



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

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

August 8, 2022

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 05000272/2022002 AND 05000311/2022002

Dear Eric Carr:

On June 30, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Salem Nuclear Generating Station, Units 1 and 2. On July 14, 2022, the NRC inspectors discussed the results of this inspection with David 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 05000272/2022002 AND 05000311/2022002 DATED AUGUST 8, 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: 05000272/2022002 and 05000311/2022002

Enterprise Identifier: I-2022-002-0038

Licensee: PSEG Nuclear, LLC

Facility: Salem Nuclear Generating Station, Units 1 and 2

Location: Hancocks Bridge, NJ

Inspection Dates: April 1, 2022 to June 30, 2022

Inspectors: J. Dolecki, Senior Resident Inspector  
N. Eckhoff, Health Physicist  
P. Finney, Senior Project Engineer  
M. Hardgrove, Senior Project Engineer  
J. Kulp, Senior Reactor Inspector  
P. Ott, Operations Engineer  
S. Veunephachan, Health Physicist  
G. Walbert, Project Engineer  
S. Wilson, Senior Health Physicist

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

Type	Issue Number	Title	Report Section	Status
URI	05000272,05000311/20 21013-02	URI - Evaluations associated with the impact on the intake structure of WPMF hazards associated with barge traffic, ship traffic, and fuel oil spills	71111.17T	Closed

## PLANT STATUS

Unit 1 began the inspection period at rated thermal power. On April 9, 2022, the unit was shut down to enter planned refueling outage 28 (1R28). On May 17, 2022, the unit commenced a reactor start-up. The unit returned to rated thermal power on May 21, 2022.

Unit 2 began the inspection period at 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

### 71111.01 - Adverse Weather Protection

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

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of hot temperatures, on June 23, 2022

### 71111.04 - Equipment Alignment

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

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

- (1) Unit 1, 11 and 12 component cooling water trains during shutdown cooling operations and lowered reactor coolant inventory for defueling, on April 11, 2022
- (2) Unit 1, 1A and 1B emergency diesel generators, 230V vital buses, 460V vital buses, and 4160V vital buses during reactor coolant draining to reactor vessel flange (lowered inventory), on May 12, 2022
- (3) Unit 2, 22 and 23 component cooling water trains during 21 component cooling water pump scheduled maintenance, on June 1, 2022

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

- (1) Unit 1, residual heat removal during fuel reload and lowered reactor coolant inventory with trains protected for shutdown cooling, during the week of May 9, 2022

## 71111.05 - Fire Protection

### Fire Area Walkdown and Inspection (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 1, reactor containment elevation 100', pre-fire plan FP-SA-1401, on April 9, 2022
- (2) Unit 1, reactor coolant pump oil collection system, fire area 1FA-RC-78C, on April 9, 2022
- (3) Unit 1, emergency diesel fuel oil storage area, pre-fire plan FP-SA-1545, on April 11, 2022
- (4) Unit 1, inner piping penetration area and chiller, pre-fire plan FP-SA-1557, on June 1, 2022

## 71111.08P - Inservice Inspection Activities (PWR)

### PWR Inservice Inspection Activities (IP Section 03.01) (1 Sample)

- (1) The inspectors verified that the reactor coolant system boundary, steam generator tubes, reactor vessel internals, risk significant piping system boundaries, and containment boundary are appropriately monitored for degradation and that repairs and replacements were appropriately fabricated, examined and accepted by reviewing the following activities from April 11 to 22, 2022:

#### 03.01.a - Nondestructive Examination and Welding Activities.

- Ultrasonic Examination of Weld 8-SJ-1152-7 (S1-UT-22-006)
- Ultrasonic Examination of Weld 8-SJ-1152-8 (S1-UT-22-007)
- Ultrasonic Examination of Weld 8-SJ-1152-12 (S1-UT-22-008)
- Dye Penetrant examination of 11 reactor coolant pump (RCP) Lug (S1-PT-22-001)
- Visual Examination (VT-3) of Clevis (S1-VE-22-006)
- Independent walkdown of Reactor Containment Moisture Barrier
- Preservice Inspection (VT-3) of Thermal Shield Flexures at Azimuth 56, 90 and 124 (S1-VE-22-010)
- Preservice Inspection (VT-3) of Thermal Shield Support Block Bolts at Azimuth 67 and 293 (S1-VE-22-011)
- Visual Examination (VT-General) of RPV Internal Surface with Core Barrel Removed (S1-22-VE-22-007)
- Review of condition accepted by evaluation during previous outage: Reactor Pressure Vessel Cladding Anomalies (70215010)

#### 03.01.b - Pressurized-Water Reactor Vessel Upper Head Penetration Examination Activities.

#### Bare Metal Visual Examination of the Reactor Pressure Vessel Head (S1-VE-22-01)

03.01.c – Pressurized-Water Reactor Boric Acid Corrosion Control Activities.

