



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

December 21, 2020

Mr. George Lippard III
Vice President of Nuclear Operations
Dominion Energy
Bradham Blvd & Hwy 215
Post Office Box 88, Mail Code 800
Jenkinsville, SC 29065

SUBJECT: VIRGIL C. SUMMER – DESIGN BASIS ASSURANCE INSPECTION (TEAMS)
INSPECTION REPORT 05000395/2020010

Dear Mr. Lippard III:

On November 19, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Virgil C. Summer 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 Br 1
Div of Reactor Safety

Docket No. 05000395
License No. NPF-12

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

SUBJECT: VIRGIL C. SUMMER – DESIGN BASIS ASSURANCE INSPECTION (TEAMS)
INSPECTION REPORT 05000395/2020010 dated December 21, 2020

DISTRIBUTION:

P. Braxton, RII
J. Hamman, RII
S. Ninh, RII
R. Patterson, RII
M. Riley, RII
T. Su, RII
J. Baptist, RII
RIDSNrrPMSummer
RIDSNrrDRO Resource

ADAMS ACCESSION NUMBER: ML20356A295

<input checked="" type="checkbox"/> SUNSI Review		<input checked="" type="checkbox"/> Non-Sensitive <input type="checkbox"/> Sensitive		<input checked="" type="checkbox"/> Publicly Available <input type="checkbox"/> Non-Publicly Available	
OFFICE	RII/DRS	RII/DRS	RII/DRS	RII/DRS	
NAME	R. Patterson	P. Braxton	M. Riley	J. Baptist	
DATE	12/18/2020	12/18/2020	12/18/2020	12/21/2020	
OFFICE	RII/DRP	RII/DRP	RII/DRS		
NAME	S. Ninh	J. Hamman	T. Su		
DATE	12/07/2020	12/18/2020	12/18/2020		

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

Docket Number: 05000395

License Number: NPF-12

Report Number: 05000395/2020010

Enterprise Identifier: I-2020-010-0047

Licensee: Dominion Energy

Facility: Virgil C. Summer

Location: Jenkinsville, SC

Inspection Dates: October 26, 2020 to November 20, 2020

Inspectors: P. Braxton, Reactor Inspector
J. Hamman, Reactor Inspector
S. Ninh, Senior Project Engineer
R. Patterson, Senior Reactor Inspector
M. Riley, Reactor Inspector
T. Su, Reactor Inspector

Approved By: James B. Baptist, Chief
Engineering Br 1
Div of Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a design basis assurance inspection (teams) inspection at Virgil C. Summer, 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.

Starting on March 20, 2020, in response to the National Emergency declared by the President of the United States on the public health risks of the coronavirus (COVID-19), inspectors were directed to begin telework. In addition, regional baseline inspections were evaluated to determine if all or portion of the objectives and requirements stated in the IP could be performed remotely. If the inspections could be performed remotely, they were conducted per the applicable IP. In some cases, portions of an IP were completed remotely and on site. The inspections documented below met the objectives and requirements for completion of the IP.

REACTOR SAFETY

71111.21M - Design Bases Assurance Inspection (Teams)

The inspectors evaluated the following components and listed applicable attributes, permanent modifications, and operating experience:

Design Review - Risk-Significant/Low Design Margin Components (IP Section 02.02) (4 Samples)

- (1) 480V MCC (XMC1DA2Y)
 - Compliance with Updated Final Safety Analysis (UFSAR), Technical Specifications (TS), and TS Bases
 - Conformance with manufacturer instructions for installation, maintenance, and operation
 - Material condition and configuration
 - Environmental Conditions
 - Design requirements (loading, short circuit analysis, etc.)
 - Verification that System Health Reports accurately reflect current system conditions
 - Protective device settings
 - Circuit breaker preventive maintenance inspection and testing procedures

- (2) 1A EDG and Support Systems
 - Compliance with UFSAR, including applicable design and licensing basis requirements
 - Material condition and configuration
 - Maintenance effectiveness

