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

April 9, 2014

Mr. Thomas P. Joyce
President and Chief Nuclear Officer
PSEG nuclear LLC-N09
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION - NRC EVALUATION OF CHANGES, TESTS, OR EXPERIMENTS AND PERMANENT MODIFICATIONS - TEAM INSPECTION REPORT 05000354/2014007

Dear Mr. Joyce:

On February 28, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Hope Creek Generating Station. The enclosed inspection report documents the inspection results, which were discussed on February 28, 2014 with Mr. Paul Davison, Site Vice President, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. In conducting the inspection, the team reviewed selected procedures, calculations and records, observed activities, and interviewed station personnel.

Based on the results of this inspection, no findings were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Paul G. Krohn, Chief
Engineering Branch 2
Division of Reactor Safety

Mr. Thomas P. Joyce
President and Chief Nuclear Officer
PSEG nuclear LLC-N09
P.O. Box 236
Hancocks Bridge, NJ 08038

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Sincerely,

/RA/

Paul G. Krohn, Chief
Engineering Branch 2
Division of Reactor Safety

Distribution: See Next Page

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

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U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No.	50-354
License No.:	NPF-57
Report No.	05000354/2014007
Licensee:	PSEG Nuclear, LLC (PSEG)
Facility:	Hope Creek Generating Station
Location:	Hancocks Bridge, NJ
Inspection Period:	February 10 through February 28, 2014
Inspectors:	J. Brand, Reactor Inspector, Division of Reactor Safety (DRS), Team Leader J. Schoppy, Senior Reactor Inspector, DRS L. Dumont, Reactor Inspector, DRS B. Bollinger, Nuclear Safety Professional Development Program, DRP
Approved By:	Paul G. Krohn, Chief Engineering Branch 2 Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000354/2014007; 02/10/2014-02/28/2014; Hope Creek Generating Station; Engineering Specialist Plant Modifications Inspection.

This report covers a 2-week on-site inspection period of the evaluations of changes, tests, or experiments and permanent plant modifications. The inspection was conducted by three region based engineering inspectors and one inspector from the Division of Reactor Projects. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

No findings were identified.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications (IP71111.17)

.1 Evaluations of Changes Tests, or Experiments (31 samples)

a. Inspection Scope

The team reviewed six safety evaluations to evaluate whether the changes to the facility or procedures, as described in the Updated Final Safety Analysis Report (UFSAR), had been reviewed and documented in accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.59 requirements. In addition, the team evaluated whether PSEG had been required to obtain NRC approval prior to implementing the changes. The team interviewed plant staff and reviewed supporting information including calculations, analyses, design change documentation, procedures, the UFSAR, the Technical Specifications (TS), and plant drawings to assess the adequacy of the safety evaluations. The team compared the safety evaluations and supporting documents to the guidance and methods provided in Nuclear Energy Institute (NEI) 96-07, "Guidelines for 10 CFR 50.59 Evaluations," as endorsed by NRC Regulatory Guide 1.187, "Guidance for Implementation of 10 CFR 50.59, Changes, Tests, and Experiments," to evaluate the adequacy of the safety evaluations.

The team also reviewed a sample of twenty five 10 CFR 50.59 screenings for which PSEG had concluded that no safety evaluation was required. These reviews were performed to assess whether PSEG's threshold for performing safety evaluations was consistent with 10 CFR 50.59. The sample included design changes, calculations, and procedure changes.

The team reviewed all six safety evaluations that PSEG had performed during the time period covered by this inspection (i.e., since the last modifications inspection) not previously reviewed by NRC inspectors. The screenings and applicability determinations were selected based on the safety significance, risk significance, and complexity of the change to the facility.

In addition, the team compared PSEG's administrative procedures used to control the screening, preparation, review, and approval of safety evaluations to the guidance in NEI 96-07 to evaluate whether those procedures adequately implemented the requirements of 10 CFR 50.59. The reviewed safety evaluations and screenings are listed in the Attachment.

b. Findings

No findings were identified.

.2 Permanent Plant Modifications (13 samples)

.2.1 Service Water Ice Barrier Structure and Deicing Line Replacement

a. Inspection Scope

The team reviewed modification 80101579 that implemented structural improvements to the ice barriers connected to the Hope Creek Service Water (SW) intake structure and replaced exposed portions of the pre-existing carbon steel deicing line routed on top of the ice barrier structure with new fiberglass reinforced piping (FRP). Engineering determined that the fiberglass material required less maintenance, was more corrosion resistant, and was better suited to withstand the environmental conditions along the Delaware River than the carbon steel piping.

The team reviewed the modification to verify that the design bases, licensing bases, and performance capability of the SW system had not been degraded by the modification. The team interviewed engineering staff and reviewed technical evaluations associated with the modification to determine if the SW deicing line, SW traveling water screens (TWS), and SW system would function in accordance with the design requirements. The team performed a walkdown of accessible portions of the SW deicing line valve pits, deicing line, and ice barriers at the SW intake structure to independently assess PSEG's design control and the material condition of the deicing line and the associated structures, systems, and components (SSC). The team reviewed the associated post-modification test (PMT) results and SW system operational performance to verify that the SW system functioned as designed following the modification. When the environmental conditions supported frazil ice formation, the team performed several walkdowns of the SW TWS rooms and directly observed the operating screens for evidence of frazil ice to independently assess the potential ice loading on the safety-related SW TWSs and the adequacy of PSEG's severe weather monitoring guidance for the SW system. The team also reviewed corrective action notifications (NOTF) to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. <u>Findings</u>

No findings were identified.

.2.2 <u>Emergency Diesel Generator Jacket Water Keep-Warm Heater Vent Line Installation</u>

a. <u>Inspection Scope</u>

The team reviewed modification 80104607 that installed a vent line approximately two inches below the heater flange on the side of the vertical emergency diesel generator (EDG) jacket water (JW) keep-warm heater (H1KJ-1A/B/C/D-E-407) on all four EDGs. Specifically, in March 2010, engineering attributed an EDG JW keep-warm heater

failure to overheating of the elements as a result of an air gap between the water level and the heater flange. Over time, the corrosion at the air/water interface resulted in perforation of the heater element allowing JW to short the element to ground. Based on discussions with the supplier of the electric immersion heaters, engineering identified that the fluid level must be no more than four inches below the heater flange and less if possible. Engineering installed the vent line to allow proper venting to reduce the air gap at the top of the JW heater tank to reduce the possibility of element overheating.