- Excessive Packing Leak on 1PS11 (20846799)
- Dry White Body to Bonnet 14SJ388 (20901692)
- Dry Tan/Brown Boric Acid Packing (20901694)
- Discolored Dry Boric Acid – Stud (20901775/70222864)

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 Unit 1 operations personnel during reactor shutdown and mode change activities for entry into a scheduled refueling outage, from April 8 to 9, 2022

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

- (1) The inspectors observed and evaluated licensed operation requalification training, on June 21, 2022

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (3 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) Unit 2, pressurizer power-operated relief valve, 2PR2, following seat leakage, on February 14, 2022
- (2) Unit 1 and 2, 230 and 480 VAC motor control centers, on June 30, 2022
- (3) Unit 1 and 2, maintenance rule scoping of non-safety-related beyond-design-basis SSCs used in emergency operating procedures in accordance with 10 CFR 50.65(b)(2), on June 30, 2022

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management (IP Section 03.01) (7 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 21 chiller compressor following overheating, during the week of April 4, 2022
- (2) Unit 1, elevated shutdown risk (Yellow) off the containment key safety function during scheduled open equipment hatch, from April 9 to 10, 2022
- (3) Unit 1, elevated shutdown risk (Yellow) due to lowered reactor coolant inventory in preparation for reactor vessel disassembly, from April 10 to 11, 2022

- (4) Unit 1, emergent work on overhead annunciators (OHAs) in control room following OHA loss, on April 13, 2022
- (5) Unit 1, elevated shutdown risk (Yellow) of the spent fuel pool key safety function following full core offload, on April 14, 2022
- (6) Unit 1, elevated shutdown risk (Orange) during reduced reactor coolant inventory (mid-loop) with nuclear fuel in the vessel for planned reactor coolant system vacuum fill and venting, on May 14, 2022
- (7) Unit 1, emergent work on 14 reactor coolant pump indications of #3 seal leakoff prior to mode ascension, on May 17, 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) Unit 2, 23 containment fan coil unit (CFCU) service water outlet valve, 23SW233, pipe support stresses, on April 7, 2022 (NOTF 20900966)
- (2) Unit 2, solid state protection system surveillance frequency control program adherence, on April 19, 2022 (NOTF 20902833)
- (3) Units 1 and 2, circulating water intake structure (CWIS) functionality assessment following contact with CWIS wall, on April 25, 2022 (NOTF 20903303)
- (4) Unit 2, review of Technical Specification 3.7.10 chilled water system - auxiliary building subsystem and corresponding Technical Specification 3.0.4 due to 21 chiller inoperability and change to configuration, on May 4, 2022 (NOTF 20903265)
- (5) Unit 1, 1A 125VDC battery capacity following failure of performance discharge test, on May 18, 2022 (NOTF 20904331)

#### 71111.17T - Evaluations of Changes, Tests, and Experiments

##### Sample Selection (IP Section 02.01) (1 Sample)

The inspectors reviewed the following evaluations, screenings, and/or applicability determinations for 10 CFR 50.59 from April 11 to 21, 2022.

- (1) 50.59 safety evaluation H2021-004 / S2021-003, Artificial Island Wind Port Facility, Revision 1

#### 71111.18 - Plant Modifications

##### Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

- (1) Units 1 and 2, design equivalent change package 80126506, for component cooling heat exchanger flow control valve, 11SW122 and 22SW122, actuator replacements, on April 1, 2022



- (2) Unit 1, design equivalent change package 80131719, residual heat removal to refueling water storage tank valve, 1RHR21, mechanically gagged closed, on May 14, 2022

