolve the identified issues in accordance with procedure NMP-GM-002-001, "Corrective Action Program Instructions," Version (Ver.) 30.0. The inspectors also reviewed recent self-assessment results.

The inspectors completed all specified line-items detailed in IP 71124.06 (sample size of 1).

b. Findings

No findings were identified.

2RS7 Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope

REMP Status and Results: The inspectors reviewed and discussed changes to the ODCM and results presented in the Annual Radiological Environmental Operating Report (AREOR) documents issued for calendar years (CYs) 2011 and 2010. REMP contract laboratory cross-check program results, and current procedural guidance for offsite collection, processing and analysis of airborne particulate and iodine, broadleaf vegetation, and surface water samples were reviewed and discussed. The AREOR environmental measurement results were reviewed for consistency with licensee effluent data and evaluated for radionuclide concentration trends.

Equipment Walk-down: The inspector walked down nine atmospheric sampling stations and observed equipment material condition and verified operability, including verification of flow rates and total sample volume results for some of the units, for the weekly airborne particulate filter and iodine cartridge change-outs. In addition, the inspectors viewed two broadleaf vegetation sampling locations and discussed broadleaf vegetation sampling. Select surface water locations were verified and observed. Optically stimulated luminescent (OSL) dosimeter material conditions and placement were observed at select ODCM locations. Land use census results, actions for missed samples including compensatory measures, and availability of replacement equipment were discussed with environmental technicians and knowledgeable licensee staff. In addition, calibration and maintenance surveillance records for the installed environmental air sampling stations were reviewed.

Procedural guidance, program implementation, quantitative analysis sensitivities, and environmental monitoring results were reviewed against 10 CFR Part 20; Appendix I to 10 CFR Part 50; TS Sections 5.5, "Programs and Manuals," 5.4, "Procedures," 5.5.1, "Offsite Dose Calculation Manual," Revision 24, 5.6.2, "Annual Radiological Environmental Operating Report"; RG 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operation) - Effluent Streams and the Environment"; and the Branch Technical Position, "An Acceptable Radiological Environmental Monitoring Program - 1979." Documents reviewed are listed in the Attachment.

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Meteorological Monitoring Program The inspectors conducted a tour of the meteorological tower and observed local data collection equipment readouts. The inspectors observed the physical condition of the tower and associated instruments and discussed equipment operability, maintenance history, and backup power supplies with responsible licensee staff. The inspectors evaluated transmission of locally generated meteorological data from the meteorological tower to the main control room operators. For the meteorological measurements of wind speed, wind direction, and temperature, the inspectors reviewed applicable tower instrumentation calibration records and evaluated meteorological measurement data recovery for CYs 2010 and 2011.

Licensee procedures and activities related to meteorological monitoring were evaluated against the ODCM; the UFSAR; RG 1.23, "Meteorological Monitoring Programs for Nuclear Power Plants"; and ANSI/ANS-2.5-1984, "Standard for Determining Meteorological Information at Nuclear Power Sites." Documents reviewed are listed in the Attachment.

Problem Identification and Resolution The inspectors reviewed selected CAP documents in the areas of environmental and meteorological monitoring. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NMP-GM-002-001, Corrective Action Program Instructions Ver. 30.0.

The inspectors completed all specified line-items detailed in IP 71124.07 (sample size of 1).

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors sampled licensee data for the performance indicators (PIs) listed below to verify the accuracy of the PI data reported on the NRC public website. Nuclear Energy Institute (NEI) 99-02, Regulatory Assessment Indicator Guideline, Rev. 6, was used to verify the basis in reporting for each data element. Documents reviewed are listed in the Attachment.

Cornerstone: Initiating Events

- Unplanned Scrams
- Unplanned Power Changes

For the period from the first quarter of 2012 through the fourth quarter of 2012, the inspectors reviewed a selection of licensee event reports, operator log entries, daily reports (including the daily CR descriptions), monthly operating reports, and PI data sheets to verify that the licensee had accurately identified the number of scrams and unplanned power changes greater than 20 percent that occurred during the subject period. The inspectors compared those numbers to the numbers reported by the licensee for the PI. The inspectors also reviewed the accuracy of the number of critical hours reported, and the licensee's basis for crediting normal heat removal capability for each of the reported reactor scrams.

Cornerstone: Mitigating Systems

- Emergency AC Power System

For the period from the first quarter of 2012 through the fourth quarter of 2012, the inspectors reviewed licensee event reports, records of inoperable equipment, and maintenance rule records to verify that the licensee had accurately accounted for unavailability hours that the subject systems had experienced during the period.

The inspectors also reviewed the number of hours those systems were required to be available and the licensee's basis for identifying unavailability hours.

Cornerstone: Occupational Radiation Safety

The inspectors reviewed PI data collected from April through December 2012, for the Occupational Exposure Control Effectiveness PI. For the reviewed period, the inspectors assessed CAP records to determine whether High Radiation Area (HRA), Very HRA or unplanned exposures, resulting in TS or 10 CFR 20 non-conformances, had occurred during the review period. In addition, the inspectors reviewed selected personnel contamination event data, internal dose assessment results, and electronic dosimeter alarms for cumulative doses and/or dose rates exceeding established set-points. Documents reviewed are listed in the Attachment.

Cornerstone: Public Radiation Safety

The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the public radiation safety cornerstone from April through December 2012. For the assessment period, the inspectors reviewed cumulative and projected doses to the public and CRs documents related to Radiological Effluent TS/ODCM issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in the Attachment.

Cornerstone: Emergency Preparedness

- Drill/Exercise Performance (DEP)
- Emergency Response Organization Drill Participation (ERO)
- Alert and Notification System Reliability (ANS)

For the for the period April 1, 2012, through December 31, 2012, the inspector examined data reported to the NRC, procedural guidance for reporting PI information, and records used by the licensee to identify potential PI occurrences. The inspectors verified the accuracy of the PI for ERO drill and exercise performance through review of a sample of drill and event records. The inspectors reviewed selected training records to verify the accuracy of the PI for ERO drill participation for personnel assigned to key positions in the ERO. The inspectors verified the accuracy of the PI for alert and notification system reliability through review of a sample of the licensee's records of periodic system tests. The inspectors also interviewed the licensee personnel who were responsible for collecting and evaluating the PI data. Licensee procedures, records, and other documents reviewed within this inspection area are listed in the Attachment. This inspection satisfied three inspection samples for PI verification on an annual basis.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Daily Condition Report Reviews

As required by IP 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the NRC performed a daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing copies of CRs, attending daily screening meetings, and accessing the licensee's computerized database.

