



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

June 16, 2016

CAL 2-10-003

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

**SUBJECT: OCONEE NUCLEAR STATION– CONFIRMATORY ACTION LETTER
FOLLOWUP INSPECTION REPORT 05000269/2016009, 05000270/2016009,
AND 05000287/2016009**

Dear Mr. Batson:

In a letter to the U.S. Nuclear Regulatory Commission (NRC) dated April 29, 2016, (ML16131A671), Oconee Nuclear Station (ONS) indicated that it had met the commitments of the June 22, 2010, Confirmatory Action Letter (CAL) (ML101730329) through completion of external flood modifications to mitigate a postulated Jocassee Dam failure.

On May 19, 2016, the NRC completed its review of your actions taken to satisfy the external flooding modification commitments documented in the CAL for ONS Units 1, 2, and 3 and discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report. No NRC-identified or self-revealing findings were identified during this inspection.

The NRC has determined that the results of this inspection, in conjunction with previously completed inspection activities related to interim compensatory measures, and the April 14, 2016, NRC staff assessment letter approving the revised Flood Hazard Reevaluation Report (FHRR) (ML15352A207), provide adequate assurance that the required terms as directed by the June 22, 2010 CAL have been satisfied by ONS. The June 22, 2010, Confirmatory Action Letter is now closed. As stated in the April 14, 2016, letter the NRC staff will address ongoing external flooding issues for ONS within the framework of the Fukushima Near-Term Task Force Recommendation 2.1 process, to ensure consistency in the staff's approach to addressing these issues for all plants. These issues will be addressed in separate correspondence and inspection activities. As stated in the April 14, 2016, letter, the NRC views continued implementation of certain compensatory actions in response to the CAL as an important element in Duke's overall strategy to mitigate the risks associated with a potential failure of the Jocassee Dam.

S. Batson

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In accordance with Title 10 of the *Code of Federal Regulations 2.390*, "Public Inspections, Exemptions, Requests for Withholding," 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's Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Documents 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).

Should you have any questions concerning this letter, please contact Frank Ehrhardt of my staff at 404-997-4611.

Sincerely,

/RA/

Catherine Haney
Regional Administrator

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

Enclosure:
NRC IR 05000269/2016009,
05000270/2016009, AND 05000287/2016009
w/Attachment: Supplemental Information

cc: Distribution via ListServ

S. Batson

2

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ADAMS: ACCESSION NUMBER: ML16168A176 SUNSI REVIEW COMPLETE FORM 665 ATTACHED

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SIGNATURE	MMT2	JGW1	FJE	CNO1	SAP1	VIA By E-Mail	VIA By E-Mail
NAME	M. Toth	J. Worosilo	F. Ehrhardt	C. Oelstrom	S. Price	R. Hall	E. Benner
DATE	6/1/2016	6/1/2016	6/1/2016	6/1/2016	6/2/2016	6/3/2016	6/3/1016
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
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SIGNATURE	MXF1	MEF1	LXW1	CXH			
NAME	M. Franovich	M. Franke	L. Wert	C. Haney			
DATE	6/9/2016	6/13/2016	6/15/2016	6/16/2016			
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OFFICIAL RECORD COPY DOCUMENT NAME: G:\DRPIIRPB1\OCONEE\REPORTS\2016\2016009\OCONEE 2016009 CAL CLOSURE REPORT (FINAL).DOCX

S. Batson

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Letter to Scott Batson from Catherine Haney dated June 16, 2016

SUBJECT: OCONEE NUCLEAR STATION– CONFIRMATORY ACTION LETTER
FOLLOWUP INSPECTION REPORT 05000269/2016009, 05000270/2016009,
AND 05000287/2016009

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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 Nos: 05000269/2016009, 05000270/2016009, 05000287/2016009

Licensee: Duke Energy Carolinas, LLC

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

Location: Seneca, SC 29672

Dates: May 16-19, 2016

Inspectors: M. Toth, Project Engineer
C. Oelstrom, Construction Inspector

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

Enclosure

SUMMARY

IR 05000269/2016009, 05000270/2016009, and 05000287/2016009; May 16, 2016, through May 19, 2016; Oconee Nuclear Station (ONS) Units 1, 2 and 3; Confirmatory Action Letter Followup Inspection Report.

