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

January 28, 2021

Mr. Daniel G. Stoddard
Senior Vice President
and Chief Nuclear Officer
Virginia Electric & Power Co.
5000 Dominion Boulevard
Glen Allen, VA 23060

SUBJECT: NORTH ANNA POWER STATION – INTEGRATED INSPECTION REPORT 05000338/2020004 AND 05000339/2020004; 07200016/2020002

Dear Mr. Stoddard:

On December 31, 2020, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at North Anna Power Station. On January 14, 2021, the NRC inspectors discussed the results of this inspection with Mr. Fred Mladen, Site Vice President 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/

Stewart N. Bailey, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos. 05000338 and 05000339
License Nos. NPF-4 and NPF-7

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV®

SUBJECT: NORTH ANNA POWER STATION – INTEGRATED INSPECTION REPORT 05000338/2020004 AND 05000339/2020004; 07200016/2020002 dated January 28, 2021

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000338 and 05000339; 07200016
License Numbers:	NPF-4 and NPF-7
Report Numbers:	05000338/2020004 and 05000339/2020004; 07200016/2020002
Enterprise Identifier:	I-2020-004-0055; I-2020-002-0079
Licensee:	Virginia Electric & Power Co.
Facility:	North Anna Power Station
Location:	Mineral, VA
Inspection Dates:	October 1, 2020 to December 31, 2020
Inspectors:	M. Tobin, Senior Resident Inspector M. Thomas, Senior Resident Inspector K. Carrington, Resident Inspector B. Towne, Resident Inspector P. Niebaum, Senior Project Engineer D. Jackson, Project Engineer
Approved By:	Stewart N. Bailey, Chief Reactor Projects Branch 4 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 North Anna Power 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.

PLANT STATUS

Unit 1 operated at or near rated thermal power for the entire inspection period.

Unit 2 began the inspection period shutdown in a planned refueling outage. Operators commenced startup on October 16, 2020. The reactor reached criticality on October 18, 2020, and the turbine generator was synchronized to the grid on October 19, 2020. The unit was returned to rated thermal power on October 22, 2020, and remained at or near rated thermal power 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 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 Disease 2019 (COVID-19), resident inspectors were directed to begin telework and to remotely access licensee information using available technology. During this time, the resident inspectors performed periodic site visits each week; conducted plant status activities as described in IMC 2515, Appendix D, "Plant Status"; observed risk-significant activities; and completed on-site portions of IPs. In addition, resident and regional baseline inspections were evaluated to determine if all or portions 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

71111.01 - 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 seasonal cold temperatures for the following systems:
- Units 1 and 2 emergency diesel generator systems on December 14, 2020
- Units 1 and 2 turbine driven auxiliary feedwater system on December 21, 2020

Impending Severe Weather Sample (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated the adequacy of the overall preparations to protect risk-significant systems from impending severe weather, flash flooding and high lake levels on November 12, 2020.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (2 Samples)

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

(1) Unit 2 turbine driven and motor driven auxiliary feedwater pump rooms on October 21, and October 23, 2020.
(2) Unit 2 component cooling water pump '1B' following maintenance on November 23 and November 24, 2020.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (3 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) Unit 1 and Unit 2 station and main auxiliary transformer areas (TF-1 and TF-2) on October 23, 2020.
(2) Unit 1 and Unit 2 service water pump house on October 9, 2020.
(3) Unit 2 ‘H’ emergency diesel generator room on October 1, 2020.

71111.06 - Flood Protection Measures

Cable Degradation (IP Section 03.02) (1 Sample)

The inspectors evaluated cable submergence protection in:

(1) Manhole 04MH03

71111.11A - Licensed Operator Requalification Program and Licensed Operator Performance

Requalification Examination Results (IP Section 03.03) (1 Sample)

The licensee completed the annual requalification operating examinations required to be administered to all licensed operators in accordance with Title 10 of the *Code of Federal Regulations* 55.59(a)(2), “Requalification Requirements,” of the NRC’s “Operator’s Licenses.” During the week of November 9, 2020, the inspector performed an in-office review of the overall pass/fail results of the individual operating examinations, the crew simulator operating examinations, and the biennial written examinations in accordance with IP 71111.11, “Licensed Operator Requalification Program.” These results were compared to the thresholds established in Section 3.02, “Requalification Examination Results,” of IP 71111.11.