The team reviewed the modification to verify that the design bases, licensing bases, and structural integrity of the EDG JW system had not been degraded by the modification. The team interviewed engineering staff and reviewed calculations, technical evaluations, and completed surveillance test results to verify that the JW support system would function in accordance with design requirements. The team reviewed the associated work order instructions and documentation to verify that maintenance personnel had implemented the modification as designed. The team also performed several walkdowns of the JW system for all four EDGs to verify that PSEG had adequately implemented the modification, maintained configuration control, and had not impacted the operation of other safety-related SSCs located in the vicinity. The team also reviewed corrective action NOTFs to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.3 Installation of Vent Valves in the Residual Heat Removal System

a. Inspection Scope

The NRC issued Generic Letter (GL) 2008-01, “Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal and Containment Spray Systems” and requested that each licensee evaluate its emergency core cooling systems to ensure that adequate provisions were incorporated into the design to ensure that gas accumulation did not challenge the operability of these systems. In response to GL 2008-01, PSEG added several vent valves to the residual heat removal (RHR) system per design change package (DCP) 80097265. However, in a follow-up walkdown in response to GL 2008-01 (see NRC Integrated Inspection Report 05000354/2010004), NRC inspectors identified two additional locations in the RHR system that were vulnerable to gas accumulation due to the configuration of the piping system. The vulnerabilities were located on the RHR heat exchanger (HX) inlet piping where the existing local high point vents did not ensure that all air was purged from the 18-inch RHR piping. The team reviewed modification 80105054 that installed vent valves at the vulnerable locations in the A and B RHR HX rooms to prevent the potential accumulation of gases and to satisfy GL 2008-01 requirements.

The team reviewed the modification to verify that the design bases, licensing bases, and performance capability of the RHR system had not been degraded by the vent valve installation. The team interviewed engineering staff, reviewed calculations, technical evaluations, and RHR surveillance results to verify that the vent valves would function in accordance with design requirements. The team reviewed the associated work order instructions and documentation to verify that maintenance personnel implemented the modification as designed. The team performed several walkdowns of the 'A' and 'B' RHR HX rooms to verify that PSEG had adequately implemented the modification, maintained configuration control, and had not impacted the operation of other safety-related SSCs located in the vicinity. The team also reviewed corrective action NOTFs to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.4 Scram Air Header Piping Replacement

a. Inspection Scope

The team reviewed modification 80106052 that replaced the soldered copper tubing and brass/copper components in the south hydraulic control unit (HCU) control rod drive (CRD) scram air header with welded stainless steel pipe and components. The CRD scram air lines are required to maintain a prescribed air pressure to each CRD HCU scram solenoid pilot valve (SSPV) during normal operation in order for the HCU to perform normal rod insertion and withdrawal as required by control room operators. A loss of air pressure in these lines results in single or multiple control rod insertions or a scram depending on the location and magnitude of the air leak. The pre-existing piping configuration contained copper tubing and components that were soldered together. Over time, air leaks had occurred in these lines at soldered connections and fittings (see NRC Integrated Inspection Report 05000354/2009003 that discussed a plant scram caused by an air leak at a soldered joint on the scram air header in May 2009). Engineering determined that welded stainless steel pipe was significantly more robust and less susceptible to air leakage to mitigate future unplanned control rod insertions or scrams. (Engineering planned to replace the soldered copper tubing and brass/copper components in the north HCU CRD scram air header under modification 80109465 in their April 2015 refueling outage.)

The team reviewed the modification to verify that the design bases, licensing bases, and performance capability of the CRD and instrument air (IA) systems, including the scram function, had not been degraded by the modification. The team interviewed engineering staff and reviewed technical evaluations associated with the modification to determine if the CRD and IA systems would function in accordance with the design requirements.

The team reviewed the associated work order instructions and documentation to verify that maintenance personnel had implemented the modification as designed. The team performed several walkdowns of the north and south CRD scram air headers to independently assess PSEG's design control, the material condition, and the integrity of the air headers. The team reviewed the associated PMT and post-outage scram time testing results, and recent air leakage preventive maintenance (PM) results to verify that the CRD and IA systems functioned as designed following the modification. The team also reviewed corrective action NOTFs to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.5 Evaluation of Emergency Diesel Generator Operability with One Room Cooler for Two Hours

a. Inspection Scope

The team reviewed modification 80104429 that revised design calculation E-0047 to demonstrate that one room cooler can maintain the EDG room temperature at or within its design limit for 2 hours after a design basis event without any valve realignment when river temperature is 89°F or less. The EDG room coolers were originally sized to be 100 percent capacity units, meaning each was sized to maintain its respective EDG room temperature at or below the maximum design room temperature of 120°F. However, since the original design re-evaluation of operational alignments and single failures, as well as a change to the maximum allowable post-accident safety auxiliaries cooling system (SACS) temperature (raised from 95°F to 100°F), have resulted in a need for two EDG coolers to be operable during elevated river temperatures. This modification also incorporated revisions to procedure OP-HC-108-115-1001 and was based upon the analysis that the affected EDG will not be declared inoperable for 2 hours after loss of a room cooler. Without this analysis the affected EDG would be declared inoperable immediately upon loss of a room cooler. Continued operation of the affected EDG beyond 2 hours with a single room cooler is assured by adjustment of the cooler discharge valves per procedure HC.OP-SO.GM-001, Diesel Area Ventilation System Operation.