The report covered a one-week period of followup inspection by two region-based inspectors associated with the June 22, 2010, Confirmatory Action Letter (CAL) 2-10-003. This inspection included evaluation of five external flood modifications implemented by Oconee Nuclear Station as directed by the CAL. No findings were identified during this inspection. The NRC's program for overseeing the safe operations of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 5.

REPORT DETAILS

1. BACKGROUND

On August 15, 2008, the U.S. Nuclear Regulatory Commission (NRC) issued a letter (Accession No. ML081640244) to Duke Energy Carolinas, LLC (Duke) for Oconee Nuclear Station Units 1, 2, and 3 (ONS) requesting information related to site external flooding, which included a potential failure of the Jocassee Dam. The information requested included a bounding external flood hazard analysis of the ONS site due to a postulated Jocassee Dam failure, which was provided in a letter to the NRC on August 2, 2010, (ML102170006). The NRC evaluated and accepted this analysis in a January 28, 2011, letter to Duke (ML110280153). In concert with this analysis, Duke committed to implement certain interim compensatory measures (ICMs) to mitigate the effects of external flooding at ONS due to a postulated Jocassee Dam failure. A June 3, 2010, letter to the NRC (ML101610083) documented the ICMs, which were subsequently inspected by the NRC. The NRC concluded the inspection with no findings or violations on June 10, 2010, (inspection report dated July 7, 2010, ML12363A083). On June 22, 2010, the NRC issued a Confirmatory Action Letter (CAL 2-10-003) to Duke documenting the licensee's commitments regarding external flooding concerns (ML101730329). The CAL acknowledged Duke's commitments to: maintain the ICMs until final resolution of external flooding at ONS due to a postulated Jocassee Dam failure was reached (by submitting an acceptable, updated flood hazard analysis for that event); and to construct and complete permanent flooding modifications to mitigate the inundation associated with that event. The licensee's updated flood hazard analysis led to the staff assessment letter, which was issued on January 28, 2011.

On March 12, 2012, the NRC issued a subsequent letter to Duke (ML12053A340) requesting additional information in response to the 2011 Fukushima Dai-ichi accident. This information was requested in support of the Near Term Task Force (NTTF) evaluation regarding flooding concerns.

On March 12, 2013, Duke submitted its flood hazard reevaluation report (FHRR) for ONS (ML13079A227), which was superseded with a revised FHRR on March 6, 2015, (ML15072A106). The NRC accepted the 2015 FHRR in a staff assessment letter issued on April 14, 2016 (ML15352A207). In this letter, the staff concluded the revised FHRR provided an acceptable alternative flood hazard analysis for a postulated Jocassee Dam failure event for the ONS site, for the purpose of meeting the terms of the June 22, 2010, CAL.

The NRC completed subsequent inspections in April 2013 (ML13115A063) and October 2013, (ML13318A936) at ONS regarding the implementation of the external flooding ICMs to validate whether these CAL commitments were being met. These inspections were in addition to annual baseline inspection activities conducted by the resident inspectors. No findings or violations were issued based on these inspections.

On April 29, 2016, Duke issued a letter to the NRC (ML16131A671) stating that the external flooding modifications were complete. Based on this information, the NRC conducted an on-site inspection of the modifications and concluded these efforts on May 19, 2016. Completion of the external flood modifications was the last remaining commitment of the June 22, 2010, Confirmatory Action Letter requiring inspection. The NRC has determined that Duke has satisfied all of the commitments of the CAL.

