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

July 20, 2012

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 05000348/2012003; AND 05000364/2012003

Dear Mr. Lynch:

On June 30, 2012, 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 July 12, 2012, with you and members of your staff.

The inspectors 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.

The inspectors identified three NRC identified findings and one self-revealing finding of very low safety significance (Green) during this inspection. The inspectors determined that three of these findings involved violations of NRC requirements. Further, the licensee identified three violations which the inspectors determined were of very low safety significance and are 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 non-cited violations, 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.

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 No.: NPF-2, NPF-8

Enclosure: Inspection Report 05000348/2012003; and 05000364/2012003
w/Attachment: Supplemental Information

cc w/encl.: (See page 3)

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 No.: NPF-2, NPF-8

Enclosure: Inspection Report 05000348/2012003; and 05000364/2012003
w/Attachment: Supplemental Information

cc w/encl.: (See page 3)

X PUBLICLY AVAILABLE ☐ NON-PUBLICLY AVAILABLE ☐ SENSITIVE X NON-SENSITIVE

ADAMS: ☐ Yes ACCESSION NUMBER:_____ X SUNSI REVIEW COMPLETE ☐ FORM 665 ATTACHED

OFFICE	RII:DRS	RII:DRP	RII:DRS	RII:DRS	RII:DRS	RII:DRP	RII:DRP
SIGNATURE	Via email	Via email	Via email	Via email	Via email	Via email	Via email
NAME	BCollins	ECrowe	CDykes	GKuzo	ANielsen	SSandal	JSowa
DATE	07/17/2012	07/17/2012	07/19/2012	07/16/2012	07/17/2012	07/15/2012	07/17/201
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICE	RII:DRP	RII:DRP					
SIGNATURE	MOM /RA/	FJE /RA/					
NAME	MMiller	FEhrhardt					
DATE	07/18/2012	07/20/2012					
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRPII\RPB2\FARLEY\REPORTS\2012IIR\2012003\FARLEY IR 2012-003.DOCX

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

J. L. Pemberton
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

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

M. J. Ajluni
Nuclear Licensing Director
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

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

(cc w/encl continued next page)

(cc w/encl continued)

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

Donald E. Williamson
State Health Officer
Alabama Dept. of Public Health
RSA Tower - Administration
Suite 1552
P.O. Box 30317
Montgomery, AL 36130-3017

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

Letter to Tom A. Lynch from Frank Ehrhardt dated July 20, 2012

SUBJECT: JOSEPH M. FARLEY NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000348/2012003; AND 05000364/2012003

Distribution w/encl:
C. Evans, RII
L. Douglas, RII
OE Mail
RIDSNRRDIRS
PUBLIC
RidsNrrPMFarley Resource

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.:	05000348, 05000364
License Nos.:	NPF-2, NPF-8
Report No.:	05000348/2012003; and 05000364/2012003
Licensee:	Southern Nuclear Operating Company, Inc.
Facility:	Joseph M. Farley Nuclear Plant, Units 1 and 2
Location:	Columbia, AL
Dates:	April 1, 2012 through June 30, 2012
Inspectors:	E. Crowe, Senior Resident Inspector J. Sowa, Resident Inspector B. Collins, Reactor Inspector (Section 1R08) C. Dykes, Reactor Inspector (Sections 2RS1, 2RS3, 2RS5) G. Kuzo, Senior Reactor Inspector (Sections 2RS2, 2RS4, 4OA1) A. Nielsen, Senior Reactor Inspector (Sections 2RS1, 4OA1, 2RS5) S. Sandal, Senior Reactor Inspector (Section 4OA5)
Approved by:	Frank Ehrhardt, Chief Reactor Projects Branch 2 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000348/2012003; and 05000364/2012003; April 1, 2012, through June 30, 2012; Joseph M. Farley Nuclear Plant; Problem Identification and Resolution, Component Design Basis Inspection, Inservice Inspection Activities, and Radiation Monitoring Instrumentation

The report covered a three-month period of inspection by resident and specialist inspectors. The inspectors identified three NRC identified findings and one self-revealing finding of very low safety significance (Green) during this inspection. The inspectors determined that three of these findings involved violations of NRC requirements. The significance of most findings is indicated by their color (greater than Green, Green, White, Yellow, or Red). The significance was determined using inspection manual chapter 0609, "Significance Determination Process. The inspectors identified cross-cutting aspects using Manual Chapter 0310, "Components Within the Cross-Cutting Areas. Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. 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: Initiating Events (IE)

- Green. A self-revealing Green non-cited violation of Technical Specification 5.4.1, Procedures, was identified for the licensee's failure to adhere to the information contained within clearance 1-DT-24-E21-03211. This failure resulted in the unplanned transfer of approximately 5000 gallons of borated water from the refueling water storage tank (RWST) to the reactor coolant system (RCS) refueling cavity and spent fuel pool. In the evening hours of April 10, 2012, operations permit tagout holders allowed the manipulation of Q1E11MOV8706B and Q1E21LCV115D which created an open pathway from the RWST to the RCS refueling cavity and spent fuel pool. Q1E21LCV115D was prohibited from being open by clearance 1-DT-24-E21-03211 while Q1E11MOV8706B was open. The control room staff isolated the unintended flow path and entered the condition into their corrective action program. The licensee conducted an apparent cause determination.

  The licensee failure to adhere to the information contained within clearance 1-DT-24-E21-03211 is a performance deficiency. This performance deficiency is more than minor because it is associated with the configuration control attribute of the Initiating Events cornerstone and adversely affected the objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the configuration of the residual heat removal (RHR), chemical volume and control system, and refueling water storage tank were not maintained as required and approximately 5000 gallons of borated water was transferred from the RWST to the reactor refueling cavity. The significance of this finding was screened using IMC 0609, Significance Determination Process (SDP), Phase 1 worksheets of Attachment 4. The inspectors also referenced IMC 0609, SDP worksheets of Appendix G, Shutdown Operations Significance Determination Process. The finding screened very low safety significance, Green, because it did not meet any of the loss of coolant accident, transient and external event initiators of the worksheets of Attachment 4. The inspectors reviewed this performance deficiency for cross-cutting

aspects and determined the licensee failed to appropriately coordinate work activities by incorporating actions to address the impact of the work on different job activities, and the need for work groups to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. The finding was assigned a cross-cutting aspect in the work control component of the human performance area H.3(b). (Section 4OA2)

Cornerstone: Mitigating Systems (MS)

- Green. The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to implement design control measures to verify the adequacy of design inputs, assumptions, or limiting plant conditions which were relied upon in the design basis analyses used to demonstrate the adequacy of condensate storage tank (CST) design. The licensee entered these issues into their corrective action program as condition reports 351170, 353599, and 355457. The licensee performed operability evaluations in support of current operability and implemented additional compensatory measures to ensure that CST level would be maintained above the condenser hotwell make-up elevation pending completion of proposed long term corrective actions. These proposed corrective actions included the more detailed design basis analysis required to support a license amendment request to increase the minimum volume of water specified by the limiting condition for operation in Technical Specification 3.7.6.

  The failure to utilize conservative design inputs, assumptions, or limiting plant conditions when implementing design control measures to verify the adequacy of CST design was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the mitigating systems cornerstone attribute of design control and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. In accordance with NRC inspection manual chapter 0609.04, "Initial Screening and Characterization of Findings," the inspectors used the mitigating systems column to perform a phase 1 significance determination process screening, and determined the finding to be of very low safety significance (Green). This determination was based on the fact that the performance deficiency was not a design issue resulting in loss of function, did not represent an actual loss of a system safety function, did not result in exceeding a Technical Specification allowed outage time, and did not affect external event mitigation. A cross-cutting aspect was not identified because the design basis calculation associated with the performance deficiency was last approved on March 25, 1999, and therefore, did not represent current licensee performance. (Section 1R21.1)

Cornerstone: Barrier Integrity (BI)

- Green. The inspectors identified a Green non-cited violation of 10 CFR Part 50.55a, "Codes and Standards," involving the licensee's failure to properly apply Subsection IWE of ASME Section XI for conducting general visual examinations of the metal-to-metal pipe plugs installed in the containment liner channel weld leak chase test connections that provide a moisture barrier to the containment liner seam welds. Following the

inspectors' identification of this issue, the licensee conducted the visual examinations and found missing covers on two of the leak chase test connection upper cavities. Upon further inspection of both of these leak chase test connections, the licensee found blockages in the test connection piping and significant corrosion of the metal plate making up the upper cavities. The licensee found one leak chase test connection lower cavity to be full of water, which was tested and determined to be borated water. The licensee adequately evaluated the deficiencies prior to entering Mode 4 (Hot Shutdown) to ensure the integrity of containment was maintained. The license conducted the required in-service inspection general visual examinations of the 45 leak chase test connections and found two covers were degraded and two other covers were missing. The licensee conducted further inspections on the two connections that did not have a cover and found, and removed, blockages from both test connections and water from one test connection. The licensee further evaluated these four connections to verify that containment integrity had been maintained and would continue to be maintained through the next operating cycle. The licensee entered this issue into their corrective action program as condition report (CR) 437663. The licensee was evaluating planned corrective actions at the conclusion of this inspection period.

The failure to conduct a general visual examination of 100 percent of the moisture barriers intended to prevent intrusion of moisture against inaccessible areas of the containment liner at metal-to-metal interfaces which are not seal welded, was a performance deficiency that was within the licensee's ability to foresee and correct. This finding was of more than minor significance because the failure to conduct required visual examinations and identify the degraded moisture barriers which allowed the intrusion of water into the liner leak chase channel, if left uncorrected, would have resulted in more significant corrosion degradation of the containment liner or associated liner welds. The finding was associated with the design control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, visual examinations of the containment metal liner provide assurance that the liner remains capable of performing its intended safety function. The inspectors used IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of the reactor containment.

The inspectors identified a cross-cutting aspect in the Operating Experience component of the Corrective Action Program (CAP) cross-cutting area (P.2(b)). In their evaluation of the issue, the licensee identified relevant Operating Experience (OE) from four other plants. The inspectors concluded that the licensee did not use this information to make changes in station processes that would implement the ASME Code requirement and would have prevented the intrusion of water into inaccessible containment liner seam welds. (Section 1R08)

Cornerstone: Occupational Radiation Safety (RS)

- Green: The inspectors identified a Green finding for failure to meet the FSAR continuous online radiation monitor design bases as described in FSAR Section 12.2.4, Airborne Radioactivity Monitoring. Specifically, six of the nine continuous online radiation monitors, R-30 series, provided to monitor airborne radiation concentrations within select Unit 1 and Unit 2 Auxiliary Building locations have been out of service (OOS) for extended periods of time over the past two and half years. Further, no reviews were completed to evaluate the significance of the OOS monitors nor were compensatory sampling activities performed during the extended OOS periods. The licensee entered this issue into their corrective action program as Condition Report (CR) 44407, and CR 463051, and implemented compensatory activities.

  The inspectors determined that the failure to monitor airborne radioactivity levels as described in FSAR Section 12.2.4 was a performance deficiency. The finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Plant Facilities/Equipment and Instrumentation and adversely affects the cornerstone objective of ensuring the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Inadequate monitoring of areas with the potential for airborne radioactivity could lead to worker contamination and increased exposure. The finding was assessed using the Occupational Radiation Safety Significance Determination Process (SDP). Based on the facts that this was not an ALARA planning issue, there were no overexposures nor substantial potential for overexposures, and the licensee's ability to assess worker dose was not compromised, the finding was determined to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance [H.2(d)] because the licensee did not ensure that equipment was adequate and available to assure nuclear safety. (Section 2RS5)

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

REPORT DETAILS

Summary of Plant Status

Unit 1 started the report period at 78 percent rated thermal power (RTP). The unit was shut down on April 1 for a refueling outage. The unit was started up on April 20 and achieved full RTP on May 2. The unit remained at or near 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 for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

Offsite/Alternate AC Readiness: The inspectors reviewed the licensee's station procedures to verify communication protocols existed between the transmission operator and control room to promptly identify issues impacting the offsite power system. The inspectors verified procedures were adequate to monitor and maintain availability and reliability of the offsite alternating current (AC) power system (Alabama Power Company) and the onsite AC power system. The inspectors also reviewed the compensatory actions identified in station procedures to be performed when it is not possible to predict post-trip voltage at the site for current electrical grid conditions. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

Partial Walk-Down: The inspectors performed partial walk-downs of the three systems listed below to verify operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors attempted to identify discrepancies impacting the function of the system and therefore, potentially increasing risk. The walk-downs were performed using the criteria in licensee procedures NMP-OS-007, Conduct of Operations, and FNP-0-SOP-0, General Instructions to Operations Personnel. The walk-downs included reviewing the updated final safety analysis report (UFSAR), plant procedures and drawings, checks of control room and plant valves, switches, components, electrical power, support equipment and instrumentation. Documents reviewed are listed in the Attachment.

- Unit 1, residual heat removal (RHR) systems operating in the shutdown cooling mode, service water and component cooling water during RCS reduced inventory
- Unit 1, B train RHR while A Train RHR out of service for maintenance
- Unit 2, A train 4160 safety related electrical distribution system while the 2B emergency diesel generator was inoperable due to a fuel system leak

Complete Walk-Down: The inspectors conducted a complete walk-down of the accessible portions of the following system. The inspectors used licensee Procedure FNP-2-SOP-23.0A, "Component Cooling Water (CCW)," to verify system alignment of in-service equipment. The inspectors also interviewed personnel, reviewed control room logs, maintenance rule monthly reports, CRs, quarterly system health reports, outstanding work orders and industry operating experience (OE) to verify that alignment and equipment discrepancies were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

- Unit 2 CCW system

b. Findings

No findings were identified.

1R05 Fire Protection Annual/Quarterly (71111.05AQ)

.1 Quarterly Fire Protection Area Tours

a. Inspection Scope

The inspectors conducted a tour of the five fire areas listed below to assess material condition and operational status of the fire protection equipment. The inspectors verified combustibles and ignition sources were controlled in accordance with the licensee's administrative procedures; fire detection and suppression equipment was available for use; passive fire barriers were maintained in good material condition and compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with the requirements of licensee procedures FNP-0-AP-36, Fire Surveillance and Inspection; FNP-0-AP-38, Use of Open Flame; FNP-0-AP-39, Fire Patrols and Watches; and the associated fire zone data sheets. Documents reviewed are listed in the Attachment.

