UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

July 18, 2018

Mr. Peter P. Sena, III
President and Chief Nuclear Officer
PSEG Nuclear LLC - N09
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION UNIT 1 – INTEGRATED INSPECTION REPORT 05000354/2018002

Dear Mr. Sena:

On June 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Hope Creek Generating Station (HCGS). On July 10, 2018, the NRC inspectors discussed the results of this inspection with Mr. Eric Carr, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I, and the NRC Resident Inspector at HCGS. In addition, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC, 20555-0001; with copies to the Regional Administrator, Region I, and the NRC Resident Inspector at HCGS. 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 the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) Part 2.390, “Public Inspections, Exemptions, Requests for Withholding.”

Sincerely,

/RA/

Fred L. Bower, III, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket No.: 50-354
License No.: NPF-57

Enclosure:
Inspection Report 05000354/2018002

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number:	50-354
License Number:	NPF-57
Report Number:	05000354/2018002
Enterprise Identifier:	I-2018-002-0062
Licensee:	PSEG Nuclear LLC (PSEG)
Facility:	Hope Creek Generating Station (HCGS)
Location:	Hancocks Bridge, NJ 08038
Inspection Dates:	April 1, 2018 to June 30, 2018
Inspectors:	J. Hawkins, Senior Resident Inspector S. Haney, Resident Inspector N. Floyd, Reactor Inspector J. Furia, Senior Health Physicist
Approved By:	Fred L. Bower, III, Chief Reactor Projects Branch 3 Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring PSEG's performance at Hope Creek Generating Station (HCGS Unit 1 by conducting the baseline inspections described in this report 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. NRC identified and self-revealed findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

Inadequate Instructions for Station Service Water Pump Maintenance			
Cornerstone	Significance	Cross-Cutting Aspect	Inspection Results Section
Reactor Safety – Mitigating Systems	Green NCV 05000354/2018002-01 Open/Closed	H.1 – Human Performance – Resources	71111.22
A self-revealing Green non-cited violation (NCV) of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for PSEG providing inadequate written instructions for the performance of maintenance to ensure the station service water (SSW) system remains capable of performing its safety function. Specifically, the PSEG maintenance procedure for SSW pump and motor removal and replacement did not provide adequate instruction to prevent galvanic corrosion when connecting the 'B' SSW pump to its seismic supports, which ultimately resulted in the pump failing its in-service test due to elevated vibration levels on February 18, 2018.			

PLANT STATUS

Hope Creek Generating Station (HCGS) began the inspection period at 100 percent power and operated at full power until March 24, 2018, when the unit entered end-of-cycle coastdown operations. On April 12, 2018, operators commenced a shutdown, from 92 percent power, for a planned refueling and maintenance outage (H1R21). Following the completion of refueling and maintenance activities, operators commenced a reactor startup on May 9, 2018. On May 21, 2018, the 'A' reactor feedwater pump tripped during measurement uncertainty recapture (MUR) power ascension testing. This resulted in intermediate runbacks of both reactor recirculation pumps (RRPs) and an unplanned downpower to 70 percent power. Following corrective maintenance and further testing, operators returned the unit to 100 percent power on May 24, 2018. There were no other operational power changes of regulatory significance 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 plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess PSEG performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards."

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Summer Readiness (1 Sample)

The inspectors evaluated summer readiness of offsite and alternate AC power systems.

71111.04 - Equipment Alignment

Partial Walkdown (3 Samples)

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

(1) 'D' main steam line and 'H' safety relief valve (SRV) discharge piping on April 25, 2018
(2) 'B' torus to drywell vacuum breaker on May 1, 2018
(3) Control rod drive hydraulic control unit accumulators during a reactor manual control system lock up on May 25, 2018

71111.05AQ - Fire Protection Annual/Quarterly

Quarterly Inspection (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

(1) High pressure coolant injection (HPCI) battery and associated battery room on April 1, 2018
(2) Feedwater sealing boundary valve (F032B) area on April 24, 2018
(3) Drywall pad and torus area on May 2, 2018
(4) Reactor core isolation cooling (RCIC) system on June 20, 2018
(5) Refuel floor on June 28, 2018

71111.06 - Flood Protection Measures

Cables (1 Sample)

The inspectors evaluated cable submergence protection in:

(1) SSW manhole 103 during the week of June 18, 2018

71111.07 - Heat Sink Performance

Heat Sink (2 Samples)

The inspectors evaluated PSEG's monitoring and maintenance of the B1 and B2 safety auxiliaries cooling system heat exchangers performance.