The team conducted the review to ensure that the calculation revision was consistent with assumptions in the design and licensing basis. The team reviewed the associated revision to the calculations and the technical evaluation to assess their adequacy and results. The team reviewed operating procedures to ensure they had been properly updated to incorporate the results of the analysis. In addition, the calculations and results were discussed with the responsible engineer to verify that inputs and assumptions were appropriate. The team also reviewed the 10 CFR 50.59 safety

evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.6 Install 1E Cable Vault Dewatering System

a. Inspection Scope

The team reviewed modification 80103378 that installed an automatic dewatering system for Station Service Water (SSW) electrical manhole (MH) cable vaults 102,103, and 105. Hope Creek installed the system in response to GL 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients." Medium voltage cables at Hope Creek were originally qualified to be '"wetted" not "submerged." Inspections conducted by Hope Creek staff found that several cable vaults were flooded, and medium voltage cables providing power to the SSW pumps were submerged for extended periods of time. The objective of the modification was to keep the SSW cables from being submerged by removing water from the cable vaults. This was accomplished by installing sump pumps near the surface grade by the SSW cable vaults.

The team reviewed the installation work package to evaluate whether the design basis, licensing basis, and performance capability of the SW system had been degraded by the modification. The team reviewed the licensee's technical evaluation, design specifications, calculations, analysis, piping and instrumentation diagrams (P&ID), and logic control sheets to verify that design assumptions were valid. The team reviewed the system actuation parameters, such as what measured level that the sump pumps would start or stop. The team interviewed system engineers and technical staff to evaluate the adequacy and the performance of the system. The team conducted walkdowns of the accessible areas of the dewatering system to assess the material condition of the system, to verify the adequacy of the drawings, and to ensure that the system was installed according to design specifications. The team reviewed the post-modification testing to confirm that the implementation was properly executed. The team also verified that procedures and drawings were properly updated to reflect the respective design changes. In addition, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.7 ‘A’ Emergency Diesel Generator Control System Replacement

a. Inspection Scope

The team reviewed modification 80106570, ‘A’ Emergency Diesel Generator Governor Control Replacement,” which replaced the existing EGB-50C Governor/Actuator with a new upgraded EGB-50P actuator. This change was performed because Hope Creek’s EDG governor control system was obsolete and the availability to procure spare parts and service support was limited. Hope Creek’s design of having two separate governors (one mechanical and one electrical) remained the same. However, the EG-A control box, the motor operated potentiometer (MOP), and the resistor box of the existing electronic governor were replaced with a new 2301A Electronic Load Sharing and Speed Control System and a Digital Reference Unit (DRU). The resistor box is no longer required with this new installation.

The team reviewed the modification to verify that the design bases, licensing bases, and performance capability of the EDG control system had not been degraded by the modification. The team reviewed various documents to determine if the installation of the new EDG governor control system was accomplished in accordance with design assumptions and if the performance of the EDG governor was satisfactory. The team conducted walkdowns of the ‘A’ train EDG and the associated local terminal box in the EDG control room to visually inspect and assess the material condition of the EDG governor and to ensure that design specifications and instructions were adequately translated in the installation. The team interviewed the engineering staff about the design, installation, and post modification testing of the new EDG governor in order to assess the adequacy of the modification. The team verified that procedures affected by the modification had been adequately updated with respect to the design changes. In addition, the 10 CFR 50.59 screening determination associated with this modification was also reviewed as described in Section 1R17.1 of this report. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.8 Update Calculation E-5.1(Q) for Revised Battery Fan Curves

a. Inspection Scope

The team reviewed modification 80101734 that revised the existing 250 volt direct current (VDC) Battery sizing calculation. Calculation E-5.1(Q) used the original fan curves from 1974. When compared with the 1986 curves, which are the currently active curves utilized by the manufacturer, a reduction in Amps/Positive was identified which resulted in a reduction in battery margin. The team reviewed the modification to ensure that, although design margin had been reduced using the new curves, the overall battery margin remained positive. The team also ensured that each battery system was sized with a 25 percent aging factor to allow for 100 percent battery capacity at the end of life.

The team reviewed the updated calculation to verify that the design bases, licensing bases, and performance capability of the batteries had not been degraded by the revised calculation. The team assessed the calculation and associated analysis to verify that the assumptions used in the calculation were valid. The team interviewed design engineers to evaluate the calculation's methodology and to verify its adequacy. The team verified that procedures that had been affected by the modification had been updated. In addition, the 10 CFR 50.59 screening determination associated with this modification was also reviewed as described in Section 1R17.1 of this report. Documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.9 Switchyard Cable Vault Dewatering System

a. Inspection Scope

The team reviewed modification 80107611 that installed an automatic dewatering system for manholes with associated cable vaults for the Station Power Transformers (SPT) and the Station Service Transformers (SST). The system was installed in response to GL 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients." Medium voltages cables at Hope Creek were originally qualified to be "wetted" but not "submerged." The objective of the modification was to keep SST and SPT cables from being submerged by removing water from the cable vaults.

The team reviewed the installation to ensure that the design basis, licensing basis, and performance capability of the SPT and SST system had not been degraded by the modification. The team reviewed the licensee's technical evaluation, design specifications, calculations, analysis, P&IDs, and logic control sheets to verify that design assumptions were valid. The team interviewed system engineers and technical staff to assess the adequacy and the performance of the system. The team conducted walkdowns of the accessible areas of the dewatering system to assess the material condition of the system, to verify the adequacy of the drawings, and to ensure that the system was installed in accordance with design specifications. The team reviewed the post-modification testing to confirm that the acceptance criteria were achieved. The team also verified that procedures and drawings that were affected by the modification were properly updated. In addition, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.10 Replace Reactor Water Cleanup Recirculation Pump 1A-P-221

a. Inspection Scope

The team reviewed modification 80102453 that replaced the ‘A’ reactor water cleanup (RWCU) recirculation pump (H1 BG-1A-P-221) with a new 50 percent capacity vertical wet stator canned pump. This modification was implemented to address recurring mechanical seal failures of the existing RWCU pumps. The new wet stator design did not have mechanical seals thereby eliminating the long standing leakage issues associated with the previous pumps. The team reviewed operating experience to ensure that the vertical wet stator pumps have operated in similar RWCU applications at other nuclear plants such as Limerick, Peach Bottom, Susquehanna, LaSalle, and Hatch with acceptable service history.