- Unit 1, containment, fire zone 55
- Unit 1, control rod drive mechanism (CRDM) equipment room, fire zone 23
- Unit 1, turbine driven auxiliary feedwater pump room, fire zone 6
- Unit 2, CRDM equipment room, fire zone 23
- Unit 2, turbine driven auxiliary feedwater pump room, fire zone 6

.2 Annual Fire Drill

a. Inspection Scope

On June 27, 2012, the inspectors observed the licensee conduct a training fire drill at the vehicle fuel pumping area. The licensee simulated a gasoline fire occurring at the fuel pumping area. The start of the fire was simulated by a plant employee calling 911 to report the fire. The inspectors observed the licensee fire brigade to verify the response was in accordance with station procedures. The inspectors verified licensee personnel utilized proper fire fighting techniques and equipment was properly restored to operating status following the fire drill. The inspectors reviewed station procedures FNP-0-AOP-29.0, Plant Fire, and FNP-0-EIP-13.0, to verify these procedures were properly implemented.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed the results of performance testing of the Unit 2B CCW heat exchanger. The inspectors verified the licensee utilized the performance monitoring method outlined in Electric Power Research Institute report NP-7552, Heat Exchanger (HX) Performance Monitoring Guidelines. The inspectors evaluated this activity for conditions masking degraded performance, common cause heat sink performance problems which could lead to increased risk, and heat sink performance problems resulting in initiating events or affecting multiple HXs in mitigating systems. The inspectors also reviewed the licensee's corrective action program to verify HX problems were being identified and resolved. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities: From April 9, 2012, through April 13, 2012, the inspectors conducted an on-site review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the reactor coolant system, steam generator tubes, risk-significant piping and components, and containment systems. The inspectors' activities included a review of non-destructive examinations (NDEs) to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section XI (Code of record: 2001 Edition through 2003 Addenda), and to

verify that indications and defects (if present) were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI, acceptance standards.

The inspectors observed the following non-destructive examinations mandated by the ASME Code Section XI, to evaluate compliance with the ASME Code Section XI, and Section V, requirements and, if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code, or an NRC-approved alternative requirement.

- Ultrasonic Examination (UT)
  UT on weld ALA1-4204-8 1RC-005B, elbow-to-pipe weld, Class 1
  UT on weld ALA1-4204-9 1RC-005B, pipe-to-elbow weld, Class 1

The inspectors also reviewed records of the following non-destructive examinations mandated by the ASME Code Section XI, to evaluate compliance with the ASME Code Section XI, and Section V, requirements and, if any indications or defects were detected, to evaluate if they were dispositioned in accordance with the ASME Code, or an NRC-approved alternative requirement.

- Visual Examination (VE) of the Unit 1 Reactor Pressure Vessel Bottom-Mounted Instrumentation Nozzles (ALA1-1100C-BMI-BMV), Class 1

- Ultrasonic Examination (UT)
  UT on weld ALA1-4100-1DM 1RC-001A, Reactor Vessel-to-safe end weld, Class 1
  UT on weld ALA1-4100-1DM 1RC-001B, Reactor Vessel-to-safe end weld, Class 1
  UT on weld ALA1-4100-1DM 1RC-001C, Reactor Vessel-to-safe end weld, Class 1
  UT on weld ALA1-4100-14DM 1RC-003A, safe end-to-Reactor Vessel weld, Class 1
  UT on weld ALA1-4100-14DM 1RC-003A, safe end-to-Reactor Vessel weld, Class 1
  UT on weld ALA1-4100-14DM 1RC-003A, safe end-to-Reactor Vessel weld, Class 1

During non-destructive surface and volumetric examinations performed since the previous refuelling outage, the licensee did not identify any recordable indications that were accepted for continued service. Therefore, no NRC review was completed for this inspection procedure attribute.

The inspectors reviewed the following pressure boundary welds completed for risk-significant systems during the Unit 1 refueling outage to evaluate if the licensee applied the preservice non-destructive examinations and acceptance criteria required by the Construction Code. In addition, the inspectors reviewed the welding procedure specification, welder qualifications, welding material certification, and supporting weld procedure qualification records to evaluate if the weld procedures were qualified in accordance with the requirements of Construction Code, and the ASME Code Section IX.

- Work Order #1111109101 – Perform Seal Weld Repairs on 1B Spent Fuel Pool HX Q1G31H0001B (several tube plugs in 2nd, 3rd and 4th quadrants), Class 3

PWR Vessel Upper Head Penetration (VUHP) Inspection Activities: For the Unit 1 vessel head, a bare metal visual examination was not required this outage pursuant to 10 CFR 50.55a. The licensee did not perform any inspections or repairs on the VUHP this outage. Therefore, no NRC review was completed for this inspection procedure attribute.

Boric Acid Corrosion Control (BACC) Inspection Activities: The inspectors reviewed the licensee's BACC program activities to ensure implementation with commitments made in response to NRC Generic Letter 88-05, "Boric Acid Corrosion of Carbon Steel Reactor Pressure Boundary," and applicable industry guidance documents. Specifically, the inspectors performed an on-site record review of procedures and the results of the licensee's containment walk-down inspections performed during the current spring refueling outage (1R24). The inspectors also interviewed the BACC program owner, conducted an independent walk-down of containment to evaluate compliance with licensee's BACC program requirements, and verified that degraded or non-conforming conditions, such as boric acid leaks, were properly identified and corrected in accordance with the licensee's BACC and corrective action programs.

The inspectors reviewed the following condition reports (CR) and associated corrective actions related to evidence of boric acid leakage to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code Section XI, and 10 CFR Part 50, Appendix B, Criterion XVI.

- CR 432542, Moderate Accumulation Noted on 129' CTMT Floor
- CR 432547, Minor Accumulation Noted on Q1E21V422C
- CR 435368, Minor Accumulation Noted at Q1E11V063B

The inspectors reviewed the following licensee evaluations of reactor coolant system components with boric acid deposits to evaluate if degraded components were documented in the corrective action system. The inspectors also evaluated the corrective actions for any degraded reactor coolant system components against the component ASME Code Section XI, and other licensee committed documents.

- CR 432554, 1R24 Initial BACCP Mode 3 CTMT Walkdown, Moderate-to-Heavy Accumulations: (Q1E21V554F – 1C Accumulator Test Line Drain Isolation and Q1E21V039A – 1A Accumulator Injection Line Test Valve)

- CR 433110, Heavy Accumulation Noted on Unit 1 CTMT Coolers (A,B,C,D)

Steam Generator (SG) Tube Inspection Activities: The inspectors reviewed the 1R23 Steam Generator Condition Monitoring Assessment and 1R23 Operational Assessment. No Steam Generator Tube Inspection Activities occurred during this outage.

Identification and Resolution of Problems: The inspectors performed a review a sample of ISI-related problems which were identified by the licensee and entered into the corrective action program as CRs. The inspectors reviewed the CRs to confirm the licensee had appropriately described the scope of the problem, and had initiated

corrective actions. The review also included the licensee's consideration and assessment of OE events applicable to the plant. The inspectors performed this review to ensure compliance with 10CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment.

b. Findings

Introduction: The inspectors identified a Green NCV of 10 CFR Part 50.55a, "Codes and Standards," involving the licensee's failure to properly apply Subsection IWE, of ASME Section XI, for conducting general visual examinations of the metal-to-metal pipe plugs installed in the containment liner channel weld leak chase test connections that provide a moisture barrier to the containment liner seam welds.

Description: While conducting an independent walkdown of the containment to evaluate compliance with licensee's BACC program requirements, the inspectors noticed degradation and misalignment of an eight-inch diameter metal cover that was mounted flush with the concrete containment basement floor. This cover plate was intended to be attached by several small screws, placed around the diameter of the plate, and then the plate was intended to be tack-welded in place. The plate was intended to be painted over, consistent with the paint on the rest of the containment floor. There is intended to be a neoprene rubber gasket under the cover, but the misalignment was severe enough to have rendered this no longer a sealing component. There are 45 such cover plates throughout the containment. Within approximately ten feet of the cover initially noted to be degraded, there was another cover which showed no evidence of degradation. Following subsequent inquiries with the licensee on the function of these covers to evaluate the significance of the observations, the inspectors learned that underneath each cover plate was an access (junction) box that housed the test connections for the containment liner channel weld leak chase system. The containment liner channel weld leak chase system consists of three-inch wide channel steel that was welded continuously over the entire bottom liner seam welds located under the four foot thick concrete base mat of the containment. The channels were subdivided into 45 zones and in each zone, a test connection was installed. These test connections consist of a 1/2-inch carbon steel tube that penetrated through the back of the channel steel and was seal-welded to the channel steel. The opposite end of the tube extended up through the base mat concrete and terminated in the aforementioned junction boxes. A carbon steel threaded pipe cap was installed onto the upper end of the tube. The purpose of the test connections was to perform pressure tests of the inaccessible liner seam welds after the concrete base mat was originally installed during plant construction in order to ensure the leak tight integrity of the liner. The pipe caps were installed following these pressure tests along with the cover plates to the top of the junction boxes. The cover plates served to house and protect the test connections from traffic during and after initial containment construction; however, the combination of the painted cover plates, neoprene rubber gasket and pipe caps combined to serve as a moisture barrier to prevent the intrusion of water into the leak chase channel weld area.

In response to the inspectors' follow-up questions, the licensee indicated that they had no program in place to inspect any portion of these leak chase test connections for evidence of moisture intrusion that could have reached the containment liner. The inspectors determined that ISI inspection requirements for moisture barriers found in ASME Section XI, Subsection IWE, "Requirements for Class MC and Metallic Liners of Class CC Components of Light-Water Cooled Plants," were applicable to this configuration. Specifically, Table IWE-2500-1, Category E-A, "Containment Surfaces," Item E1.30, "Moisture Barriers," requires a general visual examination of 100 percent of moisture barriers. The reference to moisture barriers is further defined in Note (3) of this table, which states; "Examination shall include moisture barrier materials intended to prevent intrusion of moisture against inaccessible areas of the pressure retaining metal containment shell or liner at concrete-to-metal interfaces and at metal-at-metal interfaces which are not seal welded." Since neither the cover plate nor the tube cap was seal welded, and leakage past these components would allow the intrusion of water to the inaccessible liner seam welds, each represented a moisture barrier and was required to be inspected in accordance with Subsection IWE, of ASME Section XI.

As part of their follow-up actions to evaluate the condition identified by the inspector initially, the licensee initiated actions to conduct the required ISI general visual examinations of all 45 leak chase test connections. Of the 45 connections inspected, two covers were found degraded and misaligned, and two covers were completely missing. Further inspection was performed on the two connections with missing covers. The tubes in each of these two connections had blockages in them, and once the blockages were removed, one leak chase channel was found to be full of water, which was subsequently removed. All four connections with degraded/missing covers were further evaluated to verify that containment integrity had been maintained and would continue to be maintained through the next operating cycle, at which time further corrective actions could be taken. The inspectors determined that the licensee had taken adequate immediate corrective actions to address the deficiencies identified and to ensure the leak-tight integrity of the containment. The licensee planned to reassess the condition of these four zones during the next refueling outage as part of a formal IWE Augmented Inspection program. The licensee initiated CR 437663 to address the issues associated with this problem and at the end of the inspection period the licensee's causal evaluation was still ongoing.

Analysis: The failure to conduct a general visual examination of 100 percent of the moisture barriers intended to prevent intrusion of moisture against inaccessible areas of the containment liner was a performance deficiency that was within the licensee's ability to foresee and correct. The inspectors determined that this finding was of more than minor significance because the failure to conduct required visual examinations and identify the degraded moisture barriers which allowed the intrusion of water into the liner leak chase channel, if left uncorrected, could have resulted in more significant corrosion degradation of the containment liner or associated liner welds. This finding was associated with the Design Control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, visual examinations of the containment metal liner provide assurance that the liner remains capable of performing its intended safety function. The

inspectors used Inspection Manual Chapter 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” and determined that the finding was of very low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of the reactor containment.

The inspectors reviewed this performance deficiency for cross-cutting aspects as required by Manual Chapter 0310, “Components With Cross-Cutting Aspects.” The inspectors concluded that there was relevant OE available to the licensee, in the licensee’s OE database. The inspectors also concluded that the licensee did not use this OE to make changes in station processes that would have prevented this issue. Therefore, the finding was assigned a cross-cutting aspect in the OE component of the Corrective Action Program (CAP) cross-cutting area (P.2(b)).

Enforcement: 10 CFR Part 50.55a, “Codes and Standards,” as modified by NRC Final Rule-Making, published in the Federal Register dated August 8, 1996, and October 1, 2004, states in part, that the examination of metal liners in concrete containments shall satisfy the requirements of ASME Section XI, Subsection IWE, of the 1992 Edition with the 1992 Addenda or the 1998 Edition through the latest edition and addenda incorporated by reference in paragraph 10 CFR 50.55a(b)(2). The 1992 Edition with the 1992 Addenda of ASME Section XI, Subsection IWE; as well as the current 2001 Edition with the 2003 Addenda required examination of moisture barriers in concrete containments. Specifically, Table IWE-2500-1, Category E-A, “Containment Surfaces,” Item E1.30, “Moisture Barriers,” required a general visual examination of 100 percent of moisture barriers that is further defined in Note (3), which states; “Examination shall include moisture barrier materials intended to prevent intrusion of moisture against inaccessible areas of the pressure retaining metal containment shell or liner at concrete-to-metal interfaces and at metal-at-metal interfaces which are not seal welded.”

Contrary to the above, since initial 10 CFR 50.55a, Subsection IWE, requirements were established in 1996 until 2011, the licensee had failed to perform visual examinations of the non-seal-welded cover plates and non-seal-welded threaded tube cap at the top of the leak chase channel test connections, thereby, failed to identify defective areas in the moisture barrier, and failed to correct the defects. Because this finding is of very low safety significance and has been entered into the licensee’s corrective action program as CR 437663, this violation is being treated as a NCV, consistent with the NRC Enforcement Policy: NCV 05000348/2012003-01, Failure to Perform ISI General Visual Examinations of Containment Moisture Barrier Associated with Containment Liner Leak Chase Test Connection Threaded Pipe Plugs.

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

a. Inspection Scope:

Resident Inspector Quarterly Review (Licensed Operator Requalification): The inspectors observed portions of the licensed operator training and testing program on May 21. Due to a refueling outage and NRC initial license examination activities, no opportunities to observe simulator scenarios for operating crews were available to the inspectors during the quarter. In accordance with inspection procedure 71111.11, section 03.11(a)(3), the inspectors observed classroom training for licensed operators. The training session consisted of a focused study on topics and lessons learned from SOER 10-2, "Engaged, Thinking Organizations." The training covered management of high risk evolutions, pre-job briefs, post-maintenance testing expectations, use of human performance tools, and risk mitigation techniques. The training was tailored to recent events at the plant and addressed licensee-identified corrective actions. Documents reviewed are listed in the Attachment.

Resident Inspector Quarterly Review (Licensed Operator Performance): The inspectors observed control room operator performance during an ORANGE risk condition. The licensee reduced level in the Unit 1 reactor coolant system to mid-loop conditions to establish initial conditions for the RCS vacuum refill on April 13 and 14. Inspectors observed licensed operator conduct and operations to assess:

- Operator compliance and use of plant procedures
- Control board/in-plant component manipulations
- Communications between crew members
- Use and interpretation of plant instruments, indications, and alarms; diagnosis of plant conditions based on instruments, indications, and alarms
- Use of human error prevention techniques, such as pre-job briefs and peer checking
- Documentation of activities, including initials and sign-offs in procedures, control room logs, Technical Specification (TS) entry and exit, service logs entries
- Management and supervision of activities, including risk management and reactivity management
- Pre-job briefs

Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

Resident Inspector Quarterly Inspection Samples: The inspectors reviewed the following two activities for (1) appropriate work practices; (2) identifying and addressing common cause failures; (3) scoping in accordance with 10 CFR 50.65(b), of the maintenance rule; (4) characterizing reliability issues for performance; (5) trending key parameters for condition monitoring; (6) charging unavailability for performance; (7) classification and reclassification in accordance with 10 CFR 50.65(a)(1), or (a)(2); and (8) appropriateness of performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). In addition, the NRC specifically reviewed events where ineffective equipment maintenance resulted in invalid automatic actuations of engineered safeguards systems affecting the operating units. Documents reviewed are listed in the Attachment.

