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

May 12, 2022

EA-22-039

Mr. Daniel G. Stoddard
Senior Vice President and Chief Nuclear Officer
Dominion Energy
Innsbrook Technical Center
5000 Dominion Blvd., Floor: IN-2SW
Glenn Allen, VA 23060

SUBJECT: VIRGIL C. SUMMER – INTEGRATED INSPECTION REPORT 05000395/2022001 AND APPARENT VIOLATION

Dear Mr. Stoddard:

On March 31, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Virgil C. Summer. On May 12, 2022, the NRC inspectors discussed the results of this inspection with Mr. George Lippard and other members of your staff. The results of this inspection are documented in the enclosed report.

Section 71111.15 of the enclosed report discusses a finding with an associated apparent violation for which the NRC has not yet reached a preliminary significance determination. This involved an NRC-identified apparent violation of 10 CFR 50, Appendix B, Criterion XVI, which was identified for the licensee failing to correct a condition adverse to quality resulting in the inoperability of the 'B' emergency diesel generator (EDG).

We intend to issue our final safety significance determination and enforcement decision, in writing, within 90 days from the date of this letter. The NRC's significance determination process (SDP) is designed to encourage an open dialogue between your staff and the NRC; however, neither the dialogue nor the written information you provide should affect the timeliness of our final determination. We ask that you promptly provide any relevant information that you would like us to consider in making our determination. We are currently evaluating the significance of this finding and will notify you in a separate correspondence once we have completed our preliminary significance review. You will be given an additional opportunity to provide additional information prior to our final significance determination unless our review concludes that the finding has very low safety significance (i.e., Green).

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC Resident Inspector at Virgil C. Summer.

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,


Signed by Dumbacher, David
on 05/12/22

David E. Dumbacher, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket No. 05000395
License No. NPF-12

Enclosure:
As stated

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SUBJECT: VIRGIL C. SUMMER – INTEGRATED INSPECTION REPORT 05000395/2022001 AND APPARENT VIOLATION – DATED May 12, 2022

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NAME	M. Read	J. Hamman	D. Dumbacher		
DATE	5/11/2022	5/12/2022	5/12/2022		

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number:	05000395
License Number:	NPF-12
Report Number:	05000395/2022001
Enterprise Identifier:	I-2022-001-0030
Licensee:	Dominion Energy
Facility:	Virgil C. Summer
Location:	Jenkinsville, SC
Inspection Dates:	January 01, 2022 to March 31, 2022
Inspectors:	M. Read, Senior Resident Inspector M. Singletary, Reactor Inspector
Approved By:	David E. Dumbacher, Chief Reactor Projects Branch 3 Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated 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

Failure to Correct Condition Adverse to Quality Resulting in Inoperable Emergency Diesel Generator			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Pending AV 05000395/2022001-01 Open EA-22-039	[P.1] - Identification	71111.15
An NRC-identified Apparent Violation of 10 CFR 50, Appendix B, Criterion XVI, was identified for the licensee failing to correct a condition adverse to quality resulting in the inoperability of the 'B' emergency diesel generator (EDG). Specifically, there were indications of erratic governor performance following the January 2022 maintenance package that were identified during testing January 16, 2022. The governor performance was also erratic during the February 9, 2022, surveillance test, after which the licensee declared the EDG inoperable. As a result of this condition, the 'B' EDG was inoperable for a time in excess of its Technical Specification (TS) allowed outage time.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000395/2021-001-01	LER 2021-001-01 for Virgil C. Summer Nuclear Station, Unit 1, Condition Prohibited by Technical Specifications	71153	Closed
LER	05000395/2022-001-00	LER 2022-001-00 for Virgil C. Summer Nuclear Station (VCSNS) Unit 1, Manual Reactor Trip Due to Main Transformer Fault	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at rated thermal power (RTP). On February 3, 2022, the unit was down powered to 15 percent RTP to disconnect the main generator for repair of the isophase bus ducts at the main transformer. The unit was returned to RTP on February 5, 2022 and remained at or near RTP for the remainder of the inspection period.

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 performed activities described in IMC 2515, Appendix D, "Plant Status," observed risk significant activities, and completed on-site portions of IPs. 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

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of forecasted high winds and ice accumulation on January 15, 2022

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

(1) Alternate seal injection system on January 4, 2022, following maintenance and testing
(2) 'A' emergency diesel generator on January 10, 2022, during 'B' emergency diesel generator maintenance
(3) '1DA' and '1DB' emergency electrical busses on January 26, 2022, during alignment of the alternate power source for '1DA' emergency electrical bus
(4) Service water system in the service water pump house on February 24, 2022

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated system configurations during a complete walkdown of the instrument air system on March 14, 2022

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

(1) Diesel generator building on January 24 and 25, 2022
(2) Auxiliary building elevation 388 feet on February 3, 2022
(3) Turbine building elevation 463 feet on February 7, 2022
(4) Fuel handling building elevation 463 feet on March 9, 2022

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

(1) Diesel generator building, review completed on March 7, 2022

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the control room during STP-106.001, moveable rod insertion test, on January 28, 2022, decreasing power from 100 percent to 15 percent on February 2, 2022, and increasing power from 15 percent to 47 percent on February 4, 2022