71111.08 – Inservice Inspection Activities (1 Sample)

The inspectors evaluated PSEG's non-destructive examination and welding activities at Hope Creek by reviewing the following activities and programs from April 23 to April 27, 2018:

(1) Volumetric Examinations
    a) Manual Ultrasonic Testing of residual heat removal (RHR) system pipe-to-elbow weld, 1-BC-20CCA-114-2.

(2) Surface Examinations
    a) Magnetic Particle Testing of reactor water clean-up system weld buildup, 1-BG-008-S02-OVERLAY. This review involved welding activities associated with a pressure boundary risk significant system.

(3) Visual Examinations
    a) In-vessel Visual Inspection of Jet Pump Components, Top Guide Hold Downs, Core Spray and Feedwater Piping Structural Attachments, and Core Shroud H9 Weld.
    b) General Visual Examination of the Drywell and Torus Surfaces.

The inspectors reviewed the welding activities associated with the repair of a degraded elbow on Line 1-BG-008 in the reactor water clean-up system.

71111.11 - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated a crew of licensed operators in the plant's simulator during licensed operator requalification training that involved an open SRV, high vibration levels on a RRP, a RRP seal leak, and turbine trip on June 5, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated a planned down power and shut down for the Hope Creek refueling outage (H1R21) on April 12. The inspectors observed and evaluated start up and power ascension activities from Hope Creek refueling outage (H1R21) on May 9, 2018.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (2 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

(1) Neutron monitoring system detector dry tubes found out of position on April 16, 2018
(2) RHR shutdown cooling suction isolation valve relay failure on April 27, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (5 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

(1) Yellow risk condition for shutdown cooling operation on April 13, 2018
(2) Notification of an unsecured divider plate inside the remote shutdown panel on April 26, 2018
(3) 'A' fuel pool cooling pump trip on May 8, 2018
(4) Notification of leading edge flow meter inaccuracy on May 18, 2018
(5) 'A' reactor feedwater pump trip during measurement uncertainty recapture power ascension testing on May 21, 2018

71111.15 - Operability Determinations and Functionality Assessments (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

(1) 'B' RHR heat exchanger bypass valve excessive leakby on April 11, 2018
(2) Common RHR suction line snubber visual inspection failure on April 18, 2018
(3) 'H' SRV discharge piping vacuum breaker failure on April 25, 2018
(4) 'B' torus to drywell vacuum breaker failure to stroke open on May 1, 2018

71111.18 - Plant Modifications (2 Samples)

The inspectors evaluated the following permanent modifications:

(1) Design Change Package 80107709 – Power range neutron monitoring system upgrade
(2) Design Change Package 80107006 – 'L' 2-stage SRV replacement with a 3-stage SRV

71111.19 - Post Maintenance Testing (7 Samples)

The inspectors evaluated post maintenance testing for the following maintenance/repair activities:

(1) Common RHR suction line snubber repairs on April 18, 2018
(2) 'A' main steam line outboard main steam isolation valve repairs on April 30, 2018
(3) RHR shutdown cooling suction isolation valve relay replacement on May 1, 2018
(4) HPCI system warmup valve (F100) troubleshooting and repairs on May 2, 2018
(5) Scram discharge volume vent and drain valve troubleshooting and repairs on May 4, 2018
(6) Reactor core isolation cooling system governor valve repair on May 9, 2018
(7) MUR troubleshooting and testing on May 16, 2018

71111.20 - Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated Hope Creek refueling outage (H1R21) activities from April 12, 2018 through May 11, 2018.