- CR 339257, relay found missing replacement reptask
- CR 344898, 86 lockout relay for N2R15BKRDA05, 2A circulating water pump was tripped

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the following five activities to verify appropriate risk assessments were performed prior to taking equipment out of service for maintenance. The inspectors verified risk assessments were performed as required by 10 CFR 50.65(a)(4), and were accurate and complete. When emergent work was performed, the inspectors verified appropriate use of the licensee's risk assessment and risk categories in accordance with requirements in licensee procedures FNP-0-ACP-52.3, Mode 1, 2, & 3 Risk Assessment; FNP-0-UOP-4.0, General Outage Operations Guidance; NMP-GM-006, Work Management; and NMP-OS-007, Conduct of Operations.

- Unit 1, April 2 and April 3, 2012, ORANGE risk condition associated with draining the RCS to one foot below the reactor vessel flange to enable reactor disassembly
- Unit 1, April 16, 2012, ORANGE risk condition associated with draining the RCS to mid-loop condition to establish prerequisite conditions of RCS vacuum refill
- Unit 2, June 13, 2012, YELLOW risk condition associated with maintenance activity on the 2B spent fuel pool pump

- Unit 1, June 19, 2012, Elevated Green risk condition associated with maintenance activity on B train RHR containment sump suction valve
- Unit 1, June 28, 2012, YELLOW risk condition associated with maintenance activity on B train motor driven auxiliary feedwater pump

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following six operability evaluations to verify the requirements of licensee procedures NMP-OS-007, Conduct of Operations and NMP-AD-012, 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 428912 Unit 1, inverter 1D transferred to its bypass source of power carrying the electrical load
- CR 441425, Unit 1, high RCP seal leak off
- CR 446335 Unit 1, control rods: control bank A moved out when control bank D should have moved with rod control in manual
- CR 449030 Unit 1, containment horizontal loop tendon failed
- CR 450662, Unit 1, A train solid state protection system (SSPS) unexpected indications during surveillance testing
- CR 466260, Unit 1, A train RHR pump secured due to no seal cooler flow

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following plant modification to ensure the safety functions of important safety systems were unaffected. The inspectors also verified the design bases, licensing bases, and performance capability of risk-significant SSCs had not been degraded through modifications. The inspectors verified any modification performed during a risk-significant configuration did not place the plant in an unsafe condition. The inspectors evaluated system operability, availability, configuration control, post-installation test activities, documentation updates, and operator awareness of the modification. Document reviewed are listed in the Attachment.

Temporary Plant Modifications

- SNC394685, Unit 1 A Train SSPS bypass of intermittent high resistance via jumper installation around Channel 2 input error inhibit switch

b. Findings

No findings were identified.

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-1-STP-22.2, 1B Auxiliary Feedwater Pump Quarterly Inservice Test following motor replacement
- FNP-1-STP-22.19, Auxiliary Feedwater Normal Flow Path Verification following adjustment of turbine driven auxiliary feedwater pump overspeed trip setpoint
- FNP-2-ETP-4181, TSC Systems Filtration Performance Testing following replacement of TSC HVAC cooling coil
- FNP-2-STP-2.8, 2A Boric Acid Transfer Pump Biennial Inservice Test and Preservice Test following the replacement of the pump
- FNP-2-STP-23.2, 2B Component Cooling Water Pump Quarterly Inservice Test following wire repair work inside 2B CCW pump breaker DG-05
- FNP-2-STP-80.6, Diesel Generator 2B 24 Hour Load Test following replacement of #11 injector discharge block

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

Refueling Activities: The inspectors reviewed the following activities related to the Unit 1 refueling outage to verify compliance with licensee procedure FNP-0-UOP-4.0, General Outage Operations Guideline, and FNP-1-UOP4.1, Controlling Procedure for Refueling. The inspectors reviewed surveillance tests to verify results were within the TS requirements. The inspectors evaluated shutdown risk, management oversight, procedural compliance, and operator awareness for each of the activities listed below.

Documents reviewed are listed in the Attachment.

- Outage risk assessment
- Cooldown
- Core offload and reload
- Reactor coolant instrumentation
- Electrical system alignments and bus outages
- Reactor vessel disassembly and assembly activities
- Outage-related surveillance tests
- Containment closure
- Low power physics testing and startup activities
- Clearance activities
- Decay heat removal and spent fuel pool cooling
- Containment heavy load lifts

b. Findings

No findings were identified.

1R21 Component Design Bases Inspection (71111.21)

.1 (Closed) URI 05000348, 364/2011010-004: Evaluation of CST Vortex Effect on AFW Pump Minimum Submergence (ML113530575)

a. Inspection Scope

During the 2011 component design basis inspection, inspectors identified an unresolved item related to the licensee's evaluation of the minimum required submergence for the auxiliary feedwater (AFW) pumps. Specifically, the team was concerned that a postulated failure of the condenser hotwell make-up line, or tornado missile damage to the condensate storage tank (CST) would result in the formation of a vortex large enough to prevent the AFW system from being able to remove reactor decay heat until residual heat removal system entry conditions could be met.

This item was unresolved pending additional review of the underlying technical principals documented in the licensee's operability determination. In the operability determination, the licensee concluded that the AFW pumps would have sufficient submergence to perform their safety function with the presence of a vortex in the CST. The team evaluated the operability determination using guidance from Regulatory Issue Summary 2005-20, Revision 1 and Part 9900 of the NRC Inspection Manual.

The team reviewed evaluations, calculations, and methodologies referenced in the licensee's operability determination and similar subjects from additional references which addressed the magnitude of vortex formation. Additionally, the team reviewed the arrangement of piping between the CST and AFW pump suction to gain a better understanding of the susceptibility of the AFW design to void accumulation and transport.

b. Findings

Introduction: The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to implement design control measures to verify the adequacy of design inputs, assumptions, or limiting plant conditions which were relied upon in the design basis analyses used to demonstrate the adequacy of CST design.

Description: The CST is a safety-related, seismically-qualified tank that holds up to 500,000 gallons of water and is required by TS 3.7.6, limiting condition for operation to be maintained at a minimum of 150,000 gallons for use by the AFW system under normal operation and in response to accident conditions. The design of the CST requires that the tank be capable of delivering a sufficient quantity of water to the AFW system to allow for the removal of decay heat until the residual heat removal system can be placed into operation. In order to ensure this requirement, the lower 13 feet volume of the tank is designed to withstand the effects of tornado generated missiles. The CST has two eight inch AFW suction pipes. One suction pipe is for the turbine-driven AFW pump and another suction pipe is shared by both motor-driven AFW pumps. The CST has an internal bladder that prevents introduction of air under normal operating conditions.

The inspectors reviewed calculations BM-95-0961-001, "Verification of CST Sizing Basis," Rev. 4 (dated March 25, 1999), and CBI-72-4859, "Condensate Storage Tank," Rev. 0. These calculations, in part, contained the design basis analyses which demonstrated the adequacy of CST design. The inspectors identified three cases (described below) where the analyses had not addressed damage to the CST (and related components) which could result in (1) the formation of a vortex that would reduce the available volume of water in the CST or (2) the introduction of tornado missile debris into the tank which could adversely impact AFW system function.

- The analyses failed to fully translate the licensing basis described in the FSAR for the assumed minimum flow return line break caused by a tornado generated missile. Although the calculations addressed the loss of CST inventory due to the postulated line break, the analyses failed to address the subsequent air introduction path under the CST bladder which would potentially allow a vortex to form and remove usable water from the CST. This issue was entered into the corrective action program as CR 351170 and CR 355457.

- The analyses failed to address the impact of a failure of the non-safety related 24 inch hotwell make-up line (which connects to the CST above the missile-protected portion of the tank). The calculations failed to analyze that this line break (from a seismic event or tornado generated missile) would create an air introduction path under the CST bladder which would potentially allow a vortex to form. This issue was entered into the licensee's corrective action program as CR 355457.

- The analyses failed to evaluate the effects of tornado missiles on the un-protected portion of the CST. The calculation failed to analyze that missile penetration of the upper portion of the tank would create an air introduction path under the CST bladder which would potentially allow a vortex to form. Additionally, a breach of the tank could lead to introduction of debris that could adversely impact the AFW pump safety function. This issue was entered into the licensee's corrective action program as CR 353599.

The team reviewed applicable operability determinations completed by the licensee regarding the issues identified above and concluded that although the TS required minimum volume of 150,000 gallons was determined to be non-conservative, reasonable assurance existed such that the volume of CST water below the condenser hotwell make-up elevation was currently sufficient for the tank to remain capable of performing its safety function (at reduced margins). Additionally, the operability determination concluded that tornado generated missile debris would not currently impact the AFW pump safety function. As a result of the team's observations, the licensee implemented additional compensatory measures to ensure that CST level would be maintained above the condenser hotwell make-up elevation pending completion of proposed long term corrective actions (including the more detailed design basis analysis required for a license amendment to modify the TS required minimum volume).

Analysis: The team concluded in the three examples, identified above, that the failure to utilize conservative design inputs, assumptions, or limiting plant conditions when implementing design control measures to verify the adequacy of CST design was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the mitigating systems cornerstone attribute of design control and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding challenged the assurance that the CST contained an adequate volume of water to perform its safety function to supply condensate to the AFW system in response to design basis events. In accordance with inspection manual chapter 0609.04, "Initial Screening and Characterization of Findings," the team used the mitigating systems column to perform a phase 1 significance determination process screening, and determined the finding to be of very low safety significance (Green) because it was not a design issue resulting in loss of function, did not represent an actual loss of a system safety function, did not result in exceeding a TS allowed outage time (AOT), and did not affect external event mitigation. This conclusion was based on information contained in the licensee's operability determinations which demonstrated that although the TS required minimum volume of 150,000 gallons was non-conservative, a reasonable degree of assurance existed such that the protected volume of CST water below the condenser hotwell make-up elevation was currently sufficient for the tank to perform its safety function. A cross-cutting aspect was not identified because the design basis calculation associated with the performance deficiency was last approved on March 25, 1999, and therefore, did not represent current licensee performance.

Enforcement: Criterion III, "Design Control," to 10 CFR 50, Appendix B, states, in part, that measures shall provide for verifying or checking the adequacy of design. Contrary to the above, since March 25, 1999, the licensee had failed to implement design control measures to verify the adequacy of design inputs, assumptions, or limiting plant conditions which were relied upon in design basis calculations used to demonstrate the adequacy of CST design. Because the violation was of very low safety significance and was entered into the licensee's corrective action program, this violation is being treated as a non-cited violation consistent with the Enforcement Policy: NCV 05000348, 364/2012003-02, "Failure to Implement Design Control Measures to Verify the Adequacy of CST Design."

.2 (Closed) URI 05000348, 364/2011010-005: Non-Conservative Assumptions Regarding AFW Net Positive Suction Head (ML113530575)

a. Inspection Scope

During the 2011 component design basis inspection, inspectors identified an unresolved item related to the licensee's design basis analyses of AFW system net positive suction head. Specifically, the team was concerned that abnormal operating procedures for a loss of instrument air allowed operation of the AFW system in a manner that would not throttle system flow at low CST levels and therefore, could result in inadequate pump net positive suction head. Additionally, the team was concerned that the AFW design basis analyses did not address the potential for erosion of the discharge flow orifices given that the available margins in the analyses did not allow for any degradation or change in the performance assumed in the design basis.

This item was unresolved pending further review of the licensee's evaluation of the operation of the AFW system in response to a loss of instrument air event. Additionally, the item was unresolved pending receipt of additional information regarding the current condition of the AFW system discharge orifices.

The inspectors reviewed analyses and corrective action program documents related to the operation of the AFW system in response to a loss of instrument air event. Additionally, the inspectors reviewed maintenance records recording the as-found condition of the AFW flow discharge orifices and test data to confirm that the orifices were capable of supporting operation in a manner consistent with AFW system design bases.

b. Findings

A licensee-identified violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified and is documented in section 4OA7 of this inspection report.

.3 (Closed) URI 05000348, 364/2011010-009: Evaluation of MDAFW Pump Suction Check Valves (ML113530575)

a. Inspection Scope

During the 2011 component design basis inspection, an unresolved item was identified related to the capability of the motor-driven auxiliary feedwater (MDAFW) pump suction check valves to pass adequate flow under design basis conditions. Specifically, the team was concerned that suction check valve oscillations (similar to oscillations that were observed by the licensee on the turbine-driven auxiliary feedwater pump suction check valves) could result in inadequate available net positive suction head during a design basis event. Additionally, the team was concerned that this condition may not reveal itself during routine in-service testing of the associated MDAFW pumps.

This item was unresolved pending additional review of licensee maintenance records and evaluations which addressed the current condition of the MDAFW pump suction check valves.

The inspectors reviewed the results of recently completed in-service tests of the MDAFW pumps which utilized flow instrumentation to verify the absence of indicated flow oscillations during the performance of those tests. The inspectors also reviewed the results of the most recent preventive maintenance work orders for the MDAFW pump suction check valves to verify the absence of observed internal valve degradation. Additionally, the inspectors reviewed technical evaluations performed by the licensee regarding the impact of a partially open MDAFW pump suction check valve on available net positive suction head.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the following nine 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-1-STP-913.0, Reactor Coolant Pump Bus Reactor Trip Under frequency Relay Test
- FNP-2-STP-20.0, Penetration Room Filtration System Train A and Train B Quarterly Operability and Valve Inservice Test
- FNP-2-STP-22.1, 2A Auxiliary Feedwater Pump Quarterly Inservice Test
- FNP-2-STP-124.0A, A-Train Penetration Room Filtration Performance Test

In-Service Test (IST)
- Unit 2 – FNP-2-STP-21.3, Turbine Driven Auxiliary Feedwater Steam Supply Valve Inservice Test

Containment Isolation Valve
- FNP-1-STP-627.0, Local Leak Rate Testing of Containment Penetrations for penetration 12
- FNP-1-STP-627.0, Local Leak Rate Testing of Containment Penetrations for penetration 23

Reactor Coolant System (RCS) Leak Detection
- FNP-1-STP-9.0, RCS Leakage Test
- FNP-2-STP-9.0, RCS Leakage Test

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness (EP)

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The NRC evaluated the conduct of the licensee annual emergency preparedness (EP) drill listed below to identify any weaknesses and deficiencies in classification, notifications and protection action recommendation (PAR) development activities. The NRC observed emergency response operation in the simulated control room to verify event classification and notifications 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.

- May 9, 2012 – General Emergency due to small break loss of coolant accident concurrent with a fuel element failure and a breach of the containment barrier.

b. Findings

No findings were identified.