(1) The inspectors reviewed and evaluated the licensed operator examination failure rates for the requalification annual operating exam administered on October 20, 2020.

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 reactor startup activities following the refueling outage on October 18, 2020.

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

(1) The inspectors observed and evaluated a simulator training drill on November 5, 2020.

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) Units 1 and 2: DB50 reactor trip and bypass breakers, on October 29, 2020
(2) Common Unit: Station blackout diesel generator unavailability, on December 15, 2020

Quality Control (IP Section 03.02) (1 Sample)

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

(1) Unit 2 ‘J ‘ EDG governor replacement performed per WO 59102658577

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (2 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) Unit 1 and Unit 2 in elevated green risk due to activities associated with startup activities, planned service water pump maintenance, and emergent issues with a Unit 1 reactor trip bypass breaker on October 22, 2020
(2) Unit 1 and Unit 2 in yellow risk due to the planned replacement of the reserve station service transformer, the planned replacement of a circulating water pump, and planned testing of service water motor operated valves on November 3, 2020

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) Unit 1 train 'A' reactor trip bypass breaker failed to close on October 21, 2020
(2) Unit 2 'B' reactor coolant pump due to brown boric acid accumulated on the bolts on October 21, 2020
(3) Unit 2 emergency switchgear room overfilled cable raceway on October 13, 2020
(4) Unit 2 reactor coolant pump "C" seal leakage, on November 16, 2020
(5) Unit 2 service water supply line to heating and ventilation chiller 2-HV-E-4C below administrative limit for pipe wall minimum thickness, on December 4, 2020

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

(1) Unit 2 flow accelerated corrosion program piping replacements for various systems inside containment during refuel outage 2R27 on November 13, 2020

71111.19 - Post-Maintenance Testing

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

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

(1) 2-PT-82.12J, 2J Diesel Generator Isochronous Mode (Start by ESF Actuation), after replacement of the 2 ‘J' emergency diesel generator electronic governor per work order (WO) 59102658577
(2) 2-PT-71.3Q.1, (2-FW-P-3B) Motor Driven AFW IST Comprehensive Pump and Valve Test, after replacement of the pump motor per WO 59203293492
(3) 2-PT-77.11B, Control Room Chiller 2-HV-4E-4B Pump and Valve Test, following planned maintenance on November 24, 2020
(4) WO 59203300987, service water valve, SW-MOV-204A, post maintenance test following motor replacement and valve seat repair, on November 2, 2020
(5) 2-PT-82.12J 40-OTO1, 2 ‘J’ emergency diesel generator test following an identified failed surveillance test, on November 20, 2020

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated the Unit 2 refuel outage (2R27) activities from October 1, 2020 to October 21, 2020.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Inservice Testing (IP Section 03.01) (1 Sample)

(1) 1-PT-57.1B, Emergency Core Cooling Subsystem - Low Head Safety Injection Pump (1-SI-P-1B) on November 18, 2020

71114.06 - Drill Evaluation

Drill/Training Evolution Observation (IP Section 03.02) (2 Samples)

The inspectors evaluated:

(1) Emergency preparedness training drill on November 5, 2020
(2) Emergency preparedness training drill on December 8, 2020

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS06: Emergency AC Power Systems (IP Section 02.05) (2 Samples)

(1) Unit 1 (October 1, 2019, through September 30, 2020)
(2) Unit 2 (October 1, 2019, through September 30, 2020)

MS09: Residual Heat Removal Systems (IP Section 02.08) (2 Samples)

(1) Unit 1 (October 1, 2019, through September 30, 2020)
(2) Unit 2 (October 1, 2019, through September 30, 2020)

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (1 Sample)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issue:

(1) Condition report (CR) 1156615 - reactor pressure vessel (RPV) lower internals scratched surface during lift due to contact with the lower internals storage rack

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

60855.1 - Operation of an Independent Spent Fuel Storage Installation at Operating Plants

Operation of an Independent Spent Fuel Storage Installation at Operating Plants (1 Sample)

(1) The inspectors evaluated the licensee's activities related to long-term operation and monitoring of their independent spent fuel storage installation on October 26, 2020.

