



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

January 28, 2011

Mr. T. Preston Gillespie, Jr.
Site Vice President
Duke Energy Carolinas, LLC
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

**SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000269/2010005, 05000270/2010005, 05000287/2010005**

Dear Mr. Gillespie:

On December 31, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Oconee Nuclear Station Units 1, 2, and 3. The enclosed inspection report documents the inspection results, which were discussed on January 20, 2011, with you and other members of your staff.

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

This report documents three NRC-identified findings of very low safety significance. Two of these findings were determined to be violations of NRC requirements. Additionally, two licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-001; 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 Oconee. In addition, if you disagree with the characterization of any finding 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 Oconee.

DEC

2

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 Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287, 72-04
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: NRC Integrated Inspection Report 05000269/2010005, 05000270/2010005,
05000287/2010005 w/Attachment: Supplemental Information

cc w/encl: (See page 3)

DEC

2

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 Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Docket Nos.: 50-269, 50-270, 50-287, 72-04
License Nos.: DPR-38, DPR-47, DPR-55

Enclosure: NRC Integrated Inspection Report 05000269/2010005, 05000270/2010005,
05000287/2010005 w/Attachment: Supplemental Information

cc w/encl: (See page 3)

X PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE X NON-SENSITIVE
ADAMS: Yes ACCESSION NUMBER: _____ SUNSI REVIEW COMPLETE

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRP	RII:DRS	RII:DRS	RII:DRS
SIGNATURE	via email	Via email	Via email	Via email	MEF /email for/	Via email	Via email
NAME	ASabisch	GOttenberg	JHamman	KEllis	MCoursey	JRivera-Ortiz	CEven
DATE	01/28/2011	01/27/2011	01/27/2011	01/27/2011	01/28/2011	01/27/2011	01/27/2011
E-MAIL COPY?	YES NO	YES NO	YES NO				
OFFICE	RII:DRP	RII:DRP					
SIGNATURE	Via email	JHB /RA/					
NAME	CRapp	JBartley					
DATE	01/28/2011	01/28/2011					
E-MAIL COPY?	YES NO	YES NO	YES NO				

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRPI\RPB1\OCONEE\INSPECTION REPORTS\2010\2010005 IIR\OCONEE 2010005 IIR.DOCX

cc w/encl:
Division of Radiological Health
TN Dept. of Environment & Conservation
Electronic Mail Distribution

David A. Baxter
Vice President, Nuclear Engineering
Duke Energy Carolinas, LLC
Electronic Mail Distribution

Kent Alter
Regulatory Compliance Manager
Oconee Nuclear Station
Duke Energy Carolinas, LLC
Electronic Mail Distribution

Sandra Threatt, Manager
Nuclear Response and Emergency
Environmental Surveillance
Bureau of Land and Waste Management
Department of Health and Environmental
Control
Electronic Mail Distribution

Scott L. Batson
Station Manager
Oconee Nuclear Station
Duke Energy Carolinas, LLC
Electronic Mail Distribution

Terry L. Patterson
Safety Assurance Manager
Duke Energy Carolinas, LLC
Electronic Mail Distribution

Charles Brinkman
Director
Washington Operations
Westinghouse Electric Company, LLC
Electronic Mail Distribution

Tom D. Ray
Engineering Manager
Oconee Nuclear Station
Duke Energy Carolinas, LLC
Electronic Mail Distribution

County Supervisor of Oconee County
415 S. Pine Street
Walhalla, SC 29691-2145

W. Lee Cox, III
Section Chief
Radiation Protection Section
N.C. Department of Environmental
Commerce & Natural Resources
Electronic Mail Distribution

Letter to Preston Gillespie from Jonathan H. Bartley dated January 28, 2011

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT
05000269/2010005, 05000270/2010005, 05000287/2010005

Distribution w/encl:

C. Evans, RII

L. Slack, RII

OE Mail

RIDSNRRDIRS

PUBLIC

RidsNrrPMOconee Resource

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-269, 50-270, 50-287, 72-04

License Nos: DPR-38, DPR-47, DPR-55

Report Nos: 05000269/2010005, 05000270/2010005, 05000287/2010005

Licensee: Duke Energy Carolinas, LLC

Facility: Oconee Nuclear Station, Units 1, 2 and 3

Location: Seneca, SC 29672

Dates: October 1, 2010, through December 31, 2010

Inspectors: A. Sabisch, Senior Resident Inspector
G. Ottenberg, Resident Inspector
K. Ellis, Resident Inspector
J. Hamman, Resident Inspector
M. Coursey, Reactor Inspector (Section 1R08 and 4OA5)
J. Rivera-Ortiz, Senior Reactor Inspector (Section 1R08)
C. Even, Reactor Inspector (Section 1R17)

Approved by: Jonathan H. Bartley, Chief
Reactor Projects Branch 1
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000269/2010-005, 05000270/2010-005, 05000287/2010-005; 10/01/2010 – 12/31/2010; Oconee Nuclear Station Units 1, 2 and 3; Adverse Weather Protection, Flood Protection Measures, Plant Modifications, Surveillance Testing

The report covered a three-month period of inspection by the resident inspectors and three region-based reactor inspectors. Three Green findings were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Cross-cutting aspects are determined using IMC 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."

Cornerstone: Mitigating Systems

- Green. An NRC-identified non-cited violation (NCV) of TS 5.4.1.a was identified for the licensee's failure to implement procedures to ensure equipment associated with cold weather protection of risk significant and safety-related systems, structures or components (SSC's) was in-service and functional prior to the onset of cold weather. This issue was entered into the licensee's corrective action program as PIP O-10-9308. Corrective actions taken include expediting maintenance on equipment determined to be non-functional, assigning an individual as a cold weather protection point-of-contact and revising/developing procedures to ensure similar deficiencies do not occur in the future.

The licensee's failure implement cold weather procedures was a performance deficiency (PD). The PD was more than minor because, if left uncorrected, it would have the potential to become a more significant safety concern in that safety-related or risk significant SSC's could be adversely affected by cold ambient temperatures. The finding was of very low safety significance (Green) because the finding did not result in the likelihood of a reactor trip at the same time that mitigation equipment or associated functions would not be available. The finding involved the cross-cutting area of Human Performance under the Management Oversight aspect of the Work Practices component in that the licensee failed to provide the appropriate management oversight to ensure the activities required to prepare the plant for cold weather conditions were completed prior to the onset of cold weather. [H.4.c] (Section 1R01)

- Green. An NRC-identified finding was identified for the licensee's failure to verify the operability of the East Penetration Room (EPR) expansion joint floor seals for all three units since 2006. Selected Licensee Commitment (SLC) Surveillance Requirement (SR) 16.9.11a.7 required the licensee to verify the operability of auxiliary building (AB) floor seals every eighteen months.

The licensee's failure to ensure that the required EPR expansion joint floor seal inspections were performed as required by SLC SR 16.9.11a.7 was a PD. The PD was more than minor because, if left uncorrected, it would have the potential to become a more significant safety

Enclosure

concern in that the floor seals could further degrade and affect the function of the flood

Enclosure

outlet devices (FOD) to protect safety-related related equipment from flooding after a HELB in the EPR. The inspectors determined that the finding was of very low safety significance (Green) because the degradation the EPR floor seals did not result in the loss of operability or functionality of equipment they were designed to protect. The cause of this finding was directly related to the “complete, accurate, and up-to-date design documentation, procedures and work packages” aspect of the Resources component of the Human Performance cross-cutting area, in that, procedures and work packages to perform the surveillance were not updated following the FOD modification. [H.2(c)] (Section 1R06)

- Green. An NRC-identified non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for the licensee’s failure to adhere to drawings and instructions during the installation of rebar in QA-1 structures prior to concrete placement. The inspectors identified two examples where rebar installation did not meet the concrete coverage requirements specified in ACI Code 117-06. This violation has been entered into the licensee’s corrective action program as PIPs O-10-9091 and O-10-9351.

The licensee’s failure to follow approved drawings and instructions for construction of QA-1 structures was a PD. The PD was more than minor because, if left uncorrected, insufficient concrete coverage on the rebar could lead to rebar corrosion and challenge the integrity of the QA-1 structures under construction. The finding was of very low safety significance (Green) because the finding did not result in the actual loss of function of the PSW duct bank, the Emergency Condensate Cooling Water pipe, or the PSW Building roof. The finding was directly related to the cross-cutting area of Human Performance under the “Procedural Compliance” aspect of the “Work Practices” component because the licensee failed to effectively ensure workers followed procedures and written guidance in the performance of their activities. [H.4(b)] (Section 1R18)

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

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent rated thermal power (RTP). On November 15, 2010, the unit was down-powered to 18 percent RTP and the turbine generator taken offline to repair an oil leak on the main transformer. The unit returned to 100 percent RTP on November 17, 2010, where it remained for the rest of the inspection period.

Unit 2 began the inspection period at approximately 100 percent rated thermal power where it remained for the entire inspection period.

Unit 3 began the inspection period at approximately 100 percent rated thermal power. The unit was removed from service on October 23, 2010, for a planned refueling outage. The unit was placed on-line on November 19, 2010, and reached 100 percent RTP on November 21, 2010, and remained there for the rest of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

a. Inspection Scope

Readiness for Seasonal Extreme Weather Conditions: The inspectors reviewed the licensee's preparations for adverse weather associated with cold ambient temperatures for the risk significant systems, structures and components listed below. This included field walkdowns to assess the material condition and operation of freeze protection equipment, as well as other preparations made to protect plant equipment from freezing conditions. In addition, the inspectors conducted interviews with operations, engineering, and maintenance personnel responsible for implementing the licensee's cold weather protection program to assess the licensee's ability to identify and resolve deficient conditions associated with cold weather protection equipment prior to cold weather events. Documents reviewed are listed in the Attachment.

- Essential Siphon Vacuum System
- Unit 1, 2 and 3 Borated Water Storage Tank Level Instrumentation
- Elevated Water Storage Tank Level Instrumentation
- Standby Shutdown Facility
- Auxiliary Building
- Control Rooms
- Turbine Building

Actual Adverse Weather Conditions: The inspectors assessed the licensee's response to the following three adverse weather conditions. Documents reviewed are listed in the Attachment.

Enclosure

- On October 25, 2010, the licensee entered the Abnormal Procedure for Natural Disaster for notification of a Tornado Watch in the area with a potential for an upgrade to a Tornado Warning by the National Weather Service. On October 26, 2010, a Tornado Warning was declared and actions implemented per the station's Abnormal Procedure which included additional actions for Unit 3 which was in a refueling outage with the equipment hatch open. The inspectors reviewed the actions taken to prepare for the adverse weather conditions experienced on-site as well as the projected conditions by the assigned station work groups and conducted walkdowns of the plant site to identify any items that could create missiles and impact permanent plant equipment.
- On November 30, 2010, the licensee entered the Abnormal Procedure for Natural Disaster for notification of a Tornado Watch in the area. The inspectors verified actions required by the procedure were completed, and a plant walkdown was performed to verify outside areas and the switchyards were free of debris that could be damaging during a tornado. The station entered an Orange risk condition based on the results of the Electronic Risk Assessment Tool and deferred several maintenance activities that had been scheduled.
- During the week of December 13, 2010, the station experienced a period of extreme cold weather. The inspectors reviewed selected areas to ensure adequate measures were in place to ensure the availability of safety related and risk significant components and verified that actions called for in the operator's cold weather checklist had been performed during this period. Inspectors verified that heat trace circuits and area heaters were functional or that compensatory measures had been implemented where installed equipment was not fully functional.

b. Findings

Introduction: An NRC-identified Green NCV of TS 5.4.1.a was identified for the licensee's failure to implement procedures to ensure equipment associated with cold weather protection of risk significant and safety-related systems, structures or components (SSC's) was in-service and functional prior to the onset of cold weather.