2. RADIATION SAFETY (RS)

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

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

Hazard Assessment and Instructions to workers: During facility tours, the inspectors observed labeling of radioactive material and postings for radiation areas, high radiation areas (HRAs), and contamination areas established within the radiologically controlled area (RCA) of the auxiliary building, Unit 1 reactor containment building, radioactive waste (radwaste) processing and storage locations, and the Independent Spent Fuel Storage Installation (ISFSI). The inspectors independently measured radiation dose rates or directly observed conduct of licensee radiation surveys for selected RCA areas. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, discrete radioactive particles, airborne radioactivity, gamma surveys with a range of dose rate gradients, and pre-job surveys for upcoming tasks. The inspectors also discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. For selected outage jobs, the inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers.

Hazard Control and Work Practices: The inspectors conducted the following activities: (1) evaluated access barrier effectiveness for selected Locked High Radiation Area (LHRA) locations, (2) discussed changes to procedural guidance for LHRA and Very High Radiation Area (VHRA) controls with health physics (HP) supervisors, (3) reviewed and discussed in detail the controls and their implementation for storage of irradiated material within the spent fuel pool (SFP), and (4) evaluated established radiological controls (including airborne controls) for selected Unit 1 Refueling Outage 24 tasks including maintenance activities in the lower cavity and work in the containment sump area. In addition, the inspectors reviewed and discussed licensee controls for areas where dose rates could change significantly as a result of plant shutdown and refueling operations.

The inspectors evaluated, through observation of work activities and interviews with licensee staff, occupational workers' adherence to selected RWPs and HP technician (HPT) proficiency in providing job coverage. The inspectors evaluated electronic dosimeter (ED) alarm set points and worker stay times against area radiation survey results for containment sump entry and lower cavity maintenance work. The inspectors reviewed the use of personnel dosimetry (ED alarms, extremity dosimetry, multibadging

in high dose rate gradients, etc.) as part of the conduct of Inspection Procedure (IP) 71124.04. The inspectors also evaluated worker response to dose and dose rate alarms during selected work activities.

Control of Radioactive Material: The inspectors observed surveys of material and personnel being released from the RCA using small article monitor, personnel contamination monitor, and portal monitor instruments. As part of IP 71124.05, the inspectors reviewed calibration records for selected release point survey instruments and discussed equipment sensitivity, alarm setpoints, and release program guidance with licensee staff. The inspectors compared recent 10 Code of Federal Regulations (CFR) Part 61, results for the Dry Active Waste radioactive waste stream with radionuclides used in calibration sources to evaluate the appropriateness and accuracy of release survey instrumentation. The inspectors also reviewed records of leak tests on selected sealed sources and discussed nationally tracked source transactions with licensee staff.

Problem Identification and Resolution: The inspectors reviewed and assessed CRs associated with radiological hazard assessment and control. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with procedure NMP-GM-002-001, "Corrective Action Program Instructions," Ver. 28.0. The inspectors also evaluated the scope of the licensee's fleet oversight audit program and reviewed recent assessment results.

The inspectors evaluated radiation protection activities against the requirements of Final Safety Analysis Report (FSAR) Section 12; TS Sections 5.4 and 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. The inspectors evaluated licensee programs for monitoring materials and personnel released from the RCA against 10 CFR Part 20, and IE Circular 81-07, Control of Radioactively Contaminated Material. Documents reviewed are listed in Sections 2RS1, 2RS2, 2RS3, 2RS4, and 2RS5 of the report Attachment.

The inspectors completed all specified line-items detailed in Inspection Procedure (IP) 71124.01 (Sample size of 1).

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

ALARA Program Status and Inspection Planning: The inspectors reviewed and discussed the most current NRC three-year rolling average (TYRA) for cumulative exposure data, calendar year 2008 - 2010, for the site. The inspectors reviewed and discussed crud burst activities and cleanup results for current Unit 1 Refueling Cycle 24 Outage (1R24) activities. The inspectors discussed and evaluated the status of applicable site ALARA program initiatives and procedural guidance. Inspectors

performed a detailed review of licensee program guidance, processes, and resultant data bases used to estimate and track exposure for selected 1R24 outage activities and for individual workers.

Radiological Work Planning: The inspectors reviewed 1R24 work planning activities and man-hour and person-rem estimates for reactor head assembly / disassembly, scaffold installation and removal, operations, and health physics activities. For the subject activities, the inspectors compared previous man-hour and person-rem expenditure data with the current 1R24 estimates and current results. Inspectors discussed dose mitigation activities and incorporation of lessons learned from previous outages with responsible licensee representatives.

Verification of Dose Estimates and Exposure Tracking Systems: The inspectors discussed development of cumulative dose estimates for tasks associated with scaffold installation and removal, and reactor head disassembly and reassembly. For the subject 1R24 tasks, the inspectors discussed on-line data bases used to track, trend, and prompt additional Plant ALARA Committee Review (PARC) meetings. For those tasks where adjustments were made to the original planning estimates, the inspectors verified that actions were based on either actual work scope or source term changes.

Source Term Reduction and Control: Previous Unit 1 outage source term measurements and reactor coolant system cleanup data were reviewed and compared to current 1R24 data results. Impact of the on-line chemistry, fuel integrity, and shut down chemistry and clean-up activities for the current outage were reviewed and discussed in detail.

Radiation Work Performance: The inspectors directly observed and evaluated radiation worker and health physics technician proficiency in radiation protection practices associated with 1R24 activities. The evaluations included direct observations and discussions of radiation controls with workers and health physics staff regarding reactor head disassembly task, insulation removal and replacement, and operational tasks.

Problem Identification and Resolution: The inspectors reviewed and assessed CRs associated with radiological hazard assessment and ALARA program implementation. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with NMP GM-002, Corrective Action Program, Ver. 12.1.

Radiation protection activities were evaluated against the requirements of Updated Final Safety Analysis Report (UFSAR) Section 12; TS Section 5.4, Procedures, and TS Section 5.7, High Radiation Area; 10 CFR Parts 19 and 20; and approved licensee procedures. Documents reviewed are listed in Section 2RS1, 2RS2, 2RS3, 2RS4, and 4OA1 of the Attachment.

The inspectors completed all specified line-items detailed in Inspection Procedure (IP) 71124.02 (Sample size of 1).

b. Findings

No findings were identified

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

Engineering Controls: The inspectors reviewed the use of temporary and permanent engineering controls to mitigate airborne radioactivity inside Unit 1 containment, reactor building and turbine building during Unit 1 Refueling Outage 24 (1R24). Inspectors verified the use of containment purge during the reactor head lift of Unit 1. The inspectors evaluated the effectiveness of continuous air monitors and air samplers placed in work area "breathing zones" to provide indication of increasing airborne levels. In addition, inspectors reviewed and discussed plant guidance and implementation for monitoring of potential airborne beta-gamma and alpha-emitting radionuclides with licensee representatives.

Respiratory Protection Equipment and SCBA for Emergency Use: The inspectors reviewed the use of respiratory protection devices to limit the intake of radioactive material. This included review of program guidance for issuance and use of respiratory protection devices, discussion with responsible licensee representatives, and review of devices used for routine tasks and devices stored for use in emergency situations. The inspectors reviewed Total Effective Dose Equivalent (TEDE) ALARA evaluations conducted for selected 1R24 outage tasks such as the RCS filter changes. Inspectors reviewed and discussed selected whole-body count (WBC) routine and investigative analysis results for occupational workers with licensee representatives. Inspectors also reviewed training and fit testing for selected HP, maintenance, and support staff using respiratory protection for 1R24 activities.

The inspectors reviewed the current status, operability, and availability of selected Self-Contained Breathing Apparatus (SCBA) units staged for routine and emergency use maintained within the control room, respirator room, and operations support center (OSC.) Inspectors also inspected selected units for material condition, SCBA bottle air pressure, number of units, and number of spare masks and air bottles available. The inspectors evaluated certified vendor technician maintenance activities for selected respiratory protective equipment (e.g., compressed gas cylinders, regulators, and valves). The inspectors discussed annual hands-on SCBA training activities including donning, doffing, functionally checking SCBA equipment, and availability of corrective lens, as applicable, for on-shift personnel with selected control room operators. The inspectors reviewed recent air quality sampling results. The inspectors reviewed maintenance records for selected SCBA units for the past two years and evaluated SCBA and negative pressure respirator compliance with National Institute for Occupational Safety and Health certification requirements.

Problem Identification and Resolution: CRs associated with airborne radioactivity mitigation and respiratory protection were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with

procedure NMP-GM-002, “Corrective Action Program”, Ver. 11 and NMP-GM-002-001, “Corrective Action Program Instructions”, Ver. 12.1. Documents reviewed are listed in section 2RS3 of the Attachment.

Licensee activities associated with the use of engineering controls and respiratory protection equipment and airborne radioactivity monitoring and controls were evaluated against details and requirements documented in FSAR Sections 11 and 12; TS Section 5.4, Procedures; 10 CFR Part 20; Regulatory Guide 8.15, Acceptable Programs for Respiratory Protection; and approved licensee procedures. Documents reviewed are listed in Sections 2RS3 of the Attachment.

The inspectors completed all specified line-items detailed in Inspection Procedure (IP) 71124.03 (Sample size of 1).

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

Inspection Planning: The inspectors evaluated current radiation protection (RP) program activities and results associated with occupational workers’ internal and external radiation exposure monitoring. The review included program guidance, ED and personal dosimetry comparison results; quality assurance activities, individual dose results for occupational workers, and licensee responses to issues identified previous and current refueling outages.

External Dosimetry: The inspectors reviewed and discussed RP program guidance for monitoring external and internal radiation exposures of occupational workers. The inspectors reviewed National Voluntary Laboratory Accreditation Program (NVLAP), certification data and discussed program guidance for storage, processing and results for personnel dosimeters currently in use. The licensee's program to evaluate comparisons between ED and personnel dosimeter results were discussed in detail. Neutron monitoring activities and dosimeter capabilities for the most recent Unit 1 ‘at power’ entry were reviewed. Licensee evaluations for shallow and deep dose assessments for workers associated with identified dispersed skin contamination and discrete radioactive particle (DRP) contamination events since September 1, 2010, were reviewed and discussed in detail. Finally, the inspectors conducted a detailed review of licensee evaluation of dosimetry placement issues associated with current maintenance activities.

Internal Dosimetry: Program guidance, instrument detection capabilities, and select results for the internally deposited radionuclides were reviewed in detail. The inspectors reviewed routine termination and follow-up in vivo (Whole Body Count) analyses, since September 1, 2010. In addition, capabilities for the collection and conduct of special bioassay sampling were discussed with responsible licensee representatives.

Special Dosimetric Situations: The inspectors reviewed monitoring conducted and results for special dosimetric situations. The methodology and results of monitoring occupational workers within non-uniform external dose fields were discussed. The adequacy of dosimetry program guidance and its implementation were reviewed for shallow dose assessments and supporting calculations for select personnel contamination events involving discrete radioactive particles and/or dispersed facial contaminations events since October 1, 2012, were reviewed and discussed. The proficiency of RP staff and the adequacy skin dose assessments were evaluated through direct interviews, onsite observations, and review and discussions of completed records and supporting data. In addition, the inspectors reviewed monitoring conducted, and results for declared pregnant workers documented in licensee records since January 1, 2010.

Problem Identification and Resolution: The inspectors reviewed and discussed selected corrective action program documents associated with occupational dose assessment. The reviewed items included self-assessments and quality assurance audit documents. The inspectors evaluated the licensee's ability to identify, characterize, prioritize, and resolve the identified issues in accordance with NMP GM-002, Corrective Action Program, Ver. 12.1.

The inspectors evaluated the radiation protection program occupational dose assessment guidance and activities against the requirements of the UFSAR Section 12; TS Sections 5.4 and 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Records reviewed are listed in Section 2RS01, 2RS02, 2RS03, and 2RS04 of the Attachment.

The inspectors completed all specified line-items detailed in IP 71124.04. (Sample size of 1).

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

a. Inspection Scope

Radiation Monitoring Instrumentation: During plant tours of the radiological portion of the Auxiliary Building, spent fuel pool areas, and RCA exit points, the inspectors observed installed radiation detection equipment. These included area radiation monitors (ARMs), continuous air monitors (CAMs), liquid and gaseous effluent monitors, personnel contamination monitors (PCMs), small article monitors (SAMs) and portal monitors (PMs). The inspectors observed the physical location of the components, noted material condition and compared sensitivity ranges with UFSAR requirements.

In addition to equipment walk-downs, the inspectors observed source checks and alarm setpoint testing of various portable and fixed detection instruments, including ion chambers, teletector, PCMs, SAMs and a whole body counter (WBC). The inspectors

observed the use of the high-range calibrator for portable instruments and discussed periodic output value testing with a competent radiation protection technician. Calibration records and evaluated alarm setpoint values for selected instruments (ARM, PCM, SAM, effluent monitors, WBC and laboratory counting instruments) were reviewed by the inspectors. A sampling of instruments used for post-accident monitoring such as containment high-range ARMs and effluent monitor high-range noble gas and iodine channels were reviewed by inspectors. Radioactive sources used to calibrate selected ARMs and effluent monitors were evaluated for traceability to national standards. Calibration stickers on portable survey instruments and air samplers were noted during walk downs and inspections of areas with "ready-to-use" equipment. The most recent 10 CFR Part 61, analysis for DAW was reviewed to determine if calibration and check sources are representative plant source term. The inspectors also reviewed countroom calibration and quality assurance records for alpha-beta scaler counting equipment, gamma ray spectroscopy equipment, and liquid scintillation counters.

Problem Identification and Resolution: The inspectors reviewed selected CRs associated with radiological instrumentation. The inspectors evaluated the licensee's ability to identify and resolve issues in accordance with procedure NMP-GM-002, "Corrective Action Program", Ver 12.1 and NMP-GM-002-001, "Corrective Action Program Instructions", Ver 28.0.

Operability and reliability of selected radiation detection instruments were reviewed against details documented in the following: 10 CFR Part 20; NUREG-0737, Clarification of TMI Action Plan Requirements; UFSAR Chapters 11 & 12; and applicable licensee procedures. Documents reviewed during the inspection are listed in Section 2RS5 of the Attachment.

The inspectors completed all specified line-items detailed in Inspection Procedure (IP) 71124.05 (Sample size of 1).

b. Findings

Introduction: The inspectors identified a Green finding for failure to meet the design bases as described in the Farley Nuclear Plant FSAR Section 12.2.4, for the airborne radioactivity monitoring system. Specifically, six of the nine continuous online radiation monitors, R-30 through R-34 monitors, provided to monitor airborne radiation concentrations within selected auxiliary building locations have been out-of-service (OOS) for extended periods of time, thereby impairing their stated design function. Further, no reviews were completed to evaluate the significance of the OOS monitors nor were compensatory sampling performed during the extended OOS periods.