The team reviewed the modification to verify that the design bases, licensing bases, and performance capability of the RWCU system had not been degraded by the modification. The team interviewed engineering staff and reviewed applicable documentation and technical evaluations associated with the modification to determine if the RWCP system would function in accordance with the design requirements. The team performed a walkdown of accessible portions of the RWCU system to independently assess PSEG’s design control and the material condition of the pumps and the associated SSCs. The team reviewed the associated PMT results and operational performance to verify that the RWCU system functioned as designed following the modification. The team also reviewed corrective action NOTFs to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.11 Circulating Water Pump Trip/Reactor Recirculation Runback Bypass

a. Inspection Scope

The team reviewed modification 80103190 that changed the reactor recirculation (RR) flow control system runback logic associated with a trip of the circulating water (CW) pumps. The modification bypassed the full and intermediate runback features resulting in plant operation without an automatic runback to targeted down power levels following one or two CW pump trips. The runback logic for other systems including feed water, primary condensate, secondary condensate, and main generator stator cooling water system were not impacted by this modification. This modification allowed plant operation without a power reduction caused by the CW runback feature and also avoided unnecessary plant trips. The RR flow control system runback is a non-safety system and is not required to mitigate any of the postulated design basis accidents.

However, this modification was selected due to its association with a potential transient initiation which can challenge safety systems.

The team reviewed the modification to verify that the design bases, licensing bases, and performance capability of the CW and RR flow control systems had not been degraded by the modification. The team interviewed engineering staff and reviewed applicable documentation and technical evaluations associated with the modification to determine if the CW and RR systems would function in accordance with the design requirements following the modification. The team reviewed the associated PMT results to verify that the CW runback feature had been bypassed as intended. The team also reviewed corrective action NOTFs to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.12 1R17 Flow Accelerated Corrosion Data and Stress Calculation Updates

a. Inspection Scope

The team reviewed modification 80105360 that updated design information in the Hope Creek pipe stress calculations to support the flow accelerated corrosion program. Hot water and two phase flow (steam and hot water mixtures) over a period of time may cause flow accelerated corrosion (FAC) in carbon steel piping resulting in pipe wall thinning. The Hope Creek FAC program requires periodic thickness measurements in piping systems susceptible to FAC degradation in accordance with procedures ER-AA-430 and ER-AA-430-1001. Acceptable minimum wall thickness values were incorporated into the affected design basis pipe stress calculations in order to help maintain design bases configuration control, an awareness of the configuration change process, and to update other plant operability assessments. The inspectors verified that minimum wall thickness values for piping systems were calculated and used to compare against field measured wall thickness values in order to ensure compliance with design basis requirements.

The team reviewed the modification, interviewed engineering staff, and reviewed applicable documentation and technical evaluations associated with the modification to verify that the design bases, licensing bases, and performance capability of the Hope Creek FAC program had not been degraded by the updates. In addition, the calculations and results were discussed with the responsible engineer to verify inputs and assumptions were appropriate. The team also reviewed corrective action NOTFs to determine if there were reliability or performance issues that may have resulted from the updates. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

.2.13 Revise Calculations EG-0043, EG-0046, and EG-0047 for Safety Auxiliary Cooling System Tufline Valve Coefficient Values Revisions

a. Inspection Scope

The team reviewed modification 80104106 that revised calculations EG-0043, EG-0046, and EG-0047 for numerous Tufline valves associated with the SACS and the turbine auxiliaries cooling system (TACS). The safety-related SACS is designed to provide cooling water to the engineered safety features (ESF) equipment including the RHR heat exchanger during normal operation, normal plant shutdown, loss-of-off-site power (LOOP) and loss-of-coolant accidents (LOCA). The non-safety related TACS system is designed to provide cooling water to the turbine auxiliary equipment during normal plant operation and normal plant shutdown. The heat from both systems is transferred to the SSW system via the SACS heat exchangers. This modification corrected the flow coefficient values (Cv) of 76 valves and adjusted the required throttle positions for 22 SACS valves. This design change was needed to revise affected calculations to correct vendor drawings, to adjust valve positions in the field, and to make these positions permanent.

The team reviewed the modification, interviewed engineering staff, and reviewed applicable documentation and technical evaluations associated with the modification to verify that the design bases, licensing bases, and performance capability of the SACS and TACS systems had not been degraded by the modification. The team performed a walkdown of accessible portions of the SACS and verified proper positioning of the associated valves to independently assess PSEG's design control and the material condition of the valves and the associated SSCs. The team also reviewed corrective action NOTFs to determine if there were reliability or performance issues that may have resulted from the modification. Additionally, the team reviewed the 10 CFR 50.59 screening and engineering evaluation associated with this modification as described in Section 1R17.1 of this report. The documents reviewed are listed in the Attachment.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (IP 71152)

The team reviewed a sample of problems that Public Service Enterprise Group Nuclear, LLC (PSEG) had previously identified and entered into the corrective action program. The team reviewed these issues to verify an appropriate threshold for identifying issues and to evaluate the effectiveness of corrective actions. In addition, NOTFs written on issues identified during the inspection were reviewed to verify adequate problem

identification and incorporation of the problem into the corrective action system. The specific corrective action documents that were sampled and reviewed by the team are listed in the Attachment.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

The team presented the inspection results to Mr. Paul Davison, Site Vice President, and other members of PSEG's staff at an exit meeting on February 28, 2014. The team verified that no proprietary information was documented in the report.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

PSEG Personnel
D. Baskin, Senior Procurement Engineer
J. Boyer, Mechanical/Structural Design Manager, Design Engineering
S. Connelly, System Engineer (EDG)
D. Bush, Equipment Reliability
P. Davison, Site Vice President
V. Chandra, Principal Engineer, Design Engineering
R. Ficarra, Senior Reactor Operator
P. Finch, Project Engineer
A. Ghose, Principal Engineer, Design Engineering
A. Hack, Engineer
R. Kocher, System Engineer (SW)
J. Lane, Principal Engineer
M. Mazzuca, IVVI Program Engineer
L. Powell, Design Engineering
K. Wichman, System Engineer (CRD & RHR)
R. Veideman, Project Staff
P. Waller, Chemistry Technician
M. Zimmerman, Engineer, Design Engineering