- System health reports
 - Surveillance test results
 - Calculations verifying system design requirements (e.g., loading and fuel tank capacity)
- (3) DC Battery Bus (1HA9B)
- Battery and bus material condition and configuration
 - Battery and bus maintenance effectiveness
 - System health reports
 - Worked maintenance and surveillance test reviews
 - Calculations verifying system design requirements
- (4) MDEFW Pump (XPP-21A)
- Compliance with UFSAR, TS, and Design Basis Document (DBD)
 - Material condition and configuration (e.g., visual inspection during a walkdown)
 - Consistency between station documentation (e.g. procedures) and Vendor Specifications
 - Operating, Abnormal and Emergency Procedures
 - Training Manual and System Description
 - Operator Critical Actions
 - Maintenance effectiveness
 - Component Health System reports, corrective maintenance records, and corrective action history
 - Consistency between design bases calculations and test procedure acceptance criteria
 - Surveillance Test results
 - Operating Industry Experience

Design Review - Large Early Release Frequency (LERFs) (IP Section 02.02) (1 Sample)

- (1) Steam Generator (SG) Power Operated Relief Valve (PORV) IPV-2000
- UFSAR, including applicable design and licensing basis requirements
 - Material condition and configuration
 - Maintenance effectiveness, including review of maintenance procedures
 - Surveillance test results
 - Review of related condition reports (CR)
 - System review of the supporting instrument air system
 - Verification that the Equipment Reliability (ER) tracking list accurately reflects current system configuration

Modification Review - Permanent Mods (IP Section 02.03) (4 Samples)

- (1) 50883A - Safety Related Inverter Replacement
- (2) 50567S - Major Revision - XVB3107A/B Closing Time Watchdog Permissive
- (3) 70290C - Steam Generator Tube Rupture (SGTR) Enhancements
- (4) 50933G - Component Cooling Heat Exchanger Service Water Return Throttle Valve Installation - B Train

Review of Operating Experience Issues (IP Section 02.06) (1 Sample)

- (1) NRC Information Notice 2019-02, Emergency Diesel Generator Excitation System Diode Failures

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On November 19, 2020, the inspectors presented the design basis assurance inspection (teams) inspection results to George Lippard III and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21M	Calculations	DC09610-056	Assessment of Instrument Error Flow Measurement in SW Pump IST	Rev. 2
		0.13.10	Review of Skew Hilti Bolt Non-Conformance on Pipe Support Anchors	Rev. 0
		DC0011A-012	Qualified Life of Rosemount 1153 Series A Transmitters (Qual Key 309)	Rev. 5
		DC04330-085	Sizing of SW Throttle Valves	Rev. 0
		DC05220-083	MDEFW Pump Surveillance Test Requirements	Rev. 2
		DC05220-091	EF Hydraulic Analyses	Rev. 3
		DC06630-001	EDG Fuel Oil Consumption	Rev. 14
		DC08040-012	Protective Device Coordination	Rev. 8
		DC08050-002	Load Study of ESF 7.2KV and 480V	Rev. 8
		DC08200-001	ESF Degraded Voltage Logic and Settings	Rev. 29
		DC082220-010	1E Fault Current Study	Rev. 6
		DC08240-003	480V System Protection	Rev. 4
		DC08320-005	ESF Battery 1A & 1B Capacity	Rev. 14
		DC08320-005	ESF Battery 1A & 1B Capacity	10/16/2015
		DC08320-010	Class 1E 125 Volt DC System Voltages & Voltage Drop	Rev. 18
		DC09310-066	Service Water from CC Heat Exchanger B Flow (IFT04490)	Rev. 1
		DC09610-001	Accuracy of Totalized Service Water System Flow	Rev. 2
		DC09610-048	IFE04460/04490 SW Scaling for CCW Heat Exchanger Thermal Performance (GL 89-13)	Rev. 3
		EF-000-2	Piping: Emergency Feedwater Flow Control Valve	04/17/1987
		SW002	Pipe Analysis SW002	Rev. 6.2
		Sw008	SW008 Piping Analysis	10/14/2014
		Corrective Action Documents	17-02093, 17-02586, 17-05464, 17-05877, 20-02840, 16-00972, 17-05464, 17-05526, 17-05530, 17-05588, 17-	Various

