



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

March 10, 2020

Mr. Robert T. Simril
Site Vice President
Duke Energy Carolinas, LLC
4800 Concord Road
York, SC 29745

**SUBJECT: CATAWBA NUCLEAR STATION – TRIENNIAL INSPECTION OF EVALUATION
OF CHANGES, TESTS AND EXPERIMENTS BASELINE INSPECTION
REPORT 05000413/2020010 AND 05000414/2020010**

Dear Mr. Simril:

On February 6, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Catawba Nuclear Station and discussed the results of this inspection with you 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,

/RA/

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

Docket Nos. 05000413 and 05000414
License Nos. NPF-35 and NPF-52

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

SUBJECT: CATAWBA NUCLEAR STATION – TRIENNIAL INSPECTION OF EVALUATION OF CHANGES, TESTS AND EXPERIMENTS BASELINE INSPECTION REPORT 05000413/2020010 AND 05000414/2020010 DATED MARCH 10, 2020

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OFFICE	DRS	DRS	DRS	DRS	
NAME	N. Morgan	A. Ruh	M. Riley	J. Baptist	
DATE	2/26/2020	3/3/2020	3/5/2020	3/10/2020	

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

Docket Numbers: 05000413 and 05000414

License Numbers: NPF-35 and NPF-52

Report Numbers: 05000413/2020010 and 05000414/2020010

Enterprise Identifier: I-2020-010-0037

Licensee: Duke Energy Carolinas, LLC

Facility: Catawba Nuclear Station

Location: York, SC

Inspection Dates: February 03, 2020 to February 06, 2020

Inspectors: N. Morgan, Reactor Inspector
M. Riley, Reactor Inspector
A. Ruh, Resident 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 triennial inspection of evaluation of changes, tests and experiments baseline inspection at Catawba 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) (20 Samples)

The inspectors reviewed the following evaluations, screenings, and/or applicability determinations for 10 CFR 50.59 from February 3 - 6, 2020.

- (1) Evaluation AR 02104045, Revised SG (Steam Generator) PORV (Power Operated Relief Valve) Flow Rates & Post-MSLB (Main Steam Line Break) Cool-down
- (2) Evaluation AR 02236975, CNS (Catawba Nuclear Station) U1 (Unit 1) Turbine Trip and Feedwater System Pipe Break
- (3) Evaluation AR 02245001, CNS UFSAR (Updated Final Safety Analysis Report) Chapter 15.4.7 Inadvertent Loading and Operation of a Fuel Assembly
- (4) Evaluation AR 01962944, Revision to Methodology Report DPC-NE-2009-P-A
- (5) Evaluation AR 02047559, Revision to Methodology Report DPC-NE-2009-P-A
- (6) Evaluation AR 02085006, VIPRE Upgrade from Mod. 2r to Mod. 2.5adke
- (7) Evaluation AR 02110981, Update to Catawba Nuclear Station UFSAR Table 15-14
- (8) Evaluation AR 02213061, Addition of an External Constituent to the Control Room
- (9) Screen EC 402534, Optional Hydraulic Accumulator to be installed on 1CF33, 1CF51, 1CF60, 2CF33, 2CF42, 2CF51, and 2CF60
- (10) Screen EC 412812, Generate Test Acceptance Criteria for Reactor Vessel Vents Flow Rate
- (11) Screen EC 411844, Degraded Bus Timer Setpoint
- (12) Screen EC 108311, Replace Valves 2NV202B and 2NV203A to Gain Operating Margin
- (13) Screen EC 94585, Replace D/G (Emergency Diesel Generator) 2A Voltage Regulator/Excitation System
- (14) Screen EC 114179, UNIT 2: Removal of SPV (Single Point Vulnerability) at A518 Pin 24 In SSPS (Solid State Protection System) Logic Cabinets for Train A & B on Unit 2
- (15) Screen EC 408742, NW (Containment Valve Injection Water) Group 2: Convert to Type C Leak Rate Testing
- (16) Screen EC 408429, ESF (Engineered Safety Feature) Backleakage to FWST (Refueling Water Storage Tank) and Leakage in Aux. Bldg.
- (17) Screen EC 415036, Changes to the VQ (Containment Air Release and Addition) Containment Pressure Annunciator
- (18) Screen EC 411492, Replacement of 2NW8A, 2NW20A, 2NW61B, 2NW69B Valve and Operator due to Solenoid Failures

- (19) Screen EC 413660, Large NC (Reactor Coolant) System Vent - Remove 3 Pressurizer Safety Valves
- (20) Applicability Determination AR 2287956, PT/1/A/4250/006 B - 0000215277 CA (Auxiliary Feedwater) System Flow Verification

