



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

January 25, 2013

Mr. T. Preston Gillespie, Jr.  
Site Vice President  
Duke Energy Corporation  
Oconee Nuclear Station  
7800 Rochester Highway  
Seneca, SC 29672-0752

**SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT  
05000269/2012005, 05000270/2012005, 05000287/2012005**

Dear Mr. Gillespie:

On December 31, 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 January 9, 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.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy. The NCV is described in the enclosed inspection report. If you contest the violation or significance of the NCV, 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.

T. Gillespie, Jr.

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 05000269/2012005, 05000270/2012005,  
05000287/2012005 w/Attachment: Supplementary Information

cc w/encl: (See page 3)

T. Gillespie, Jr.

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 05000269/2012005, 05000270/2012005,  
05000287/2012005 w/Attachment: Supplementary Information

cc w/encl: (See page 3)

PUBLICLY AVAILABLE

NON-PUBLICLY AVAILABLE

SENSITIVE

NON-SENSITIVE

ADAMS:  Yes

ACCESSION NUMBER: \_\_\_\_\_

SUNSI REVIEW COMPLETE  FORM 665 ATTACHED

OFFICE	RII:DRP	RII:DRP	RII:DRP	RII:DRS	RII:DRS	RII:DRS	RII:DRS
SIGNATURE	Via email	Via email	Via email	Via email	Via email	Via email	Via email
NAME	KEllis	GOttenberg	MEndress	ASengupta	AVargas	RCarrion	MMeeks
DATE	01/25/2013	01/23/2013	01/22/2013	01/24/2013	01/22/2013	01/24/2013	01/21/2013
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
OFFICE	RII:DRP						
SIGNATURE	JHB /RA/						
NAME	JBartley						
DATE	01/25/2013						
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME:

[HTTP://PORTAL.NRC.GOV/EDO/RII/DRP/BRANCH1/DOCUMENTS/OCO DRAFT 2012005 SHAREPOINT.DOCX](http://portal.nrc.gov/edo/rii/drpb/branch1/documents/oco_draft_2012005_sharepoint.docx)

T. Gillespie, Jr.

3

cc w/encl:

Thomas D. Ray  
Plant Manager  
Oconee Nuclear Station  
Duke Energy Corporation  
Electronic Mail Distribution

James A. Kammer  
Design Engineering Manager  
Oconee Nuclear Station  
Duke Energy Corporation  
Electronic Mail Distribution

Robert H. Guy  
Organizational Effectiveness Manager  
Oconee Nuclear Station  
Duke Energy Corporation  
Electronic Mail Distribution

Terry L. Patterson  
Safety Assurance Manager  
Duke Energy Corporation  
Electronic Mail Distribution

Kent Alter  
Regulatory Compliance Manager  
Oconee Nuclear Station  
Duke Energy Corporation  
Electronic Mail Distribution

Judy E. Smith  
Licensing Administrator  
Oconee Nuclear Station  
Duke Energy Corporation  
Electronic Mail Distribution

Joseph Michael Frisco, Jr.  
Vice President, Nuclear Design Engineering  
General Office  
Duke Energy Corporation  
Electronic Mail Distribution

M. Christopher Nolan  
Director - Regulatory Affairs  
General Office  
Duke Energy Corporation  
Electronic Mail Distribution

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

David A. Cummings (acting)  
Fleet Regulatory Compliance & Licensing  
Manager  
General Office  
Duke Energy Corporation  
Electronic Mail Distribution

Alicia Richardson  
Licensing Administrative Assistant  
General Office  
Duke Energy Corporation  
Electronic Mail Distribution

Lara S. Nichols  
Deputy General Counsel  
Duke Energy Corporation  
Electronic Mail Distribution

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

Division of Radiological Health  
TN Dept. of Environment & Conservation  
401 Church Street  
Nashville, TN 37243-1532

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

Charles Brinkman  
Director  
Washington Operations  
Westinghouse Electric Company  
Electronic Mail Distribution

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

T. Gillespie, Jr.

4

Letter to T. Preston Gillespie, Jr. from Jonathan H. Bartley dated January 25, 2013

SUBJECT: OCONEE NUCLEAR STATION - NRC INTEGRATED INSPECTION REPORT  
05000269/2012005, 05000270/2012005, 05000287/2012005

Distribution w/encl:

C. Evans, RII

L. Douglas, 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 No: 05000269/2012005, 05000270/2012005, 05000287/2012005

Licensee: Duke Energy Carolinas, LLC

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

Location: Seneca, SC 29672

Dates: October 1, 2012, through December 31, 2012

Inspectors: K. Ellis, Senior Resident Inspector (Acting)  
G. Ottenberg, Resident Inspector  
M. Endress, Resident Inspector  
A. Sengupta (Section 1R08)  
A. Vargas-Mendez (Section 1R08)  
R. Carrion (Section 1R08)  
M. Meeks (Section 1R11)

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

Enclosure

## SUMMARY OF FINDINGS

IR 05000269/2012-005, 05000270/2012-005, 05000287/2012-005; 10/01/2012 – 12/31/2012; Oconee Nuclear Station Units 1, 2 and 3; Operability Determinations and Functionality Assessments

The report covered a three-month period of inspection by the resident inspectors and four Region-based reactor inspectors. One Severity Level IV (SL IV) non-cited violation (NCV) was identified. 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

- An NRC-identified Severity Level IV non-cited violation was identified when the licensee did not update the Updated Final Safety Analysis Report (UFSAR) with information developed in response to Generic Letter (GL) 83-28. The UFSAR was not updated to indicate all non-safety structures, systems, and components (SSCs) used for mitigation of FSAR Chapter 15 events. The licensee initiated corrective actions to update the UFSAR.

The failure to update the UFSAR as required by 10 CFR 50.71(e) was a performance deficiency (PD). This PD was evaluated using traditional enforcement because the failure to update the UFSAR hinders the NRC's ability to perform its regulatory function. The violation was determined to be a SL-IV violation using Section 6.1.d.3 of the NRC's Enforcement Policy. Cross-cutting aspects are not assigned to traditional enforcement violations. (Section 1R15)

Enclosure

## REPORT DETAILS

### Summary of Plant Status

Unit 1 began the inspection period at approximately 100 percent rated thermal power (RTP). The unit was shutdown for a planned refueling outage on October 26, 2012. The unit returned to 100 percent RTP on December 2, 2012, and remained there for the rest of the inspection period.

Unit 2 operated at approximately 100 percent RTP for the inspection period except for brief periods during routine testing.

