



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

July 31, 2012

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

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT  
05000269/2012003, 05000270/2012003, 05000287/2012003

Dear Mr. Gillespie:

On June 30, 2012, 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 July 5, 2012, with you and other members of your staff.

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

This report documents two NRC-identified findings of very low safety significance (Green) which were determined to be violations of NRC requirements. Further, licensee-identified violations which were determined to be of very low safety significance are listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy. If you contest any of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the 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. If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Regional Administrator, Region II; and the NRC Resident Inspector at Oconee.

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 Agencywide Document Access and Management 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

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

Enclosure: NRC Integrated Inspection Report 05000269/2012003, 05000270/2012003,  
05000287/2012003  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

P. Gillespie

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 Agencywide Document Access and Management 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

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

Enclosure: NRC Integrated Inspection Report 05000269/2012003, 05000270/2012003,  
05000287/2012003  
w/Attachment: Supplemental Information

cc w/encl: (See page 3)

X PUBLICLY AVAILABLE    ☐ NON-PUBLICLY AVAILABLE

☐ SENSITIVE    X NON-SENSITIVE

ADAMS: ☐ Yes    ACCESSION NUMBER: \_\_\_\_\_

☐ SUNSI REVIEW COMPLETE \_\_\_\_\_

OFFICE	RII:DRP	RII:DRP	RII:DRP	NRR:DE	RII:DRP	RII:DRP
SIGNATURE	Via email	Via email	Via email	Via email	Via email	JHB /RA/
NAME	ASabisch	Gottenberg	KEllis	S. Darbali	ESamm	JBartley
DATE	07/27/2012	07/30/2012	07/27/2012	07/30/2012	07/27/2012	07/31/2012
E-MAIL COPY?	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO
OFFICE	RII:DRS	RII:DRS	RII:DRS	RII:DRS	RII:DRS	RII:DRS
SIGNATURE	Via email	Via email	Via email			
NAME	A. Sengupta	B. Collins	W. Loo			
DATE	07/28/2012	07/30/2012	07/30/2012			
E-MAIL COPY?	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO	YES    NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRPI\RPB1\OCONEE\REPORTS\OCONEE  
2012003.DOCX

cc w/encl:  
Division of Radiological Health  
TN Dept. of Environment & Conservation  
401 Church Street  
Nashville, TN 37243-1532

Charles J. Thomas  
Fleet Licensing Manager  
Duke Energy Carolinas, LLC  
Electronic Mail Distribution

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

David A. Cummings  
Associate General Counsel  
Duke Energy Corporation  
Electronic Mail Distribution

Judy E. Smith  
Licensing Administrator  
Oconee Nuclear Station  
Duke Energy Carolinas, LLC  
Electronic Mail Distribution

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

Lara S. Nichols  
Vice President-Legal  
Duke Energy Corporation  
Electronic Mail Distribution

Luellen B. Jones  
Fleet Licensing Engineer  
Duke Energy Carolinas, LLC  
Electronic Mail Distribution

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

M. Christopher Nolan  
Fleet Safety Assurance Manager  
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

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

P. Gillespie

4

Letter to Preston Gillespie from Jonathan H. Bartley dated July 31, 2012

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT  
05000269/2012003, 05000270/2012003, 05000287/2012003

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

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

Report Nos.: 05000269/2012003, 05000270/2012003, 05000287/2012003

Licensee: Duke Energy Carolinas, LLC

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

Location: Seneca, SC 29672

Dates: April 1, 2012, through June 30, 2012

Inspectors: A. Sabisch, Senior Resident Inspector  
G. Ottenberg, Resident Inspector  
K. Ellis, Resident Inspector  
E. Stamm, Project Engineer  
S. Darbali, Electronics Engineer  
A. Sengupta, Reactor Inspector (Section 1R08)  
B. Collins, Reactor Inspector (Section 1R08)  
W. Loo, Senior Health Physicist (Section 2RS1)

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

Enclosure

## SUMMARY OF FINDINGS

IR 05000269/2012-003, 05000270/2012-003, 05000287/2012-003; 04/01/2012 – 6/30/2012;  
Oconee Nuclear Station Units 1, 2 and 3; Adverse Weather Protection

The report covered a three-month period of inspection by the resident inspectors, four Region-based reactor inspectors, and an engineer from Headquarters. Two Green findings were identified. The significance of inspection findings is indicated by their color (Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP) dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within The Cross-Cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated June 7, 2012. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4.

### **Cornerstone: Mitigating Systems**

- **Green:** An NRC-identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to implement corrective actions for a condition adverse to quality. The licensee did not develop a calculation to determine the maximum on-site water level resulting from a Probable Maximum Precipitation (PMP) event in a timely manner. Corrective actions included development of a calculation bounding the expected water level resulting from a PMP event. This violation is in the licensee's corrective action program (CAP) as PIP O-12-7994.

The performance deficiency (PD) was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Design Control and adversely impacted the cornerstone objective because there was reasonable doubt that plant equipment was adequately protected from the increased water level and therefore had the potential to result in a loss of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance (Green) because the licensee subsequently demonstrated that the water entering the plant structures would not have resulted in the loss of safety-related or risk-significant equipment. This finding does not have a cross-cutting aspect because the performance deficiency was not indicative of current plant performance. (Section 1R01)

Enclosure

- Green: An NRC-identified non-cited violation of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, was identified for the licensee's failure to follow EDM 601, Engineering Change Manual, during the design and construction of the Protected Service Water (PSW) ductbank / manhole structure. As a result, rainwater accumulation during a Probable Maximum Precipitation (PMP) event could enter the Auxiliary Building (AB). Corrective actions included sealing penetrations, installation of an isolation valve, revising procedures, and conducting training. This violation is in the licensee's CAP as PIPs O-12-1317, O-12-1876, O-12-1906 and O-12-2443.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Factors - Flooding and adversely affected the cornerstone objective in that water from a PMP event could enter the AB and adversely impact safety-related and / or risk-significant equipment. The licensee was required to perform extensive modeling and calculations to determine what the impact from a PMP event would be on the SSC's located in the lower elevations of the AB. The finding was of very low safety significance due to the high likelihood that the source of the water leaking into the AB would be correctly identified and isolated prior to the loss of safety-related equipment due to the flood. The cause of the finding was directly related to the aspect of ensuring supervisory oversight of work activities such that nuclear safety is supported of the Work Practices component in the cross-cutting area of Human Performance because the licensee failed to ensure that the appropriate level of supervisory and management oversight was applied during design, modification and construction of Manhole 7. [H.4(c)] (Section 1R01)



## REPORT DETAILS

### Summary of Plant Status

Unit 1 operated at approximately 100 percent rated thermal power (RTP) until May 4, 2012, when power was reduced to approximately 85 percent RTP to support secondary side valve testing. The unit returned to 100 percent RTP on May 5, and remained there for the remainder of the inspection period.

Unit 2 operated at approximately 100 percent RTP until April 5, 2012, when the unit entered Mode 3 to repair a leak on a component cooling water line. The unit was restarted on April 6, and reached 100 percent RTP on April 8, where it operated for the remainder of the inspection period.

Unit 3 began the inspection period at approximately 90 percent RTP and continued to reduce power as part of planned power coast down prior to the refueling outage. The unit was removed from service on April 13, 2012, and entered the refueling outage. The unit was restarted on June 7, and reached 100 percent RTP on June 9, where it operated for the remainder of the inspection period.

### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

Hot Weather Preparations: The inspectors reviewed the licensee's preparations for adverse weather associated with high ambient temperatures to ensure equipment used in the licensee's procedures were capable of functioning as intended. This included field walkdowns to assess the material condition and operation of ventilation and cooling equipment, as well as a review of procedures designed to align equipment to support operation during the summer months. Risk-significant systems and areas reviewed included the standby shutdown facility, the AB, portions of the turbine building and the Essential Siphon Vacuum Building. In addition, the inspectors conducted discussions with operations, engineering, and maintenance personnel in order to assess the licensee's ability to identify and resolve deficient conditions associated with hot weather protection equipment prior to actual hot weather being experienced at the site. Documents reviewed are listed in the Attachment.

Evaluation of Summer Readiness of Offsite and Alternate AC Power Systems: The inspectors reviewed the licensee's procedures used to respond to changing offsite grid conditions, including actions to be taken when notified by the Transmission Control Center that a Real Time Contingency Analysis (RTCA) shows inadequate post trip voltage, to verify the implementation of the procedures protects mitigating systems from adverse weather affects. The inspectors also reviewed the procedural guidance for monitoring switchyard voltage and frequency when the RTCA tool is non-functional. The

Enclosure

assessment of plant risk for maintenance activities that could affect grid reliability or offsite activities which could affect the transmission system's ability to provide adequate offsite power was discussed with the appropriate plant personnel. The inspectors also reviewed related work orders and performed a walkdown of the plant switchyards to verify the material condition of the offsite power sources. Documents reviewed are listed in the Attachment.

Actual Adverse Weather Conditions - Operating Experience Smart Sample (OpESS) 2012/01, High Wind Generated Missile Hazards: The inspectors assessed the licensee's response to a severe thunderstorm warning on April 26. The inspectors reviewed the licensee's entry into the abnormal procedure for Natural Disaster, and the licensee's actions as a result of the severe weather condition. Actions that were required to be taken in the event of severe weather according to the complex activity plan for removing the Unit 3 Main Feeder Bus 1 were verified. The inspectors used the guidance in OpESS 2012/01, High Wind Generated Missile Hazards, to evaluate the licensee's processes and control over potential windborne hazards onsite, and performed a walkdown of the site to identify discrepancies. Documents reviewed are listed in the Attachment.

External Flooding: The inspectors performed a walkdown of exterior building walls to evaluate the plant's readiness to cope with external flooding. The sample included a walkdown of the exterior walls of the AB, including the newly-constructed Manhole 7, as well as the below grade penetrations in the AB associated with Manhole 7 to verify the adequacy of flood protection features to prevent water from entering the plant and impacting plant equipment. The walkdown also included the internal trenches of the AB including the low activity waste tank (LAWT). Documents reviewed are listed in the Attachment.

b. Findings

.1 Untimely Corrective Actions for a Condition Adverse to Quality

Introduction: An NRC-identified Green NCV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to implement corrective actions for a condition adverse to quality. The licensee did not develop a calculation to determine the maximum on-site water level resulting from a PMP event in a timely manner once it was determined that a calculation had not been performed to justify the basis of the level contained in the Updated Final Safety Analysis Report (UFSAR).

Description: The licensee initiated a PIP to review flooding and develop corrective actions following a flooding event at the Catawba Nuclear Station in May 2006. One of the corrective actions was to develop a calculation to document the maximum ponding in the yard during a PMP event to ensure it will not exceed the six-inch sill assumed in the UFSAR and validate the adequacy of the yard drain system to handle a PMP event. In 2010, the licensee implemented a new CAP and converted all existing PIPs to the new CAP tracking database. As part of this conversion existing PIPs were automatically coded as Category 4 and as a condition adverse to quality. No review of this PIP was conducted after new information was received to verify the coding was correct. As a

Enclosure

result, the corrective action was repeatedly deferred without the required management approval to extend it beyond 10 months of identification under the new CAP.

The calculation, which was completed in April 2012, indicated that the onsite water level during a PMP event was higher than originally expected and modifications were necessary to ensure equipment was not impacted by water entering the power block and associated structures. Subsequently, the licensee was able to demonstrate that water entering the structures was within the licensee's ability to mitigate using installed plant equipment and proceduralized manual actions.