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		05877, 18-03208, 18-05853, 19-00223, 19-04060, 19-04222, 20-01075, 20-01115, 20-01791, 20-02840, 20-03029, 14-03039		
		17-04148, 18-01032, 18-01033, 20-01681, 20-02394		
		CR-19-02065, CR-17-05376, CR-17-05224, CR-17-03153	Various	Various
	Corrective Action Documents Resulting from Inspection	20-03588	The cover band assembly for the B MDEFW pump flow control valve is loose and resting circumferentially around the valve body.	11/02/2020
		CR-20-03529	PM Not Generated Per Plant Procedure	10/26/2020
		CR-20-03546	A computational error for dead weight associated with W6x15.5 (GA-W6) beams	10/28/2020
		CR-20-03591	There was no grout beneath the support (Hanger ID: EFH2007) for XVR03531-EF "Air Supply Relief Valve for IFV03531-EF"	11/03/2020
		CR-20-03630	AGASTAT Catalog Pages Included in Error	11/05/2020
		CR-20-03674	Discrepancy between UFSAR Table 8.3-3 Part A1 and Design Calculation DC08360-006	11/10/2020
		CR-20-03676	During extent of condition review for CR-20-03591, which identified base plate for support EFH2007 was missing grout, it was identified that the condition was typical for 5 additional supports.	11/12/2020
CR-20-03725	Discrepancy between UFSAR Table 8.3-3 Part A2 and	11/16/2020		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Design Calculation DC08360-006	
	Drawings	321-085-EFH2007A	Piping Support	Rev. 0
		04-4461-SS- 200-927	480V Load Centers Relay and Breaker Settings	Rev 10
		1MS-50-161	8X6 Body 80 Actuator 667-EWP Diaphragm Actuated Control Valve	11
		321-085-EFH2007B	Piping Support,	Rev. 0
		D-302-011	Main Steam Nuclear	41
	Engineering Changes	70290	Steam Generator Tube Rupture Procedure Enhancements	Rev. D
		ECR 50933G	CC HX SW Return Throttle Valve Installation – B Train	Rev. 6
		ECR50965M	EF Flow Margin Improvement	Rev. 5
	Miscellaneous	0310-0025-MEMO-006	Power & Rectifier Chassis Temperature Rise Test Results	Rev. 0
		10CFR50.59 Review	10CFR50.59 Review for ECR-70290	05/23/2012
		1MS-94B-0390	Vendor Manual- Model 4 Motor Control Center	
		Design Basis Document	Diesel Generator Engine Support and Control Systems (DG)	Rev. 15
		Design Basis Document	Main Steam (MS)	Rev. 12
		ECR 50733, Att. I	Replace the Emergency Diesel Generator Excitation System	Rev. 4
		ECR 50933G - Technical Work Record -ES-104	XVA43182B-SW Status Indication Discussion	Rev. 3
		Enhanced Design Basis Document,	Emergency Feedwater System	Rev. 17
		Health System Report	Emergency Feedwater System Health Report 2nd Half-2019	03/13/2020
		Health System Reports	Emergency Feedwater System (EF) Health Report 1st Half-2020	08/12/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		RPM 2015624	XVB3107A Lockout Control Panel	10/29/2020
		System Health Report	Emergency Diesel Generator 2020 Period 1	08/12/2020
		Time Critical Action Validation Scenario Form	Steam Line Break Outside RB with Loss of Bus 1HA and Offsite Power 05/02/18	05/02/2018
		Time Critical Action Validation Scenario Form S	Steam Generator Tube Rupture Dated 02/26/19	02/26/2019
		VCSNS - DBD 125 Volt DC Electrical System	VCSNS - DBD 125 Volt DC Electrical System	Rev. 6
		Vendor Manual	Bingham Emergency Feedwater Pump	Rev. 5
		Vendor Manual Number 1MS-94B-1425	BNL Industries. Inc.: Operating and Maintenance Instructions for 3/4-inch, 1-inch, and 2-inch (reduced port) Ball Valves	Rev. 5