.2 Annual Samples:

a. Inspection Scope

The inspectors performed a detailed review of the following CR to verify the full extent of the issues were identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the CR against the licensee's corrective action program as delineated in licensee procedure NMP-GM-002, Corrective Action Program, and 10 CFR 50, Appendix B. Documents reviewed are listed in the Attachment.

- CR 196428, 1B service water pump measured flow was in the required action range per FNP-1-STP-24.12

b. Findings and Observations

No findings were identified.

.3 Operator Work-Around Annual Review

a. Inspection Scope

The inspectors performed a detailed review of the licensee's operator work-around list, operator burden list, and control room deficiency list for Units 1 and 2 in effect on March 26, 2013. The inspectors reviewed the proposed corrective actions and schedule for each item on the lists. The inspectors reviewed the compensatory actions and cumulative effects on plant operation. The inspectors verified each item was being dispositioned in accordance with plant procedure FNP-0-ACP-17.0, "Work-Around Program."

b. Findings:

No findings were identified.

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction (TI) 2515/187, "Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns"

a. Inspection Scope

The inspectors verified that licensee's walkdown packages for the site's independent spent fuel storage installation and plant service water strainer areas contained the elements as specified in NEI 12-07 Walkdown Guidance document. The inspectors accompanied the licensee on their walkdown of the site's intake area and verified that the licensee confirmed the following flood protection features.

- Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspection for indication of degradation that would prevent its credited function from being performed was performed.
- Reasonable simulation
- Critical structures, systems, components dimensions were measured
- Available physical margin was determined
- Flood protection feature functionality was determined using either visual observation or by review of other documents.

The inspectors independently performed their walkdown of Unit 1 Auxiliary Building, 121' elevation to verify that flood protection measures described in the FSAR were in place for this area.

The inspectors verified that noncompliances with current licensing requirements, and issues identified in accordance with 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into the licensee's corrective action program. In addition, issues identified in response to item 2.g that could challenge risk significant equipment and the licensee's ability to mitigate consequences will be subject to additional NRC evaluation.

b. Findings and Observations

No findings were identified.

4OA6 Meetings, Including Exit

The NRC presented the inspection results to Tom A. Lynch, Site Vice-president and members of the licensee's staff on April 8, 2013. The staff acknowledged the results. The NRC confirmed proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

The following Severity Level IV violation was identified by the licensee and is a violation of NRC requirements, which met the criteria of Section 2.3.2 of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation.

- 10 CFR 50.54(q) states, in part, that licensees may make changes to their emergency plans without Commission approval only if the changes do not decrease the effectiveness of the plans. Contrary to the above, on August 13, 2007, the licensee implemented a change to their emergency plan, specifically the Emergency Action Levels (EALs), which decreased the effectiveness of the approved plan. A note was added to an approved EAL (Notice of Unusual Event HU2), which would delay declaration of an Unusual Event for fires in containment under certain conditions. This decreased the effectiveness of the emergency plan. Since the violation affected the NRC's ability to perform its regulatory function, it was evaluated under traditional enforcement. The inspectors concluded that implementing this change was a Severity Level IV violation based on its similarity to the example in section 6.6(d) of the Enforcement Policy. The licensee took immediate actions to eliminate the note from the EAL and entered the issue in their corrective action program as CR 571572.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee**

M. Ajluni, Nuclear Licensing Director  
W. Arens, Licensing Engineer  
M. Byrd, Design Engineering Supervisor  
T. Campbell, Nuclear Oversight  
D. Christianson, Training Manager  
M. Galle, Simulator Coordinator  
C. Gayheart, Plant Manager  
R. Gayheart, Fleet Training Manager  
D. Hall, Operations Training Supervisor  
D. Hobson, Operations Support  
L. Hogg, Nuclear Technical Specialist  
J. Horn, Site Support Manager  
F. Hundley, Fleet Oversight Supervisor  
P. Ivey, Regulatory Affairs Vice President  
T. Lynch, Site Vice President  
R. Martin, Engineering Programs Manager  
S. McGavin, Security Manager  
D. McKinney, Regulatory Response Manager  
R. Odom, Operations Lead Instructor  
M. Peel, Medical Services Coordinator  
E. Ransom, Site Design Supervisor  
L. Riley, Performance Improvement  
C. Salter, Nuclear Duty Officer  
L. Smith, Maintenance Manager  
B. Taylor, Performance Improvement Supervisor  
C. Thornell, Operations Director  
S. Varnum, CHM Manager  
W. Vierkandt, Radiation Protection Manager  
C. Westberry, Engineering Systems Manager

#### **NRC personnel**

Frank Ehrhardt, Chief, Branch 2, Division of Reactor Projects

## LIST OF REPORT ITEMS

### Opened and Closed

05000348,364/2013002-01	NCV	Failure to Perform 50.59 Evaluation for Replacement of TDAFW Pump Governor (Section 1R17)
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### Opened

05000348/2013002-02	URI	Unit 1 Solid State Protection System Modifications (Section 1R17)
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### Closed

05000348,364/2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.1)
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### Discussed

None

## LIST OF DOCUMENTS REVIEWED

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

#### Condition Reports:

581025

#### Procedures:

FNP-1-EMP-1383.01, Freeze Protection Inspections, Version 20.0

FNP-0-SOP-0.12, Cold Weather Contingencies, Version 18.0

FNP-0-AOP-21.0, Severe Weather, Revision 36.0

#### Drawings:

B-172374 Unit 1 Freeze Protection – Service Water & Misc. Cold Piping, Sheet 16, Rev. 2

B-172374 Unit 1 Freeze Protection – Service Water & Misc. Cold Piping, Sheet 6, Rev. 6

B-202374 Unit 2 Freeze Protection – Service Water & Misc. Cold Piping, Sheet 6, Rev. 6

#### Work Orders:

88942

55063

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

#### Condition Reports:

467294

579766

579767

579769

580730

574841

586813

#### Drawings:

D-175014, Unit 1 HVAC: PI&D Non Rad Area & Electrical Equipment Rooms, Sheet 1, Version 29