Analysis: The licensee's failure to take timely action to perform a calculation that defined the maximum ponding level on-site during a PMP event and ensure the maximum value contained in the UFSAR was bounded as required by 10 CFR 50, Appendix B, Criterion XVI, was a PD. The PD was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Design Control and adversely impacted the cornerstone objective because there was reasonable doubt that structures, systems, and components (SSC) were adequately protected from the increased water level. The inspectors used IMC 0609, Attachment 4, Determining the Significance of Reactor Inspection Findings for At-Power Situations, and determined the finding to be of very low safety significance (Green) because the licensee subsequently demonstrated that the water entering the SSCs would not have resulted in the loss of safety-related or risk-significant equipment. This finding does not have a cross-cutting aspect because the performance deficiency was not indicative of current licensee performance. Specifically, the performance deficiency occurred as a result of the implementation of procedural guidance which was revised significantly in 2010 and would have added additional reviews and approvals when extensions to corrective actions were requested and required a higher priority for a condition adverse to quality performance.

Enforcement: 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, required, in part, that measures shall be established to assure that conditions adverse to quality, such as deficiencies and non-conformances are promptly identified and corrected. Contrary to the above from September 22, 2006, until April 20, 2012, the licensee failed to correct a condition adverse to quality. The licensee did not take timely corrective actions to perform a calculation to support the maximum on-site ponding water level during a PMP event and verify that the existing flood protection measures were adequate to ensure safety-related SSCs would not be impacted by water in leakage. Because the finding is of very low safety significance and has been entered into the licensee's CAP as PIP O-12-7994, this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000269, 270, 287/2012003-01, Failure to Perform a Calculation to Determine Site PMP Ponding Levels in a Timely Manner.

Enclosure

.2 Failure to Follow Design Change Process  
(Closed) URI 05000269,270,287/2012002-01, Evaluation of Probable Maximum Flood Event.

Introduction: An NRC-identified Green NCV of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, was identified for the licensee's failure to follow EDM 601, Engineering Change Manual, during the design and construction of the Protected Service Water (PSW) ductbank / manhole structure. As a result, rainwater accumulation during a PMP event could enter the AB and adversely impact safety-related / risk significant equipment due to internal flooding. This NCV addresses a portion of Unresolved Item (URI) 05000269, 270, 287/2012002-01, Evaluation of Probable Maximum Flood Event. The remainder of URI 05000269,270,287/2012002-01 is addressed in section 4OA7.

Description: The inspectors identified the three following examples where the licensee failed to implement the requirements of EDM 601.

- During a walkdown of Manhole 7, the inspectors noted that two conduit penetrations used to route PSW cabling from Manhole 7 into the AB were not sealed at the outside wall. This could have provided a direct water intrusion pathway into the AB in the event water level in Manhole 7 reached the elevation of the conduits and the mechanical plugs on the inside of the wall failed. In addition, one conduit penetration into the AB that contained cables was not sealed on either end. These penetrations were identified on Drawing O-398-A1-209 Rev. D, PSW Ductbank, Aux Building, Penetration Detail, as requiring temporary seals whenever cable pulling was not in-progress and permanent seals once the cable pulls were completed. However, these drawing instructions were not translated into work instructions as directed by EDM 601.6.2, Planning of Design and Equivalent Changes, which resulted in the penetrations not being properly sealed. Water intrusion through these penetrations could exceed the capacity of the installed sump pumps and allow water to flood the High Pressure Injection (HPI), Low Pressure Injection (LPI) and Reactor Building Spray (RBS) pump rooms. The licensee sealed the penetrations and revised the work instruction.
- The inspectors reviewed a field change performed using the Advanced Work Authorization (AWA) process that had rerouted Manhole 7 internal drainage from the yard drain system as originally designed to the adjacent Interim Radwaste trench (IRWT). The inspectors noted that rainwater accumulating in Manhole 7 would flow through the internal drain line into the IRWT, into the AB through a non-isolable line, and eventually into the AB floor drain system / LAWTs. The rainwater being collected in the LAWTs would eventually overflow allowing water to flood the HPI, LPI and RBS pump rooms. EDM 601.6.5, EC Revisions to Design and Equivalent Changes, required an Engineering Change rather than the AWA process for any changes that "...affect or have the potential to affect an in-service SSC." The IRWT was classified as an in-service SSC. Consequently, the AWA was not reviewed for potential impact from internal flooding on equipment in the AB.

Enclosure

The licensee subsequently installed an isolation valve in the line entering the AB and provided direction to isolate the line in the event of increased in-leakage into the AB.

- The inspectors reviewed the original design package and determined that the licensee had failed to evaluate the impact of the Manhole 7 construction phase on the AB features to mitigate external floods during the design and construction of Manhole 7. The original design package was screened using EDM 601, Appendix K, Engineering Review Screen for Design Changes; however, Question 2 which stated “Does the change have the potential to impact previously installed means of mitigating the effects of external flooding by affecting external flood elevation or any feature relied upon to protect the plant from external flood hazards?” was marked as “NO.” The basis for this was the reviewer’s evaluation of the completed manhole which had a sealed cover and failed to consider the vulnerabilities that existed during the construction period when the structure was open to the elements. As a result, the effects of the modification on the AB features to mitigate external flood were not evaluated. There were no requirements specified to inspect, maintain, and control the seals during the PSW Manhole 7 construction phase. The licensee revised EDM 601 to ensure the implementation phase (construction) was considered when answering the required questions on the screening sheet and provided additional training to the engineering staff involved in modification development to ensure this requirement is understood.

Analysis: The licensee’s failure to follow EDM 601 was a PD. The PD was more than minor because it was associated with the Mitigating Systems attribute of Protection Against External Factors - Flooding and adversely affected the cornerstone objective in that water from a PMP event could enter the AB and adversely impact safety-related and / or risk-significant equipment. The inspectors used IMC 0609, Attachment 0609.04, Phase 1 - Initial Screening and Characterization of Findings, and determined that a Phase 3 analysis was required based on the increased likelihood of an internal flooding event occurring. The regional senior risk analyst performed a Phase 3 screening analysis. Based on information from the resident inspectors, there was a high likelihood that the source of the water entering into the AB would be correctly identified and isolated prior to the loss of HPI and LPI. The information was used as the basis to perform a Human Reliability Analysis (HRA) for the flood mitigation. The conditional core damage probability (CCDP) for an event that failed both HPI and LPI was determined using the NRC’s risk software and the current plant model. The dominant sequences in the analysis were the transient with the loss of HPI and LPI, independent failure of the reactor coolant pump seal’s thermal barrier cooling, failure of the Standby Shutdown Facility (SSF) to prevent the seal failure, leading to reactor coolant pump seal failure, and eventual core damage. The product of the HRA and the CCDP resulted in a value less than the core damage frequency and large early release frequency threshold for White, even if the flood event happened every 10 years. The likelihood for the extreme flood event is much less than this value. The screening analysis determined the finding was of very low safety significance (Green). The cause of the finding was directly related to the aspect of ensuring supervisory oversight of work activities such that nuclear safety is supported of the Work Practices component in the cross-cutting area of Human Performance because the licensee failed to ensure that the appropriate

Enclosure

level of supervisory and management oversight was applied during design, modification and construction of Manhole 7. [H.4(c)]

Enforcement: 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings, required, in part, that activities affecting quality shall be accomplished in accordance with instructions and procedures. EDM 601, Engineering Change Manual, required that, drawing instructions be adequately translated into work instructions, changes to the scope of the modification are appropriately processed to ensure the modification does not adversely impact inservice SSCs, and evaluate the impact of modifications on external flood mitigation features. Contrary to the above, from March 18, 2011, to February 24, 2012, the licensee failed to accomplish activities affecting quality in accordance with instructions and procedures. The licensee failed to: (1) correctly translate design document specifications into work order tasks; (2) appropriately process engineering changes that impacted an in-service SSC; and (3) review the impacts of the design package and subsequent revisions on AB flooding as required by EDM 601. Because the finding was determined to be of very low safety significance and was entered into the licensee's CAP as PIPs O-12-1317, O-12-1876, O-12-1906 and O-12-2443, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000269, 270, 287/2012003-02, Failure to Follow the Engineering Change Process.

#### 1R04 Equipment Alignment

##### a. Inspection Scope

Partial Walkdown: The inspectors performed the five 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 designated equipment when the SSF was declared inoperable for Unit 2 once reactor power was reduced below 85 percent RTP during the shutdown to repair the component cooling water leak inside of the containment building
- Protection of designated equipment when reactor coolant system (RCS) inventory was lowered to 80 inches to support removal of the reactor vessel head and entry into Mode 6
- Protection of Unit 3 Spent Fuel Pool Cooling (SFPC) and Recirculating Cooling Water (RCW) equipment prior to and following core offload

Enclosure

- Protection of designated equipment to support core reload and lowered RCS inventory during replacement of the reactor vessel head and entry into Mode 5
- Protection of equipment identified in the Critical Activity Plan during the planned SSF outage conducted to prepare the SSF for the planned generator replacement later this year

b. Findings

No findings were identified.

1R05 Fire Protection

a. Inspection Scope

Fire Area Tours: The inspectors walked down accessible portions of the six 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 inspected 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 and the risk significance of the equipment in the area. Documents reviewed are listed in the Attachment.

- Unit 3 Main Control Room
- 230kV Switchyard
- Unit 3 Reactor Building
- Unit 2 Cable Room
- Unit 1 Control Battery Room
- Unit 2 Control Battery Room

Fire Drill Observation: Inspectors observed the performance of one fire drill on June 15, 2012. The licensee conducted a drill simulating a fire on the 1A HPI Pump in the AB. The inspectors observed this drill to verify the fire brigade's use of protective gear and fire-fighting equipment; that fire fighting pre-plan procedures and appropriate fire fighting techniques were used; and that the directions of the fire brigade leader were thorough, clear, and effective. The inspectors also observed the post-drill critique to assess if it was appropriately critical, included discussions of drill observations, and identified any areas requiring corrective action. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

## 1R06 Flood Protection Measures

### a. Inspection Scope

Submerged or Buried Cable Inspection: The inspectors examined the condition of the following two cable trenches through direct observation. The inspectors inspected the trenches to ensure there was no standing water and that the cables within the trench were intact and in good condition. Documents reviewed are listed in the Attachment.

- 525 kV Switchyard trench at turbine building wall: No water noted in the trench and overall condition was satisfactory.
- CT-5 incoming cable trench pit at column M-41 in the Turbine Building: Standing water approximately four feet deep was noted in the trench pit at the west turbine building wall which was removed at the time of the inspection. The condition was entered into the licensee's CAP and the cables verified to be unaffected by the condition.

Internal Flood Protection: The inspectors reviewed selected risk-important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed the UFSAR, Individual Plant Examination, and flood analysis documentation associated with internal plant areas to determine the effects of flooding. In addition, the inspectors reviewed the licensee's internal flood protection features for the following area. The internal area was selected and walked down based on the flood analysis calculations. Through observation and design review, the inspectors reviewed sealing of doors, holes in elevation penetrations, sump pump operations, and potential flooding sources. The inspectors also reviewed the corrective action program documents to ascertain that the licensee was identifying and resolving issues. Documents reviewed are listed in the Attachment.

- AB piping systems susceptible to failure during a seismic event and their isolation capabilities were inspected following the identification of piping that was not seismically-qualified which could impact safety-related equipment in the lower levels of the building. In addition, the revised AB flood response procedures were reviewed and the new guidance walked-down to ensure the isolation valves were accessible if required to be manipulated.

### b. Findings

No findings were identified.



1R07 Heat Sink Performancea. Inspection Scope

Resident Annual Review: The inspectors reviewed the licensee's program for maintenance and testing of risk-important heat exchangers in the Low Pressure Service Water (LPSW) system. The review included the program for testing and analysis of the Unit 1 Reactor Building Cooling Units. The inspectors determined that the frequency of inspection was sufficient to detect degradation prior to loss of heat removal capabilities below design requirements and that the inspection results were appropriately categorized against pre-established engineering acceptance criteria. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R08 Inservice Inspection Activitiesa. Inspection Scope

NDE Activities and Welding Activities: The inspectors reviewed the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the NC system, steam generator tubes, risk-significant piping and components, and containment systems. The activities included a review of Non-Destructive Examinations (NDEs) to evaluate compliance with the applicable edition of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section XI (Code of record: 1998 Edition through 2000 Addenda), and to verify that indications and defects were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI, acceptance standards. The inspectors observed the following NDEs to evaluate compliance with the ASME Code Section XI and Section V requirements.