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (2 Samples)

(1) HC.OP-ST.BD-0004, RCIC quarterly test on May 10, 2018
(2) HC.RE-ST.BF-0001, control rod 30-23 scram time testing on June 9, 2018

In-service (3 Samples)

(1) HC.OP-IS.EA-0002, 'C' SSW pump inservice test on February 18, 2018
(2) HC.OP-IS.BJ-0001, HPCI system inservice test on June 5, 2018
(3) HC.OP-IS.BD-0102, RCIC system valves cold shutdown inservice test on June 17, 2018

Containment Isolation Valve (2 Samples)

(1) HC.OP-LR.AB-0001, 'A' main steam line outboard main steam isolation valve local leak rate testing on April 16, 2018
(2) HC.OP-LR.FD-0001, HPCI warmup valve leak rate testing on May 1, 2018

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazards Control and Work Coverage (1 sample)

The inspectors evaluated in-plant radiological conditions and performed independent radiation measurements during facility walkdowns and observation of radiological work activities. The inspectors examined the control of highly activated or contaminated materials stored within the spent fuel pools and the posting and physical controls for selected high radiation areas, locked high radiation areas, and very high radiation areas to verify conformance with the Occupational performance indicator.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 sample)

The inspectors evaluated radiation worker performance with respect to radiation protection work requirements. The inspectors evaluated radiation protection technicians in performance of radiation surveys and in providing radiological job coverage.

71124.02 - Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

Implementation of ALARA and Radiological Work Control (1 sample)

The inspectors reviewed radiological work controls and ALARA practices during the observation of in-plant work activities. The inspectors verified use of shielding, contamination controls, airborne controls, radiation work permit controls, and other work controls were consistent with ALARA plans. The inspectors reviewed the results achieved against the intended ALARA estimates to confirm adequate implementation and oversight of radiological work controls.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification (5 Samples)

The inspectors verified PSEG's performance indicator submittals listed below.

(1) Unplanned Scrams per 7000 Critical Hours (April 1, 2017 through March 31, 2018)
(2) Unplanned Power Changes per 7000 Critical Hours (April 1, 2017 through March 31, 2018)
(3) Unplanned Scrams with Complications (April 1, 2017 through March 31, 2018)
(4) Reactor Coolant System Specific Activity (April 1, 2017 through March 31, 2018)
(5) Reactor Coolant System Leakage (April 1, 2017 through March 31, 2018)

71152 - Problem Identification and Resolution

Semiannual Trend Review (1 Sample)

The inspectors reviewed PSEG's corrective action program for trends that might be indicative of a more significant safety issue.

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

Events (1 Sample)

The inspectors evaluated PSEG's response to the following event:

(1) Trip of the 'A' reactor feed pump and subsequent RRP automatic runback to 70 percent of rated thermal power on May 21, 2018

Personnel Performance (1 Sample)

The inspectors evaluated response during the following non-routine evolutions or transients:

(1) Conduct of power suppression testing on June 28, 2018

INSPECTION RESULTS

Inadequate Instructions for Station Service Water Pump Maintenance			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Reactor Safety – Mitigating Systems	Green NCV 05000354/2018002-01 Open/Closed	H.1 – Human Performance – Resources	71111.22

A self-revealing Green NCV of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for PSEG providing inadequate written instructions for the performance of maintenance to ensure the SSW system remains capable of performing its safety function. Specifically, the PSEG maintenance procedure for SSW pump and motor removal and replacement did not provide adequate instruction to prevent galvanic corrosion when connecting the 'B' SSW pump to its seismic supports, which ultimately resulted in the pump failing its in-service test due to elevated vibration levels on February 18, 2018.

Description:
Hope Creek utilizes a SSW system with four pumps to provide cooling to reactor and safety auxiliaries cooling systems heat exchangers during normal and emergency conditions. The SSW pumps are single stage, vertical pumps that connect to two seismic supports at an upper and lower location along the vertical column of the pump to restrict excessive vertical and lateral displacement during normal operation and any safe shutdown earthquake event. Each seismic support is fabricated from a carbon steel plate and the pump casing is fabricated from aluminum bronze, which creates a dissimilar metal joint susceptible to galvanic corrosion between the pump and the seismic supports.

On February 18, 2018, while performing the 'B' SSW pump in-service test, operators found vibrations at two motor points to be in the alert range and another in the required action range. Operators declared the pump inoperable and reviewed the pump's recent vibration data, which indicated that the pump vibration levels had been rising over the prior four weeks due to a potential pump misalignment. During the inspection of the pump, large areas of galvanic corrosion were found in the area of the bolting of both the upper and lower seismic supports. The rigid connection between the pump and seismic supports loosened and allowed movement that caused high vibration levels. Upon disassembly and replacement of

the upper and lower seismic supports, PSEG identified the upper support flanges did not have the specified neoprene gaskets installed and neither flange had a flange isolation kit installed. This was contrary to drawing C-0106-0, "Service Water Intake Structure Wall 102 & 103," that specifies using neoprene gasket material and a flange isolation kit to provide a dielectric barrier to prevent galvanic corrosion between the dissimilar metals of the pump casing and the seismic supports.

