



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
2100 RENAISSANCE BOULEVARD, SUITE 100  
KING OF PRUSSIA, PENNSYLVANIA 19406-2713

May 4, 2022

Mr. Eric Carr  
President and Chief Nuclear Officer  
PSEG Nuclear, LLC  
P.O. Box 236  
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2 – INTEGRATED  
INSPECTION REPORT 05000272/2022001 AND 05000311/2022001

Dear Mr. Carr:

On March 31, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Salem Nuclear Generating Station, Units 1 and 2. On April 7, 2022, the NRC inspectors discussed the results of this inspection with Mr. Dave Sharbaugh, 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,

Brice A. Bickett, Chief  
Projects Branch 3  
Division of Operating Reactor Safety

Docket Nos. 05000272 and 05000311  
License Nos. DPR-70 and DPR-75

Enclosure:  
As stated

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SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2 – INTEGRATED INSPECTION REPORT 05000272/2022001 AND 05000311/2022001 DATED MAY 4, 2022

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

Docket Numbers: 05000272 and 05000311

License Numbers: DPR-70 and DPR-75

Report Numbers: 05000272/2022001 and 05000311/2022001

Enterprise Identifier: I-2022-001-0051

Licensee: PSEG Nuclear, LLC

Facility: Salem Nuclear Generating Station, Units 1 and 2

Location: Hancocks Bridge, NJ

Inspection Dates: January 1, 2022 to March 31, 2022

Inspectors: J. Dolecki, Senior Resident Inspector  
P. Finney, Senior Project Engineer  
M. Hardgrove, Resident Inspector  
G. Walbert, Reactor Engineer

Approved By: Brice A. Bickett, Chief  
Projects Branch 3  
Division of Operating Reactor Safety

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an integrated inspection at Salem Nuclear Generating Station, Units 1 and 2, 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

Salem Unit 1 and 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," conducted routine reviews using IP 71152, "Problem Identification and Resolution," 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) (4 Samples)

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

- (1) Unit 2, service water bays 2 and 4 with 25 service water pump out of service for planned maintenance, on January 19, 2022
- (2) Unit 1, 11 chilled water system during 12 chiller replacement, on February 8, 2022
- (3) Unit 1, 1A emergency diesel generator, on February 28, 2022
- (4) Unit 2, 23 turbine driven auxiliary feedwater (AFW) pump room and 22 AFW pump during 21 AFW pump in-service testing, on March 2, 2022

### 71111.05 - Fire Protection

#### Fire Area Walkdown and Inspection Sample (IP Section 03.01) (6 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, diesel generator area in pre-fire plan FP-SA-1555, on January 4, 2022
- (2) Unit 1, turbine building elevation 120', pre-fire plan FP-SA-1161, on January 6, 2022
- (3) Unit 2, turbine building elevation 120', pre-fire plan FP-SA-2161, on January 6, 2022
- (4) Unit 1, auxiliary building 84', fire areas 1FA-AB-84B and 1FA-AB-84C, on February 2, 2022
- (5) Unit 1, 64' and 84' switchgear rooms, on February 2, 2022
- (6) Unit 2, auxiliary building 84' and 10 ton CO<sub>2</sub> tank room, fire areas 2FA-AB-84B and 2FA-DG-84F, on February 2, 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) Units 1 and 2, 13.8 kV cable vaults in switchyard, on March 23, 2022

#### 71111.11Q - Licensed Operator Regualification 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 Units 1 and 2 operations personnel during pre-refueling outage and surveillance activities, on March 14 and 16, 2022

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

- (1) The inspectors observed a Unit 2 simulator evaluation that included charging system leak, degraded turbine lube oil pressure, failure of 500 kV breaker, reactor trip, and small break loss of coolant without recirculation capability, on January 18, 2022

#### 71111.13 - Maintenance Risk Assessments and Emergent Work Control

##### Risk Assessment and Management Sample (IP Section 03.01) (4 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 2, emergent work on pressurizer power-operated relief valve block valve, 2PR7, following failure to reopen during surveillance testing, on January 25, 2022
- (2) Unit 2, elevated risk during scheduled activities on 21 safety injection and 23 charging systems, on February 1, 2022
- (3) Units 1 and 2, elevated risk during scheduled activity on 500 kV Bus Section 2, on February 9, 2022
- (4) Unit 2, emergent work on pressurizer power-operated relief valve lines following elevated tailpipe temperature during planned 500 kV Bus Section 1 outage, during week of February 14, 2022

#### 71111.15 - Operability Determinations and Functionality Assessments

##### Operability Determination or Functionality Assessment (IP Section 03.01) (8 Samples)

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

- (1) Unit 1, 22 component cooling water heat exchanger inlet valve (22SW122) flow oscillations following valve modification during refueling outage 2R25, on January 3, 2022 (Notification (NOTF) 20888338)

