



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION II  
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200  
ATLANTA, GEORGIA 30303-1200

September 26, 2022

Mr. Steven Snider  
Site Vice President  
Duke Energy Carolinas, LLC  
7800 Rochester Highway  
Seneca, SC 29672-0752

SUBJECT: OCONEE NUCLEAR STATION – NRC INSPECTION REPORT  
05000269/2022011 AND 05000270/2022011 AND 05000287/2022011

Dear Mr. Snider:

On September 1, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Oconee Nuclear Station. On September 21, 2022, the NRC inspectors discussed the results of this inspection with Mr. Carl Fago and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

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

Sincerely,

A handwritten signature in black ink, appearing to be "JB", is written over a horizontal line.

Signed by Baptist, James  
on 09/26/22

James B. Baptist, Chief  
Engineering Branch 1  
Division of Reactor Safety

Docket Nos. 05000269 and 05000270 and 05000287  
License Nos. DPR-38 and DPR-47 and DPR-55

Enclosure:  
As stated

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SUBJECT: OCONEE NUCLEAR STATION – NRC INSPECTION REPORT  
05000269/2022011 AND 05000270/2022011 AND 05000287/2022011

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NAME	T. Su	G. Ottenberg	A. Ruh	J. Baptist	
DATE	09/22/2022	09/21/2022	09/23/2022	09/26/2022	

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**U.S. NUCLEAR REGULATORY COMMISSION**  
**Inspection Report**

Docket Numbers: 05000269, 05000270 and 05000287

License Numbers: DPR-38, DPR-47 and DPR-55

Report Numbers: 05000269/2022011, 05000270/2022011 and 05000287/2022011

Enterprise Identifier: I-2022-011-0026

Licensee: Duke Energy Carolinas, LLC

Facility: Oconee Nuclear Station

Location: Seneca, SC

Inspection Dates: August 29, 2022 to September 01, 2022

Inspectors: G. Ottenberg, Senior Reactor Inspector  
A. Ruh, Senior Reactor Inspector  
T. Su, Reactor Inspector

Approved By: James B. Baptist, Chief  
Engineering Branch 1  
Division of Reactor Safety

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a NRC inspection at Oconee Nuclear Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

### **List of Findings and Violations**

No findings or violations of more than minor significance were identified.

### **Additional Tracking Items**

None.

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.17T - Evaluations of Changes, Tests, and Experiments

#### Sample Selection (IP Section 02.01) (22 Samples)

The inspectors reviewed the following evaluations, screenings, and/or applicability determinations for 10 CFR 50.59 from August 29, 2022 to September 1, 2022.

- (1) 10 CFR 50.59 Evaluation, AR 02359654, EC 418719, Turbine Component Test Extensions
- (2) 10 CFR 50.59 Evaluation, AR 02315683, EC 407399, B Chiller Replacement
- (3) 10 CFR 50.59 Evaluation, AR 02312402, EC 416663, Create Molded Case Circuit Breaker Replacement Specification
- (4) 10 CFR 50.59 Evaluation, AR 02378611, NSM-13090, Evaluation of Updated Final Safety Analysis Report (UFSAR) Change 09-051 to Resolve 208V/600V Voltage Adequacy Project, AR 01935296
- (5) 10 CFR 50.59 Evaluation, ARs 02392480, 02398442, EC 100916, Fabricate New Panels for Unit 3 7kV Switchgear with New Relays
- (6) 10 CFR 50.59 Evaluation, AR 02283079, EC 414051, Standby Shutdown Facility (SSF) Thermal Margin Issues Commissioning
- (7) 10 CFR 50.59 Evaluation, AR 02229596, Revision to Methodology Report DCP-NE-3005-PA, Rod Ejection Accident Departure from Nucleate Boiling Methodology
- (8) 10 CFR 50.59 Evaluation, AR 02153837, EC 409202, Keowee Auxiliary Power Manual Alignment
- (9) 10 CFR 50.59 Screening, EC 419878, Revise Seismic Design Basis Document (DBD) and Main Feedwater DBD Due to Seismic Boundary Valve Review
- (10) 10 CFR 50.59 Screening, AR 02222496, EC 115216, Replace A&B High Pressure Service Water Pump Impeller/Rotating Assembly
- (11) 10 CFR 50.59 Screening, AR 02403026, EC 414403, Unit 1/2/3 HP-5 Alternate Letdown Isolation
- (12) 10 CFR 50.59 Screening, AR 02082472, EC 406027, Replace Valves & Actuators on 2HP-3 & 2HP-4
- (13) 10 CFR 50.59 Screening, EC 421070, Revise Reactor Building Spray (RBS) System DBD to Include Additional BS-1 Function and RBS System Mission Time
- (14) 10 CFR 50.59 Screening, AR 02284577, Update UFSAR to Align the Licensing Basis for AFIS
- (15) 10 CFR 50.59 Screening, ARs 02197469, 02267236, 02281077, EC 101839, Replace Keowee Unit 2 Generator Stator