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

None

LIST OF DOCUMENTS REVIEWED

10 CFR 50.59 Evaluations
50.59 Evaluation No. HC-09-051, Hope Creek Unit 1 Cycle 16 Core Reload Design Fuel Change Package (TRACG04 Method Changes), dated 4/16/09
50.59 Evaluation No. HC-12-025, On-Line Noble Chemistry Application (60098304), dated 9/6/12
50.59 Evaluation No. HC-13-173, Access Hole Cover Flaw Evaluation, Revision 0
60104567, Installation of Chart Recorder to AK 400 Control Circuitry, Revision 0
HC.MD-GP.ZZ-0246(Q), DC Ground Fault Troubleshooting Using PGFD-1 Ground Fault Detector, Revision 0
80048294, Electro-Hydraulic Control (EHC) System Upgrades, Revision 4,

10 CFR 50.59 Screened-out Evaluations

HC-10-095, Update Calculation E-5.1(Q) for Revised Battery Fan Curves, Revision 1
HC 11-001, Revise HC TS Basis 3/4.9.11 (DCR 80102908) 50.59 Screen, dated 1/11/11
HC 11-006, HC.OP-SO.JE-0001 (Diesel Fuel Oil Storage and Transfer System Operation) 50.59 Screen, dated 2/1/11
HC-11-046, 1E Cable Vault Sumps, Revision 0
HC 11-084, Internal Flood Calculation 19-0018 for Room 5339 (DCR 80101132) 50.59 Screen, dated 8/9/11
HC 12-001, SRV Tail Pipe Temperature Versus Steam Leak Rate (80105654) 50.59 Screen, dated 1/9/12
HC-12-031, EDG Lube Oil Heater Keep Warm Vent Line Installation, Revision 0
HC-12-054, Revise Maximum Acceptable Tailpipe Temperature of PSV F103R Valve, Revision 0
HC-12-083, 'A' EDG Governor Control System Replacement, Revision 0
HC-12-088, Installation of Chart Recorder to AK 400 Control Circuitry, Revision 0
HC 12-122, 50.59 Review for Functional Locations in Off-Normal Position for More than Six Months 50.59 Screen, dated 11/6/12
HC-12-125, Interim Use as-is for Non-Conforming Service Water (SW) Penetration, Revision 0, dated 10/8/12
HC-12-127, DC Ground Fault Troubleshooting Using PGFD-1 Ground Fault Detector, Revision 0
HC-13-006, Revise Thermal Overload Heater Size for H1GM -52-461043 and H1GM-52-451043, Revision 0
HC-13-025, 'D' RHR Motor Vibration Monitoring, Revision 0
HC-13-026, HC.OP-IO.ZZ-0008, Shutdown from Outside Control Room, Revision 33
HC-13-031, NCR Use-as-is Interim Diesel Fire Pump, Revision 0, dated 4/18/13
HC 13-040, HC.OP-AB.MISC-0001 (Acts of Nature) 50.59 Screen, dated 1/25/13
HC-13-059, 'D' RHR Pump Motor Vibration Probe Non-conformance, Revision 0
HC 13-063, HC.OP-SO.EA-0001 (Service Water System Operation) 50.59 Screen, dated 4/19/13
HC-13-079, Install Jumpers for 1HB-HV-F003 Valve Position Switch Permissive to Run Drywell Floor Drain Sump Pumps 1CP267 and 1DP267, Revision 1
HC 13-088, HC.OP-AB.IC-0001 (Control Rod) 50.59 Screen, dated 4/19/13
HC-13-100, Switchyard Cable Vaults Dewatering System, Revision 0
HC 13-102, HC.OP-SO.KJ-0001 (Emergency Diesel Generators Operation) 50.59 Screen, dated 8/8/13
HC-13-108, Hope Creek Wi-Fi Upgrade (Reactor Building), Revision 1
HC-13-134, Determination of Q Listed Requirements for Pressure Relief Devices on HCU, Revision 1
DP-13-173, Gear Reducer SW Strainer Model 8SFDM, Revision 1
80104430, Item Equivalency S1DGV-1DGV11-DMOP, IEE to Replace Moring Actuator Model M23S, Revision 0
DP-12-3092, Commercial Grade Dedication, MMX245663 EDG Switchgear Room Cooling Bearing, Revision 0

Audits and Self-Assessments
70148505-010, CC-AA-102 Check-In Self-Assessment Report, dated 3/14/13
70151309-020, Integration of NERC/PJM Standards within the PSEG Nuclear Design Change Process (CC-AA-102, CC-AA-103) Focused Area Self-Assessment Report, dated 7/11/13
80109341, NOSA HPC 13-07 - Engineering Design Control Audit Report, dated 5/30/13