Description: The inspectors reviewed the status of the licensee's cold weather preparation activities and conducted walkdowns of several areas containing safety-related or risk-significant components to assess their readiness for cold weather conditions. Discrepancies in the licensee's preparations for cold weather conditions identified by the inspectors included the following:

- The inspectors identified that approximately 60 percent of the area heaters situated in strategic locations throughout the Turbine Building to protect a number of safety-related and risk-significant components were not operating as required by OP/0/B/1106/041, Turbine Building Ventilation, at the onset of cold weather.
- All ridge vents and wall louvers in the Essential Siphon Vacuum System building were not closed as required by procedure during the period from November 1 to March 31 in order to protect the safety-related equipment within the stand-alone building from the effects of cold weather conditions as required by OP/1/A/1104/051, ESV Operation.

- Verification of the proper operation of the Unit 2 heat trace circuits for exposed piping systems susceptible to freezing as specified by IP/0/B/1606/010, Preventive Maintenance and Operational Checks of Process Heat Trace, had not been performed prior to the onset of cold weather.
- Verification of the proper operation of heat trace circuits associated with the Elevated Water Storage Tank as specified in IP/1/A/0250/004, Heat Trace Functional Tests, Step 10.17, had not been performed prior to the onset of cold weather and were not scheduled to be performed on any periodicity.

The licensee subsequently initiated corrective actions to ensure specific equipment was either in-service or isolated as required and that inoperable equipment was addressed through the work control process to provide the necessary protection from cold weather conditions. Additional programmatic corrective actions are being developed by the licensee to address weaknesses in the severe weather preparation activities at the site and are captured in the CAP in PIP O-10-9308.

Analysis: The failure to implement procedures to align specific systems or ensure equipment associated with safety-related or risk significant SSC's was in a state of readiness prior to the onset of cold weather was a performance deficiency. The finding was more than minor, because, if left uncorrected, the finding would have the potential to become a more significant safety concern in that safety-related or risk significant SSC's could be adversely affected by cold ambient temperatures. The inspectors used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because the finding did not result in the likelihood of a reactor trip at the same time that mitigation equipment or associated functions would not be available. The finding involved the cross-cutting area of Human Performance under the Management Oversight aspect of the Work Practices component in that the licensee failed to provide the appropriate management oversight to ensure the activities required to prepare the plant for cold weather conditions were completed prior to the onset of cold weather. [H.4.c]

Enforcement: Technical Specification 5.4.1.a states that procedures contained in Regulatory Guide 1.33, Revision 2, Appendix A, shall be established, implemented and maintained. Regulatory Guide 1.33, Appendix A, Section 3, defines procedures covering safety-related system operation which includes heating for areas such as the Auxiliary Building, Control Room and areas containing safety-related equipment. Procedures OP/0/B/1106/041, OP/1/A/1104/051, IP/0/B/1606/010, and IP/1/A/0250/004, contain requirements to verify operation of or align equipment related to heating for areas containing safety-related equipment. Contrary to the above, on November 9, 2010, the licensee had not implemented applicable sections of procedures OP/0/B/1106/041, OP/1/A/1104/051, IP/0/B/1606/010, and IP/1/A/0250/004 to verify operation of or align equipment related to heating for areas containing safety-related equipment. Specifically, the licensee did not implement the procedural requirements of OP/0/B/1106/041, OP/1/A/1104/051, IP/0/B/1606/010, and IP/1/A/0250/004 to align essential siphon vacuum system building ridge vents and dampers or verify operation of heaters and heat trace circuits required to be in service or isolated in preparation for cold weather. Corrective actions taken included expediting maintenance on equipment determined to

Enclosure

be non-functional, assigning an individual as a cold weather protection point-of-contact and revising / developing procedures to ensure similar deficiencies do not occur in the future. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as PIP O-10-9308, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000269, 270, 287/2010005-01), Failure to Adequately Protect Risk Significant And Safety-Related Systems, Structures Or Components (SSC's) from Cold Weather Conditions

1R04 Equipment Alignment

a. Inspection Scope

Partial Walkdown: The inspectors performed the three partial walkdowns listed below to assess the operability of redundant or diverse trains and components when safety-related equipment was inoperable or out-of-service and to identify any discrepancies that could impact the function of the system potentially increasing overall risk. The inspectors reviewed applicable operating procedures and walked down system components, selected breakers, valves, and support equipment to determine if they were correctly aligned to support system operation. The inspectors reviewed protected equipment sheets, maintenance plans, and system drawings to determine if the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP. Documents reviewed are listed in the Attachment.

- Protection of decay heat removal equipment including low pressure injection pump and coolers, offsite power supplies and the Standby Shutdown Facility (SSF) during the period the Unit 3 reactor coolant system was in a partially drained condition in preparation for core offload.
- Protection of remaining operable spent fuel pool (SFP) cooling trains following the isolation of the "A" train due to suspected tube leakage from the SFP cooling system into the Recirculating Cooling Water system
- Protection of equipment required to support draining of the Unit 3 reactor coolant system in low decay heat load conditions to facilitate removal of the steam generator nozzle dams including the low pressure injection pumps and coolers, standby and main offsite power supplies and Low Pressure Service Water pumps

Complete System Walkdown: The inspectors performed a walkdown of the Essential Siphon Vacuum (ESV) system. The inspectors reviewed applicable operating procedures and walked down system components, selected breakers, valves, and support equipment to determine if they were correctly aligned to support system operation. The inspectors reviewed protected equipment sheets, maintenance plans, and system drawings to determine if the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R05 Fire Protectiona. Inspection Scope

Fire Area Tours: The inspectors walked down accessible portions of the five plant areas listed below to assess the licensee's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The inspectors observed the fire protection suppression and detection equipment to determine if any conditions or deficiencies existed which could impair the operability of that equipment. The inspectors selected the areas based on a review of the licensee's safe shutdown analysis probabilistic risk assessment and sensitivity studies for fire-related core damage accident sequences. Documents reviewed are listed in the Attachment.

- Turbine Building Operating Deck
- Unit 3 East and West Penetration Rooms
- Unit 3 Cable Spreading Room
- Unit 3 Equipment Room
- Unit 3 Reactor Building (performed at the start of the Unit 3 refueling outage)

b. Findings

No findings were identified.

1R06 Flood Protection Measuresa. Inspection Scope

Internal Flooding: The inspectors reviewed the following two areas of the plant to assess the vulnerability of and protection from internal flooding to verify that the potential impact of a break within the building had been considered and could be mitigated. The inspectors also verified that credited passive design features, were installed as described in the Updated Final Safety Analysis Report (UFSAR) and site administrative procedures. Inspectors also verified that equipment required to be used in abnormal procedures used to combat internal flooding events was accessible. Documents reviewed are listed in the Attachment.

- Third floor of the turbine building where temporary chilled water lines were installed to cool Recirculating Cooling Water (RCW) supplied to the isolated phase bus duct coolers
- The east penetration rooms for all three units to inspect the expansion joint floor seals that provide protection of equipment in lower levels of the auxiliary building from flooding resulting from a piping failure in the penetration room.

b. Findings

Introduction: An NRC-identified Green finding was identified for the licensee's failure to verify the operability of the East Penetration Room (EPR) expansion joint floor seals for all three units since 2006. Selected Licensee Commitment (SLC) Surveillance Requirement (SR) 16.9.11a.7 required the licensee to verify the operability of auxiliary building (AB) floor seals every eighteen months.

Description: During a walkdown of the Unit 2 EPR, the inspectors identified a small gouge and separation in the expansion joint floor seal. This seal was necessary to protect safety related equipment on lower elevations of the AB from flooding following an EPR High Energy Line Break (HELB) event. The licensee declared the floor seal non-functional, implemented a compensatory measure to restore the flood barrier to a functional status, and permanently repaired the seal. The licensee entered the issue into the CAP as PIP O-10-10031. The licensee also performed an analysis of the degraded seal and determined that approximately 5100 gallons of water could have leaked past the seal following an EPR HELB event. This amount of water is within the available volume in the Unit 1 and 2 HPI pump room before safety related equipment would have been affected.

While performing a follow-up review of the issue, inspectors determined that periodic inspections of the floor seals had not been performed every 18 months as required by SLC Surveillance Requirement (SR) 16.9.11.a.7. Following installation of flood outlet devices (FODs) in the EPRs, post modification inspections of the seals were performed in 2006. However, the inspectors found that the Design Change package used to install the FODs did not identify that procedures to routinely inspect the seals were required. As a result, the seals had not been inspected since the FODs were installed in 2006 and the seal degradation went undetected. The licensee initiated planned corrective actions to ensure the EPR expansion joint floor seals were periodically inspected as required by the SLC SR.

Analysis: The licensee's failure to ensure that the required EPR expansion joint floor seal inspections were performed as required by SLC SR 16.9.11a.7 was a performance deficiency (PD). The PD was more than minor because, if left uncorrected, it would have the potential to become a more significant safety concern in that the floor seals could further degrade and affect the function of the FODs to protect safety-related related equipment from flooding after a HELB in the EPR. The inspectors used Inspection Manual Chapter 0609, Attachment 4, and determined that the finding was of very low safety significance (Green) because the degradation the EPR floor seals did not result in the loss of operability or functionality of equipment they were designed to protect. The cause of this finding was directly related to the "complete, accurate, and up-to-date design documentation, procedures and work packages" aspect of the Resources component of the Human Performance cross-cutting area, in that, procedures and work packages to perform the surveillance were not updated following the FOD modification. [H.2(c)]

Enforcement: Because the finding does not involve a violation and has very low safety significance, it is identified as FIN 05000269, 270, 287/2010005-02, Failure to Meet SLC SR Requirements for Inspecting the East Penetration Room Floor Seals.

1R07 Heat Sink Performance

a. Inspection Scope

The inspectors observed the performance of a performance test of the Unit 3 “A” and “B” Low Pressure Injection (LPI) Coolers. The inspectors verified that appropriate data was being collected and analyzed to determine the heat removal capability of the coolers. The inspectors verified there was adequate margin to operability of the coolers based on the results of the testing. The inspectors verified the frequency of testing was appropriate to detect heat exchanger degradation prior to operability being affected. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (ISI)

a. Inspection Scope

The inspectors conducted a review of the implementation of the licensee’s ISI program for monitoring degradation of the reactor coolant system, steam generator tubes, emergency feedwater systems, risk-significant piping and components and containment systems. The inspection activities described below constituted one inservice inspection sample as defined in Inspection Procedure 71111.08.

Piping Systems ISI. The inspectors observed the following non-destructive examinations to evaluate compliance with the American Society of Mechanical Engineers (ASME) Code Section XI and Section V requirements and to evaluate if any detected indications and were dispositioned in accordance with the ASME Code or an NRC-approved alternative requirement.

- Ultrasonic Testing (UT) of Pipe to Tee Weld of 3LP-221-2 (ASME Class 2)
- UT Examination of Pipe to Tee Weld of 3LP-221-3 (ASME Class 2)

The licensee did not identify any recordable indications that were analytically evaluated for continued service during the non-destructive surface and volumetric examinations performed since the previous Unit 3 refuelling outage. Therefore, no NRC review was completed for this inspection procedure attribute.

The inspectors reviewed the following pressure boundary weld completed for risk-significant systems since the last Unit 3 refuelling outage to evaluate if the licensee applied the preservice non-destructive examinations and acceptance criteria required by the Construction Code and ASME Code Section XI. In addition, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records

Enclosure

to evaluate if the weld procedure was qualified in accordance with the requirements of the Construction Code and the ASME Code Section IX.