Ultrasonic (UT) Examination

- pipe-to-valve weld (3LP1), Component ID # 3LP-131-2, Work Order # 1955827
- Time-of-Flight Diffraction (TOFD) for Reactor Vessel Head (RVH) Nozzle (N-729-1 Code Case examination)

Liquid Penetrant (PT) Examination

- pipe-to-elbow weld, Component ID # 3LP-131-2, Work Order # 1955827
- pipe-to-elbow weld, High Pressure Injection line, Component # 3-51A-61-17, Work Order # 1958389

The inspectors also reviewed records of the following NDEs to evaluate compliance with the ASME Code Section XI and Section V requirements and to evaluate if any detected indications or defects were dispositioned in accordance with the ASME Code or a NRC-approved alternative.

Enclosure

Visual Examination (VE)

- Unit 3 Reactor Pressure Vessel Bottom-Mounted Instrumentation Nozzles (N-722) Work Order # 1955400

UT Examination

- pipe-to-valve weld (3LP1), Component ID # 3LP-131-2, Work Order # 1955827
- weld overlay let down nozzle, Component # 3RC-265-80V, Work Order # 1960484
- TOFD for RVH Nozzle (N-729-1 Code Case examination)

PT Examination

- pipe-to-elbow weld, High Pressure Injection (HPI) line, Component # 3-51A-61-17, Work Order #1958389
- pipe-to-elbow weld, Component ID # 3LP-131-2, Work Order # 1955827
- valve-to-pipe replacement weld, (3HP1 and 3HP2 valves), Component # 3HP-0502-37, Work Order # 1997069
- elbow-to-nozzle weld, Component ID # 3-50-21-1, Work Order # 1958386

Radiography Examination (RT)

- valve-to-pipe replacement weld, (3HP1 and 3HP2 valves), Component # 3HP-0502-37, Work Order # 1997069
- thermal sleeve of HPI nozzles, Work Orders # 1992545, # 1992546
- weld between valves 3HP-489 and 3HP-152, Component # 3RC-213-28, Work Order # 1932312-01

The licensee did not identify any recordable indications that were accepted for continued service during non-destructive surface and volumetric examinations performed since the previous Unit 3 refueling outage.

The inspectors reviewed the following pressure boundary welds completed for risk-significant systems during the Unit 3 refueling outage to evaluate if the licensee applied the pre-service NDEs and acceptance criteria required by the Construction Code. In addition, the inspectors reviewed the welding procedure specification, welder qualifications, welding material certification and supporting weld procedure qualification records, to evaluate if the weld procedures were qualified in accordance with the requirements of Construction Code and the ASME Code Section IX.

- 3HP-0502-37- replace 3HP-1 and 3HP-2 valves Work Order # 1997069

The inspectors observed welding associated with following repairs/replacements.

- HP-139, HP-140 valves in seal supply room, Work Order # 1925945
- HP-139, HP-140 valves in seal supply room, Work Order # 1997069

PWR Vessel Upper Head Penetration (VUHP) Inspection Activities: A bare metal visual (BMV) examination was required this outage pursuant to 10 CFR 50.55a(g)(6)(ii)(D). The inspectors reviewed records of the visual examination conducted on the Unit 3 reactor vessel head to evaluate if the activities were conducted in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). In

Enclosure

particular, the inspectors evaluated if the required visual examination scope/coverage was achieved and limitations were recorded in accordance with the licensee procedures. Additionally, the inspectors evaluated if the licensee's criteria for visual examination quality and instructions for resolving interference and masking issues were consistent with 10 CFR 50.55a. The licensee did not identify any relevant indications that were accepted for continued service during the BVM examination and did not perform any welding repairs to vessel head penetrations since the previous Unit 3 refueling outage.

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

The inspectors reviewed the PIPs listed in the Attachment and associated corrective actions related to evidence of boric acid leakage to evaluate if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI.

The inspectors reviewed the licensee evaluations listed in the Attachment of RCS 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 RCS components against the component ASME Code Section XI, and other licensee committed documents:

Steam Generator (SG) Tube Inspection Activities: The inspectors observed the following activities and/or reviewed the following documentation and evaluated them against the licensee's technical specifications, commitments made to the NRC, ASME Section XI, and Nuclear Energy Institute (NEI) 97-06 (Steam Generator Program Guidelines):

- Reviewed the licensee's in-situ SG tube pressure testing screening criteria. In particular, assessed whether assumed NDE flaw sizing accuracy was consistent with data from the EPRI examination technique specification sheets (ETSS) or other applicable performance demonstrations.
- Interviewed Eddy Current Testing (ET) data analysts and reviewed 5 samples of ET data
- Compared the numbers and sizes of SG tube flaws/degradation identified against the licensee's previous outage Operational Assessment
- Reviewed the SG tube ET examination scope and expansion criteria

Enclosure

- Evaluated if the licensee's SG tube ET examination scope included potential areas of tube degradation identified in prior outage SG tube inspections and/or as identified in NRC generic industry operating experience applicable to the licensee's SG tubes
- Reviewed the licensee's implementation of their extent of condition inspection scope and repairs for new SG tube degradation mechanisms.
- Reviewed the licensee's repair criteria and processes
- Evaluated if primary-to-secondary leakage (e.g., SG tube leakage) was below three gallons per day, or the detection threshold, during the previous operating cycle
- Evaluated if the ET equipment and techniques used by the licensee to acquire data from the SG tubes were qualified or validated to detect the known/expected types of SG tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI Pressurized Water Reactor Steam Generator Examination Guidelines, Revision 7
- Reviewed the licensee's secondary side SG Foreign Object Search and Removal activities. No secondary side activities were performed this outage, but there was a foreign object search performed by way of ET. Only one object was noted which was appropriately evaluated in order to leave it within the secondary side of the steam generator.
- Reviewed ET personnel qualifications

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification

a. Inspection Scope

Routine Operator Regualification Review: On June 12, 2012, the inspectors observed operators in the plant's simulator during licensed operator regualification training to verify that the operator performance was adequate, evaluators were identifying and documenting crew performance issues, and training was being conducted in accordance with station procedures. The inspectors observed a shift crew's response to the scenario listed below. The scenario included a stuck open pressurizer spray valve followed by entry into AP-44; Abnormal Pressurizer Pressure Control. This was followed by a small break loss of coolant accident and an anticipated transient without scram condition. The classification and declaration of the Emergency Plan by the Operations Shift Manager was also observed during the scenario. 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 post-scenario critique conducted by the training instructor and the crew was observed. Documents reviewed are listed in the Attachment.

Observation on Operator Performance: Residents observed operator performance in the control room on April 13 - 14, 2012, during Unit 3 shutdown for the refueling outage and on June 6 - 9, 2012, during Unit 3 restart and portions of power ascension.

Enclosure

b. Findings

No findings were identified.

1R12 Maintenance Effectivenessa. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing the following corrective maintenance activity. 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 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. Documents reviewed are listed in the Attachment.

- SSF AHU 0-42 normal motor overload failure and repair

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Controla. Inspection Scope

The inspectors evaluated the following attributes for the five 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.

- Review of planned maintenance and operational surveillance activities once the decision to remove Unit 2 from service and repair the component cooling water system leak in the containment building was made
- Review of the Unit 3 2012 refueling outage Risk Assessment Report
- Review of Complex Activity Plan and associated risk management actions for the maintenance outage on Main Feeder Bus #1 during the Unit 3 refueling outage
- Review of the revised outage activity schedule covering the period of core reload on Unit 3 including the electrical "J" test due to the limitations associated with cross-tying the RCW system

Enclosure

- Review of Unit 3 startup and power ascension schedule developed to attain sufficient Effective Full Power Days on the core to support SSF operability

b. Findings

No findings were identified.

1R15 Operability Evaluations and Functionality Assessments

a. Inspection Scope

The inspectors reviewed the following seven operability evaluations or functionality assessments listed in the Attachment affecting risk significant systems to assess: (1) the technical adequacy of the evaluations; (2) if continued system operability was warranted; (3) if other existing degraded conditions were considered; (4) if compensatory measures were involved, if 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-11-5143, BWST Recirculation using the BWST recirculation pump and/or the proposed reverse osmosis unit may invalidate ECCS vortex prevention analysis
- PIP O-11-14092, Extent of Condition Review as part of EQ Evaluation of Replacement of 2PAMLT0090
- PIP O-12-3627, Both SSF HVAC Compressors Not Operating
- PIP O-12-4176, Additional cracks found on KB1 battery bank
- PIP O-12-4318, Flood levels during a PMP rainfall event would be higher than the ground floor slab elevation for Class 1 Structures, inconsistent with UFSAR
- PIP O-12-4619, Valves 1/2/3 HP-14 do not meet the seismic requirements of ECV-0601.00-00-003 due to yoke material
- PIP O-12-6027, Cracks noted in the top of SSF battery cell jars

b. Findings

No findings were identified.

1R18 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following permanent plant modification to verify the adequacy of the modification package and the 10 CFR 50.59 screening and to evaluate the modification for adverse affects on system availability, reliability, and functional capability. Documents reviewed are listed in the Attachment.

- EC 107992; Adding Limit Switch Compartment T-Drains to Unit 3 Environmentally Qualified Limitorque Actuators

b. Findings

No findings were identified.

1R19 Post-Maintenance Testinga. Inspection Scope

The inspectors reviewed the following five 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.

- 1A RBS pump test post motor test and inspection and lube oil change
- 1B LPI pump test post lube oil change
- Unit 3 LPSW system restoration following system maintenance
- Troubleshooting and repair of elevated temperatures of the motor operators on valves 3PR-7, 3PR-8 (Reactor Building Radiation Monitor Inlet) and 3PR-9 (Reactor Building Radiation Monitor Return)
- Unit 3 SSF Reactor Coolant Makeup (RCMU) Pump test following corrective maintenance on the suction accumulator

b. Findings

No findings were identified.

1R20 Refueling and Outage Activities

Unit 3 Refueling Outage: The inspectors evaluated portions of the following activities to determine if the licensee considered risk in developing outage schedules; adhered to administrative risk reduction methodologies they developed to control plant configuration; adhered to operating license, TS and Selected Licensee Commitment 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). Documents reviewed are listed in the Attachment.