4. OTHER ACTIVITIES

4OA5 Other Activities

.1 Followup on Confirmatory Action Letter (IP 92702)

a. Inspection Scope

The inspectors reviewed the following modifications made by the licensee to comply with the June 22, 2010, Confirmatory Action Letter:

- 100kV FANT back-up power line tower relocation
- East slope scour protection
- Intake dike scour protection
- Discharge diversion wall
- Turbine Building Drain isolation (backflow preventer)

The inspectors verified that the design bases, licensing bases, and performance capability of structures, systems, and components (SSCs) had not been degraded through implementation of the five modifications listed above. As part of this review, inspectors verified that evaluations conducted by the licensee were in accordance with 10 CFR 50.59 and applicable internal procedures. Additionally, the inspectors evaluated whether system functionality and availability, configuration control, post-installation test activities, and changes to documents, such as drawings, procedures, and operator training materials, complied with licensee standards and NRC requirements. The inspectors reviewed documentation and performed field walkdowns of the modifications to determine whether they were installed in accordance with applicable regulatory requirements, standards, and codes. Additionally, the inspectors conducted field walkdowns to verify the as-built condition matched applicable design drawings. As part of the records review and field walkdown of the as-built condition, the inspectors verified:

- concrete had no material faults, such as cold joints, cracking, voids, exposed rebar, or open joints
- the transition zone of the concrete sections to ground was without defect or degradation, including no visual signs of settlement, subsidence, and/or rotation
- the diversion wall foundation was properly backfilled and compacted
- the scour protection was of the form specified in the design
- no vegetation was present in between scour protection
- scour protection was of the type and size specified, and was stable and secure without any visible signs of erosion or washout
- slopes adhered to design specifications
- proper backfill was used and compacted to meet intended design requirements
- backflow preventer gate was installed per design, and the equipment to operate the gate was securely stored in the vicinity of the flood gate
- procedures for operating the gate clearly indicated where the required operating equipment was located
- backflow preventer gate framing was solidly affixed to the wall per the design, and guide tracks were free of obstructions or defects
- FANT line transmission line towers were relocated to updated flood heights based on location along the transmission path (as applicable)

The inspectors reviewed a sample of related corrective action documents to verify the licensee was identifying and correcting any deficiencies associated with modifications. Documents reviewed are listed in the attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On May 19, 2016, the inspectors presented the inspection results to Mr. Scott Batson 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

C. Arnold, Senior Project Manager, External Flood Protection Project
S. Batson, Site Vice President
D. Baxter, Regulatory Project Manager
E. Burchfield, General Manager Engineering
D. Haile, Regulatory Affairs
D. Hubbard, Director, Organizational Effectiveness
A. Johnson, Fukushima Response Organization
D. Jones, Fukushima Response Manager
R. Ransom, External Flood Protection Project, Lead Civil Engineer
T. Ray, Plant Manager
C. Wasik, Regulatory Affairs Manager

LIST OF ITEMS OPENED, CLOSED, DISCUSSED AND UPDATED

Closed

CAL 2-10-003	CAL	OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 COMMITMENTS TO ADDRESS EXTERNAL FLOODING CONCERNS (40A5)
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LIST OF DOCUMENTS REVIEWED

Section 40A5: Other Activities: Followup of Confirmatory Action Letter

Procedures

AD-LS-ALL-0008, "10 CFR 50.59 Review Process," Rev. 000
AD-LS-ALL-0007, "Applicability Determination Process," Rev. 002
AP/0/A/1700/047, "External Flood Mitigation," Rev. 019
OP/3/A/1102/020 B, "Turbine Building Basement Rounds," Rev. 052
Nuclear System Directive (NSD) 209, "10 CFR 50.59 Process," Rev. 015 (Legacy document)
MP/0/A/1400/038, "Turbine Building Backflow Prevention Gate Preventive Maintenance, Closing, and Opening," Rev. 001
NSD-228, "Applicability Determination," Rev. 010 (Legacy document)