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

(1) Inspectors observed licensed operator requalification simulator training exercise involving loss of cooling to reactor building cooling units, a feedwater regulating valve failing open, and faulted steam generators, on March 8, 2022

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

(1) Safety-related chillers, review completed on February 7, 2022
(2) Spent fuel pool decay heat removal, review completed on March 30, 2022

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

(1) 'B' emergency diesel generator 3-year preventative maintenance package during the week of January 10, 2022

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (6 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

(1) Elevated risk during 'B' emergency diesel generator maintenance during the week of January 10, 2022
(2) Increased plant risk during alternate electrical alignment to allow repairs of transformer 'XTF-4' on January 26, 2022
(3) Elevated plant risk on February 16, 2022, while 'B' instrument air compressor was out of service for repairs
(4) Yellow risk condition during 'B' train solid state protection system testing on February 18, 2022
(5) Elevated risk during reactor coolant pump undervoltage and underfrequency testing on March 3, 2022
(6) Elevated risk during maintenance on the boric acid transfer system including unavailability of both boric acid transfer pumps on March 28, 2022

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

(1) CR-22-00007, alternate seal injection diesel generator failure to start on January 2, 2022
(2) CR-22-00151, alternate seal injection diesel generator fire, on January 16, 2022
(3) CR-22-00251, 'A' EDG inoperability determination due to voltage regulator raise/lower switch, on January 27, 2021
(4) CR-21-03276, reactor building fire service isolation valve XVG06797 failure to close during containment isolation testing, reviewed on February 24, 2022
(5) CR-22-00134 and CR1191016, 'B' emergency diesel generator load swings during surveillance testing, on January 15 and February 9, 2022

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the following post-maintenance testing activities to verify system operability and/or functionality:

(1) MMP-300.007, diesel driven fire pump preventative maintenance, following replacement of filters, belts, and several hoses, on January 5, 2022

(2) SOP-306, emergency diesel generator, for running the 'A' emergency diesel generator on January 28, 2022, following replacement of the voltage regulator control switch
(3) PTP-100.001, FLEX alternate emergency feedwater flow test, on January 4, 2022
(4) STP-223.002A, 'A' service water booster pump testing, following pump and motor preventative maintenance, on February 23, 2022
(5) STP-225.001, 'B' emergency diesel generator support systems pump and valve test, following replacement of an air start valve, on March 18, 2022

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance testing activities to verify system operability and/or functionality:

Surveillance Tests (other) (IP Section 03.01) (5 Samples)

(1) STP-106.001, moveable rod insertion test, on January 3, 2022
(2) STP-125.003A, 'A' emergency diesel generator testing, on February 10, 2022, while the 'B' emergency diesel generator was inoperable
(3) STP-345.074, solid state protection system actuation logic and master relay test train 'B', on February 18, 2022
(4) STP-112.010 and STP-112.011, safety injection and reactor building spray suction piping air void verification, on February 22, 2022
(5) STP-506.002 and STP-506.003, reactor coolant pump undervoltage and underfrequency trip device testing, on March 3, 2022

Inservice Testing (IP Section 03.01) (1 Sample)

(1) STP-220.002, turbine driven emergency feedwater pump and valve test, on March 8, 2022

71114.06 - Drill Evaluation

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated:

(1) The inspectors evaluated a drill involving a seismic event resulting in reactor trip and safety injection, fuel damage, reactor coolant system leakage, and leakage through a containment penetration, on January 5, 2022

OTHER ACTIVITIES – BASELINE

71153 - Follow Up of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (2 Samples)

The inspectors evaluated the following licensee event reports (LERs):

(1) LER 05000395/2021-001-01, Condition Prohibited by Technical Specifications (ADAMS Accession No. ML22040A143). The inspectors reviewed the updated LER

submittal. The previous LER submittal was reviewed in Inspection Report 05000395/2021003. The inspection conclusions associated with this LER are documented in this report under Inspection Results Section "Other Activities - Baseline, Section 71153" and are unchanged with this updated LER submittal.

(2) LER 05000395/2022-001-00, Manual Reactor Trip Due to Main Transformer Fault (ADAMS Accession No. ML22014A292). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER therefore no performance deficiency was identified. The inspectors did not identify a violation of NRC requirements.

INSPECTION RESULTS

Failure to Correct Condition Adverse to Quality Resulting in Inoperable Emergency Diesel Generator			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Pending AV 05000395/2022001-01 Open EA-22-039	[P.1] - Identification	71111.15

An NRC-identified Apparent Violation of 10 CFR 50, Appendix B, Criterion XVI, was identified for the licensee failing to correct a condition adverse to quality resulting in the inoperability of the 'B' emergency diesel generator (EDG). Specifically, there were indications of erratic governor performance following the January 2022 maintenance package that were identified during testing January 16, 2022. The governor performance was also erratic during the February 9, 2022, surveillance test, after which the licensee declared the EDG inoperable. As a result of this condition, the ‘B’ EDG was inoperable for a time in excess of its Technical Specification (TS) allowed outage time.

