



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
475 ALLENDALE RD, STE 102
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

May 7, 2024

Charles McFeaters
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 05000272/2024001 AND 05000311/2024001

Dear Charles McFeaters:

On March 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Salem Nuclear Generating Station, Units 1 and 2. On April 25, 2024, the NRC inspectors discussed the results of this inspection with Richard DeSanctis, Plant Manager, 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* (CFR) 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

cc w/ encl: Distribution via ListServ

SUBJECT: SALEM NUCLEAR GENERATING STATION, UNITS 1 AND 2 – INTEGRATED INSPECTION REPORT 05000272/2024001 AND 05000311/2024001 DATED MAY 7, 2024

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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: 05000272/2024001 and 05000311/2024001

Enterprise Identifier: I-2024-001-0039

Licensee: PSEG Nuclear, LLC

Facility: Salem Nuclear Generating Station, Units 1 and 2

Location: Hancocks Bridge, NJ

Inspection Dates: January 1, 2024 to March 31, 2024

Inspectors: L. Grimes, Senior Resident Inspector
E. Garcia, Resident Inspector

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

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

Unit 2 began the inspection period at rated thermal power. On February 21, 2024, the unit was down powered to approximately 60 percent to perform turbine valve testing, 22 steam generator feedwater pump repairs, and 21 turbine governor valve repairs. On February 21, 2024, the unit returned to rated thermal power 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 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) (4 Samples)

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

- (1) Unit 1, main steam and turbine drain due to steam leak upstream of 11A drain manifold, January 31, 2024 (Notification (NOTF) 20955615)
- (2) Unit 1, main steam system, March 6, 2024
- (3) Unit 1, 11 auxiliary feedwater system, March 14, 2024
- (4) Unit 2, chilled water system due to lowering chilled water expansion tank level, March 28, 2024

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) Unit 2, 100' elevation auxiliary building, inner penetration area, FP-SA-2556, January 17, 2024

- (2) Unit 2, 100' elevation auxiliary building, relay and battery room, FP-SA-2551, February 23, 2024
- (3) Unit 1, 100' elevation auxiliary building, 1A emergency diesel generator (EDG) area, FP-SA-1555, February 26, 2024
- (4) Unit 2, 100' elevation auxiliary building, inner piping penetration area and chiller rooms, FP-SA- 2556, March 28, 2024

71111.06 - Flood Protection Measures

Flooding Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated internal flooding mitigation protections in the Units 1 and 2 EDG rooms.

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 licensed operator performance in the main control room during Unit 1 downpower and activities to address degraded 22 steam generator feedwater pump and 21 turbine governor valve on February 21, 2024.

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

- (1) The inspectors observed and evaluated a Unit 2 simulator scenario that included a failed nuclear instrument, dropped control rod, main power transformer open phase condition requiring a reactor trip, and a stuck open pressurizer power-operated relief valve on January 30, 2024.

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, mitigating system performance indicator auxiliary feedwater pump, March 12, 2024
- (2) Unit 1, 11 service water pump after pump strainer differential pressure high and not rotating, March 20, 2024 (NOTF 20959960)

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (5 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, emergent work on 13 chiller due to trip on low compressor oil level, January 4, 2024 (NOTF 20954860)
- (2) Unit 1, emergent work on 11 and 13 chiller due to 11 chiller trip on low differential pressure and 13 chiller already inoperable, January 26, 2024 (NOTFs 20955583 and 20955114/WO 60159548)
- (3) Unit 2, elevated risk during scheduled repair to 21 turbine governor valve, 21MS29, while at 60 percent power, February 21, 2024 (NOTF 20939146 and WO 60157677)
- (4) Unit 2, elevated risk during scheduled repair to 22 steam generator feedwater pump #1 control oil power unit pump while at 60 percent power, February 21, 2024 (NOTF 20953015 and WO 60159360)
- (5) Unit 1, elevated risk during scheduled activity on 1A EDG where technical specification allowed outage time extended from 72 hours to 14 days due to crediting allowed outage time diesel generators, during week of February 26 - March 2, 2024 (WO 30371216)

