



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

February 11, 2013

EA-12-225

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 UNIT 1 – NRC INTEGRATED  
INSPECTION REPORT 05000354/2012005**

Dear Mr. Joyce:

On December 31, 2012, 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 January 17, 2013, with Mr. J. Perry, Vice President of Hope Creek Operations, 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. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one NRC-identified finding of very low safety significance (Green). This finding did not involve a violation of NRC requirements. Additionally, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. However, because of their very low safety significance, and because they are entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the NRC Enforcement Policy. If you contest these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Hope Creek Generating Station. In addition, if you disagree with the cross-cutting aspect assigned to the finding 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 Regional Administrator, Region I, and the NRC Resident Inspector at Hope Creek Generating Station.

In accordance with 10 CFR 2.390 of the NRCs "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 website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Daniel L. Schroeder, Acting Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000354/2012005  
w/Attachment: Supplementary Information

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 ADAMS ACCESSION NUMBER: **ML13042A376**

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**U.S. NUCLEAR REGULATORY COMMISSION**

REGION I

Docket No: 50-354

License No: NPF-57

Report No.: 05000354/2012005

Licensee: PSEG Nuclear LLC (PSEG)

Facility: Hope Creek Generating Station

Location: P.O. Box 236  
Hancocks Bridge, NJ 08038

Dates: October 1, 2012 through December 31, 2012

Inspectors: F. Bower, Senior Resident Inspector  
S. Ibarrola, Resident Inspector  
R. Montgomery, Acting Resident Inspector  
B. Scrabeck, Acting Resident Inspector  
S. McCarver, Project Engineer  
J. Schoppy, Senior Reactor Inspector  
R. Nimitz, Senior Health Physicist  
J. D'Antonio, Senior Operations Engineer

Approved By: Daniel L. Schroeder, Acting Chief  
Reactor Projects Branch 3  
Division of Reactor Projects

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## SUMMARY OF FINDINGS

IR 05000354/2012005; 10/01/2012 - 12/31/2012; Hope Creek Generating Station; Flood Protection Measures.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional inspectors. Inspectors identified one finding of very low safety significance (Green). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). The cross-cutting aspects for the findings were determined using IMC 0310, "Components Within Cross-Cutting Areas." Findings for which the SDP does not apply may be Green, or be assigned a severity level after NRC management review. 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.

### Cornerstone: Mitigating Systems

Green. The inspectors identified a Green finding for failure to follow the PSEG procedure (ER-AA-3003) for the cable monitoring and aging management of medium and low voltage cables at PSEG nuclear plants. Specifically, Hope Creek Generating Station did not perform adequate inspections to ensure cables were kept clear of water that could submerge cables, and to implement adequate corrective actions to eliminate the condition. The issue was entered into PSEG's corrective action program as notification 20588385.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, extended submergence of the non-safety related power cables supplying the offsite power transformers could lead to cable failure and cause an event that affects the availability, reliability, and capability of systems relying, in part, on power from these transformers. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, this finding was determined to be of very low safety significance because it did not represent an actual loss of system and/or function. This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action component, because PSEG did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, the development of, and the frequency assigned to, cable vault inspections for non-safety related cables within the scope of 10 CFR 50.65 was insufficient to ensure that cables did not remain submerged. (P.1(d)) (Section 1R06)

### Other Findings

Two violations of very low safety significance that were identified by PSEG were reviewed by the inspectors. Corrective actions taken or planned by PSEG have been entered into PSEG's corrective action program. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### Summary of Plant Status

The Hope Creek Generating Station began the inspection period at approximately 80 percent of rated thermal power (RTP) following a trip of the A reactor feed pump and an associated reactor recirculation pump runback on September 30, 2012. On October 1, 2012, the unit was returned to at or near full RTP where it generally remained until the end of the inspection period with the following exceptions:

- The unit began the inspection period at approximately 80 percent RTP, performing power ascension from the unplanned power reduction following the A reactor feed pump trip on September 30, 2012.
- On October 22, 2012, power was reduced to approximately 72 percent RTP to support the planned 500 kV Red Lion line outage. The unit was returned to full power on October 23, 2012.
- On December 8, 2012, power was reduced to approximately 76 percent RTP to support scheduled quarterly main turbine surveillance testing. Additional planned and contingency corrective maintenance activities were performed and the unit was returned to full power on December 9, 2012.

### 1. REACTOR SAFETY

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

1R01 Adverse Weather Protection (711111.01 – 2 samples)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

The inspectors performed a review of PSEG's readiness for the onset of seasonal low temperatures. The review focused on the service water (SW) intake structure ventilation system, fire pump house ventilation system, and the emergency diesel generators (EDGs). The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), technical specifications (TSs), control room logs, and the corrective action program to determine what temperatures or other seasonal weather conditions could challenge these systems, and to ensure PSEG personnel had adequately prepared for these challenges. The inspectors reviewed station procedures, including PSEG's seasonal weather preparation procedure and applicable operating procedures. The inspectors performed walkdowns of the selected systems to ensure station personnel identified issues that could challenge the operability of the systems during cold weather conditions. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

.2 External Flooding

a. Inspection Scope

During October 2012, the inspectors performed an inspection of the external flood protection measures for Hope Creek. The inspectors reviewed the UFSAR, Chapters 2.4.2, "Floods," and 3.4, "Water Level (Flood) Design," which depicted the design flood levels and protection areas containing safety-related equipment to identify areas that may be affected by flooding. The inspectors also reviewed the limiting conditions for operations and the surveillance requirements in TS 3/4.7.3, "Flood Protection." The review was focused on the intake structure flood doors listed in TS Table 3.7.3-1, "Perimeter Flood Doors." The inspectors reviewed the preventive maintenance (PM) activities performed on these doors with the responsible engineer. The inspectors also conducted a walk down of these doors to verify that the doors were in conformance with the design basis requirements in the UFSAR, the TS, and plant procedures and drawings. Additionally, the inspectors reviewed the abnormal operating procedure, HC.OP-AB.MISC-0001, "Acts of Nature," for mitigating external flooding during severe weather to determine if PSEG had planned and established adequate measures to protect against external flooding events.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04 –2 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- A, C, and D SW with the B SW pump out-of-service on November 13, 2012
- A, B, C, D, and E filtration recirculation ventilation system (FRVS) with F FRVS out-of-service on November 14, 2012

The inspectors selected these systems based on their risk-significance for the current plant configuration or following realignment. The inspectors reviewed applicable procedures, system diagrams, the UFSAR, TSs, work orders, notifications, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have impacted system performance of their intended safety functions. The inspectors also performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and were operable.

b. Findings

No findings were identified.



1R05 Fire Protection.1 Resident Inspector Quarterly Walkdowns (71111.05Q – 5 samples)a. Inspection Scope

The inspectors conducted tours of the areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that PSEG controlled combustible materials and ignition sources in accordance with administrative procedures. The inspectors verified that fire protection and suppression equipment was available for use as specified in the area pre-fire plan, and passive fire barriers were maintained in good material condition. The inspectors also verified that station personnel implemented compensatory measures for out of service, degraded, or inoperable fire protection equipment, as applicable, in accordance with procedures.

- FRH-II-151, A and B recirculation pump motor generator set room, elevation 137' on October 9, 2012
- FRH-II-532, Lower control equipment room, elevation 102' on October 12, 2012
- FRH-II-522, Cable spreading room, elevation 77' on November 5, 2012
- FRH-II-413, C residual heat removal (RHR) pump room, elevation 54' on November 8, 2012
- FRH-II-412, D RHR pump room, elevation 54' on November 8, 2012

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 – 1 sample).1 Annual Review of Cables Located in Underground Bunkers/Manholesa. Inspection Scope

The inspectors conducted an inspection of underground bunkers/manholes subject to flooding that contain cables whose failure could affect risk-significant equipment. The inspectors performed walkdowns of risk-significant areas, including the following two groups of manholes. The first group of manholes (MH-012, MH-103, and MH-105) are the only manholes and cable vaults onsite that contain safety-related cabling. The safety-related cables are routed to the SW intake structure. The second group of manholes (MH-15MM0D08 and MH-15MM0D06) contain risk significant offsite power cables from the switchyard to the 1AX501 and 1BX501 station power transformers. In accordance with the inspection procedure, the inspectors were to verify, by direct observation, that the cables were not submerged in water, that cables and/or splices contained in the manhole appeared intact, and that the condition of cable support structures was adequate. The inspectors were also to verify, when applicable, proper sump pump operation, that level alarm circuits were set in accordance with station procedures and calculations to ensure that the cables would not be submerged, and for cases when dewatering devices were not installed that drainage was provided and functioning properly.

b. Findings

Introduction. The inspectors identified a Green finding for failure to follow PSEG procedure (ER-AA-3003) for the cable monitoring and aging management of medium and low voltage cables at PSEG nuclear plants. Specifically, Hope Creek Generating Station did not perform adequate inspections to ensure cables were kept clear of water that could submerge cables, and to implement adequate corrective actions to eliminate the condition.

Description. As part of Hope Creek's license renewal process, PSEG had committed to implement a cable condition monitoring and aging management plan prior to the period of extended operations. PSEG's commitments with regard to this program have been incorporated into Appendix A of the UFSAR. This is in part due to industry wide experience and concerns with submerged cables not qualified for such environments, as discussed in NRC Generic Letter 2007-01 and Information Notice 2002-12, as well as NUREG-1801, "Generic Aging Lessons Learned (GALL) Report," with which Hope Creek's application was determined to be consistent. The PSEG procedure ER-AA-3003, "Cable Condition Monitoring and Aging Management Program," requires in part, that for cables subject to wet conditions to ensure cables are kept clear of water that could submerge cables, and to initiate corrective action as required to eliminate the condition to the extent possible. ER-AA-3003 contains several criteria for scoping of cable circuits within the cable monitoring program, including the components of 10 CFR 50.65, the Maintenance Rule scope, and the categorization of the component as critical. The cables contained within manholes MH-15MM0D08 and MH-15MM0D06 for the AX501 and BX501 transformers have been scoped into PSEG's cable monitoring program based on these criteria.