Description: The inspectors noted FSAR Section 12.2.4 stated the design basis for the continuous online radiation monitors for Unit 1 & Unit 2 (R-30A, R30B, R-31, R-32, R-33, and R-34) was to provide plant operating personnel with the capability of assessing the gross levels of airborne radioactive contamination within the auxiliary building prior to entry into specified spaces. These monitors were also described as monitors that function to detect sudden increases in airborne radioactivity levels for certain rooms and areas of the auxiliary building, thus allowing radiation protection staff to better protect

workers from exposure to potential airborne contaminates. However, discussions with licensee staff and a review of system health reports, maintenance records, and corrective action documents showed six out of nine monitors of the R-30 series for Unit 1 and Unit 2 were out of service for an extended period of time over the past four years with a noticeable decrease in operability within the past two and half years (January 1, 2010, through May 5, 2012, or 843 days). For example within the last 843 days Unit 1 R30 was OOS for 777 days; Unit 1 R32 was OOS for 755 days; and UNIT 2 R33 was OOS for 645 days. From January 2009 through December 27, 2011, there were over thirty CRs written to document operability issues with the monitors. Of the thirty CRs reviewed, twenty-two of them were documented as 'cause unknown' and these CRs were written to work orders that were not complete at the end of the RP inspection. Evaluations were not completed to determine the impact of the monitors being inoperable for extended periods of time nor were compensatory actions in place for the inoperable monitors. The licensee entered this issue into their corrective action program as CR 44407, and 463051 and has planned to do a causal determination. The monitors have been scheduled to be replaced in 2015 but the licensee set portable continuous air monitors with alarm function to warn people in the immediate area as immediate compensatory actions.

Analysis: The inspectors determined that the failure to monitor airborne radioactivity levels as described in Section 12.2.4, of the FSAR was a performance deficiency. The finding is more than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Plant Facilities/Equipment and instrumentation and adversely affects the cornerstone objective of ensuring the adequate protection of the worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. Inadequate monitoring of areas with the potential for airborne radioactivity can lead to worker contamination and increased exposure. Also, there were no reviews completed to evaluate the significance of the monitors being OOS for the extended period of time nor were compensatory sampling activities performed. The finding was assessed using the Occupational Radiation Safety Significance Determination Process (SDP). Based on the fact that this was not an ALARA planning issue, there were neither overexposures nor substantial potential for overexposures, and the licensee's ability to assess worker dose was not compromised, the finding was determined to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance [H.2(d)] because the licensee did not ensure that equipment was adequate and available to assure radiological safety.

Enforcement: This finding does not involve enforcement action because no violation of regulatory requirements was identified. This issue has been entered into the licensee's corrective action program as CR 444071. Because this finding does not involve a violation and has very low safety significance, it is identified as FIN 2012003-03, Failure to Monitor for Auxiliary Building Airborne Radioactivity Levels as Described in the FSAR.

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

Ground Water Protection: The inspectors reviewed licensee corrective actions taken to address a deficiency in the implementation of the industry's Ground Water Protection Initiative (NEI 07-07) identified as a result of Temporary Instruction (TI) 2515/173, "Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative". In NRC Inspection Report 2009-004, the inspectors noted that the licensee had not completely implemented the communication requirements of NEI 07-07 Objective 2.1, "Stakeholder Briefing". Although the licensee had made initial contact with state representatives, no effort to identify and brief local stakeholders had been made. The licensee entered this issue into their corrective action program as CR 2009111874. The inspectors reviewed and discussed this CR with licensee staff and noted that changes were made to procedure NMP-EN-002, "Radiological Groundwater Monitoring Protection Program" including requirements for communication with local stakeholder groups. Documents reviewed are listed in section 2RS6 of the Attachment.

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 Power Changes

Cornerstone: Mitigating Systems

- Heat Removal System
- Residual Heat Removal System

Cornerstone: Occupational Radiation Safety

The inspectors reviewed PI data collected from September 1, 2011, through March 31, 2012, for the Occupational Exposure Control Effectiveness PI. For the reviewed period, the inspectors assessed corrective action program records to determine whether High

Radiation Area (HRA), Very High Radiation Area (VHRA) or unplanned exposures, resulting in TS or 10 CFR 20 non-conformances, had occurred during the review period. In addition, the inspectors reviewed selected PCE data, internal dose assessment results, and ED data for cumulative doses and/or dose rates exceeding established alarm set-points. The documents reviewed relative to this PI are listed in Sections RS 01, RS 02, RS03, RS04, and 4OA1 of the Attachment.

Cornerstone: Public Radiation Safety

The inspectors reviewed the Radiological Control Effluent Release Occurrences PI results for the Public Radiation Safety Cornerstone from October 2011 through March 2012. For the assessment period, the inspectors reviewed cumulative and projected doses to the public and CRs related to Radiological Effluent TS/Offsite Dose Calculation Manual issues. The inspectors also reviewed licensee procedural guidance for collecting and documenting PI data. Documents reviewed are listed in section 4OA1 of the Attachment.

The inspectors completed all of the specified line-item samples associated with the OS and PS Cornerstones detailed in IP 71151 (Sample size of 2).

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 hard copies of CRs, attending daily screening meetings and accessing the licensee's computerized database.

.2 Selected Issue Follow-up Inspection

a. Inspection Scope

In addition to the routine review, the inspectors selected the issue listed below for more in-depth reviews. The inspectors considered the following during the review of the licensee's actions: (1) complete and accurate identification of the problem in a timely manner; (2) evaluation and disposition of operability/reportability issues; (3) consideration of extent of condition, generic implications, common cause, and previous occurrences; (4) classification and prioritization of the resolution of the problem; (5) identification of root and contributing causes of the problem; (6) identification of CRs; and (7) completion of corrective actions in a timely manner.

- CR 437175, inadvertent transfer of 5000 gallons of RWST water to the refueling cavity and spent fuel pool

b. Findings

Introduction: A Green, self-revealing non-cited violation of TS 5.4.1, Procedures was identified for the licensee's failure to follow the guidance of station procedure NMP-AD-003, Equipment Clearance and Tagging. Approximately 5000 gallons of borated water was inadvertently transferred from the RWST to the RCS refueling cavity and spent fuel pool.

Description: On April 10, 2012, licensee staff performed activities which were contrary to the guidance contained within clearance 1-DT-24-E21-03211. Clearance 1-DT-24-E21-03211 included a caution tag placed on valve Q1E11MOV8706B control switch on the control board, which included information to establish a no-flow boundary with valve Q1E21LCV115D. The staff issued an operating permit to allow manipulation of Q1E11MOV8706B and concurrently issued an operating permit to allow manipulation of Q1E21LCV115D. The effect was that the no-flow boundaries conflicted with one another and resulted in an open flow path from the RWST to the RCS refueling cavity and spent fuel pool.

During the evening of April 10, 2012, control room staff noted that RCS refueling cavity level was increasing and RWST level was decreasing. The control room staff closed the 1B RHR heat exchanger discharge valve slowing the change in levels. The control room staff then closed 1B RHR heat exchanger to reactor coolant system cold leg isolation valve further slowing the change in levels. Finally, the control room staff contacted personnel working on Q1E21LCV115D to close the valve, stopping the level changes. Approximately 5000 gallons of borated water was transferred from the RWST to the RCS refueling cavity. Because the spent fuel pool was connected to the RCS refueling cavity for refueling operations, the spent fuel pool level also increased to the point of receiving the high level alarm on the main control board. System operators were dispatched to the spent fuel pool and reported level at 153' 9" elevation and just below the ventilation intakes at the top of the spent fuel pool.

The licensee conducted an apparent cause determination associated with this event. The cause determination identified the failure to properly coordinate work activities on an interdepartmental level, the need to review operating permit tags on an integrated plant level instead of at the individual system level, and the failure of the operations department to adequately track implementation of operations permits. The licensee identified an inadequate main control board walkdown was performed which failed to identify a caution tag located on Q1E11MOV8706B with instructions that would have prevented the event. The licensee also identified the shift supervisor's failure to verify suitable plant conditions prior to authorizing the operating permit for Q1E11MOV8706B. The licensee identified the lack of communications between the operations permit tagout holder and the control room staff during the activities. The inspectors reviewed station documents including NMP-AD-003, Equipment Clearance and Tagging, and associated tagouts and reached the same conclusion as documented in the licensee's apparent cause determination.

Analysis: Failure to adhere to the information contained within clearance 1-DT-24-E21-03211 is a performance deficiency. This performance deficiency is more than minor because it is associated with the configuration control attribute of the Initiating Events cornerstone and adversely affected the objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the configuration of the RHR, chemical and volume control system, and RWST were not maintained as required and approximately 5000 gallons of borated water was transferred from the RWST to the RCS refueling cavity. The significance of this finding was screened using IMC 0609, Significance Determination Process (SDP), Phase 1 worksheets of Attachment 4. The inspectors also referenced IMC 0609, SDP worksheets of Appendix G, Shutdown Operations Significance Determination Process. The finding screened as having very low safety significance, (Green) because this event did not meet any of the loss of coolant accident, transient and external event initiators of the worksheets of Attachment 4. The inspectors reviewed this performance deficiency for cross-cutting aspects and determined the licensee failed to appropriately coordinate work activities by incorporating actions to address the impact of the work on different job activities, and the need for work groups to communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. The finding was assigned a cross-cutting aspect in the work control component of the human performance area. [H.3(b)]

Enforcement: Technical Specifications 5.4.1, Procedures, requires in part, that written procedures shall be established, implemented, and maintained covering the activities of applicable procedures recommended in Regulatory Guide 1.33. Regulatory Guide 1.33, Appendix A, Section 9, states maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, and drawings appropriate to the circumstances. Contrary to the above, the licensee failed to follow the guidance of clearance 1-DT-24-E21-03211. The licensee manipulated Q1E21LCV115D with Q1E11MOV8706B open which allowed the unplanned transfer of approximately 5000 gallons of borated water from the Unit 1 RWST to the reactor coolant system refueling cavity and spent fuel pool. The licensee isolated the unintended flow path and entered the condition into their corrective action program as CR 437175. Because this violation was of very low safety significance and entered into the licensee corrective action program, this violation is being treated as a non-cited violation, consistent with the NRC Enforcement Policy. NCV 05000348/2012003-04, “Inadvertent transfer of approximately 5000 gallons of borated water from the RWST to the RCS refueling cavity and spent fuel pool.”

.3 Semi-Annual Trend Review

a. Inspection Scope

As required by IP 71152, Identification and Resolution of Problems, the inspectors performed a review of the licensee’s corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors reviewed repetitive equipment and corrective maintenance issues,

and also considered the results of daily inspector corrective action program item-screening discussed above. The inspectors also reviewed issues documented outside the normal corrective action program process, corrective maintenance WOs, component status reports, and maintenance rule assessments. The inspectors' review nominally considered the six-month period of January 1 through June 30, 2012, although some examples expanded beyond those dates when the scope of the trend warranted. Corrective actions associated with the sample of the issues identified in the licensee's trend report were reviewed for adequacy. Documents reviewed are listed in the Attachment.

b. Assessment and Observations

The inspectors did not identify any adverse trends during their review. The inspectors continue to monitor the effectiveness of licensee corrective actions which focus on procedural adherence and adequacy. The inspectors also monitored the licensee corrective actions related to implementation of design changes. The inspectors noted no additional occurrences from those identified in Integrated Inspection Reports 05000348/2011005, 05000364/2011005, 05000348/2011014 and 05000364/2011014. Further, the inspectors monitored the licensee's efforts to improve procedures and reduce the back-log of procedure changes requested by the licensee's staff.

4OA3 Followup of Events and Notices Enforcement Discretion (71153)

.1 (Closed) LER 05000348/364/2012-001-00 Seismically Qualified RWST Aligned to Non-Seismic Piping

a. Inspection Scope

On February 15, 2012, with Units 1 and 2 operating at 100 percent power, the licensee determined that opening the boundary valve between the safety related and seismically qualified RWST and the non-safety related and non-seismically qualified Spent Fuel Pool Purification (SFPP) system in Modes 1 through 4 rendered the RWST inoperable. The licensee had revised plant procedures in 2009 to allow opening this boundary valve in Modes 1 through 4 under administrative controls. The 10 CFR 50.59 safety evaluation that the licensee performed to support the procedure change concluded that the administrative controls would allow the RWST to remain operable. However, after reviewing NRC Information Notice 2012-01, the licensee determined that the RWST would be considered to be inoperable, regardless of the administrative controls established, when the RWST was aligned to non-seismic piping in Modes 1 through 4. Since the boundary valve had been opened in Mode 1 under administrative controls, the licensee did not track the time in this configuration to ensure the allowed outage time (AOT) of TS 3.5.4 was met.

The inspectors reviewed the information contained within this LER and the licensee's apparent cause determination. The inspectors also interviewed station personnel. The inspectors reviewed TS 3.5.4, RWST, which is applicable during Modes 1 through 4. TS LCO 3.5.4, Condition B, requires that the RWST be returned to operable status with a completion time of 1 hour. If the RWST is not returned to operable status within 1 hour,

TS LCO 3.5.4, Condition C, requires that the unit be placed in Mode 3 within 6 hours and in Mode 5 within 36 hours. The inspectors found that the licensee had two practices which resulted in the alignment of the RWST to the non-seismic SFPP system. One practice was performed on a weekly basis to perform recirculation of the RWST and to allow chemists to sample for boron content. The second practice was performed prior to each of the last five refueling outages for each unit to remove silica from the RWST. This evolution aligned the RWST to the boric acid recovery system via non-seismic SFPP systems and lasted for approximately 22 days each time. Since the RWST was not declared inoperable during these periods, TS LCO actions were not entered. NRC Information Notice 2012-01, details that this resulted in operation of the units in a condition prohibited by TS and is reportable pursuant to 10 CFR 50.73(a)(2)(i)(B).

The inspectors reviewed the licensee's planned corrective actions, which included immediately suspending all RWST alignment to non-seismic piping. Additionally, the licensee revised procedures for RWST recirculation to use the containment spray system which was in compliance with TS. The licensee entered this issue into the corrective action program as CR 408445. The inspectors reviewed the licensee's corrective actions related to CR 408445, which included a license amendment request to allow recirculation of the RWST and operation of the BARS system using the seismic to non-seismic interface. The licensee's long term corrective action is to obtain seismic qualification of the currently non-seismically qualified piping that is utilized while using BARS or conducting RWST recirculation. The inspectors determined the licensee corrective actions were sufficient to address the issue.

b. Findings

One licensee-identified violation was identified and documented in section 4OA7 of this report. This LER is closed.

.2 (Closed) LER 05000348/2012-002-00 Breaker Failure Results in Containment Cooing Train Inoperability

a. Inspection Scope

The inspectors reviewed the information contained within this LER and in the licensee's apparent cause determination. The inspectors also interviewed station personnel. The inspectors reviewed the requirements of TS 3.6.6, Containment Spray and Cooling Systems.

On January 18, 2012, the licensee started the 1B containment cooling fan. The fan circuit breaker closed, discharging the closing springs, but a motor cutout switch failed to energize the closing spring charging motor, preventing the closing spring from recharging.

During the period of time January 18-23, 2012, the Train A containment cooling remained operable because the automatic start selector switch was selected to the 1A containment cooling fan.

On January 23, 2012, the licensee selected the 1B containment cooling fan for the automatic start function. At this point, Train A containment cooling fan became inoperable because the ESF function of starting automatically was defeated. The license discovered this condition on February 15 when a subsequent start of the 1B containment cooling fan failed.