Unit 3 operated at approximately 100 percent RTP for the inspection period except for brief periods during routine testing.

#### 1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

#### 1R01 Adverse Weather Protection

##### a. Inspection Scope

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

External Flooding: The inspectors performed conducted the following walkdown to evaluate the plant's readiness to cope with external flooding.

- A walkdown of measures identified in CAL 2-10-003, "Confirmatory Action Letter-Oconee Nuclear Station, Units 1, 2, and 3 Commitments to Address External Flooding Concerns (TAC Nos. ME3065, ME3066, and ME 3067)" was performed on October 15, 2012, to ensure the measures were available and in place.

##### b. Findings

No findings were identified.

Enclosure



## 1R04 Equipment Alignment

### a. Inspection Scope

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

- Units 1 and 2 Spent Fuel Pool Cooling System prior to Unit 1 core offload during refueling outage
- 3B Low Pressure Injection (LPI) train prior to 3A LPI pump test
- Protection of designated equipment and areas during removal of the 1DIC Panelboard

Full System Walkdown: The inspectors performed a complete walkdown of the Unit 1 LPI system. The inspectors reviewed applicable operating procedures and flow diagrams and walked down system components; including pumps, valves, and breakers, to determine the system was in an appropriate alignment to provide decay heat removal during and following refueling. Selected portions of support systems, including the Low Pressure Service Water (LPSW) system and Borated Water Storage Tank piping, were also reviewed to determine appropriate alignment. Pipe hangers and snubbers were observed to ensure there was no damage to the equipment or interferences that would restrict their movement. The inspectors reviewed protected equipment requirements and verified applicable station requirements were being met. Open work orders and work requests were reviewed to determine their overall impact on the Unit 1 LPI system. The Unit 1 LPI system health report was reviewed to ensure items being tracked by engineering were being addressed as appropriate. Items entered into the CAP were also reviewed to ensure alignment issues were being entered.

### b. Findings

No findings were identified.

## 1R05 Fire Protection

### a. Inspection Scope

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

- Units 1, 2, and 3 Equipment Rooms
- Units 1 and 2 High Pressure Injection (HPI) Pump Rooms
- Unit 1 Reactor Building
- Unit 2 East and West Penetration Rooms

### b. Findings

No findings were identified.

## 1R06 Flood Protection Measures

### a. Inspection Scope

Submerged or Buried Cable Inspection: The inspectors inspected the condition of the following cable trench 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.

- Unit 1 Standby Shutdown Facility (SSF) Trench

### b. Findings

No findings were identified.

## 1R07 Heat Sink Performance

### a. Inspection Scope

Annual Review: The inspectors observed the performance of eddy current testing for the Unit 1 1A LPI Cooler to verify the cooler had no unacceptably degraded tubes due to erosion or wear and ensured there were no obstructed or inaccessible tubes. The inspection acceptance criteria were compared to established calculations to determine if the criteria were appropriate. The inspectors compared the results of the performed test

to previous results to determine if there were any negative trends in tube conditions. The inspectors also verified the licensee was using the cooler testing method outlined in applicable guidance documents as committed to in response to GL 89-13. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R08 Inservice Inspection (ISI) Activities

a. Inspection Scope

Non-Destructive Examination Activities and Welding Activities: The inspectors conducted a review of the implementation of the licensee's ISI Program for monitoring degradation of the reactor coolant system, emergency feedwater systems, risk-significant piping and components, and containment systems in Unit 1. The inspectors' activities included a review of non-destructive examinations (NDE) 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, 4<sup>th</sup> Interval, 3<sup>rd</sup> Period), and to verify that indications and defects (if present) were appropriately evaluated and dispositioned in accordance with the requirements of the ASME Code, Section XI, acceptance standards.

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

- Ultrasonic Examination (UT) of (10-year ISI of Reactor vessel, automated) Nozzles, Work Order # 01981964

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

- UT of Nozzle to Safe end weld (G12.2), Work Order # 2032215
- UT of Pipe to Elbow Weld No. C-F-1/C5.11, Work Order # 1989258
- Visual Examination (VT-3) of Reactor Vessel Support Skirt (IWF), Work Order # 1985270
- Visual Examination (VT-3) of Reactor Vessel Support Skirt (IWF), Work Order # 98406065-1
- Visual Examination (VT-1) of Containment Surface, Work Order # 01989110
- Visual Examination (VT-1) of Bolted Connections, Work Order # 01899116-15

- Radiographic Examination of Pipe to Valve 1HP140, Work Order # 01942734-85
- Liquid Penetrant Examination of Pipe to Safe End Weld No. B-J/B 9.21, Work Order # 1981645

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

The inspectors observed and reviewed the following pressure boundary welds completed for risk-significant systems during the Unit 1 refuelling outage to evaluate if the licensee applied the preservice non-destructive examinations and acceptance criteria required by the 1969 B31.7 ASME 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 the Construction Code and Section IX of the ASME Code.

- Work Order # 01942734-25, Pipe to Valve 1HP140
- Work Order # 2022660, Modification of 1A1 RCP Seal Piping 1-HP-0381
- Work Order # 2022661, Modification of 1B2 RCP Seal Piping 1-HP-0378

PWR Vessel Upper Head Penetration (VUHP) Inspection Activities: The Unit 1 reactor head had been replaced during the 1EOC21 outage (Fall of 2003). Pursuant to 10 CFR 50.55a(g)(6)(ii)(D), a bare metal visual (BMV) examination is required every third refueling outage. Because a BMV examination was last completed during the Spring 2008 refueling outage (1EOC24), a BMV examination of the reactor head was planned for this outage (1EOC27). In addition, a volumetric examination of the reactor head was also planned for this outage. The inspectors verified compliance with the requirements contained in 10 CFR Part 50.55a(g)(6)(ii)(D) and Code Case N-729-1 by observing the data acquisition for the volumetric examination via an ultrasonic examination (contact time of flight diffraction (TOFD) technique) performed from the inside surface of the control rod drive mechanism (CRDM) penetration utilizing both axial and circumferentially oriented transducers. The inspectors also reviewed procedures used, held discussions with the personnel acquiring and interpreting the data, and reviewed personnel qualifications of the personnel involved in the activity. The inspectors reviewed the results of both the volumetric and the BMV examinations. These examinations were conducted to identify potential boric acid leaks from pressure-retaining components.

The licensee did not identify any volumetric indications in the reactor pressure vessel head (RPVH) penetration nozzles that have been analytically evaluated and accepted for continued service. However, the BMV examination did identify relevant surface conditions indicating possible leakage. Subsequent testing of samples taken of the observed white residue material proved to be negative for boron; therefore, there was no

leakage from the RCS. The reactor head was washed down to remove the white residue which had obstructed the examination surface and re-examined. No areas of degradation were identified.