- Attended the pre-outage schedule and risk assessment meetings
- Reviewed the licensee's Integrated Risk Profile and observed activities to verify that the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable TS when taking equipment out of service
- Observed Just-in-Time training conducted for the shift involved in the removing the unit from service and unit cooldown and the approach to criticality and placing the generator on-line
- Observed power reduction process, removing the reactor from service and portions of the cooldown from normal operating pressure and temperature to ensure that the requirements in the TS and Selected Licensee Commitments were followed
- Conducted a containment walkdown to observe the condition of normally-inaccessible equipment and check for indications of previously unidentified leakage from the NC system including the reactor vessel upper and bottom head penetrations
- Observed pre-job briefings and evolutions that included lowering RCS inventory to support reactor head removal with high decay heat conditions, reactor head and plenum removal, and main feeder bus removal
- Reviewed the licensee's responses to emergent work and unexpected conditions to verify that resulting configuration changes were controlled in accordance with the outage risk control plan
- Observed the removal and reinstallation of the reactor vessel head and plenum assembly to ensure the lift was conducted in accordance with the station procedures and heavy lift guidance
- Periodically reviewed the setting and maintenance of containment integrity to establish that the RCS and containment boundaries were in place and had integrity when necessary
- Observed fuel handling operations during new fuel receipt, movement into the spent fuel pool, reactor core offload and reload to verify that those operations and activities were being performed in accordance with TS and procedural guidance. Reviewed the videotape of core loading verification and alignment prior to replacing the plenum assembly
- Reviewed system lineups and/or control board indications to verify that TS, license conditions, and other requirements, commitments, and administrative procedure prerequisites for mode changes were met prior to changing modes or plant configurations
- Conducted a containment walkdown to inspect for overall cleanliness and material condition of plant equipment prior to restart after the licensee completed their inspection
- Observed the approach to criticality, placing the main generator on-line, and portions of the power ascension
- Reviewed the items that had been entered into the CAP to verify that the licensee had identified outage related problems at an appropriate threshold
- Reviewed the licensee's processing of workers as they transitioned from on-line to outage work hour restrictions and then back to on-line schedules to ensure Part 26 requirements were followed
- Observed activities to verify that the licensee maintained defense-in-depth commensurate with the outage risk control plan for key safety functions and applicable TS when taking equipment out of service

Enclosure



b. Findings

No findings were identified

1R22 Surveillance Testinga. Inspection Scope

The inspectors either witnessed and/or reviewed test data for the ten surveillance tests listed below to assess if the SSCs met TS, 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

- IP/0/A/3000/011D, 230kV Switchyard Battery Quarterly Surveillance, Rev. 25
- MP/0/A/1200/089, Main Steam Safety Valve Setpoint Test, Rev. 44
- IP/0/A/3010/011, Inspection and Cleaning of Electrical Penetration Enclosures, Rev. 11; Penetrations 3EF-08, 3EA-11 and 3WA-09
- PT/0/A/0400/005, SSF Auxiliary Service Water Pump Test, Rev. 62
- PT/2/A/0203/006A, Low Pressure Injection Pump Test – Recirculation, Rev. 81
- PT/3/A/0400/007, SSF RC Makeup Pump Test, Rev. 67

In-Service Tests

- NDEMAN-NDE-69, Visual Examination Of Reactor Pressure Vessel Bottom Mounted Instrument Penetrations, Rev. 0

Containment Isolation Valve Testing

- PT/3/A/0151/063, Penetration 63 Leak Rate Test, Rev. 3
- PT/3/A/0151/064, Penetration 64 Leak Rate Test, Rev. 4

RCS Activity

- CP/1/A/2002/001, Unit 1 Primary Sampling System, Rev. 59

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluationa. Inspection Scope

The inspectors observed and evaluated the licensee's performance during two emergency drills conducted on April 3, 2012, and June 26, 2012. The inspectors

Enclosure

observed licensee activities occurring in the Technical Support Center. The NRC's assessment focused on the timeliness of classification, offsite agency notification, and the licensee's expectations of response. The performance of the emergency response organization was evaluated against applicable licensee procedures and regulatory requirements. The inspectors attended the post-exercise critique for the drill to evaluate the licensee's self-assessment process for identifying potential deficiencies relating to failures in classification and notification, as well as protective action recommendation process activities. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety and Public Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls

a. Inspection Scope

Hazard Assessment and Instructions to workers: The inspectors observed labeling of radioactive material and postings for radiation areas (RAs), high RAs (HRAs), and very HRAs (VHRAs) in the radiologically controlled areas (RCAs), Independent Spent Fuel Storage Installation (ISFSI), and radioactive waste (radwaste) processing and storage locations during tours of Units 1, 2 and 3. Inspectors also evaluated selected containers for proper labeling in those selected locations. The inspectors reviewed survey records for several plant areas including surveys for alpha emitters, hot particles, airborne radioactivity, gamma surveys within areas of high dose rate gradients, and pre-job surveys for upcoming tasks. Inspectors independently surveyed areas in the plant and compared results to radiological conditions and postings in the plant. The inspectors also reviewed air sample records and observed work in potential airborne areas to assess the location of air monitors. The inspectors discussed changes to plant operations that could contribute to changing radiological conditions since the last inspection. The inspectors attended pre-job briefings and reviewed radiation work permit (RWP) details to assess communication of radiological control requirements and current radiological conditions to workers for selected Unit 3 refueling outage jobs.

Hazard Control and Work Practices: The inspectors evaluated access barrier effectiveness for Locked HRA (LHRA) and VHRA locations. Procedures for LHRA and VHRA access controls were discussed with cognizant health physics (HP) and Operations personnel. Controls and their implementation for storage of irradiated material within the spent fuel pool (SFP) were reviewed and discussed with cognizant Radiation Protection (RP) and Reactor Engineering (RE) personnel. Areas where dose rates could change significantly as a result of plant shutdown and refueling operations were also discussed. Radiological controls were evaluated for selected outage tasks to include SFP gate valve 3SF-55 work, 3LP-96 valve work, and "A" steam generator manway removal.

Enclosure

Occupational workers' adherence to selected RWP and HP technician (HPT) proficiency in providing job coverage were evaluated through observations and interviews with selected licensee staff of selected outage activities. Electronic dosimeter alarm set points and worker stay times were evaluated against area radiation survey results for selected 3EOC26 work activities in the Reactor, Auxiliary and Turbine Buildings. Worker response to dose and dose rate alarms during selected work activities was evaluated. HPT coverage and actions at the Unit 3 containment access point, remote monitoring area, and RCA Single Point of Access (SPA) were reviewed.

Control of Radioactive Material: The inspectors observed surveys of material and personnel being released from the RCA SPA, turbine deck, radwaste facility, and Warehouse No. 10 using small article monitors, personnel contamination monitors, and portal monitor instruments. The inspectors walked down the SFP and discussed non-fuel material stored in the SFP with cognizant RP and RE personnel. The inspectors also walked-down portions of the ISFSI, Auxiliary Building, turbine deck, and radwaste storage areas. The inspectors compared recent 10 CFR Part 61 results for the Dry Active Waste radwaste stream with radionuclides used in calibration sources to evaluate the appropriateness and accuracy of release survey instrumentation. The inspectors also reviewed source inventory and discussed leak tests for selected sealed sources and discussed nationally tracked source transactions with cognizant RP personnel. This included a walk down of storage locations for sealed sources to include Room Nos. 332 and 362 in the Auxiliary Building.

Problem Identification and Resolution: PIPs associated with radiological hazard assessment and control were reviewed and assessed. The inspectors evaluated the licensee's ability to identify and resolve the issues in accordance with NSD 208, Problem Investigation Program, Rev. 35.

RP activities were evaluated against the requirements of Updated Final Safety Analysis Report Section 12; TS Section 5.7; 10 CFR Parts 19 and 20; and approved licensee procedures. Documents reviewed are listed in the Attachment. The inspectors completed one sample.

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 nine 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. For the period of April 1, 2011, through March 31, 2012, the inspectors reviewed Operating Logs, Train

Enclosure

Unavailability Data, Maintenance Records, Maintenance Rule Data, PIPs, Consolidated Derivation Entry Reports, System Health Reports and Chemistry ChemDesk database to verify the accuracy of the PI data reported for each PI. Documents reviewed are listed in the Attachment.

Cornerstone: Mitigating System

- MSPI, High Pressure Injection (3 units)
- MSPI, Support Cooling Water Systems (3 units)

Cornerstone: Barrier Integrity

- RCS Activity (3 units)

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

.1 Daily Screening of Corrective Action Reports

In accordance with Inspection Procedure (IP) 71152, Problem Identification and Resolution, 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

Corrective Actions for Condenser Off-gas Radiation Monitors 1 and 2 RIA-40: The inspectors reviewed the licensee's timeliness of completion for corrective actions in response to an NRC-identified NCV documented in NRC IR 05000269, 270, 287/2011016. The violation documented a failure to take required compensatory actions while radiation monitors 1 and 2 RIA-40 were inoperable due to the presence of water in the detection chambers. The inspectors evaluated if the licensee's corrective actions were completed in a timely manner commensurate with the safety significance. The inspectors reviewed the licensee's compensatory measures put in place since the inoperability of the radiation monitors was recognized in 2010. The inspectors also reviewed the licensee's plans for implementation of a permanent corrective action to eliminate moisture from the sample lines. Documents reviewed are listed in the Attachment.

Enclosure

Corrective Actions Implemented to Address the Substantive Cross-Cutting Issue (SCCI) Associated with Procedure Use and Adherence: In the 2010 Annual Assessment Letter, the NRC opened a SCCI with the cross-cutting aspect of procedure use and adherence [H.4(b)]. The licensee performed a common cause assessment in February 2011 to identify performance weaknesses and develop corrective actions to address these weaknesses under PIP O-11-0751. The SCCI was reviewed during the Problem Identification and Resolution (PI&R) inspection in December 2011. While the actions taken appeared to be well founded and comprehensive in nature, they had not been implemented for a sufficient length of time to demonstrate their effectiveness and sustainability. A reduction in events that exceeded the initial threshold for the SCCI to be opened was noted and the SCCI was formally closed in the 2011 Annual Assessment Letter. However, this letter stated that continued monitoring would be conducted by the Resident Inspectors to demonstrate that the corrective actions have been effective. Discussions with the licensee's program owner for the Procedure Use and Adherence initiative revealed that there were several enhancements that have been implemented or in the process of being implemented including expanded performance indicators reflecting error rates by department across the fleet, required training for all employees, increased monitoring of in-field work and routine management updates covering progress in this area. The number of NRC-identified issues associated with Procedure Use and Adherence has decreased continually since the licensee's actions have been initiated and the licensee's metrics reflect a similar trend. Accordingly, this SCCI will no longer be followed in subsequent integrated inspection reports. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.3 Semi-annual Trend Review

a. Inspection Scope

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, 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 January 2012 through June 2012, 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 reports, Independent Nuclear Oversight 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. Documents reviewed are listed in the Attachment.

Enclosure

b. Observations and Findings

No findings were identified. In general, the licensee has identified trends and has appropriately addressed the trends in their CAP.

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 CAP program which was documented in IR 05000269, 270, 287/2009005. The trend focused on inconsistent initiation of PIPs when the criteria was met and not fully describing the condition to allow appropriate corrective actions to be developed or trends codes applied to allow for adverse trends to be readily identified. Following identification of this trend, the licensee initiated PIP O-10-0182 in early 2010. The corrective actions developed in this PIP were narrowly focused. As a result, examples continued to be noted in both the inconsistent initiation of PIPs and describing the condition in sufficient detail and clarity. The licensee initiated additional PIPs which expanded the scope of the initial PIP and conducted an apparent cause evaluation to ensure appropriate corrective actions were developed and implemented in a timely manner. Steady improvement in these areas has been noted by the inspectors especially over the past 6 months. The licensee continues to stress the need to generate PIP's in a timely manner and with the appropriate level of detail when conditions are identified and the quality and consistency of PIPs has increased. A significant improvement in the generation of PIP's associated with equipment issues has taken place since mid-2011 based on revised PIP generation guidance and this has helped ensure that equipment conditions receive the appropriate level of review by groups other than Maintenance such as Operations, Engineering and Regulatory Compliance. Accordingly, this trend will no longer be followed in subsequent integrated inspection reports.

Control of Transient Combustible Material: The inspectors identified a trend in the second half of 2011 related to the control of transient combustible material in accordance with the station administrative procedure, NSD 313, Control of Transient Fire Loads. Improvement was noted during the first half of 2012, and the corrective actions taken in response to PIP O-11-13389 were generally deemed effective at increasing awareness of the procedural requirements in NSD 313 and reducing the occurrences of uncontrolled transient combustible material. Accordingly, this trend will no longer be followed in subsequent integrated inspection reports.

4OA3 Event Follow-up

.1 Forced Unit 2 Shutdown Due to Component Cooling Water System Leakage

a. Inspection Scope

Following a sudden increase in the leakage from a flexible hose connected to the 2B2 reactor coolant pump motor cooler on April 3, 2012, the licensee initiated plans to remove the unit from service and perform repairs. Power was reduced starting at 2100 on April 5, 2012. During the power reduction, the leakage from the component cooling water system increased from approximately 200 gallons per day (gpd) to more than 2,200 gpd. Operators entered the Abnormal Operating procedure for the component

Enclosure

cooling water system and brought the unit to Mode 3. Maintenance personnel entered the containment building and repaired the leak. The reactor achieved criticality on April 6, 2012, and reached 100 percent RTP on April 8, 2012. Inspectors responded to the control room when leakage increased, observed the downpower, removal of the main turbine and pull to critical, and reviewed the maintenance activities conducted to repair the leak.

b. Findings

No findings were identified.