- WO1780230, "Replace 2RC-2 Throttle VLV & add test connections," Class I
The inspectors reviewed the results of the visual examination for the bottom-mounted instrument penetrations to ensure examinations were being performed in accordance with the requirements of ASME Code Case N-722-1 and 10 CFR 50.55a(g)(6)(ii)(E).

Reactor Pressure Vessel Upper Head Penetration Inspection Activities. For the Unit 3 vessel head, no examination was required pursuant to 10 CFR 50.55 a(g)(6)(ii)(D). The previous bare metal visual examination for the vessel upper head was performed during the Spring 2009 refueling outage and next bare metal visual examination was scheduled during the Spring 2012 refueling outage. The Unit 3 reactor vessel upper head was replaced during the Fall 2004 refueling outage and the next volumetric examination was scheduled during the Spring 2014 refueling outage.

Boric Acid Corrosion Control. The inspectors performed an independent walkdown of portions of borated systems which recently received a licensee boric acid walkdown and evaluated if the licensee's boric acid corrosion control visual examinations emphasized locations where boric acid leaks could cause degradation of safety-significant components. 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 ASME Code Section XI and other licensee committed documents:

- PIP O-10-08081, "3EOC25 ENG/MNT Mode 3 Hot Shutdown tour (WO #01827959)
- PIP O-10-02517, "Unit 3 RB Tour Results (MODE 4)

The inspectors reviewed the following 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 10CFR Part 50, Appendix B, Criterion XVI.

- PIP O-10-06682, "3HP-421 Leaking around pipe cap"
- PIP O-10-00331, "Valve 3HP-415 has an active boric acid leak at the valve packing gland"

Steam Generator (SG) Tube Inspection Activities. The inspectors reviewed the Unit 3 eddy current testing (ECT) examination activities in SGs A and B and evaluated them against the licensee's Technical Specifications, NRC commitments, ASME Section XI, and Nuclear Energy Institute (NEI) 97-06, Steam Generator Program Guidelines. The inspectors reviewed the scope of the ECT examinations to verify it included the applicable potential areas of tube degradation. The inspectors also verified that appropriate inspection scope expansion criteria were planned based on inspection results. Additionally, the inspectors reviewed ECT status reports to ensure that all tubes with relevant indications were appropriately screened for in-situ pressure testing. Based

on the ECT examination results, no new degradation mechanisms were identified, no ECT scope expansion was required, and none of the SG tubes examined met the criteria for in-situ pressure testing

The inspectors reviewed the last Condition Monitoring and Operational Assessment report to assess the licensee's prediction capability for maximum tube degradation. The inspectors' review also included the licensee's repair criteria and repair process to ensure they were consistent with plant Technical Specifications and industry guidelines. The inspectors also reviewed the primary to secondary leakage (e.g., SG tube leakage) history for the last operating cycle. The inspectors noted that primary to secondary leakage was below three gallons per day, or the detection threshold, during the previous operating cycle.

Additionally, the inspectors reviewed documentation to ensure that data analysts, ECT probes, and equipment configurations were qualified to detect the existing and potential SG tube degradation mechanisms. The inspectors' review included a sample of site-specific Examination Technique Specification Sheets to ensure that their qualification was consistent with Appendix H or I of the Electric Power Research Institute Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7. The inspectors also directly observed a sample of ECT data acquisition in SG A Upper System (Bobbin Probe) and SG B Upper System (Bobbin/X-probe). Furthermore, the inspectors reviewed ECT data with a qualified data analyst for the following tubes: SG A (tubes R6C39, R62C5, and R74C131) and SG B (tubes R79C132 and R75C1). Finally, the inspectors reviewed the licensee's corrective actions for ECT indications of potential loose parts on the SG secondary side.

Identification and Resolution of Problems: The inspectors performed a review of ISI-related problems, including welding and boric acid corrosion control, which were identified by the licensee and entered into the corrective action program, to confirm that the licensee had appropriately described the scope of the problems and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the report attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification

a. Inspection Scope

Quarterly Review of Licensed Operators' Regualification Testing and/or Training Activities: The inspectors observed one active simulator exam, to assess the performance of licensed operators during a simulator training session. The scenario included a turbine trip and a failure of the reactor to trip automatically or manually. The

Enclosure

scenario also included a loss of offsite power with a failure of the 1B Motor Driven Emergency Feedwater Pump and Turbine Driven Emergency Feedwater Pump to start. The inspection focused on high-risk operator actions performed during implementation of the abnormal and emergency operating procedures, and the incorporation of lessons learned from previous plant and industry events. The classification and declaration of the Emergency Plan by the Operations Shift Manager was also observed during the scenario. The post-scenario critique conducted by the training instructor and the crew was observed. Documents reviewed are listed in the Attachment.

Annual Review of Licensee Requalification Examination Results: On March 26, 2010, the licensee completed the annual requalification operating tests required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating tests and the crew simulator operating tests. These results were compared to the thresholds established in Manual Chapter 609 Appendix I, Operator Requalification Human Performance Significance Determination Process.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing the following two corrective maintenance activities. These reviews included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions, as well as common cause failure evaluations. For each activity selected, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. For those structures, systems and components (SSCs) scoped in the Maintenance Rule per 10 CFR 50.65, the inspectors verified that reliability and unavailability were properly monitored and that 10 CFR 50.65 (a)(1) and (a)(2) classifications were justified in light of the reviewed degraded equipment condition. The documents reviewed are listed in the Attachment.

- Repair of 3SF-49, Spent Fuel Filter Outlet Header Block Valve, to support the Unit 3 refueling outage.
- Rebalance of the 2C High Pressure Injection pump after the pump experienced high vibrations

b. Findings

No findings were identified

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors evaluated the following attributes for the six activities listed below: (1) the effectiveness of the risk assessments performed before maintenance activities were conducted; (2) the management of risk; (3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and (4) that maintenance risk assessments and emergent work problems were adequately identified and resolved. Documents reviewed are listed in the Attachment.

- Emergent repair of valve 3SF-49 which required securing all spent fuel pool cooling and entering an Orange risk condition for the duration of the maintenance activity
- Unit 3 3EOC25 Refueling Outage Risk Assessment and Management Plan including specific activities within the outage window such as loops not filled with high decay heat, reactor vessel head removal and replacement, mid-loop operation and core alternations.
- Removal and replacement of the Unit 3 Reactor Core Support Assembly for nozzle dam inspection.
- Critical Activity Plan for the SSF Monthly Diesel Maintenance, including preoperational checks which resulted in an Orange quantitative risk condition
- Drain down of the Unit 3 reactor coolant system to reduced inventory conditions to facilitate the removal of steam generator cold leg nozzle dams. This activity placed the unit in an Orange Defense in Depth condition requiring focused training, management oversight, and coordination of other outage activities.
- Response to notification that the Duke electrical distribution grid had entered an Orange condition due to high power demands resulting from extreme cold weather including the review of scheduled and emergent work against fleet procedural guidance.

b. Findings

No findings were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following six operability evaluations affecting risk significant systems to assess: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered; (4) if compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; and (5) where continued operability was considered unjustified, the impact on Technical Specifications (TS) limiting condition for operations.

- PIP O-10-07549, 0.75 inch hole drilled through Unit 1 Auxiliary Building West Penetration Room concrete support beam
- PIP O-10-7807; Missing pipe guide support for Unit 3 Reactor Building Purge Line Inlet Penetration
- PIP O-10-8398; Violation of 10CFR50.49f related to two “Hybrid” electrical penetrations
- PIP O-10-8395; Violation of 10CFR50.49f for Limitorque motor operated valves with their limit switch covers rotated down
- PIP O-10-9134; Corrosion in four inch pipe upstream of valve 3LPSW-564
- PIP O-10-9018; While performing potholing work to locate the Auxiliary Service Water pipe at Unit 1, it was discovered that the Auxiliary Service Water pipe did not meet the minimum protective cover requirement

b. Findings

No findings were identified

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed selected samples of evaluations to confirm that the licensee had appropriately considered the conditions under which changes to the facility UFSAR, or procedures may be made, and tests conducted, without prior NRC approval. The inspectors reviewed evaluations for two changes and additional information, such as drawings, calculations, supporting analyses, the UFSAR, and TS to confirm that the licensee had appropriately concluded that the changes could be accomplished without obtaining a license amendment. The two evaluations reviewed are listed in the Attachment.

The inspectors reviewed samples of changes for which the licensee had determined that evaluations were not required, to confirm that the licensee’s conclusions to “screen out” these changes were correct and consistent with 10 CFR 50.59. The five “screened out” changes reviewed are listed in the Attachment.

The inspectors evaluated engineering design change packages for the following five material and design based modifications to evaluate the modifications for adverse effects on system availability, reliability, and functional capability.

- EC 102755, Main Generator Rotor and Stator Replacement
- OD 200443, Change Out Control Room Recorders
- OD500922, Ductbank Construction, Manhole 7
- OD500922, Ductbank Construction, Pipesaddles
- OD500920, PSW Roof

The inspectors also observed construction for the duct bank, PSW Building, Borated Water Storage Tank foundation and Fiberwrap Protection installation for the Auxiliary Building walls. The inspectors examined installation of the reinforcing steel and form work configuration and observed concrete placement, testing, and standard cylinder preparation for the compressive testing for the manhole and pipe saddles. The inspectors reviewed procedures, specifications, construction documents, and corrective actions such as Problem Investigation Process (PIP) documents generated by the licensee personnel and Nonconformance Reports (NCR) generated by the contractor related to the rebar installation, concrete mix testing, and concrete pour. The inspectors reviewed or examined the licensee activities to verify that the activities met the requirements of American Concrete Institute (ACI) code, licensee procedures, and the industry standards.

The inspectors examined the rebar installation on Manhole #7, pipe saddles, and the PSW Building vestibule roof to ensure that the licensee had measured the reinforcing steel size, spacing, splice length, and the concrete minimum protection coverage in accordance with the requirements of the design drawings and the ACI Code 349-97, Code Requirements for Nuclear Safety Related Concrete Structures. The inspectors reviewed the concrete pre-placement inspection checklist prior to the concrete pour. The inspectors reviewed the procedures, specifications, and documents related to the concrete construction activities.

The inspectors observed concrete placement activities for Manhole #7 and pipe saddles to verify that activities pertaining to concrete delivery time, flow distance, layer thickness and concrete consolidation conformed to industry standards established by the ACI. Concrete batch tickets were examined to verify that the specified concrete mix was being delivered to the site. The inspectors observed to determine whether concrete placement activities were continuously monitored by the licensee and contractor quality control personnel and engineers. The inspectors witnessed in-process testing and reviewed the results for slump, air content, temperature, unit weight, and molding of the concrete cylinders for compressive strength testing, and also witnessed sample points and truck loads to verify that concrete samples and cylinders for field testing were obtained at the point of placement (end of chute line) and the middle portion of the truck loads. The inspectors reviewed concrete installed or poured into cylinders to determine whether it was molded in accordance with applicable American Society for Testing and Materials requirements of ASTM C 172, Standard Method of Sampling Freshly Mixed Concrete, and to determine if appropriate concrete field testing was performed by Quality Control (QC) inspectors.

The inspectors reviewed travelers and NCRs for the soil excavation and backfill of the duct bank segments, Borated Water Storage Tank Foundations, and PSW Building. The review included soil inspection checklists, density of soil in place by the sand-cone methods, field compact tests, and density of soil in place by the drive tube methods.