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, 1C EDG due to review of procedural direction to reduce load prior to performance of hot restart surveillance, January 16, 2024
- (2) Unit 1, chilled water system due to work windows for 12 chilled water pump, 11 chiller out of service, and 13 chiller degraded, February 7, 2024 (NOTFs 20955583 and 20954860)
- (3) Unit 1, first time use of allowed outage time diesel generators to extend the technical specification action statement due to the 1A EDG online maintenance overhaul, February 26, 2024
- (4) Unit 1, 11 charging pump due to indications of degraded service water cooling to lube oil heat exchanger, March 1, 2024 (NOTF 20956598)
- (5) Unit 1, 12 service water pump due to failed inservice test on low pump differential pressure, March 21, 2024

71111.24 - Testing and Maintenance of Equipment Important to Risk

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

Post-Maintenance Testing (PMT) (IP Section 03.01) (3 Samples)

- (1) Unit 2, 22 safety injection pump following failed relay replacement and breaker swap, February 15, 2024
- (2) Unit 1, 11 charging pump following 4kV breaker replacement/swap, February 23, 2024 (WO 30329527)
- (3) Unit 1, 11 charging pump after planned maintenance, March 28, 2024 (WO 30380539)

Surveillance Testing (IP Section 03.01) (3 Samples)

- (1) Unit 1, S1.OP-ST.DG-0021, "1C Diesel Generator Hot Restart Test,"
January 16, 2023 (WO 50235459)
- (2) Unit 2, S2.OP-PT.TRB-0003, "Main Turbine Valve Stroke Testing," February 21, 2024
(WO 30381432)
- (3) Unit 1, S1.OP-ST.AF-0003, "13 Auxiliary Feedwater Pump In-service Testing,"
March 19, 2024 (WO 50247937)

Inservice Testing (IST) (IP Section 03.01) (1 Sample)

- (1) Unit 1, S1.OP-ST.DG-0005(Q), "12 Fuel Oil Transfer System Operability Test,"
January 12, 2024 (WO 50246185)

71114.06 - Drill Evaluation

Required Emergency Preparedness Drill (1 Sample)

- (1) The inspectors observed and evaluated the adequacy and capability of the licensee's
assessment of performance during a hostile action-based emergency preparedness
drill on March 26, 2024.

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, 2023 through December 31, 2023
- (2) Unit 2, January 1, 2023 through December 31, 2023

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

- (1) Unit 1, January 1, 2023 through December 31, 2023
- (2) Unit 2, January 1, 2023 through December 31, 2023

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

- (1) Unit 1, January 1, 2023 through December 31, 2023
- (2) Unit 2, January 1, 2023 through December 31, 2023

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 25, 2024, the inspectors presented the integrated inspection results to Richard DeSanctis, Plant Manager, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Drawings	205203, Sheet 3	No. 1 Unit Main, Reheat and Turbine By-pass Steam	73
		205204, Sheet 1	No. 1 Unit Turbine Drains	37
71111.05	Corrective Action Documents Resulting from Inspection	2095	Salem Pre-Fire Plan for Unit 2 Diesel Generator Area (FP-SA-2555) Incorrectly States That There are Floor Drains Used to Discharge Water Out of Area	02/28/2024
		20957959	Salem Pre-Fire Plan for Unit 1 Diesel Generator Area (FP-SA-1555) Incorrectly States That There are Floor Drains and a Sump That are Used to Discharge Water Out of Area	02/28/2024
		2097485	Fire Department Notes for Continuous Firewatch Were Incorrect	02/26/2024
	Fire Plans	FP-SA-2556	Salem Pre-Fire Plan, U/2 Inner Piping Penetration Area & Chiller, Room EI 100'	0
	Procedures	FP-SA-003	Actions for Inoperable Fire Protection - Salem Station	7
71111.06	Miscellaneous	Notifications: 20325499, 20390805, 20502815, 20939968		
		OP.SA-102-106-F1	Master List of Timed Actions	7
		S-C-ZZ-SDC-1203	Moderate Energy Line Break Analysis	3
		S1.OP-AB.ZZ-000s	Flooding	4
		S2.OP-SO.DG-0004	2C Diesel Generator Sump	1
		SA-PRA-012	Salem Generating Station Probabilistic Risk Assessment Internal Flood Evaluation Summary Notebook	6
		SA-PRA-012A	Salem Generating Station Probabilistic Risk Analysis Internal Flood Walkdown Notebook	0
		SI.OP-AB.SW-0001	Loss of Service Water Header Pressure	18

