



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

February 21, 2017

EA 13-010

Mr. Tom Ray  
Site Vice President  
Duke Energy Corporation  
Oconee Nuclear Station  
7800 Rochester Highway  
Seneca, SC 29672

SUBJECT: OCONEE NUCLEAR STATION – NRC CONFIRMATORY ORDER FOLLOW-UP  
INSPECTION REPORT 05000269/2017009, 0500270/2017009, AND  
05000287/2017009

Dear Mr. Ray:

On January 12, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed a Confirmatory Order follow-up team inspection at your Oconee Nuclear Station (ONS) Units 1, 2, and 3 and discussed the results of this inspection with you and other members of your staff. The results of the inspection are documented in the enclosed inspection report.

This inspection focused on assessing activities related to the implementation of the commitments described in Confirmatory Order EA-13-010, issued July 1, 2013 (ML13114A919). The Confirmatory Order specified milestones required to meet the terms of License Condition 3.D, Fire Protection, Transition License Condition 1. Specifically, completion of the protected service water (PSW) modification, the analysis of non-power operations, the incorporation of the PSW modification into the Fire Protection Program site documents, and confirmation that the as-built PSW system continued to bound the cumulative transition risk.

The NRC has determined that the results of this inspection, in conjunction with previously completed inspection activities related to interim milestones, provide adequate assurance that the required terms as directed by the July 1, 2013, Confirmatory Order have been satisfied by ONS.

T. Ray

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This letter, its enclosure, and your response (if any) will be available electronically for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

**/RA/**

Catherine Haney  
Regional Administrator

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

Enclosure:  
IR 05000269/2017009, 0500270/2017009,  
and 05000287/2017009 w/Attachment:  
Supplemental Information

cc: Distribution via ListServ

T. Ray

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INSPECTION REPORT 05000269/2017009, 0500270/2017009, AND  
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**ADAMS Accession No. ML17052A055**

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OFFICE	RII/DRP	RII/DRP	RII/ORA	RII/ORA		
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**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.: 05000269/2017009, 0500270/2017009, and  
05000287/2017009

Licensee: Duke Energy Carolinas, LLC

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

Location: Seneca, SC 29672

Dates: January 9 – 12, 2017

Inspectors: R. Rodriguez, Senior Project Engineer (Team Leader)  
J. Hanna, Senior Reactor Analyst  
J. Montgomery, Senior Reactor Inspector  
G. Ottenberg, Senior Reactor Inspector  
M. Riley, Reactor Inspector  
W. Satterfield, Reactor Inspector (In-training)

Approved by: Frank Ehrhardt, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Enclosure

## **SUMMARY**

IR 05000269/2017009, 0500270/2017009, and 05000287/2017009, January 9 – 12, 2017; Oconee Nuclear Station, Units 1, 2, and 3; Confirmatory Order Follow-up Inspection.

The report covered a one-week inspection by four regional inspectors and a senior reactor analyst. No findings were identified during this inspection.

The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process," dated April 29, 2015. Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

## REPORT DETAILS

### 4. OTHER ACTIVITIES

#### 4OA2 Problem Identification and Resolution

##### .1 Assessment of the Corrective Action Program (CAP)

###### a. Inspection Scope

The inspectors reviewed licensee CAP documents related to findings identified during previous milestone inspections to verify the licensee adequately addressed the findings in support of PSW implementation and National Fire Protection Association (NFPA) 805 conformance. The inspectors also reviewed selected licensee CAP documents to verify that problems were properly identified, entered, and characterized in the CAP; appropriate corrective actions were taken to ensure the required systems were functional to support the transition to NFPA 805; and that any remaining open items did not impact PSW system operability or support system functionality. Where possible, the inspectors independently verified that the corrective actions were implemented.

###### b. Findings

No findings were identified.

#### 4OA4 Confirmatory Order Inspection Activities (92702)

By letter dated March 11, 2013, (ADAMS Accession No. ML13079A321), Duke committed to a schedule stipulating milestones for installation of specified risk beneficial PSW equipment. Confirmatory Order EA-13-010 issued July 1, 2013 (ML13114A919), confirmed Duke's commitments to said milestones. Specifically, completion of the PSW modification, the analysis of non-power operations, the incorporation of the PSW modification into the Fire Protection Program site documents, and confirmation that the as-built PSW system continued to bound the cumulative transition risk. The inspection team assessed and verified the licensee's compliance with these requirements.