D-175014, Unit 1 HVAC: PI&D Non Rad Area & Electrical Equipment Rooms, Sheet 2, Version 19

D-175046, Unit 1&2 HVAC & Filter Process Flow Diagram, Control Room & Computer Room, Version 19

D-175012, Unit 1 HVAC & Filter PI&D, Control Room & Computer Room, Version 40

D-170052, Instrument Air Compressors Service Water Intake Structure Schematic, Version 14.0

D-170119, Service Water System, Sheet 1, Version 35

D-170119, Service Water System, Sheet 2, Version 46

D-170119, River Water System, Sheet 6, Version 26

B-170058, Service Water Structure Air Compressor Unit "A", Sheet 67, Version 8.0

D-175007, Unit 1 P&ID: Aux. Feedwater System, Version 31

D-175003, Unit 1 P&ID: Service Water, Sheet 2 of 3, Version 44

#### Work Orders:

419012

Documents:

DR 579089

ESP-52107C, Control Room Ventilation Lesson Plan Version 2

ESP-52107C, Instructor & Course Outline Version 2

181006, Control Room Ventilation Functional System Description

FNP-FSAR, Revision 24

OPS-62102H/521025H/40201D Auxiliary Feedwater, Instructor & Course Outline, Version 2

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

Drawings:

A-508651, Service Water Intake Structure, Sheet 08, rev. 3

A-508651, Service Water Intake Structure, Sheet 07, rev. 6

A-508651, Service Water Intake Structure, Sheet 09, rev. 1

Documents:

Fire Drill Scenario 20130108, Short in Multi-level Cable Chase Room 466

**Section 1R06: Flood Protection Measures**

Procedures:

NMP-ES-051-004, Pull Box Inspection Procedure, Version 1.1

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

Procedures:

NMP-EP-110, Emergency Classification Determination and Initial Action, Version 5.0

NMP-EP-111, Emergency Notifications, Version 7.4

NMP-EP-111-001, Emergency Notification Network Communicator Instructions – Farley,  
Version 3.1

Documents:

13-S0402, Licensed Operator Continuing Training Simulator Exercise Guide LOCT 12-14  
Segment 4, OPS-56400A, Version 0

**Section 1R12: Maintenance Effectiveness**

Condition Reports:

433777

358684

611302

596442

Technical Evaluations:

608440

**Section 1R13: Maintenance Risk Assessments and Emergent Work Evaluation**

Procedures:

FNP-0-ACP-52.3, "Mode 1,2, & 3 Risk Assessment," Version 9.0

**Section 1R15: Operability Determinations and Functionality Assessments**Condition Reports:

538899	550426	569630	580126	580144	580136
579766	578893	578894	579769	579767	578895
589394	585492				

Procedures:

NMP-GM-002-F-02, Apparent Cause Determination Report, Version 13.0  
 FNP-2-SOP-24.0, Service Water, Version 73.0  
 FNP-0-EMP-1313.18, Inspection and Adjustment of Cutler Hammer 4.16 kV Circuit Breakers Type MA-VR350, Version 14.0

Drawings:

D-170052, Instrument Air Compressors Service Water Intake Structure Schematic, Version 14

Technical Evaluations:

550813	569660	590146	610733	610736	610737
610738	610739	610740			

Corrective Action Report

197781

Work Orders:

447950	460914	460915	460913	463483	463552
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Documents:

Response to NRC Concerning Water Intrusion for SW IA Lines

**Section 1R17: Evaluation of Changes, Tests, or Experiments and Permanent Plant Modifications**Condition Reports:

201051046	201062057	201065102	324665	339445	443620
49156	496499	52755	543878	544544	544573
544669	572886	572887	572889	572892	580286
581081					

Procedures:

FNP-1-SOP-1.1, Reactor Coolant System, Ver. 47.2  
 FNP-1-SOP-24.0A, Service Water System-Outside Structures, Ver. 22  
 FNP-1-STP-24.2, 1C, 1D, and 1E Service Water Pump Quarterly Inservice Test, Ver.s 69 and 74.2  
 FNP-1-UOP-1.1, Startup of Unit from Cold Shutdown to Hot Standby, Ver. 94.3  
 NMP-ES-017-004, MOV Diagnostic Procedure for Gate & Globe Valves, Ver. 6.0  
 NMP-ES-044, Preparation of Design Change Package, Ver. 12.0  
 NMP-GN-008, Operation Experience Program, Ver. 15.0

Drawings:

D-170113, P&ID-Service Water Pumps Cooling and Lube Water Water System, Versions 29 and 36  
 D-170119, Piping & Instrumentation Diagram – Service Water System, Ver. 47  
 D-175039 Sheet 6, P&ID – Chemical and Volume Control System, Ver. 10  
 OPS-622011/522011/40302F/ESP-522011, Solid State Protection System Block Diagram, Ver. 02  
 SNC86713E037, Single Line Diagram - 3KVA TDAFW Pump UPS, Ver. 1.0  
 SNC86713E038, Alarm and Meter Panel - 3KVA TDAFW Pump UPS, Ver. 1.0  
 Worksheet 1082083901E006, Elementary Diagram 4160V Bus 1A Potential Transfers, Ver. 1.0  
 Worksheet 1082083901E010, Elementary Diagram Reactor Coolant Pumps Aux PT Cabinet, Ver. 2.0  
 Worksheet 1082083901E017, Elementary Diagram SSPS A Train Field Inputs Channels I and II, Ver. 2.0  
 Worksheet 1082083901J003, Functional Diagrams Primary Coolant System Trip Signals, Ver. 1.0

Calculations:

E-035.02.A, Setting of Protective Relays for 4.16kV Auxiliary Power System, Ver. 6.0  
 E-042, Steady State Diesel Generator Loading Calculation for LO SP, SI, and SBO, Ver. 19  
 MC-F-07-004, Service Water Pumps' Permissible Degraded Curves, Ver. 3.0  
 MC-F-07-0045, Service Water System Flow Balance Evaluation, Ver. 6.0  
 MC-F-07-0054, Service Water System Flow Balance Calculation Using ProtoFlo Software, Ver. 1.0  
 MC-F-08-0031, Modification Calculation to Base Calculation SE-02-9834-001, Battery Capacity Calculation for TDAFW-UPS, Ver. 3.0  
 MC-F-08-0079, Modification Calculation to Base Calculation BM-99-1932-001, Internal Flooding Assessment, Ver. 1.0  
 MC-F-08-0103, Modification Calculation to Base Calculation SM-96-9094-001, HVAC Heating and Cooling Load Change Log, Ver. 3.0  
 MC-F-09-0108, Reduced Voltage Capability for Butterfly Valves in the FNP MOV Program, Ver. 1.0  
 MC-F-09-0109, MOV Nominal Stroke Times for Gates, Globe, and Butterfly Valves, Ver. 1.0  
 MC-F-10-0136, MOV Nominal Stroke Times for Gate, Globe, and Butterfly Valves, Ver. 2.0  
 MC-F-11-0006, Modification Calculation to Base Calculation E-035.02.A, Setting of Protective Relays for 4.16kV Auxiliary Power System, Ver. 6.0  
 MC-F-11-0007, Modification Calculation to Base Calculation SE-94-0470-007, Unit 2 As-Built Load Study, Ver. 6.0  
 MC-F-11-0008 Modification Calculation to Base Calculation SE-94-0470-005, Unit 2 Load Study Summary, Ver. 5  
 MC-F-11-0024, Modification Calculation to Base Calculation E-042, Steady State Diesel Generator Loading Calculation for LO SP, SI, and SBO, Ver. 19  
 MC-F-11-0098, Engineering Safety Features Response Times, Ver. 1.0  
 SC-1060862601-001, Attachment of Turbine Control Panel to the floor slab, Ver. 3.0  
 SC-1060862601-002, Attachment of Junction Box to the floor slab via Unistrut and TS, Ver. 2.0  
 SC-1060862601-003, Attachment of Rectifier Auxiliary Cabinet to the floor slab, Ver. 3.0  
 SE-02-9834-001, Battery Capacity Calculation for TDAFW Pump UPS, Rev. 5.0  
 SE-02-9834-001, Battery Capacity Calculation for TDAFW-UPS, Ver. 3.0

SE-94-0470-005, Unit 2 Load Study Summary, Ver. 5.0  
 SE-94-0470-007, Unit 2 As-Built Load Study, Ver. 6  
 SM-1979920001-001, Unit 2 Computer Room HVAC Loads, Base Calculation Ver. 2  
 SM-90-1653-001, MOV Thrust Requirements for Gate & Globe Valves, Ver. 16  
 SM-90-1653-002, Reduced Voltage Torque/Thrust Capability for Gate and Globe Valves,  
 Ver. 22  
 SM-90-1653-009, Reduced Voltage Torque Capability for Butterfly Valves in the FNP MOV  
 Program, Ver. 6  
 SM-90-1653-012, MOV Nominal Stroke Times for Gate, Globe and Butterfly Valves, Ver. 10  
 SM-90-1653-012, MOV Nominal Stroke Times for Gate, Globe, and Butterfly Valves, Ver. 13  
 SM-95-8816-001, Control Room Air Conditioning Load, Base Calculation Ver. 09  
 SM-97-1505-001, PROTO-HX Small and Large Diesel Heat Exchanger Models, Ver. 05  
 SM-99-2116-001, Engineering Safety Features Response Times, Rev. 0  
 SS-05-7831-001, Service Water from Strainer F503B to Cyclone Separator, Ver. 1  
 Westinghouse Letter ALA-09-124, Transmittal of Debris Evaluation in the Event of an  
 Inadvertent Shut Down Seal Actuation, 11/17/09 (Proprietary)  
 Westinghouse Letter ALA-10-142, Summary of Seismic and Weak Link Calculation Performed  
 for Valves at Locations 8000A and 8000B, 11/4/10 (Proprietary)  
 Westinghouse Letter ALA-10-79, Transmittal of Evaluation of Reactor Cooling Pump Shut Down  
 Seal Actuating on a Rotating Shaft, May 14, 2010 (Proprietary)

Work Orders (WOs):

1042120102	1060862608	1070132801	1090703802	1090703803	1090703804
1090912801	358810	340996	342854	343153	345816
358102	358123	55103	63239	74817	77729

Selected Plant Changes That Included a 50.59 Evaluation (Sample Size: 8):

As-built Notice (ABN)-F01188 / LDCR 2008-044FS, Service Water System Functional System  
 Description Update, Ver. 1  
 DCP 1081719501, Radiation Monitor Deletion - Unit 1 Group 1A, Ver. 3.0  
 DCP 1090247701, Low Pressure Turbine Replacement, Ver. 5.0  
 DCP 1090680001, FNP RCP Shutdown Seal Implementation, Ver. 3.0  
 DCP 2081719601, Radiation Monitor Deletion - Unit 2 Group 1B, Ver. 3.0  
 MDC 1090703801, Minor JOG Changes for Valves Q1E21LCV115B, Q1E21LCV115D, and  
 Q1E21MOV8100, Rev. 1  
 MDC 2090693201, Minor Joint Owners Group (JOG) Changes for Motor Operated Valve (MOV)  
 Q2E21MOV8100, Rev. 1  
 MDC SNC58683, Joint Owners Group (JOG) MOV Butterfly Valve Upgrades per GL 96-05,  
 Rev. 1

Selected Plant Changes that "Screened Out" and Did Not Include a 50.59 Evaluation (Sample  
 Size: 23):

DCP 1082083901, Reactor Coolant Pump (RCP) Breaker Position Rx Trip Elimination, Ver. 3  
 DCP 2061016801, Pressurizer Nozzle Structural Weld Overlay, Rev. 7  
 DCP 2081115301, Q2E11MOV8811A Reliability Enhancements, Rev. 5  
 DCP C092455501, Replace EDG Lube Oil Heat Exchanger Tube Bundles with Stainless Steel  
 Bundles, Rev. 2

DCP SNC313414, Service Water Supply to 2B MDAFWP 8" Piping Replacement (U2R21), Rev. 1.0

MDC 1080493701, Replace Valves N1N39V579A/B and N1N39V587B with MOGAS Valves, Rev. 1

MDC 1080539401, Material Upgrade of 1A & 1B Motor Driven Auxiliary Feed Water Pump (MDAFWP) Room Cooler Service Water Valves, Rev. 1

MDC 1080701601, Install an Isolation Valve in the U1 Reactor Coolant System (RCS) Loop Drain Line Downstream of the Existing Spectacle Flanges, Rev. 1

MDC 1081849101, Service Water Pump 1A Discharge Check Valve (Q1P16V552) Stainless Steel Upgrade, Rev. 1