#### 71111.19 - Post-Maintenance Testing

##### Post-Maintenance Test (IP Section 03.01) (9 Samples)

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

- (1) Unit 1, 1C emergency diesel generator engine overhaul, jacket water downcomer gasket replacement, and fuel injection pump maintenance, on April 14, 2022 (work order (WO) 30351385)
- (2) Unit 1, 11 CFCU motor cooler internal inspection, on April 21, 2022 (WO 30300182)
- (3) Unit 1, 11 component cooling heat exchanger service water inlet control valve, 11SW122, actuator replacement, on April 21, 2022 (WO 60145809)
- (4) Unit 2, 21 chiller compressor and divider gasket plate replacement following elevated compressor temperatures, on April 28, 2022 (WO 60153705)
- (5) Unit 1, 13 RCP auxiliary overload relay, CO-11, recalibration following trip of 13 RCP, on May 15, 2022 (WO 30318117)
- (6) Unit 1, 11 component cooling heat exchanger flow control valve, 11SW122, repair following failure to respond in manual control, on June 6, 2022 (WO 60154132)
- (7) Unit 2, 2B emergency diesel generator diverter valve replacement following overspeed trip, on June 7, 2022 (WO 60154147)
- (8) Unit 1, 1C emergency diesel generator pre-lube pump replacement following abnormal noises, on June 15, 2022
- (9) Unit 1, 16 service water pump and motor replacement following failure of Inservice testing, on June 29, 2022 (WO 30329279)

#### 71111.20 - Refueling and Other Outage Activities

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

- (1) The inspectors evaluated Unit 1 refueling outage 1R28 activities from April 9 to May 17, 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) (3 Samples)

- (1) Unit 1, S1.OP-ST.SSP-0003, "Safeguards Equipment Control (SEC) MODE OPS Testing 1B Vital Bus", on April 10, 2022 (WO 50199601)
- (2) Unit 1, S1.OP-ST.SSP-0001(Q), "Manual Safety Injection - SSPS", on April 12, 2022
- (3) Unit 1, S2.MD-FT.SEC-0003, "2C SEC Sequencer Surveillance Test Procedure", on May 17, 2022

Inservice Testing (IP Section 03.01) (1 Sample)

- (1) Unit 1, S1.OP-ST.AF-0007, "Inservice Testing Auxiliary Feedwater Valves Mode 3", on April 8, 2022 (WO 50223539)

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

- (1) Unit 1, S1.OP-LR.CA-0002, "Type C Leak Rate Test 12CA330 and 12CA360", on May 9, 2022

**RADIATION SAFETY**

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

Instructions to Workers (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated how the licensee instructs workers on plant-related radiological hazards and the radiation protection requirements intended to protect workers from those hazards.

Contamination and Radioactive Material Control (IP Section 03.03) (2 Samples)

The inspectors observed/evaluated the following licensee processes for monitoring and controlling contamination and radioactive material:

- (1) Surveys of potentially contaminated material leaving the radiological controlled area (RCA) through the Unit 1 containment building equipment hatch during a refueling outage.
- (2) Workers exiting the RCA at Unit 1 during a refueling outage.

Radiological Hazards Control and Work Coverage (IP Section 03.04) (4 Samples)

The inspectors evaluated the licensee's control of radiological hazards for the following radiological work:

- (1) Core barrel flexure repair and maintenance in the Unit 1 refuel cavity during a refueling outage.
- (2) Core barrel bolt removal and replacement in the Unit 1 refuel cavity during a refueling outage.
- (3) Temporary reactor cover removal from the Unit 1 refuel cavity and its decontamination during a refuel outage.
- (4) Seal replacement activities on the Unit 1, 13 and 14 RCPs during a refuel outage.

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (3 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

- (1) Unit 1 containment high radiation area control during a refuel outage.
- (2) Unit 1 and Unit 2 locked high radiation area and very high radiation area key control.
- (3) Unit 1 very high radiation area controls during a refuel outage.

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

- (1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

71124.03 - In-Plant Airborne Radioactivity Control and Mitigation

Permanent Ventilation Systems (IP Section 03.01) (1 Sample)

The inspectors evaluated the configuration of the following permanently installed ventilation systems:

- (1) Unit 2 fuel handling floor ventilation system

Temporary Ventilation Systems (IP Section 03.02) (1 Sample)

The inspectors evaluated the configuration of the following temporary ventilation systems:

- (1) Air monitoring systems and alarm setpoints on AMS4s in Unit 2

Use of Respiratory Protection Devices (IP Section 03.03) (1 Sample)

- (1) The inspectors evaluated the licensee's use of respiratory protection devices.