The inspectors reviewed NCRs and PIPs related to the cracks identified on the top and at the ceiling of the roof of PSW Building. The cracks were identified several weeks after the construction of the roof. There were three lines of cracks, almost parallel with the short span of the roof, at the ceiling of the roof. There were also several vertical cracks

Enclosure

identified in the wall. The licensee patched the first crack identified on the top of the roof prior to the installation of the membrane on the top of the roof. Water was seen at the ceiling prior to the patch on the top of the roof, which showed that the cracks penetrated the 17-inch thickness of the concrete roof. The licensee considered the cracks as shrinkage cracks and repaired the cracks as non-structural cracks. The inspectors were concerned whether the cracks should be considered structural cracks and whether they would have a potential impact to the safety of the PSW building in the future due to moisture intrusion affecting the rebar. The licensee hired a consultant company to perform tests, study the root cause, and recommend a solution.

The inspectors reviewed records for work packages, travelers, testing, and drawings related to the work activities to verify that they met the ACI Code, licensee procedures, drawings, and specifications, and industry standards.

Documents reviewed included procedures, engineering calculations, modification design and implementation packages, work orders, site drawings, corrective action documents, applicable sections of the living UFSAR, supporting analyses, Technical Specifications, and design basis information. The inspectors additionally reviewed test documentation to ensure adequacy in scope and conclusion. The inspectors' review was also intended to verify that all details were incorporated in licensing and design basis documents and associated plant procedures.

The inspectors also reviewed selected Condition Reports and the licensee's recent self-assessment associated with modifications and screening/evaluation issues to confirm that problems were identified at an appropriate threshold were entered into the corrective action process, and appropriate corrective actions had been initiated and tracked to completion.

b. Findings

An issue related to the licensee's failure to ensure sufficient rebar coverage was maintained in QA-1 structure under construction was identified under this area. It is documented in the Findings section of 1R18, Plant Modifications.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed one permanent and two temporary plant modifications to verify the adequacy of the modification package, as well as 10 CFR 50.59 screenings, and to evaluate the modification for adverse affects on system availability, reliability and functional capability. Documents reviewed are listed in the Attachment.

Permanent Plant Modifications

- Construction of the PSW Building

Temporary Plant Modifications

- EC 102865, Permit Temporary Cooling of Raw Cooling Water to the Unit 1 and Unit 2 Isophase Bus Duct Air Handling Units
- A/R 00339570, Compensatory Measures for PIP O-10-10893 IDO, Monitoring of Keowee Guide Bearing Oil System

b. Findings

Introduction: A Green NRC-identified NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the licensee's failure to adhere to drawings and instructions during the installation of rebar in QA-1 structures under construction prior to concrete placement. The inspectors identified two examples where rebar installation did not meet the concrete coverage requirements specified in ACI Code 117-06.

Description: The licensee was constructing a duct bank to provide a protected path for power cables from the Keowee hydro unit to the new Protected Service Water (PSW) system building. Both the duct bank and the PSW building consisted of a steel rebar support structure encased in concrete. In accordance with the design package as modified by ACI Code 117-06, a minimum of two inches of concrete coverage was required for all rebar subject to soil or form contact. The inspectors identified two examples where concrete coverage did not meet the coverage requirement.

- On November 3, 2010, after all the required rebar was placed to support a concrete pour for the duct bank covering the Emergency Condensate Cooling Water pipe, a QC inspection was performed and signed off with no issues noted. On November 4, 2010, just prior to the concrete pour for the duct bank covering the Emergency Condensate Cooling Water pipe, the inspectors identified two pieces of rebar that did not meet the two-inch coverage requirement. The licensee subsequently made the necessary adjustments, performed another QC inspection, and verified the coverage requirements were met.
- On November 10, 2010, inspectors were notified that the PSW building vestibule roof had been inspected by QC personnel and was ready to have the concrete poured. The inspectors performed a walkdown of the area and identified 12 sections of rebar which failed to meet the minimum two inch clearance requirement. Work was suspended and an assessment conducted by licensee and contract personnel. After the corrective actions were implemented and additional oversight assigned to the project, the vestibule roof concrete pour was conducted.

Analysis: The licensee's failure to follow approved drawings and instructions for construction of QA-1 structures was a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, insufficient concrete coverage on the rebar could lead to rebar corrosion and challenge the integrity of the QA-1 structures under construction. The inspectors used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and determined that the finding was of very low safety significance (Green) because the finding did not result in the actual loss of function of

the PSW duct bank, the Emergency Condensate Cooling Water pipe, or the PSW Building vestibule roof. The performance deficiency was directly related to the cross-cutting area of Human Performance under the "Procedural Compliance" aspect of the "Work Practices" component because the licensee failed to effectively ensure workers followed procedures and written guidance in the performance of their activities. [H.4(b)]

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," required, in part, that activities affecting quality shall be accomplished in accordance with instructions, procedures, or drawings appropriate to the circumstances. Drawing O-398-A1-002, Revision A, AWA 91881-0, and ACI Code 117-06 required a minimum of two inches of concrete coverage be provided for all reinforcing steel used in QA-1 structures. Contrary to the above, on November 4, 2010, and November 10, 2010, activities affecting quality were not accomplished in accordance with instructions, procedures, or drawings appropriate to the circumstances. Installation of the QA-1 rebar for construction of the Emergency Condensate Cooling Water pipe saddles and the PSW Building vestibule roof did not meet the required concrete coverage as required by Drawing O-398-A1-002, Revision A, AWA 91881-0, and ACI Code 117-06. Because this violation is of very low safety significance and was entered into the licensee's corrective action program as PIPs O-10-9091 and O-10-9351, this violation is being treated as an NCV consistent with Section 2.3.2 of the NRC Enforcement Policy and is identified as NCV 05000269, 270, 287/2010005-02, Failure to Install Structural Rebar as Required by Instructions and Drawings.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the following four post-maintenance test procedures and/or test activities to assess if: (1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and demonstrated operational readiness consistent with design and licensing basis documents; (4) test instrumentation had current calibrations, range, and accuracy consistent with the application; (5) tests were performed as written with applicable prerequisites satisfied; (6) jumpers installed or leads lifted were properly controlled; (7) test equipment was removed following testing; and (8) equipment was returned to the status required to perform its safety function. Documents reviewed are listed in the Attachment.

- Functional test of the 1B Low Pressure Injection pump following planned preventive maintenance and lubrication activities
- High Pressure Injection (HPI) Full Flow test following outage maintenance including 3A HPI pump seal replacement and 3C HPI pump motor maintenance
- Chemistry "J-leg" flow test following repair of post accident liquid sampling line valves
- Post Maintenance Test of the Unit 3 SSF Reactor Coolant Makeup Unit Pump following planned maintenance during the Unit 3 outage

b. Findings

No findings were identified.

1R20 Refueling and Outage Activities

The inspectors evaluated licensee outage activities associated with to the Unit 3 refueling outage to verify the licensee considered risk in developing outage schedules; adhered to administrative risk reduction methodologies; adhered to operating license, TS and SLC requirements and procedural guidance that maintained defense-in-depth; and developed mitigation strategies for losses of the key safety functions. The inspectors reviewed the licensee's outage risk control plan to assess the adequacy of the risk assessments that had been conducted and that the licensee had implemented appropriate risk management strategies as required by 10 CFR 50.65(a)(4). The inspectors conducted portions of the following activities associated with the refueling outage. Documents reviewed are listed in the Attachment.

- Observed Just-in-Time training conducted for unit cooldown, approach to criticality and Zero Power Physics Testing for the personnel involved in these activities.
- Observed power reduction process, removing the reactor from service, unit cooldown, approach to criticality, placing the main generator on-line, and portions of the power ascension activities.
- Entered containment after Mode 3 had been reached to observe the condition of major, normally-inaccessible equipment and verify that previously unidentified leakage from the reactor coolant system including the reactor vessel upper and bottom head penetrations was not present.
- Reviewed the licensee's responses to emergent work and unexpected conditions.
- Observed the removal and reinstallation of the reactor vessel head, plenum assembly and core barrel.
- Observed fuel handling operations during new fuel receipt, movement into the spent fuel pool, reactor core offload, and refueling activities including reviewing the core loading verification videotape.
- Verified that mode change requirements and prerequisites were met prior to changing modes or plant configuration.
- Periodically reviewed the status of containment integrity to verify that the Reactor Coolant System and containment boundaries were in place and had integrity when necessary.
- Conducted containment walkdown to inspect for overall cleanliness and material condition of plant equipment after the licensee completed their closeout inspection.
- Reviewed the items that had been entered into the CAP to verify that the licensee had identified outage related problems at an appropriate threshold.

b. Findings

No findings were identified.

1R22 Surveillance Testinga. Inspection Scope

The inspectors either witnessed and/or reviewed test data for the seven surveillance tests listed below to assess if the SSCs met TS, Updated Final Safety Analysis Report (UFSAR), and licensee procedure requirements. In addition, the inspectors determined if the testing effectively demonstrated that the SSCs were ready and capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

Routine Surveillances

- PT/1/A/0203/006 A; Low Pressure Injection Pump Test – Recirculation; Rev. 084
- PT/3/A/0610/001J, Emergency Power Switching Logic Functional Test, Rev. 43
- PT/0/A/0775/015; Core Alignment Verification Procedure, Rev. 11
- PT/0/A/0750/02; Core Inspections Procedure, Rev. 29
- PT/0/A/0400/011; SSF Diesel Generator Test, Rev. 13

In-Service Tests

- PT/3/A/0203/006B, Low Pressure Injection Pump Test- Decay Heat, Rev. 29

Containment Isolation Valve Testing

- PT/3/A/0151/039A, Penetration 39A Leak Rate Test, Rev. 3

b. Findings

Introduction: An Unresolved Item (URI) was identified when seat leakage was observed through the Unit 3 SSF Reactor Coolant Makeup (RCM) pump discharge relief valve, 3HP-404; during quarterly In-service Testing. Leakage past the seat of the relief valve provided a flowpath that allowed some water to bypass the injection path providing reactor coolant pump (RCP) seal cooling. This issue remains unresolved pending completion of the licensee's testing to determine if the relief valve would degrade enough to prevent the SSF RCM pump from performing its safety function.

Description: During the performance of a quarterly In-service Testing surveillance test of the Unit 3 SSF RCM pump on August 24, 2010, the licensee observed an increase in the normal reactor building sump level and subsequently found to have been caused by seat leakage in relief valve 3HP-404. It was identified that while leakage during the test was less than 0.5 gpm, a gradual increase in leakage through the relief valve had occurred during tests performed over the preceding 13 months.

The SSF RCM Pump was used to provide makeup to the reactor coolant system (RCS) and RCP seal cooling during an SSF-design basis event. Leakage through the relief valve would reduce the amount of water that would reach the RCS and could result in RCP seal failure or the inability of operators to control RCS inventory if the relieve valve leakage continued to increase. The licensee will conduct testing to determine if the leakage rate would degrade enough over the 72-hour mission time of the SSF to prevent

Enclosure

the SSF RCM pump from performing its safety function. The licensee has replaced the relief valve. This issue is identified as URI 05000287/2010005-04: Potential Inoperability of the Unit 3 Standby Shutdown Facility Reactor Coolant Makeup Pump.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors participated in and evaluated two Emergency Response Organization drills held on December 4, 2010, and December 15, 2010, which involved activation of the Oconee Technical Support Center, Operations Support Center and Emergency Operations Facility in Charlotte. The licensee's response to the simulated equipment malfunctions and failures was observed from the Technical Support Center. The staff's implementation of the Emergency Plan and offsite notifications were also observed. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee data to confirm the accuracy of reported PI data for the following PIs. To determine the accuracy of the report PI elements, the reviewed data was assessed against PI definitions and guidance contained in Nuclear Energy Institute 99-02, Regulatory Assessment Indicator Guideline, Revision 5. Documents reviewed are listed in the Attachment.

Cornerstone: Mitigating System

- Safety System Functional Failures (3 units)
- Mitigating Systems Performance Indicator - Emergency AC Power (3 units)

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems

.1 Daily Screening of Corrective Action Reports

In accordance with Inspection Procedure (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 inspectors performed daily screening of items

entered into the licensee's CAP. This review was accomplished by reviewing copies of PIPs, attending daily screening meetings, and accessing the licensee's computerized database.