.2 Response to Sudden Increased RCS System Leakage on Unit 2 and Entry into the Excessive RCS Leakage Abnormal Procedure

a. Inspection Scope

On April 20, 2012, the inspectors responded to the control room when indications of excessive RCS leakage on Unit 2 were identified. The licensee calculated a leak of 0.5 to 1 gpm in the Unit 2 RCS system based on a trend of letdown storage tank levels. A leak greater than 1 gpm met the criteria for entry into the abnormal procedure for excessive RCS leakage. The inspectors verified appropriate actions were taken in accordance with the abnormal procedure in response to the leak and the inspectors reviewed other indications to validate that the leak was not occurring inside containment and that it was isolable. The inspectors followed the licensee's actions taken to identify the sources of the leakage and then perform repairs which eliminate the leak pathway. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

.3 Unanticipated Emergency Start of Both Keowee Hydro Electric Units During Removal of the Unit 3 RPS / ES Cabinets Due to a Human Performance Error

a. Inspection Scope

On April 22, 2012, while workers were removing the existing ES cabinets in the Unit 3 control room, a jumper was placed on the incorrect terminal strip resulting in an inadvertent start of both KHUs in the Emergency Mode. The units were secured and returned to a standby mode several hours later. The inspectors reviewed the actions taken by the control room staff and the Major Projects organization as a result of the event. In addition, inspectors reviewed the logic drawings, wiring schematics, procedures used and statements obtained from those involved in the work at the time to determine the impact to the two operating units and if the cause of the event was fully understood. The inspectors verified appropriate actions were taken in accordance with the procedures used to respond to the auto-start event. Documents reviewed are listed in the Attachment.

Enclosure

b. Findings

No findings were identified.

- .4 (Closed) Licensee Event Report (LER) 05000269/2011-002-00, 01: Technical Specification Required Shutdown for an Inoperable Containment Isolation Valve:  
On January 8, 2011, during performance of Engineered Safeguards (ES) logic testing, the licensee inadvertently closed the letdown system containment isolation valve 1HP-5; however the valve did not fully close as expected. Upon investigation, 1HP-5 was found to be approximately 25 percent open. Because the valve did not fully close, it was declared inoperable and a Unit 1 shutdown was commenced. The inspectors verified the accuracy of the LER, the appropriateness of completed and planned corrective actions, and reviewed the licensee's root cause evaluation. A PD identified as a result of this issue was previously documented as NCV 05000269, 270, 287/2011004-02: Failure to Verify Adequate Closure Margin (ADAMS ML#113010411). The inspectors determined that, as a result of this performance deficiency, the licensee was also in violation of TS 3.6.3, Containment Isolation Valves, Condition A and D, from the time of seat material replacement in 2003 until Unit 1 was shut down on January 9, 2011. Because no new performance deficiency was identified, no additional enforcement is warranted. The licensee entered this issue into their corrective action program as PIP O-11-0218.
- .5 (Closed) LER 05000269/2011-007-00, 01: Inoperable Containment Isolation Valve:  
On January 8, 2011, Oconee Unit 1 containment isolation valve, 1HP-5, was declared inoperable, and Unit 1 initiated a shutdown. Investigation identified galling between the gland ring and valve body of 1HP-5. The inspectors verified the accuracy of the LER, the appropriateness of completed and planned corrective actions, and reviewed the licensee's root cause evaluation. A PD identified as a result of this issue was previously documented in as NCV 05000269, 270, 287/2011004-01: Failure to Promptly Identify and Correct an Adverse Condition Affecting Operability of Letdown Line Containment Isolation Valves (ADAMS ML#113010411). The inspectors determined that, as a result of this performance deficiency, the licensee was in violation of TS 3.6.3, Containment Isolation Valves, Condition A and D, from January 14, 2011, until Unit 1 was shut down for a refueling outage on April 2, 2011. The licensee also violated TS LCO 3.0.4 on January 14, 2011, since Unit 1 was unintentionally returned to service with 1HP-5 still inoperable. Because no new PD was identified, no additional enforcement is warranted. The licensee entered this issue into their corrective action program as PIPs O-11-0218 and O-11-8854.
- .6 (Closed) LER 05000269, 270/2011-006-00, 01: Pressurizer Heater Capacity Non-Compliant with Technical Specification 3.4.9: On August 11, 2011, an extent of condition review determined that during a loss-of-offsite-power (LOOP) event, the power supply breakers in each unit's east penetration room, supplying PZR Heater Groups may trip on thermal overload due to elevated ambient temperature in the penetration room. As a result, the total available emergency-powered heater capacity did not comply with Technical Specification 3.4.9 for Units 1 and 2. The inspectors verified the accuracy of the LER, the appropriateness of completed and planned corrective actions, and

Enclosure



reviewed the licensee's cause evaluation. The enforcement aspects of this issue are discussed in Section 4OA7. The licensee entered this issue into their corrective action program as PIPs O-11-8094, O-11-6700, and O-12-2655.

7. (Closed) URI 05000270, 287/2011003-02, Follow-up of NOED 11-2-03  
(Closed) LER 05000270, 287/2011-001-00: Technical Specification Violation Involving a Notice of Enforcement Discretion for an Inoperable Containment Isolation Valve: On June 2, 2011, TS 3.6.3, "Containment Isolation Valves," Condition A, was entered upon confirmation that errors discovered in approved vendor calculations, when corrected, indicated insufficient closing margin for containment isolation valves HP-5 and HP-21 for Oconee Units 2 and 3. The completion time for Required Action A.1 was not met, and the station started preparations to shut down both units. On June 2, the NRC verbally granted enforcement discretion for TS 3.6.3, Required Action A.1 until June 16, 2011. The inspectors verified the accuracy of the LER, the appropriateness of completed and planned corrective actions, and reviewed the licensee's cause evaluation. A PD was identified associated with this issue and was previously documented as NCV 05000269, 270, 287/2011004-01: Failure to Promptly Identify and Correct an Adverse Condition Affecting Operability of Letdown Line Containment Isolation Valves (ADAMS ML#113010411). The licensee entered this issue into their corrective action program as PIP O-11-0218.

#### 4OA5 Other Activities

##### 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.

#### 4OA6 Management Meetings (Including Exit Meeting)

##### Exit Meeting Summary

The resident inspectors presented the inspection results to Mr. Gillespie, and other members of licensee management on July 5, 2012. The licensee acknowledged the findings presented. The inspectors verified that no proprietary information was examined during the inspection.

Enclosure

#### 4OA7 Licensee Identified Violations

The following three 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.

- 10 CFR 50, Appendix B, Criterion III, Design Control, stated, in part, that measures shall be established to assure that applicable regulatory requirements and the plant's design basis are correctly translated into drawings, procedures, and instructions and that these measures shall provide for verifying or checking the adequacy of the design. Contrary to the above, from initial operation through March 24, 2012, the licensee did not provide measures for verifying or checking the adequacy of design changes to the site topography through grading and erection of structures. These changes were not evaluated to ensure that they did not adversely impact safety-related SSCs due to water intrusion into the AB from PMP events. This violation was determined to be of very low safety significance (Green) because the loss of this equipment or function by itself, during the external initiating event it was intended to mitigate would not cause a plant trip or any of the Initiating Events used by Phase 2, would not degrade two or more trains of a multi-train safety system or function, and would not degrade one or more trains of a system that supports a safety system or function. The licensee's evaluation demonstrated that water entering the Auxiliary Building could be removed through the use of installed plant equipment and the use of additional equipment, procedural guidance, and directed actions. The licensee entered this violation into their CAP as PIP O-12-4318. This LIV addresses a portion of URI 05000269, 270, 287/2012002-01.
- 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, stated, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, deficiencies, and defective material are promptly identified and corrected. Contrary to the above, from 2006 to 2012, a condition adverse to quality was not promptly identified and corrected. In 2006 ONS completed a corrective action to review all potential AB flooding sources and failed to identify the Coolant Storage (CS) and RCW system as a flooding source that could impact safety related equipment. In 2012 it was determined that if the non-seismically qualified Coolant Storage (CS) system or RCW System, while cross-connected between Unit 1 / 2 and Unit 3, were to fail as a result of a seismic event, safety related SSCs in the AB could be adversely affected. The violation was determined to be of very low safety significance (Green), based on the licensee's determination that even though there were sections of the CS system that were not seismically qualified, the non-seismic CS piping was robust enough to withstand a seismic event. A review of the volume of water that would have been released following a break of the RCW piping if cross connected between the units determined that based on actual tank levels in the AB which would collect water released from a break when the systems had been cross-tied in the past that the Unit 3 HPI pumps would not have been affected. In addition, the volume of the Unit 1 / Unit 2 HPI pump room was large enough to preclude any impact following a break even with the RCW systems cross-connected. The licensee entered this issue into their CAP as PIP O-12-1876.

Enclosure

- 10 CFR Part 50, Appendix B, Criterion III, Design Control, stated, in part, that measures shall be established to assure that deviations from appropriate quality and design standards are controlled and that the review for suitability of application of equipment essential to safety-related functions of SSCs is maintained. Contrary to the above, from 2005 until August 11, 2011, a review for suitability of application of equipment essential to safety-related functions of structures, systems, and components had not been performed. The licensee failed to ensure that the pressurizer heaters would perform their function following a loss-of-offsite-power (LOOP) event. As a result, the total available emergency-powered heater capacity during a LOOP did not comply with Technical Specification 3.4.9 for Units 1 and 2. This condition existed since March 2005 which resulted in the TS 3.4.9, Action Condition C, 72-hour completion time being exceeded. This violation was determined to be of very low safety significance (Green) because analysis showed that it would take over five days for the east penetration room to reach a temperature that would trip the supply breakers and station procedures dictate that the unit enter a Mode that would not require pressurizer heaters if offsite power could not be recovered prior to five days. The licensee entered this issue into their corrective action program as PIPs O-11-8094, O-11-6700, and O-12-2655.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee

K. Alter, Regulatory Compliance Manager  
S. Batson, Station Manager  
A. Best, BACP Coordinator  
S. Boggs, Emergency Services Coordinator  
E. Burchfield, Superintendent of Operations  
J. Eaton, ISI Coordinator  
P. Fisk, Assistant Operations Manager  
P. Gillespie, Site Vice President  
R. Guy, Organization Effectiveness Manager  
M. Hatley, Temporary Ocone Steam Generator Engineer  
E. Hurley, Steam Generator Tube Integrity Engineer  
T. King, Security Manager  
R. Lampke, Supervising Scientist, Radiation Protection  
A. Lotfi, Duke - Construction  
D. Mayes, Steam Generator Program Lead  
T. Patterson, Safety Assurance Manager  
J. Pounds, OMP Tornado/HELB QA Oversight  
T. Ray, Engineering Manager  
F. Rickenbaker, OMP Manager  
D. Robinson, Radiation Protection Manager  
J. Smith, Regulatory Compliance  
S. Spear, EH&S Manager  
P. Street, Emergency Planning Manager  
T. Thulien, Steam Generator Eddy Current Level III

#### NRC

J. Boska, Project Manager, NRR

### **LIST OF REPORT ITEMS**

#### Opened and Closed

05000269, 270, 287/2012003-01	NCV	Failure to Perform a Calculation to Determine Site PMP Ponding Levels in a Timely Manner (Section 1R01)
05000269, 270, 287/2012003-02	NCV	Failure to Follow the Engineering Change Process (Section 1R01)

Closed

05000269/2011-002-00, 01	LER	Technical Specification Required Shutdown for an Inoperable Containment Isolation Valve (Section 4OA3.4)
05000269/2011-007-00, 01	LER	Inoperable Containment Isolation Valve (Section 4OA3.5)
05000269, 270/2011-006-00, 01	LER	Pressurizer Heater Capacity Non-Compliant with Technical Specification 3.4.9 (Section 4OA3.6)
05000270, 287/2011003-02	URI	Follow-up of NOED 11-2-03 (Section 4OA3.7)
05000270, 287/2011-001-00	LER	Technical Specification Violation Involving a Notice of Enforcement Discretion for an Inoperable Containment Isolation Valve (Section 4OA3.7)
05000269, 270, 287/2012002-01	URI	Evaluation of Probable Maximum Flood Event (Sections 1R01.2 and 4OA7)