Self-Contained Breathing Apparatus for Emergency Use (IP Section 03.04) (1 Sample)

- (1) The inspectors evaluated the licensee's use and maintenance of self-contained breathing apparatuses.

71124.04 - Occupational Dose Assessment

Source Term Characterization (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated licensee performance as it pertains to radioactive source term characterization.

External Dosimetry (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated how the licensee processes, stores, and uses external dosimetry.

Internal Dosimetry (IP Section 03.03) (2 Samples)

The inspectors evaluated the following internal dose assessments:

- (1) Urine sampling program and storage location
- (2) Whole body count program and declared pregnant worker assessment

Special Dosimetric Situations (IP Section 03.04) (2 Samples)

The inspectors evaluated the following special dosimetric situations:

- (1) Declared pregnant worker program
- (2) Neutron dosimetry program

**OTHER ACTIVITIES – BASELINE**

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

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

- (1) Unit 1, April 1, 2021 through March 31, 2022
- (2) Unit 2, April 1, 2021 through March 31, 2022

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

- (1) Unit 1, April 1, 2021 through March 31, 2022
- (2) Unit 2, April 1, 2021 through March 31, 2022

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

- (1) Unit 1, April 1, 2021 through March 31, 2022
- (2) Unit 2, April 1, 2021 through 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) Follow-up Review of Corrective Actions to non-cited violation (NCV) 2021004-01, Failure to Promptly Identify and Correct Inappropriately Written Emergency Operating Procedure (EOP) Steps.

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 that might be indicative of a more significant safety issue.

71153 – Follow-up of Events and Notices of Enforcement Discretion

Personnel Performance (IP Section 03.03) (2 Samples)

- (1) The inspectors evaluated the licensee's response to the failure of the Unit 1 overhead alarm system and associated abnormal operating experience entry while the reactor was shut down for a refueling outage, on April 13, 2022
- (2) The inspectors evaluated the licensee's response to fire alarms received following the trip of the Unit 2, 21 chiller, on April 4, 2022

**INSPECTION RESULTS**

URI	URI - Evaluations associated with the impact on the intake structure of WPMF hazards associated with barge traffic, ship traffic, and fuel oil spills URI 05000272,05000311/2021013-02	71111.17T
<p>Description: Unresolved item (URI) 05000354/2021013-02, 05000272/2021013-02, 05000311/2021013-02, "Evaluations associated with the impact on the intake structure of Wind Port Manufacturing Farm (WPMF) hazards associated with barge traffic, ship traffic, and fuel oil spills," was opened to determine if the evaluations associated with those hazards were bounded by the current licensing basis. The URI also tracked the inspectors' review of PSEG's planned revision to their 10 CFR 50.59 safety evaluation that reflected PSEG's decision to lease land directly to the State of New Jersey instead of a land sale.</p> <p>To address the outstanding questions in the URI, PSEG revised the 10 CFR 50.59 safety evaluation, H2021-004/S2021-003, Revision 1, and the associated hazards analysis. The inspectors noted that the safety evaluation reflected leasing of the land to the State of New Jersey and that PSEG retains the rights through the lease to access and to remove personnel and property for public safety, to take reasonable measures of security, to conduct emergency planning, entry to determine compliance with the lease, and limit critical chemicals and substances. The inspectors also noted that the SE is only applicable to potential hazards introduced to the Salem and Hope Creek plants resulting from the WPMF construction phase activities and is not applicable to potential hazards resulting from the WPMF operation phase.</p> <p>There was an outstanding question regarding construction phase shipping traffic becoming runaway vessels and potentially colliding with the Hope Creek Service Water Intake Structure (SWIS). To address this question, PSEG documented its conclusions in Attachment G of the revised Hazards Analysis Impact, 2020-04678. The construction phase will involve dredging an approach channel to the WPMF. PSEG collected data for dredging vessels, including ship displacement, draft, beam, and length to evaluate the kinetic energy that would be transferred to the SWIS if a vessel were to collide with it. Using an assumed transit velocity and assumed grounding distance, PSEG concluded that the maximum kinetic energy from a postulated</p>		

construction vessel collision with the Hope Creek SWIS was bounded by the maximum kinetic energy assumed in the current licensing basis calculations. The inspectors researched the characteristics of potential dredging vessels, performed independent kinetic energy calculations, and reviewed the current licensing basis. The inspectors reviewed the assumptions used in the kinetic energy calculations and that the maximum energy applied to the Hope Creek SWIS from a postulated construction vessel collision was bounded by the Hope Creek current licensing basis. This result supported their responses in their SE to the criteria in 10CFR50.59 regarding this hazard.