.2 Annual Sample

a. Inspection Scope

The inspectors reviewed PIPs O-10-7414, O-10-7422, and O-10-8435 and the associated corrective actions to assess the effectiveness of the actions that had been implemented to address issues identified in September related to installation of Fiber Reinforced Polymer (FRP) on the Unit 1 Auxiliary Building West Wall at Oconee. The sample activities included inspection of the of installation of FRP, a review of the completed paperwork for Unit's 1, 2, and 3, and interviewing personnel associated with the installation of FRP. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.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 CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screenings discussed in section 4OA2.1 above, licensee trending efforts, licensee human performance results and inspector observations made during in-plant inspections and walk-downs. The inspectors' review primarily considered the six-month period of July 2010 through December 2010, although some examples expanded beyond those dates when the scope of the trend warranted. The review also included issues documented outside the normal CAP in major equipment problem lists, plant health team lists, Independent Nuclear Oversight reports, system and component health reports, self-assessment reports, and maintenance rule reports. The inspectors compared and contrasted their results with the results contained in the licensee's latest quarterly trend reports. Corrective actions associated with a sample of the issues identified in the licensee's trend report were reviewed for adequacy.

b. Observations and Findings

No findings were identified. In general, the licensee has identified trends and has appropriately addressed the trends with their CAP. However, the inspectors previously identified the following three trends that the licensee had not recognized. The inspectors will continue to monitor this area and assess the effectiveness of the licensee's corrective actions.

Capturing Plant Issues in the Corrective Action Program: The inspectors identified a trend during the second half of 2009 associated with weaknesses in the implementation of the PIP program. The trend focused on two areas which were the inconsistent initiation of PIPs when the criteria in the licensee CAP implementing guidance document was met or not fully describing the issue to allow appropriate corrective actions to be developed or trends identified. Specifically, PIPs were not written for some events or issues that were immediately corrected or where a maintenance request was generated. In addition, corrective action documents that described issues or events meeting the initiation criteria were not consistently written in a manner that allowed individuals responsible for screening the PIPs to assign them to the appropriate group for resolution or the Work Group Trend Evaluators to proactively identify adverse trends. Also, human performance issues were noted to be captured in processes outside of the CAP such as the OTIS Safety Observation program or "Manager in the Field" observations. As a result of this NRC-identified trend, the licensee initiated PIP O-10-0182 in early 2010. The corrective actions developed in this PIP were narrowly focused and failed to correct the noted trend issues. As a result, examples continue to be noted in both the inconsistent initiation of PIPs when required and describing the issue in sufficient detail and clarity to enable the appropriate corrective actions to be developed and trends identified by station personnel. Following discussions with the inspectors, the licensee initiated another PIP which expands upon the scope of the initial PIP and will conduct an apparent cause evaluation to ensure appropriate corrective actions are developed and implemented in a timely manner. The inspectors will continue to monitor the licensee's progress in this area and provide an update in the second quarter 2011 inspection

Control of Vehicles Within the Protected Area (PA): The inspectors identified a trend during the second half of 2009 associated with the failure to properly control vehicles within the PA that the licensee had not previously recognized. As a result of this NRC-identified trend, the licensee initiated PIP O-10-0225 which was closed to PIP O-10-0232 for corrective actions. Additional instances of uncontrolled vehicles within the PA were noted following the corrective actions that were taken by the licensee. Additional corrective actions are being developed by the licensee to address this trend. The inspectors will continue to monitor this trend.

Contractor Activities Impacting Plant Security Measures: The inspectors identified a trend during the second half of 2009 associated with the failure of Oconee Major Project vendors to comply with site security requirements. As a result of this NRC-identified trend, the licensee initiated PIP O-10-0232. The inspectors monitored this trend and assessed the effectiveness of the licensee's corrective actions as they were implemented. Improvement was noted during the first half of 2010 which continued throughout the second half of the year. There were no events involving vendor/contractor activities adversely affecting security activities for the past quarter. This trend will no longer be monitored by the inspectors.

4OA3 Event Follow-up.1 Inadequate Core Cooling Module (ICCM) Power Supply Failure Resulting in Loss of Normal High Pressure Injection (HPI) Makeupa. Inspection Scope

The inspectors responded to the Unit 1 control room following entry into the abnormal operating procedure for loss of HPI makeup on October 19, 2010. The power supply to the 'B' ICCM failed which subsequently caused the controlling channel for normal HPI makeup flow control valve to fail low. The Smart Automatic Signal Selection recognized the step change and selected a good pressurizer level reading for control.

Subsequently, the HPI makeup flow control valve demand went to zero and flow went to zero due to the controller logic for the valve seeing a large increase in pressurizer level. The operators recognized the loss of normal HPI flow and took manual control of the flow control valve for makeup to stabilize pressurizer level. It was determined that all plant equipment responded as expected with the loss of the 'B' Train ICCM and the flow control valve was returned to automatic. The inspectors observed the plant response and staff actions in response to the loss of ICCM Train 'B' and implementation of the operating and abnormal procedural guidance. The event was documented in PIP O-10-7957, ICCM train 'B' power supply failure. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2 Entry into Abnormal Operating Procedure due to Tube Leak in the 3A Spent Fuel Pool Cooler Resulting in Elevated Count Rates in the Recirculating Cooling Water systema. Inspection Scope

On November 7, 2010, inspectors responded to the Unit 3 control room after an alarm was received indicating process radiation monitor 3RIA-42 (Unit 3 RCW return line) was sensing elevated count rates. Initial conditions as sensed by 3RIA-42 had been approximately 70 counts per minute (CPM). The count rate after the alarm was received read approximately 70,000 CPM and it peaked at approximately 105,000 CPM.

Operators entered the Abnormal Operating Procedure (AP/3/A/1700/018, Abnormal Release of Radioactivity) and took the required actions. Operators isolated one of the Spent Fuel Pool coolers to identify the source of the elevated count rate. Shortly after isolating the "A" cooler, the count rates dropped to significantly and continued to trend down. Core reload which had been in-progress was stopped following the receipt of the RIA alarm and entry into the AP. Following actions that were taken and isolation of the "A" Spent Fuel Pool (SFP) cooler, core reload was restarted in an effort to continue to reduce the heat load in the pool and place the fuel in the reactor vessel where decay heat could be removed using Low Pressure Injection. Investigation determined the increased count rate was due to an indication-only issue associated with the process radiation monitor. The AP was exited following confirmation that no leak had occurred

Enclosure

and there was no detectable activity in the RCW system. The inspectors observed the staff actions in response to the elevated count rate in the RCW system and implementation of the operating and abnormal procedural guidance. The event was documented in PIP O-10-9177, Unit 3 Entered AP/3/A/1700/018, Abnormal Release of Radioactivity. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.3 Entry into Abnormal Operating Procedure due to Loss of Unit 3 Control Room Ventilation Air Handling Units

a. Inspection Scope

On November 8, 2010, during a Unit 3 Emergency Power Switching Logic functional test, the feeder breaker for a load center supplying the Unit 3 control room air handling units failed to reclose following a load shed signal generated as part of the test. As a result, the control room air handling units were rendered unavailable and control room temperature increased, causing entry into AP/3/A/1700/036, Degraded Control Room Area Cooling. The resident inspectors observed the entry into the procedure, actions taken in response to the condition, and recovery of the air handling units. The AP was exited following recovery of the load center and verification that the chillers were operating. The licensee's investigation of the event determined the cause of the failure of the load center to reenergize was due to a failure to appropriately restore a spare breaker following an earlier test of the load shed logic. The event was documented in PIP O-10-09240, 3X4 Did Not Reenergize Following Electrical Bus Load Shed during PT/3/A/0610/001, Emergency Power Switching Logic Functional Test.

b. Findings

No findings were identified.

.4 Forced Outage of Unit 1 to Repair an Oil Leak on the Main Power Transformer

a. Inspection Scope

On November 15, 2010, a small oil leak was identified on the Unit 1 Main Transformer which required a shutdown to remove the main generator from service and conduct repairs. The unit was reduced to approximately 18 percent reactor power and the main generator breakers opened to deenergize the main transformer. The resident inspectors observed the decision making process to discuss possible options, the downpower, and reviewed the repair and subsequent testing of the transformer oil system. The inspectors reviewed the power maneuvering plan prior to the power decrease and verified the plan was adhered to and procedural limits were met. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.5 Loss of Instrument Air Header Pressure

a. Inspection Scope

The inspectors responded to a decrease in Instrument Air (IA) header pressure, and subsequent entry into AP-22, Loss of Instrument Air, on December 23, 2009. As appropriate, the inspectors observed plant parameters and status, including the response of the backup IA, auxiliary IA, and service air systems; determined alarms/conditions preceding or indicating the event; and evaluated the actions of the operations crew in response to the event, including the additional monitoring of the backup IA compressors. The cause of the pressure decrease was determined to be a malfunctioning primary instrument air compressor regulating valve, and WO 01024484 was generated. This event was documented in PIP O-10-10951, "Received OAC alarm (O1A2122) 'AUX IA HDR PRESS' reading 93 psig. Referred to OAC ARG." Following the repairs in WO 01024484, on January 1, 2011, the station entered AP-22 a second time for a similar problem. The resident inspectors will review circumstances of the second occurrence and the corrective maintenance in the first quarter 2011 integrated inspection report.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status reviews and inspection activities.

b. Findings

No findings were identified.

.2 World Association of Nuclear Operators (WANO) Plant Peer Review Report Review

a. Inspection Scope

The inspectors reviewed the report for the WANO Plant Peer Review of the Oconee Nuclear Station conducted in July 2010. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and to determine if any significant safety issues were identified that required further NRC follow-up.

b. Findings

No findings were identified.

.3 (Closed) Temporary Instruction (TI) 2515/172, Reactor Coolant System Dissimilar Metal Butt Welds, Revision 1

a. Inspection Scope

The inspectors conducted a review of the licensee's activities regarding licensee dissimilar metal butt weld mitigation and inspection implemented in accordance with the industry self imposed mandatory requirements of Materials Reliability Program (MRP) 139, "Primary System Piping Butt Weld Inspection and Evaluation Guidelines." TI 2515/172, "Reactor Coolant System Dissimilar Metal Butt Welds," was issued on February 21, 2008, to support the evaluation of the licensees' implementation of MRP 139. The inspectors performed a review in accordance with TI-172. Documents reviewed are listed in the Attachment.

b. Findings and Observations

No findings were identified. All activities for TI 2515/172, Revision 1 are complete. In accordance with requirements of TI 2515/172, Revision 1, the inspectors evaluated and answered the following questions.

Implementation of the MRP-139 Baseline Inspections

1. Have the baseline inspections been performed or are they scheduled to be performed in accordance with MRP-139 guidance?

Yes. All baseline inspections have been placed on the schedule per MRP-139 guidance.

2. Is the licensee planning to take any deviations from the MRP-139 baseline inspection requirements of MRP-139? If so, what deviations are planned, what is the general basis for the deviation, and was the NEI-03-08 process for filing a deviation followed?

No, the licensee has not submitted any requests for deviation from MRP-139 requirements.

Enclosure

Volumetric Examinations

This portion of the TI was not inspected during the period of this report, but was previously covered in NRC Inspection Report 05000287/2009003.

Weld Overlays

This portion of the TI was not inspected during the period of this report, but was previously covered in NRC Inspection Report 05000287/2009003.

Mechanical Stress Improvement (SI)

There were no mechanical stress improvement activities performed or planned by this licensee to comply with their MRP-139 commitments.