PSEG performed a causal evaluation (70198964) that determined that the 'B' SSW pump was installed in October 2015 (30137509) with non-neoprene gasket material and no flange isolation kits. The improper installation resulted from less than adequate procedural guidance for connecting the pump to its seismic supports. Step 5.5.14 of maintenance procedure HC.MD-CM.EA-0001, "Service Water Pump & Motor Removal & Replacement," did not provide instructions to install neoprene gaskets or flange isolation kits nor did it inform the technicians of the need to electrically isolate the pump from the seismic support as specified in drawing C-0106-0.

Corrective Actions: PSEG's corrective actions included replacement of the 'B' SSW seismic supports and a revision to procedure HC.MD-CM.EA-0001 to ensure neoprene gaskets and flange isolation kits are installed and guidance to inform the technicians of the need to electrically isolate the pump from the seismic support. In addition, PSEG will perform extent of condition inspections of the seismic support connections for the other three SSW pumps.

Corrective Action Reference: Notification (NOTF) 20788227, 20799145, 20799146

Performance Assessment:

Performance Deficiency: PSEG providing inadequate written instructions for the performance of maintenance to ensure the SSW system remained capable of performing its safety function was a performance deficiency reasonably within PSEG's ability to foresee and correct, and which should have been prevented. Specifically, PSEG maintenance procedure HC.MD-CM.EA-0001 did not provide adequate instruction for installing neoprene gaskets and flange isolation kits in the SSW pump to seismic support connection, and resulted in the 'B' SSW pump failing its in-service test due to elevated vibration levels on February 18, 2018.

Screening: This finding was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," dated January 1, 2018, as it was associated with the Protection Against External Factors attribute (Seismic) of the Mitigating Systems cornerstone and adversely affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, inadequate maintenance on the SSW pump seismic supports resulted in excessive vertical and lateral displacement during normal operation, inoperability following the pump failing its in-service test, and could have resulted in not performing its safety function following an earthquake.

Significance: The inspectors assessed significance of this condition in accordance with IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power", dated July 1, 2012. The finding screened to be of very low safety significance (Green), when the Exhibit 4, External Events Screening Questions were answered "no" because the finding would not cause a plant trip or an initiating event, would not degrade two or more trains of a multi-train system or function, would not degrade one or more trains of a system that supports a risk significant system or function, and did not involve the total loss of any safety function.

Cross Cutting Aspect: This finding, in accordance with IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014, has a cross-cutting aspect in the Human Performance area associated with Resources, in that PSEG did not ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, design details specified in drawing C-0106-0, "Service Water Intake Structure Wall 102 & 103," were not included in maintenance procedure HC.MD-CM.EA-0001, "Service Water Pump & Motor Removal & Replacement." (H.1)

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstance.

Contrary to the above, since October 2015, PSEG's SSW pump maintenance procedure, an activity affecting quality, was not appropriate to the circumstance. Specifically, procedure HC.MD-CM.EA-0001, "Service Water Pump & Motor Removal & Replacement," did not provide instruction for connecting the 'B' service water pump to its seismic support, consistent with the design details specified in drawing C-0106-0, "Service Water Intake Structure Wall 102 & 103," which ultimately resulted in the pump failing its in-service test due to elevated vibration levels on February 18, 2018.

Disposition: This violation is being treated as a NCV, consistent with Section 2.3.2.a of the Enforcement Policy.