There was an outstanding question regarding construction phase WPMF-related shipping traffic to potentially block the Hope Creek SWIS due to grounding or sinking directly in front of the structure. PSEG evaluated this potential hazard by assessing the construction vessel characteristics and how a blockage of the SWIS could impact the flow required to the service water pumps to ensure safe shutdown of the plant. PSEG concluded that due to certain design features of the SWIS, there would still be sufficient flow to the service water pumps regardless of the size and shape of the sunken vessel. The inspectors reviewed drawings of the SWIS and the basis for the flow requirement for the service water pumps. The inspectors concluded the potential hazard of the SWIS being blocked was bounded by the current licensing basis and that this result supported their responses in their SE to the criteria in 10CFR50.59 regarding this hazard.

There was an outstanding question regarding the impact to the Hope Creek SWIS from a postulated fire resulting from a fuel spill originating from a construction phase vessel. PSEG evaluated the fuel capacity of the construction phase vessels and determined that they would be limited to an amount significantly lower than the amount identified in the current licensing basis. PSEG also stated that the lease agreement with New Jersey has a fuel limitation identified for construction activities and that PSEG has the right to perform audits to ensure compliance with their lease restrictions. The inspectors reviewed the current licensing basis (CLB) for impacts to the SWIS from a fuel oil fire and determined the fuel capacity limitation on the construction phase vessels was bounded by the volume of fuel assumed in the calculations to support the CLB. This result supported their responses to the criteria in 10CFR 50.59 in their SE.

This URI is closed.

Corrective Action Reference: 80128565

<p>Observation: Follow-up Review of Corrective Actions to NCV 2021004-01, Failure to Promptly Identify and Correct Inappropriately Written Emergency Operating Procedure Steps</p>	<p>71152A</p>
<p>PSEG captured the NCV (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22041A396) with a significance level 2 corrective action program (CAP) notification (NOTF) 20898348 and generated work group evaluation 70222326 to determine the cause. PSEG concluded the cause was that the NOTF initiator did not provide adequate detail to allow the CAP to work effectively.</p> <p>Discussion with PSEG Operations management and a review of other EOP-related NOTFs revealed appropriate identification and corrective action documentation for additional EOP procedure discrepancies in NOTF 20882870 / order 70219237 written August 18, 2021. This</p>	

included corrective action directed actions (CRDAs) to review all EOP, Revision 40 procedures for errors and to correct the identified errors through issuance of a new revision, Revision 41. Corrective actions also included steps to ensure the ability for Operations to generate flowchart drawings in-house instead of relying on a contractor. Inspectors identified issues that PSEG had not yet identified and these were captured in six additional NOTFs. Inspectors also identified three observations in the areas of problem identification and resolution.

The first observation relates to problem identification and the station's documented direct cause that the NOTF initiator did not provide adequate detail to allow the CAP process to work effectively. Inspectors noted that NOTFs written regarding Revision 40 EOPs used two different NOTF templates to report problems. In some instances, as in NOTF 20874515 that failed to properly identify and describe the issue documented in the NCV, the procedure revision request template was used. However, other issues were identified and documented using the standard CAP template. NOTF 20882870 was one example of using the standard CAP template which resulted in proper problem identification as a significance level 3 Condition Affecting Regulatory Compliance with CRDAs to address the identified problem. The CAP template asks why the condition happened, the consequences, requirements impacted, and immediate and recommended actions. These additional questions asked in the CAP template drive the initiator to provide details to aid the screening committee and management review committee to better understand the problem, properly classify the notification and direct timely corrective actions. PSEG entered this observation in CAP as NOTF 20908290.

The second observation was related to the documentation of additional procedure typos and errors discovered during the implementation of corrective actions associated with NOTF 20882870 / order 70219237. The corrective actions included a complete review of all Revision 40 EOPs for errors and the correction of those errors in Revision 41. Discovered procedure typos were documented in a spreadsheet and, although corrected in Revision 41, the number of discovered errors was not equivalent to the number documented in the CAP, whether the existing order 70219237 or in an additional NOTF. Inspectors noted that not documenting the comprehensive errors identified during the Revision 40 EOP review prevented the possibility of additional management action or additional investigation via the CAP. PSEG entered this observation in CAP as NOTF 20908301.