Application of Weld Cladding and Inlays

There were no weld cladding or inlay activities performed or planned by this licensee to comply with their MRP-139 commitments.

In-service Inspection Program

1. Has the licensee prepared an MRP-139 inservice inspection program? If not, briefly summarize the licensee's basis for not having a documented program and when the licensee plans to complete preparation of the program.

No. The licensee did not have a standalone MRP-139 inservice inspection program document. However, the licensee's MRP-139 inservice inspection program was included in their ASME Section XI Inservice Inspection Program (ISI Program) and also attached as augmented inspections to the ISI program. The inspectors reviewed the Oconee Unit 3 Fourth Interval ISI Plan. The licensee had revised the Fourth Interval ISI Plan to reflect the examination methods and frequencies for the MRP-139 ISI requirements.

2. In the MRP-139 ISI program, are the welds appropriately categorized in accordance with MRP-139? If any welds are not appropriately categorized, briefly explain the discrepancies.

Yes. The welds were appropriately categorized by the licensee responsible engineer.

3. In the MRP-139 ISI program, are the ISI frequencies, which may differ between the first and second intervals after the MRP-139 baseline inspection, consistent with the inservice inspections frequencies called for by MRP-139?

Yes. The licensee plans inspection frequencies for welds in the MRP-139 ISI program to be consistent with the requirements of MRP-139.

4. If any welds are categorized as H or I, briefly explain the licensee's basis of the categorization and the licensee's plans for addressing potential PWSCC.

The licensee did not have any dissimilar metal butt welds that were categorized as H or I.

5. If the licensee is planning to take deviations from the MRP-139 in-service inspection guidelines, what are the deviations and what are the general bases for the deviations? Was the NEI 03-08 process for filing deviations followed?

The licensee had not planned to take any deviations from MRP-139 requirements.

4OA6 Management Meetings (Including Exit Meeting)

Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Preston Gillespie, and other members of licensee management on January 20, 2011. The licensee acknowledged the findings presented. The inspectors verified that no proprietary information was reviewed.

4OA7 Licensee Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of the NRC Enforcement Policy for being dispositioned as NCVs.

- TS 3.3.7, Engineered Safeguards Protective System Digital Automatic Actuation Logic Channels, required that eight Engineered Safeguards Protective System digital automatic actuation output logic channels shall be operable. TS SR 3.3.7.1 required that a digital automatic actuation output logic channel functional test be performed on a 92 day frequency. Contrary to the above, on September 17, 2010, the licensee identified that the channel functional test for 1) Keowee Emergency Start, 2) Load Shed and Standby Breaker Initiate, and 3) Standby Bus Feeder Breaker signal were not being performed on the 92 day frequency required by TS SR 3.3.7.1. The licensee entered TS SR 3.0.3 which required the licensee to perform a risk evaluation and manage the risk of the delayed performance of the surveillance until the surveillance could be completed. The inspectors verified the licensee performed the risk evaluation and managed the risk appropriately. The licensee developed a procedure to perform the digital automatic actuation logic channel functional test for the three functions on-line and each function was determined to be operable. The licensee entered the violation into their CAP as PIP O-10-7227.
- 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" requires, in part, that "activities affecting quality shall be prescribed by documented instructions or procedures appropriate to the circumstances." Contrary to the above, on September 23, 2010, during post maintenance testing following the stator repair of Keowee Hydro Unit (KHU) 1, the licensee identified that post maintenance test procedure, PT/0/A/0610/024, "Keowee Emergency Start for Troubleshooting and Post Maintenance Checkouts," did not properly verify that TS SR 3.8.1.9 acceptance criteria was met. The same deficiency was also found to exist in the routine

Enclosure

emergency start surveillance test procedure, PT/0/A/0620/016, "Keowee Hydro Emergency Start Test." Based on subsequent analysis of the actual test data, the licensee concluded that operability of the KHU's had been maintained. Following identification of the procedural deficiency, the licensee developed corrective actions to revise the procedures to ensure the test acceptance criteria is appropriately defined so that future tests ensure operability was verified during their performance. The licensee entered the finding into their CAP as PIP O-10-7357.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

K. Alter, Regulatory Compliance Manager
S. Batson, Station Manager
J. Bohlmann, Organization Effectiveness Manager
S. Boggs, Emergency Services Coordinator
E. Burchfield, Superintendent of Operations
C. Cash, PSW Building Implementation Manager
K. Davis, Lead Level III
P. Downing, Duke Energy SG Program Manager
G. Eaton, ISI Program Coordinator.
P. Fisk; Mechanical/Civil Engineering Manager
D. Galloway, BWST Implementation Manager
P. Gillespie, Site Vice President
M. Hatley, SG Program Owner - McGuire
E. Hurley, SG Tube Integrity Engineer II
W. Lindsay, Duct Bank Implementation Manager
B. Lynch, Boric Acid Coordinator
T. King, Acting Safety Assurance Manager
R. Medlin, Tornado Modification Project Manager
B. Meixell, Acting Regulatory Compliance Manager
K. Nicholson, Technical Specialist
T. Patterson, Safety Assurance Manager
T. Ray, Engineering Manager
D. Robinson, Radiation Protection Manager
J. Smith, Regulatory Compliance Engineer

NRC

J. Stang, Project Manager, NRR

LIST OF REPORT ITEMS

Opened and Closed

05000269, 270, 287/2010005-01	NCV	Failure to Adequately Protect Risk Significant And Safety-Related Systems, Structures or Components (SSC's) from Cold Weather Conditions (Section 1R01.2)
05000269, 270, 287/2010005-02	FIN	Failure to Prescribe Procedures for Inspecting the East Penetration Room Floor Seals (Section 1R06)

05000269, 270, 287/2010005-03	NCV	Failure to Install Structural Rebar as Required by Instructions and Drawings (Section 1R18)
<u>Opened</u>		
05000287/2010005-04	URI	Potential Inoperability of the Unit 3 Standby Shutdown Facility Reactor Coolant Makeup Pump (Section 1R22)
<u>Closed</u>		
Temporary Instruction 2515/172	TI	Reactor Coolant System Dissimilar Metal Butt Welds (Section 4OA5.3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather

Actual Adverse Weather

AP/0/A/1700/006; Natural Disaster, Rev. 19

Auto Log entries covering the entry into and exit from AP-6 due to the receipt of a Tornado Warning from the National Weather Service

PIP O-10-8338; Severe weather for Oconee County, initiated AP/0/A/1700, 006, Natural Disaster

Cold Weather Preparations

OP/0/B/1106/041, Turbine Building Ventilation, Rev 010

OP/0/A/1104/041, Auxiliary Building Ventilation, Rev 032

OP/0/A/1600/002; Standby Shutdown Facility Heating Ventilation & Air Conditioning System Operation, Rev 030

OP/1/A/1104/051, ESV System, Rev 023

OP/0/A/1104/019, Control Room Ventilation System, Rev 024

OP/1/A/1102/020 (Control Room Rounds) in "Cold Weather Checklist" Enclosure

IP/0/B/1606/010, Preventive Maintenance and Operational Checks of Process Heat Trace, Rev. 021

OHT-099A-1.1, Symbols for Heat Trace, Rev. 33

NSD 317, Freeze Protection Program, Rev. 03

PIP O-10-08292; OP/2/A/1102/020 (Operator Rounds) and OP/0/B/1106/041 (Turbine Building Ventilation) do not allow flexibility to leave TB east side dampers open when outside air temperature is < 35F.

PIP O-10-09112; AHU 2-16 PH Control Valves not operating. (Freeze Protection concern)

PIP O-10-09116; Roll up door on south end of unit 3, third floor, will not close

PIP O-10-09308; ONS cold weather preps NOT complete by Nov 1. The cold weather program for ONS needs to be fixed.

PIP O-10-10357; Primary Chemistry lab temperature at 22.5 degrees C. Limit is 22.0 - 28.0 degrees C.

PIP O-10-10473, AHU 2-16 has a leak in the Plant Heat Steam Coil. This AHU supplies Chemistry lab area and is causing lab temperatures to be too low for adequate RCS samples.

PIP O-10-10526, AHU 3-7 found tripped due to cold weather. (Freeze Stat).
 PIP O-10-10573; No steam flow through AHU 3-8 as required by Cold Weather Checklist.
 PIP O-10-10641; Fire hydrant -19 appears frozen shut
 PIP O-10-10713; AHU 3-8 will not operate and is in danger of freezing steam coil
 PIP O-10-10956, Keowee Cold Weather Protection

Section 1R04: Equipment Alignment

Complete System Walkdown

OP/1/A/1104/051, ESV System, Rev. 23
 OP/2/A/1104/051, ESV System, Rev. 36
 OP/3/A/1104/051, ESV System, Rev. 34
 OFD-130A-2.1; Flow diagram of the Essential Siphon Vacuum System; Rev. 8
 OFD-130A-1.1; Flow diagram of the Essential Siphon Vacuum System; Rev. 6
 OFD-130A-1.2; Flow diagram of the Essential Siphon Vacuum System Building Ventilation;
 Rev. 0
 ESV System Health Report
 PIP O-10-7882; Licensing renewal review of ESV and SSW systems performance testing
 program
 PIP O-10-7881; Housekeeping issues identified during ESV building walkdown

Section 1R05: Fire Protection

Fire Area Tours

SLC 16.9.2, Sprinkler and Spray Systems
 SLC 16.9.4, Fire Hose Stations
 SLC 16.9.6, Fire Detection Instrumentation
 Zone 101, Fire Pre-plan, Unit 3 Cable Room and Elevator Lobby, Auxiliary Building, Rooms
 450, 450A, 450B, 453 and 453
 Zone 89, Fire Pre-plan, Unit 3 Equipment Room
 Zone 98, Fire Pre-plan, Unit 3 West Penetration Room
 Zone 99, Fire Pre-plan, Unit 3 East Penetration Room

Section 1R06: Flood Protection Measures

UFSAR Section 3.4, Water Level (Flood) Design
 SD 3.2.16, Control of passive Design Features, Rev. 0
 EC 102865, Permit Temporary Cooling of RCW to the Unit's 1 and 2 IPB AHU's, Rev. 3
 AP/1-2/A/1700/030, Auxiliary Building Flood, Rev. 16
 PIP O-10-9938, Turbine Building Basement Curbs to Aux Building Entrances lower than UFSAR
 states
 PIP O-10-9989, During the performance of the immediate determination of operability (IDO) for
 PIP 10-9938, MCE originally arrived at an incorrect conclusion.
 PIP O-10-10031, During plant tour, question regarding expansion joints in East Penetration
 Rooms
 PIP O-10-11031, PIP 10-10031 was not screened properly to require a Maintenance Rule
 evaluation
 NSD-301, Engineering Change Program, Revs. 26 and 36
 OD 300504, East Pen Room Flood Outlet Device Installation
 WO 01677005, Inspect all floor seals U-1 East Pen

WO 01672301, Inspect Flr Seals in U3 East Pen. Rm.
 WO 01676915, Inspect all floor seals U2 East Pen

Section 1R07: Heat Sink Performance

PT/3/A/0251/069, LPI Cooler Test, Rev. 5
 OP/3/A/1104/004, Low Pressure Injection System, Rev. 139
 OSC-4228, U3 LPI Heat Exchanger Performance Calculation, Rev. 12