INSPECTION RESULTS

Minor Violation Associated with Scratching of RPV Lower Internals During Lift	71152
Minor Violation: The NRC identified a minor violation of 10 CFR Part 50, Appendix B, Criterion V, Instructions Procedures and Drawings. Specifically, licensee procedure 0-MCM-1112-02, Installation of the Reactor Vessel Lower Internals, did not provide an adequate clearance distance from the lower internals stand during the lift of the lower internal assembly. Accordingly, on September 29, 2020 the Unit 2 RPV lower internals assembly was damaged during the lift to return it to the vessel. The RPV lower internals made contact with the lower internals storage stand during the move, which resulted in scratches on the surface of the lower internals. Screening: The inspectors determined the performance deficiency was minor. In accordance with Inspection Manual Chapter 0612 Appendix B, the performance deficiency could not be reasonably viewed as a precursor to a significant event; if left uncorrected, would not have the potential to lead to a more significant safety concern and did not adversely affect a cornerstone objective. Subsequent evaluation by Westinghouse determined that the damage to the RPV lower internals was superficial and presented no danger of loose parts or structural compromise. The reactor was defueled during the incident, there was no risk to reactor safety, no risk of radiological release, and the damage did not pose a risk to future operations. Enforcement: The failure to comply with 10 CFR Part 50 Appendix B Criterion V constituted a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. This event was captured in the licensee's corrective action program as CR 1156615. Compliance with 10 CFR Part 50, Appendix B will be restored upon completion of the corrective actions specified in the CR.	

EXIT MEETINGS AND DEBRIEFS

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

- On January 14, 2021, the inspectors presented the integrated inspection results to Mr. Fred Mladen, Site Vice President and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
60855.1	Procedures	O-PT-4.3	ISFSI Dry Storage Cask Visual Inspection and DG Fuel Oil Sampling	16
71111.01	Corrective Action Documents	CR1159810	1-HV-MOD-129-1 is not Closing When Fan is Off	10/31/2020
	Procedures	0-AP-40	Abnormal Level in North Anna Reservoir (Lake)	20
		0-AP-41	Severe Weather Conditions	77
		0-GOP-4	Cold Weather Operations	67
		GOP 4.2	Extreme Cold Weather Operations	43
71111.04	Corrective Action Documents	CR 1162051	Chiller discharge Pressure Gauge found broken for HV-PI-600C	
	Drawings	12050-DAR-79A	Appendix R Safe Shutdown Flow Diagram Component Cooling Water	5
		12050-FM-079A	Flow/Valve Operating Numbers Diagram Component Cooling Water System, Sheet 1	33
	Miscellaneous	SBBD-NAPS-CC	Component Cooling System Design Basis Document	20
	Procedures	0-MOP-49.30		24
		2-OP-51.1	Component Cooling System	25
71111.05	Corrective Action Documents	CR1158460	Activation of Deluge System on Unit 1 Main Transformers	10/15/2020
	Miscellaneous		Shiftly Fire Watch for Turbine Units 1&2 Lube Oil Deluge System	
71111.06	Drawings	11715-FC-29A, Sheet 1	Fuel Oil Pump House & Tanks	14
		11715FE-32H017, Sheet 2	Manhole Details	17
	Miscellaneous		1M/MH/MH-4 Cable Ticket	
71111.12	Miscellaneous		Instructions for Types DB-50, DBF-16, and EBL-50 Air Circuit Breakers (www.Electricpartmanuals.com)	
	Procedures	ER-AA-MRL-10	Maintenance Rule Program	7
		ER-AA-MRL-100	Implementing Maintenance Rule	13
		ER-AA-PRS-1001	Plant Health Committee	13
		ER-AA-PRS-1010	Preventive Maintenance Task Basis and Maintenance Strategy	13