Technical Specification LCO 3.6.6, requires two containment spray trains and two containment cooling trains to be operable in Modes 1, 2, 3,and 4. Condition C, requires the inoperable containment cooling train to be returned to service within seven days once it becomes inoperable. Each train of containment cooling is comprised of two fully redundant fan units supplied with cooling water from a separate train of service water. Each fan unit has two speeds of operation, high speed for normal operation and slow speed for post-accident operation. Under post-accident conditions, a single fan unit with at least 600 gpm of service water flow provides sufficient cooling capacity to meet post accident heat removal requirements.

Additionally, the inspectors reviewed applicable industry OE and licensee planned maintenance procedures.

b. Findings

One licensee-identified violation was identified and documented in section 4OA7 of this report. This LER is closed.

4OA5 Other Activities

.1 (Closed) TI 2515/185 Follow-up on the Industry's Ground Water Protection Initiative

a. Inspection Scope

The inspectors performed the TI concurrent with IP 71124.06 Radioactive Gaseous and Liquid Effluent Treatment. The inspectors reviewed licensee corrective actions taken to address a deficiency in the implementation of the industry's Ground Water Protection Initiative (NEI 07-07) identified as a result of Temporary Instruction (TI) 2515/173, "Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative". Documents reviewed are listed in sections 2RS6 of the Attachment.

b. Findings

There were no findings identified. This completes the Region II inspection requirements.

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 July 12, 2012. The staff acknowledged the results. The NRC confirmed proprietary information was not provided or examined during the inspection.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance were identified by the licensee, and are violations of NRC requirements which meet the criteria of Section VI.A.1 of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

- Technical Specification Limiting Condition of Operation (LCO) 3.5.4, Condition B, requires that the RWST be returned to operable status within a completion time of 1 hour. If the RWST is not returned to operable status within 1 hour, TS LCO 3.5.4, Condition C, requires that the unit be placed in Mode 3 within 6 hours and in Mode 5 within 36 hours. Contrary to the above, the licensee made the RWST inoperable by connecting the tank to a non-seismically qualified system for greater than the allowed TS allowed outage time (one hour plus six hours). The licensee performed silica removal using the spent fuel pool purification system and boric acid recovery system prior to each refueling outage. This activity lasted approximately 22 days during each of the last five refueling cycles on each unit. The licensee entered this condition in their CAP as CR 408445. This finding was assessed using IMC 0609, Phase 1 screening worksheet of Attachment 4 and was determined to be of very low safety significance (Green), because the finding represents a qualification deficiency confirmed not to result in the loss of functionality of the RWST.

- Technical Specification LCO 3.6.6, requires two containment spray trains and two containment cooling trains to be operable in Modes 1, 2, 3 and 4. Condition C requires the inoperable containment cooling train to be returned to service within seven days once it becomes inoperable. Each train of containment cooling is comprised of two fully redundant fan units supplied with cooling water from a separate train of service water. Each fan unit has two speeds of operation, high speed for normal operation and slow speed for post-accident operation. Under post-accident conditions, a single fan unit with at least 600 gpm of service water flow provides sufficient cooling capacity to meet post accident heat removal requirements. Contrary to the above, the licensee made the “A” Train containment cooling inoperable when they selected the 1B containment cooling fan for automatic start for the “A” train of containment cooling on January 23, 2012. The 1B fan had been started on January 18, 2012, and the closing springs for the circuit breaker failed to recharge, preventing any further subsequent fan starts. The licensee discovered the motor cut-off switch for the circuit breaker’s closing spring charging motor had failed, preventing the circuit breaker’s closing springs from being charged. This condition remained undiscovered until February 15, 2012, when the licensee attempted to start the 1B containment cooling fan and it failed to start. The 23 days that Train A containment cooling was inoperable exceeded the seven days allowed by LCO 3.6.6, and the subsequent 6 hours to enter Mode 3 and the 36 hours to enter Mode 5. The licensee entered this condition in their CAP as CR 407862. This finding was assessed using IMC 0609, Phase 1 screening worksheet of Attachment 4 and Appendix H. The finding was determined to be of very low safety significance (Green), because the inoperable equipment impacted late containment failure and source terms but not large early release frequency.

- 10 CFR 50, Appendix B, Criterion III, “Design Control” states in part, that design control measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Contrary to these requirements, in 1977 the licensee installed an AFW system discharge orifice (FO2861A) for the Unit 1 ‘A’ steam generator that deviated from the design basis hydraulic analysis and corresponding design drawings. Specifically, during a pre-maintenance walk-down inspection, the licensee identified that the actual bore size of FO2861A (which was installed in the auxiliary feedwater flow path for the A steam generator) deviated from the nominal bore size specified in the design drawing by 0.03125 inches and exceeded the assumed hydraulic analysis maximum bore size by 0.0156 inches. The licensee entered the nonconformance into their corrective action program as CR 414988 and documented an operability determination for the condition. The licensee’s corrective actions included replacing orifice FO2861A with an orifice that conformed to the design drawing and hydraulic design basis analysis. This finding was assessed using inspection manual chapter 0609 mitigating systems cornerstone of the phase 1 screening worksheet and determined to be of very low safety significance (Green), because it was not a design issue resulting in loss of function, did not represent an actual loss of a system safety function, did not result in exceeding a TS AOT, and did not affect external event mitigation.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
M. Byrd, Design Engineering Supervisor
D. Cosby, Site ISI Engineer/BACCP Owner
C. Gayheart, Plant Manager
J. Horn, Site Support Manager
F. Hundley, Fleet Oversight Supervisor
J. Jerkins, Corrective Action Program Supervisor
G. Lofthus, Site Level III Inservice-Inspection Inspector
T. Lynch, Site Vice President
W. Malone, Corporate ISI Program Owner
R. Martin, Engineering Programs Manager
B. Nobles, Site Design
W. Oldfield, Licensing Engineer
L. Smith, Maintenance Manager
B. Taylor, Performance Improvement Supervisor
S. Varnum, Chemistry Manager
W. Vierkandt, Radiation Protection Manager
C. Westberry, Engineering Systems Manager

NRC personnel
Frank Ehrhardt, Chief, Branch 2, Division of Reactor Projects
W. Lyon, NRR Senior Reactor Engineer

LIST OF REPORT ITEMS

Opened
None

Opened and Closed

05000348/2012003-01	NCV	Failure to Perform ISI General Visual Examinations of Containment Moisture Barrier Associated with Containment Liner Leak Chase Test Connection Threaded Pipe Plugs (Section 1R08)
05000348, 364/2012003-02	NCV	Failure to Implement Design Control Measures to Verify the Adequacy of CST Design (Section 1R21.1)
05000348, 364/2012003-03	FIN	Failure to Monitor for Auxiliary Building Airborne Radioactivity Levels as Described in the FSAR (Section 2RS5)
05000348/2012003-04	NCV	Inadvertent transfer of approximately 5000 gallons of borated water from the RWST to the RCS refueling cavity and spent fuel pool (Section 4OA2)

Closed

05000348, 364/2012001-00	LER	Seismically Qualified RWST Aligned to Non-Seismic Piping (Section 4OA3)
05000348/2012002-00	LER	Breaker Failure Results in Containment Cooing Train Inoperability (Section 4OA3)
05000348, 364/2011010-04	URI	Evaluation of CST Vortex Effect on AFW Pump Minimum Submergence (Section 1R21.1)
05000348, 364/2011010-05	URI	Non-Conservative Assumptions Regarding AFW Net Positive Suction Head (Section 1R21.2)
05000348, 364/2011010-09	URI	Evaluation of MDAFW Pump Suction Check Valves (Section 1R21.3)
05000348, 364/2515/185	TI	Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative (Section 4OA5.1)

Discussed

None

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Documents:
Farley Nuclear Plant High Voltage Switchyard Morning Report, Wednesday; April 4, 2012
Farley Nuclear Plant Operations Desktop Guideline, undated, reviewed the week of April 2, 2012
Southern Control Area Target Voltage Schedule Alabama, March 22, 2010
Unit 1 Control Log, March 19, 22, 23, 24, and 28 and April 1, 2012

Procedures:
FNP-0-ACP-4.0, Switchyard Control, Version 14.1
FNP-0-AOP-21.0, Severe Weather," Version 32.0
FNP-0-ARP-2.1, Annunciator VE2, 1G.4KV BUS OV-OR-UV OR LOSS OF DC, Version 35
FNP-0-AOP-21, Severe Weather, Version 32
FNP-1-UOP-3.1, Power Operations, Version 112.1
FNP-2-UOP-3.1, Power Operation, Version 101.1
FNP-2-UOP-3.1, Power Operation, Version 112.1

Section 1R04: Equipment Alignment

Condition Reports:
348811, 358702, 361838, 361844, 367639, 370479, 370670, 372678, 380926, 382474, 387115, 388478, 397524, 401818, 420910, 422546

Documents:
Unit 2 CCW System Health Report, Q1 2012

Drawings:
D175038L, Sheet 2, Version 4.0
D-205002, Component Cooling Water System, Sheet 1, Version 31.0
D-205002, Component Cooling Water System, Sheet 2, Version 19.0
D-207005, Single Line Protection and Metering 4160v Switchgear Bus 2F, Version 14.0

Procedures:
FNP-1-SOP-7.0, "Residual Heat Removal System," Version 100.1
FNP-1-SOP-7.0A, "Residual Heat Removal System," Version 9.0
FNP-2-SOP-23.0, "Component Cooling Water System," Version 89.0
FNP-2-SOP-23.0A, "Component Cooling Water System," Version 89.0

Work Orders:
329325, 338904, 352510, 358832, 377843

Section 1R05: Fire Protection Annual/Quarterly

Documents:
NMP-TR-425-F01, Fire Drill Approval Sheet for Drill 20120627-1, Version 1.2
FNP Fire Brigade Qualification Status Report dated 6/27/2012

Drawings:
A-508650, Fire Zone Data Sheet, Sheet 46
A-508650, Fire Zone Data Sheet, Sheet 47
A-508650, Fire Zone Data Sheet, Sheet 48
A-508650, Fire Zone Data Sheet, Sheet 49
A-508650, Fire Zone Data Sheet, Sheet 14
A-509018, Fire Zone Data Sheet, Sheet 14
A-508650, Fire Zone Data Sheet, Sheet 16
A-509018, Fire Zone Data Sheet, Sheet 18

Procedures:
FNP-0-AOP-29.0, Plant Fire, Version 41.0
FNP-0-EIP-13.0, Fire Emergencies, Version 26.0

Section 1R07: Heat Sink Performance
Condition Reports:
463679, 458614, 440063, 460500, 194932

Documents:
2B Component Cooling Water Heat Exchanger Eddy Current Test Report, Mistras Group Inc., PR-1-73
EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines, December 1991
Q1 Unit 2 Component Cooling Water System Health Report, dated 5/2/2012

Section 1R08: Inservice Inspection Activities
Corrective Actions:
CR 432542, Moderate Accumulation Noted on 129' CTMT Floor
CR 432547, Minor Accumulation Noted on Q1E21V422C
CR 432554, 1R24 Initial BACCP Mode 3 CTMT Walkdown, Moderate-to-Heavy Accumulations
CR 433110, Heavy Accumulation Noted on Unit 1 CTMT Coolers (A,B,C,D)
CR 435368, Minor Accumulation Noted at Q1E11V063B
CR 437663, NRC Inspector Identified Misaligned Floor Cover

Drawings:
D176155 (excerpt), Containment Liner Floor Plan & Details
D176155 (excerpt), Containment Liner Plan Section & Details
D176155 (excerpt), Containment Liner Reactor Cavity Plan Sections & Details

Procedures:
FNP-0-M-101, Boric Acid Corrosion Control Program, Version 15.1
NMP-ES-019, Boric Acid Corrosion Control Program, Version 8.0
NMP-ES-019-001, Boric Acid Corrosion Control Program Implementation, Version 6.0
NMP-ES-019-004, Boric Acid Corrosion Control Program – Corrosion Assessment, Version 2.0
NMP-ES-024-501, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds (Appendix VIII), Version 4.1

Other Documents:
Crucible Industries Certificate of Test (Rompas S/N 10-4409 – 10-4414; Step S/N 10-4421/22)
Farley-1 Leak Chase Test Connection Evaluation 1R24 Outage, Revision 3
Laboratory Testing Inc. Test Record – Ultragel II (Purchase Order #7933)
LMT Test Certification of Visual Acuity and Color Vision per LMT Procedure PVE-1 (Popp)
LMT Test Certification of Visual Acuity and Color Vision per LMT Procedure PVE-1 (Block)
LMT Test Personnel Certification Statement (Block)
LMT Test Personnel Certification Statement (Popp)
LMT Test Thermometer Certification (Purchase Order #S85857)
LMT Test Ultrasonic Instrument Calibration Data Record and Certification (Serial # 01R6B7)
S12F1U023, UT Calibration/Examination Record – ALA1-4204-8
S12F1U024, UT Calibration/Examination Record – ALA1-4204-9
Sonic System International, Inc. Certificate of Qualification (Sanchez)
Sonic System International, Inc. Visual Acuity Examination Record (Sanchez)
Wesdyne Certificate of Qualification (Behanna)
Wesdyne Certificate of Qualification (Dal Nelson)
Wesdyne Certificate of Qualification (Wyffels)
Westinghouse Vision Acuity Record (Behanna)
Westinghouse Vision Acuity Record (Dal Nelson)
Westinghouse Vision Acuity Record (Wyffels)
WO SNC385772, UT Prep and Thickness Measurements
WO SNC386402, Install and Seal Weld Covers on Missing or Damaged Leak Chase Te Connections

Section 1R12: Maintenance Effectiveness
Condition Reports:
339257, 370636

Documents:
Corrective Action Report 192746
Technical Evaluation 223033
Planned Maintenance Change Requests: 62551, 62552, 62553, 62554, 62556, 62557

Drawings:
D-177073
D-177084
D-202825
D-207083
D-207084
Work Orders:
344898

Section 1R15: Operability Determinations and Functionality Assessments
Condition Reports:
384891, 389153, 430474, 441425, 442290, 443724, 443743, 444762, 446634, 446355, 449030, 450662, 466260

Documents:
Engineering Calculation 003.11 “Prestressing Report – Containment”
NL-12-0403, Joseph M. Farley Nuclear Plant Unit 1 and 2 Exigent Technical Specification
NMP-OS-003-F01, Operational Decision-Making Issue Worksheet number FNP1-12-04, ODMI Version 1.0
NRC OE Smart Sample (OpESS) 2012/02, Technical Specification Interpretation and Operability Determination
Revision Request for TS 3.5.4, RWST

Procedures:
FNP-1-STP-609.0, “Containment Tendon Surveillance Test,” Version 20.0

Technical Evaluations:
390354, 404375

Work Orders:
388823, 386918, 409878

Section 1R18: Plant Modifications

Documents:
NMP-AD-010-F01, 10 CFR 50.59 Screening/Evaluation, Version 7.0, for Temporary Modification: SNC394685
NMP-AD-008-F01, Applicability Determination, Version 7.1, for Temporary Modification: SNC394685
NMP-ES-054-F01, Temporary Modification Form, Version 1.1, for Temporary Modification: SNC394685