- (16) 10 CFR 50.59 Screening, AR 02347950, EC 417305, Trench Cable Tray Infrastructure Modification for SSF Instrumentation
- (17) 10 CFR 50.59 Screening, AR 02396126, EC 417310, Unit 1 Borated Water Storage Tank, Cask Decon Tank Room & West Penetration Room Infrastructure Modification for SSF Instrumentation
- (18) 10 CFR 50.59 Screening, AR 02413505, EC 417313, Unit 1 Electrical Penetration Replacement, Containment Building Infrastructure, Instrumentation Installation & Electrical Tie-ins
- (19) 10 CFR 50.59 Screening, AR 02424406, EC 420972 - Remove the Trip Function on the Undervoltage Relays for 3TA/3TB Normal/Startup Breakers
- (20) 10 CFR 50.59 Screening, AR 02402453, Revise UFSAR 9.1.5.4.2.1 to Reflect OSC-1594, Revision 2, Reactor Vessel Head Drop Analysis
- (21) 10 CFR 50.59 Screening, AR 02326613, EC 416971 - SSF Fuel Oil Storage Tank Vent and Fill Line Missile Protection
- (22) 10 CFR 50.59 Screening, AR 02406198, EC 419372 - Unit 1 Condensate Heat Exchanger 1A & 1B Upgrades to Support Replacement of 2CCW-41

## **INSPECTION RESULTS**

No findings were identified.

## **EXIT MEETINGS AND DEBRIEFS**

The inspectors verified no proprietary information was retained or documented in this report.

- On September 21, 2022, the inspectors presented the NRC inspection results to Mr. Carl Fago and other members of the licensee staff.
- On September 1, 2022, the inspectors presented the initial inspection results to Mr. Steven Snider and other members of the licensee staff.

## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.17T	Calculations	OSC-10899	Analysis of Condensate Coolers A & B Suction and Discharge Piping, Problem No. 1-13-13	5
		OSC-11334	Seismic to Non-Seismic Piping Boundary Valve Review	0
		OSC-11656	SSF TURBINE BUILDING FLOOD ANALYSIS WITH NEW SSF LETDOWN LINE	8
		OSC-11796	SSF LETDOWN LINE RELEASE TO RX BUILDING - CONTAINMENT RESPONSE	1
		OSC-11922	Owners Review and Acceptance of Vendor Report 7006-0024-RPT-001, Rev 000 and Associated Documents	1
		OSC-1594	NUREG-0612 - CONTROL OF HEAVY LOADS - LOAD DROP ANALYSIS	2
		OSC-2218	SSF DIESEL ENGINE FUEL OIL SYSTEM - TANK AND VENT SIZING	12
		OSC-6100	INSTRUCTIONS FOR PREPARING THE EVENT MITIGATION DATABASE TYPE III	8
		OSC-6182	MAIN STEAM LINE BREAK: (MSLB) EVENT MITIGATION REQUIREMENTS TYPE III	21
		OSC-6810	STEAM GENERATOR TUBE RUPTURE ACCIDENT DOSE ANALYSIS (DESIGN BASIS RADIOLOGICAL ACCIDENT DOSE ANALYSIS)	12
		OSC-6885	HIGH TRAJECTORY TURBINE MISSILE STRIKE PROBABILITY ON THE UNIT 1,2,3 LPSW SYSTEM	7
		OSC-7636	SUMMARY OF NUREG-0612 COMMITMENTS - FRAMATONE ANP	1
		OSC-8028	ROTSG UFSAR SECTION 15.9 - STEAM GENERATOR TUBE RUPTURE ACCIDENT	7
		OSC-9024	SSF Diesel Fuel Tank Vent Pipe Flow Calculation	2
		OSC-9276	HELB Letdown Line Break Analysis	0
	Corrective Action Documents	01905167, 02419764, 02260463, 01935296,		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Corrective Action Documents Resulting from Inspection	02375135		
		02440039	HP-3/4 Flow Loss Decreased with Replacement-OSC-9276 should be updated	
		02440398	Observation: Event vs Malfunction Discussion in 50.59 Eval	
		02440885	Observation: Lack of Detail in REA methodology assumption 50.59 eval	
		02440965	Observation: Lack of Clarity in Digital 50.59 Evals	
		02442122	Lacking Specific Design Guidance for Electrical Separation via Devices	
	Drawings	OEE-151-03	Elementary Diagram, Letdown Iso. Valve 1HP V0005	15
		OEE-151-03	E/D - LETDOWN ISOLATED VALVE FS/1/51/5, 1HP VA0005	15C
		OEE-151-03-01	E/D - LETDOWN ISOLATED VALVE FS/1/51/5, 1HP VA0005	4B
		OFD-101A-02-01	FLOW DIAGRAM OF HIGH PRESSURE INJECTION SYSTEM (LETDOWN SECTION)	51
	Engineering Changes	EC 100916	FABRICATE NEW PANELS FOR UNIT 3 7KV SWITCHGEAR WITH NEW RELAYS	0
		EC 101839	REPLACE KEOWEE UNIT #2 GENERATOR STATOR	22
		EC 115216	REPLACE A&B HPSW PUMP IMPELLER/ROTATING ASSEMBLY WITH LOW NPSHR VERSION	1
		EC 406027	REPLACE THE VALVES & ACTUATORS ON 2HP-3 & 4 ADD EGS CONNECTOR & 50%	9
		EC 414403	UNIT 1/2/3 HP-5 ALTERNATE LETDOWN ISOLATION	8
		EC 416663	CREATE ONS MOLDED CASE CIRCUIT BREAKER REPLACEMENT SPECIFICATION	0
		EC 417305	SSF INSTRUMENTATION – TRENCH INFRASTRUCTURE	1
		EC 417310	UNIT 1 SSF INSTRUMENTATION	1
		EC 418719	VALVE TEST INTERVAL FREQUENCY CHANGES FOR THE MAIN TURBINE OVERSPEED	4
		EC 420972	REMOVE THE TRIP FUNCTION ON THE UNDERVOLTAGE RELAYS FOR 3TA/3TB	4
	Engineering Evaluations	DC-3.13	OCONEE NUCLEAR STATION CABLE AND WIRING SEPARATION CRITERIA	12