Drawings

DWG O-0021-DC-001, Discharge Diversion Wall Existing Conditions and Layout Plan, Rev. 000
DWG O-0021-DC-002, Discharge Diversion Wall Civil Grading Plan, Rev. 000
DWG O-0021-DD-001, East Slope Protection Areas 2 and 12 Overall Plan, Rev. B
DWG O-0021-DB-003, East Slope Protection Areas 3 and 4"
DWG O-0021-DA-001, East Slope Protection Areas 5, 6, 7, and 11, Rev. B
DWG OM 141-0152.001, Turbine Building Backflow Prevention Gate, Parts
DWG OM 141-0152.003, Turbine Building Backflow Prevention Gate, with operators, sections, and details
DWG OM 141.-0152.002, Turbine Building Backflow Prevention Gate, Frame Assembly w/ Sections and Details, Rev. 000
DWG OM 141.-0152.004, Turbine Building Backflow Prevention Gate, Frame Assembly w/ Sections and Details, Rev. 000
DWG O-0021-DA-003, East Slope Protection Areas 5, 6, 7, & 11 Typical Sections and Details, Rev. 000
DWG O-0021-DD-004, East Slope Protection Areas 2 & 12 Sections, Rev. 000
DWG O-0021-DD-004, East Slope Protection Areas 2 & 12 Existing Conditions and Layout Plan, Rev. 000
DWG O-0021-DB-002, East Slope Protection Areas 3 and 4 Existing Conditions and Layout Plan, Rev. 000
DWG O-0021-DA-002, East Slope Protection Areas 5, 6, 7, & 11 Existing Conditions and Layout Plan, Rev. 000

Calculations

OSC-0632, "Reanalysis of the Condenser Cooler Water Pipe for Seismic Conditions," Rev. 000
OSC 11073, "Erosion Protection Capacity and Recommendations," Rev. 002
OSC 11142, "Pressure on Buried CCW Pipes," Rev. 000
OSC 11090, "External Flood Protection - Discharge Diversion Wall Settlement, Bearing Capacity, Friction Coefficient, and Foundation Uplift," Rev. 001
OSC 11091, "External Flood Protection - Qualification of Cast-In-Place Concrete Discharge Diversion Wall," Rev. 001
OSC 11143, "External Flood Protection – Discharge Diversion Wall - Slope Stability Analysis," Rev. 001

Engineering Change (EC) Package

EC 111084, "Discharge Diversion Wall"
EC 111824, "East Slope Erosion Protection Areas 2 and 12"

EC 115186, "Intake Dike Toe Vertical Drains"
 EC 113572, "Access Control Measures for Eastern Slope Areas"
 EC 111086, "External Flood East Slope Erosion Protection Areas 3 and 4"
 EC 111823, "Erosion Protection in the East Slope Areas 5, 6, 7, and 11"
 EC 111087, "Turbine Building Drain Backflow Prevention Gate"

Other

Duke Energy Map 008453-379109, "Oconee-Central 100kV," Sheets 1 and 2
 Duke Energy Map 008453-383167, "Oconee-Central 100kV," Sheets 2, 3, 4, and 5
 Construction Plans for FANT Line Structure #14 Pad
 AR# 01910058 (East Slope Areas 2 and 12)
 AR# 01907678 (Sluice Gate)
 AR# 01855715 (Sluice Gate)
 AR# 01865912
 AR# 01866029
 AR# 01910271
 EC 111087 eRead Training Document, Turbine Building Drain Backflow Prevention Gate
 OSR-027.00-00-001, Design Requirements for Procurement of Conceptual External Flood
 Mitigation Solutions, Rev. 002
 "Response to Request for Information Pursuant to Title 10 of the Code of Federal Regulations
 50.54(f) Regarding Recommendation 2.1: Flooding of the Near Term Task Force Review of
 Insights from the Fukushima Dai-Ichi Accident," Rev. 001
 Oconee Nuclear Station, Board of Consultants/ FERC EFM Review Meeting, May 6- 8, 2014,
 Letter dated May 8, 2014
 1457690113-ND-15-00004, "Gabion Stone Gradation Variations," Rev. 000
 1457690113-ND-15-00010, "Gabion Stone Gradation Variations 2000-3000 Ton Lot," Rev. 000
 1457690113-ND-16-00008, "Shotcrete Area 47 Rebar Placemat in Mat is Outside Tolerances,"
 Rev. 000
 1457690113-ND-16-00011, "Training Wall Voids and Honeycombing," Rev. 000