**DOCUMENTS REVIEWED****Section 1R01: Adverse Weather Protection**Hot Weather Preparations

PT/0/A/0110/018, Hot Weather Protection, Rev. 004  
PT/0/A/0110/017, Cold Weather Protection, Rev. 006  
OP/0/B/1106/041, Turbine Building Ventilation, Rev 012  
OP/0/A/1104/041, Auxiliary Building Ventilation, Rev 037  
OP/0/A/1600/002, Standby Shutdown Facility Heating Ventilation & Air Conditioning System Operation (HVAC), Rev 33  
OP/2/A/1104/051, ESV System, Rev 024  
OP/0/A/1104/019, Control Room Ventilation System, Rev 012  
PIP O-12-4244, AHU 3-3 has no water in its manometer  
PIP O-12-4247, AHU 3-10 D/P off scale in manometer  
PIP O-12-4264, Discrepancies identified associated with Hot Weather Protection

Offsite Grid Readiness Review

AP/1/A/1700/034, Degraded Grid, Rev. 7  
COP-NUC-P01, TCC/SOC Response to Nuclear Switchyard Low Voltage  
NSD 417, Nuclear Facilities/Generation Status Communications, Rev. 13  
PT/0/A/0610/022, Degraded Grid and Switchyard Isolation Test, Rev. 30  
PIP O-12-3258, Red Bus and Yellow Bus Voltage Indications dipped during PCB Operation

Attachment

PIP O-12-2644, Update for 2012 Degraded Grid Voltage alarm values for the OAC  
 PIP O-06-0215, Yellow Buss Y Phase Potential Circuit has a Voltage Drop which is affecting  
 Calibration of the Transducer providing input to the OAC Point for Yellow Buss Volts

#### Actual Adverse Weather

AP/0/A/1700/006, Natural Disaster, Rev. 22  
 Complex Activity Plan, Unit 3 EC26 MFB 1 Outage Maintenance, dated March 13, 2011  
 SD 3.2.13, Site Materiel Condition- Area Owner Program, Rev. 9  
 OpESS 2012/01, High Wind Generated Missile Hazards, dated December 29, 2011  
 PIP O-12-4948, Potential Wind Blown Hazards not in accordance with SD 3.2.13  
 PIP O-12-5060, Potential Wind Blown Hazards not in accordance with SD 3.2.13  
 PIP O-12-5076, SD 3.2.13 windblown item tour 4-30-12 night

#### External Flooding

PIP O-06-3325, review of Catawba DG Room Flooding Event  
 ONS UFSAR Section 3.4.1.1; PMP Event  
 Calculation OSC-7256; External Flood/Ground Water Mitigation Requirement  
 PIP O-12-4318, Revised Oconee Drainage Analysis Revealed Higher Water Levels would be  
 Present onsite following a PMP Event

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

#### Simple Equipment Alignment

R&R 12-00747, Draining Unit 3 RCS to 145 inch pressurizer level  
 R&R 12-00780, HPI alignment for shutdown protection  
 R&R 12-00548, Administrative requirements for dropped RCS loops  
 R&R 12-00746, Decay heat removal train protection  
 OP/3/A/1104/006, SF Cooling System, Rev. 82  
 O FD-104A-3.1, Flow Diagram of Spent Fuel Cooling System, Rev. 45  
 O FD-104A-3.2, Flow Diagram of Spent Fuel Cooling System (Purification System), Rev. 15

### **Section 1R05: Fire Protection**

NSD 313, Control of Transient Fire Loads, Rev. 12  
 NSD 316, Fire Protection Impairment and Surveillance, Rev. 11  
 SD 3.2.14, Fire Protection Program Compensatory Measure Process, Rev. 0  
 SLC 16.9.6, Fire Detection Instrumentation  
 MP/0/A/1705/032, Fire Protection Equipment Inspection, Rev. 33  
 Fire Pre-plan, Zone 105, Unit 2 Cable Room, Rooms 404 and 405  
 Fire Pre-plan, Zone 124, unit 3 Reactor Building, Basement thru 4<sup>th</sup> Floor  
 PIP O-12-5267, A field observation in the Unit 3 Reactor Building identified Fire Hose Stations  
 which had attached to the fire hose, nozzles other than that specified in the Work Order and  
 Inspection Procedure. (Non-compliant nozzle(s) identified as DW Allen Model 7160L)  
 PIP O-12-5575, WO to address Deficiency Tag on Autobank Mulsifyre in 230kV SY canceled  
 Fire Pre-plan, 230 kV Switchyard  
 Fire Pre-plan, Zone 109, Unit 1 Control Battery Room, Rooms 400, 400A & 400B  
 Fire Pre-plan, Zone 104, Unit 2 Control Battery Room, Rooms 408, 408A & 408B  
 O-310-K-11, Auxiliary building Unit 2 Fire Protection Plan and Fire, Flood, and Pressure  
 Boundaries, Rev. 9  
 PT/0/B/2000/050, Fire Drill- Performance and Evaluation, Rev. 0

RP/0/B/1000/029, Fire Brigade Response, Rev. 16  
 Oconee Nuclear Site Second Quarter 20112 Fire Drill, Drill Number 02-12-01  
 PIP O-12-7376, Shift Fire Drill Assessment

### **Section 1R06: Flood Protection Measures**

#### **Submerged or Buried Cable Inspection**

WO 02039219, Inspect/Repair Black Fire Stop Foam in Trenches PMP Project  
 PIP O-12-6898, Excessive water noted in the CT-5 inlet cable trench when opened for routine inspection  
 PIP O-12-1876, Configuration of Interim Radwaste Trench drain into AB cannot be confirmed.  
 PIP O-12-1987, Additional AB Internal Flood Vulnerabilities Identified to date by extent of condition review for PIP 12-1946  
 PIP O-12-1941, The formal functionality assessment performed for PIP 12-1876 did not address the potential for flooding into the trench by pipe ruptures within the trench itself  
 PIP O-12-1946, It does not appear that a seismically induced break of the piping attached to the BHUT was considered as a flood source to the AB Flood Calculation  
 OSC-8671, AB Flood Design values  
 PIP O-12-1986, The methodology for assessing AB Flood Risks from the RCW System is being reviewed by design engineering.  
 PIP O-12-1996, SLC 16.9.11a, contains references that are either out of date or may be inappropriate to support CLB document

### **Section 1R07: Heat Sink Performance**

PT/0/A/0160/006, Reactor Building Cooling Units Performance Test, Rev. 38  
 OSC-5665, Unit 1 Reactor Building Cooling Units Test, Rev. 53  
 PIP O-11-14092; Extent of Condition Review as part of EQ Evaluation on Replacement of 2PAMLT0090

### **Section 1R08: Inservice Inspection Activities**

#### **PIPs**

G-08-01232, G-10-01266, G-11-00978, O-08-00139, O-10-00957, O-10-08081, O-10-09262, O-10-09468, O-10-10019, O-11-00332, O-11-01541, O-11-02533, O-11-03574, O-11-03659, O-11-05175, O-11-11124, O-11-13871, O-11-14217, O-11-15385, O-12-00356, O-12-03099, O-12-03956, O-12-04035, O-12-04039, O-12-04526, O-12-04576, O-12-04636, O-12-04842

#### **BACC PIPs**

O-08-01395, O-10-09468, O-10-10019, O-11-01541, O-11-11124, O-12-04035, O-12-04636

#### **BACC Evaluations**

O-10-00957, O-10-08081, O-11-01541, O-11-02533, O-11-03323, O-11-03574, O-11-03659, O-11-05175, O-11-13871, O-11-14217, O-11-15385, O-12-00356, O-12-04039

#### **Drawings**

3-51-A-0069, High pressure Injection from RC-P3B1 Suction Piping Drain to letdown Cooler 3A, 3B Tubeside Inlet, Rev. 50  
 3-HP-0502, High pressure Injection from RC-P3B1 Suction Piping Drain to letdown Cooler 3A Tubeside Inlet, Rev. 5

3-HP-0504, High pressure Injection from RC-P3B1 Suction Piping Drain to letdown Cooler 3B Tubeside Inlet, Rev. 6  
 O-2438-A-300957-01, ISO Piping Replacement of 3HP-139 ad -140, Rev. A  
 O-2478G, Piping Layout Letdown Cooler Area Reactor Building Unit 3, 3A and 3B Cooler, Rev. 4C  
 O2-8050760C, RVCH UT Coverage, Rev. 0 (Areva)  
 O2-8050761B, RV Head Map, Rev. 0 (Areva)  
 O2-8050762V, RVCH Scan Plan, Rev. 0  
 OFD-101A-3.1, Flow Diagram of High Pressure Injection System (Letdown), Rev. 37  
 P012-856537-NO1, Bottom Bonnet Gate Valve (Velcan), Rev. 3

#### Procedures

54-ISI-603-006, Automated Ultrasonic Examination of RPV Closure Head Penetrations containing Thermal Sleeves, Re. 006  
 MP-0-A-1150-031, Reactor Vessel Closure Head Penetration Ultrasonic Testing Controlling Procedure, Rev. 000  
 MP-0-A-1800-132, Inspection and Cleanup of Boric Acid on Plant Materials, Rev. 007  
 MP-0-A-8140-001, Quality Assurance and Non Quality Assurance Welding, Rev. 001  
 NDE 10, General Radiography Procedure, Rev. 024  
 NDE 35, Liquid Penetrant Examination, Rev. 024  
 NDE 69, Visual Examination of Reactor Pressure Vessel Bottom Mounted Instrumentation Penetrations, Rev. 000  
 NDE Vol. 4, PDE UT-2, PDI General Procedure for the Ultrasonic Examination of Austenitic Pipe Weld  
 NDE Vol. 4, PDE UT-8 General Procedure for the Ultrasonic Examination of Weld Overlaid Similar and Dissimilar Metal Welds Field Change 10-06, Rev. 000  
 NDE105, Radiography Examination of Oconee Nuclear Station Thermal Sleeves, Re. 010  
 NDE-B, Training, Qualification and Certification of NDE Examination Personnel, Rev. 032  
 NSD 203, Operability, Functionality, Rev. 024  
 NSD 322, Boric Acid Corrosion Control program, Rev. 003  
 NSD 400, Nuclear General Welding Program, Rev. 007

#### Other Documents

Anatech Eye Examination Certification (Darst), dated 6-Feb-2012  
 Anatech Eye Examination Certification (Devoe), dated 30-Aug-2011  
 Anatech Eye Examination Certification (Farr), dated 10-Feb-2012  
 Anatech Eye Examination Certification (Ginther), dated 21-Aug-2011  
 Anatech Eye Examination Certification (Lancaster), dated 27-Feb-2012  
 Anatech Eye Examination Certification (Peterson), dated 3-Feb-2012  
 Anatech Eye Examination Certification (Poschman), dated 28-Jan-2012  
 Anatech Personnel Certification Summary Record (Darst), dated 22-Jun-2010  
 Anatech Personnel Certification Summary Record (Devoe), dated 25-Nov-2011  
 Anatech Personnel Certification Summary Record (Farr), dated 10-Feb-2011  
 Anatech Personnel Certification Summary Record (Ginther), dated 22-Jun-2010  
 Anatech Personnel Certification Summary Record (Lancaster), dated 26-Oct-2011  
 Anatech Personnel Certification Summary Record (Peterson), dated 15-Oct-2009  
 Anatech Personnel Certification Summary Record (Poschman), dated 22-Jun-2010  
 Appendix B, Oconee Nickel Base Alloy (Alloy 600) Aging Management Program, Rev. 7