##### .1 Verification of Completion of Milestone 1: PSW Power to the Safe Shutdown Facility (SSF) from Commercial Offsite Power

The licensee shall provide the capability to supply off-site electrical power to the PSW building switchgear and from there to the SSF switchgear, with sufficient capacity to operate all credited SSF equipment in the event of a failure of the SSF diesel generator during a fire for which the SSF is credited. This modification along with approved plant procedures and the completion of operator training necessary to accomplish this lineup, and a combination of testing and engineering evaluation in accordance with station procedures which verifies this capability, will be completed and operational no later than October 1, 2013.

NRC documented the completion of Milestone 1 inspection in IR 05000269/2013004, 05000270/2013004, 05000287/2013004 (ML13318A936), Section 4OA5.2.

.2 Verification of Completion of Milestone 2: PSW Power from Keowee Hydro Station Installed

The licensee shall provide the capability to supply electrical power from each of the Keowee hydro units to the PSW building switchgear and from there to the SSF switchgear, with sufficient capacity to operate all credited SSF equipment in the event of a failure of the SSF diesel generator during a fire for which the SSF is credited. This modification along with approved plant procedures and the completion of operator training necessary to accomplish this lineup, and a combination of testing and engineering evaluation in accordance with station procedures which verifies this capability, will be completed and operational no later than July 18, 2014.

NRC documented the completion of Milestone 2 inspection in IR 05000269/2013005, 05000270/2013005, 05000287/2013005 (ML14037A283), Section 4OA5.2 and IR 05000269/2014002, 05000270/2014002, 05000287/2014002 (ML14132A203), Section 4OA5.1.

.3 Verification of Completion of Milestone 3: PSW Power to High Pressure Injection Installed

The licensee shall provide the capability to supply electrical power from the PSW building switchgear to simultaneously operate at least one high-pressure injection pump per unit, and to operate the associated valves needed to align water flow to the reactor coolant pump seals and to inject water into the reactor coolant system, as an alternate path within the emergency operating procedures. This modification along with approved plant procedures and the completion of operator training necessary to accomplish this lineup, and a combination of testing and engineering evaluation in accordance with station procedures which verifies this capability, will be completed and operational no later than October 1, 2014.

NRC documented the completion of Milestone 3 inspection in IR 05000269/2014004, 05000270/2014004, 05000287/2014004 (ML14295A581), Section 4OA5.1.

.4 Verification of Completion of Milestone 4: PSW Pump Installed

The licensee shall have the PSW pump installed and provide the capability to supply electrical power from the PSW building switchgear to operate the PSW pump and the associated valves to provide water to the steam generators of all three units sufficient to remove decay heat following simultaneous reactor trips from 100 percent power, with the steam generators at the pressure corresponding to the lowest safety valve setting, as an alternate path within the emergency operating procedures. This modification along with approved plant procedures and the completion of operator training necessary to accomplish this lineup, and a combination of testing and engineering evaluation in accordance with station procedures which verifies this capability, will be completed and operational no later than June 3, 2015.

NRC documented the completion of Milestone 4 inspection in IR 05000269/2015002, 05000270/2015002, 05000287/2015002 (ML15217A486), Section 4OA5.1.

.5 Verification of Completion of Milestone 5: PSW System Complete

The licensee shall provide the capability to supply electrical power from the PSW building switchgear to those DC battery chargers that provide power to controls and instrumentation that allow PSW system control and monitoring from the control room for an extended period of time as prescribed by the NFPA-805 fire protection program approved for Oconee. The licensee shall provide electrical power from the PSW building switchgear to at least 400 kW (nameplate rating) of pressurizer heaters for each unit, and provide the ability to select the PSW power source to those pressurizer heaters from the auxiliary building. The licensee shall provide auxiliary building and reactor building environments suitable for equipment operation. The licensee shall provide the ability to control and monitor the high-pressure injection equipment, the PSW equipment, and the steam generator heat removal equipment from the associated Oconee control rooms. This modification along with approved plant procedures and the completion of operator training necessary to accomplish this lineup, and a combination of testing and engineering evaluation in accordance with station procedures which verifies this capability, will be completed and operational no later than February 4, 2016.