Observation	71152 Semi-Annual Trend Review

The inspectors evaluated a sample of condition reports generated over the course of the past two quarters by departments that provide input to the quarterly trend reports. The inspectors determined that, in most cases, the issues were appropriately evaluated by PSEG staff for potential trends and resolved within the scope of the corrective action program. However, the inspectors noted instances where PSEG was not timely or did not recognize, until prompted by the inspectors that potential adverse trends existed. Examples of this are documented below:

FLEX Equipment Reliability and Preventive Maintenance

NRC Inspection Report (IR) finding (FIN) 05000354/2018001-01 documented multiple examples of PSEG not following procedures that implemented FLEX equipment preventive maintenance (PM), tracked FLEX equipment unavailability, screened FLEX equipment issues and appropriately addressed these issues in the corrective action program (CAP). During the second quarter of 2018, April 1, through June 30, 2018, the inspectors continued to note FLEX and beyond design basis-related NOTFs that were documented in the CAP, including a FLEX diesel generator failure to start (20796584), FLEX diesel pump excessive battery corrosion and terminal damage (20795300), B.5.b battery replacement PMs never created or performed (20794767), multiple spare FLEX diesel generator PMs not completed (20794005), disconnected FLEX diesel pump batteries (20797758) and identified gaps in maintaining FLEX equipment and unclear roles and responsibilities in FLEX equipment ownership and communication between operations, maintenance and engineering (20791974, 20791977, 20794358, 20798999). On June 3, 2018, the inspectors discussed these NOTFs in CAP

concerning FLEX and what appeared to be an adverse trend with FLEX equipment and programs with PSEG. PSEG initiated a common cause evaluation (70201140) to address the inspectors' concerns about the potential adverse trend.

Elevated Main Steam SRV Tailpipe Temperatures

The inspectors noted that since Hope Creek restarted from the refueling outage on May 10, 2018, seven of the fourteen SRV tailpipe temperatures experienced 30 degree F step increases, which can indicate potential SRV pilot leakage. ('H' on May 10, 'K' on May 13, 'D' on May 15, 'E' on May 24, 'P' on May 29, 'B' on June 8, 'F' on June 19) After the 'P' tailpipe temperature increased on May 29, the inspectors discussed the potential adverse trend with PSEG. The inspectors also noted that, over the last five operating cycles on average six SRV tailpipe temperatures experienced large temperature increases per cycle. PSEG initiated actions in NOTF 20796507 to address the potential adverse trend. The inspectors also noted that the 'H' SRV tailpipe temperature was elevated prior to the most recent spring 2018 refueling outage and then again during reactor startup. In response, PSEG staff suspected that main seat leakage may be occurring. Based on a preliminary review of tailpipe temperatures changes during a planned down power in June 2018, PSEG concluded that the 'H' and 'K' SRV tailpipe temperatures likely exhibited signs of SRV main seat leakage. PSEG engineering continues to review the SRV tailpipe temperatures and pressure trends for all fourteen SRVs.

The inspectors considered that the increase in documented NOTFs concerning FLEX and elevated SRV tailpipe temperatures since January 1, 2018, represented inspector identified emerging trends. These examples also represented missed opportunities to effectively use all of the tools available in the CAP, including PSEG's trending procedure, LS-AA-125-1005, which discusses the generation of notifications and the routine conduct of cognitive trend analyses.

The inspectors evaluated all of the issues above in accordance with the guidance in IMC 0612, Appendix B, "Issue Screening," and Appendix E, "Examples of Minor Issues," and determined the issues were of minor significance because the inspectors did not identify any CAQ that were not appropriately corrected or scheduled for correction in a reasonable period of time as a result of the failure to implement the NOTF screening process appropriately. Consequently, these issues were not subject to enforcement action in accordance with the NRC's enforcement policy.

EXIT MEETINGS AND DEBRIEFS

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

- On April 27, 2018, the inspectors presented the inservice inspection results to Mr. Eric Carr, Site Vice President, and other members of the PSEG staff.
- On May 4, 2018, the inspectors presented the radiation safety inspection results to Mr. Eric Carr, Site Vice President, and other members of the PSEG staff.
- On July 10, 2018, the inspector presented the quarterly resident inspector inspection results to Mr. Eric Carr, Site Vice President, and other members of the PSEG staff.