		Vendor Manual Number 1MS-94B-1870	Fisher Vee-Ball V150 Rotary Control Valves	Rev. 0
	Procedures	STP-123.001	Service Water System Valve Lineup Verification	Rev. 7
		AOP-112.2	ARG-3, Steam Generator Tube Leak not Requiring SI	Rev. 7
		ARP-001-XCP-605 Revision 7	Main Control Board	Rev. 7
		EC-03	Processing Engineering Change Packages	Rev. 6
		EMP 280.004	Molded Case Circuit Breaker Testing	Rev. 22
		EMP 280.006	Molded Case Circuit Breaker and Controller Inspection and Preventative Maintenance	Rev. 8
		EMP-115.029	Battery Main Distribution Panel Inspection	Rev. 1
		EMP-295.011	Motor Rotor Bar Check,	Rev. 4
		EOP-1.0	E-1, Reactor Trip or Safety Injection	Rev. 0
		EOP-3.0, E-2	Faulted Steam Generator Isolation	Rev. 13
		EOP-4.0	E-3, Steam Generator Tube Rupture	Rev. 26
EOP-4.0	E-3, Steam Generator Tube Rupture	Rev. 26		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		ES-0120	Operability or Functionality Recommendation Development	Rev. 1
		ICP-345.064	Functional Test and Replacement of Train A SW to EF Cross Connect Time Delay Relays,	Rev. 0
		ICP-345.065	Functional Test and Replacement of Train B SW to EF Cross Connect Time Delay Relays	Rev. 0
		ICP-400.004	Service Water from CC HX B FlowIFT04490	Rev. 9
		MMP-300.013	Main Steam Power Relief Valve and Actuator Maintenance	Rev. 12 Change A
		MMP-300.022	General Air Actuator Diaphragm and O-Ring Replacement	Rev. 7 Change C
		MMP-300.033	Changing Oil in Pumps Equipped With TRICO OPTO-MATIC oilers,	Rev. 8
		PTP-173.001	Backflushing Service Water side of Component Cooling Heat Exchanger A(B),	Rev. 3
		SAP-0133	Design Control /Implementation and Interface	Rev. 16
		SAP-0999	Correction Action Program	Rev. 19, Change A
		SAP-0999B	CR Review Team (CRRT)	Rev. 1. Change D
		SAP-0999C	Management Review Team (MRT)	Rev. 1, Change G
		SAP-0999E	Corrective Action Review Board (CARB)	Rev. 5
		SAP-143	Preventive Maintenance Program	Rev. 16, Change B
		SOP-211	Emergency Feedwater System	Rev. 14
		STP-0220.001A	Motor Driven Emergency Feedwater Pump and Valve Test	Rev. 2
		STP-0220.008	Motor Driven Emergency Driven Feedwater Pump Full Flow Test	Rev. 7
		STP-120.005A	Motor Driven Emergency Feedwater Pump A Actuation Test	Rev. 1
		STP-121.002A	Steam Generator PORV Operability Test	Rev. 0 Change D
	STP-223.003	Service Water Pump Performance Test Flow vs Differential Pressure	Rev. 1	
	Work Orders	1706308,	Various	Various

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		1711623, 1711906, 1716342, 1716679, 1717001, 1802065, 1808781, 1813048, 1817424, 1900454, 1903296, 1903353, 1903712, 1903717, 1904607, 1905905, 1910786, 1912131, 1913504, 1913702, 1917892, 1918061, 2000979, 2006228, 2008938, 2012520, 2012524, 2012525, 2015732		
		1706952-001, 1708804-001, 1712322-001, 1717581-001, 1717582-001,	Various	Various

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		1718241-001, 1800393-001, 1808401-001, 1809718-001, 1812287-001, 1815929-001, 1820606-001, 1903132-001, 1904919-001, 1909684-001, 1911168-001, 1913117-001, 1913131-001, 1914543-001, 1915269-001, 1915269-002, 1916648-001, 2001053-001, 2004941-001, 2006059-001		
		1903851-001, 1903852-001, 1711884-001, 1718225-001, 1903133-001, 1903136-001, 0105321-001, 1611168-001, 1611168-002, 1710182-001, 1710182-002, 1900232-001	Various	Various