The licensee did not identify any relevant indications that were accepted for continued service during the BMV and ultrasonic examinations. In addition, the licensee did not perform any welded repairs to vessel head penetrations since the beginning of the preceding Unit 1 refueling outage. Therefore, no NRC review was completed for these inspection procedure attributes.

Boric Acid Corrosion Control (BACC) Inspection Activities: The inspectors reviewed the licensee's BACC program activities to ensure compliance with commitments made in response to GL 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 Unit 1 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 CAP.

The inspectors reviewed several condition reports 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. Documents reviewed are listed in the Attachment.

The inspectors reviewed licensee evaluations of reactor coolant system components with boric acid deposits to evaluate if degraded components were documented in the CAP. The inspectors also evaluated PIP O-12-12287 for corrective actions for a degraded reactor coolant system component against ASME Section XI requirements.

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.
- 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
- 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

Enclosure

- Reviewed the licensee's implementation of their extent of condition inspection scope and repairs for new SG tube degradation mechanism(s). No new degradation mechanisms were identified during the EC examinations.
- Reviewed the licensee's repair criteria and processes
- Verified Primary-to-Secondary leakage (e.g., SG tube leakage) was below three gallons per day, or the detection threshold, during the previous operating cycle according to site procedures
- 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.
- Reviewed ET personnel qualifications

Problem Identification and Resolution: The inspectors performed a review of a sample of ISI-related problems which were identified by the licensee and entered into the CAP to confirm that the licensee had appropriately described the scope of the problem, and had initiated corrective actions. The review also included the licensee's consideration and assessment of operating experience events applicable to the plant. The inspectors performed this review to ensure compliance with 10CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program and Licensed Operator Performance

a. Inspection Scope

Annual Review of Licensee Regualification Examination Results: On April 10, 2012, the licensee completed the annual regualification operating examinations required to be administered to all licensed operators in accordance with 10 CFR 55.59(a)(2). The inspectors performed an in-office review of the overall pass/fail results of the individual operating examinations and the crew simulator operating examinations in accordance with IP 71111.11, Licensed Operator Regualification Program. These results were compared to the thresholds established in IMC 0609, Significance Determination Process, Appendix I, Operator Regualification Human Performance Significance Determination Process, effective January 1, 2012.

Routine Operator Regualification Review: On October 16, 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

Enclosure

in accordance with station procedures. The inspectors observed a shift crew's response to the scenario listed below. Documents reviewed are listed in the Attachment.

- Earthquake coincident with a single control rod drop and a steam generator tube leak. A second control rod dropped forcing the crew to manually trip the reactor and enter in to the Emergency Operating Procedures. Additionally, the main feed pumps tripped.

Observation of Operator Performance: The inspectors observed main control room crew performance during the Unit 1 reactor shutdown for a planned refueling outage on October 26, 2012, and during a reactor coolant system drain evolution to a lowered inventory condition on October 29, 2012. On October 26, the inspectors reviewed the operator performance and adherence to the operating procedures for reducing power, removing a main feedwater pump from service, removing load from the unit's main turbine, and entering Mode 3. On October 29, the inspectors verified the operating crew satisfied all prerequisites for the drain evolution and that a thorough pre-job brief was performed. Operator adherence to the procedure for performing the drain-down was also observed. Operator response to main control room annunciators was evaluated during the observation to ensure the operators were referencing appropriate procedures. Communication among the crew was evaluated for conformance to the licensee's standard.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the licensee's effectiveness in performing the following two corrective maintenance activities. These reviews included an assessment of the licensee's practices pertaining to the identification, scoping, and handling of degraded equipment conditions, as well as common cause failure evaluations. For each activity selected, the inspectors performed a detailed review of the problem history and surrounding circumstances, evaluated the extent of condition reviews as required, and reviewed the generic implications of the equipment and/or work practice problem. For those 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.

- Unit 1 main steam system a(1) action plan
- Noise discovered coming from Unit 2 Turbine Driven Emergency Feedwater Pump (TDEFWP) Outboard Bearing

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.

- Emergent risk assessment and management in response to potentially unavailable power operated relief valves on all three units on November 6, 2012
- Review of Unit 1 Startup with SSF Inoperable Complex Activity Plan
- Review of Complex Activity Plan associated with HPSW-22 Valve Replacement
- Review of the Unit 1 2012 refueling outage Risk Assessment Report
- Review of risk assessment for a SSF Outage after the latest revision of the risk assessment tool was issued

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessmentsa. Inspection Scope

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

- PIP O-12-10969, Information needed for assessment O-ENG-SA-12-14 regarding Switchgear Blockhouse Heat Loads/Temperature
- PIP O-05-1114, Unit 3 Control Room Air Conditioning System is not single failure proof as stated in the UFSAR.
- PIP O-12-10975, The design-qualified temperature and pressure of the SFP liner plate, regarding pool temperature in SSF events, is not documented
- PIP O-12-11806, Noise discovered coming from Unit 2 TDEFW Pump



- PIP O-12-12137, HPI & LPI pump motors use lubrications that differ from those specified in EQMM
- PIP O-12-12840, The DC voltage required to actuate PORV solenoid is greater than the available voltage at the solenoid during a design basis event
- PIP O-12-13997, Actuation of RC-66 PORV was not included as an input to the SBO analysis model

b. Findings

Introduction: An NRC-identified SL-IV NCV was identified when the licensee did not update the UFSAR with information developed in response to GL 83-28. The UFSAR was not updated to indicate all non-safety SSCs used for mitigation of UFSAR Chapter 15 events.

Description: The inspectors reviewed the April 12, 1995, licensee submittal in response to GL 83-28, Oconee QA-1 Licensing Basis and Generic Letter 83-28, Section 2.2.1, Subpart 1 Supplemental Response, and the Oconee UFSAR Section 15.1.9, Credit for Control Systems and Non-Safety Components and Systems, and noted that certain non-safety related systems and components were not identified in the UFSAR as non-safety related equipment that were credited to mitigate QA-5 events. QA-5 events were those events listed in Chapter 15 and loss of lake, loss of intake structure, tornado, loss of control room habitability, low temperature/overpressure, loss of decay heat removal, loss of offsite power, turbine trip, and loss of main feedwater events. The submittal provided the licensee's position on Non QA-1 SSCs which were used to mitigate accidents. In Attachment 4 of the submittal the licensee stated, in part, there were non QA-1 SSCs at Oconee used to mitigate accidents and that these SSCs warrant coverage under an augmented quality assurance program. The licensee further stated the QA-5 program would include any non QA-1 SSC that performed a primary critical safety function or primary support function during a QA-5 accident/event. The information developed by the licensee was not fully incorporated into the Oconee UFSAR after the SSCs to be included under the QA-5 designation was identified by the licensee. An example of such equipment includes control room air conditioning. This system was required for any event where the control room remains occupied which includes all Oconee Chapter 15 events.