Section 1R08: Inservice Inspection Activities

Procedures

03-1275284, Field Procedure for Remote Rolled Plugging Utilizing The LAN SAP Box, Revision 17
 03-9032829, Eddy Current Guidelines for Oconee Nuclear Station's Replacement Once-Through Steam Generators, Revision 10
 54-ISI-400-018, Multi-Frequency Eddy Current Examination of Tubing, Revision 18
 EPRI-DMW-PA-1, "Nondestructive Evaluation: Procedure for Manual Phased Array Ultrasonic Testing (UT) of Dissimilar Metal Welds (DMW)"
 MP-0-A-1800-132, "Inspection and Cleanup of Boric Acid on Plant Materials," Revision 006
 NDEMAN-NDE-10, "NDE Procedures Manual – Volume 3 – NDE-10 General Radiography Procedure (Nuclear Stations)," Revision 024
 NDEMAN-NDE-25, "NDE Procedures Manual – Volume 3 – NDE-25 Magnetic Particle Examination," Revision 025
 NDEMAN-NDE-35, "NDE Procedures Manual – Volume 3 – NDE-35 Liquid Penetrant Examination," Revision 023
 NDEMAN-NDE-68, "NDE Procedures Manual – Volume 1 – VT-2, Visual Examination for Leakage and Boric Acid Corrosion Control NDE-68," Revision 003
 NSD 322, "Boric Acid Corrosion Control Program," Revision 002
 Procedure NSD 208, Problem Investigation Program, Revision 32
 Steam Generator Management Program, Revision 17

PIPs

G-09-00926, O-09-00939, O-09-02814, O-09-03176, O-09-03494, O-09-07625, O-09-07840, O-09-07991, O-09-08024, O-10-02518, O-10-02581, O-10-03779, O-10-06295

Other Documents

51-9142356-000, Oconee Unit 3 Replacement – EOC25 – ECT Inspection Plan, 08/12/2010
 Calibration Standard Specification Drawings 5059429B-Rev 0, 5059430B-Rev 0, 5059431B-Rev 0, 5059432B-Rev 0, 5059433B-Rev 0, 5059434B-Rev 0, 5059435B-Rev 0, 5059436B-Rev 0, 5059437B-Rev 0, 5059438B-Rev 0, 5059439B-Rev 0, 5059440B-Rev 0, 5069704B-Rev 0
 Certificate of Calibration for Eddy Current Tester Zetec Model MIZ-80iD: Serial Numbers 047, 048, 090, 011, 053, and 091
 Certificate of Compliance for Eddy Current Probes Serial Numbers: 522088, 541649, 522089, 541650, 522090, 541651, 522091, 541652, 524949, 524951, 524954, 524955, 524933, 524935, 524938, 524939
 Certificate of Compliance for Eddy Current Probes Serial Numbers: 500779, 510109, 502444, 465933, 502446, 510107, 502448, and 510108
 Certificate of Compliance for Eddy Current Probes: Shipment 6080 - Contract 1010039681

Certificates of Personnel Qualification for 10 Qualified Data Analysts
 Certified Test Report for Ultragel II-09325 Certification date 11/13/2009
 Chemistry Trend for Primary to Secondary Leakage from 05/01/2009 to 11/01/2010
 Duke Energy Certification of Method Qualification for 4 NDE Examiners
 G-MNT-B-10-01, Arkansas Nuclear One Unit 1 Steam Generator Program Management
 Benchmark, 01/01/10
 Oconee Nuclear Station Unit 3 – EOC25 – 10/10 – S/G 3A Plug Inspection Report – Hot Leg,
 11/06/2010
 Oconee Nuclear Station Unit 3 – EOC25 – 10/10 – S/G 3A Plug Inspection Report – Cold Leg,
 11/04/2010
 Oconee Nuclear Station Unit 3 – EOC25 – 10/10 – S/G 3B Plug Inspection Report – Hot Leg,
 11/05/2010
 Oconee Nuclear Station Unit 3 – EOC25 – 10/10 – S/G 3B Plug Inspection Report – Cold Leg,
 11/06/2010
 Oconee Nuclear Station Unit 3 EOC-25 RFO, October 2010, Analysis Training
 OSC-8930-0001, Steam Generator Condition Monitoring & Operational Assessment (CMOA)
 Evaluation for Oconee Unit 3, Revision 2
 Procedure 54-ISI-24-032, Written Practice for Personnel Qualification in Eddy Current
 Examination, Revision 32
 ROTSG Site Technique Validation for Oconee Nuclear Station, Revision 10
 SGMEP 105, Oconee Site Specific Unit 3 EOC 25 Degradation Assessment, 10/13/2010
 Site Specific Performance Demonstration records for 10 Qualified Data Analysts
 Ultrasonic Instrument Linearity for Instrument Serial Number 00TJXT
 Ultrasonic Instrument Linearity for Instrument Serial Number 011LW6
 Visual Acuity Examination Records for 4 NDE Examiners

Section 1R11: Licensed Operator Requalification

ASE-05, Active Simulator Exam, Rev. 19B
 RP/0/B/1000/001, Emergency Classification, Rev. 28

Section 1R12: Maintenance Effectiveness

Unit 3 AutoLog entries for October 18, 2010
 Critical Activity Plan for 3SF-49 Repair, Rev. 8
 Drawing OSFD-104A-1; Spent Fuel Cooling System
 Drawing OM-249.0223.001, Cutaway of Valve 3SF-49 (Grinnell 3 inch valve)
 MP/0/A/1200/009; Valve-ITT Engineered (Grinnell) – Diaphragm – Hand wheel or Chain wheel
 Operated – Disassembly, Repair and Reassembly, Rev. 34
 WO 01948942, Repair of 3SF-49
 OP/3/A/1104/006; SF Cooling System, Rev. 74
 OAC Trend for Point O3A0839; Unit 3 Spent Fuel Pool Temperature
 PIP O-10-4028, PT/2/A/0251/024 HPI Full Flow Test: 2C HPI vibration point MOY above
 acceptable Range
 PIP O-10-6530, 2C HPI pump vibration data increased on several monitoring points
 PT/2/A/0202/011, High Pressure Injection Pump Test, Rev. 81
 WO #01943275, 2C HPI Pump: Balance pump at coupling

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Nuclear System Directive 213, Risk Management Process, Rev 8

Nuclear System Directive 415, Operational Risk Management, Rev. 5

Nuclear System Directive 417, Nuclear Facilities/Generation Status Communications, Revisions 11 and 13

Critical Activity Plan for 3SF-49 Repair, Rev. 8

Unit 3 3EOC25 Refueling Outage Risk Management Plan

3EOC25 Refueling Outage – Outage Readiness Review

91-01 Activity Plan for Drain Down of RCS to Remove Nozzle Dams on Unit 3, Rev. 08

OP/3/A/1103/011, Draining and Nitrogen Purging the RCS, Rev. 077

OP/0/A/1102/026, Pre-Job Briefings, Enclosure 4.2, Pre-job briefing for draining RCS to reduced inventory / mid-loop; Rev. 23

91-01 Activity Plan for Removal and Replacement of Core Support Assembly for 3EC25

MP/0/A/1150/013, Reactor Vessel - Core Support Assembly - Removal, Rev. 29

MP/0/A/1150/014, Reactor Vessel - Core Support Assembly - Installation, Rev. 27

Section 1R15: Operability Evaluations

OFD-124B-3.4, Low Pressure Service Water System (RC Pump Motor Cooling & RB Fire Protection), Rev. 31

LPSW DBD, Section 2.2.6 Water Hammer Prevention

Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications**Full Evaluations**

AR00238541, Upper Surge Tank Inventory Protection, Second Phase

OD200443, Control Room Recorders Change Out

Screened Out Items

AR0024305, Enhancements to SSF for Increased Flooding Levels

AR00272155, Change in Trip Breaker Settings

AR00238541, Cathodic Protection for the SSF Diesel

EC 102255, Main Generator Motor and Stator Replacement

OD201813, Rewire Pressurizer Heaters

Modifications

OD 500667 SSF Trench Protection

EC102755, Main Generator Rotor and Stator Replacement

OD200443, Change Out Control Room Recorders

OD500922, Ductbank Construction

Basis Documents

Technical Specifications, Current

Technical Specifications Basis, Current

Updated Final Safety Analysis Report, Current

Technical Requirements Manual, Current

Work Orders

WO 01873683, U1 Generator Stator Cooling Instrument Calibration

Procedures

TN/2/A/OD200443/AL1, Removal of Chart Recorders and Testing of New Multipoint Video Recorders, Rev. 0
 IP/0/B/0290/001 A, Generator Stator Cooling Instrument Calibration, Rev. 82
 IP/0/A/0380/005D, Standby Shutdown Facility Diesel Fuel Oil Storage Tank Cathodic Protection System, Rev. 16
 770.510.C218.A3PB, Installation/Inspection of Concrete Forming, Embedment, and Reinforcing Steel Placement, Revision 6.2

Other Documents

O-703-I, One Line Diagram Station Auxiliary Circuits 600/208/120V
 O-398-A1-001, Ductbank and Manhole Location Plan, Rev. B
 O-398-A1-002, General Notes & Reference Drawings, Rev. A
 O-398-A1-007, PSW Ductbank Segment #7 Plan and Elevation, Rev. E
 OSS-0292 00-00-0001, Specification for Design and Implementation Support of the Protected Service Water System, Rev. 2
 O-398-A1-209, PSW Duct bank Auxiliary Building Penetration Details (for Manhole #7)
 O-398-A1-002, PSW Building General Notes & Reference Drawings, Rev. A
 O-398-A1-107, PSW Duct bank Segment #7 Plan & Elevation, Rev. E
 A31Q-667-15-03, SSF Trench NPBS Concrete Sections and Details, Rev. 1
 Advance Work Authorization (AWA) 91881-D, Revised Drawing O-398-A1-002 Concrete Coverage for Rebar
 EC 97958, U3 BWST/SSF Trench Protection Foundation, Rev. 005
 Soil Inspection Check list for Segment 2, PSW Duct bank on 4/28, and 5/11/2010
 Density of Soil in Place by the Sand-Cone Method for Segment 2
 Density of soil in Place by the Drive Tube Method for Segment 3, Duct bank
 Field Compact Test Record for Segment 2
 Traveler Nos.T500947C0010-F, Backfill Manhole 2, T500947C0011-FBckfill Manhole 3
 Soil Proctors, Standard/Modified Proctors Work Sheets
 Traveler No.T500920C024, Install Form, Rebar, Embedded Items, & Concrete for PSW Roof Slab
 Traveler No.T500947C015C, Install Forms & rebar for Duct bank MH-7
 Traveler No.T500947C008F, Place/Install Backfill at PSW Duct bank Segments 8 & 9
 Traveler No.T500947C008A, Perform Excavation Activities for Segments 8 & 9
 Traveler No T500920C007E, Place concrete for PSW Duct bank Segment 7
 NCR A3PB-NC-10-280, Missing Document for Soil Backfill
 NCR A3PB-NC-10-002, Hold Point was not Signed on the Pre-Pour Checklist Form
 PIP O-10-05893, Concrete Shrinkage Crack on Roof of PSW Building
 PIP O-10-07898, A Potential Condition Adverse to Quality Related to Roof Cracks in PSW Building Concrete Roof
 PIP O-10-08194, Additional Small Linear Indications in the Concrete Surface of the PSW Building
 FCR C-808, QC Clearance
 FCR C-793, Stirrup Spacing Changes
 FCR C-768, Moving Concrete Wall