Drawings:
UNIT 198663, Rev B

Work Orders:
394685, 395229

Section 1R19: Post Maintenance Testing

Condition Reports:
435412, 435430, 442337, 459930, 4600032, 460490, 461943

Documents:
Control Room Operator Logs for 5/25/2012
DOEJ-FM2103572901-M001, Evaluate 2A MDAFW Pump Motor Lifting Blocks Modification
Equivalency Determination 2070825101, Boric Acid Transfer Pump

Procedures:
FNP-0-EMP-1370.01, Cable Termination, Splicing and Repair, Version 16.0
FNP-0-EMP-1530.06, Generator Motor Maintenance and Bearing Replacement (25 HP or Less), Version 3.0
FNP-0-GMP-21.0, Coupling Alignment, Version 14.0

FNP-0-SOP-0.0, Appendix P, Obtaining New Baseline Data (Pump/Motor Combinations), Version 116.0
FNP-1-MP-7.3, Turbine Driven Aux Feed Pump Overspeed Trip Setpoint Check, Version 1.0
FNP-1-STP-22.2, 1B Auxiliary Feedwater Pump Quarterly Inservice Test, Version 38.0
FNP-1-STP-22.16, Turbine Driven Auxiliary Feedwater Pump Quarterly Inservice Test, Version 60.2
FNP-1-STP-22.19, Auxiliary Feedwater Normal Flow Path Verification, Version 28.0
FNP-1-STP-22.23, Turbine Driven Auxiliary Feedwater Pump Trip and Throttle Valve Mechanism and Indication Oeprability Test, Version 15.3
FNP-2-STP-2.8, 2A Boric Acid Transfer Pump Biennial Inservice Test and Preservice Test, Version 5.0
FNP-2-STP-23.2, 2B Component Cooling Water Pump Quarterly Inservice Test, Version 37.1
FNP-2-ETP-4181, TSC Systems Filtration Performance Testing, Version 6.0
FNP-2-STP-80.6, Diesel Generator 2B 24 Hour Load Test, Version 20.0

Technical Evaluations:
416175

Work Orders:
62189, 64487, 65865, 82612, 361503, 382854, 1053131105, 83319, 344816, 83285

Section 1R20: Refueling and Other Outage Activities
Procedures:

FNP-0-ACP-47.3, Outage Preparation, Version 19.0
FNP-0-UOP-4.0, General Outage Operations Guidance, Version 45.1
FNP-1-MP-1.0, Maintenance Refueling Procedure, Version 54.2
FNP-1-SOP-1.3, Reactor Coolant System Filling and Venting-Vacuum Method, Version 64.2
FNP-1-SOP-1.6, Draining the Reactor Coolant System, Version 63.1
FNP-1-STP-18.4, Containment Mid-Loop and/or Refueling Integrity Verification and Containment Closure, Version 38.0
FNP-1-STP-29.6, Calculation of Estimated Critical Condition, Version 13.0
FNP-1-STP-35.0, Reactor Coolant System Pressure and Temperature/Pressurizer Temperature Limits Verification, Version 21.1
FNP-1-STP-35.1, Unit Startup Technical Specification Verification, Version 46.2
FNP-1-UOP-2.1, Shutdown of Unit from Minimum Load to Hot Standby, Version 71.1
FNP-1-UOP-2.2, Shutdown of Unit from Hot Standby to Cold Shutdown, Version 90.0
FNP-1-UOP-4.1, Controlling Procedure for Refueling, Version 59.1
FNP-1-UOP-4.3, Mid-Loop Operations, Version 33.0

Section 1R21: Component Design Basis Inspection
Corrective Action Program Documents:

TE 311000, CA 316982, CAR 193190, CR 414988, CR 351170, CR 355457, CR 353599

Procedures:

FNP-0-ETP-4522, Fuji Ultrasonic Flowmeter Setup and Use, Ver. 1.0
FNP-1-AOP-6.0, Loss of Instrument Air, Ver. 40.0
FNP-2-AOP-6.0, Loss of Instrument Air, Ver. 32.0
FNP-1-ETP-4525.0, Turbine Driven Auxiliary Feedwater Pump Benchmark Flow Test, Ver. 2.0
FNP-1-ETP-4523.0, 1A Auxiliary Feedwater Pump Benchmark Flow Test, Ver. 2.0

Work Orders:

SNC61238, SNC62186, SNC81892, SNC81949, 1041853701, 1041878901, 2041613701, 2041601901

Calculations:

FAI/09-19, Vortex Evaluation for Vogtle and Farley RWSTs and Hatch CSTs, Rev. 0

Drawings:

CDBIAUXFWU1, Unit No. 1 Hydraulic Profile of AFW Pumps Suction Piping, Rev. 0
CDBIAUXFWU2, Unit No. 2 Hydraulic Profile of AFW Pumps Suction Piping, Rev. 0
U161693, Unit No. 1 Condensate Storage Tank General Plan, Ver. 2
U161703B, 8" Aux. Feedpump Suction Nz 46'-0 x 41'-0 High Dome Roof Tk Farley Nuclear Plant Unit #1, Rev. 2
U213481, Unit No. 2 Condensate Storage Tank General Plan, Ver. 2

Documentation of Engineering Judgment:

DOEJ-FRSNC326893-M005, Hydraulic Evaluation of FNP Auxiliary Feedwater System to Support Operability Determinations, Ver. 3.0

Other Documents:

FNP1-12-01, N1N23FO2861A Prompt Determination of Operability, Rev. 1.0

Section 1R22: Surveillance Testing

Condition Reports:
436568, 440439

Documents:
DOEJ-FRSNC394031-M001, Evaluation of the Impact on Offsite and Control Room Doses From the Removal of Encapsulation Vessel Covers from Q1E13MOV8826A, Q1E13MOV8826B, Q1E11MOV8811A, and Q1EQQMOV8811B, Version 1.0

Drawings:
D205007, Sheet 1, Version 24.0

Procedures:
FNP-1-STP-9.0, RCS Leakage Test, Version 50.0
FNP-1-STP-627.0, Local Leak Rate Testing of Containment Penetrations, Version 43.0
FNP-1-STP-913.0, Reactor Coolant Pump Bus Reactor Trip Underfrequency Relay Test, Version 21.0
FNP-2-STP-9.0, RCS Leakage Test, Version 46.0
FNP-2-STP-20.0, Penetration Room Filtration System Train A and Train B Quarterly Operability and Valve Inservice Test, Version 38.0
FNP-2-STP-21.3, Turbine Driven Auxiliary Feedwater Steam Supply Valve Inservice Test, Version 23.0
FNP-2-STP-22.1, 2A Auxiliary feedwater Pump Quarterly Inservice Test, Version 27.1
FNP-2-STP-22.16, Turbine Driven Auxiliary Feedwater Pump Quarterly Inservice Test, Version 65.1
FNP-2-STP-22.23, Turbine Driven Auxiliary Feedwater Pump Trip and Throttle Valve Mechanism and Indication Operability Test, Version 16.1
FNP-2-STP-124.0A, A-Train Penetration Room Filtration Performance Test, Version 11.0

Technical Evaluations:
362976

Work Orders:
62316, 63728, 82600, 83300, 369401, 386384, 55547, 392770

Section 1EP6: Drill Evaluation
Procedures:
NMP-EP-110, Emergency Classification Determination and Initial Action, versions 1.0 and 2.0
NMP-EP-111, Emergency Notifications, versions 4.0 and 5.0

Section 2RS1: Radiological Hazard Assessment and Exposure Controls
Procedures, Guidance Documents, and Manuals:
NMP-HP-001, “Radiation Protection Standard Practices”, Ver. 5.1
NMP-HP-300, “Radiation and Contamination Surveys”, Ver. 1.0
NMP-HP-301, “Airborne Radioactivity Sampling and Evaluation”, Ver. 1.1
NMP-HP-302, “Restricted Area Classification, Postings, and Access Control”, Ver. 2.0
NMP-HP-303, “Personnel Decontamination”, Ver. 1.2
NMP-HP-305, “Alpha Radiation Monitoring”, Ver. 4.0
FNP-0-RCP-10, “Health Physics Condition Reports”, Ver. 5049.0
NMP-GM-002-001, “Corrective Action Program Instructions”, Ver. 28.0

Records and Data:
RWP 12-1444, Work in Rx Vessel Maintenance Sump, Rev. 0
RWP 12-1301, HP Activities in Support of 1R24, Rev. 0
RWP 12-1467, Maintenance in the Rx Cavity Transfer Canal
RWP 12-0303, HP and Rad Waste Activities in HRAs
Air Sample 82220, Unit 1 Ctmt 155’
Air Sample 82261, Unit 1 Ctmt 155’
Air Sample 82219, Unit 1 Ctmt 129’
Air Sample 82260, Unit 1 Ctmt 129’

Radiological Information Survey 72715, ISFSI
Radiological Information Survey 78373, Unit 1 Ctmt Sump
Radiological Information Survey 76913, UNIT 2 Aux Bldg 155'
Radiological Information Survey 76914, UNIT 2 Aux Bldg 155'
Radiological Information Survey 78112, UNIT 2 Aux Bldg 155'
Radiological Information Survey 79072, UNIT 1 SFP Area
Radiological Information Survey 79368, UNIT 1 SFP Area
Radiological Information Survey 79390, UNIT 1 Cavity Drain Line
Radiological Information Survey 79410, UNIT 1 Ctmt Transfer Canal
Radiological Information Survey 77024, UNIT 2 New Fuel Vestibule
Radiological Information Survey 77020, UNIT 2 New Fuel Vestibule
Radiological Information Survey 79404, Hot Tool Room
Radiological Information Survey 78145, UNIT 1 VCT Room
Semi-annual Sealed Source Leak Test 72484
Semi-annual Sealed Source Leak Test 77524

CAP Documents:
F-HP-2011, Fleet Oversight Audit of Health Physics and Process Control Activities
CR 400394
CR 439268
CR 370249
CR 411889
CR 432015
CR 368759
CR 416464

Section 2RS2: Occupational ALARA Planning and Controls

Procedures and Guidance Documents:
Farley Nuclear Plant (FNP) Radiation Control and Protection Procedure (FNP-RCP)-19, ALARA Planning, Version (Ver.) 24.0
Nuclear Management Procedure (NMP)-GM-002, Corrective Action Program, Ver. 12.1 Reactor Head Lift and Set, Health Physics Work Plan, 03/22/2012
Reactor Head Disassembly / Assembly, Health Physics Work Plan, 03/27/2012 Crud Burst Monitoring, Health Physics Work Plan, 03/30/2012
Radiation Work Permit (RWP) 12-1462, Maintenance: All work associated with disassembly & reassembly of the reactor head in support of the 1 R24 outage to include work in high radiation areas and other work classified as 'medium risk.'
RWP 12-1903, Scaffolding (Carpenters) activities in support of the 1R24 outage to include work in High Radiation Areas or other work classified as 'medium risk.'
RWP 12-1501, Operations: Activities by Operations in support of the 1R24 outage to include work in high radiation areas and other work classified as 'medium risk.'
RWP 12-1450, Maintenance: Activities of Mechanical Maintenance (Not to Include Valve Maintenance) in support of the 1R24 outage to include work in high radiation areas and other work classified as 'medium risk'
RWP 12-1301, Health Physics: Activities in support of the 1R24 outage to include work in high radiation areas and other work classified as 'medium risk.'

Records and Data Reviewed:
Unit 1 Reactor Coolant System (RCS) Crud Burst Radiochemistry Data (Co-58, Co-60, Mn-54 & CR-510, October 11-14, 2010
Unit 1 RCS Crud Burst Radiochemistry Data (Co-58, Co-60, Mn-54 & CR-510, April 2 – 4, 2012
Unit 1 Historical Dose Data Refueling Outage 15 (1R15) through 1 R 23 for Reactor Head Assembly / Disassembly, Scaffolding, Operation Routine, Health Physics Routines, and Mechanical Maintenance Routines
Strategic Plan for Radiation Exposure Reduction, 2011 – 2015, January 2012
Fall 2011 ALARA Unit 2 Refueling Cycle 21 (2R21) Outage Report,
Farley Nuclear Plant 4th Quarter Plant ALARA Review Committee (PARC Meeting, 12/5/2011
FNP 1st Quarter PARC Meeting, 2/17/2012
Southern Nuclear Plant Farley Collective Radiation Exposure Summary, Calendar Year (CY) through CY 2011
Year -to-Date RWP Doses Information: April 2-6, 2012, and April 16-19, 2012
Plant Farley UNIT 1 Containment 105 Dose Rate Trending Points (Rev #2) (1CB105), Survey # 78327 (4/1/2012), Survey 78421 (04/03/2012)
Plant Farley Unit 1A ETP Survey Points (1CB 105); Survey # 78393 (4/1/2012), Survey # 78400, (4/1/2012); Survey 78423 (4/01/2012) Survey # 78392 (04/02/2012); Survey # 78401 (4/03/2012), Survey # 78402 (4/03/2012)

Corrective Action Program (CAP) Documents:
CR 373927, (Corporate) Self-assessment Safety Culture Assessment, Significant Event/Trend in the Area of Collective Radiation Exposure
CR 61146, Several CRs written in past outages due to excessive time by facilities staff to find valves needing cleaning
CR 63278, Manual change-out of RCS filter
CR 63680, Manual change-out of RCS filter resulted in higher cumulative dose during transport and final transfer for storage
CR 61299, ALARA suggestion to hang lead blankets around S/G hand-hole and opening
CR 63481, RCS filter changed manually versus remotely
CR 59117, WO status to implement MDCs for installation of permanent barriers to prevent unauthorized access to fuel transfer canal areas during fuel movement
CR 62943, Issues with sandbox insulation removal / reinstallation resulting in stop work orders and increased dose projections
CR 62916, Issues with replacement of mirror insulation on legs within the sand boxes
CR 61748, ISI activities being conducted on primary loop piping while at mid-loop is not ALARA
CR 58360, Design engineering to evaluate reducing UNIT 1 transfer canal blind flange bolts.
CR 370163, HP survey 2R21 outage task P-6 (task 40008) not completed
CR 367562, All lead blankets removed from 2C RCP cubicle before all work completed
CR 363590, UNIT 2 Containment ALARA walk-downs identified staff searching for components without location maps

Section 2RS3: In-Plant Airborne Radioactivity Control and Mitigation
Procedures and Guidance Documents:
FNP-0-RCP-115, “Operation of the POSICHEK-3 Computerized Test Bench for Evaluating SCBA and other Types of Respiratory Protection Equipment”, Ver 1.0
FNP-0-RCP-106, “Use and Operation of Full Face Filter Type Respirators”, Ver 9.0

FNP-0-RCP-103, “Operation and Care of Respiratory Protection Equipment”, Ver 26.0
FNP-0-RCP-101, “Use and Testing of Respiratory Protection Equipment and DAC Hour Tracking”, Ver 34.0
NMP-HP-301, “Airborne Radioactivity Sampling and Evaluation”, Ver 1.1
FNP-0-RCP-371, “High Efficiency Particulate Air (HEPA) Filter Unit Testing”, Ver 6.0