The Oconee FSAR was developed in accordance with the Atomic Energy Commission's (AEC) "A Guide for the Organization of Contents of Safety Analysis Reports." Section XIV- Safety Analysis of this document stated "... individual system and component designs should be evaluated for effects of anticipated process disturbances and for susceptibility to component malfunction or failure." Section IX- Auxiliary and Emergency Systems, which included area cooling systems, stated "... information to be presented in this section should emphasize those systems in which component malfunctions, inadvertent interruptions of system operation, or a complete system failure may lead to a hazardous or unsafe condition." The failure to update the UFSAR with this information had a material impact on safety or licensed activities because equipment that was used to mitigate UFSAR analyzed events was not identified and the absence of the

information could have hindered the licensee's ability to perform 10 CFR 50.59 evaluations and the NRC's ability to perform license amendment reviews and inspections.

Analysis: The failure to update the UFSAR as required by 10 CFR 50.71(e) was a PD. This PD was evaluated using traditional enforcement because the failure to update the UFSAR hinders the NRC's ability to perform its regulatory function. The violation was determined to be a SL-IV violation using Section 6.1.d.3 of the NRC's Enforcement Policy. Cross-cutting aspects are not assigned to traditional enforcement violations.

Enforcement: 10 CFR 50.71(e) required, in part, that licensees shall update periodically the FSAR originally submitted to assure that the information included in the report contains the latest information developed and contains all the changes necessary to reflect information and analyses submitted to the Commission by the licensee or prepared by the licensee pursuant to Commission requirement since the submittal of the last update to the UFSAR. Contrary to the above, from April 9, 1998, to present, the UFSAR was not updated to include the latest information developed and did not contain all the changes necessary to reflect information submitted to the Commission by the licensee since the submittal of the last update to the UFSAR. UFSAR changes to identify the non-QA equipment used to mitigate UFSAR Chapter 15 events were not made. The licensee initiated corrective actions to update the UFSAR based on the results of their cause analysis. This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was a SL-IV violation and was entered into the licensee's CAP as PIP O-12-14345 and is identified as NCV 05000269, 270, 287/2012005-01, Failure to Update the UFSAR to Include Non-Safety Related Equipment Credited for Accident Mitigation.

#### 1R18 Plant Modifications

##### a. Inspection Scope

The inspectors reviewed the following temporary 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. The restorative modification to replace the valve and remove the temporary modification was also reviewed for these attributes. Documents reviewed are listed in the Attachment.

EC 108697, Temp Mod- Install/Remove Housekeeping Leak Repair for 1RC IV0162

##### 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.

- Unit 1 “A” LPI Pump Test following planned “A” train maintenance
- Unit 1 & 2 LPSW System Hydro following repair work on LPSW-27 piping
- 1DIC Panel Functional Test following repair to breaker 1DIC-22
- Unit 3 3A Control Room Booster Fan Filter Test
- Emergency Power Switching Logic Functional Test following relay modification on the Unit 1 startup transformer

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activitiesa. Inspection Scope

Unit 1 Refueling Outage: The inspectors evaluated licensee outage activities associated with the Unit 1 refueling outage 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). The inspectors reviewed licensee work schedules to ensure the licensee was appropriately managing worker fatigue. The inspectors conducted portions of the following activities associated with the refueling outage. Documents reviewed are listed in the Attachment.

- Attended the pre-outage schedule and risk assessment meetings for the refueling outage.
- Reviewed the licensee’s Integrated Risk Profile for the refueling outage

- Observed power reduction process, removing the reactor from service and portions of the cooldown to ensure that the requirements in the TS and Selected Licensee Commitments were followed
- Conducted a containment entry once Mode 3 had been reached to observe the condition of major, normally-inaccessible equipment and check for indications of previously unidentified leakage from the reactor coolant system including the reactor vessel upper and bottom head penetrations
- Observed pre-job briefings and execution of evolutions that included lowering reactor coolant (NC) inventory to support reactor head removal with high decay heat conditions and cold mid-loop, reactor head and plenum removal, main feeder bus removal, reactor defueling and refueling activities and achieving criticality.
- 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 of the reactor vessel head assembly to ensure the lift was conducted in accordance the station procedures and heavy lift guidance
- Periodically reviewed the setting and maintenance of containment integrity to establish that the NC system 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 with Reactor Engineering personnel 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 after the licensee completed their closeout inspection prior to restart
- Observed the approach to criticality, placing the main generator on-line which completed the refueling outage and portions of the power ascension activities.
- 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 waiver requests, self declarations and fatigue assessments to verify the licensee is managing fatigue
- 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

b. Findings

No findings were identified.

1R22 Surveillance Testinga. Inspection Scope

The inspectors either witnessed and/or reviewed test data for the six 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

- PT/0/A/0620/009, Keowee Hydro Operation
- PT/0/A/0600/021, Standby Shutdown Facility Diesel-Generator Operation
- PT/0/A/0711/001, Zero Power Physics Test

In-Service Tests

- PT/1/A/0251/001, Low Pressure Service Water Pump Test

Containment Isolation Valve Testing

- PT/1/A/0151/005 A, Penetration 5A Leak Rate Test
- PT/1/A/0151/029, Penetration 29 Leak Rate Test

b. Findings

No findings were identified.

1EP4 Emergency Action Level and Emergency Plan Changesa. Inspection Scope

The NSIR headquarters staff performed an in-office review of the latest revisions of various Emergency Plan Implementing Procedures and the Emergency Plan listed in the Attachment. The licensee determined that in accordance with 10 CFR 50.54(q), the changes made in the revisions resulted in no reduction in the effectiveness of the Plan, and that the revised Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection. This inspection activity satisfied one inspection sample for the emergency action level and emergency plan changes on an annual basis.

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 six 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 6. Documents reviewed are listed in the Attachment.

###### Cornerstone: Mitigating System

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

For the period of October 1, 2011, to September 30, 2012, the inspectors reviewed operating logs, train unavailability data, maintenance records, maintenance rule data, PIPs, Consolidated Derivation Entry reports and system health reports to verify the accuracy of the data reported for each PI.