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Work Orders	70070053, 70136049, 70230176, 60080099		
71111.12	Corrective Action Documents	20777337	Internal Damage to the Inner Bonnet of the 1AF175 Valve	10/20/2017
	Corrective Action Documents Resulting from Inspection	20956219	Struthers Dunn Relays for 21, 22, and 23 Charging Pumps Installed Beyond 16-year Replacement Preventive Maintenance	02/13/2024
	Drawings	205236, Sheet 2	No. 1 and 2 Units Spare Auxiliary Feed Pump	4
	Engineering Evaluations	70211323	Non-Safety-Related 4th AFW Pump MRule Maintenance Strategy After Identification it was Not Being Tested in Accordance with Maintenance Rule	01/22/2020
		80130005-0100	De-activation of 2\$ Full Flow Test and Existing WOs 30346154 and 30346155 for Non-Safety-Related 4th AFW Pump	07/05/2022
	Miscellaneous	Maintenance Plan 366333	3M Performance of PM to Perform MSPI 4th AFW Pump Recirculation Flow Test (Recirculation to/from Demineralized Water Storage Tank)	
		Maintenance Plans 368296 and 368297	8Y Performance of PM to Lube and Inspect 1/2AF174 Valves (MSPI AFW Pump Discharge Manual Globe Valve)	
		Maintenance Plans 368298, 366326, 366327, 366328, 366329, 366330, 366331, and 366332	8Y Performance of PM to Lube and Inspection 11-14 and 21-24AF175 Valves (MSPI AFW Pump Discharge to Each S/G)	
	Procedures	ER-AA-310	Implementation of Maintenance Rule	16
		SC-MRULE-001	Salem Maintenance Rule Risk Ranking	6
		SC.OP-PT.AF-0001	Testing the MSPI Pump and Diesel	1
		SC.OP-SO.AF-	Feed Steam Generators with MSPI AFW Pump	2

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		0001		
71111.13	Procedures	OP-SA-108-116	Operability Assessment and Equipment Control Program	2
71111.15	Corrective Action Documents	20927785	Excessive Corrosion on Fitting and Tubing Downstream of 1SW186 Valve that Provides Indications for SW Inlet Pressure to Lube Oil Heat Exchanger	02/22/2023
	Miscellaneous	80131437 - 0100	Tech Evaluation	
		80134667 - 0200	Tech Evaluation	
		DCP 80134926		
		License Amendment Request NLR-N94008, LCR 94-05	Emergency Diesel Generator Hot Restart Test Salem Generating Station Unit Nos. 1 and 2	04/12/1994
		NRC Generic Letter 84-15	Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability	
		NRC Information Notice 85-32	Recent Engine Failures of Emergency Diesel Generators	
		NRC Regulatory Guide 1.9	Election, Design, and Qualification of Diesel Generator Units Used as Standby (Onsite) Electric Power Systems at Nuclear Power Plants	2
		Operation and Maintenance Manual 433266	Diesel Engine-Generator Sets (ALCO)	
	Procedures	OP-SA-108-116	Operability Assessment and Equipment Control Program	5
		S1.OP-ST.CVC-0003	Inservice Testing - 11 Charging Pump	27
	Work Orders	30371216		
		50244970, 50244313, and 50242574	Performance of 3-month 11 Charging Pump Inservice Testing	
		60159516 and 60159548	Troubleshooting 13 Chiller Due to Trip on Low Compressor Oil Level on 01/04/2024 and Replace Time-delay Relay by Cannibalizing 11 Chiller's Time-delay Relay	01/26/2024
70230854				

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.24	Procedures	S1.OP-SO.CVC-0002	Charging Pump Operating	45
		S2.OP-PT.TRB-0003	Main Turbine Valve Stroke Time Testing	22
	Work Orders	30381432		