



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION II
245 PEACHTREE CENTER AVENUE N.E., SUITE 1200
ATLANTA, GEORGIA 30303-1200

August 4, 2022

Mr. Daniel Stoddard
Senior Vice President and Chief Nuclear Officer
Virginia Electric and Power Company
Innsbrook Technical Center
5000 Dominion Boulevard
Glen Allen, VA 23060-6711

SUBJECT: SURRY POWER STATION – INTEGRATED INSPECTION REPORT
05000280/2022002 AND 05000281/2022002

Dear Mr. Stoddard:

On June 30, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Surry Power Station. On July 14, 2022, the NRC inspectors discussed the results of this inspection with 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,

A handwritten signature in black ink, appearing to read "Matthew S. Fannon".

Signed by Fannon, Matthew
on 08/04/22

Matthew S. Fannon, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos. 05000280 and 05000281
License Nos. DPR-32 and DPR-37

Enclosure:
As stated

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SUBJECT: SURRY POWER STATION – INTEGRATED INSPECTION REPORT
05000280/2022002 AND 05000281/2022002 DATED AUGUST 4, 2022

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OFFICE	RII/DRP	RII/DRP	RII/DRP		
NAME	S. Kennedy	A. Wilson	M. Fannon		
DATE	7/26/2022	8/4/2022	8/4/2022		

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

Docket Numbers: 05000280 and 05000281

License Numbers: DPR-32 and DPR-37

Report Numbers: 05000280/2022002 and 05000281/2022002

Enterprise Identifier: I-2022-002-0023

Licensee: Virginia Electric and Power Company

Facility: Surry Power Station

Location: Surry, VA

Inspection Dates: April 01, 2022 to June 30, 2022

Inspectors: S. Kennedy, Senior Resident Inspector
L. McKown, Senior Resident Inspector
B. Towne, Resident Inspector

Approved By: Matthew S. Fannon, 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 Surry 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 operated at or near rated thermal power for the entire 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

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (3 Samples)

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

- (1) Unit 2 outside recirculation spray on April 12, 2022
- (2) charging pump service water system on April 13, 2022
- (3) Unit 2 service water inlet isolation valves on May 5, 2022

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (7 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 2 cable spreading area on April 8, 2022
- (2) Unit 2 safeguards building low head safety injection, outside recirculation spray pump enclosures, and valve pit on April 12, 2022
- (3) mechanical equipment room 3 on April 13, 2022
- (4) #1 emergency diesel generator room on June 24, 2022
- (5) #2 emergency diesel generator room on June 24, 2022
- (6) mechanical equipment room 2 on June 28, 2022
- (7) mechanical equipment room 5 on June 28, 2022

Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the onsite fire brigade performance during a fire event at the low level intake structure on May 11, 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 Unit 1 power ramp to 85 percent. The power ramp was required for condensate polisher regeneration for steam generator chemistry while the 1G condensate polisher was out of service for repairs on April 8, 2022.

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

- (1) The inspectors observed and evaluated licensed operator performance in the simulator during a full-scale emergency preparedness drill on April 26, 2022. The drill events included a dropped rod, a fuel failure, and a large break loss of coolant accident.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (1 Sample)

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

- (1) emergency service water pump and diesel pump-engine performance and condition monitoring on May 11, 2022

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (3 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 risk mitigation strategy including steam generator chemistry sampling and a planned down power during repair of 1G condensate polisher on April 5, 2022
- (2) Unit 1 and Unit 2 probabilistic risk assessment evaluation and risk mitigation strategy for semi-annual station battery testing on April 20, 2022
- (3) Unit 2 risk mitigation strategy during non-destructive evaluation of auxiliary feedwater full recirculation flow line on June 30, 2022

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (7 Samples)

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

- (1) Condition Report (CR)1196607, 1-SW-268, charging pump 10A discharge header check valve, following discovery of a broken body-to-bonnet alignment pin during routine maintenance, on April 14, 2022
- (2) CR1197577, Unit 1 emergency boration motor operated valve failure, on April 25, 2022
- (3) CR1197955, voiding discovered in low head safety injection piping, on April 27, 2022
- (4) CR1198449, auxiliary feedwater steam admission valve air operator pressure controller setpoint exceeds maximum actuator casing pressure, on May 4, 2022
- (5) CR1199480, erratic flowrate of A emergency service water pump, on May 16, 2022
- (6) Work Order (WO)38204290799 and Corrective Action 9184130, auxiliary feedwater full flow recirculation line 90-day assessment of pipe temporary patch and non-destructive evaluation, on June 2, 2022
- (7) CR1201556, copper tape placed on 1-CW-LE-103 and 2-CW-LE-203, intake canal level elements, on June 13, 2022

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) SU-22-00122, Unit 1 refueling water storage tank chiller temporary modification

71111.19 - Post-Maintenance Testing

Post-Maintenance Test Sample (IP Section 03.01) (2 Samples)

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

- (1) 2-CC-329, charging pump cooling water pump 2B discharge check valve, repair following the valve sticking open during pump switching (WO38204295781), on April 4, 2022
- (2) 1-FP-P-1, motor driven fire pump following scheduled maintenance package and motor overhaul (WO38204248142), on April 21, 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) (4 Samples)