Description: In January 2022, the licensee performed preventative maintenance on the 'B' EDG. During testing on January 15, the licensee identified power spikes when testing the EDG, indicating a governor performance issue. Condition Report CR-22-00134 was written to address the power spikes. Repairs were performed on the electronic governor speed switch transmitter after it detached from the engine during one of the tests. During the January 16 surveillance test, data available on the plant computer system and reports from Operations indicated that the erratic governor performance had not been corrected. Despite the condition, Operations declared the 'B' EDG operable based on meeting the acceptance criteria of the surveillance test. NRC inspectors identified that Operations had informed Engineering of the load swings that were noticed from the field and in the main control room during the test but recommended that Engineering monitor future EDG testing for an adverse trend. The issues identified during the January 16 surveillance test were not documented in the licensee's Corrective Action Program.

On February 9, 2022, the licensee conducted a routine monthly surveillance test on the 'B' EDG. During this test, governor oscillations worsened in magnitude and frequency. Operations declared the 'B' EDG inoperable based on meeting the acceptance criteria of the surveillance test, but Operations generated Condition Report CR1191016 for the oscillations. Engineering reviewed the testing data later that day and recommended declaring the EDG inoperable since they did not have reasonable assurance that the EDG could perform its function based on a qualitative assessment of the oscillations.

The licensee identified the cause of the governor behavior as a broken pin on an Amphenol connector which connects the speed switch transmitter to the governor. The licensee repaired the connector, tested the EDG, and did not identify any further power spikes.

Based on plant computer data from the January 16, 2022, surveillance test and witnesses from Operations, inspectors determined that the condition existed from January 16, 2022, until it was repaired on February 11, 2022.

Corrective Actions: Condition report CR-22-00134 was created following the January 15, 2022, testing which identified power spikes while the EDG was synchronized to the grid. The licensee made repairs to the speed switch sensor. Condition report CR1191016 was created following the February 9, 2022, testing which identified the power spikes were present and more frequent than the January testing. The licensee repaired a broken pin on an Amphenol connector to resolve the governor performance issues.

Corrective Action References: CR-22-00134, CR1191016

Performance Assessment:

Performance Deficiency: The licensee's failure to evaluate and correct a condition adverse to quality on the 'B' emergency generator during testing on January 16, 2022 and comply with the Technical Specification's allowed outage time was within the licensee's ability to foresee and correct and was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the condition affected the reliability of the 'B' emergency diesel generator to perform its design basis function.

Significance: The inspectors assessed the significance of the finding using Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The condition represented a loss of the PRA function of one train of a multi-train TS system for greater than its Technical Specification (TS) allowed outage time, therefore a detailed risk evaluation was required. A regional Senior Reactor Analyst (SRA) will conduct a detail risk assessment in accordance with NRC Inspection Manual Chapter (IMC) 0609 Appendix A.

Cross-Cutting Aspect: P.1 - Identification: The organization implements a corrective action program with a low threshold for identifying issues. Individuals identify issues completely, accurately, and in a timely manner in accordance with the program. Specifically, the licensee had information following the January 16, 2022, test indicating governor performance issues and failed to document the issue in their Corrective Action Program.

Enforcement:

Violation: 10 CFR 50, Appendix B, Criterion XVI establishes the requirements for the licensee's quality assurance program and requires, in part, "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." The licensee complies with 10 CFR 50, Appendix B, Criterion XVI through DOM-QA-1, Nuclear Facility Quality Assurance Program Description, Section XVI, which states, "Company procedures assure that corrective action is documented and initiated

following the determination of a condition adverse to quality (such as a nonconformance, failure, malfunction, deficiency, deviation, adverse trend, and defective material and equipment) in accordance with regulatory guidance and industry quality standards." This is accomplished through fleet procedure PI-AA-200, Corrective Action, which "establishes measures to be taken to assure that conditions adverse to quality (e.g., failures malfunctions, deficiencies, defective material and equipment, and nonconformances) are promptly identified and corrected." In addition, Technical Specifications (TS) 3.8.1.1 Action b.4 allows up to 72 hours to restore one inoperable EDG. Contrary to the above, the licensee inadequately assessed erratic governor behavior during the testing on January 16, 2022, and failed to correct the condition, resulting in the inoperability of the 'B' EDG from January 16, 2022, until it was repaired on February 11, 2022, a time in excess of its 72 hour TS allowed outage time.

Enforcement Action: This violation is being treated as an apparent violation pending a final significance (enforcement) determination.

EXIT MEETINGS AND DEBRIEFS

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

- On May 12, 2022, the inspectors presented the integrated inspection results to Mr. George Lippard and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152A	Miscellaneous		Integrated Plant Computer System data for January 15, January 16, February 9, and February 10 emergency diesel generator testing	
	Procedures	STP-125.002B	Diesel Generator B Operability Test	3
		STP-125.018	Diesel Generator B Loss of Offsite Power Test	9
71153	Corrective Action Documents	CR-21-03454	Center phase fault in main transformer	11/16/2021
	Miscellaneous	Reactor Trip Report V-11-15-21		12/08/2021