NRC documented the completion of Milestone 5 inspection in IR 05000269/2016003, 05000270/2016003, 05000287/2016003 (ML16315A104), Section 4OA5.3 and IR 05000269/2016004, 05000270/2016004, 05000287/2016004 (ML17034A161) Section 4OA5.

.6 Verification of Completion of Milestone 6: NFPA 805 Compliance

The licensee shall complete all items in Table 2.9-1, "Implementation Items," of the December 29, 2010, Oconee NFPA 805 safety evaluation report no later than November 15, 2016.

By letter dated September 21, 2016, (ML16267A448) the licensee informed the NRC that they completed PSW milestone 6 and had achieved full compliance with Confirmatory Order EA-13-010.

The inspectors reviewed Oconee Operating License Condition 3.D and associated Transition License Conditions; NRC Safety Evaluation dated December 29, 2010; Oconee Design Basis Document for Fire Protection; licensee correspondence; various calculations and procedures to verify the licensee's actions to complete the implementation items as discussed in Table 2.9-1 of the SE and were acceptable. The inspectors have previously reviewed 42 of the 47 implementation items as documented in IRs 05000269/2016003, 05000270/2016003, 05000287/2016003 (ML16315A104) and 05000269/2016007, 05000270/2016007, 05000287/2016007 (ML16124A845). The remaining five items (Implementation Items 23, 32, 41, 42, and 43) were reviewed by the NRC during this inspection.

The following table summarizes the items in Table 2.9-1, "Implementation Items," of the December 29, 2010, Oconee NFPA 805 safety evaluation report (ML103630312) and the associated inspection report in which the NRC documented verification of completion.



Item	Implementation Item Description	Inspection Report
1.	The Design Basis Specification for Fire Protection will be updated to include the statement that the NRC is the AHJ for fire protection changes requiring approval.	2016-007
2.	Fleet Directive NSD-313, "Control of Flammable and Combustible Materials," will be updated to include the statement that plastic-sheeting materials shall conform to the requirements of NFPA 701 or equivalent.	2016-007
3.	Appropriate station procedure(s) for leak or air flow testing will be updated to preclude the use of open flames or combustion generated smoke.	2016-007
4.	Fleet Directive NSD-318 "Coatings Program," will be updated to include the specifications for Class A walls/ceilings and Class I floor finishes.	2016-007
5.	Appropriate station electrical specifications will be updated to specify only metal tray and metal conduits shall be used for electrical raceways. Thin wall metallic tubing shall not be used for power, instrumentation, or control cables.	2016-003
6.	Transformer deluge system flow test procedures will be updated to include drainage inspections as part of the annual flow tests.	2016-007
7.	Station Fire Brigade Training documentation will be updated to include guidance to ensure fire drills are conducted in various plant areas, especially in those areas identified to be essential to plant operation and to contain significant fire hazards.	2016-007
8.	Implement the monitoring program described in SE Section 3.7.	2016-007
9.	Pre-fire Plans will be updated to include any changes to equipment important to nuclear safety and other updates pertinent to the NFPA 805 Transition.	2016-003
10.	Standard Operating Guidelines (SOGs) will be updated to include a SOG with the location of the Pre-Fire Plans.	2016-007
11.	ONS code compliance calculation will be updated to ensure required fire detection devices are installed in accordance with NFPA 72, 2007 Edition.	2016-007
12.	Validate hydraulics calculations for all required automatic or manual water-based suppression systems.	2016-003
13.	The SSD procedure and analysis will be updated to incorporate the monitoring and/or adjustment of the following parameters required during operation of the SSF diesel generator (DG): generator current, voltage, power and frequency. The controls and indications required to monitor and adjust these parameters are currently not included in the SSD analysis.	2016-007
14.	Recovery Actions -Station procedures will be updated to reflect new NSCA strategies (including supporting communication coverage) and perform training as necessary. The following actions will be performed: 1. An evaluation to ensure that the hand-held radios operate in the locations of the recovery actions when needed, either with or without repeaters. 2. Development of SSD procedures for [[ ]] 3. Provide training to the operators on the new SSD procedures for [[ ]] 4. Conduct drills to ensure viability on the new [[ ]] safe shutdown procedures.	2016-007
15.	Revise Fleet Directive NSD-403 and Site Directive (SD) 1.3.5 with the definition of high(er) risk evolution (HRE) to address non-power operation (NPO) criteria, e.g., Plant Operating State (POS) 18. Also, reconcile NSD403 and SD 1.3.5 Thermal Margin Criteria with the criteria in FAQ 07-0040 as needed.	2016-003
16.	Develop a process to evaluate the potential effects of a fire upon habitability and the impact of increased DID fire protection actions that can be added to the establishment of high confidence [[ ]] per Fleet Directive NSD-403.	2016-007
17.	Implement procedural guidance to monitor [[ ]]	2016-007
18.	Develop procedural controls to monitor [[ ]] flow path during higher risk evolutions (HREs) for the outage risk management procedures.	2016-007
19.	Develop procedural controls for use of [[ ]] during HREs for the outage risk management procedures applicable to NPO key safety function (KSF).	2016-003