###### b. Findings

No findings were identified.

##### 4OA2 Problem Identification and Resolution

###### .1 Daily Screening of Corrective Action Reports

In accordance with Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed daily screening of items entered into the licensee's CAP. This review was accomplished by reviewing copies of PIPs, attending daily screening meetings, and accessing the licensee's computerized database.

###### .2 Annual Sample

The inspectors reviewed the licensee's completed and planned corrective actions in response to NRC identified non-cited violation, NCV 2010004-03, "EQ Components Not Installed in the As- Qualified Configuration." The inspectors evaluated the PIP against the requirements of the licensee's corrective action program and 10 CFR 50, Appendix B. The inspectors evaluated the timeliness of the licensee's planned corrective actions with respect to the safety significance of the operable but non-conforming condition. Engineering change requests were reviewed to determine the appropriateness of the planned modifications to remove the non-conforming condition. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.3 Semi-annual Trend Review

a. Inspection Scope

As required by IP 71152, Identification and Resolution of problems, the inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screenings discussed in section 4OA2.1 above, licensee trending efforts, licensee human performance results and inspector observations made during in-plant inspections and walk-downs. The inspectors' review primarily considered the six-month period of July 2012 through December 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.

b. Observations and Findings

No findings were identified. In general, the licensee has identified trends and has appropriately addressed the trends in their CAP. Documents reviewed are listed in the Attachment.

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

.1 (Closed) Licensee Event Report (LER) 05000287/2012-001-00, 01: Three Main Steam Relief Valves Lift Pressure Exceeds +1% Tolerance:

On April 13, 2012, during performance of Unit 3 Main Steam Relief Valve (MSRV) testing to satisfy Technical Specification (TS) Surveillance Requirement (SR) 3.7.1.1, the as-found lift pressure for three valves was higher than allowed by SR 3.7.1.1. The remaining thirteen valves all met the SR. Immediate actions were taken to return the valves to their required pressure band. Guidance from NUREG 1022 characterizes the test failure of multiple MSRVs as an indicator that the valves likely exceeded their acceptance criteria during Unit 3 operation, and thus is considered an operation prohibited by TS. The appropriate action statement, TS 3.7.1 Condition A, was entered upon discovery of each out-of-specification lift pressure. The cause of the MSRV test failures was determined to be setpoint drift. Internal inspection of the valves did not reveal signs of actual binding. The inspectors verified the accuracy of the LER, the

appropriateness of completed and planned corrective actions, and reviewed the licensee's root cause evaluation. No PDs were identified. The licensee entered this issue into their CAP as PIP O-12-4008.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

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

b. Findings

No findings were identified.

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

a. Inspection Scope

Inspectors conducted independent walkdowns to verify that the licensee completed the actions associated with the flood protection feature specified in paragraph 03.02.a.2 of this TI. Inspectors are performing walkdowns at all sites in response to a letter from the NRC to licensees, entitled "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012 (ADAMS Accession No. ML12053A340).

Enclosure 4 of the letter requested licensees to perform external flooding walkdowns using an NRC-endorsed walkdown methodology (ADAMS Accession No. ML12056A050). Nuclear Energy Industry (NEI) document 12-07 titled, "Guidelines for Performing Verification Walkdowns of Plant Protection Features," (ADAMS Accession No. ML12173A215) provided the NRC-endorsed methodology for assessing external flood protection and mitigation capabilities to verify that plant features, credited in the CLB for protection and mitigation from external flood events, and are available, functional, and properly maintained.



b. Findings

Any findings or violations associated with this TI will be documented in the 2013 1st quarter integrated inspection report.

.3 (Closed) Temporary Instruction 2515/188, Inspection of Near Term Task Force Recommendation 2.3 Seismic Walkdowns

a. Inspection Scope

The inspectors accompanied the licensee on their seismic walkdowns of the Unit 2 west penetration room, Unit 2 turbine building elevation 796 ft, essential siphon vacuum (ESV) building, and 230 kV switchyard relay house and verified that the licensee confirmed that the following seismic features associated with the Unit 2 emergency feedwater injection valve, 2FDW-316; Unit 2 automatic feedwater isolation system analog channel 3 2A steam generator header pressure instrument, 2MSPT1006; Unit 3 ESV local control panel, 3ESVPL0001, switchyard distribution center 1, 0SYDPLSYDC1, and Unit 1 ESFAS even/odd termination cabinet, 1ESCA1ESTC3 were free of potentially adverse seismic conditions in the bulleted list below.

From October 16-17, 2012, the inspectors independently performed their walkdown of the Keowee Battery Rack Room, Keowee Control Room, Unit 1 Turbine Building Basement Floor, and Unit 2 Turbine Building 6<sup>th</sup> floor and verified that the licensee confirmed that the following seismic features associated with the Keowee Control Logic Cabinet 1, Keowee Battery Rack 01, 1A Motor Driven Emergency Feed Water Pump (MDEFWP) and the Unit 2 Upper Surge Tank, were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing or loose hardware; more than mild surface corrosion; and cracks in the concrete near the anchors
- Anchorage configuration was consistent with plant documentation
- SSCs will not be damaged by impact from nearby equipment or structures.
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment
- Attached lines have adequate flexibility to avoid damage
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area, cause a fire in the area, or potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding)

Additionally, inspectors verified that items that could allow the spent fuel pool to drain down rapidly were added to the Seismic Walkdown Equipment List (SWEL) and these items were walked down by the licensee.

b. Findings and Observations

No findings were identified. Observations made during the walkdown that could not be determined to be acceptable were entered into the licensee's CAP for evaluation.

.4 (Closed) VIO 2011008-001: Failure to Promptly Identify and Correct a Condition Adverse to Quality Involving the Environmental Qualification of Limitorque Valve Actuators:

On January 26, 2012, the NRC issued a NOV for failure to establish measures to assure that a condition adverse to quality, identified by the NRC in NCV 2010004-03, was promptly identified and corrected. Specifically, the licensee missed reasonable opportunities during each Unit's refueling outage to confirm the population of Limitorque actuators that were potentially installed in an unqualified configuration in order to properly assess the extent of the non-conforming condition discussed in NCV 2010004-003 and take appropriate corrective actions. This violation was entered into the licensee's corrective action program as PIP O-11-15055. The licensee took action to identify the valves installed in an unqualified configuration and restore compliance. The inspectors confirmed through a sampled review of field observation that valves from Unit 3 and Unit 1 were restored to compliance and review of the EC package and planning documents that a similar plan was generated for Unit 2 to restore compliance. No performance deficiencies were identified.