MDC 1081916901, Replace Environmentally Qualified (EQ) Connectors on EQ Limit Switches, Rev. 1

MDC 1082042501, Replace Q1P17TV3083 (Letdown Heat Exchanger) Positioner with Digital Positioner, Rev. 1

MDC 1082074101, Service Water to 1A MDAFWP Pipe Replacement, Rev. 1

MDC 1090459001, Service Water Carbon Steel Gate Valve Replacement in Containment Building, Rev. 1

MDC 1090677401, Replace the Degraded Unit 1 Service Water Supply Piping to the 2B Emergency Diesel Generator (EDG), Rev. 1

MDC 1091042301, Replace Unit 1 TDAFW Pump Discharge Check Valve Q1N23V0003, Rev. 1

MDC 1092873301, 1A Service Air Compressor Controller Upgrade, Rev. 1

MDC 1101945501, 1B EDG Air Start Compressor Setpoint Change, Rev. 1

MDC 2082406001, Service Water to 2A MDAFWP Piping Replacement, Rev. 1.0

MDC 2090677501, Replace the Unit 2 Service Water Supply and Return Piping to the 1B EDG as described in RER C062835601 (PS-07-0621) during 2R22, Rev. 2

MDC 2092885601, Spent Fuel Pool Control Room Temperature Indication, Rev. 1

MDC C101946101, 1C EDG Air Start Compressor Setpoint Change, Rev. 1

MDC S090105601, Removal of Five Tubes from Diesel Generator (DG) 1-2A Lube Oil Heat Exchanger and Plug the Resulting Holes in the Head Exchanger Tubesheets, Rev. 1

MDC SNC422996, 1-2A EDG Heat Shield Modification (Removal of Half Shells from Exhaust Piping on PC2 EDG at Farley Nuclear Plant), Rev. 1

Selected Permanent Plant Modifications and Design Attributes Reviewed (Sample Size: 13):

DCP 1042120101, 1B EDG Fuel Injector Cooling Water Removal, Ver. 5 (Attributes: Heat Removal and Flow Path)

DCP 1051571101, Replace Unit 1 Service Water Pumps, Ver. 15 (Attributes: Structural and Process Medium)

DCP 1060862601, Unit 1 Turbine Driven Auxiliary Feedwater Pump Governor Replacement, Ver. 2.0 (Attributes: Energy Needs, Materials/Replacement Components, Timing, and Failure Modes)

DCP 1071563201, U1 SSPS Card Replacements & General Warning Mods, Ver. 1.0 (Attributes: Energy Needs, Materials/Replacement Components, Heat Removal, and Failure Modes)

DCP 1090680001, RCP Shutdown Seal Implementation, Ver. 3.0 (Attributes: Materials/Replacement Components and Failure Modes)

DCP 1090968701, Unit 1 JOG MOV Major Modifications (Q1B31MOV8000A/B only), Ver. 3.0 (Attributes: Materials/Replacement Components, Timing, and Failure Modes)

DCP 2092455701, Replace the 2B EDG Lube Oil Heat Exchanger Tube Bundle with a Stainless Steel Tube Bundle, Ver. 1 (Attributes: Heat Removal and Materials/Replacement Components)

DCP C070703301, Replace Service Water Battery Chargers 1 & 3, Ver. 3.0 (Attributes: Energy Needs, Materials/Replacement Components, and Timing)

MDC 1090703801, Minor Joint Owners Group (JOG) Changes For Q1E21LCV115B, Q1E21LCV115D, and Q1E21MOV8100, Ver. 1.0 (Attributes: Timing and Operations)

MDC 2103572901, 2A MDAFWP Motor Replacement (Q2N23M0001A), Ver. 1.0 (Attributes: Energy Needs, Heat Removal, and Process Medium)

MDC SNC342548, Replacement of the 2C Steam Generator Wide Range Level Transmitter Q2N11LT0497, Ver. 0 (Attributes: Operations and Failure Modes)

MDC SNC347184, Unit 2 TDAFWP Pump Controller Start Relay, Ver. 1.0 (Attributes: Timing and Failure Modes)

MDC SNC378130, Unit 1 TDAFWP Governor Controller Start Relay Addition and Setpoint Change, Ver. 1.0 (Attributes: Timing and Failure Modes)

Self-Assessment Reports:

CR560943, Check-In Self-Assessment, Evaluation of Changes, Test, or Experiments and Permanent Plant Modifications, 12/14/2012

Other Documents:

A181005, Functional System Description – Diesel Generator System, Ver. 44

A181007, Functional System Description – Reactor Protection System, Ver. 18

A181010, Functional System Description – Auxiliary Feedwater System, Ver. 25

ABN-F01188, Service Water System Functional System Description Update, Ver. 1.0

AI 2010203953, Track completion of RER 2102645701

AI 2010209293, Present issue to ERB

CAR 195605, Upgrade CR 496499 to BCD

DOEJ-SC-1051571101-001, Seismic Qualification of Farley Unit 1 Service Water Pumps, Ver. 2.0

DOEJ-SC-1051571101-002, Evaluation of Seismic Support and Base Plate for Sulzer Vertical Pumps, Ver. 2.0

DOEJ-SC-1051571101-C003, Evaluation of Moving Support SS-5442 Service Water Intake Structure, Ver. 1.0

DOEJ-SM-1051571101-001, Evaluation of Heat Load Reduction in the SWIS Pump Room Due to Removal of Cyclone Separator and Associated MOVs, Ver. 1.0

Failure Modes and Effects Analysis Data letter for Equipment in new Digital Governor System, dated 11/19/07; Reference Southern Nuclear Order No. QP070019 (U732524)

Farley FSAR, Section 6.5, Auxiliary Feedwater System, Revision. 24

Farley FSAR, Section 8.3.3, AC and DC Uninterruptible Power Supply for the Turbine-Driven Auxiliary Feedwater Pump, Rev. 24

Final Safety Analysis Report, Joseph M. Farley Nuclear Plant, Revision 22 and 24.