Item	Implementation Item Description	Inspection Report
20.	Develop procedural controls on the [[ ]] for the outage risk management procedures.	2016-003
21.	Ensure capability to access (ie., an operator can be dispatched to manually throttle) motor-operated valves (MOVs) [[ ]]	2016-003
22.	Ensure capability to access (ie., an operator can be dispatched to manually open and close, respectively) manual valves [[ ]]	2016-003
23.	Complete the analysis of NPO fire impacts for fire zones following installation of the NFPA 805 committed modifications. After implementation, update Oconee Site Calculation (OSC)- 9313 and its NPO recommendations for affected fire zones.	2017-009
24.	Develop procedure guidance for preemptive re-alignment of and the removal of power from the MOVs [[ ]]	2016-003
25.	Revise NSD-403, SO 1.3.5 and ONS technical procedures to implement the recommendations in OSC-9313, Attachment 1, subject to resolution of open Items (i.e., Items 15 through 24).	2016-003
26.	Revise FPP Design Basis Specification for the [[ ]] fire hydrants.	2016-007
27.	Configuration control procedures which govern the various ONS documents and databases will be revised to reflect the new RI/PB FPP licensing bases.	2016-007
28.	Training Position Specific Guides will be developed to identify and document required training and mentoring to ensure individuals are appropriately qualified per NFPA 805, Section 2.7.3.4.	2016-007
29.	Post-transition quality requirements from NFPA 805 that are not currently part of the ONS processes will be revised to include any additional requirements.	2016-007
30.	Operator Guidance -ONS procedures will be updated to include the following: 1. Guidance for maintaining the plant safe and stable following loss of all [[ ]] 2. Guidance for operation of [[ ]]	2016-007
31.	Resolve the physical location issue of the [[ ]] requirements by revising the fire risk evaluation to denote the physical separation aspects of the [[ ]]	2016-007
32.	Incorporate the PSW modification into FPP site documents after the modification is implemented.	2017-009
33.	Incorporating all related non-coordinated information in the NSCA and NPO Pinch Point Analysis, and updating the Fire PRA model, to include the results of the breaker coordination study	2016-007
34.	Future acceptable cable construction qualifications will be included in the Power Generation Electrical Discipline Design Criteria Manual. A specific line item will be added that video/communication/data cables shall be plenum rated and/or tested in accordance with Institute of Electrical and Electronic Engineers (IEEE) 383-1974, IEEE 1202-1991, CSA 22.2 No. 0.3, NFPA 262, UL 44, UL 83, UL 1581, UL 1666, or UL 1685 as accepted in FAQ 06-0022. Electrical wiring, including video, phone, and communications, installed above a suspended ceiling shall be rated for plenum use, routed in metallic conduit, routed in cable tray with solid metal top and bottom covers, or armored cable.	2016-003
35.	Appropriate directives will be updated to clearly indicate that only portable electric heaters are permitted to be used in plant areas with equipment important to nuclear safety or where there is the potential for radiological release due to fire. Portable fuel-fired heaters are not permissible in these areas.	2016-003
36.	The fire brigade will develop a SOG for fighting a fire in the RB. Training is already performed on tactics for fighting fires of this nature but training will be reinforced with a new SOG. The Fire Brigade Administrator will review the Pre-Fire Plans to determine if enhancement is necessary.	2016-003
37.	Develop instructions for the software program to collect availability and reliability data on SSCs in the Monitoring Program.	2016-003
38.	Revise the B-2 Table to include additional clarification of alignment with the NEI guidance.	2016-003
39.	Development and documentation of a long term SSD program including analysis, equipment reviews, recovery actions, modifications, and procedural guidance.	2016-003