In July 2009, PSEG inspected switchyard electrical manholes as part of their license extension project. In this inspection, it was noted that multiple sections of cable were submerged underwater. Subsequent inspection, conducted in June 2011, of manholes associated with offsite power transformers AX501 and BX501 showed all associated cables submerged in water. Based on this inspection, PSEG personnel stated that the planned corrective action was to implement a modification to install sump pumps and local level indication and high level alarms similar to those installed on the SW cabling manholes/vaults by the end of 2013, and in the interim initiated a six-month PM task for periodic inspection of non-safety related underground vaults. Discussions with PSEG engineering personnel show that the six-month frequency of this task was selected due to the non-safety related nature of these components, and that the philosophy was to increase the PM frequency if presence of water made it necessary. Twelve months later, on June 21, 2012, the first performance of PSEG's new six-month vault inspection was performed. During this inspection, cables to the AX501 and BX501 transformers were again found submerged. Discussion with PSEG engineering personnel revealed that the delay in inspection was due to delays in PM task development. Despite the fact that the inspection revealed submerged cables, the decision was made to remain with the six-month inspection frequency. On November 20, 2012, inspections were again performed on the AX501 and BX501 cables, all of which were found submerged. Based on discussions with PSEG engineering and maintenance personnel performing this inspection, this was not an expected condition. PSEG personnel stated that they were evaluating increasing the frequency of the PM activity of open, inspect, and pump out those manholes/vaults with water accumulation (notification 20584885).

Hope Creek Generating Station also experience cable submergence in cable vaults for the SW system, resulting in a licensee-identified NCV in the third quarter of 2009. Similar corrective actions were chosen; interim actions of periodic inspection and manual pump out followed by the installation of automatic sump pumps. However, in the case of the safety-related SW cables, a frequency of one week was chosen for inspection and manual pumping. Discussions with PSEG engineering personnel show that the reasoning was to increase inspection frequency once it was shown that weekly pump out maintained vaults dry, however, water intrusion into underground vaults was extensive enough such that the weekly pump outs were not capable of reliably maintaining vaults dry. Discussions with engineering personnel during switchyard manhole inspections showed that PSEG was aware of the past trends experienced with SW cable submersion.

With regard to the requirement to ensure cables remain dry, ER-AA-3003 does not differentiate between safety-related and non-safety-related cables. Multiple inspections of the cables supplying power to the AX501 and BX501 transformers revealed submerged conditions, conditions for which the cables were not qualified. PSEG did create a periodic PM for inspection and pumping as interim corrective action pending sump pump installation. However, considering the classification of the cables as critical and their function of providing electrical power to TS required offsite power transformers, and also considering PSEG's past experience gained through SW cable vault dewatering, the corrective actions for the AX501 and BX501 transformer cables were not developed and implemented on a frequency that was adequate to maintain the cables dry in accordance with PSEG procedure ER-AA-3003.

Analysis. The inspectors determined that for the AX501 and BX501 underground cables that were subject to wet conditions, PSEG did not ensure the cables were kept clear of water that could submerge the cables and did not initiate corrective action as required to eliminate the condition to the extent possible. This was a performance deficiency that was within PSEG's ability to foresee and correct. The performance deficiency is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, extended submergence of the non-safety related power cables supplying the offsite power transformers could lead to cable failure and cause an event that affects the availability, reliability, and capability of systems relying, in part, on power from these transformers. In accordance with IMC 0609.04, "Initial Characterization of Findings," and Exhibit 2 of IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," issued June 19, 2012, the inspectors determined that this finding is of very low safety significance (Green) because it did not represent an actual loss of system and/or function.

The finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action component, because PSEG did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. Specifically, the development of, and the frequency assigned to, cable vault inspections for non-safety related cables within the scope of 10 CFR 50.65 was insufficient to ensure that cables did not remain submerged. (P.1(d))

Enforcement. The inspectors determined the finding did not represent a violation of regulatory requirements because it involved a failure to follow procedures for non-safety related structures, systems, and components (SSCs). The issue has been entered into the corrective action program as notification 20588385. **(FIN 05000354/2012005-01, Failure to Follow Procedures to Ensure Cables Within the Scope of Cable Monitoring Program Do Not Remain Submerged)**

1R11 Licensed Operator Regualification Program (71111.11 –2 samples; 71111.11B – 1 sample)

.1 Quarterly Review of Licensed Operator Regualification Testing and Training

a. Inspection Scope

The inspectors observed two licensed operator simulator training scenarios that constituted two inspection samples. On October 24, 2012, that included the loss of a 1E inverter, a loss of coolant accident and an unisolable breach of the primary containment. On November 1, 2012, the inspectors observed licensed operator training that included a trip of the A safety auxiliary cooling system pump, loss of the 10D420 125 VDC bus, a loss of offsite power, a steam leak in the high pressure coolant injection (HPCI) room, and an emergency depressurization due to low level. The inspectors evaluated operator performance during the simulated events and verified completion of critical tasks and risk significant operator actions, including the use of abnormal and emergency operating procedures. The inspectors assessed the clarity and effectiveness of communications, implementation of actions in response to alarms and degrading plant conditions, and the oversight and direction provided by the control room supervisor. The inspectors verified the accuracy and timeliness of the emergency classifications made by the shift manager. Additionally, the inspectors assessed the ability of the training staff to identify and document crew performance problems.

b. Findings

No findings were identified.

.2 Quarterly Review of Licensed Operator Performance in the Main Control Room

a. Inspection Scope

The inspectors observed a selected sample of operator performance, including the entry into and implementation of abnormal procedures, in response to Hurricane Sandy between October 29 and 30, 2012. These operations were observed to verify that procedure use, crew communications and turnover, human performance tool use, supervisory oversight, and coordination of activities between work groups met PSEG's established expectations and standards.

b. Findings

No findings were identified.

### .3 Licensed Operator Requalification

#### a. Inspection Scope

The following inspection activities were performed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, Inspection Procedure Attachment 71111.11, "Licensed Operator Requalification Program," Appendix A, "Checklist for Evaluating Facility Testing Material," and Appendix B, "Suggested Interview Topics."

A review was conducted of recent operating history documentation found in inspection reports, licensee event reports (LERs), PSEG's corrective action program, and the most recent NRC plant issues matrix. The inspectors also reviewed specific events from PSEG's corrective action program which indicated possible training deficiencies, to verify that they had been appropriately addressed. The senior resident inspector was also consulted for insights regarding licensed operators' performance. These reviews did not detect any operational events that were indicative of possible training deficiencies.

The operating tests and written tests for two exam weeks were reviewed for quality and performance.

On December 20, 2012, the results of the annual operating tests for year 2012 and the written exam for 2012 were reviewed to determine if pass/fail rates were consistent with the guidance of NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9, Supplement 1, and NRC Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)." The review verified the following:

- Crew pass rates were greater than 80 percent. (Pass rate was 100 percent)
- Individual pass rates on the written exam were greater than 80 percent. (Pass rate was 98 percent)
- Individual pass rates on the job performance measures (JPMs) of the operating exam were greater than 80 percent. (Pass rate was 100 percent)
- More than 80 percent of the individuals passed all portions of the exam. (98 percent of the individuals passed all portions of the examination)
- Individual pass rates on the dynamic simulator test were greater than 80 percent. (Pass rate was 100 percent)

Observations were made of the dynamic simulator exams and JPMs administered during the week of October 8, 2012. These observations included facility evaluations of crew and individual performance during the dynamic simulator exams and individual performance of five JPMs.

The remediation plans for one individual annual operating test failure and a selection of cycle quiz failures was reviewed to assess the effectiveness of the remedial training.

Simulator performance and fidelity were reviewed for conformance to the reference plant control room.

A sample of records for requalification training attendance, program feedback, reporting, and medical examinations were reviewed for compliance with license conditions, including NRC regulations.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 – 2 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on SSC performance and reliability. As applicable, the inspectors reviewed system health reports, corrective action program documents, maintenance work orders, and maintenance rule basis documents to ensure that PSEG was identifying and properly evaluating performance problems within the scope of the maintenance rule. For each sample selected, the inspectors verified that the SSC was properly scoped into the maintenance rule in accordance with 10 CFR 50.65 and verified that the (a)(2) performance criteria established by PSEG staff was reasonable. As applicable, for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2). As applicable, the inspectors independently verified that appropriate work practices were followed for the SSCs reviewed. Additionally, the inspectors ensured that PSEG staff was identifying and addressing common cause failures that occurred within and across maintenance rule system boundaries.