- (2) Unit 1, 1B emergency diesel generator due to degraded stroke time testing of service water isolation valve, 12SW39, on January 11, 2022 (NOTF 20894475)
- (3) Unit 2, reactor coolant head vents due to part 21 regarding nonconformance of main disc lift misalignment, on January 19, 2022 (NOTF 20844061)
- (4) Unit 2, performance of surveillance for core reactivity balance following 60 effective full power days due to missed surveillance and declaring Technical Specification 4.0.3, on January 19, 2022 (NOTF 20895239)
- (5) Unit 2, pressurizer power-operated relief valve 2PR2 elevated tailpipe temperatures following seat leakage, on February 15, 2022 (NOTF 20897290)
- (6) Unit 2, 22 service water strainer due to high internal clearances, on February 24, 2022 (Operability Engineering Justification (OEJ) 70221624)
- (7) Unit 1, 12 chiller anchorage discrepancy due to stainless steel bolting, on February 28, 2022 (OEJ 70221911)
- (8) Unit 1, 1C emergency diesel generator due to jacket water leakage during testing, on March 28, 2022 (Work Order (WO) 702105821)

#### 71111.19 - Post-Maintenance Testing

##### Post-Maintenance Test Sample (IP Section 03.01) (3 Samples)

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

- (1) Unit 2, 23 containment fan coil unit pillow block bearing repacking, on January 19–20, 2022 (WO 40047349)
- (2) Unit 2, adjustment to motor control center cabinet connections to repair degraded stroke time of pressurizer motor-operated block valve, 2PR7, on January 26, 2022 (WO 60152902)
- (3) Unit 1, 1B emergency diesel generator service water inlet valve to cooler, 12SW39, repair to degraded stroke time, on March 7, 2022 (WO 60152748)

#### 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) (2 Samples)

- (1) Unit 1, S1.OP-ST.DG-0002, "1B Diesel Generator Surveillance Test," on January 10, 2022 (WO 50232812, 50231404, 50231410, and 50229673)
- (2) Unit 1, S1.OP-ST.DG-0001(Q), "1A Diesel Generator Surveillance Test," on February 28, 2022 (WO 50232617 and 50230390)

##### RCS Leakage Detection Testing (IP Section 03.01) (1 Sample)

- (1) Unit 2, S2.OP-ST.RC-0008, Reactor Coolant System Water Inventory Balance, on March 14, 2022 (NOTF 20898459)

71114.06 - Drill Evaluation

Select Emergency Preparedness Drills and/or Training for Observation (IP Section 03.01)  
(1 Sample)

- (1) The inspectors evaluated the emergency action level notification corresponding to the simulator-scenario conducted at Unit 2, on January 18, 2022

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS05: Safety System Functional Failures (SSFFs) Sample (IP Section 02.04) (2 Samples)

- (1) Unit 1, January 1, 2021 - December 31, 2021
- (2) Unit 2, January 1, 2021 - December 31, 2021

BI01: Reactor Coolant System (RCS) Specific Activity Sample (IP Section 02.10) (2 Samples)

- (1) Unit 1, January 1, 2021 - December 31, 2021
- (2) Unit 2, January 1, 2021 - December 31, 2021

BI02: RCS Leak Rate Sample (IP Section 02.11) (2 Samples)

- (1) Unit 1, January 1, 2021 - December 31, 2021
- (2) Unit 2, January 1, 2021 - December 31, 2021

**INSPECTION RESULTS**

No findings were identified.

**EXIT MEETINGS AND DEBRIEFS**

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

- On April 7, 2022, the inspectors presented the integrated inspection results to Mr. Dave Sharbaugh, Site Vice President, and other members of the licensee staff.



## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.05	Corrective Action Documents Resulting from Inspection	*20894017	NRC - pre-fire plan discrepancy	01/06/2022
71111.06	Work Orders	30355027-0060	1-year preventive maintenance	03/23/2022
71111.11Q	Corrective Action Documents Resulting from Inspection	*20895544	Revision request for TQ-AA-201, Exam Security and Administration	01/25/2022
71111.13	Corrective Action Documents	20897290	PZR Relief Valve Temp Rise	02/14/2022
	Corrective Action Documents Resulting from Inspection	*20897662		
	Engineering Evaluations	70222064	Elevated Tailpipe Temperature 2PR2	02/14/2022
71111.15	Corrective Action Documents Resulting from Inspection	*20898239	Procedure OP-SA-108-115-1001, Operability Assessment and Equipment Control Program, contains deficiency pertaining to 'operable but degraded'	02/26/2022
	Engineering Evaluations	70211325	Assessing safety hazard for 10CFR Part 21 Report, NID# 20007, "Notification of a Defect, Unauthorized Modification of a Valve Component and Main Disc Lift Misadjustment" for Target Rock 1" and 2" solenoid operated valve assemblies."	10/25/2021
	Work Orders	60150500	Corrective action to replace reactor head vents 2RC40, 2RC41, 2RC42, and 2RC43	
71111.22	Corrective Action Documents	20898459	Nine consecutive RCS unidentified leakage rates above quarterly average	03/05/2022
	Corrective Action Documents Resulting from	20898079	Jacket leak at L4 cylinder	02/28/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Inspection			
	Procedures	S2.OP-ST.RC-0008 (Q)	Reactor Coolant System Water Inventory Balance	Revision 46
		S2.OP-SO.RC-0004(Q)	Identifying and Measuring Leakage	Revision 16