Item	Implementation Item Description	Inspection Report
40.	Complete activities needed to provide assurance that fire-induced open secondary circuits of current transformers will not impact the ability to achieve and maintain the fuel in a safe and stable condition.	2016-003
41.	<p>With regard to the Internal Events PRA, complete the following:</p> <ul style="list-style-type: none"> <li>• Determine whether the HRA model needs to be updated or upgraded.</li> <li>• Update/upgrade the HRA model.</li> <li>• If HRA model was upgraded conduct a focus-scope peer review of the revised internal events PRA model with respect to HRA.</li> <li>• Disposition all findings from the peer review and revise the internal events PRA, as appropriate</li> </ul>	2017-009
42.	<p>With regard to the Fire PRA, complete the following:</p> <ul style="list-style-type: none"> <li>• Update/upgrade the Fire PRA as appropriate to resolve NRC staff review findings in SE Attachment C, Table 3.4-2.</li> <li>• Complete an industry full-scope peer review of the revised Fire PRA that is performed to the ASME/ANS RA- Sa-2009 PRA standard, as endorsed by RG 1.200, Rev. 2. The full-scope peer review will include specific focus on the following elements: <ul style="list-style-type: none"> <li>• Influence on the target set from fire propagation beyond the ignition source due to intervening combustibles and cables on: <ul style="list-style-type: none"> <li>▪ Expanding the zone of influence (ZOI), both vertically and horizontally, and</li> <li>▪ hot gas layer (HGL) formation, including the effects on fire detection and brigade response.</li> </ul> </li> <li>• Modeling of high-energy arcing faults on 4160/6900 volt (V) TB bus ducts.</li> <li>• Deviation from NUREG/CR-6850 guidance and as modified by closed FAQs will be treated as described in NEI 07-12 (Fire Probabilistic Risk Assessment Peer Review Guidelines) and the fire aspects of ASME/ANS PRA Standard, as endorsed by RG 1.200.</li> </ul> </li> <li>• Disposition findings from the full-scope Fire PRA peer review and revise the Fire PRA as appropriate.</li> </ul>	2017-009
43.	Confirm that the risk decrease from the as-built PSW continues to bound the cumulative VFDR transition risk once the PSW modifications are installed.	2017-009
44.	The breaker coordination study will be updated to include all new NFPA 805 SSD equipment list (SSEL)-related power supplies (i.e., PSW) for power and non-power operations, and additional plant modification will be defined if necessary to ensure that the assumptions of the Fire PRA and NSCA remain valid.	2016-003
45.	The ONS "Fire Protection Program Design Basis Document" and supporting documentation will be revised to incorporate NFPA 805 documents.	2016-003
46.	Licensee agreed to eliminate the "10 minutes free of fire damage" assumption. The ONS FPP and supporting documentation (including the B-2 Table, B-3 Table, all applicable fire risk evaluations, Fire PRA, NSCA, and operator manual action(s) (OMA) feasibility calculations) will be revised to eliminate the assumptions. Compliance will be demonstrated consistent with NFPA 805, Section 4.2.4.2.	2016-003
47.	Revised calculation OSC-9291, NFPA 805 Transition B-2 Table, Section 3.1.1.7 to reword the alignment basis to clearly state that offsite power is not credited for deterministic analysis and therefore not analyzed for its availability in the deterministic analysis. The licensee also states that alignment statement will be revised to ensure the proper relationship with the alignment basis.	2016-003

[[ ]] indicates Security OUO information withheld from Table 2.9-1 in publicly available document

#### 4OA5 Other Activities

##### 1. (Closed) Severity Level III Cited Violation Related to a Fire Protection Program License Condition

###### a. Inspection Scope

On July 1, 2013, the NRC issued a cited violation for the licensee's failure to comply with License Condition 3.D, Fire Protection, Transition License Condition 1 of its Operating License (ML13114A919). Specifically, the licensee failed to complete the PSW modification, the analysis of non-power operations, the incorporation of the PSW modification into the Fire Protection Program site documents, and confirmation that the as-built PSW system continued to bound the cumulative transition risk. To address this violation, the licensee initiated nuclear condition report (NCR) 01905363.