- Substation breakers exceeded maintenance rule (a)(1) (Order 70129522)
- SW intake structure heating, ventilation, and air conditioning (HVAC) system performance (Orders 70137311 and 70137312)

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 – 2 samples)

a. Inspection Scope

The inspectors reviewed station evaluation and management of plant risk for the maintenance and emergent work activities listed below to verify that PSEG performed the appropriate risk assessments prior to removing equipment for work. The inspectors selected these activities based on potential risk significance. As applicable for each activity, the inspectors verified that PSEG personnel performed risk assessments as required by 10 CFR 60.65(a)(4) and applicable station procedures, and that the assessments were accurate and complete. When PSEG performed emergent work, the inspectors verified that operations personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work to verify plant conditions were consistent with the risk assessment. The inspectors also reviewed the TS requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

- Abnormal procedure entry, troubleshooting, and maintenance in response to a trip of the A reactor feed pump during September 30 - October 1, 2012 (Order 60105049)
- B SW and F FRVS out-of-service for preventive maintenance on November 13 - 14, 2012 (Order 30091062)

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 – 2 samples)

a. Inspection Scope

The inspectors reviewed operability determinations for the following degraded or non-conforming conditions:

- Main steam line D safety relief valve (SRV) tailpipe temperature exceeding alarm setpoint on October 12, 2012 (Notification 20578547)
- Infant mortality of hydraulic control unit rupture disks on October 25, 2012 (Order 70144985)

The inspectors selected these issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the operability determinations to assess whether TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TSs and UFSAR to PSEG's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled by PSEG. The inspectors determined, where appropriate, compliance with assumptions in the evaluations.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 – 3 samples)

a. Inspection Scope

The inspectors reviewed the post-maintenance tests for the maintenance activities listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure was consistent with the information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed test data to verify that the test results adequately demonstrated restoration of the affected safety functions.

- Bailey card replacement on September 30, 2012 (Order 30238030)
- Control Rod Drive Accumulator 06-43 after emergent maintenance on October 1, 2012 (Order 60105867)
- EC-HV-4648 planned maintenance on November 26 - 27, 2012 (Order 30091062)

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 – 4 samples)

a. Inspection Scope

The inspectors observed performance of surveillance tests and/or reviewed test data of selected risk-significant SSCs to assess whether test results satisfied TSs, the UFSAR, and PSEG procedure requirements. The inspectors verified that test acceptance criteria were clear, tests demonstrated operational readiness and were consistent with design documentation, test instrumentation had current calibrations and the range and accuracy for the application, tests were performed as written, and applicable test prerequisites were satisfied. Upon test completion, the inspectors considered whether the test results supported that equipment was capable of performing the required safety functions. The inspectors reviewed the following surveillance tests:

- HC.OP-ST.GU-0002, Reactor building integrity functional test on April 12, 2012
- HC.OP-ST.KJ-0004, D EDG 1DG400 operability test - monthly, on October 22, 2012
- HC.OP-IS.BC-0003, B RHR pump, BP202, comprehensive in-service test on October 16, 2012
- HC.OP-IS.BC-0002, C RHR pump in-service test on December 28, 2012

b. Findings

No findings were identified.

**2. RADIATION SAFETY**

**Cornerstone: Public Radiation Safety**

2RS6 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

Inspection Planning and Program Reviews

This area was inspected during the week of October 15, 2012, to evaluate the adequacy of effluent release and public dose calculations resulting from radioactive effluent discharges.

The inspectors used the requirements in 10 CFR Part 20, 10 CFR 50.35(a), 10 CFR 50, Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion As Low As Reasonably Achievable (ALARA) for



Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents,” TSs, as well as applicable industry standards and PSEG procedures required by TSs/Offsite Dose Calculation Manual (ODCM) as criteria for determining compliance.

#### Event Report and Effluent Report Reviews

The inspectors reviewed the Hope Creek Radiological Effluent Release and Environmental Monitoring Reports for 2011 to determine if the reports were submitted as required by the ODCM/TSs. The inspectors reviewed anomalous results, unexpected trends, or abnormal releases identified by PSEG. The inspectors determined if these effluent results were evaluated, were entered into the corrective action program, and were adequately resolved.

#### Dose Calculations

The inspectors reviewed all significant changes in reported dose values compared to the previous radioactive effluent release report to evaluate the factors which may have resulted in the change.

The inspectors reviewed changes in PSEG’s methodology for offsite dose calculations since the last inspection to verify the changes are consistent with the ODCM and Regulatory Guide 1.109. The inspectors reviewed meteorological dispersion and deposition factors used in the ODCM and effluent dose calculations to ensure appropriate dispersion/deposition factors were being used for public dose calculations.

The inspectors reviewed the latest Land Use Census to verify that changes in the local land use were factored into the dose calculations and environmental sampling/analysis program.

The inspectors evaluated whether the calculated doses were within 10 CFR Part 50, Appendix I and TS dose criteria.

#### Problem Identification and Resolution

The inspectors assessed whether problems associated with the effluent monitoring and control program were being identified by PSEG at an appropriate threshold and were properly addressed for resolution in their corrective action program. In addition, they evaluated the appropriateness of the corrective actions for a selected sample of problems documented by PSEG involving radiation monitoring and exposure controls.

b. Findings

No findings were identified.

#### 4. OTHER ACTIVITIES

##### 4OA1 Performance Indicator Verification (71151)

##### .1 Mitigating Systems Performance Index (5 samples)

###### a. Inspection Scope

The inspectors reviewed PSEG's submittal of the Mitigating Systems Performance Index for the following systems for the period of October 1, 2011, through August 31, 2012:

- Emergency AC Power System (MS06)
- High Pressure Injection System (MS07)
- Heat Removal System (MS08)
- Residual Heat Removal System (MS09)
- Support Cooling Water System (MS10)

To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6. The inspectors also reviewed PSEG's operator narrative logs, corrective action program records, mitigating systems performance index reports, key performance indicator summary records, operating data reports and the mitigating systems performance index basis document, event reports, and NRC integrated inspection reports to validate the accuracy of the submittals.

###### b. Findings

No findings were identified.

##### .2 Occupational Exposure Control Effectiveness (1 sample)

###### a. Inspection Scope

The inspectors sampled PSEG submittals for the occupational radiological occurrences performance indicator (OR01) for the period of October 1, 2011, through September 31, 2012. The inspectors used performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, to determine the accuracy of the performance indicator data reported during those periods. The inspectors reviewed PSEG's assessment of the performance indicator for occupational radiation safety to determine if the related data was adequately assessed and reported.

To assess the adequacy of PSEG's performance indicator data collection and analyses, the inspectors discussed with radiation protection staff the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry accumulated dose alarms, dose reports, and dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized performance indicator occurrences. The

inspectors also conducted walkdowns of various locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

b. Findings

No findings were identified.

.3 Radiological Effluent TS/ODCM Radiological Effluent Occurrences (1 sample)

a. Inspection Scope

The inspectors sampled PSEG submittals for the radiological effluent TS/ODCM radiological effluent occurrences performance indicator (PR01) for the period of October 1, 2011, through September 31, 2012. The inspectors used performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, to determine if the performance indicator data was reported properly during this period. The inspectors reviewed the public dose assessments for the performance indicator for public radiation safety to determine if related data was accurately calculated and reported.

The inspectors reviewed PSEG's issue report database and selected individual reports generated since this performance indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous and liquid effluent summary data and the results of associated offsite dose calculations for this period to determine if performance indicator results were accurately reported.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152 – 2 samples)

.1 Routine Review of Problem Identification and Resolution Activities

a. Inspection Scope

As required by Inspection Procedure 71152, "Problem Identification and Resolution," the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that PSEG entered issues into the corrective action program at an appropriate threshold, gave adequate attention to timely corrective actions, and identified and addressed adverse trends. In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the corrective action program.

b. Findings

No findings were identified.

.2 Annual Sample: Response to a 2009 Licensee-identified Violation of Design Control for Risk Significant Cables being Submerged

a. Inspection Scope

The inspectors performed an in-depth review of PSEG's corrective actions for a 2009 licensee-identified violation regarding the Hope Creek Generating Station Service Water system (SSWS) supply cables being submerged documented in notification 20420237. Specifically, PSEG did not assure that the design basis for safety-related buried cables was correctly translated into specifications, drawings, procedures, and instructions, in that PSEG did not maintain safety-related buried cables in an environment for which they were designed.

The inspectors assessed PSEG's extent of condition review and the prioritization and timeliness of corrective actions to determine whether they were appropriately identifying, characterizing, and correcting problems associated with the submerged SSWS power cables. In addition, the inspectors interviewed station personnel and reviewed selected evaluations that were completed, to assess the effectiveness of PSEG's corrective actions. The inspectors reviewed relevant procedures, corrective action notifications, and engineering evaluation related documents to verify PSEG addressed cable submergence issues.

b. Findings and Observations

No findings were identified.

The inspectors determined that PSEG's corrective actions to implement a modification to install sump pumps and local level indication and high level alarms on the SSWS cabling manholes/vaults were appropriate and effective at maintaining SSWS supply cables free from a submerged environment. Additionally, the interim corrective actions that were employed while this plant modification was in development, weekly inspection and manual pumping of the cable vaults, were adequate and commensurate with the safety significance of the system.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a semi-annual review of site issues, as required by Inspection Procedure 71152, "Problem Identification and Resolution," to identify trends that might indicate the existence of more significant safety issues. In this review, the inspectors included repetitive or closely-related issues that may have been documented by PSEG outside of the corrective action program, such as trend reports, performance indicators, major equipment problem lists, system health reports, maintenance rule assessments, and maintenance or corrective action program backlogs. The inspection also reviewed PSEG's corrective action program database for the period of June 2012 to November 2012 to assess the notifications written as well as individual issues identified during NRC's daily condition report review (Section 40A2.1). The inspectors reviewed the Hope Creek station performance improvement integrated matrix (PIIM) for the first cycle of 2012, conducted under procedure LS-AA-125-1006, "Performance Improvement

Integrated Matrix,” to verify that PSEG personnel were appropriately evaluating and trending adverse conditions in accordance with applicable procedures.

b. Findings and Observations

No findings were identified.

Plant engineering trends equipment performance through a series of industry accepted performance indicators which include: Critical Component Failures, Maintenance Rule Functional Failures, and Mitigating System Performance Index. Plant engineering maintains these performance indicators in a shared location for common access and routinely presents the trend data to station management. Engineering trends overall equipment reliability using procedure ER-AA-2200, “Equipment Reliability Performance Objectives and Criteria Bubble Chart Analysis.” Using this process, engineering reviews the documentation associated with several types of equipment reliability events gathered over the previous 24-month period. Engineering codes each event into various “bubbles” depending upon the casual factors that contributed to the equipment failure. The process throughput is engineering identified concerns and adverse trends associated with equipment reliability. For example, in September 2012, an engineering bubble chart analysis identified a degraded performance trend in the procurement of safety-related parts and failures attributed to manufacturing defects (notification 20576296).