THIRD PARTY REVIEWS

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

DOCUMENTS REVIEWED

* Indicates NRC-identified

Section 1R01: Adverse Weather Protection

Procedures
HC.OP-AB.BOP-0004, Grid Disturances, Revision 25
HC.OP-GP.ZZ-0003, Station Preparations for Winter Conditions, Revision 31
OP-AA-108-107-1002, Salem and Hope Creek 500 kV Switchyard Operations Interface Procedure, Revision 2
OP-AA-108-111-1001, Severe Weather and Natural Diaster Guidelines, Revision 15
WC-AA-107, Seasonal Readiness, Revision 25

Drawings
601701, 500, 13.8, 4 kV Elementary One Line, Revision 38

Notifications
20791678 20796541

Section 1R04: Equipment Alignment

Procedures
HC.MD-ST.AB-0003, SRV Discharge Piping Vacuum Breaker In-place Set-point Testing, Revision 2
HC.OP-AB.IC-0001, Control Rod, Revision 16
HC.OP-AR.ZZ-0011, Overhead Annunciator Window Box C6, Revision 64
HC.OP-DL.ZZ-0026, Surveillance Log, Revision 160
HC.OP-ST.BF-0002, Control Rod Drive Accumulator Operability Check - Weekly, Revision 10
HC.OP-ST.GS-0004, Suppression Chamber / Drywell Vacuum Breaker Operability Test, Revision 15

Notifications

20772157	20792630	20793061	20794633
20785190	20792837	20793259	20795520

Maintenance Orders/Work Orders

50150123	70198465	80122059
60138982	70199676	

Miscellaneous
PM141Q-0113, VTD – Crosby Instruction Manual, Revision 15

Section 1R05: Fire Protection

Procedures
FRH-II-415, Hope Creek Pre-Fire Plan (HC PFP) – Drywell Pad and Torus Area, Revision 4
FRH-II-435, Hope Creek Pre-Fire Plan (HC PFP) – Steam Tunnel, RCIC, HPCI, Pipe Chases, CRD Removal and Repair Areas, Revision 4
FRH-II-412, Hope Creek Pre-Fire Plan (HC PFP) – RCIC Pump and Turbine, RHR pump and Heat Exchanger and Electrical Equipment Rooms, Revision 3
HC.OP-IS.BD-0101, RCIC Valves – In-service Test, Revision 64
HC.OP-IS.BD-0102, RCIC Valves – Cold Shutdown In-service Test, Revision 20

Notifications
20799450* 20791133 20791894 20798025

Maintenance Orders/Work Orders
50202595

Section 1R06: Flood Protection Measures

Procedures
HC.CH-SO.LE-0002, Operation of the Station Service Water Cable Vault Dewatering System, Revision 2
HC.MD-PM.ZZ-0022, SSW Electrical Manhole Water Inspection, Revision 3

Notifications
20777641 20782016 20790562

Maintenance Orders/Work Orders
30212219 30212716 30269939

Section 1R07: Heat Sink Performance

Procedures
ER-AA-340-1002, Service Water Heat Exchanger and Component Inspection Guide, Revision 7

Notifications
20789918 20792186 20792551
20792010 20792210

Maintenance Orders/Work Orders
30228940 30228941

Section 1R08: In-service Inspection Activities

Procedures
54-ISI-363, Remote Underwater In-Vessel Visual Inspection of Reactor Pressure Vessel Internals, Components, and Associated Repairs in Boiling Water Reactors, Revision 008
54-ISI-836, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Piping Welds PDI-UT-2, Revision 017
ER-AA-330, Conduct of Inservice Inspection Activities, Revision 11

NWP-13, Welding Procedure Specification for P1 to P1 Manual GTAW and SMAW Welds, Revision 1

Notifications
20792495 20792926* 20793129*

Maintenance Orders/Work Orders
60138458

Miscellaneous
ISI-HC-LTP4-PLAN, Hope Creek Inservice Inspection Program Plan Fourth Ten-Year Inspection Interval, Revision 0
Surface Examination Report for HC-1-BG-008-S02-OVERLAY, dated April 26, 2018
Ultrasonic Thickness Report for HC-1-BG-008-S02-OVERLAY, dated April 26, 2018
UT-18-011, UT Examination Report for 1-BC-20CCA-114-2 (Summary No. 1090005), dated April 23, 2018
VEN-18-002 through -012, Visual Examination Reports for Drywell and Torus Accessible Surfaces, dated April 27, 2018
WHR 80127, Weld History Record for HC-1-BG-008-S02-OVERLAY (WO# 60138458), dated April 26, 2018