The inspectors reviewed the apparent-cause evaluation documented in NCR 01905363 and the corresponding corrective actions. Those corrective actions included establishing a governance and oversight committee for the PSW Project including a resource-levelized implementation schedule, enhanced the vendor oversight plans including placement of engineering personnel in the vendor shops to monitor technical adherence to specifications, and updated station procedures. The inspectors determined that through these actions, the licensee addressed the violation and restored compliance by completing the Milestones specified in Confirmatory Order EA-13-010. This violation is closed.

###### b. Findings

No findings were identified.

#### 4OA6 Meetings, Including Exit

On January 12, 2017, the inspectors presented the inspection results to Mr. Tom Ray and other members of the licensee's staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

E. Burchfield, Plant Manager  
A. Wells, Fire Protection Engineering Manager  
G. Saxon, Safe Shutdown Engineer  
B. Weaver, PRA Engineer  
B. Shingleton, Licensing Engineer  
T. Ray, Site Vice-President  
C. Wasik, Regulatory Affairs Manager  
B. Duncan, Engineering

#### **NRC Personnel**

E. Crowe, Senior Resident Inspector, Oconee  
J. Parent, Resident Inspector  
S. Shaeffer, Chief, Engineering Branch 2  
B. Davis, Acting Chief, Reactor Projects Branch 7

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

#### **Closed**

VIO	EA-13-010	Violation Related to a Fire Protection Program License Condition (Section 4OA5)
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## **LIST OF DOCUMENTS REVIEWED**

### Drawings

O-0310-FZ-000, "Unit 1-3 NFPA 805 Fire Protection Fire Zone Locations", Rev. 3A  
OFD-101A-1.5, Flow Diagram of High Pressure Injection System (SSF Portion), Rev. 26  
OFD-116Q-1.1, Flow Diagram of Alternate Chilled Water System (AWC) Chiller Skid, Rev. 6  
OFD-131A-1.1, Flow Diagram of Protected Service Water (PSW) System, Rev. 2  
OFD-131A-1.2, Flow Diagram of Protected Service Water (PSW) System (Steam Generator & HPI Motor Cooler Service), Rev. 1  
OFD-131A-2.2, Flow Diagram of Protected Service Water (PSW) System (Steam Generator & HPI Motor Cooler Service), Rev. 1  
OFD-131A-3.2, Flow Diagram of Protected Service Water (PSW) System (Steam Generator & HPI Motor Cooler Service), Rev. 2  
OFD-133A-2.5, Flow Diagram of Condenser Circulating Water System (SSF Aux. Service), Rev. 55

### Procedures

AD-EG-ALL-1520, "Transient Combustible Control," Rev. 6  
AP/0/A/1700/025, Standby Shutdown Facility Emergency Operating Procedure, Rev. 63  
AP/0/A/1700/051, Alternate Reactor Building Cooling, Rev. 3  
AP/1-2/A/1700/036, Degraded Control Area Cooling, Rev. 16  
EP/1/A/1800/001 00, Unit 1 EOP Immediate Manual Actions and Subsequent Actions, Rev. 1  
EP/1/A/1800/001 0B, EOP Unit 1 Blackout, Rev. 3  
EP/2/A/1800/001 0Q, Unit 2 EOP Enclosures 5.41-5.46, Rev. 4  
IP/0/A/0200/032, RTD Replacement, Rev. 56  
TI/0/A/3000/030, PSW Cable Pulling in Duct Banks Using Mechanical Device, Rev. 5