The inspectors also noted that PSEG personnel identified the following trends and entered them into the corrective action program: a declining trend in the Maintenance Services related to corrective action program performance (notification 20565657); and an adverse trend in the implementation of the Work Activity Risk Management process (notification 20577276). The inspectors also reviewed the 2012 first cycle Hope Creek Station PIIM and noted that PSEG identified the following fundamentals in variance: common cause tagging issues (Order 70138768); procedure and process implementation rigor (Order 70140868); and maintenance control of portable measuring and test equipment (Order 70136584). These efforts were identified for focused station effort to enhance future performance.

The inspectors noted an increasing trend in the number of spurious fire alarms in various locations of the protected area. The inspectors confirmed through observation and log reviews that PSEG personnel responded promptly to the alarms in accordance with station procedures and also entered the condition into the corrective action program for evaluation. However, although no performance deficiencies were identified relative to PSEG performance in this area, the inspectors noted that a continued trend in this area may desensitize plant personnel to fire alarms, reduce fire brigade effectiveness, and/or result in an increased number of bypassed alarms. The inspectors provided this observation to PSEG.

Based on the overall review of the selected sample, the inspectors concluded that PSEG was appropriately identifying and entering issues into the corrective action program, adequately evaluating the identified issues, and appropriately identifying adverse trends before they become more safety significant problems.

#### 4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153 – 3 samples)

##### .1 Hurricane Sandy: Preparations and Response

###### a. Inspection Scope

From October 25 to October 28, 2012, the inspectors reviewed PSEG's activities to prepare for the potential arrival of Hurricane Sandy. PSEG personnel implemented the actions specified by procedure OP-AA-108-111-1001, "Severe Weather and Natural Disaster Guidelines." The inspectors observed activities that included: securing or removing outside equipment to preclude windborne missiles; closure of watertight doors; and increased staffing of emergency response organization personnel with preparations for sequestering.

On October 29, 2012, inspectors responded to the Hope Creek site due to the expected arrival of Hurricane Sandy within the next 24 hours. The inspectors noted that PSEG had activated the Operations Support Center at 0800 on October 29, 2012. The inspectors monitored licensee actions, plant activities in the main control room and the Operations Support Center as well as monitored selected plant parameters, including: actual and projected onsite weather conditions; offsite power status; key safety equipment status; intake conditions; plant equipment issues; security posture and equipment issues; and emergency planning considerations. Additionally, the inspectors reviewed; operator logs, computer data, recorded data, procedural requirements, and related training to aid in the assessment of personnel response to the Hurricane. The inspectors communicated this information to NRC Region I management to assist them in determining the appropriate level of agency response.

###### b. Findings

No findings were identified.

##### .2 (Closed) LER 05000354/2012-002-00: Retraction - High Pressure Coolant Injection System Inoperable

On March 14, 2012, the HPCI system was declared inoperable when the turbine governor control valve failed to respond as operators expected during a planned maintenance evolution. The system was aligned for obtaining an oil sample and the reactor operator started the auxiliary oil pump (AOP). The control valve moved to mid position, but did not immediately return to the closed position as expected. When the AOP was secured, the control valve went fully closed.

PSEG reported this event in accordance with 10 CFR Part 50.72 and 10 CFR 50.73(a)(2)(v)(D) because, at the time, the unexpected response of the HPCI turbine governor control valve was considered a condition that would have prevented fulfillment of safety function. As part of the corrective actions, the electronic governor-remote actuator (EGR) was removed and sent to the manufacturer for failure analysis, and an LER was submitted because the as-found condition of the EGR would not be confirmed until the manufacturer's failure analysis was complete and reviewed.

Subsequent to submittal of LER 2012-002, the results of the vendor analysis was received and reviewed by PSEG. The internals of the EGR had evidence of rust.

During the March 14 oil sampling operation, the EGR plunger was determined to have moved slowly in order to overcome "stiction." Due to this initial slow movement of the EGR plunger, the turbine control valve opened further than normally expected. During oil sampling, the EGR plunger is in a position that allows oil to be ported to the remote servo to open the turbine control valve. The pilot valve plunger is then able to move to a position to begin closing the turbine control valve. The turbine control valve demonstrated that it was able to travel in both the open and closed directions, as required during system operation. The EGR pilot valve plunger settled in a position that prevented control oil from moving to or from the remote servo; however, upon removal of the AOP from service, the EGR plunger moved to a position that allowed closing of the turbine control valve. A subsequent start of the AOP resulted in the normal movement of the turbine control valve, indicating temporary stiction had been cleared.

In response to an actual system start demand, the turbine control valve would have been in an open position and would have allowed the turbine to roll and the EGR pilot valve drive shaft to rotate. Rotation of the EGR pilot valve drive shaft is designed to free any binding between the pilot valve plunger and compensating bushing. Additionally, the oil pressure of the EGR is raised by an internal gear type oil pump upon turbine roll. This oil pressure is controlled by an internal relief valve to keep operating control oil pressure at 325 - 375 psi above oil supply pressure. This is 325 - 375 psi above the oil pressure during sampling, allowing much higher force to overcome any stiction present during turbine rotation.

The inspectors reviewed the vendor's and PSEG's analyses and determined that the HPCI system would have been able to perform its safety function if called upon in response to a plant event. Because the condition could not have prevented the fulfillment of the safety function, the condition was not reportable; therefore, this LER is closed.

.3 (Closed) LER 05000354/2012-004-00 and LER 0500354/2012-004-01, As Found Values for Safety Relief Valve Lift Setpoints Exceed Technical Specification Allowable

On May 10 and May 11, 2012, PSEG received test results indicating that the as-found lift setpoints for six of 14 main steam SRVs failed to open within the required TS actuation pressure setpoint tolerance. TS 3.4.2.1 provides an allowable pressure band of +/-3 percent for each SRV. All six of the SRVs opened above the required pressure band. PSEG determined that the apparent cause for the B, F, H, K, L, and P SRV setpoint failures was corrosion bonding/sticking between the mating surfaces of the pilot disc. These issues were placed into the corrective action program under notification 20559112. The pilot assembly for each of the 14 SRVs was replaced with a fully tested spare assembly. Additionally, this LER stated a PSEG proposal to replace the SRVs with a new design from a different manufacturer is being considered through the plant modification process. PSEG's actions regarding the ongoing SRV lift setpoint drift are documented in NRC integrated inspection report 05000354/2012004. Although this LER reports the inoperability of six SRVs, this event did not result in a loss of system safety function based on engineering analyses. These analyses showed that the SRVs would have functioned to prevent a reactor vessel over-pressurization and that postulated piping stresses would not exceed allowable limits. The enforcement aspects of this finding are discussed in Section 4OA7. These LERs are closed.

4OA5 Other Activities.1 Temporary Instruction 2515/187 - Inspection of Near-Term Task Force Recommendation 2.3 - Flooding Walkdownsa. Inspection Scope

Inspector(s) verified that PSEG's walkdown packages contained the elements as specified in NEI 12-07 (Rev. 0-A), May 2012, "Guidelines for Performing Verification Walkdowns of Plant Flood Protection Features" (ADAMS Accession No. ML12173A215).

The inspectors accompanied PSEG and contracted personnel on their flooding walkdowns of the following plant areas:

- Unit 1 Diesel building (102' elevation, rooms 5301, 5308, and 5339) on October 9, 2012; and,
- Unit 2 Diesel/Control building (54', 77' and 102' elevations) on October 9, 2012.

The inspectors verified that PSEG confirmed the following flood protection features:

- Visual inspection of the flood protection feature was performed if the flood protection feature was relevant. External visual inspection for indications of degradation that would prevent its credited function from being performed was performed.
- PSEG determined that no reasonable simulations were applicable to the site
- Critical SSC dimensions were measured
- Available physical margin, where applicable, was determined.
- Flood protection feature functionality was determined using either visual observation or by review of other documents.

The inspectors independently walked down the Reactor Building (102' elevation, rooms 4307 and 4309) on December 21, 2012, and verified that the following flood protection features were in place:

- Penetration seal S-4307-001;
- Penetration seal S-4307-002;
- Penetration seal S-4307-003;
- Penetration seal W-4307-001;
- Penetration seal W-4307-002;
- Penetration seal W-4307-003;
- Penetration seal W-4307-004;
- Penetration seal W-4309-001;
- Penetration seal W-4309-002;
- Penetration seal W-4309-003;
- Penetration seal W-4309-004;
- Penetration seal W-4309-005;
- Penetration seal W-4309-006;
- Walls; and
- Floor.



The inspectors verified that noncompliances with current licensing requirements, and issues identified in accordance with the 10 CFR 50.54(f) letter, Item 2.g of Enclosure 4, were entered into PSEG's corrective action program. In addition, issues identified in response to Item 2.g that could challenge risk significant equipment and PSEG's ability to mitigate the consequences will be subject to additional NRC evaluation.

The requirements of this temporary instruction were met and this temporary instruction is considered to be closed.

b. Findings

No findings were identified.

.2 Temporary Instruction 2515/188 - Inspection of Near-Term Task Force Recommendation 2.3 - Seismic Walkdowns

a. Inspection Scope

The inspectors accompanied PSEG and contracted personnel on their seismic walkdowns of selected portions of the following plant areas:

- Reactor building (201' elevation, room 4706) on October 4, 2012;
- Control building (102' elevation, room 5302 and 54' elevation, room 5104) on October 4, 2012;
- SW intake structure (93' elevation, room 204) on October 5, 2012; and
- Control building (102' elevation, room 5302) on October 12, 2012.