The third observation involved the lack of a final independent review prior to issuance of EOPs. Specifically, the original NCV errors were not identified because the station did not have a final quality check after computer-aided drafting documents (CAD) were generated but before being officially issued. In discussions with PSEG Operations personnel involved in the procedure change process, the NCV errors were introduced after the EOP validation and verification process, during final CAD document generation. PSEG entered this observation in CAP as NOTF 20910759.

NRC inspectors did not identify a finding or violation of more than minor significance as a result of this review.

Observation: Semi-annual trend review of PSEG's corrective action program (CAP) for trends that might be indication of a more significant safety issue	71152S
The inspectors reviewed Salem's CAP for trends that might be indicative of a more significant safety issue. Specifically, the inspectors reviewed Significance Level 1 through Significance Level 5 NOTFs for the period of January 1 through June 30, 2022.	

The inspectors evaluated NOTFs generated during this period by departments that provide input to the quarterly trend reports and identified a potential adverse trend in work planning areas as it related to work planning leading up to and included outage activities.

The inspectors' reviewed procedure WC-AA-101, Revision 30, "On-line Work Management Process," for Salem work planning procedure guidance. Step 4.2.2 states that accurate preplanning, bundling of work and testing, and job coordination shall be utilized to ensure the effective balancing of SSC unavailability and reliability while minimizing aggregate risk. Additionally, step 4.2.4 states that administrative requirements are established in Attachment 1, On-Line Maintenance Requirements List. These requirements are not meant to prohibit work but to ensure site management has a level of control and oversight commensurate with the risk of the work.

The inspector review determined several NOTFs reviewed documented deficiencies in worker qualifications, schedule holds because of work planning outage activities, plan gaps that can result in inadvertent closure of notifications, several activity assignments to 12-hour shift during the 1R28 outage being incorrectly scheduled based on required plant conditions or required support, and inappropriately scheduled surveillances.

PSEG captured this observation in the corrective action program under NOTF 20909989. The NRC inspectors did not identify any findings or violations of more than minor significance.

## **EXIT MEETINGS AND DEBRIEFS**

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

- On April 21, 2022, the inspectors presented the Artificial Island Wind Port Facility Safety Evaluation, IP 71111.17T inspection results to Robert W. DeNight, Vice President, Nuclear Corporate Operations Support, and other members of the licensee staff.
- On May 5, 2022, the inspectors presented the Radiological Hazard Assessment and Exposure Controls Inspection results to David Sharbaugh, Site Vice President, and other members of the licensee staff.
- On June 8, 2022, the inspectors presented the IP 71124.03 and 71124.04 inspection results to Tom Mulholland, Engineering Director, and other members of the licensee staff.
- On July 14, 2022, the inspectors presented the integrated inspection results to David Sharbaugh, Site Vice President, and other members of the licensee staff.



## DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Corrective Action Documents	20906171	12 boric acid transfer pump active boric acid lea	05/11/2022
71111.04	Corrective Action Documents	20906334	RHR to RWST valve 1RH21 bushing broken	05/12/2022
71111.04	Corrective Action Documents Resulting from Inspection	*20905790	11 RHR pump upper motor oil puddle	05/11/2022
71111.04	Corrective Action Documents Resulting from Inspection	*20905791	12 RHR pump upper motor oil puddle	05/11/2022
71111.04	Drawings	205232	Residual Heat Removal, Sheet 1	44
71111.04	Drawings	205232	Unit 1 Residual Heat Removal, Sheet 2	40
71111.04	Procedures	S1.OP-SO.SF-0004(Q)	Draining the Refueling Cavity	15
71111.05	Calculations	S-1-FP-FDC-2197	Combustible Loading Calculation for Fire Area 1-FA-AB-45A	0
71111.05	Corrective Action Documents	20901802	Leak: 12 RCP Motor Oil	04/09/2022
71111.05	Corrective Action Documents	20901803	Leak: 13 RCP Motor Oil	04/09/2022
71111.05	Corrective Action Documents	20901804	Leak: 14 RCP Motor Oil	04/09/2022
71111.05	Corrective Action Documents	20901805	Leak: 11 RCP Motor Oil	04/09/2022
71111.05	Procedures	FP-AA-011	Control of Transient Combustible Material	7
71111.05	Procedures	S1.OP-SO.RHR-0001(Q),	Initiating RHR	32
71111.08P	Corrective Action Documents Resulting from Inspection	20902781	revise inspection procedure of boric acid leaks to include code case n-729-6	04/19/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.12	Corrective Action Documents	20849485	Issues with 23 reactor nozzle support fan S2230-2CY1EP11A	05/01/2020
71111.12	Corrective Action Documents	20881955	B.5.b portal diesel-driven emergency pump testing	07/27/2021
71111.12	Corrective Action Documents	20897290	PZR Relief Valve Temp Rise	02/14/2022
71111.12	Corrective Action Documents Resulting from Inspection	*20902313	Unit 2 230V MRule Impacts	04/14/2022
71111.12	Corrective Action Documents Resulting from Inspection	*20906506	B.5.b Emergency Pump MRule Screening	05/23/2022
71111.12	Corrective Action Documents Resulting from Inspection	*20906640	MRule Scoping of FLEX justification	05/19/2022
71111.12	Corrective Action Documents Resulting from Inspection	*20910766	Unit 2 230VAC systems condition monitoring events exceeded	07/19/2022
71111.12	Engineering Changes	80129779-0030	Procedure change request B.5.b portable pump to include preventive maintenance planning	
71111.12	Engineering Evaluations	20895383	Condition monitoring event for 2PR7 failure to open	02/09/2022
71111.12	Engineering Evaluations	70134083-0030	Technical Evaluation 2PR7 will not stroke closed	02/07/2012
71111.12	Engineering Evaluations	70204952-0010	Maintenance Rule Scoping for FLEX equipment in Accordance with RG 1.160 Rev 4 and NUMARC 93-01 Rev 4f	12/11/2019
71111.12	Engineering Evaluations	70221793-0010	Equipment Reliability Evaluation 2PR7 Failed to Open	04/14/2022
71111.12	Engineering Evaluations	70222064	Elevated Tailpipe Temperature 2PR2	02/14/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.12	Engineering Evaluations	70223199-0030	Work group evaluation Exceeded procedure timeliness standard for MRule trend association	05/26/2022
71111.12	Miscellaneous	MTG-2017-00176	Maintenance Rule Expert Panel Meeting establishing performance criteria S-240-F01 supply adequate power to 230V vital buses	10/04/2017
71111.12	Miscellaneous	NUMARC 93-01	Industry Guidelines for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	4f
71111.12	Procedures	1(2)-EOP-FRHS	Response to Loss of Secondary Heat Sink	40
71111.12	Procedures	ER-AA-230-1003	Thermography Program Guide	1
71111.12	Procedures	ER-AA-310	Implementation of Maintenance Rule	16
71111.12	Procedures	ER-AA-310-1001	Maintenance Rule - Scoping	7
71111.12	Procedures	SC.MD-PM.ZZ.0010(Q)	Model 7700 and 8000 Line Motor Control Center Maintenance	36
71111.12	Procedures	SC.MD-PT.230-0001(Q)	Thermal Overload Relay Overcurrent Trip Testing	9
71111.12	Procedures	SC.MD-ST.ZZ-0001(Q)	Molded Case Circuit Breaker Preparation and Testing	1
71111.12	Work Orders	30186923	preventive maintenance 2C vent vital motor control center	04/15/2020
71111.13	Corrective Action Documents Resulting from Inspection	*20901968	Reduced vs lowered inventory shutdown risk term	04/11/2022
71111.13	Procedures	S1.OP-SO.RC-0005(Q)	Draining the Reactor Coolant System to >101 Foot Elevation, Rev 45	04/11/2022
71111.13	Procedures	S1.OP-SO.RC-0006(Q)	Draining the Reactor Coolant System Less Than 101 FT EL with Fuel in the Vessel	35