Areva UT Level III certificate (Breza)  
 Areva UT Level III certificate (Koscielny)  
 ASME Section XI Code Compliance Summary- 4<sup>th</sup> Interval  
 Augmented ISI Examination Plan (includes N-770-1)  
 B&W Certificate of NDE Personnel Qualification (Baumann), dated 12-Feb-2010  
 B&W Certificate of NDE Personnel Qualification (Chevalier), dated 28-Oct-2011  
 B&W Certificate of NDE Personnel Qualification (Davis), dated 4-Mar-2011  
 B&W Certificate of NDE Personnel Qualification (Duffield), dated 4-Mar-2011  
 B&W Certificate of NDE Personnel Qualification (Frye), dated 28-Oct-2011  
 B&W Certificate of NDE Personnel Qualification (Shutes), dated 4-Mar-2011  
 B&W Certificate of Vision Examination (Baumann), dated 28-Mar-2012  
 B&W Certificate of Vision Examination (Chevalier), dated 28-Mar-2012  
 B&W Certificate of Vision Examination (Davis), dated 29-Mar-2012  
 B&W Certificate of Vision Examination (Duffield), dated 28-Mar-2012  
 B&W Certificate of Vision Examination (Frye), dated 28-Mar-2012  
 B&W Certificate of Vision Examination (Shutes), dated 28-Mar-2012  
 Boric Acid Program Assessment, 2009, 2009MCE07  
 DZ Atlantic Vision Examination Certificate (Eubanks)  
 DZ Atlantic Vision Examination Certificate (Smith)  
 DZ Atlantic Vision Examination Certificate (Walkowiak)  
 Fourth Inspection Interval Inservice Inspection NDE Plan, Unit 3, ONS3-118, Rev. o  
 Inspection Plan for Oconee Nuclear Station Unit 1,2,3 Reactor Vessel Internals, Rev. 002,  
 ANP-2951  
 INTECH, Inc. Eye Examination Results Summary (Holmes), dated 5-Jan-2012  
 INTECH, Inc. NDT Personnel Certification (Holmes), dated 19-Jan-2010  
 Ir192 Source certificate  
 IWE Containment Plan, 3E022, 3E024, Record # 421734  
 MoreTech Certificate of Personnel Qualification (Chambers), dated 29-Jun-2011  
 MoreTech Certificate of Personnel Qualification (Merriman), dated 22-Jul-2008  
 MoreTech Certificate of Vision Examination (Chambers), dated 24-Jun-2011  
 MoreTech Certificate of Vision Examination (Merriman), dated 7-Feb-2012  
 ONS IWE/IWL Inspection Plan, 3EOC21, 2003  
 Procedure Qualification Record (PQR) L-128A, L-109  
 PT Level II certificate (Leeper)  
 Reactor Pressure Vessel (RPV) Skirt Examination, WO#98514903-01, 2003  
 RT Level II certificate (Gantt)  
 RT Level II certificate (Parsley)  
 RT Level II certificate (Shepard)  
 RT Level II certificate (Sherrill)  
 Second Interval Containment Inspection Plan, Unit 3, O-ISIC--62-0001, Rev. 6  
 URS UT Level II certificate (Haigler)  
 URS Vision Examination Certificate (Hailgler)  
 UT Level II certificate (Dean)  
 UT Level II certificate (Muirhead)  
 Vision Examination Certificate (Dean)  
 Vision Examination Certificate (Gantt)  
 Vision Examination Certificate (Leeper)  
 Vision Examination Certificate (Muirhead)

Vision Examination Certificate (Parsley)  
 Vision Examination Certificate (Shepard)  
 Vision Examination Certificate (Sherrill)  
 Welding Procedure Specification (WPS) GTS M 0808- 01  
 Work Order # 1932312-01, RT on weld between valves 3HP-489 and 3HP-152, Component # 3RC-213-28  
 Work Order # 1955400, Visual Examination (VE) of the Unit 3 Reactor Pressure Vessel Bottom Mounted Instrumentation Nozzles  
 Work Order # 1955827, PT on weld pipe to elbow, Component ID # 3LP-131-2  
 Work Order # 1955827, UT on weld pipe to valve (3LP1), Component ID # 3LP-131-2  
 Work Order # 1958386, PT on weld elbow to nozzle, Component ID # 3-50-21-1  
 Work Order # 1960484, UT of weld overlay let down nozzle, Component # 3RC-265-80V  
 Work Order # 1992545, # 1992546, RT on thermal sleeve of HPI nozzles  
 Work Order # 1997069, RT on weld of valve to pipe replacement line (3HP1 and 3 HP2 valves), Component # 3HP-0502-37  
 Work Order # 1958389, PT on weld of pipe to elbow High Pressure injection (HPI) line, Component # 3-51A-61-17, Component # 3-51A-61-17  
 ZETEC Certificate of Personnel Qualification (Anderson), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Bipes), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Cardillo), dated 5-Mar-2012  
 ZETEC Certificate of Personnel Qualification (Crumpacker), dated 6-Mar-2012  
 ZETEC Certificate of Personnel Qualification (Driessen), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Jacobs), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Lape), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Larsen), dated 12-Mar-2012  
 ZETEC Certificate of Personnel Qualification (Lindenau), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Lo), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Newell), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Newsom), dated 6-Mar-2012  
 ZETEC Certificate of Personnel Qualification (Nissley), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (O'Laughlin), dated 20-Feb-2012  
 ZETEC Certificate of Personnel Qualification (Woller), dated 20-Feb-2012  
 ZETEC Eye Examination Certification (Anderson), dated 6-Mar-2012  
 ZETEC Eye Examination Certification (Bipes), dated 12-Mar-2012  
 ZETEC Eye Examination Certification (Cardillo), dated 11-Jan-2012  
 ZETEC Eye Examination Certification (Crumpacker), dated 7-Dec-2011  
 ZETEC Eye Examination Certification (Driessen), dated 6-Mar-2012  
 ZETEC Eye Examination Certification (Jacobs), dated 15-Mar-2012  
 ZETEC Eye Examination Certification (Lape), dated 13-Mar-2012  
 ZETEC Eye Examination Certification (Larsen), dated 4-Jan-2012  
 ZETEC Eye Examination Certification (Lindenau), dated 1-Dec-2011  
 ZETEC Eye Examination Certification (Lo), dated 6-Mar-2012  
 ZETEC Eye Examination Certification (Newell), dated 2-Nov-2011  
 ZETEC Eye Examination Certification (Newsom), dated 16-Mar-2012  
 ZETEC Eye Examination Certification (Nissley), dated 12-Mar-2012  
 ZETEC Eye Examination Certification (O'Laughlin), dated 6-Mar-2012  
 ZETEC Eye Examination Certification (Woller), dated 23-Jan-2012

**Section 1R11: Licensed Operator Requalification**

RP/0/B/1000/001, Emergency Classification, Rev. 29  
ASE-35, Active Simulator Exam

**Section 1R12: Maintenance Effectiveness**

MP/0/A/3007/019A, SSF- Air Conditioning Unit- Maintenance, Rev. 12

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

3EOC26 IRT Risk Profile  
Complex Plan for Unit 3 Main Feeder Bus 1 Maintenance  
Critical Plan for Unit 3 Startup with the SSF Inoperable

**Section 1R15: Operability Evaluations****Operability/Functionality Assessments**

PIP O-11-5143, BWST Recirculation using the BWST recirculation pump and/or the proposed reverse osmosis unit may invalidate ECCS vortex prevention analysis  
PIP O-11-14092, Extent of Condition Review as part of EQ Evaluation of Replacement of 2PAMLT0090  
PIP O-12-3627, Both SSF HVAC Compressors Not Operating  
PIP O-12-4176, Additional cracks found on KB1 battery bank  
PIP O-12-4318, Flood levels during a PMP rainfall event would be higher than the ground floor slab elevation for Class 1 Structures, inconsistent with UFSAR  
PIP O-12-4619, Valves 1/2/3 HP-14 do not meet the seismic requirements of ECV-0601.00-00-003 due to yoke material  
PIP O-12-6027, Cracks noted in the top of SSF battery cell jars

**Other Documents**

GNB Industrial Power, Installation and Operating Instructions  
PIPs O-12-2173, O-11-14746, O-11-11913, O-11-11002  
IP/0/A/3000/030, Keowee Hydro Station Battery Service Test and Annual Surveillance, Rev. 8  
IP/0/A/3000/026, Battery Cell Connection Resistance Test, Rev. 33  
IP/0/A/3000/001C, Removal, Installation, and Jumpering of Battery Cells, Rev. 34  
IP/0/A/3000/013, Cleaning and Inspection of Battery Cell Terminals and Intercell Connectors, Rev. 33  
OSC-5665, Unit 1 Reactor Building Cooling Units Test, Rev. 53  
OSC-10511, LPSW Flow to RBCUs for Environmental Qualification Purposes, Rev. 0  
OSC-2820, Emergency Procedure Setpoints, Rev.34

**Section 1R18: Plant Modifications**

EC 107992, Adding Limit Switch Compartment T Drains to Unit 3 EQ Limitorque Actuators  
Flowserve Part Manual covering T-Drain sizing for SMB-XX actuators  
IP/0/A/3001/001, Limitorque Actuator Maintenance  
WO 02030642, T-Drain Installation for Limitorque Actuators

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

PT/1/A/0204/007, Reactor Building Spray Pump Test, Rev. 96  
WO 01998859, 1A RBS Pump motor test/ inspect  
PT/1/A/0203/006A, Low Pressure Injection Pump Test- Recirculation, Rev. 87

OFD-102A-1.1, Flow Diagram of Low Pressure Injection System (Borated Water Supply & LPI Pump Suction), Rev. 63  
 OFD-102A-1.2, Flow Diagram of Low Pressure Injection System (LPI Pump Discharge), Rev. 50  
 OFD-101A-1.3, Flow Diagram of High Pressure Injection System (Charging Section), Rev. 26  
 WO 02005525, 1B LPI Pump: Perform Lubrication PM  
 OP/3/A/1104/010, Low Pressure Service Water, Rev. 102  
 PT/3/A/0152/016; Purge System Valve Stroke Test, Rev. 019  
 PT/3/A/0400/007, SSF RC Makeup Pump Test, Rev. 67  
 OFD-101A-3.5, Flow Diagram of High Pressure Injection System (SSF Portion), Rev. 24  
 WO 02044360, EC 108508, Replace 1/8", Class B, Unit 3 SSF RC Makeup Vent  
 PIP O-12-7054, Vibration data could not be obtained for Unit 3 SSF RCMU Pump test due to faulty test equipment. All required test acceptance criteria is met.