The inspectors observed walkdowns of the following equipment listed on the Hope Creek seismic walkdown equipment list (SWEL):

- Station auxiliary cooling expansion tank (AT205);
- HPCI relay vertical board and relay panel (10C620);
- 250 VDC station battery (10D421);
- A SW pump (AP502);
- Motor actuator for the A SW strainer flush outlet isolation valve (HV-2197A); and
- 1-E Solid State Logic Cabinet Channel C (1CC652).

The inspectors independently performed their walkdown of the Reactor Core Isolation Cooling (RCIC) Room (Reactor Building, 54' elevation, room 4110) on December 17, 2012, and the following equipment listed on the Hope Creek SWEL:

- Turbine Driven Pump RCIC (10P203);
- RCIC Gland Seal Pump (10P219);
- RCIC Steam Turbine (10S212);
- RCIC Pump Room Unit Cooler Fan (AVH208);
- RCIC Pump Room Unit Cooler Fan (BVH208);
- RCIC Emergency Core Cooling System Jockey Pump (BP228);
- Motor-Operated Valve-RCIC Turbine Trip/Throttle Valve (HV-4282); and
- Solenoid-Operated Valve-RCIC Pump Room Unit Cooler A (SV-2293A).

The inspectors verified that, for the equipment listed above, the PSEG and contracted personnel confirmed that the following seismic features associated with were free of potential adverse seismic conditions:

- Anchorage was free of bent, broken, missing, or loose hardware;
- Anchorage was free of corrosion that is more than mild surface oxidation;
- Anchorage was free of visible cracks in the concrete near the anchors;
- Anchorage configuration was consistent with plant documentation;
- SSCs will not be damaged from impact by nearby equipment or structures;
- Overhead equipment, distribution systems, ceiling tiles and lighting, and masonry block walls are secure and not likely to collapse onto the equipment;
- Attached lines have adequate flexibility to avoid damage;
- The area appears to be free of potentially adverse seismic interactions that could cause flooding or spray in the area;
- The area appears to be free of potentially adverse seismic interactions that could cause a fire in the area; and
- The area appears to be free of potentially adverse seismic interactions associated with housekeeping practices, storage of portable equipment, and temporary installations (e.g., scaffolding, lead shielding).

Observations made during the walkdown that could not be determined to be acceptable were entered into PSEG's corrective action program for evaluation.

Additionally, inspectors verified that PSEG did not identify any items that could allow the spent fuel pool to drain down rapidly; therefore, no such items were added to the SWEL for a walkdown by PSEG.

The requirements of this temporary instruction were met and this temporary instruction is considered to be closed.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On January 17, 2013, the inspectors presented the inspection results to Mr. J. Perry, Vice President of Hope Creek Operations, and other members of the Hope Creek staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

4OA7 Licensee-Identified Violations

The following two violations of very low safety significance (Green) were identified by PSEG, were violations of NRC requirements, and met the NRC Enforcement Policy criteria for being dispositioned as an NCV.

- In Modes 1, 2, and 3, Hope Creek TS 3.4.2.1, "Safety Relief Valves," requires that 13 of the 14 SRVs open within +/-3 percent of the specified code safety valve function lift settings or else be in Mode 3 within 12 hours and in Mode 4 within the

next 24 hours. Contrary to this requirement, between May 10 and May 11, 2011, PSEG identified that six of the 14 SRVs were determined to have their as-found setpoints in excess of the TS allowable tolerance, thus leaving eight operable SRVs. The pilot assembly for each of the 14 SRVs was replaced with a fully tested spare assembly. Additionally, LER 05000354/2012-004-00 stated PSEG's proposal to replace the SRVs is being considered through the plant modification process. PSEG entered this issue into their corrective action program as notification 20559112. The finding documents the inoperability of six SRVs that did not result in a loss of system safety function based on engineering analyses that showed that postulated piping stresses would not exceed allowable limits. Therefore, this finding is of very low safety significance (Green) based on a SDP issue screening, because the SRVs would have functioned to prevent a reactor vessel over-pressurization. The LER associated with the event is documented in Section 4OA3.2.

- 10 CFR 55.53(e) requires, in part, that to maintain active status, a licensee shall actively perform the functions of a senior operator on a minimum of seven 8-hour shifts of five 12-hour shifts per calendar quarter, and that if a licensee has not been actively performing the functions of a senior operator, the licensee may not resume licensed activities authorized by a license except as permitted by 10 CFR 55.53(f).

10 CFR 55.53(f) requires that before resumption of licensed functions, an authorized representative of the facility licensee shall certify that: (1) the licensee's qualifications and status are current and valid; and (2) that the licensee has completed a minimum of 40 hours of shift functions under the direction of an operator or senior operator as appropriate and in the position to which the individual will be assigned.

Contrary to the above, on July 12, 2010, and July 14, 2010, prior to allowing a licensed Senior Reactor Operator (SRO) from conducting licensed activities, PSEG did not certify that the qualifications and status of the SRO was current and valid, regarding the SRO performing the functions of an SRO on a minimum of seven 8-hour or five 12-hour shifts per calendar quarter. In fact, the SRO had not completed the minimum of seven 8-hour or five 12-hour shifts per calendar quarter, yet was maintained in an active status by PSEG, and assumed an active SRO watch position on the two dates mentioned above. PSEG promptly certified the SRO in accordance with NRC requirements and entered the issue into its corrective action program as notification 20470402. PSEG then conducted an apparent cause evaluation and reviewed the issue for extent of condition. To prevent recurrence, PSEG revised its procedure to include a requirement to run a proficiency report two weeks prior to the end of each quarter and audit the results to identify any operators not meeting the proficiency requirements. PSEG also provided training on this issue to the Operations department.

#### **ATTACHMENT: SUPPLEMENTARY INFORMATION**

**SUPPLEMENTARY INFORMATION****KEY POINTS OF CONTACT**PSEG Personnel

J. Perry, Site Vice President  
 E. Carr, Plant Manager  
 W. Kopchick, Operations Director  
 J. Kandasamy, Work Management Director  
 K. Knaide, Engineering Director  
 F. Mooney, Maintenance Director  
 P. Duca, Senior Engineer, Regulatory Assurance  
 S. Simpson, Regulatory Assurance Manager  
 F. Possessky, Acting Regulatory Assurance Manager  
 P. Bonnett, Regulatory Assurance  
 H. Trimble, Radiation Protection Manager  
 T. Fowler, Operations Training Manager  
 B. Boesch, Hope Creek Training Manager

**LIST OF ITEMS OPENED, CLOSED, DISCUSSED, AND UPDATED**Opened/Closed

05000354/2012005-01	FIN	Failure to Follow Procedures to Ensure Cables Within the Scope of the Cable Monitoring Program Do Not Remain Submerged (Section 1R06)
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Closed

05000354/2012-002-00	LER	Retraction - High Pressure Coolant Injection System Inoperable (Section 4OA3.2)
05000354/2012-004-00 & 05000354/2012-004-01	LER	As Found Values for Safety Relief Valve Lift Setpoints Exceed Technical Specification Allowable (Section 4OA3.3)

**LIST OF DOCUMENTS REVIEWED****Section 1R01: Adverse Weather Protection**Procedures

SH-FP.TI-FP-0001, Freeze Prevention and Winter Readiness of Fire Protection Systems, Revision 4  
 HC.OP-AR.GQ-0001, Intake Structure HVAC Local Panel 1EC581, Revision 7  
 HC.OP-AR.FA-0002, House Heating Aux Boiler Local Panel BC502, Revision 5  
 HC.OP-SO.EA-0001, Service Water System Operation, Revision 38

HC.OP-SO.FA-0002, Auxiliary Steam System Operation, Revision 16  
HC.OP-SO.GA-0001, Heating Steam and Water System Operation, Revision 15  
HC.OP-SO.GM-0001, Diesel Area Ventilation System Operation, Revision 17  
HC.OP-SO.KJ-0001, Emergency Diesel Generators Operation, Revision 64  
HC.OP-SO.GD-0001, Fire Pump House Ventilation System Operation, Revision 0  
HC.OP-GP.ZZ-0003, Station Preparations for Winter Conditions, Revision 28  
WC-AA-107, Seasonal Readiness, Revision 12

Notifications

20523017, Heating Elements Degraded - Replace  
20446722, H1GM-1E-C-483 Alarm Locked In  
20479131, 1BVE425 Will Not Run

Orders

30167900, 3Y H1QM - 1DOOR-N-0001 Seal Replacement  
30174935, 3Y H1QM - 1DOOR-N-0003 Seal Replacement  
30211114, PM/12M/Clean, Inspect SWIS Doors  
60999157, Heating Elements Degraded - Replace  
60889044, H1GM-1A-VH404 Heaters Degraded  
60094960, 1BVE425 Will Not Run

Other Documents

Hope Creek Event Classification Guide Technical Basis, Revision 01  
Hope Creek Event Classification Guide, Revision 05  
2012 Hope Creek Winter Seasonal Readiness Affirmation, dated 10/1/2012

**Section 1R04: Equipment Alignment**

Procedures

HC.OP-SO.EA-0001, Service Water System Operation, Revision 38  
HC.OP-SO.EP-0001, Service Water Traveling Screens System Operation, Revision 17  
HC.OP-SO.GU-0001, Filtration, Recirculation and Ventilation System Operation, Revision 25

Notifications

20571781, D SSW Pump IST Alert Readings  
20556737, LVL H1EA-1EAV-452 Thread Engagement  
20548147, H1EA-EA-HV-2198D D SSW Pump Discharge  
20495603, B FRVS SACS Valve Leaking By