Calculations
AB-0069, Tailpipe Temperature vs. Leak Rate of PSV-F013A SRV, Revision 1
AB-0070, Tailpipe Temperature vs. Leak Rate of PSV-F013B SRV, Revision 1
AB-0071, Tailpipe Temperature vs. Leak Rate of PSV-F013C SRV, Revision 1
AB-0072, Tailpipe Temperature vs. Leak Rate of PSV-F013D SRV, Revision 1
AB-0073, Tailpipe Temperature vs. Leak Rate of PSV-F013E SRV, Revision 1
AB-0076, Tailpipe Temperature vs. Leak Rate of PSV-F013H SRV, Revision 1
AE-0013, Plant Runback Analysis-EPU, Revision 1
C-2143, A/B/C/D EDG Lube Oil and Jacket Water Keep-Warm Heater Vent Lines, Revision 0
CALC 19-0018, Maximum Flood Levels in Control/Diesel Generator Areas, Revision 7
CGIRE02, Commercial Grade Item Evaluation for Resistors, Revision 1B
DP-12-3101, Commercial Grade Dedication for Resistors, Revision 0
EA-11, 10855-M-0909 Service Water Flow Diagram, Revision 1
EA-0020, Deicing Line Hydraulics, Revision 1
EA-0021, Deicing Line Diffuser Design, Revision 1
EG-0046, STACS Operation, Revision 7 and Revision 8
EG-0047, HCGS Ultimate Heat Sink Temperature Limits-EPU, Revision 5
OpEval 11-003, SSW Dewatering System, Revision 3
SC-0283, RHR Vent Piping on FSK-P-1-BC-666, Revision 0 (AD H03)
602-0012(Q), Design Analysis Category 1 Electric Manholes, 5/27/11
661-0001, Service Water Intake Structure, Revision 12
80097556, Disable Reactor Recirculation Master Manual Control and Remove Associate Hardware, Revision 0
80104321, SDG Room Recirculation Unit Operability, Revision 10
80105360, RF17 Flow Accelerated Corrosion Data and Stress Calculation Updates, Revision 0
80106994, Seismic Evaluation/Astro Med Test Set Up at Cabinet H1RL-1C-C-655, 7/19/2012
80107451, Technical Evaluation for the Seismic Adequacy of the Portable Ground Fault Detector, 10/16/2012
80110497, Indications in the Circumferential Weld of the 0 Deg. Access Hole Cover, Revision 10
80111408-00010, MH105 Dewatering System Failure, Revision 1

Design and Licensing Bases
DE-CB.EA/EP/EQ-052, Configuration Baseline Documentation for Station Service Water System, Revision 2
DE-CB.KA-046, Configuration Baseline Documentation for Instrument Air, Service Air & PCIG Systems, Revision 2
DE-CB.KJ-083, Configuration Baseline Documentation for Emergency Diesel Generator System, Revision 1
NRC Regulatory Guide 1.59, Design Basis Floods for Nuclear Power Plants, Revision 2

Drawings
C-0199-0, Service Water Intake Structure General Arrangement at River Front Plan and Elevation, Revision 3
C-0205-0, Service Water Intake Structure Deicing Line, Revision 5
E10106-0-0, Wiring Diagram Cable Vault Sump Pumps Panel 10-C-5172
E16510-1-0, Sump Pump Motor Wiring Diagram, Sheet 1, and 2
E-1420-0-1, Manhole Notes & Details, Sheet 23
E-1420-0-2, Manhole 15BM0D01 & 15DM0D01 Notes & Details, Sheet 19
E-1503-0-13, Electrical Facilities Site - Southwest
FSK-P-1-BF-460, Engineered Small Piping/Reactor Building Air Supply, Revision 0
M-09-1, Circulating Water P&ID, Revision 48
M33-0, P&ID for Low Volume and Oily Waste Water Treatment, Sheet 1 and 2, Revision 7
1-P-BC-336, Engineered Small Piping Auxiliary BLDG Service Water from Fire Hose Fill Station, Revision 4
1-P-BF-397, Engineered Small Piping/Reactor BLDG Control Rod Drive Hydraulic System Air Supply to HCUs, Revision 2
1-P-BF-400, Engineered Small Piping/Reactor BLDG Control Rod Drive Hydraulic System Air Supply to HCUs, Revision 1
P-0071-0, Equipment Location Intake Structure Building, Revision 23
P-0072-0, Equipment Location Intake Structure Building, Revision 23
249004, DC Distribution System One Line Diagram, Revision 7
80103378R0, 1E Cable Vault Sumps Power & Control

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C-0041, Piping Code Compliance Doc. System P-207, Revision 0
C-120, RF15, Feedwater Inside Drywell LOOP ‘A’ FAC Monitoring Program, Revision 12A
C-0132, RWCU Inside Drywell From FL.HD.P-9 to RPV & ANC Heads, Revision 0
70098002-040, Hope Creek Reactor Scram-Rod Drifts Root Cause Evaluation, dated 7/9/09
70098002-420, Individual Corrective Action to Prevent Recurrence Effectiveness Review, dated 4/29/10
70101523-010, NRC Finding for the CRD Scram Air Header Leak Work Group Evaluation, dated 9/11/09
70113599, GL 2008-01: RHR Heat Exchanger Inlet Piping Void Vulnerability Apparent Cause Evaluation, Revision 0
70131596-010, Post Modification Testing (PMT) for SW Deicing Header Not Completed Work Group Evaluation, dated 1/31/12
70131596-060, Evaluate the Need to Restore 1DAHV-2097 to Vendor Recommended Configuration and Implement in the Field, dated 9/28/12
70154365-030, Scaffold in Place Greater than 90 Days Root Cause Evaluation, dated 7/29/13
80098784-010, Minor Leaks from Instrument Air Supplied Components in the CRD System Technical Evaluation, dated 5/18/09
80101579-090, Certification for Independent Design Review, dated 12/22/10
80103121, Change to Pressure Seal Gasket Material for H1FC -1FCV-021 RCIC Turbine Steam Supply Valve, Revision 0
80104606, EDG Lube Oil Heater Vent Line Installation, Revision 2
80105654, SRV Tail Pipe Temperature versus Steam Leak Rate, Revision 0
80106075-010, Post Modification Testing (PMT) of Deicing Valve HV-2097 Evaluation, dated 3/8/12

80110525-010, Graphite Pressure Seal Gasket and Spacer Item Equivalency Evaluation, dated 10/29/13
Evaluations: 70124418, 70125416, 70140998, 70141919, 70142237, 70142239, 70161674
HC-10-117, Hope Creek Service Water Ice Barrier Structure and Deicing Line Replacement (80101579) 50.59 Screen, dated 10/6/10
HC-11-129, Installation of Additional Vent Valves in the RHR System (GL-08-01) (80105054) 50.59 Screen, dated 11/21/11
HC-12-029, Scram Air Header Piping Replacement - South Banks and Header Piping (80106052) 50.59 Screen, dated 9/28/12
HC-12-032, EDG Jacket Water Keep Warm Heater Vent Line Installation (80104607) 50.59 Screen, dated 4/3/12

Licensing Documents
HCGS UFSAR, Section 9.4.6 Standby Diesel Generator Area Ventilation Systems, Revision 11