4OA6 Management Meetings (Including Exit Meeting)

Exit Meeting Summary

On January 9, 2013, the resident inspectors presented the inspection results to Mr. T. Preston Gillespie, Jr. and other members of licensee management. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTARY INFORMATION

Enclosure

## SUPPLEMENTARY INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

K. Alter, Regulatory Compliance Manager  
A. Best, Boric Acid Program  
S. Boggs, Emergency Services Coordinator  
E. Burchfield, Engineering Manager  
T. Cheslak; Oconee Fire Protection Engineer  
R. Doss, 10-Year Vessel ISI  
P. Downing, Steam Generator Maintenance & Engineering Manager  
J. Eaton, ISI/NDE Coordinator  
P. Fisk; Superintendent of Operations  
H. Galloway, License Renewal  
P. Gillespie, Site Vice President  
R. Guy, Organization Effectiveness Manager  
C. Henson, Welding Engineer  
M. Hurley, Principal Engineer, Steam Generators  
T. King, Security Manager  
A. Loffi, Duke - Construction  
T. Patterson, Safety Assurance Manager  
S. Perry, Regulatory Affairs  
J. Pounds, OMP Tornado/HELB QA Oversight  
T. Ray, Station Manager  
F. Rickenbaker, OMP Manager  
D. Robinson, Radiation Protection Manager  
J. Smith, Regulatory Compliance  
P. Street, Emergency Planning Manager  
E. Swanson, License Renewal  
T. Tucker, NDE Level III, Corporate Programs  
A. Wells, Engineering Programs Supervisor

#### NRC

J. Boska, Project Manager, NRR

### LIST OF ITEMS OPENED, CLOSED, DISCUSSED AND UPDATED

#### Opened and Closed

05000269, 270, 287/2012005-01	NCV	Failure to Update the UFSAR to Include Non-Safety Related Equipment Credited for Accident Mitigation (Section 1R15)
-------------------------------	-----	---

#### Opened

None

Closed

05000269, 270, 287/2011008-01	VIO	Failure to Promptly Identify and Correct a Condition Adverse to Quality Involving the Environmental Qualification of Limitorque Valve Actuators (Section 4OA5.4)
05000287/2012-01-00, -01	LER	Three Main Steam Relief Valves Lift Pressure Exceeds +1 % Tolerance (Section 4OA3.1)
2515/188	TI	Inspection of Near-Term Task Force Recommendation 2.3 Seismic Walkdowns (Section 4OA5.3)

Discussed

2515/187	TI	Inspection of Near-Term Task Force Recommendation 2.3 Flooding Walkdowns (Section 4OA5.2)
----------	----	---

**LIST OF DOCUMENTS REVIEWED****Section 1R01: Adverse Weather Protection**

PIP O-12-13381, Turbine Building Dampers between B-39 and B-40 found out of position.  
 WO 02041615, U1 Ck Process H. Trace in the Auxiliary Bldg  
 WO 02037634, U2 Ck Process H. Trace in the Auxiliary Bldg  
 WO 02063530, U3 Ck Process H. Trace in the Auxiliary Bldg  
 PIP 12-13719, Freeze Protection issue due to pipe trench to U3 Turbine Building open to outside  
 PT/0/A/01110/017, Cold Weather Protection, Rev. 6  
 OP/0/A/1106/041, Turbine Building Ventilation, Rev. 0  
 OP/0/A/1104/041, Auxiliary Building Ventilation, Rev. 37  
 OP/0/B/1104/050, Weather Related Activities, Rev. 3  
 IP/0/B/1606/009, Preventive Maintenance and Operational Check of Freeze Protection, Rev. 32  
 MP/0/B/3007/059, Plant Heater-Testing, Rev. 6

**Section 1R04: Equipment Alignment**

OP/1-2/A/1104/006, SF Cooling System, Rev. 95  
 OFD-104A-1.1, Flow Diagram of Spent Fuel Cooling System, Rev. 51  
 OFD-104A-1.2, Flow Diagram of Spent Fuel Cooling System (Purification Loop), Rev. 19  
 OFD-104A-1.3, Flow Diagram of Spent Fuel Cooling System Reverse osmosis Portion, Rev. 2  
 UFSAR Section 6.3.2.2.2, Low Pressure Injection System  
 OP/1/A/1104/004, Low Pressure Injection System, Rev. 142  
 Low Pressure Injection System Health Reports for 2012  
 PIP O-12-12086, Seating Surface Imperfections on 1A LPI Cooler Flange  
 PIP O-12-12453, Unit 1 LPI System Anomalies  
 PIP O-12-13367, 1B LPI Pump Comprehensive Test D/P Data Required to be Re-Performed  
 OFD-102A-1.1, Flow Diagram of Low Pressure Injection System (LPI Pump Suction), Rev. 63  
 OFD-102A-1.2, Flow Diagram of Low Pressure Injection System (LPI Pump Discharge), Rev. 52

OFD-102A-3.1, Flow Diagram of Low Pressure Injection System (Borated Water Supply and LPI Pump Suction), Rev. 59

OFD-102A-3.2, Flow Diagram of Low Pressure Injection System (LPI Pump Discharge), Rev. 40  
OP/3/A/1104/004, Low Pressure Injection System, Rev. 147

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

Fire Pre-plan, Zone 122, Unit 1 Reactor Building

MP/1/A/1705/032 E, Fire Extinguishers- Reactor Building- Monthly Inspection and Installation, Rev. 0

MP/1/A/1705/032 J, Fire Hose Stations- Unit 1- Reactor Building- SLC Related- Inspections, Rev. 0

O-310K, Sheet 07, Auxiliary and Reactor Building Unit 1, Fire Protection Plan, and Fire, Flood, and Pressure Boundaries Plan at el 796+6 and el 797+6, Rev. 10

IMP-ON-2012-02662, LPSW Isolated to U1 RB Fire Hose stations for outage work on 1LPSW-6 PIP O-12-14159, Combustible material in an exclusion zone

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

Eddy Current Inspection Report for LPI-1A, Outage 1EOC27, 10/25/2012

UFSAR Section 18.3.17.7, Decay Heat Cooler Tubing Evaluation, dated 12/31/2011

### **Section 1R08: Inservice Inspection (ISI) Activities**

#### PIPs

G-11-00978, G-12-01473, O-08-01395, O-10-10035, O-10-10035, O-11-00942, O-11-02974, O-11-03468, O-11-05684, O-11-06923, O-11-06970, O-11-07327, O-11-11124, O-11-11920, O-11-13150, O-12-03248, O-12-0496, O-12-08365, O-12-08494, O-12-08735, O-12-10157, O-12-11280, O-12-12259, O-12-12287, O-12-12635, O-12-12836, O-12-12943 O-12-13270, O-12-5178 , O-12-6991, O-12-7944