Orders

30187818, 36M CAL 1F-VH213/DELUGE FLOW INSTR  
30209156, 18M CAL 1F-VH213/DELUGE FLOW INSTR  
40024738, 8Y EQ 1GUHD-9377F1 RPL HYDR ACT FLUID  
40024739, 8Y EQ 1GUHD-9377F RPL HYDR ACT FLUID  
40027200, 48M EQ 1GUHD-9377F1 HYDR DMPR ACTUATOR PM  
40027201, 48M EQ 1GUFD-9377F HYDRAULIC ACTUATOR PM  
30180031, PM 36M REPLACE ZINC ANODE: 1B-P-507

Drawings

M-10-1, Service Water, Revision 54  
M-75-1, Reactor Building Air Flow Diagram, Revision 22

**Section 1R05: Fire Protection**

Procedures

FRH-II-151, Turbine Building, Elevation 137', Revision 4  
FRH-II-532, Lower Control Equipment Room, Elevation 102', Revision 6  
FRH-II-522, Cable Spreading Room, Elevation 77', Revision 6  
FRH-II-413, HPCI Pump & Turbine Room, RHR Pump & Heat Exchanger Rooms, Elevation 54',  
Revision 3  
FRH-II-412, RCIC Pump & Turbine Room, RHR Pump & Heat Exchanger Rooms & Electrical  
Equipment Room, Elevation 54', Revision 3

Other Documents

Hope Creek Fire Impairment Logbook

**Section 1R06: Flood Protection Measures**

Procedures

ER-AA-3003, Cable Condition Monitoring and Aging Management Program, Revision 0  
HC.CH-SO.LE-0002, Operation of the Station Service Water Cable Vault Dewatering System,  
Revision 0

Notifications

20420237, SSWP Cables Submerged  
20460004, NUCM to Inspect Non-1E Xfmr Manholes  
20584885, Revise Switchyard Manhole Pumping PM  
20482823, Poor Tan-Delta Results on BX501 Cable  
20457414, Evaluate Non-1E Submerged MV Cable  
20588385, Potential Green Finding for Submerged Cables

Orders

70111733, 2010 INPO AFI CM.2-1  
70099153, SSWP Cables Submerged  
70105436, PCR-Switchyard Tan-Delta Test Program  
70108891, Evaluate Non-1E Submerged MV Cable  
70108084, PCR-P Open/Inspect 15MM0D08A (BX501)

Drawings

E-1503-0, Sheet 1 of 5, Electrical Facilities Site - Southwest, Revision 13  
E-0001-0, Single Line Diagram - Station, Revision 24

**Section 1R11: Licensed Operator Regualification Program**

Procedures

HC.OP-AB.MISC-0001, Acts of Nature, Revision 21  
HC.OP-AB.CONT-0001, Drywell Pressure, Revision 2  
HC.OP-AB.BOP-0004, Grid Disturbances, Revision 21  
HC.OP-AB.HVAC-0001, HVAC, Revision 8  
HC.OP-AB.COOL-0001, Station Service Water, Revision 20  
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 7

Other Documents

Examination Scenario Guide (ESG)-075, Loss of CD481, Steam Leak, LOCA, Torus Leak and Emergency Depressurization, dated 10/16/2012  
 Examination Scenario Guide (ESG)-002, A SACS Pump Trip, 10D420, LOP, HPCI Steam Leak, Emergency Depressurization, dated 10/31/2012  
 Biennial Written Exam grading summaries for 2006, 2008, 2010  
 HC LOR 2010 Exam 3C Post Exam Test Item Analysis  
 Annual Operating Exam grading summaries for 2006 – 2011  
 Hope Creek Annual Operating Exam Analysis 2010, 2011  
 Focused Area Self-Assessment Report 2012 PRE-NRC 71111.11 Inspection  
 Transient Test: Simultaneous Trip of all Feedwater Pumps, 8/25/2012  
 Transient Test: Simultaneous Closure of all Main Steam Isolation Valves, 8/25/2015  
 Transient Test: Single Recirc Pump Trip, 8/25/2012  
 Transient Test: Main Turbine Trip From Maximum Power Level That Does Not Result In An Immediate Reactor Scram, 8/25/2012  
 Transient Test: Transient Performance Tests, 2009, 11/3/2009  
 STRB Minutes, 2009-17, 2/17/10  
 Steady State Test: 46%, 75%, 100%, 8/14/2012 Scenario Based Testing: ESG-12 8/24/2012  
 Scenario Based Testing: ESG-12, 8/24/2012  
 Normal Evolution Test: Plant Startup from Hot Standby to Turbine Startup, 6/5/12  
 Normal Evolution Test: Unit Sync to Rated Power, 6/5/12  
 Normal Evolution Test: Plant Startup from Cold Shutdown to Hot Standby, 6/5/12  
 Scenario Based Testing: ESG-012, 8/24/2012  
 Scenario Based Testing: ESG-029, 8/30/2012  
 Scenario Based Testing: ESG-076, 7/3/2012  
 Scenario Based Testing: ESG-005, 7/27/2012  
 TQ-AB-303-0101 BWR Core Performance Testing, Revision 4, Cycle 18, 6/6/2012  
 TQ-AA-210-4303, Remediation, Revision 6  
 TQ-AA-106, Licensed Operator Requal Training Program, Revision 23  
 TQ-AA-106-0308, Simulator Scenario Based Testing and Documentation, Revision 1  
 TQ-AA-106-0304, Licensed Operator Requal Training Exam Development Job Aid, Revision 13

**Section 1R12: Maintenance Effectiveness**Procedures

ER-AA-310, Implementation of the Maintenance Rule, Revision 11  
 ER-HC-310-1009, Maintenance Rule System Function and Risk Significant Guide, Revision 9  
 HC.OP-SO.GM-0001, Diesel Area Ventilation System Operation, Revision 17  
 ER-AA-310-1009, Condition Monitoring of Structures, Revision 2  
 HC.MD-GP.ZZ-0018, Joy Axivane Fans, Inspection and Vane Adjustment, Revision 7  
 HC.MD-GP.ZZ-0019, Ventilation System Dampers and Louvers Inspection and Repair, Revision 11  
 HC.MD-GP.ZZ-0093, Inspection and Maintenance of ITT Hydramotor Actuators Model NH91 and NH93, Revision 8  
 HC.OP-AR.GQ-0001, Intake Structure HVAC Local Panel 1EC581, Revision 7  
 HC.OP-SO.EA-0001, Service Water System Operation, Revision 38  
 HC.OP-SO.EP-0001, Service Water Traveling Screens System Operation, Revision 17  
 HC.OP-SO.GQ-0001, Service Water Intake Structure Ventilation System Operation, Revision 9

Notifications (\*NRC-identified)

20558731, Low Flow Alarm on EC483 1B-V-412  
 20520452, BV412 EDG Recirc Fan Trip  
 20518529, Summer Generation - HVAC Margin  
 20519067, Service Water Intake Structure A&C HVAC Alarm  
 20551445, H1GQ-1FCGQTD-9773B1 Found Closed  
 20554853, NEO on Rounds Noticed High DP Entering the A/C SSW Bay  
 20556783, H0GQ-0B-V-558 B Traveling Screen RM Supply Fan Will Not Start  
 20573311, 1AV503 SSW Supp Fan Trips on Low Flow  
 20577105, BV503 SWIS Supply Fan Trip  
 20586161, A-SWIS HVAC Unavailability Not Evaluated  
 20587597\*, Functional Failure Determination Issue

Orders

70141333, MRule Reliability Goal Not Met  
 70127326, BV412 EDG Recirc Fan Trip  
 70129522, MRule Substation Bkr Exceeded  
 60103000, Low Flow Alarm on EC483 1B-V-412  
 70140750, WGE for BV412 Fan Insufficient for Issue

Evaluations

70137311-010, BV503 (a)(1) Determination, dated 5/8/12  
 70137311-030, BV503 (a)(1) Action Plan and Goals, dated 6/28/12  
 70137312-010, BV504 (a)(1) Determination, dated 5/8/12  
 70137312-030, BV504 (a)(1) Action Plan and Goals, dated 6/28/12  
 70140388-010, MRule FASA Standards Deficiency, dated 10/18/12  
 80106765-022, Create Hydramotor Inspection PMs, dated 9/27/12  
 80106765-024, Create Hydramotor Oil Change PMs, dated 9/27/12  
 80106765-026, Create Hydramotor Overhaul PMs, dated 9/27/12

PM Work Orders

30182715, 36M-H0GQ-0GQTS-9774B SW INT HVAC CALs, performed 1/19/12  
 30187740, 12M Inspection 1B-V-503/504, performed 1/22/11  
 30189006, 12M CAL 1B-V-503(4)/SWIS Supply FN DMPRS, performed 1/21/11  
 30192580, 24M CAL D SWIS SPLY/EXH Fan Flow, performed 2/21/12  
 30202478, 12M Lube SWIS B Intake Structure Dampers, performed 3/14/12  
 30203340, 12M PM H1GQ-1B-GQD-504b Inspect/Clean, performed 3/13/12  
 30204342, 12M 1D-V-503/504 Clean/INSP, performed 2/23/12