Section 1R11: Licensed Operator Requalification Program

Procedures
HC.RE-IO.ZZ-0001(Q), Core Operations Guidelines, Revision 53
HC.OP-IO.ZZ-0004, Shutdown From Rated Power to Cold Shutdown, Revision 104
HC.OP-IO.ZZ-0005, Cold Shutdown to Refueling, Revision 40
HC.OP-IO.ZZ-0006(Q), Power Changes During Operation, Revision 60

Miscellaneous
Reactivity Maneuver Plan 2018-0042, April 2018 – Shutdown to RF21, Revision 0
SG-780, Open SRV/ Recirc Vibes/ RRP Seal Leak/ Turbine Trip, dated May 17, 2018

Section 1R12: Maintenance Effectiveness

Procedures
ER-AA-310-1004, Maintenance Rule Performance Monitoring, Revision 14
HC.ER-PS.BB-0506, Lower Plenum Inspection Bases Document, Revision 1
HC.OP-GP.SM-0001, Defeating Isolation Signals During Refueling Operations, Revision 13

Notifications
20792044 20793971 20795835

Maintenance Orders/Work Orders
60135038 70200179 70200543

Miscellaneous
VTD 324351, Universal Dry Tube dated May 23, 2000

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures
HC.OP-AB.COOL-0004, Fuel Pool Cooling, Revision 9
HC.OP-FT.ZZ-0006, Measurement Uncertainty Recapture Implementation & Power Ascension Testing, Revision 0
HC.OP-IO.ZZ-0006, Power Changes During Operation, Revision 61
OP-AA-106-101, Significant Event Reporting, Revision 11
OP-AA-300, Reactivity Management, Revision 7

Notifications

20794031	20794685	20795468	20795822
20794304	20794713	20795469	

Maintenance Orders/Work Orders
80116312

Miscellaneous

Section 1R15: Operability Determinations and Functionality Assessments

Procedures
HC.MD-ST.AB-0003, SRV Discharge Piping Vacuum Breaker In-place Set-point Testing, Revision 2
HC.OP-ST.GS-0004, Suppression Chamber / Drywell Vacuum Breaker Operability Test, Revision 15
SM.MD-GP.ZZ-0100, Lisega Snubber Rebuild Disassembly/Reassembly, Revision 1
SH.RA-ST.ZZ-0105, Snubber Examination and Testing, Revision 10

Notifications

20796237*	20791653	20792437	20792837
20751497	20792226	20792544	20793061
20772157	20792226	20792630	20793259
20785190	20792437	20792744	

Maintenance Orders/Work Orders

50141732	60138457	70200251	80122059
50150123	70191406	70200251	80122059
50189841	70198465	80113942	
50203003	70199676	80122059	

Miscellaneous
PM141Q-0113, VTD – Crosby Instruction Manual, Revision 15

Section 1R18: Plant Modifications

Procedures
VCC-AA-100, Standard Design Process, IP-ENG-001, Revision 0

Notifications

20790205	20793216	20793453	20794775
20792023	20793318	20794633	20795520
20793136	20793434	20794299	

Maintenance Orders/Work Orders

60131640 80107709

Section 1R19: Post-Maintenance Testing

Procedures

HC.OP-FT.ZZ-0006, MUR Power Ascension Testing, Revision 0
HC.OP-LR.FD-0001, Containment Isolation Valve Type C Leak Rate Test 1FDHV-F002, Revision 4
HC.OP-ST.BD-0004, RCIC System Response Time and Flow test – 18 Months, Revision 9
HC.OP-ST.BF-0006, SDV Vent and Drain Functional Test, Revision 5
HC.RE-CP.ZZ-0003, CRIDS Plant Process Computer Point Process, Revision 11
SM.MD-GP.ZZ-0100, Lisega Snubber Rebuild Disassembly/Reassembly, Revision 1

Notifications

20798788*	20791702	20792744	20794685
20751497	20791825	20793095	20794713
20777859	20791941	20793327	20794718
20787455	20792125	20793354	20797558
20790335	20792226	20793514	
20791218	20792437	20793547	
20791653	20792544	20793934	

Maintenance Orders/Work Orders

30304771	60131857	70191406	80113942
50189841	60138457	70200118	80122046
50190280	60138464	70200144	80122059
50203003	60138464	70200239	
50203292	60138572	70200251	
60106987	60138628	70201260	