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On February 6, 2020, the inspectors presented the triennial inspection of evaluation of changes, tests and experiments baseline inspection results to Robert T. Simril and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.17T	Calculations	CNC-1201.30-00-0027	Determination of NC System Cooldown Time Following a Main Steam Line Break	Rev. 3
		CNC-1223.03-00-0038	Determination of Unit 2 Reactor Vessel Head Vent Flow	Rev. 0
		CNC-1223.19-00-0004	NW System Setpoint Calculation	Rev. 9
		CNC-1223.21-00-0022	Post-Accident FWST In-Leakage Sources	Rev. 0
		CNC-1223.43-01-0027	Main Steam Power Operated Relief Valve Flow Capacity	Rev. 0
		CNC-1227.00-00-0106	Radiological Consequences of a DB LOCA at Catawba Nuclear Station	Rev. 16
		CNC-1227.00-00-0130	Radiological Consequences of a DB MSLB at Catawba Nuclear Station	Rev. 11
		CNC-1381.05-00-0012	4160 Volt Essential Auxiliary Power Switchgear Relay Settings (Type I Changed to Type III)	Rev. 17
		CNC-2206.02-83-2011	Chemical and Volume Control System Rigorous Stress Analysis Problem NVI	Rev. 9
		DPC-1552.08-00-0134	RSG FSAR Analyses – 15.2.3 – Turbine Trip	Rev. 8
		DPC-1552.08-00-0140	RSG FSAR Analyses – 15.2.8 - Feedwater System Pipe Break	Rev. 4
		Corrective Action Documents	AR 01962944	Revision to Methodology Report DPC-NE-2009-P-A
	AR 02047559		Revision to Methodology Report DPC-NE-2009-P-A	04/20/2017
	AR 02085006		VIPRE upgrade from mod 2r to mod 2.5adke	03/06/2017
	AR 02104045		Revised SG PORV Flow Rates & Post-MSLB Cool-down	05/31/2017
	AR 02110981		Update to Catawba Nuclear Station UFSAR Table 15-14	01/23/2018
	AR 02213061		Addition of an External Constituent to the Control Room	07/18/2018
	AR 02236975		CNS U1 Turbine Trip and Feedwater System Pipe Break	01/31/2019
	AR 02245001		CNS UFSAR Chapter 15.4.7 Inadvertent Loading and Operation of a Fuel Assembly	11/27/2018
	AR 2287956	PT/1/A/4250/006 B - 0000215277 CA System Flow	08/21/2019	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Verification Applicability Determination	
		ARs 1897290 1901154 1949424 1956237 1962944 2047559 2096392 2152427 2159141 2225766 2225774 2251416 2287953 2287956 2085003		
	Corrective Action Documents Resulting from Inspection	AR 2314794	2020 50.59 EC 408742 UFSAR Update	02/06/2020
	Drawings	CN-1578-01.00	Flow Diagram of Control Room Area Ventilation System (VC)	Rev. 31
		CN-1602-01.00	Flow Diagram of Nitrogen System (GN)	Rev. 30
		CN-2569-01.00	Flow Diagram of Containment Valve Injection Water System (NW)	Rev. 30
		CN-2605-01.00	Flow Diagram of Instrument Air System (VI)	Rev. 11
		CNM 1205.06-0492.001	Outline Drawing for CMV-868, 1" FO Fisher Air Oper Globe Valve	Rev. 0
		CNM 1205.06-0493.001	Valve and Actuator Instruction Manual for CMV-868 and CMV-869, 1" and 2" FO Fisher Globe Valve	Rev. 0
	Engineering Changes	108311	Replace Valves 2NV202B and 2NV203A to Gain Operating Margin	Rev. 2
		114179	Unit 2 Removal of SPV at A518 Pin 24 in SSPS Logic	Rev. 0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Cabinets for Train A&B	
		402534	Optional Hydraulic Accumulator to be Installed on 1CF33, 1CF51, 1CF60, 2CF33, 2CF42, 2CF51, and 2CF60	Rev. 0
		408429	ESF Backleakage to FWST and Leakage in Aux Bldg. Revise FW, NV, NI, ND, NS DBD, TS Basis, UFSAR	Rev. 0
		408429	ESF Backleakage to FWST and Leakage in Aux Building; Revise FW, NV, NI, ND, NS DBD, TS Basis, UFSAR	Rev. 0
		408742	Convert the Group 2 containment isolation valves (CIVs) from NW Testing to C-Leak Rate Testing (C-LRT)	Rev. 0
		408742	NW Group 2: Convert to Type C Leak Rate Testing	Rev. 0
		411844	Degraded Bus Timer Setpoint Change	Rev. 0
		412812	Generate Test Acceptance Criteria for Reactor Vessel Vents Flow Rate	Rev. 0
		413660	Large NC System Vent - Remove 3 PZR Safety Valves	Rev. 0
		94585	Replace D/G 2A Voltage Regulator/Excitation System	Rev. 7
	Miscellaneous	CNEI-0400-341	Catawba 1 Cycle 25 Core Operating Limits Report	Rev. 1
	Miscellaneous	CNEI-0400-355	Catawba 2 Cycle 24 Core Operating Limits Report	Rev. 0
	Miscellaneous	CNM 1205.06-0498.001	Weak Link Analysis for CMV-868 & CMV-869, 1" & 2" FO Fisher Air Oper Globe Valve	12/02/2019
	Miscellaneous	CNM 1205.06-0499.001	Valve Actuator Sizing for CMV-868. 1" FO Fisher Air Oper Globe Valve	12/02/2019
	Miscellaneous	CNM 1301.00-0449.001	Failure Mode & Effects Analysis of Voltage Regulator System/Chassis P/N: 72-10800-100-ESI	Rev. 1
	Miscellaneous	CNR-1205.06-00-0011	Technical Requirements for Containment Valve Injection Water (NW) System Surge Tank RN Supply Valves and Surge Tank Outlet Valves	Rev. 1
	Miscellaneous	CNS-1553.NC-00-0001	Reactor Coolant System (NC) Design Basis Specification	Rev. 46
	Miscellaneous	CNS-1569.NW-00-0001	Containment Valve Injection Water System (NW) Design Basis Document	Rev. 22
	Miscellaneous	CNS-1578-VC.00-0001	Control Room Ventilation Design Basis Specification	Rev. 39
	Miscellaneous	CNTC-1571-	Primary Coolant Leakage Sources Outside Containment	Rev. 0