Other Documents

System Health Report, Aux Building HVAC Diesel Area, Q3-2012  
 GQ SWIS HVAC PHC Presentation: SHIP Health and MRule Status, Revision 0  
 HC 1A (B, C, D)-V-503(504) SWIS Supply Fan Unavailability (Cumulative), 5/1/11 - 9/1/12  
 HCEP 12-002, Hope Creek Expert Panel Meeting Minutes, dated 7/12/12  
 HCEP 12-004, Hope Creek Expert Panel Meeting Minutes, dated 11/26/12  
 HCEP 12-005, Hope Creek Expert Panel Meeting Minutes, dated 11/26/12  
 HC GQ - Aux Bldg HVAC - Service Area MR Unavailability Checkbook, November 2012  
 HC Intake Structure HVAC System Reliability (Cumulative), 10/1/09 - 10/1/12  
 Hope Creek Maintenance Rule Status & Projections, dated 10/4/12, 11/1/12, & 12/6/12  
 Hope Creek - Open Low Margin Issues, dated 12/4/12  
 Intake Structure HVAC System Health Report, Q4-2012 (updated through 12/10/12)  
 Service Water System Health Report, Q4-2012 (updated through 12/11/12)



**Section 1R13: Maintenance Risk Assessments and Emergent Work Control**

Procedures

OP-AA-101-112-1002, On-Line Risk Assessment, Revision 6  
OP-AA-108-116, Protected Equipment Program, Revision 7  
OP-HC-108-115-1001, Operability Assessment and Equipment Control Program, Revision 21

Notifications

20577025, A RFPT Trip - Recirc Runback

Orders

30238030, OC#2 - HC Emergent Investigation & Repair  
30187818, 36M CAL 1F-VH213/DELUGE FLOW INSTR  
30209156, 18M CAL 1F-VH213/DELUGE FLOW INSTR  
40024738, 8Y EQ 1GUHD-9377F1 RPL HYDR ACT FLUID  
40024739, 8Y EQ 1GUFD-9377F RPL HYDR ACT FLUI  
40027200, 48M EQ 1GUHD-9377F1 HYDR DMPR ACTUATOR PM  
40027201, 48M EQ 1GUFD-9377F HYDRAULIC ACTUATOR PM  
30180031, PM 36M REPLACE ZINC ANODE: 1B-P-507  
30181361, 45M/H1PB-52-40209 PERFORM BREAKER P  
30207934, 18M CAL 1EPLDT-2225B/IY-2225B TMTR/LOO  
30208008, 18M CAL B SERV WTR AMP & TEMP INSTR  
30212219, 18M 1B-P-502-MTR, TAN-DELTA CABLE TEST  
30216961, 12M 1B-F-509 SWIS STRAINER INSPECTION  
30216914, 12M LUBE SSW STRAIN, BF509 GEAR REDUCER  
30228914, 6M CLEAN/INSPECT/1B-S-501/SW TRAV SCREEN  
30229019, 6M PM/BS-501-BP-502 SW SILT SURVEY

Other Documents

HCGS-WW-1246, HCGS PRA Risk Evaluation Form, Revision 1, dated 11/11/2012  
HCGS-WW-1246, HCGS PRA Risk Evaluation Form, Revision 2, dated 11/12/2012  
HCGS-WW-1246, HCGS PRA Risk Evaluation Form, Revision 3, dated 11/13/2012  
LCO Action Statement Log Index Number 12-305, B Service Water, dated 11/11/2012  
LCO Action Statement Log Index Number 12-307, F FRVS, dated 11/13/2012  
Hope Creek Narrative Log, dated 11/14/2012

**Section 1R15: Operability Determinations and Functionality Assessments**

Procedures

OP-HC-108-115-1001, Operability Assessment and Equipment Control Program, Revision 15  
HC.OP-AR.ZZ-0008, Overhead Annunciator Window Box C1, Revision 43  
CC-AA-11, Nonconforming Materials, Parts, or Components, Revision 3

Notifications (\*NRC-identified)

20578547, H SRV Reached Setpoint of 220 Deg F  
20577266, Replace 1BFPSE-132001C11 (38-47)  
20577267, Replace 1BFPSE-132062C11 (34-39)  
20577268, Replace 1BFPSE-132075C11 (42-15)  
20577269, Replace 1BFPSE-132089C11 (46-11)

Orders

60104491, H SRV Tailpipe > 200 Deg F  
60105869, Replace 1BFPSE-132001C11 (38-47)  
60105870, Replace 1BFPSE-132062C11 (34-39)  
60105871, Replace 1BFPSE-132075C11 (42-15)  
60105872, Replace 1BFPSE-132089C11 (46-11)

Other Documents

AB-0076, Tailpipe Temperature vs. Leak Rate of PSV-F013H SRV, Revision 1  
VTD 325477, Engineering Test Report Model 7567F SRV Leakage Tolerance Test  
70144985, Determination of Q-Listed Requirements for Pressure Relief Devices on Hydraulic Control Units

**Section 1R19: Post-Maintenance Testing**

Procedures

HC.OP-ST.KJ-0004, Emergency Diesel Generator 1DG400 Operability Test - Monthly, Revision 76  
HC.IC-DC.ZZ-0123, Bailey Power Supply Monitor Series 862, Revision 7  
MA-AA-716-012, Post-Maintenance Testing, Revision 18  
HC.OP-IS.EA-0102, Service Water Subsystem B Valves - Inservice Test, Revision 55  
OP-HC-108-116-1001, Spent Fuel Pool Decay Heat Load Determination, Revision 1

Completed Surveillances

HC.OP-ST.BF-0002, Control Rod Drive Accumulator Operability Check - Weekly

Notifications

20576866, HCU Inop. Rupture Disc Failed  
20577025, A RFPT Trip-Recirc Runback

Orders

60105867, HCU Inop. Rupture Disc Failed  
30238030, OC#2 - HC Emergent Investigation & Repair  
30091062, 10Y PM 1ECHV-4868 Diagnostic Test MOV  
50103961, 72M ST MOV Over Load 1ECHV-4648 MCC 52-222154  
60087146, DCP 80098425 Replace MCC 52-222154 MOV 4648

Other Documents

PN1-C11-8010-0163, Hydraulic Control Unit, Sheet 1, Revision 5  
DCP 80098425, MCC 10B222 Compartment Replacement, Revision 1

**Section 1R22: Surveillance Testing**

Procedures

HC.OP-DL.ZZ-0026, Surveillance Log, Revision 134  
HC.OP-ST.GU-0002, Reactor Building Integrity Functional Test, Revision 15  
HC.OP-ST.KJ-0004, Emergency Diesel Generator 1DG400 Operability Test, Revision 76  
HC.OP-IS.BC-0003, BP202, B Residual Heat Removal Pump Comprehensive In-Service Test - 2 year, Revision 38  
HC.OP-IS.BC-0002, C Residual Heat Removal Pump, CP202, In-Service Test, Revision 42

Orders

70140026-0010, Reactor Building Atmosphere Differential Pressure Control  
50152933, 1M ST HC.OP-ST.KJ-0004 D EDG Test  
30199443, 2Y-1B-P-202 B RHR PMP CMPRHNSV Test  
50151398, ST 3M B-RHR Pump In-Service OP-IS.BC-0003  
50151938, C-RHR pump CP202 Surveillance Test

Notifications (\*NRC-identified)

20563290, Reactor Building to Atmosphere Alarm Setpoint  
20579972, Leak on #3 Ejector Pump  
20580060, DG 400 #5 Cylinder Leak  
20580689\*, Reactor Building Pressure

Completed Surveillances

HC.OP-ST.KJ-0004, Emergency Diesel Generator 1DG400 Operability Test - Monthly, dated 10/22/2012  
HC.OP-IS.BC-0003, BP202, B Residual Heat Removal Pump Comprehensive In-Service Test - 2 year, dated 10/16/2012  
HC.OP-IS.BC-0002, C Residual Heat Removal Pump, CP202, In-Service Test, dated 12/28/2012

Other Documents

LER 05000354/2001-004-00, Reactor Building Differential Pressure Controller Set Incorrectly

**Section 2RS6: Radioactive Gaseous and Liquid Effluent Treatment**

Other Documents

2011 Annual Effluent and Environmental Reports  
Offsite Dose Calculation Manual, Revision 26

**Section 4OA1: Performance Indicator Verification**

Procedures

LS-AA-2200, Mitigating System Performance Index Data Acquisition & Reporting, Revision 3  
HC-MSPI-001, Hope Creek Generating Station Nuclear Regulatory Commission Regulatory Oversight Process Mitigating System Performance Index Basis Document, Revision 7

**Section 4OA2: Problem Identification and Resolution**

Procedures

LS-AA-125, Corrective Action Program, Revision 16  
LS-AA-125-1006, Performance Improvement Integrated Matrix (PIIM), Revision 4  
LS-AA-1006, NRC Cross-Cutting Analysis and Trending, Revision 2  
HC.CH-SO.LE-0002, Operation of the Station Service Water Cable Vault Dewatering System, Revision 0  
ER-AA-3003, Cable Condition Monitoring and Aging Management Program, Revision 0

Notifications

20552962, NOS Elevation for Control of M&TE  
20559679, Request for HC Ops Tagging CCE  
20420237, SSWP Cables Submerged

20460004, NUCM to Inspect Non-1E Xfmr Manholes  
20584885, Revise Switchyard Manhole Pumping PM  
20482823, Poor Tan-Delta Results on BX501 Cable  
20457414, Evaluate Non-1E Submerged MV Cable

Orders

70111733, 2010 INPO AFI CM.2-1  
70099153, SSWP Cables Submerged  
70105436, PCR-Switchyard Tan-Delta Test Program  
70108891, Evaluate Non-1E Submerged MV Cable  
70108084, PCR-P Open/Inspect 15MM0D08A (BX501)  
60092810, Sta Serv Xfmr Manholes: Inspect Cables  
70115795, Poor Tan-Delta Results on BX501 Cable  
70125368, MCA - 2010 AFI CM.2-1 Vulnerable

Drawings

E-1503-0, Electrical Facilities Site - Southwest, Sheet 1 of 5, Revision 13  
E-0001-0, Single Line Diagram - Station, Revision 24