Miscellaneous

PN0-A61-4050-0026, Electrical Equipment Separation for Safeguards System, Revision 5

Section 1R20: Refueling and Other Outage Activities

Procedures

HC.OP-IO.ZZ-0009, Refueling Operations, Revision 39
OP-HC-300-2020, Review of Reactore Core Performance Information, Revision 2

Notifications

20789606	20790257	20791268	20791380
20790052	20791213	20791283	20791652
20790180	20791215	20791284	20791653
20790253	20791216	20791310	20791702
20790254	20791217	20791318	20791703

20791704	20791970	20792539	20793061
20791705	20791979	20792633	20793101
20791706	20791987	20792641	20793166
20791707	20791988	20792642	20793178
20791710	20791990	20792658	20793294
20791718	20791996	20792659	20793299
20791719	20792044	20792678	20793302
20791767	20792049	20792685	20793307
20791793	20792088	20792700	20793322
20791795	20792091	20792796	20793422
20791812	20792099	20792811	20793806
20791820	20792102	20792827	20793890
20791825	20792103	20792828	20793891
20791864	20792105	20792829	20794131
20791879	20792131	20792830	20794237
20791894	20792141	20792923	20794245
20791901	20792146	20792932	20794369
20791912	20792158	20792950	20794370
20791917	20792180	20793027	20794371
20791948	20792299	20793043	20794372
20791949	20792436	20793051	20794373
20791950	20792450	20793056	20794932
20791954	20792508	20793057	
20791959	20792464	20793058	

Miscellaneous
NFS 18-025, Hope Creek Cycle 22 Core Loading Plan, Revision 0

Section 1R22: Surveillance Testing

Procedures
HC.MD-PM.FD-0001,
HC.OP-IS.BD-0102, RCIC System Valves – Cold Shutdown – In-service Test, Revision 20
HC.OP-IS.BJ-0001, HPCI Main and Booster Pump Set – 0P204 and 0P217 – In-service test, Revision 65
HC.OP-LR.AB-0001, Containment Isolation Valve Type C Leak Rate Test 1ABHV-F022A and 1ABHV-F028A, Penetration PIA: "A" Main Steam Line, Revision 7
HC.OP-LR.FD-0001, Containment Isolation Valve Type C Leak Rate Test 1FDHV-F002, Revision 4
HC.OP-ST.BD-0004, RCIC System Response Time and Flow test – 18 Months, Revision 9
HC.RE-ST.BF-0001, Control Rod Scram Time Surveillance, Revision 36
HC.RE-ST.BF-0001, Control Rod Scram Time Surveillance, Revision 37

Drawings
C-0106-0, Service Water Intake Structure Wall 102 & 103, Revision 12

Notifications

20745655	20791941	20793354	20794718
20790335	20791941	20793514	20798025
20791702	20792125	20793547	20798810
20791825	20792125	20794386	

Maintenance Orders/Work Orders

30304771	60106987	70189240	80122046
30323025	60131857	70198964	80122346
50190280	60138464	70200128	
50190280	60138464	70200144	
50202595	60138628	70200239	

Section 4OA2: Problem Identification and Resolution

Notifications

20783115	20794091	20795300	20796311
20787557	20794131	20795388	20796919
20792933	20794632	20795729	20797481

Maintenance Orders/Work Orders
70199841
70200929

Miscellaneous
SC Standing Order 2018-22, Exiting FLEX/SAWA TSASs dated June 13, 2018

Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion

Notifications

20793302*	20791894	20794411	20794522
20776639	20792700	20794413	20795822

Maintenance Orders/Work Orders
50190467 70200128 70200206

Procedures
NF-AB-431, Power Suppression Testing, Revision 6
HC.OP-FT.ZZ-0006
HC.OP-LR.AE-0003
HC.OP-SO.AE-0001
OP-HC-108-102, Management of Operations with the Potential to Drain the Reactor Vessel (OPDRV), Revision 5
OP-HC-108-110-1001

Miscellaneous
Calculation BD-0020, RCIC Jockey Pump System Capabilities, Revision 0
Hope Creek Narrative Logs dated May 21, 2018
M-51-1, RHR P&ID, Revision 45