Records and Data Reviewed:
Procheck 3 Test Results for SCBA Tests 11/29-11/30/2011
Radiological Survey #78410 U-1 105ft Containment, 04/03/2012
Radiological Survey #78449 U-1 105ft Containment, 04/03/2012
Radiological Survey #78434 U-1 105ft Containment, 04/03/2012
Gamma Spectroscopy Results #80963 UNIT 1 CMT 15’ I/S Bio Wall 4/3/12
Gamma Spectroscopy Results #80695 UNIT 1 CMT 15’ I/S Bio Wall 4/3/12
Gamma Spectroscopy Results #80711 UNIT 1 CMT 15’ I/S Bio Wall 4/3/12
Gamma Spectroscopy Results #80746 UNIT 1 CMT 15’ I/S Bio Wall 4/3/12
Gamma Spectroscopy Results #80747 UNIT 1 CMT 15’ I/S Bio Wall 4/3/12
Service Reciept Inspection Report, Vendor to provide maintenance and/or refill SCBA bottles, 11/8/11
Radiological Survey #71732 Smear from UNIT 1 100’ REV Feed Pump Room Sink, 07/21/2011
Radiological Survey #78139 UNIT 1 Filter Hatches (dress out area), 03/28/12
Radiological Survey #78154 UNIT 1 A/B Wednesday 139ft, 03/28/12
Radiological Survey #78144 UNIT 1 A/B Wednesday 139ft, 03/28/12
Radiological Survey #78169 UNIT 1 A/B Wednesday 139ft, 03/28/12
Radiological Survey #78179 UNIT 1 A/B Wednesday 139ft, 03/28/12
Radiological Survey #78184 UNIT 1 A/B Wednesday 139ft, 03/28/12
Gamma Spectroscopy Results #80175 UNIT 1 RCS Filter Room- Filter Change, 3/28/12
Survey #78149 Alpha Air Calculation Sheet, Apex ID 80175, 3/28/12
Survey #78150 Hard to Measure Isotopes Form 597, Apex ID 80175, 3/18/12
Gamma Spectroscopy Results #80192 SDF Top of A Pit count 3, 3/28/12
Survey #78155 Alpha Air Calculation Sheet, Apex ID 80192, 3/28/12
Survey #78156 Hard to Measure Isotopes Form 597, Apex ID 80192, 3/18/12
Gamma Spectroscopy Results #80198 O/S UNIT 1 RCS Filter Cubicle, 3/28/12
Survey #78159 Alpha Air Calculation Sheet, Apex ID 80198, 3/28/12
Gamma Spectroscopy Results #80239 Decon UNIT 1 RCS Filter Cubicle and Hallway, 3/29/12
Survey #78167 Alpha Air Calculation Sheet, Apex ID 80239, 3/29/12
Gamma Spectroscopy Results #80266 UNIT 1 RCS Filter Re-analyzed, 3/29/12
Survey #78201 Alpha Air Calculation Sheet, Apex ID 80266, 3/289/12
Survey #78203 Hard to Measure Isotopes Form 597, Apex ID 80266, 3/19/12
HP Form 260A/B, Respiratory Recertification/Inventory Sheet, 3/2012
FNP-0-EIP-16.0 Checklist F, “Emergency Respirators and SCBAs (HP), Signed 3/28/12
HP Form 670A, Respirator Use Evaluation Form for RCS Filter Job 3/31/2012
HP Form 542, SCBA Hydrostatic Test Date, updated 3/29/09

Corrective Action Program (CAP) Documents:
433222, Contamination of the 105’ in CTMT
394304, UNIT 1 HHSI hallway posted as Airborne Radioactivity Area/ Noble Gas following UNIT 1B HHSI pump venting

191205, Individuals qualified as a Respirator Fit Tester without completing required QR
64946- 2C HHSI Pump Room was posted as “Airborne Radioactivity Area”

Section 2RS4: Occupational Dose Assessment

Procedures and Guidance Documents:
Nuclear Management Procedure – Health Physics (NMP-HP) – 102, In Vitro Bioassay, Version (Ver.) 1.0
NMP-HP-103, Skin Dose Assessment, Ver 1.1
NMP-HP-105, Comparison of OSLD and ED Dosimetry, Ver. 1.0
NMP-HP-303, Personnel Decontamination, Ver. 1.3

Records and Data Reviewed:
National Voluntary Laboratory Accreditation Program, Certificate of Accreditation to ISO/IEC 17025:2005, NVLAP Lab Code 100551-0, Effective 2012-04-01 through 2013-03-31
National Voluntary Laboratory Accreditation Program, Certificate of Accreditation to ISO/IEC 17025:2005, NVLAP Lab Code 100551-0, Effective 2011-04-01 through 2012-03-31
OSL/TLD to ED Comparison Data, 01/01/2010 through 12/31/2010, and 01/01/2011 through 01/01/2012
RWP 12-3490, Activities within Unit 1 containment at power or following a reactor trip involving work in locked high radiation areas and other work classified as high risk
HP Form 298 Pre-job Briefing Record for RWP 12-3490, UNIT 1 containment entry to install shims on R-7, 04/19/2012
Neutron Dosimetry Calculations Worksheet for UNIT 1 ‘at power’ entry for RWP 12-3490, 03/15/2012
Plant Farley Radiological Information Survey Number 77829, UNIT 1 155 foot elevation (ft) containment (1CB155), (3/15/2012); 77830 UNIT 1 129 ft containment (1CB129), 03/15/2012
FNP PCE Listing, January 1, 2010, through April 19, 2012
FNP Investigative Whole Body Count Listing, January 1, 2010, through April 19, 2012 PCE / Personnel Contamination Record (PCR) Number 339
Data Package
PCR / PCE Number 347 Data Package
PCR / PCE Number 383 Data Package
PCR / PCE Number 422 Data Package
PCR / PCE Number 429 Data Package
PCR / PCE Number 439 Data Package
PCR / PCE Number 451 Data Package

Section 2RS5: Radiation Monitoring Instrumentation

Procedures and Guidance Documents:
FNP-FSAR-12
FNP-0-EIP-14.0, Emergency Response Teams, Ver 28.0
FNP-0-EIP-4.0, Health Physics Support to the Emergency Plan, Ver44.0
FNP-0-EIP-28.0, Termination and Recovery, Ver 8.0
NMP-EP-305, Equipment Important to Emergency Response, Version 1.0
NMP-EP-305-GL01, FNP Equipment Important to the EP Function, Version 1.0
FNP-0-RCP-201, Calibration and Control of Fixed and Portable Health Physics Instrumentation, Version 29.0
NMP-EP-110-GL01, FNP EALs- ICs, Threshold Values and Basis, Version 2.0

FNP-0-RCP-201, Calibration and Control of Fixed and Portable Health Physics Instrumentation, Version 29.0

Records and Data Reviewed:
HV Scan Detail for HP-GSD-030 12/15/2011
W/O ID 1062996801, R-32 RWV Particulate Monitor, Perform FNP-1-IMP-227.24, 1/17/09
W/O ID 1063211001, R-33 RWV Particulate Monitor, Perform FNP-1-IMP-227.24 …, 10/2/09
W/O ID 1041865901, R-33 RWV Particulate Monitor, Perform FNP-1-IMP-227.10, 08/8/06
W/O ID 1062997001, RDWST Air Rad Monitor NSD11RE0034, Calibrate N1D11RE0034 per FNP-0-IMP-227.26, 3/21/08
W/O ID 2070378501, R-31 RWV Particulate Mon, Perform FNP-2-IMP-227.23 and FNP-0-EMP-1908.01 for N2d11RE0031, 01/9/10
W/O ID 2041689001, R-31RWV Particulate Mon, Perform FNP-2-IMP-227.23 and FMP-0-EMP-1908.01 for N2D11RE0031
W/O ID 2063146701, R-32 RWV Particulate Mon, Perform FNP-2-IMP-227.24, 03/18/09
W/O ID 2041194801, R-32 RWV Particulate Mon, Perform FNP-2-IMP-227.24, 07/13/05
W/O ID 2071712501, R-33 RWV Particulate Mon, Perform FNP-2-IMP-227.25, 08/17/10
W/O ID 2050535601, R-33 RWV Particulate Mon, Perform FNP-2-IMP-227.25, 07/14/06
W/O ID 2063110301, Radwaste Air Monitor, Perform Calibration of RE030A and RE030B, 03/26/09
W/O ID 2041162301, Radwaste Air Monitor, Perform Calibration of RE030A and RE030B, 07/19/05
PCE/PCR data year 2012-2008
W/O ID 1062996901, R-31 RWV Particulate Monitor, Calibrate per FNP-1-NMP-227.23, 02/29/08
W/O ID 1041140301, Radwaste Air Rad Monitor, Perform FNP-1-IMP-227.7, 08/17/05
W/O ID 1063105901, Radwaste Air Rad Monitor, Perform FNP-1-IMP-227.7, 05/28/09
System Health Report- Radiation Monitors 1D11/2D11 4th Qtr 2010
System Health Report- F Unit1 D11 & F Unit 2 D11 Process Radiation Monitoring Q4-2011
W/O SNC76377, FNP-2-STP-227.16A N2D11RE0015C Loop Calibration, 12/1/11
W/O SNC57762, FNP-1-STP-227.16A N2D11RE0015C TB Ventilation Exhaust Loop Calibration, 6/23/11
W/O SNC57287, N1D11RE0023A-Outlet Filter to Surge Tank Calibration, 07/02/11
W/O 2071424801, Perform FNP-2-STP-227.4A Plant Vent Stack Rad N2D11RE0014, 07/13/09
W/O 2090945201, Perform FNP-2-STP-227.4A Plant Vent Stack Rad N2D11RE0014, 03/28/04
W/O 1070743301, Perform FNP-1-STP-227.18A CTMT HI Range Rad Monitor Q1D21RE0027A 4/8/09
W/O 1090393901, Perform FNP-1-STP-227.18A CTMT HI Range Rad Monitor Q1D21RE0027A 10/24/10
W/O 1080378101, Perform FNP-1-IMP-227.17 S/G Blowdown R-23A N1D11RE0023A, 11/6/09
W/O 1091157401, Perform FNP-1-STP-227.9A S/G Blowdown R-23B N1D11RE0023B, 1/31/11
W/O 2080377401, Perform FNP-2-IMP-227.17 S/G Blowdown R-23A N2D11RE0023A, 1/22/10
W/O 1070944601, Perform FNP-1-STP-814 Plant Vent Stack Effluent Monitor N1D11RIC0029B 6/1/09
Q.A. Report for WBC Auxiliary Building 4/17/2012
2012 Whole Body Counter (NSL15WBC003) Energy and Efficiency Standardization Documentation 2/14/2012
2011 Whole Body Counter (NSL15WBC004) Energy and Efficiency Standardization

Documentation 10/29/11
Fixed Counting Equipment Calibration Worksheet, Instrument: NSL15ABC0003 10/29/10
Fixed Counting Equipment Calibration Worksheet, Instrument: NSL15ABC0001 03/08/12
Fixed Counting Equipment Calibration Worksheet, Instrument: NSL15LSS002 05/27/11
Fixed Counting Equipment Calibration Worksheet, Instrument: NSL15LSS003 05/26/11
HP Form 215 AMS-4 Data Sheet, Instrument #HP-LAS-133, 07/21/2011
HP Form 240 Portable Instrument Calibration & Maintenance Data
Instrument: Telepole, ID HP-GMT-007A, 5/10/2011
Instrument: Ludlum, ID HP-GMT-191A, 10/2/2011
Instrument: RM-20, ID HP-GMT-236, 06/29/2011
Instrument: RO-2, ID HP-IOC-030A, 12/1/2011
HP Form 555 Multi-Source Gamma Calibrator Annual Certification, 1/25/2012

Corrective Action Program (CAP) Documents:
63502-Point 6 on Eberline Radiation Monitor failed source check during performance of FNP-1-STP
335445- RE18 reading is elevated
59509- FH1 for RMS HI RAD in alarm due to R-20B high rad alarm
68489- RE18 has high background counts at 5000cpm.
64252- Numerous MH1 RMS HI RAD alarms are being received from R-4, R-7, R-17B & R-19

Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment
NMP-EN-002, “Radiological Groundwater Monitoring Protection Program”, Ver. 5.0
CR 2009111874
CR 445591

Section 4OA1: Performance Indicator Verification
Procedures and Guidance Documents:
FNP-0-AP-54, “Preparation and Reporting of NRC Performance Indicator Data and NRC Operating Data”, Ver. 14.0

Records and Data Reviewed:
Digital Alarming Dosimeter Cumulative Dose and Dose Rate Alarms Listing, January 1, 2011, through March 18, 2012.
L-20120216-0149-B, Liquid Permit Post-Release Data
L-20120216-0148-B, Liquid Permit Post-Release Data
G-20120215-0137-B, Gas Permit Post-Release Data
G-20120209-0115-C, Gas Permit Post-Release Data

Corrective Action Program (CAP) Documents:
CR 346931, 355380, 259263, 360037, 361831, 367569, 370424, 370268, 370344, 376016, 389439,

Documents:
Selected Unit 1 and Unit 2 Control Room Logs from April 2011 through April 2012
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
Farley Unit 1 and Unit 2 Consolidated Data Entry, MSPI Derivation Report, Heat Removal System, dated March 31, 2012

Farley Unit 1 and Unit 2 Consolidated Data Entry, MSPI Derivation Report, Residual Heat Removal System, dated March 31, 2012

Section 4OA2: Problem Identification and Resolution

Condition Reports:
363839, 437175

Documents:
Corrective Action Report 194436
Corrective Action Trend Report, May, 2012
Human Performance Report 1st QRT2012
Human Performance Review Board Summary conducted April 12, 2012
Tagout 1-OP-R24-E11-0210,
Tagout 1-OP-R24-E11-02140
Tagout 1-OP-R24-E21-03005
Tagout 1-OP-R24-E21-03211
Station logs dated April 11, 2012

Procedures:
NMP-AD-003, Equipment Clearance and Tagging, Version 16.0
NMP-AD-003-002, Tagout Standards, Version 8.1
NMP-AD-003-007, Farley Nuclear Plant Special Considerations, Version 5.0
NMP-AD-003-F08, Tagout Preparation and Approval Checklist, Version 4.0

Work Orders:
62833, 62870

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

Condition Reports:
407862

Documents:
Common-Cause Failure Event Insights – Circuit Breakers
Corrective Action Report 193642
EPRI NP-7410, Circuit Breaker Maintenance, Volume1 Low-Voltage Circuit Breakers, Part 4 Westinghouse DS Models
EPRI NP-7410 V1P4 Supplements and Revises, Routine Preventive Maintenance Guidance for Westinghouse DS Breakers
SER 7-97, Operating Mechanism Problems in Medium-Voltage Circuit Breakers
Westinghouse bulletin NS-ES-0196, “New DS Breaker Motor Cutoff Switch

Procedures:
FNP-0-EMP-1322.01, Westinghouse and Cutler-Hammer De-206 and DS-416 Circuit Breakers, Version 32.0