FN-1-STP-24.2, 1C, 1D, and 1E Service Water Pump Quarterly Inservice Test, Ver. 69 (Completed on 06/28/2010)

FN-1-STP-24.2, 1C, 1D, and 1E Service Water Pump Quarterly Inservice Test, Ver. 69 (Completed on 06/28/2010)

In-Service Testing Evaluation, 1D Service Water Pump, 6/28/10

In-Service Testing Evaluation, 1D Service Water Pump, 6/28/10

In-Service Testing Evaluation, MOV8000A, Pressurizer PORV Block Valve, 4/19/12  
 In-Service Testing Evaluation, MOV8000B, Pressurizer PORV Block Valve, 4/17/12  
 LDCR 2006005 FS, Licensing Document Change Request for DCP 1051571101, Ver. 1.0  
 LDCR 2010043, Licensing Document Change Request for DCP 1090680001, Ver. 1.0  
 LDCR 2011037, Licensing Document Change Request for MDC 2092531601, Ver. 1.0  
 LDCR No: 2010057, JOG MOV Major Modifications, Ver. 1.0  
 RER 03-192, Technical Evaluation of Farley Radiation Monitoring System, 11/21/2003  
 TE 216298, Documentation issue associated with PORV block valves  
 TE 217568, DCP 1090968701 MOV Major Mods, 7/5/2011  
 TE 250170, Determine why this not caught in impact review process  
 TE 497199, Ensure FNP-2-ETP-4462 Turbine Performance Test  
 TE 544529, Correct documentation as needed  
 TE 573481, Address identified standards deficiencies  
 Technical Evaluation 199016, 2008200077 Simulator - Evaluate the impact on the simulator of the replacement of the service water, 7/19/12  
 U-733324, Ver. 1.0, WCAP-16771-P, Westinghouse SSPS Undervoltage Driver Board Replacement Summary Report 6D30350G01/G02, Rev. 01 (Proprietary)  
 U-733337, Ver. 1.0, WCAP-16770-P, Westinghouse SSPS Safeguards Drive Board Replacement Summary Report 6D30252G01/G02, Rev. 00 (Proprietary)  
 U-733347, Ver. 1.0, WCAP-16772-P, Westinghouse SSPS Semi-Automatic Tester Board Replacement Summary Report 6D30520G01/G02/G03//G04/G05, Rev. 01 (Proprietary)  
 U-733359, Ver. 1.0, WCAP-16769-P Westinghouse SSPS Universal Logic Board Replacement Summary Report 6D30225G01/G02/G03/G04, Rev. 02 (Proprietary)  
 Westinghouse Letter ALA-89-504, Containment Isolation Valve Response Time (Proprietary)  
 Westinghouse Letter LTR-RES-12-102, Farley SHIELD® Seal Post-Operating Test Analysis, 09/12/12 (Proprietary)

CRs Initiated as a Result of NRC's Inspection Activities:

603230	606427	606581	606642	606712	606715
606728	607221				

**Section 1R19: Post Maintenance Testing**

Condition Reports:

570846	376757	385679	505011	515092	572790
575973	577423	577453	577558	578853	494131
505011	385679	585367	583873	584113	579905
580440	580558	580946	581179	581209	581489
582293	582549	583636	583648	584530	584622

Procedures:

FNP-2-STP-11.2, 2B RHR Pump Quarterly, Comprehensive, and Inservice Test and Preservice Test, Version 34.2  
 FNP-2-STP-11.6, Residual Heat Removal Valves Inservice Test, Version 43.2  
 FNP-1-STP-4.3, 1C Charging Pump Quarterly Inservice Test, Version 61.0  
 FNP-2-STP-4.1, 2A Charging Pump Quarterly Inservice Test, Version 67.0  
 FNP-2-SOP-2.1, Chemical And Volume Control System Plant Startup And Operation, Version 127.1, Appendix P, Enabling The 2B Charging Pump To Auto-Start For 2A Charging Pump  
 FNP-2-SOP-2.1, Chemical And Volume Control System Plant Startup And Operation, Version

127.1, Appendix C, Returning 2A Charging Pump To Service After Maintenance  
FNP-0-STP-80.17, Diesel Generator 2C Operability Test, Version 38.1  
FNP-0-SOP-38.0-2C, 2C Diesel Generator Auxiliaries, Version 9.7  
FNP-1-STP-4.2, 1B Charging Pump Quarterly Inservice Test, Version 68.0  
FNP-1-STP-21.3, TDAFWP Steam Supply Valves Valve Inservice Test, Version 22.1

Drawings:

D205038, Sheet 2, Version 24.0  
D177188, Sheet 1, Version 26.0

Work Orders:

413658            460392            444965

Documents:

FNP-FSAR, Revision 24  
Apparent Cause Determination Report for CAR 197950

**Section 1R22: Surveillance Testing**

Condition Reports:

569636            586198            593337

Procedures:

FNP-2-STP-201.12, Reactor Coolant System Q2B21FT0426 Loop Calibration and Operational Test, Version 24.0  
FNP-1-STP-22.1, 1A Auxiliary Feedwater Pump Quarterly Inservice Test, Version 39.0  
FNP-2-STP-16.2, 2B Containment Spray Pump Quarterly Inservice Test, Version 45.0  
FNP-2-STP-11.1, 2A RHR Pump Quarterly Inservice Test, Version 39.3  
FNP-1-STP-16.1, 1A Containment Spray Pump Quarterly, 47.3  
FNP-1-STP-22.16, Turbine Driven Auxiliary Feedwater Pump Quarterly Inservice Test, Version 61.4

Work Orders:

456858  
416088  
420741  
424715  
424157

**Section 1EP2: Alert and Notification System Evaluation**

Condition Reports:

399092  
493077  
532445  
552229

Procedures:

FNP-0-EP-0.0, Farley Nuclear Plant Emergency Plan, Rev. 58  
FNP-0-EPP-1.1, FNP Alert and Notification (ANS) Program, Ver. 7.0

Farley ANS Design Report – updated 2009  
Federal Emergency Management Agency Approval (FEMA-REP-10 Report)  
FNP-0-EPP-1.0, Tone Alert Radio and Siren Operation, Ver. 5.0  
FNP-0-EPP-1.1, FNP Alert and Notification System (ANS) Program, Ver. 7.0  
FNP-0-EPP-1.2, ANS Testing and Maintenance, Ver. 6.0

Documents:

Tone Alert Radio maintenance records  
2011-2012 siren maintenance records  
2013 Safety Planning Information Mailer

**Section 1EP3: Emergency Response Organization Staffing and Augmentation System**

Condition Reports:

395730  
386411  
534322  
550599

Procedures:

FNP-0-EIP-0.0, Emergency Organization, Ver. 29  
FNP-0-EIP-5.0, Maintenance Support to the Emergency Plan, Ver. 17.0  
FNP-0-EIP-6.0, TSC Setup and Activation, Ver. 46.0  
FNP-0-EIP-8.3, Communications Equipment Operating Procedures, Ver. 14  
FNP-0-TCP-17.14, Emergency Plan Training Administration, Ver. 17.0  
FNP-0-TCP-50.2, Emergency Planning Controlled Functional Position Qualification Requirements, Ver. 9.0  
NMP-EP-001, Corporate Emergency Response Organization, Ver. 8.0  
NMP-EP-101, Emergency Operations Facility (EOF) Activation, Ver. 3.0  
NMP-EP-102, EOF Manager, Ver. 3.2  
NMP-EP-111, Emergency Notifications, Ver. 7.4  
NMP-EP-111-001, Emergency Notification Communicator Instructions – Farley, Ver. 3.1

Documents:

Current ERO Roster  
Sample of 15 ERO member training records  
2011/2012 ERO call-in drill documentation records  
Nov. 2012 after hours augmentation demonstration records

**Section 1EP5: Maintenance of Emergency Preparedness**

Procedures:

NMP-AD-008, Applicability Determinations, Ver. 15  
NMP-EP-310, Maintaining the Emergency Plan, Ver. 2.0  
NMP-EP-305-GL01, FNP Equipment Important to the EP Function, Ver. 1.0  
NMP-EP-305, Equipment Important to Emergency Response, Ver. 1.1  
NMP-EP-110, Emergency Classification Determination and Initial Action, Ver. 5.0  
NMP-EP-110-GL01, FNP EALs-ICs, Threshold Values and Basis, Ver. 3.0  
NMP-EP-303, Drill and Exercise Standards, Ver. 11.1  
NMP-GM-002, Corrective Action Program, Ver. 12.1

NMP-GM-002-001, Corrective Action Program Instructions, Ver. 29.0  
 FNP-0-AP-1.0, Development, Review, and Approval of Plant Procedures, Ver. 63.0  
 FNP-0-EIP-5.0, Maintenance Support to the Emergency Plan, Ver. 17  
 FNP-0-EIP-30.0, Post Accident Core Damage Assessment, Ver. 15  
 FNP-0-EPP-2.0, Emergency Preparedness Contingencies, Ver. 1.0  
 FNP-1-ARP-1.12, Annunciator Response Procedure, Ver. 59.4

Documents:

FNP-0-EP-0.0, Farley Nuclear Plant Emergency Plan, Rev. 58  
 F-EP-2012, Audit of Emergency Preparedness, January 17 – February 10, 2012  
 F-EP-2011, Audit of Emergency Preparedness, January 18 – February 28, 2011  
 Memoranda of Agreement Described in Farley Emergency Plan  
 May 25, 2011 Emergency Preparedness Drill Report  
 December 14, 2011 Emergency Preparedness Drill Report  
 February 22, 2012 Emergency Preparedness Drill Report  
 July 11, 2012 Emergency Preparedness Drill Report  
 50.54(q) screenings/reviews: FNP-12-001-00, EIP-14 (ver. 28) revision; FNP-12-11-00, Post accident core damage assessment; FNP-12-16-00, Personal Computer automated dose assessment; FNP-12-17-01, Seismic Compensatory Measures; FNP-12-032-00, Compensatory Measures for R-2 and R-7 out of service; FNP-12-46-01, Cyber Security boundary isolation devices; FNP-12-048-01, Replace existing meteorological towers; and FNP-12-63-01, FNP EALs, threshold values and basis.

**Section 1EP6: Drill Evaluation**

Condition Reports:

323227	458894	454557	454602	452550	455199
455496	477119	521622	533059	566626	571572

Procedures:

NMP-EP-110, Emergency Classification Determination and Initial Action, Version 5.0  
 NMP-EP-111, Emergency Notifications, Versions 7.4

Documents:

13-S0402, Licensed Operator Continuing Training Simulator Exercise Guide LOCT 12-14  
 Segment 4, OPS-56400A, Version 0

**Section 2RS6: Radioactive Gases and Liquid Effluent Treatment**

Condition Reports:

195376  
 572504

Procedures:

FNP-0-ETP-4182, Ventilation Systems Filtration Performance Testing, Version (Ver.) 5  
 FNP-1-ETP-4446, Post Accident Containment Ventilation Filtration Performance Test, Ver. 3.0  
 FNP-1-CCP-212.1, Liquid Effluent Radiation Monitoring System Setpoints, Ver. 12.0  
 FNP-1-CCP-213.1, Gaseous Effluent Radiation Monitoring System Setpoints, Ver. 19.0  
 FNP-1-CCP-643, Sampling Points for Potential Radiological Effluents, Ver. 43.0

FNP-1-STP-123.1, Control Room Emergency Ventilation Charcoal Adsorber Sampling and Testing, Ver. 11.0  
 FNP-1-STP-124.1, Penetration Room Filtration Charcoal Adsorber Sampling and Testing, Ver. 8.0  
 FNP-1-STP-720, Surveillance Testing Procedure, Containment Purge Surveillance, Ver. 20.0  
 FNP-2-STP-728, Surveillance Testing Procedure, Plant Vent Stack Surveillance, Ver. 21.0  
 FNP Offsite Dose Calculation Manual, Ver. 24  
 NMP-EN-002, Radiological Groundwater Protection Program, Ver. 5.0  
 NMP-EN-002-GL01, Farley Nuclear Plant Groundwater Monitoring Plan for Radionuclides, Ver. 1.0  
 NMP-GM-002, Corrective Action Program, Ver. 12.1  
 NMP-GM-002-001, Corrective Action Program Instructions, Ver. 30.0

Documents:

Farley Annual Radioactive Effluent Release Reports for 2010 and 2011  
 FNP-1-STP-720, Ver. 20.2, Surveillance Test Review Sheet, Containment Purge Surveillance, Dated 01/15/13  
 Gaseous Waste Release Permit (GWRP) Number (No.) G-20121204-0906-C, Plant Vent Stack, Dated 12/04/12  
 GWRP No. G-20121213-0938-B, Containment Vent/Purge Batch Release, Dated 12/12/12  
 GWRP No. G-20130110-0038-C, Plant Vent Stack, Dated 01/10/13  
 Groundwater Protection Monitoring Results, 11/08/11 – 11/29/2012  
 Liquid Waste Release Permit (LWRP) No. L-20121207-0818-B, WMT #2, Dated 12/07/12  
 LWRP No. L-20121211-0823-B, WMT #1, Dated 12/11/12  
 Radiation Effluent Monitors Unavailability Records Units 1 and 2, 07/01/11 – 12/31/12  
 Radioiodine Penetration/Efficiency Test Reports, Sample Identities: N1U41C005 (U1 Steam Jet Ejector Filter Unit), Dated 06/05/12; N2U41C005 (U2 Steam Jet Ejector Filter Unit), Dated 04/12/11; Q1E15F001A (U1 PRF A-Train Filter Unit), Dated 03/12/12; Q1E15F001B (U1 PRF B-Train Filter Unit), Dated 03/12/12; Q1E23F0001 (U1 Post Accident Containment Vent Filter Unit), Dated 10/11/11; Q2E23F0001 (U2 Post Accident Containment Vent Filter Unit), Dated 07/12/12; Q2E15F001A (U2 PRF A-Train Filter Unit), Dated 05/16/12; Q2E15F001B (U2 PRF B-Train Filter Unit), Dated 06/27/12; QSV49F0001B (Control Room B-Train Filter Unit, Dated 03/07/12; QSV49F0002B (Control Room B-Train Pressure Filter Unit, Dated 03/07/12; and QSV49F0003B (Control Room B-Train Recirc Filter Unit, Dated 03/07/12  
 Results of Radiochemistry Cross Check Program, Alabama Power, Farley Nuclear Plant, Dated 08/12/11 and 08/17/12  
 Sample Reports Dated 08/13/12, DAW; U1 PriResin 0812 V; U1 RCS Filters; U1 SFP Filters; U2 RCS Filters; and U2 SFP Filters  
 Fleet Oversight Audit of Chemistry/ODCM/Environmental, Fleet-CHM-2012, CNOS-12-115, Dated 10/15/12

**Section 2RS7: Radiological Environmental Monitoring Program (REMP)**

Condition Reports:

324758  
 351246  
 385962  
 64919  
 68630

Procedures:

FNP-0-ENV-12, NRC Comparative Program, 02/27/09, Ver. 7.0  
 FNP-0-ENV-791.0, Air Particulates and Iodine Sampling, Ver. 5.0  
 FNP-0-ENV-791.1, Air Particulate and Iodine Sample Analysis, Ver. 1.0  
 FNP-0-ENV-792.0, Environmental TLD Sampling, 07/21/12, Ver. 2.0  
 FNP-0-ENV-793.0, River Water Sampling, 11/09/12, Ver. 2.0  
 FNP-0-ENV-798, On-Site Ground Water Monitoring Program, Ver. 3.0  
 FNP-0-IMP-255.2, Environmental Air Monitoring Station Preventive Maintenance and Calibration, 10/29/12, Ver. 13.1  
 FNP-0-STP-255.0, Calibration of Primary and Redundant Meteorological Station Instrumentation, Ver. 32.1  
 FNP-ODCM, Ver. 24, 01/10  
 NMP-EN-002-GL01, Farley Nuclear Plant Groundwater Monitoring Plan for Radionuclides, Ver. 1.0

Work Orders:

110129401	87540	92336	93410	93476	94209
94837					

Documents:

Document S18-1596-002, Farley Nuclear Plant Decommissioning Cost Study: Appendix D, Rev. 0  
 Farley Inlight OSL REMP Report for #Q212, 11/15/12  
 Fleet-CHM-2012, Nuclear Oversight Audit of Chemistry/ODCM/Environmental Fleet-CHM-2012  
 Joseph M. Farley Nuclear Plant Annual Radiological Environmental Operating Reports for 2010 and 2011  
 R-2744291F-001, Plant Farley 2011 Annual Meteorological Report, Revision 0

**Section 40A1: Performance Indicator Verification**

Procedures:

FNP-0-AP-54, Preparation and Reporting of NRC Performance Indicator Data and NRC Operating Data, Ver. 14.0

Documents:

Selected Unit 1 and Unit 2 Control Room Logs from January 2012 through January 2013  
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6  
 Farley Unit 1 and Unit 2 Consolidated Data Entry, MSPI Derivation Report, Emergency AC Power System, dated January 8, 2013  
 Documentation of Performance Indicator data from April 1, 2012, through December 31, 2012 for DEP, ANS, and ERO

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

Condition Reports:

196428	71949	71357	71884	372650	372428
371568	381333	414988	471060	450662	550426
503930	593933	602077	68904	339063	43188
492597	69374	57802	601219	585139	507329
324818	28648	340262	387212	526484	595573

543137	591768	593922	594575	611901	594740
570892	578309	582727	583500	606328	557824

Work Orders:

85567	77812	86173	61567	306607	55445
52350	320927	358037	437598	469018	444385
466631	467507	467802	468015	457419	460329
462492	462655	473159			

Documents:

FNP-12-17-00, 10 CFR 50.54(q) Screening/Evaluation Number  
 FNP-12-17-01, 10 CFR 50.54(q) Screening/Evaluation Number  
 NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6  
 FNP-0-AP-54, Attachment 3, Health Physics PI Data Preparation, Preparation and Reporting of  
 NRC Performance Indicator Data and NRC Operating Data, Ver. 14.0, April - December 2012  
 GWRP No. G-20121204-0906-C, Plant Vent Stack, Dated 12/04/12  
 GWRP No. G-20121213-0938-B, Containment Vent/Purge Batch Release, Dated 12/12/12  
 LWRP No. L-20121207-0818-B, WMT #2, Dated 12/07/12  
 LWRP No. L-20121211-0823-B, WMT #1, Dated 12/11/12  
 Documentation of Performance Indicator data from April 1, 2012 through December 31, 2012 for  
 DEP, ANS, and ERO

Procedures:

FNP-0-AP-54, Preparation and Reporting of NRC Performance Indicator Data and NRC  
 Operating Data, Version 14.0  
 NMP-GM-002-F-02, Apparent Cause Determination Report, Version 12.1  
 NMP-AD-008-F04, 10CFR 50.54(q) Screening/Evaluation, Version 4.1  
 NMP-OS-006, Operations Performance Indicators, Version 12.0