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		NAS-3014	Specification for Electrical Installation for North Anna Power Station Units 1 & 2	21
		VPAP-1001	Quality Control (QC) Inspection Program	25
71111.13	Miscellaneous	201114A Schedule Evaluation	Risk schedule for the week of 11/8/2020	0
		Plan of Week		10/19- 10/23
	Procedures	ER-AA-RIE-101	Active Component Risk Significance Insights	2
		NF-AA-PRA-101-3020	Probabilistic Risk Assessment Procedures and Methods: PRA Risk Summary Information	4
		WM-AA-301	Operational Risk Assessment	20
71111.15	Corrective Action Documents	CR 1161718	Below admin UT reading SW supply to 2 HV-E-4C	
		CR1158954	1-EP-BKR-BYB Bypass BKR B	10/21/2020
		CR1162043	Valve Body Erosion	
	Drawings	11715-CBB-040D, Sheet 5	Isometric Drawing	
		11715-ESK-6V	Elementary Diagram- Reactor Trip Switchgear, Sheet 1	14
		11715-ESK-6W	Elementary Diagram- Reactor Trip Switchgear, Sheet 2	11
		11715-ESK-6Y	Elementary Diagram- Reactor Trip Switchgear, Sheet 4	12
		11715-FB-040D, sheet 2		
		12050-WS-2H85A	Erection Control Isometric ANSI B31.7 Class Q3	1
		DWG053649	N-9000 Seal for 93A RCP	3
	Miscellaneous		Maintenance Department Logs	10/22/2020
		ANSI/ASME B31.1- 1980 Edition	USA Standard Code for Pressure Piping	
	NDE Reports	BOP-VE-20-016	Unit 2 Chiller Room	12/02/2020
	Procedures	0-PT-75.14	Service Water Wall Thickness Monitoring	18
		2-AP-33.1	Reactor Coolant Pump Seal Failure	24
		AR-N3-404	Implementation of 10 CFR 21 and 10 CFR 50.55(e), Reporting of Defects and Failure to Comply	6

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.18	Engineering Changes	NA-19-00116	Unit 2 2020 Flow Accelerated Corrosion (FAC) Program - Piping Replacements	5
71111.19	Corrective Action Documents	CA8153324		
		CR1156796	2J EDG Started During Pre-Operational Air Roll	10/02/2020
	Drawings	11715-FB-40C-40E	Chilled Water System Drawings	
	Engineering Changes	2-PT-82.12J	2J Diesel Generator Isochronous Mode (Start by ESF Actuation)	40
	Miscellaneous		CR1156796 Human Performance Review Board Documentation	10/06/2020
	Procedures	0-ECM-0708-05	Woodward Digital Reference Unit (DRU) and 2301A Field Adjustments	9
		2-ICP-HV-004B	Heating and Ventilation Chiller 2-HV-E-4B Safety Circuitry and Control Calibration	18
		2-OP-21.6	Main Control Room and Relay Room Air Conditioning	36
		2-PT-82.12J	2J Diesel Generator Isochronous Mode (Start by ESF Actuation)	40-OTO1
	Work Orders	59203324094	Ckt bkr for 2-MS-TV-211B tripped while Opening Valve	10/17/2020
		WO 59203300987	Electrical Disconnect/reconnect for 02-SW-MOV-204A-VALVOP	0
71111.20	Corrective Action Documents	CR 1157564	Mode Hold for Unit 2 Startup	10/07/2020
	Corrective Action Documents Resulting from Inspection	CR1158223		
	Miscellaneous		NAPS Outage Master Filter- 72 hours lookahead	10/16/2020
			2R27 North Anna Submit Outage Critique	10/19/2020
			2R27 Startup JITT	
			2R27 North Anna Communicate Handoffs/Issues	10/16/2020
	Procedures	2-OP-1.7	Unit Startup from Mode 3 to Mode 2 Following Refueling	36
		2-OP-2.1	Unit Startup From Mode 2 to Mode 1	130
71114.06	Miscellaneous	2020 Training Drill	Dominion Energy North Anna Power Station 2020 Training Drill	0
		NDEC 20 EPD	North Anna Emergency Plan Drill	12/8/2020

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71152	Miscellaneous		Prompt Issue Review Team Report, Unit Two Lower Internal Package Move – Loss of Load	10/2/2020
	Procedures	2-AP-33.1	Reactor Coolant Pump Seal Failure	24