### **Section 1R20: Refueling Outage**

MP/0/A/1500/008, New Fuel Assembly- Receipt, Inspection and Storage, Rev. 38  
 Areva New Fuel Checklist; RE/WPM/5.3  
 3EOC26 Independent Review Team Assessment Report  
 OP/3/A/1102/028, Reactor Building Tour, Rev. 6  
 NDEMAN-NDE-69, NDE Procedures Manual- Volume 1-NDE-69- VE Visual Examination of Reactor Pressure Vessel Bottom Mounted Instrument Penetrations, Rev. 0  
 NDEMAN-NDE-69-FC11-06, Nondestruction Examination Procedures Manual Volume I Visual Examination of Reactor Pressure Vessel Bottom Mounted Instrument Penetrations NDE-69 Field Change 11-06, Rev. 0  
 MP/0/A/1150/002, Reactor Vessel- Closure Head- Removal, Rev. 53  
 91-01 Critical Activity Plan, 3EOC26 Reactor Vessel Head Initial Removal and Final Installation  
 OP/3/A/1502/009, Containment Closure Control, Rev. 043  
 OP/0/A/1102/006, Control of Containment Penetrations when Containment Operability is Required, Rev. 044  
 TT/3/B/EC95354/002, Unit 3 Fuel Transfer System Upgrade Testing of New Fuel Transfer System, Rev. 0  
 OP/3/A/1502/007, Operations Defueling/Refueling Responsibilities, Rev. 89  
 PT/0/A/0750/017, Defueling Activities, Rev. 19  
 MP/0/A/1500/009, Defueling/Refueling Procedure, Rev. 65 (defueling evolution) and Rec. 66 (refueling evolution)  
 PT/0/A/0750/018, Refueling Activities, Rev. 020  
 Core Reload Fuel Movement Verification Form (Move Sheets)  
 MP/0/A/1150/006A, Reactor Vessel- Plenum Assembly- Installation, Rev. 36  
 JITT Training for Zero Power Physics Testing (ZPPT) and Main Turbine Chest and Shell Warming (SNO-L11), Rev. 17  
 PT/0/A/0811/001, Power Escalation Test, Rev. .45  
 SOMP 01-02; Reactivity Management, Rev. 008  
 PT/0/A/1103/020, Power Maneuvering Predictions  
 PT/0/A/0711/001, Zero Power Physics Testing  
 OP/3/A/1102/001, Power Maneuvering  
 PT/0/A/0750/002, Core Inspections Procedure, Rev. 29  
 PT/0/A/0775/015, Core Alignment Verification Procedure, Rev. 12

**Section 1R22: Surveillance Testing**

IP/0/A/3010/011, Inspection and Cleaning of Electrical Penetration Enclosures, Rev. 11  
 WO 01919380, U3 RX PN EA11 Paint Interior / Exterior of Electrical Penetration Enclosure  
 WO 01919377, U3 RX PN EF-08 Paint Interior / Exterior of Electrical Penetration Enclosure  
 PIPs O-10-1602, O-12-4628  
 HP/0/B/1000/091, Evaluation of Germanium Detector Gamma Spectroscopic Results, Rev. 5  
 HP/0/B/1001/026, Operation of the Count Room Analysis System, Rev. 3  
 OFD-101A-1.1, Flow Diagram of High Pressure Injection System (Letdown Section), Rev. 45  
 OFD-110A-2.1, Flow Diagram of Chemical Addition System (Primary Sample Hood), Rev. 43  
 OSS-0254.00-00-4001, Design Basis Specification for the Reactor Building Containment Isolation, Rev. 38  
 ANSI/ANS-56.8-2002, Containment System Leakage Testing Requirements, dated August 9, 2011  
 OFD-124B-3.2, Flow Diagram of Low Pressure Service Water System (Reactor Building Cooling Units 3A, 3B, & 3C Cooling Coils), Rev. 24  
 PT/0/A/0400/005, SSF Auxiliary Service Water Pump Test, completed 5/17/12  
 UFSAR, Section 9.6, Standby Shutdown Facility, dated 12/31/10  
 PT/2/A/0203/006 A, Low Pressure Injection Pump Test - Recirculation, completed 5/23/12

**Section 1EP6: Drill Evaluation**

RP/0/B/1000/001, Emergency Classification  
 Oconee Nuclear Station Drill 2012-02 Scope and Timeline  
 Oconee Nuclear Station Drill 2012-03 Scope and Timeline  
 Objective Evaluation Worksheets  
 PIPs O-12-7687, O-12-7801, O-12-7740, O-12-7937, O-12-7685, PIP O-12-4391

**Section 2RS1: Radiological Hazard Assessment and Exposure Controls****Procedures, Guidance Documents and Manuals**

HP/0/B/1000/016, Radiological Protection Requirements For Steam Generator Maintenance, Rev. 32  
 HP/0/B/1000/054, Radiation Protection Routines, Rev. 42  
 HP/0/B/1000/093, Defueling/Refueling Posting, Monitoring and Access Controls, Rev. 32  
 HP/0/B/1000/095, Radiation Protection Instructions For Letdown Filter Replacement, Rev. 09  
 HP/0/B/1000/097, Radiological Protection Requirements For Independent Spent Fuel Storage Installation Phase V and VI, Rev. 14  
 HP/0/B/1000/104, Radiological Protection Requirements For Incore Detector Work, Rev. 20  
 HP/0/B/1000/106, Crudburst Posting, Monitoring and Access Controls, Rev. 04  
 HP/0/B/1000/107, Radiological Protection Requirements for Fuel Movement and Controlling Suspended Items in the SFP/Fuel Transfer Canal, Rev. 01  
 HP/0/B/1000/108, Reactor Building LHRA Entry Personnel/Emergency Hatch Controls – NOT at Power, Rev. 00  
 HP/0/B/1000/109, Refueling Outage Radiological Protection Requirements, Rev. 01  
 HP/0/B/1000/110, Radiological Protection Requirements for Performing Remote Job Coverage, Rev. 00  
 HP/0/B/1006/015, Use of Portable Ventilation Systems in Radiologically Controlled Areas, Rev. 04  
 PT/0/A/0750/003, Physical Inventory of Reportable Special Nuclear Materials, Rev. 19  
 RPSM 5.8, Radioactive Material Source Control Requirements, Rev. 09

RPSM 6.11, Maintenance of Radiation Control Zones, Rev. 03  
 RPSM 11.2, Radiation Protection Response to a Medical Emergency, Rev. 02  
 SH/O/B/2000/003, Preparation of a Radiation Work Permit, Rev. 11  
 SH/O/B/2000/004, Taking, Counting and Recording Surveys, Rev. 11  
 SH/O/B/2000/005, Posting of Radiation Control Zones, Rev. 09  
 SH/O/B/2000/012, Access Controls for High, Locked High, and Very High Radiation Areas, Rev. 12

#### Records and Data

Air Sample ID 120425048, U3 – B S/G Manway Diaphragm Removal, Dated 04/25/12  
 Air Sample ID 120425049, U3 – A S/G Manway Diaphragm Removal, Dated 04/25/12  
 Air Sample ID 120501030, U3 – Breach of Valve 3SF-55, Dated 05/01/12  
 Air Sample ID 120501040, U3 – Cutting Out Valve 3SF-55, Dated 05/01/12  
 Air Sample ID 120502071, U3 – 3LP-96 Valve Cut Out, Dated 05/02/12  
 PT/O/A/0750/003, Physical Inventory of Reportable Special Nuclear Materials, Rev. 19, Enclosure 13.2, Non-Fuel Special Nuclear Materials, Dated 04/13/11 and 03/20/12  
 RPSM 5.8, Radioactive Material Source Control Requirements, Rev. 09, Enclosure 4.1, Administration of Sealed Source Control Source Record, ONS # 732, Solid Shepherd Calibrator, Dated 02/08/12  
 RPSM 11.2, Radiation Protection Response to a Medical Emergency, Rev. 02, Enclosure 4.1, Checklist for Preparation for Transport to Hospital, Dated 05/02/12  
 Radiation Work Permit (RWP) Number (No.) 3026, Annulus Inspection & Associated Activities, Rev. 14  
 RWP No. 3090, U3 Rx Bldg – Fuel Transfer System Mod and Associated Activities, Rev. 02  
 RWP No. 3105, Replace Valve 3HP1/3HP2 & Associated Activities, Rev. 03  
 RWP No. 3176, U3 Rx Bldg Incore Instrumentation Work, Rev. 12  
 RWP No. 3275, U3 Aux Bldg Misc Valve Work, Rev. 16  
 RWP No. 3276, U3 Aux Bldg Exempt Change Valve Replacement, Rev. 15  
 Radiological Certificates of Analysis, Sample IDs: 1EOC26X for Canal (Mechanical Filters), Dated 04/08/11; DAW 10, Dated 08/15/10; and PO-611769-8, Solid (Ion Exchange Resin), Dated 07/13/11  
 Survey No. M-030912-3, Independent Spent Fuel Storage Installation, Dated 03/09/12  
 Survey No. M-041512-9, Independent Spent Fuel Storage Installation, Dated 04/15/12  
 Survey No. M-041912-19, Steam Generator Survey “A” Upper S/G, Dated 04/19/12  
 Survey No. M-042012-6, Steam Generator Survey “B” Upper S/G, Dated 04/20/12  
 Survey No. M-042512-19, Steam Generator Survey “A” Lower S/G, Dated 04/25/12  
 Survey No. M-042512-19, Steam Generator Survey “B” Lower S/G, Dated 04/25/12  
 Survey No. M-042712-29, Room 81 LPI & RBS Pumps, Dated 04/27/12  
 Survey No. M-050212-10, Room 81 LPI & RBS Pumps, Dated 05/02/12  
 Survey No. M-050212-16, Room 255 Spent Fuel Coolers and Pumps, Dated 05/01/12  
 Survey No. M-050212-23, Survey for Transport of an Injured Individual, Dated 05/02/12  
 Survey No. M-050212-27, Room 256 U-3 Seal Supply Filters, Dated 05/02/12  
 Survey No. M-050212-31, Room 256 Valve 3LP-96, Dated 05/02/12

#### Corrective Action Program (CAP) Documents

PIPs-O-11-13311, O-12-05078, O-12-05205, O-12-05248

**Section 40A1: Performance Indicator Verification**

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Rev. 6  
 MSPI Basis Document for Oconee Nuclear Station Units 1, 2, 3, Rev. 6  
 ONS Chem Desk Data from 04/01/2011 to 03/31/2012

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

NSD 408, Testing, Rev. 15  
 NSD 513, Primary-to-Secondary Leak Monitoring Program, Rev. 8  
 OP/0/A/1106/031, Primary to Secondary Leak Rate Monitoring and Instrumentation, Rev. 105  
 RPSM 6.5, RIA and Vent Sampling Contingency Requirements, Rev. 5  
 SLC 16.11.3, Radioactive Effluent Monitoring Instrumentation, dated 11/20/08  
 PIPs: O-10-06151, O-10-06939, O-11-03666, O-12-01873, O-12-02012  
 2011 Annual Radioactive Effluent Release Report  
 WO 01941575  
 NSD 223, PIP Trending Program, Rev. 7  
 Oconee Nuclear Station Corrective Action Program Health Report Card, Data as of 4/30/12  
 Oconee Site Performance Improvement Health Report Card, dated May 2012  
 1Q12 Engineering NSD-223 Trend Report, dated 5/7/12  
 1Q12 Maintenance NSD-223 Trend Report, dated 3/31/12  
 O-OPS-SA-12-10, ODMI Quarterly Assessment, dated 3/5/12  
 PIPs: O-12-0115, O-12-0793, O-12-0887, O-12-1001, O-12-2490, O-12-3493, O-12-4781

**Section 40A3: Event Follow-up**

AP/2/A/1700/020, Loss of Component Cooling, Rev. 12  
 PT/2/A/1103/015, Reactivity Balance Procedure (Unit 2), Rev. 65  
 OP/2/A/1102/001, Controlling Procedure for Unit Startup, Rev. 255  
 OP/2/A/1102/004, Operation at Power, Rev. 105  
 OP/2/A/1106/002B, FDWPT Operation, Rev. 25  
 OP/2/A/1106/001, Turbine generator, Rev. 114  
 PT/0/1103/020, Power Maneuvering Predictions, Rev. 21  
 OP/0/A/1102/026, Pre-job Briefings, Rev. 24  
 AP/2/A/1700/002, Excessive RCS Leakage, Rev. 15  
 Drawing O-2777, Oconee Unit 3 Main Feeder bus Monitor Relay Panel  
 Drawing OEE-320, Channel A Keowee Emergency Start Unit 3  
 Drawing OEE-220, Channel A Keowee Emergency Start Unit 2  
 Drawing OEE-120, Channel A Keowee Emergency Start Unit 1  
 Drawing OEE-320-1, Channel B Keowee Emergency Start Unit 3  
 PIPs O-12-4580, O-12-4855, O-11-8094, O-11-6700, O-12-2655, O-11-0218

**Section 40A7: Licensee-Identified Violations**

AP/1-2/A/1700/030, Unit 1-2 Aux Building Flooding  
 AP/3/A/1700/030, Unit 3 Aux Building Flooding  
 Calculation OSC-9010, HELB Flood Impoundment Design for Unit 1, 2, 3 East Penetration Room  
 Calculation OSC-8671, Aux Building Flood Design Valves