### Calculations

OSC-10767, Define HPI Flow Requirements, Evaluate Letdown Flow Paths through RCS Vent Valves, & Determine a Bounding Input for RCS Inventory Release to Containment During a PSW Event, Rev. 4  
OSC-10774, Oconee Nuclear Station Reactor Building Component Evaluations under PSW Conceptual Design Scenarios, Rev. 6  
OSC-10785, Gothic Containment Analysis Utilizing the Protected Service Water (PSW) System, Rev. 3  
OSC-11194, CCW Heatup during PSW and/or SSF-ASW Operation, Rev. 1  
OSC-4535, SSF RC Makeup System Overpressure Protection Report (SSF), Rev. 16  
OSC-7934, Oconee Nuclear Station Units 1, 2 & 3, Auxiliary Building GOTHIC Heat Up Analysis- PSW Event Cases, Rev. 10  
OSC-9322, "NFPA 805 Transition - Non-Power Operations Component Selection – Mode 3-6 & Defueled," Rev. 0  
OSC-9322, "NFPA 805 Transition - Non-Power Operations Component Selection – Mode 3-6 & Defueled," Rev. 3  
OSC-9322, "NFPA 805 Transition - Non-Power Operations Component Selection – Mode 3-6 & Defueled," Rev. 4  
OSC-9322, "NFPA 805 Transition - Non-Power Operations Component Selection – Mode 3-6 & Defueled," Rev. 5

OSC-9322, "NFPA 805 Transition - Non-Power Operations Component Selection – Mode 3-6 & Defueled," Rev. 6  
 OSC-9313, "NFPA 805 Transition Non-Power Fire Area Assessments (Pinch Point Analysis)," Rev. 5  
 OSC-9313, "NFPA 805 Transition Non-Power Fire Area Assessments (Pinch Point Analysis)," Rev. 7  
 OSC-9659, "Oconee Nuclear Safety Capability Assessment For Units 1, 2, And 3," Rev. 6  
 OSC-9659, "Oconee Nuclear Safety Capability Assessment For Units 1, 2, And 3," Rev. 7  
 OSC-9659, "Oconee Nuclear Safety Capability Assessment For Units 1, 2, And 3," Rev. 8  
 OSC-9659, "Oconee Nuclear Safety Capability Assessment For Units 1, 2, And 3," Rev. 9  
 OSC-9659, "Oconee Nuclear Safety Capability Assessment For Units 1, 2, And 3," Rev. 10  
 OSC-9314, "NFPA 805 Transition Risk-Informed, Performance Based Fire Risk Evaluation," Rev. 4  
 OSC-9314, "NFPA 805 Transition Risk-Informed, Performance Based Fire Risk Evaluation," Rev. 5  
 OSC-9535, "Evaluation Of Recovery Actions In Support Of Nuclear Safety Capability Assessment", Rev. 4  
 OSC-9535, "Evaluation Of Recovery Actions In Support Of Nuclear Safety Capability Assessment", Rev. 5  
 OSC-11549, "ONS Fire PRA (FPRA) FRE Input Calculation," Rev. 2  
 OSC-9518, "ONS Fire PRA Application Calculation," Revision 9

#### Modifications

EC 403491, NFPA 805 Milestone 6 Engineering Change  
 EC 401047, Provide Isolation of Ventilation and Doors for Units 1, 2, & 3 Spent Fuel Pools, Rev. 3  
 EC 401069, PSW Spent Fuel Pool Boiling Response Plan, Rev. 2

#### Work Orders/Requests

WO 20039455-01, performed 2/5/16 and 2/6/16

#### Corrective Action Program Documents

01809890, 01810187, 01811568, 01846687, 01853834, 01856981, 01904911, 01905054, 01905066, 01905344, 01905346, 01905346, 01905439, 1905473, 01905525, 01905598, 1907585, 01908443, 01910477, 01905363, 02040560, 02047523, 2083253, 2083973, 2084229

#### Other Documents

Duke Energy Carolinas, LLC, Oconee Nuclear Station, Units 1, 2, and 3, Docket Numbers 50-269, 50-270, and 50-287, Renewed Operating Licenses DPR-38, DPR-47, and DPR-55 Licensing Basis for the Protected Service Water System - Updated Responses to Request for Additional Information Item Nos. 107, 109(a), and 109(b); License Amendment Request (LAR) 2008-07 - Supplement 6, dated August 7, 2013  
 Oconee Nuclear Station, Units 1, 2, and 3, Issuance of Amendments Regarding Implementation of the Protected Service Water System (TAC Nos. ME7737, ME7738, ME7739, ME7746, ME7747, and ME7748), dated August 13, 2014  
 Safe Industries Service Order, dated 7/21/16