#### Drawings

Drawing # 40416, Duke UT Calibration Block#40416

Drawing # 7310-0077, UT Calibration Block Mark #SI-4-CIRC-02 "AS-BUILT" Drawing

Drawing # 02-8050780C, Oconee Units 1, 2, & 3 RVCH UT Coverage, Revision 000

Drawing # 02-8056854D, 10-Year Inlet Nozzle (Areva), Rev. 1

Drawing # 02-8056854D, 10-Year Reactor Vessel ISI 2012 Logistics (Areva), Revision 1

Drawing # 02-8056854D, 10-Year Outlet Nozzle (Areva), Revision 1

Drawing # ISI-OCN1-001, Reactor Vessel Weld Outline, Revision 1

Drawing # 0-0438-100950-01, ISO Piping Layout Replacement of 1HP-139 and 1HP-140, Revision 1

Drawing # OFD-101A-1.4, Flow Diagram of High Pressure Injection System (Charging Section), Revision 39E

Drawing # 1-HP-0187, High Pressure Inspection System for Reactor Coolant Pump Seal Supply Filters to Reactor Pump seal Injection Lines, Revision 5

### **NDE Personnel Qualifications**

Visual, ID # 270300

UT, ID # 9142394

Visual, ID # 244415

UT, ID # 5930529

PT, ID # 51162  
 Visual, ID # 51162  
 PT, ID # 29193  
 Visual, ID # 29193  
 UT, ID # B4401  
 UT, ID # 5953  
 Visual, ID 263470  
 VT-3, ID # 1290  
 VT-1, ID # 1290  
 VT-3, ID # 9810  
 VT-1, ID # 9810  
 ECT, A. Merhs  
 ECT, G. Crumbpaker

#### Welding Personnel Qualifications

Welder ID # W3983, A2437, B8673, C7482, H9712, R1640, M3845, O8325

#### Material and Test Equipment Calibrations

Infrared Thermometer Serial # 122336630  
 Infrared Thermometer Serial # 12233611  
 Infrared Thermometer, Serial # 13790042  
 UT Instrument, Serial # 001WVY, Batch # 11225  
 Transducer, Serial # 01065Y  
 Ultrigel II, Batch #11225  
 Developer, Batch # 10H13K  
 Cleaner, Batch # 11F08K

#### Procedures

54-ISI-801-02, Automated Ultrasonic Examination of PWR Vessel Shell Welds (Areva),  
 Revision 2  
 NDE-35, Liquid Penetrant Examination, Revision 34  
 MP/O/A/8140/001, QA and Non-QA Welding, Revision 2  
 SM/O/A/8140/004, Preheat and Post Weld Heat Treatment for Welds, Revision 4  
 NSD 400, Nuclear Generation Welding Program, Revision 7  
 NDE-10, Radiography Procedure, Revision 25  
 NDE-66, Visual Exam (VT-3) of Hangers, Restraints, Supports and Snubbers, Revision. 7  
 NSD-322, Boric Acid Corrosion Control Programs, (BACCP), Revision 6  
 MP/O/A/1800/132, Inspection and Cleanup of Boric Acid on Plant Materials, Revision 7  
 PDI-UT-2, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds,  
 Revision E  
 S000030-WKP-000006, Oconee 1EOC27 1A Secondary Side Inspection Activities Inspection  
 and Testing Plan, Rev. 001  
 S000030-WKP-000005, Oconee 1EOC27 1B Secondary Side Inspection Activities Inspection  
 and Testing Plan, Rev. 000

Other Documents

2009MCE07, Boric Acid Corrosion Control Program and Walkdown Effectiveness Examination Summary Sheet of the CRDM penetrations of the Unit 1 Reactor Head  
 Qualification records for AREVA personnel conducting the UT on the CRDM penetrations of the reactor head  
 PQR L-128A, Revision 1  
 PQR L-109, Revision 1  
 WPS GTSM0808-01, Revision 11  
 ONS 1EOC 26, Condition Monitoring Operational Assessment  
 ONS 1EOC 26, Secondary Side Integrity Plan

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

OP/1/A/1103/011, Draining and Nitrogen Purging the RCS, Rev. 85  
 91-01 Activity Plan, 91-01 Activity- Dropping RCS Loops and Draining RxV to 80" on LT-5  
 OMP 1-24, Operations Communication Standards, Rev. 14

**Section 1R12: Maintenance Effectiveness**

PIP O-11-11421, O-11-05009, O-12-09546, O-12-11806  
 PT/2/A/0600/012, Turbine Driven Emergency Feedwater Pump Test, Rev. 89

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

NSD-213, Risk Management Process, Rev. 11  
 NSD-403, Shutdown Risk Management (Modes 4, 5, 6, and No-Mode) per 10 CFR 50.65 (a)(4), Rev. 27  
 NSD-415, Operational Risk Management (Modes 1-3) per 10 CFR 50.65 (a)(4), Rev. 7

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

Operating Experience Smart Sample (OpESS ) 2012/02, Technical Specification Interpretation and Operability Determination  
 NRC Inspection Manual, Part 9900: Technical Guidance, Operability Determinations and Functionality Assessments for Resolution of Degraded or Nonconforming Conditions Adverse to Quality or Safety, dated April 16, 2008  
 OSC-7183, Control Room Area Cooling System (CRACS) Single Failure Analysis, Rev. 1  
 OFD-116J-3.1, Flow Diagram of Control Room Air Conditioning System (VS) 3<sup>rd</sup> and 4<sup>th</sup> Floors, Rev. 4  
 OFD-116J-3.2, Flow Diagram of Control Room Air Conditioning System (VS) 5<sup>th</sup> and 6<sup>th</sup> Floors, Rev. 12  
 OFD-116J-3.3, Flow Diagram of Chilled Water (WC) System Chilled Water Supply and Return, Rev. 7  
 UFSAR Section 9.4, Air Conditioning, Heating, Cooling and Ventilation Systems, dated December 31, 2011.  
 10 CFR 50.59 Screen, AP/3/A/1700/036 Revision 002 Change- Degraded Control Room Area Cooling, dated March 8, 2005  
 Safety Evaluation by the Office of Nuclear Reactor Regulation NUREG-0737, Item III.D.3.4, "Control Room Habitability," dated November 24, 1986.  
 PT/2/A/0600/012 Revision 89, Turbine Driven Emergency Feedwater Pump Test