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Miscellaneous	ONS-490506-QR-001	Qualification Report for CCW Flow Path Components to Support LPSW Pump Alternate Suction Source Supply	1.1
		AD-EG-ALL-1216	SURVEILLANCE FREQUENCY CONTROL PROGRAM	3
		AR/5AD 02082471	EC406027 - 000 - Replace Valves 2HP-3 & 2HP-4	11/29/2016
		AR/5AD 02222494	EC115216 - 000 - REPLACE A&B HPSW PUMP IMPELLER/ROTATING	08/02/2018
		AR/5AD 02300050	0000407399 - 000 REPLACE B CHILLER	10/30/2019
		AR/5AD 02347949	SSF INSTRUMENTATION – TRENCH INFRASTRUCTURE	09/09/2020
		AR/5AD 02360295	Turbine Valve testing frequency changes (EC 418719)	12/03/2020
		AR/5AD 02396125	UNIT 1 SSF INSTRUMENTATION	08/31/2021
		AR/5EVL 02300850	50.59 Evaluation for replacement of B Chiller per	11/05/2019
		AR/5EVL 02311960	50.59 Evaluation for replacement of B Chiller per	01/21/2020
		AR/5EVL 02378611	Evaluation of UFSAR Change 09-051 to resolve AR 1935296	04/15/2021
		AR/5SCR 02153836	10 CFR 50.59 Screen for EC 409202, Keowee Auxiliary Power	03/08/2018
		AR/5SCR 02229594	Revision to Methodology Report DPC-NE-3005-PA to use 0.5	01/01/2019
		AR/5SCR 02267236	REPLACE KEOWEE UNIT #2 GENERATOR STATOR	04/08/2019
		AR/5SCR 02300063	0000407399 - 000 REPLACE B CHILLER	10/30/2019
		AR/5SCR 2283078	10 CFR 50.59 Screen for EC 414051, SSF Thermal Margin Issues	09/26/2019
		CNS-13-005	License Amendment Request for Methodology Report DPC-NE-3001-P, Revision 1, Multidimensional Reactor Transients and Safety Analysis Physics Parameters Methodology	11/14/2013

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		DC-1.01	Separation - McGuire	26
		DPND-DPC-NE-3001-PA	CATAWBA AND MCGUIRE - MULTIDIMENSIONAL REACTOR TRANSIENTS & SAFETY ANALYSIS PHYSICS PARAMETERS METHODOLOGY	1
		DPND-DPC-NE-3005-PA	OCONEE UFSAR CHAPTER 15 TRANSIENT ANALYSIS METHODOLOGY	5
		DUKE-QAPD-001	DUKE ENERGY CORPORATION TOPICAL REPORT Quality Assurance Program Description Operating Fleet	48
		OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3 - ISSUANCE OF AMENDMENT NOS. 421, 423, AND 422	RE: REVISION OF LICENSING BASIS FOR HIGH ENERGY LINE BREAKS OUTSIDE OF CONTAINMENT (EPID L-2019-LLA-0184)	03/15/2021
		ON-SFL	SURVEILLANCE FREQUENCY LIST (SFL)	8
		OSR-0208.00-00-0004	Technical Requirements For Procurement of Low NPSHR Impeller for HPSW Pumps	1
		OSS-0218.00-00-0019	(ELECT) INSTALLATION SPEC CABLE AND WIRING SEPARATION CRITERIA	19
		OSS-0243.00-00-0001	Piping Installation Specification	35
		OSS-0254.00-00-2006	(ELECT) DBD FOR THE 125 VDC VITAL INSTRUMENTATION AND CONTROL POWER SYSTEM	16
		RG 1.115	PROTECTION AGAINST LOW-TRAJECTORY TURBINE MISSILES	1
		UFSAR Change Number 2020-ONS-012	AR Tracking Number 02345023-06	12/03/2020
	Procedures	AD-EG-ALL-1107	Quality Classifications	5
		AD-EG-ALL-1132	PREPARATION AND CONTROL OF ENGINEERING CHANGES	21
		AD-EG-ALL-1137	ENGINEERING CHANGE PRODUCT SELECTION	12

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		AD-LS-ALL-0005	UFSAR UPDATES	9
		AD-LS-ALL-0008	10 CFR 50.59 REVIEW PROCESS	4
		AP/0/A/1700/025	Standby Shutdown Facility Emergency Operating Procedure	68
		AP/0/A/2000/002	Keowee Hydro Station - Emergency Start	24
		AP/0/A/2000/003	Keowee Hydro Station - Auxiliary Power Recovery	2
		EP/1/A/1800/001 0H	Unit 1 EOP Turbine Building Flood	2
		EP/2/A/1800/001 0Q	Unit 2 EOP Enclosures 5.41-5.47	9