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		FW.S001-01		
		CNTC-2571-FW.S001-01	Primary Coolant Leakage Sources Outside Containment	Rev. 0
		DPC-NE-2009-PA	Duke Power Company Westinghouse Fuel Transition Report	Rev. 3a, b, c
		DPC-NE-3002-A	UFSAR Chapter 15 System Transient Analysis Methodology	Rev. 4C
		DPND-DPC-NE-2005-A	Thermal-Hydraulic Statistical Core Design Methodology - Non-Proprietary - Replaces DPND-DPC-NE-2005-PA - Initial Issue	10/27/2016
		UFSAR Section 15.4.7	Inadvertent Loading and Operation of a Fuel Assembly	Rev. 20
		WCAP-12610-P-A & CENPD-404-P-A Addendum 1-A	Optimized ZIRLO(tm)	07/2006
		WCAP-8963-P-A Addendum 1-A	Safety Analysis for the Revised Fuel Rod Internal Pressure Design Basis (Departure from Nucleate Boiling Mechanistic Propagation Methodology)	Rev. 1-A
	Procedures	AD-LS-ALL-0007	Applicability Determination Process	Rev. 6
		EP/1/A/5000/E-0	Reactor Trip or Safety Injection	Rev. 44
		IP/0/A/4971/005	Degraded Bus Voltage Trip and Alarm Timers Calibration Procedure	Rev. 8
		OP/1/A/6200/014	Refueling Water System	Rev. 91
		OP/2/A/6200/019	Containment Valve Injection Water System	Rev. 40
		PT/0/A/4150/022	Total Core Reloading	Rev. 59
		PT/0/A/4550/003 C	Core Verification	Rev. 20
		PT/1/A/4200/001 C	As Left Containment Isolation Valve Leak Rate Test	Rev. 132
		PT/1/A/4200/001 K	Summation of Recirculation Backleakage to FWST	Rev. 0
		PT/1/A/4200/001 L	Controlling Procedure For Type B & C Leak Rate Tests	Rev. 33
		PT/1/A/4200/001 T	Containment Penetration Valve Injection Water System Performance Test	Rev. 76
		PT/1/A/4200/018 B	CF Valve Inservice Test (CS)	Rev. 41
PT/1/A/4200/027	NW Valve Inservice Test (QU)	Rev. 53		
PT/1/A/4250/006 B	CA System Flow Verification Test	Rev. 24, 25		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		PT/2/A/4200/013	NV Valve Inservice Test (UNK)	Rev. 31
		PT/2/A/4350/002A	Diesel Generator 2A Operability Test	08/27/2019
		PT/2/A/4350/012A	Diesel Generator 2A Governor and Voltage Regulator Test	09/27/2019
		PT/2/A/4350/015A	Diesel Generator 2A Periodic Test	09/27/2019
		Pump and Valve Inservice	Pump and Valve Inservice Testing Program Manual	Rev. 33
		TN/2/A/EC94585/01E	Implementation of Diesel Generator 2A Voltage Regulator Replacement	Rev. 3
		TT/2/A/9300/081	NV Pump Miniflow Line Verification	Rev. 0
		TT/2/A/EC94585/01E	Test Procedure for Diesel Generator 2A Voltage Regulatory Replacement	Rev. 2
	Work Orders	02198745 20189558-01 202560010 20290927-01 20290968-01 20292012-01 20294822-01, 02 20311516-01 20329544-01 20344519		