UFSAR Section 10.4.7.2.2, Turbine Driven Emergency Feedwater Pump, dated December 31, 2011

OM-314-317-003, Motor Lubricant Qualification Information, Rev. 1

EQMM-1393.01-G04-00, Environmental Qualification Maintenance Manual for Westinghouse Motors, Rev. 13

PIPs O-12-11957, O-12-11161, O-12-14191, O-12-14012, O-12-12040, O-12-12689, O-12-12428

### **Section 1R18: Plant Modifications**

EC 108749, Replace 1RC-IV-162 Pressurizer Level Lower Tap IRV Valve

O-422BB-4, Pressurizer Level Transmitter Unit 1, Rev. 24

WO 02053656, EC 108749- Replace 1", Class A, 1RC-IV-162 with (09J-2053)

SD 2.1.9, ASME Section XI Repair/Replacement, Rev. 3

A/R 00410479, 10 CFR 50.59 Screening

OSS-0060.00-00-0001, Instrumentation and Controls Field Installation Standards, Rev. 24

DPM-1226.000001-001, ANSI/ASME Code Reconciliation for Replacement Material, Parts, and Components, Rev. 10

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

WO 02047907, 1LP-21 Perform Mech/Elec P.M. on Operator

PT/1/A/0203/006A, Low Pressure Injection Pump Test- recirculation, Rev. 88

IP/0/A/3001/001, Limitorque Preventive Maintenance, Rev. 80

IP/0/A/3001/001B, Restoration and Functional Verification of Motor Operated Valves, Rev. 2

MP/0/A/1720/010, System/Component Hydrostatic Test Controlling Procedure, Rev. 33

WO 0205724, LPSW-24 Piping Repair

O-ISIN-124A-1.1, ASME Section XI Inservice Inspection NDE Boundary of Low Pressure Service Water System Turbine Bldg., Rev. 3

IP/0/A/3011/015, Removal and Replacement of Motor Control Center, Panelboards, and Remote Starter Components, Rev. 27

IP/1/A/1107/022C, 1DIC Power Panelboard Restoration, Rev. 3

WO 02005898, Perform Functional Test on 1EL-BK-1DIC22

PT/1/A/0610/001J, Emergency Power Switching Logic Functional Test, Rev. 45

PT/3/A/0110/005A, Control Room Filter System Test, Rev. 30

PT/0/A/0110/002, HEPA and Carbon Filter Leakage Test, Rev. 1

PIP O-12-14290

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

MP/0/A/1500/030, Fuel Transfer System Operation, Rev. 2

MP/0/A/1500/028, Spent Fuel Pool Bridge Operation, Rev. 0

MP/0/A/1150/002, Reactor Vessel- Closure Head- Removal, Rev. 54

OP/0/A/1108/001, Curves and General Information, Rev. 98

OP/1/A/1102/004, Operation at Power, Rev. 137

OP/1/A/1102/010, Controlling Procedure for Unit Shutdown, Rev. 211

OP/1/A/1103/011, Draining and Nitrogen Purging the RCS, Rev. 85

OP/1/A/1106/001, Turbine Generator, Rev. 122

OP/1/A/1502/009, Containment Closure Control, Rev. 41

OP/1/A/1102/001, Controlling Procedure for Unit Startup, Rev. 296

PT/0/A/0750/017, Defueling Activities, Rev. 19



91-01 Activity Plan, Reduced Inventory- Drain RCS to Remove Nozzle Dams  
 Letter dated January 3, 1989, Generic Letter 88-17, Loss of Decay Heat Removal  
 Letter dated February 2, 1989, Generic Letter 88-17, Loss of Decay Heat Removal  
 PIPs O-12-12577, O-12-13709, O-12-13770, O-12-14050, O-12-14051

**Section 1R22: Surveillance Testing**

PT/0/A/0711/001, Zero Power Physics Test, Rev. 64  
 PT/1-2/A/0251/030, LPSW Pump Packing Seal Water Regulator Pressure Setup, Rev. 10  
 OP/0/A/1600/010, Operation of the SSF Diesel-Generator, Rev. 73  
 PT/0/A/0600/023, SSF Fuel Oil Inventory, Rev. 6

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Oconee Nuclear Station Emergency Plan, Revision 2012-02  
 RP/0/B/1000/001, Emergency Classification, Revision 31  
 SR/0/B/2000/003, Activation of the Emergency Operations Facility, Revision 25

**Section 4OA1: Performance Indicator Verification**

MSPI Basis Document, Rev 14  
 Oconee Unit 1 MSPI Derivation Report  
 Oconee Unit 2 MSPI Derivation Report  
 Oconee Unit 3 MSPI Derivation Report

**Section 4OA2: Problem Identification & Resolution**

PIP O-10-08398, Proposed violation of 10 CFR 50.49f.  
 PIP O-10-01383, The Environmental Qualification of the newly installed (since 2002) Conax  
 Electrical Penetration Assemblies (EPAs), their junction boxes, and their terminal blocks has  
 been brought into question.  
 ECR 05825, 1RX PN EC03- Replace Outside Enclosure and Terminations with Conax (Kulka  
 Terminal Blocks) in order to resolve NRC violation  
 ECR 05828, 3RX PN WA03- Replace Outside Enclosure and Terminations with Conax (Kulka  
 Terminal Blocks) in order to resolve NRC violation  
 Letter dated February 8, 2007, Oconee Nuclear Station Units 1, 2, and 3 High Energy Line  
 Break Mitigation Strategies

**Section 4OA5: Other Activities**

O-PDF-0003, PMP Rainfall Event Flood Barriers, Rev. A  
 Oconee Nuclear Station Local Flooding Analysis Hydraulic Modeling Report, November 2012  
 CAL 2-10-003, ONS Commitments to Address External Flooding Concerns  
 AP/0/A/1700/047, External Flood Mitigation, Rev. 7  
 OSC-10781, Fukushima 10 CFR 50.54(f) NTTF 2.3 Flood Walkdown Report, Rev.0  
 PIPs O-12-13942, O-13-330, O-12-10967, O-12-10968, O-12-10972, O-12-10976, O-12-10974,  
 O-12-10977, O-12-11099, O-12-11100, O-12-845  
 EC108179, Drill and Install T-Drain in Limit Switch Covers, Unit 2  
 EC 108244, Drill and Install T-Drain in Limit Switch Covers, Unit 2