- (1) 1-OSP-TM-001, Unit 1 Turbine Inlet Valve Freedom Test, on April 8, 2022
- (2) 2-OPT-EG-002, Number 2 Emergency Diesel Generator Monthly Start Exercise Test, on April 4, 2022

- (3) 1-OPT-FW-021, Unit 1 Auxiliary Feedwater Crosstie Motor Operated Valve Stroke Test, on April 15, 2022
- (4) 2-OPT-RX-005, Unit 2 Control Rod Assembly Partial Movement Test, on June 7, 2022

Inservice Testing (IP Section 03.01) (2 Samples)

- (1) 2-OPT-FW-003/007/014/016, Unit 2 auxiliary feedwater pump, steam supply check valves, and inspections, on May 19, 2022
- (2) 0-OPT-SW-002, Emergency Service Water Pump 1-SW-P-1B, on Jun 24, 2022

71114.06 - Drill Evaluation

Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01) (2 Samples)

- (1) The inspectors observed and evaluated an emergency preparedness drill on April 26, 2022. Events included a dropped rod leading to fuel damage and a large break loss of coolant accident.
- (2) The inspectors observed and evaluated an emergency preparedness drill on June 14, 2022. Events included reactor coolant pump high vibrations, an anticipated transient without scram, loose parts leading to fuel damage, and a steam generator tube rupture.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (2 Samples)

- (1) Unit 1 (January 1, 2021 to March 31, 2022)
- (2) Unit 2 (January 1, 2021 to March 31, 2022)

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 1 (January 1, 2021 to March 31, 2022)
- (2) Unit 2 (January 1, 2021 to March 31, 2022)

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (2 Samples)

- (1) Unit 1 (January 1, 2021 to March 31, 2022)
- (2) Unit 2 (January 1, 2021 to March 31, 2022)

71152A - Annual Follow-up Problem Identification and Resolution

Annual Follow-up of Selected Issues (Section 03.03) (1 Sample)

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

- (1) effectiveness of corrective actions associated with Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems, on May 9, 2022

71152S - Semiannual Trend Problem Identification and Resolution

Semiannual Trend Review (Section 03.02) (1 Sample)

- (1) The inspectors reviewed the licensee's corrective action program for potential adverse trends in execution of low priority assigned work orders that might be indicative of a more significant safety issue.

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

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

- On July 14, 2022, the inspectors presented the integrated inspection results to Fred Mladen, Site Vice President, and other members of the licensee staff.

THIRD PARTY REVIEWS

Inspectors reviewed Institute on Nuclear Power Operations reports that were issued during the inspection period.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.05	Fire Plans	0-FS-FP-121	Diesel Generator Room Number 1 Elevation 27 Feet - 6 Inches	2
		0-FS-FP-122	Diesel Generator Room Number 2 Elevation 27 Feet - 6 Inches	2
		0-FS-FP-224	Mechanical Equipment Room (MER 5) Elevation 9 Feet - 6 Inches	5
		2-FS-FP-126	Mechanical Equipment Room Number 2, Elevation 45 Feet - 3 Inches	2
	Procedures	CM-AA-FPA-100	Fire Protection/Appendix R (Fire Safe Shutdown) Program	Revision 19
71111.11Q	Miscellaneous	MEMO-RXE-20220006	Reactivity Plan for Unit 1 power ramp from 100% to 85%	Rev 0
	Procedures	0-AP-1.00	Rod Control System Malfunction	Rev 29
71111.13	Procedures	0-EPT-104-01	Semi-Annual Station Battery Test	Rev 20
		CH-99-600	Secondary Chemistry Specifications and Action Levels	Rev 18
		WM-AA-301	Operational Risk Assessment	22
71111.18	Corrective Action Documents	CR1202622	Priority Drawings not Updated during Temporary Modification Process	(06/29/2022)
	Engineering Changes	IP-ENG-001	Standard Design Process	2
71111.19	Corrective Action Documents	CR1197467	1-FP-PI-105 may need calibration	04/21/2022
	Procedures	0-OPT-FP-005	Motor Driven Fire Protection Water Pump 1-FP-P-1	Rev 26
	Work Orders	WO#38204295781	Open/Inspect Check Valve 2-CC-329	04/03/2022
71111.22	Corrective Action Documents	CR1196011	U1 Stop Valve 4 did not close during performance of 1-OSP-TM-001	04/08/2022
	Procedures	1-OSP-TM-001	Turbine Inlet Valve Freedom Test (Unit 1)	Rev 45
	Work Orders	WO#38204247204	1-OPT-FW-021 AFW Crosstie MOV Stroke Test	04/15/2022
71114.06	Miscellaneous	SAPR22FS	SPS Full-scale Emergency Preparation Drill Plan	04/26/2022
		SJUN22FS	SPS Full-scale Emergency Preparation Drill Plan	06/14/2022
71151	Miscellaneous		Unit 1 & 2 Control Room Logs	January 1, 2021 to March 31,

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
				2022
			Unit 1 & 2 Power History Trends	January 1, 2021 to March 31, 2022