Maintenance Work Orders

30164922	60101512	60112397
30205848	60102302	60113243
30212219	60103867	70050896
30212716	60103868	70099170
30212716	60103870	70119203
30241484	60104392	70124418
30244203	60104393	70130170
30266142	60104674	70147542
30267228	60105883	70148930
60090424	60105855	80104321
60092982	60107240	80107451
60092983	60107304	
60099665	60107507	

Miscellaneous
1009701, EPRI Pressure Seal Bonnet Valve Maintenance Guide, December 2004
30170697-010, Acoustic Testing BF SYS Copper Tubes, performed 9/25/09
30205848-010, Acoustic Testing BF SYS Copper Tubes, performed 9/25/12
30262654-010, PM Leak Check of HCUs/Scram Valves, performed 12/23/13
Design Plastic Systems Inc. Letter to PSEG Hope Creek, Pre-fabricated Fiberglass De-Icing Piping (PO # 4500589813), dated 2/27/14
INR–HC1-13-005, Hope Creek Nuclear Station (2013 R-18) In-Vessel Visual Inspection, Access Hole Cover at 0° (Adaptor Ring to Ring Weld), dated 10/20/13
NRC Integrated Inspection Report 05000354/2010004, dated 11/8/10
NRC Regulatory Issue Summary 2001-09: Control of Hazard Barriers, dated 4/2/01
SH.MD-GP.ZZ-0242, Limitorque Valve Actuator Removal and Installation (FDHV-F001), performed 10/25/13
Purchase Order Number 4500768137, dated 8/27/2013

Modifications

80101579, Hope Creek Service Water Ice Barrier Structure and Deicing Line Replacement, Revision 2
80101734, DCP Update Calculation E-5.1(Q) for Revised Battery Fan Curves, Revision 0
80103378, DCP Install 1E Cable Vault Dewatering System, Revision 1
80104429, Evaluation of EDG Operability with One Room Cooler for 2 Hours, Revision 0
80104607, EDG Jacket Water Keep Warm Heater Vent Line Installation, Revision 0
80105054, Installation of Additional Vent Valves in the RHR System (GL-08-01), Revision 2
80106052, Scram Air Header Piping Replacement - South Banks and Header Piping, Revision 1
80106570, 'A' EDG Governor Control System Replacement, Revision 3
80106711, DCP Switchyard Cable Vault Dewatering System, Revision 1

Non Destructive Examinations

60099665-157, HC-60099665-FW-50 Liquid Penetrant Examination, performed 4/13/12
60099665-185, VT-3 Examination Report for Component Supports and Integral Attachments, performed 4/13/12
60099665-190, HC-60099665-42 Liquid Penetrant Examination, performed 5/1/12
60099665-190, HC-60099665-43 Liquid Penetrant Examination, performed 5/1/12
60099665-420, Post Maintenance System Pressure Test VT-2 Visual Examination, performed 5/4/12
60103867-120, HC-60103867-V721-FW-2 Liquid Penetrant Examination, performed 7/6/13

Notifications

20384334	20576117	20610996
20420237	20576119	20613677*
20462594	20576321	20614620
20476010	20576325	20622742
20476105	20576328	20634315
20479510	20576329	20630637
20481920	20576331	20636456
20482221	20576332	20636682*
20490476	20576334	20636688*
20511588	20576335	20637055
20528729	20576337	20639424
20528733	20576338	20639620*
20530006	20576342	20639693*
20537050	20576343	20639793*
20537385	20576344	20639797
20541574	20576345	20639799*
20547053	20581064	20639801*
20565461	20588385	20639852*
20566506	20588705	20639853*
20569003	20589080	20639899
20570435	20590220	20639903*
20572176	20602497	20639932*
20576085	20608579	20639934
20576116	20610962	20639942

20639963*	20640520*	20641172*
20639964*	20640832*	20641180*
20640066	20641051*	20641212*
20640171*	20641052*	20641331*
20640289*	20641054*	20641363
20640325*	20641055*	20641480*
20640450	20641097*	20641559*
20640516*	20641103*	20641591*

* Notification written as a result of inspection effort

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Cold Regions Technical Digest No. 91-1, Frazil Ice Blockage of Intake Trash Racks, March 1991
NRC Generic Letter 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems, dated 1/11/08
NRC Information Notice 2008-06, Instrument Air System Failure Resulting in Manual Reactor Trip, dated 4/10/08
NRC Information Notice 2011-12, Reactor Trips Resulting from Water Intrusion into Electrical Equipment, dated 6/16/11
NRC Regulatory Issue Summary 2001-09, Control of Hazard Barriers, dated 4/2/01

Procedures
CC-AA-11, Nonconforming Materials, Parts, or Components, Revision 4
CC-AA-102, Design Input and Configuration Change Impact Screening, Revision 23
CC-AA-102-1001, Design Inputs and Impact Screening-Implementation, Revision 9
CC-AA-103-1101, Design Input and Configuration Change A EDG Governor Control System, Revision 5
CC-AA-112-1001, Temporary Configuration Change Implementation T&RM, Revision 2
CC-AA-201, Plant Barrier Control Program, Revision 4
CC-AA-309, Control of Design Analyses, Revision 10
CC-AA-309-1001, Guidelines for Preparation and Processing Design Analysis, Revision 6
HC.CH-SO.LE-0002(Z), Operation of the Station Service Water Cable Vault Dewatering System
HC.MD-GP.ZZ-010, Hilti Kwik Bolt II, Kwik Bolt 3 and Hilti Drop in Anchor Installation, Revision 8
HC.MD-CM.KJ-0020(Q), EDG Speed/Load Control System Alignment, 2301A Governor System, Revision 1
HC.MD-CM.KJ-0016(Q), EDG Break-In after Cylinder Liner Replacement, Revision 4
HC.MD-CM.KJ-0015(Q), EDG Speed/Load Control System Alignment, Revision 11
HC.MD-PM.ZZ-0022(Q), SSW Electrical Manhole water Inspection, Revision 2
HC.OP-AB.MISC-0001, Acts of Nature, Revision 23
HC.OP-AB.IC-0001, Control Rod, Revision 16