71111.15	Corrective Action Documents	20902833	Staggered test frequency of SSPS trip breaker testing not maintained	04/19/2022
71111.15	Corrective Action Documents	20903265	21 chiller unplanned inoperability	04/23/2022
71111.15	Engineering Evaluations	800131739-0010	Calculate the capacity of the 1A 125 VDC Battery	05/18/2022
71111.15	Operability Evaluations	S2-SURV-011	Missed surveillance risk assessment - reactor trip breakers	04/19/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.15	Procedures	LS-SA-1000-1001	Salem Generating Station Unit 1 Surveillance Frequency Control Program List of Surveillance Frequencies, Revision 24	04/19/2022
71111.15	Procedures	S2.OP-SO.CH-0001	Chilled Water System Operation	37
71111.17T	Miscellaneous	2020-04678	PSEG Power Hazards Analysis Impact	1
71111.18	Engineering Changes	80131719	RHR to RWST valve, 1RH21, Mechanically Gagged Closed	05/15/2022
71111.18	Procedures	S1.OP-ST-RC-0008(Q)	Reactor Coolant System Water Inventory Balance, Attachment 3	32
71111.18	Work Orders	60153997	1RH21 Bushing Broken - TCCP 1ST22-004	05/15/2022
71111.20	Corrective Action Documents	20901804	Leak: 14 RCP Motor Oil	04/09/2022
71111.20	Corrective Action Documents	20906204	13 RCP tripped 21 seconds after start	05/15/2022
71111.20	Procedures	OP-AA-108-116	Protected Equipment Program	13
71111.20	Procedures	OU-AA-103	Shutdown Safety Management Program	26
71111.20	Procedures	OU-SA-105	Shutdown Safety Management Program - Salem	13
71111.20	Procedures	S1.OP-IO.ZZ-0003(Q)	Hot Standby to Minimum Load	43
71111.22	Corrective Action Documents Resulting from Inspection	*20902020	Unexpected fire pump start	04/13/2022
71124.01	Corrective Action Documents Resulting from Inspection	20905577, 20905642, and 20905643	Condition Reports Generated from the Inspection	05/03/2022
71152A	Corrective Action Documents Resulting from Inspection	*20907588	EOP-LOSC-1 Revision Request	06/15/2022
71152A	Corrective Action Documents Resulting from	*20907589	EOP-SGTR-1 Revision Request	06/15/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Inspection			
71152A	Corrective Action Documents Resulting from Inspection	*20907600	EOP-SGTR-4 Revision Request	06/16/2022
71152A	Corrective Action Documents Resulting from Inspection	*20907601	EOP-LOSC-2 Revision Request	06/16/2022
71152A	Corrective Action Documents Resulting from Inspection	*20907602	EOP-SGTR-4 Revision Request	06/16/2022
71152A	Corrective Action Documents Resulting from Inspection	*20907603	EOP-SGTR-4 Revision Request	06/16/2022
71152A	Corrective Action Documents Resulting from Inspection	*20908126	Single person singing several review and approval spots on the 50.59 traveler	06/17/2022
71152A	Corrective Action Documents Resulting from Inspection	*20908290	Inconsistent procedure revision requests and CAP significance level	06/26/2022
71152A	Corrective Action Documents Resulting from Inspection	*20908301	Extent of condition review did not result in additional, separate NOTFs	06/27/2022
71152A	Corrective Action Documents Resulting from Inspection	20910759	Missed opportunities during EOP revisions	07/18/2022
71152S	Corrective Action	20896933	Unable to acquire qualifications for workers	02/02/2022

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents			
71152S	Corrective Action Documents	20897525	Gaps in work planning process leading to holds for schedule activities during 1R28 Unit 1 Spring outage	02/11/2022
71152S	Corrective Action Documents	20899701	Planning process for restart of Maintenance Plans has a gap that can result inadvertent closure of notifications	03/25/2022
71152S	Corrective Action Documents	20900629	Inappropriately scoping in seven EOC inspection work orders for the 1R28 Unit 1 Spring outage	03/28/2022
71152S	Corrective Action Documents	20902299	Contractor personnel performing work on the 12BF22 valve while unaware of MA-SA-716-008-1020, "Steam Generator Service FME Requirements," applied to this work	04/14/2022
71152S	Corrective Action Documents	20902428	Several activities assigned to the 12-hr shift in the 1R28 Unit 1 Spring outage were incorrectly scheduled based on required plant conditions or required support	04/14/2022
71152S	Corrective Action Documents	20908717	2 missed surveillance tests for containment pressure functional testing	06/30/2022
71153	Procedures	EP-SA-325-116	System Malfunction Loss of Control Room Indications	00
71153	Procedures	EP-SA-325-142	EAL Wall Chart (Cold)	00