Section 1R18: Plant Modifications

EC 102865, Permit Temporary Cooling of RCW to the Unit's 1 and 2 IPB AHU's, Rev. 3
 O-510BB-01, Temporary Piping Layout Temporary Cooling Train and RCW Piping to Phase Bus Cooling Unit Turbine Bldg. – Elev. 796'-6" – Plan, Rev. H
 O-1510-BB, Temporary Piping Layout Temporary Cooling Train and RCW Piping to Phase Bus Cooling Unit Turbine Bldg. – Elev. 796'-6" – Plan, Rev. H
 A/R 302773, 10 CFR 50.59 Screen, EC 102865, Permit Temporary Cooling to Lower RCW Inlet Temp to Unit 1 & 2 Isolated Phase Bus AHU's
 A/R 302772, 10 CFR 50.59 Applicability Determination, EC 102865, Permit Temporary Cooling to Lower RCW Inlet Temp to Unit 1 & 2 Isolated Phase Bus AHU's
 A/R 00339570, 10 CFR 50.59 Screen, Compensatory Measures for PIP O-10-10893 IDO, Monitoring of Keowee Guide Bearing Oil System
 PIP O-10-5173, Acceptability of installation of temp cooling heat exchangers near the IPB by EC102865 (temp cooling for RCW to IPB AHUs)
 PIP O-10-5585, The PDW supply and makeup for the IPB temporary cooling system is not connected to the chiller pump suction pipe. High performance butterfly valves were installed on heat exchanges outlet connection.
 PIP O-10-10950, Check transformer secondary coil to determine failure mode (associated with the KHU-1 Guide Bearing Oil Heater)
 PIP O-10-10981, Guidance in NSD-203 concerning Compensatory Measures (Compensatory Actions) is not clear.
 PIP O-10-10984, 12-23-2010 Oconee PORC Meeting Minutes- KHU-1 Guide Bearing Oil Temperature Compensatory Action
 PIP O-10-10893, Unusual change in K1 GBO flow indication.
 PIP O-10-11006, 12-27-2010 PORC Meeting Minutes- KHU-1 Guide Bearing Oil Temperature Compensatory Action
 Drawing O-398-A1-002, Revision A
 Advance Work Authorization (AWA) 91881-0
 ACI Code 349-97
 ACI Code 117-06

Section 1R19: Post-Maintenance Testing

PT/1/A/0203/006 A; Low Pressure Injection Pump Test – Recirculation, Rev. 084
 Tech Spec 3.5.3; Low Pressure Injection
 PT/3/A/0251/024, HPI Full Flow Test, Rev. 35
 OFD-101A-3.2, Flow Diagram of High Pressure Injection System (Storage Section), Rev. 40
 OFD-101A-3.3, Flow Diagram of High Pressure Injection System (Charging Section), Rev. 25
 OFD-101A-3.4, Flow Diagram of High Pressure Injection System (Charging System), Rev. 38
 OFD-102A-3.1, Flow Diagram of Low Pressure Injection System (Borated Water Supply and LPI Pump Suction), Rev. 56
 OFD-102A-3.2, Flow Diagram of Low Pressure Injection System (LPI Pump Discharge), Rev. 38
 ONTC-0-101A-003-001, High Pressure Injection System Pump Performance Test, Rev. 0
 PT/3/A/0400/007; SSF RC Makeup Pump Test, Rev. 063

Section 1R20: Refueling and Outage Activities

PIP O-10-7120; Group Assessment MCG-10-03 3EOC25 Outage Readiness Review
 PIP O-10-7499; ONS Unit 3 3EOC25 Independent Review Team Assessment by INOS
 Unit Shutdown/Cooldown Depressurization JITT Night Shift Training Package, dated 10/7/2010

OP/3/A/1102/004, Operation at Power, Rev. 107
 OP/3/A/1102/010, Controlling Procedure for Unit Shutdown, Rev. 219
 OP/3/A/1102/028; Reactor Building Tour, Rev. 000
 Sire Directive 1.3.5; Shutdown Protection Plan, Rev. 026
 NSD 403, Risk Management in Modes 3, 4, 5, 6 and No Mode, Rev. 21
 Supply Chain Directive 320, Receipt Inspection of Nuclear Fuel and Core Components, Rev. 2
 MP/0/A/1500/008, New Fuel Assembly – Receipt, Inspection and Storage, Rev. 28
 MP/0/A/1500/009, Defueling/Refueling Procedure, Rev. 61
 MP/0/A/1500/020, Refueling Canal FME Controls, Rev. 007
 PT/0/A/0750/017, Defueling Activities, Rev. 18
 OP/3/A/1502/007, Operations Defueling / Refueling Responsibilities, Rev. 088
 PT/0/A/0750/018; Refueling Activities, Rev. 018
 Unit Shutdown/ Cooldown Depressurization JITT Night Shift, dated 10/7/2010
 Zero Power Physics Testing (ZPPT) and Reactor Startup Following ZPPT JITT (SNO-L11),
 dated 7/15/2010
 OP/0/A/1108/001, Curves and General Information, Rev. 86
 OP/3/A/1104/049, Low Temperature Overpressure Protection (LTOP), Rev. 49
 MP/0/A/1150/002, Reactor Vessel – Closure Head – Removal, Rev. 49
 OP/3/A/1502/009, Containment Closure Control, Rev. 39
 PT/0/A/0775/015, Core Alignment Verification Procedure, Rev. 10
 PT/0/A/0750/002, Core Inspections Procedure, Rev. 29
 MP/0/A/1150/006A, Reactor Vessel- Plenum Assembly- Installation, Rev. 31
 PT/0/A/0711/001, Zero Power Physics Test, Rev. 58
 SOMP 01-02, Reactivity Management, Rev. 7
 OP/3/A/1102/001, Controlling Procedure for Unit Startup, Rev. 244
 PT/3/A/1103/015, Reactivity Balance Procedure, Rev. 67
 PIP O-10-8058; Items identified during Unit 3 Rx Bldg entry for Rx Bldg pressurization prior to
 shutdown
 PIP O-10-8070; Unit 3 RB Tour Results (MODE 3)
 PIP O-10-8081; 3EOC25 ENG/MNT Mode 3 Hot Shutdown tour (WO#01827959)
 PIP O-10-8114, AP-16 Entry on Unit 3
 PT/0/A/0750/018, Enclosure 13.1, Fuel Movement Verification Form
 OP/1/A/1102/010, Controlling Procedure for Unit Shutdown, Rev. 199
 OP/1/A/1102/004, Operation at Power, Rev. 126
 OP/1/A/1106/001, Turbine Generator, Rev. 113
 OP/1/A/1106/002B, FDWPT Operation, Rev. 26
 OP/0/A/1108/001, Curves and General Information, Rev. 87
 PT/1/A/0600/001, Periodic Instrument Surveillance, Rev. 315

Section 1R22: Surveillance Testing

OFD-102A-3.2, Flow Diagram of Low Pressure Injection System (LPI Pump Discharge), Rev. 38
 OFD-102A-3.1, Flow Diagram of Low Pressure Injection System (Borated Water Supply and LPI
 Pump Suction), Rev. 56
 ONTC-3-102A-0030-01, LPI Pump Performance Test Acceptable and Required Action
 Setpoints for Pump Total Developed Head, Rev. 0
 OP/0/A/1600/010, Operation of the SSF Diesel-Generator, Rev. 62

Section 1EP6: Emergency Drill

Oconee Nuclear Station 2010 After Hours Activation Drill package, Drill 2010-07 (Conducted December 4, 2010)

Oconee Nuclear Station 2010 Emergency Response Drill package, Drill 2010-02 (conducted December 15, 2010)

Oconee Nuclear Station ERO Drill

PIP O-10-10229; 2010 After-Hours Activation Drill Critique

PIP O-10-11082; Drill Critique for the December 15, 2010 emergency drill

Section 4OA1: Performance Indicator Verification

NSD 225, NRC Performance Indicators, Rev. 4

Nuclear Energy Institute 99-02, Regulatory Assessment Performance Indicator Guide, Rev. 6

Mitigating Systems Performance Index Basis Document, Rev. 13

Section 4OA2: Problem Identification & Resolution

TN/1/A/102145/01C, Procedure for the implementation of OD102145, Rev. 1

TN/3/A/302147/01C, Implementation and Verification of EC 97957, Rev. 1

PIP O-10-07685, Vendor Laboratory did not follow dictated parameters for testing

PIP O-10-10201, Strength Tests for Fiber Reinforced Polymer (FRP) applied to Unit 1&3 Aux Bldg. exterior walls do not meet design values

Section 4OA3: Event Follow-up

Inadequate Core Cooling Module (ICCM) Power Supply Failure Resulting in Loss of Normal High Pressure Injection (HPI) Makeup

PIP O-10-7957, ICCM train B power supply failure

Entry into Abnormal Operating Procedure due to Tube Leak in the 3A Spent Fuel Pool Cooler Resulting in Elevated Count Rates in the Recirculating Cooling Water system (RCW)

PIP O-10-9177, Unit 3 Entered AP/3/A/1700/018, Abnormal Release of Radioactivity

AP/3/A/1700/018, Abnormal Release of Radioactivity, Rev. 020

OAC Point O3E3075; Recirculating Cooling Water Process Radiation Monitor, 3RIA-42

OP/3/A/1104/006, Spent Fuel Cooling System, Rev. 077

Auto Log entries covering the entry into and exit from AP-18 due to elevated counts on 3RIA-42

Entry into Abnormal Operating Procedure due to Loss of Unit 3 Control Room Ventilation Air Handling Units

PIP O-10-09250, Entered AP/1&2/1700/036 (Degraded Control Room Area Cooling)

PIP O-10-09240, 3X4 did not reenergize following L/S during PT/3/A/0610/001 J Emergency Power Switching Logic Functional Test

AP/3/A/1700/036, Degraded Control Room Area Cooling, Rev. 5

PIP O-98-1356, This PIP is being written to track issues raised during the NRC SSEI audit on the CRVS and PVRS.

PIP O-98-1165, CRVS single failure capabilities unclear.

Forced Outage of Unit 1 to Repair an Oil Leak on the Main Power Transformer

PIP O-10-9636, Oil leak on top of U-1 main transformer

WO 01954796, 1 EL TF 0001, I/R Oil Leak from Air Gas Sample Line

Loss of Instrument Air Header Pressure

PIP O-10-10951, Received OAC alarm (O1A2122) "AUX IA HDR PRESS" reading 93 psig.
Referred to OAC ARG.

AP/1/A/1700/022, Loss of Instrument Air, Rev. 26

PIP O-10-0010, All 3 Units Entered AP/2/A/1700/002 Loss of Instrument Air

LIST OF ACRONYMS

ACI	-	American Concrete Institute
ADAMS	-	Agency Wide Documents Access and Management System
ASME	-	American Society of Mechanical Engineers
CAP	-	Corrective Action Program
CFR	-	Code of Federal Regulations
CPM	-	Counts per Minute
ECT	-	Eddy Current Testing
EOC	-	End-of-Cycle
ESV	-	Essential Siphon Vacuum
FRP	-	Fiber Reinforced Polymer
HPI	-	High Pressure Injection
IA	-	Instrument Air
ICCM	-	Inadequate Core Cooling Module
IMC	-	Inspection Manual Chapter
IP	-	Inspection Procedure
IR	-	Inspection Report
ISI	-	Inservice Inspection
KHU	-	Keowee Hydro Unit
LPSW	-	Low Pressure Service Water
LPI	-	Low Pressure Injection
NCR	-	Nonconformance Reports
NCV	-	Non-Cited Violation
NEI	-	Nuclear Energy Institute
NRC	-	Nuclear Regulatory Commission
NSD	-	Nuclear System Directive
PA	-	Protected Area
PI	-	Performance Indicator
PIP	-	Problem Investigation Program
PSW	-	Protected Service Water
QC	-	Quality Control
RCM	-	Reactor Coolant Makeup
RCP	-	Reactor Coolant Pump
RCS	-	Reactor Coolant System
RCW	-	Recirculating Cooling Water
RTP	-	Rated Thermal Power
SDP	-	Significance Determination Process
SFP	-	Spent Fuel Pool
SG	-	Steam Generator
SSC	-	Structures, Systems, and Components

SSF	-	Standby Shutdown Facility
TS	-	Technical Specifications
UFSAR	-	Updated Final Safety Analysis Report
URI	-	Unresolved Item
UT	-	Ultrasonic Testing
WO	-	Work Order