HC.OP-AR.KJ-001(Q) , EDG Remote Engine Control Panel 1AC423, Revision 23
HC.OP-IO.ZZ-0008, Shutdown from Outside Control Room, Revision 33
HC.OP-IS.BD-0001, Reactor Core Isolation Cooling Pump - OP203 - Inservice Test, Revision 58
HC.OP-IS.BJ-0001, HPCI Main and Booster Pump Set - OP204 and OP217 - Inservice Test, Revision 62
HC.OP-SO.DA-0001(Z), Circulating Water System Operation, Revision 59
HC.OP-SO.EG-0001(Q), Safety and Turbine Auxiliaries Cooling Water System Operation, Revision 52
HC.OP-SO.BC-0001, Residual Heat Removal System Operation, Revision 53
HC.OP-SO.DA-0001, Circulating Water System Operation, Revision 61
HC.OP-SO.EA-0001, Service Water System Operation, Revision 39
HC.OP-SO.JE-0001, Diesel Fuel Oil Storage and Transfer System Operation, Revision 32
HC.OP-SO.GM-0001(Q), Diesel Area Ventilation System Operation, Revision 20
HC.OP-SO.KJ-0001, Emergency Diesel Generators Operation, Revisions 67 and 68
HC.OP-SO.SN-0001, Nuclear Pressure Relief and Automatic Depressurization System Operation, Revision 10
HC.RE-ST.BF-0001, Control Rod Scram Time Surveillance, Revision 33
LS-AA-104, 50.59 Review Process, Revision 6
LS-AA-104-1000, 50.59 Resource Manual, Revision 7
LS-AA-120, Issue Identification and Screening Process, Revision 12
LS-AA-125, Corrective Action Program, Revision 17
MA-AA-716-400, Cosmetic Painting, Revision 0
MA-AA-724-105, VLF Tan-Delta and Withstand Cable Testing, Revision 1
OP-HC-103-102-1005, High Energy and Internal Flooding Barrier Control Program, Revision 1
OP-HC-108-115-1001, Operability Assessment and Equipment Control Program, Revision 27
RE-AA-3003, Cable Condition Monitoring and Aging Management Program, Revision 0
SC.OP-AB.ZZ-0001, Adverse Environmental Conditions, Revision 16
SM-AA-300, Procurement Engineering Support Activities, Revision 7
SM-AA-300-1001, Procurement Activities and Responsibilities, Revision 10
SM-AA-300-1001-F4, Commercial Grade Item Dedication Evaluation, Revision 4
SM-AA-410, Control of Purchased Material, Equipment & Services Program, Revision 6
SM-AA-410-F1, Material Evaluation Checklist, Revision 0
SM-AA-300-1001-F4, Commercial Grade Item Dedication Evaluation, Revision 3

Surveillance & Functional Tests

1-A-P502, HVA TD Report Summary, 10/3/2012
HC.RE-ST.BF-0001, Control Rod Scram Time Surveillance, performed 11/10/13
HC.OP-IS.BJ-0001, HPCI Main and Booster Pump Set - OP204 and OP217 - Inservice Test, performed 1/8/14
HC.OP-ST.BC-0001, RHR System Piping and Flow Path Verification – Monthly (Loop A), performed 1/28/14
HC.OP-ST.BC-0001, RHR System Piping and Flow Path Verification – Monthly (Loop B), performed 2/11/14
HC.OP-ST.KJ-0001, Emergency Diesel Generator 1AG400 Operability Test - Monthly, performed 12/30/13 and 1/31/14

HC.OP-ST.KJ-0002, Emergency Diesel Generator 1BG400 Operability Test - Monthly, performed 1/13/14 and 2/13/14
HC.OP-ST.KJ-0003, Emergency Diesel Generator 1CG400 Operability Test - Monthly, performed 1/6/14 and 2/3/14
HC.OP-ST.KJ-0004, Emergency Diesel Generator 1DG400 Operability Test - Monthly, performed 1/20/14 and 2/18/14
HC.OP-ST.KJ-0001Q), EDG 1AG400 Operability Test – Monthly, Revision 78
RWCU Pump ‘B’ (1B-P-221) Vibration Data, 1/1/10 to 2/11/14

Vendor Technical Documents and Specifications
10855-M-020, Technical Specification for Traveling Water Screens for the Hope Creek Generating Station, Revision 8
VTD 431815, Service Water / Deicing Line Fiberglass Reinforced Piping (FRP), Revision 1

LIST OF ACRONYMS

CFR	Code of Federal Regulations
CRD	Control Rod Drive
Cv	Coefficient Values
CW	Circulating Water
DC	Direct Current
DCP	Design Change Package
DRS	Division of Reactor Safety
DRU	Digital Reference Unit
ESF	Engineering Safety Feature
EDG	Emergency Diesel Generator
FAC	Flow Accelerated Corrosion
FRP	Fiberglass Reinforced Piping
GL	Generic Letter
HCU	Hydraulic Control Unit
HX	Heat Exchanger
IA	Instrument Air
IP	Inspection Procedure
JW	Jacket Water
LOCA	Loss of Coolant Accident
LOOP	Loss of Offsite Power
MH	Manhole
MOP	Motor Operated Potentiometer
NEI	Nuclear Energy Institute
NOTF	Notification
NRC	Nuclear Regulatory Commission
P&ID	Piping and Instrumentation Diagrams
PM	Preventive Maintenance
PMT	Post Maintenance Test
PSEG	Public Service Enterprise Group Nuclear LLC
RHR	Residual Heat Removal
RR	Reactor Recirculation

RWCU	Reactor Water Cleanup
SACS	Safety Auxiliary Cooling System
SSC	Structure, System, and Component
SSPV	Scram Solenoid Pilot Valve
SPT	Station Power Transformers
SST	Station Service Transformers
SSW	Station Service Water
SSWS	Station Service Water System
SW	Service Water
TACS	Turbine Auxiliaries Cooling System
TS	Technical Specification
TWS	Traveling Water Screen
UFSAR	Updated Final Safety Analysis Report
VDC	Volt Direct Current