Other Documents

2012 Hope Creek Operations Standing Orders/Daily Orders Notebook, dated 12/13/12  
2012 Hope Creek Operator Concerns Notebook, dated 12/13/12  
70133989, Preventive Maintenance (PM) Program Effectiveness, dated 10/15/12  
Diesel Generators System Health Report, Q4-2012 (updated through 12/11/12)  
Hope Creek Engineering PIIM Report 1<sup>st</sup> Cycle 2012 (May 16 through August 31) Presentation, dated 10/10/12  
Hope Creek Generating Station On-Line DCP List, dated 12/10/12  
Hope Creek - Open Low Margin Issues, dated 12/4/12  
Hope Creek Valid SFFs since 5/1/2009 Database  
HPCI System Health Report, Q4-2012 (updated through 12/11/12)  
Quarterly Operator Burden Assessment, 2012 - 3<sup>rd</sup> Quarter  
Plant Health Committee Meeting Agenda, dated 12/10/12  
Plant Health Committee Meeting Minutes, dated 12/3/12  
Plant Health Summary - Hope Creek, dated 12/6/12  
Preventive Maintenance Ownership Committee (PMOC) Quarterly Update, dated 12/10/12  
PSEG Nuclear: Hope Creek Station, PM Program: PM Feedback Backlog, November 2012  
RHR System Health Report, Q4-2012 (updated through 12/11/12)  
SACS/TACS System Health Report, Q4-2012 (updated through 12/11/12)  
Service Water System Health Report, Q4-2012 (updated through 12/11/12)  
Work Management PHC/Top 10 Look Ahead, dated 12/4/12

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

Procedures

HC.OP-AB.MISC-0001, Acts of Nature, Revision 21  
HC.OP-AB.CONT-0001, Drywell Pressure, Revision 2  
HC.OP-AB.BOP-0004, Grid Disturbances, Revision 21  
HC.OP-AB.HVAC-0001, HVAC, Revision 8  
HC.OP-AB.COOL-0001, Station Service Water, Revision 20  
OP-AA-108-111-1001, Severe Weather and Natural Disaster Guidelines, Revision 7

Notifications

20525076, SRV Setpoint Drift Root Cause Evaluation  
20559112, RF17-SRV As-Found Test Results

Orders

70135925, HPCI Gov Vlv FD-HV-4879 Open w/0% Demand  
70128407, SRV Setpoint Drift Root Cause Evaluation  
70138789, RF17-SRV As-Found Test Results

Other Documents

NRC Incident Response Procedure 091001, Appendix I, Resident Inspectors Hurricane Response Guidance  
Letter from USNRC to Mr. Thomas Joyce in regards to, Hope Creek Generating Station and Salem Nuclear Generating Station, Units 1 and 2 - Exemption from Certain Requirements of 10 CFR Part 26, Fitness for Duty Programs (TAC NOS. ME7651, ME7652, and ME7653)  
LER 05000354/2012-002-00, High Pressure Coolant Injection System Inoperable  
LR-N12-0249, LER Retraction of Hope Creek LER 05000354/2012-002-00

**Section 40A5: Other Activities**

Notifications (\*NRC-identified)

20578213, Fukushima S CC652 Abandon Cable Interference  
20585006, Fukushima F-Restricted Access FLOCs  
20588895\*, Crack in RCIC turbine pedestal  
20584907, Fukushima F-U1/RB Historical Leak CBM  
20589152\*, HC Flood Walkdown Report Deficiency  
20589110\*, Crack at the Support H1AB-1-P-AB-202  
20558003, Fukushima response correspondence  
20558268, FUKUSHIMA EP COMMITMENTS  
20573083, Develop training on Fukushima  
20577070, FUKUSHIMA F RAYCHEM WIRE IN PENETRATION  
20577071, FUKUSHIMA F BLANK FLANGE MISSING  
20577319, FUKUSHIMA F UNSECURED TOOLBOX  
20577490, FUKUSHIMA S SW PANEL CORROSION  
20577503, FUKUSHIMA F SWIS TRANSIENT LOAD  
20577509, FUKUSHIMA S SWIS LIGHT FIXTURE  
20577538, FUKUSHIMA S LIGHT ABOVE A 1-E SWCHGR  
20577542, Fukushima F Drawing Correction  
20577885, FUKUSHIMA S SWIS PANEL CC581 ANCHORAGE  
20577886, FUKUSHIMA S A SSW SCREEN ANCHOR BOLTS  
20578051, FUKUSHIMA S SWIS PANEL CC581 ANCHORAGE  
20578146, FUKUSHIMA F H1KC -1-KC-V040 MINOR LEAK  
20578176, FUKUSHIMA F MINOR CORROSION IN RM 3121  
20578178, FUKUSHIMA F RM 3128 STANDING WATER  
20578213, FUKUSHIMA S CC652 ABANDONED CABLE INTERFER  
20578333, FUKUSHIMA S RCIC VAC PUMP CONDUIT  
20578334, FUKUSHIMA S 1-BD-V026 WATER LEAK  
20578350, FUKUSHIMA S LEAK ON RCIC PEDESTAL  
20578354, FUKUSHIMA S VENTILLATION INSPECTION PANE  
20578494, FUKUSHIMA F BLANK FLANGE MISSING

20578837, FUKUSHIMA S SCREEN ROOM SHUNT BOX J-13  
20579431, FUKUSHIMA F PRINT A-0549 DISCREPANCY  
20579443, FUKUSHIMA F SWIS INACTIVE BAYS WEST WALL  
20579453, FUKUSHIMA F 54 RAD WASTE ROOM 3165  
20579546, FUKUSHIMA F RW BUILDING HISTORICAL LEAKS  
20579547, FUKUSHIMA F MISSING LABELS FOR FLOOD PEN  
20579548, FUKUSHIMA F FUTURE FLOOD ENHANCEMENT  
20579813, FUKUSHIMA F WATER TIGHT DOOR MAINT REQ  
20579814, FUKUSHIMA F WATER TIGHT DOOR MAINT REQ  
20580101, FUKUSHIMA F RW BUILDING HISTORICAL LEAKS  
20580838, FUKUSHIMA F SWIS CARD READER 204-010  
20580839, FUKUSHIMA F SWIS CARD READER 206-004  
20580840, FUKUSHIMA F AUX BLDG BLANK CARD READER  
20583038, FUKUSHIMA F WATER TIGHT DOOR MAINT REQ  
20584042, FUKUSHIMA S PENETRATION NEAR BOOSTER PP  
20584237, FUKUSHIMA F SWIS ROOM 103 SPARE BAY  
20584243, FUKUSHIMA F SWIS ROOM 105 SPARE BAY  
20584258, FUKUSHIMA F RM 3199 SEAL PENETRATIONS  
20584393, FUKUSHIMA F LOOSE INSULATION  
20584732, FUKUSHIMA F SWIS-HISTORICAL LKAGE - CBM  
20584736, FUKUSHIMA F- EXT WALL HAIRLINE CRACK -CBM  
20584739, FUKUSHIMA F- DIESEL GEN WD ISSUES-CBM  
20584742, FUKUSHIMA F- U2 RB WD ISSUES - CBM  
20584815, FUKUSHIMA S 125VDC SWGR  
20584816, FUKUSHIMA S 480 TO 130 INVERTER WKDWN  
20584817, FUKUSHIMA S INTAKE STRUCTURE 480V MCC  
20584818, FUKUSHIMA S BACKUP PWR SUP 480V MCC WKDN  
20584819, FUKUSHIMA S SUB 480V SWGR (410) WKDWN  
20584820, FUKUSHIMA S SUB 480V SWGR(B450) WKDWN  
20584827, FUKUSHIMA F SWIS ISSUES (CBM)  
20584873, FUKUSHIMA F- RW HISTORICAL LEAKAGE - CBM  
20584874, FUKUSHIMA F- 3154 HISTORICAL LEAKAGE -CBM  
20584876, FUKUSHIMA F- 3343 HISTORICAL LEAKAGE- CBM  
20584889, FUKUSHIMA F- 204-010 SEAL CORROSION - CBM  
20584894, FUKUSHIMA F- SWIS EXTERIOR CRACKS - CBM  
20584897, FUKUSHIMA F- EXTERIOR WALL MINOR CRACKS  
20584904, FUKUSHIMA F- RW HISTORICAL LEAKAGE - CBM  
20584905, FUKUSHIMA F- RM 3331 HISTORICAL LKGE CBM  
20584907, FUKUSHIMA F- U1/RB HISTORICAL LEAK CBM  
20584911, FUKUSHIMA F- U1/RB F-4118-021 PEN SEAL  
20584915, FUKUSHIMA S 4160 SWGR CHAN A WLKDN  
20584916, FUKUSHIMA S 120 VAC DIST PANEL WKDWN  
20584917, FUKUSHIMA F S-4203-004 PEN SEAL  
20584918, FUKUSHIMA S 480 MCC WKDWN  
20585006, FUKUSHIMA F- RESTRICTED ACCESS FLOCS  
20585010, FUKUSHIMA F- SEAL MISSING DOCUMENTATION  
20585121, FUKUSHIMA S VALVE WKDWNS  
20585255, FUKUSHIMA F SWIS-HISTORICAL LKAGE  
20585256, FUKUSHIMA F- EXT WALL HAIRLINE CRACK  
20585257, FUKUSHIMA F- DIESEL GEN WD ISSUES  
20585258, FUKUSHIMA F- U2 RB WD ISSUES

20585259, FUKUSHIMA F SWIS ISSUES  
20585627, FUKUSHIMA F- HC NEG MARGIN NOTIFICATION  
20585858, FUKUSHIMA F- 3343 HISTORICAL LEAKAGE  
20585859, FUKUSHIMA F- RW HISTORICAL LEAKAG  
20588495, FUKUSHIMA WALKDOWN REPORTS SEISMIC/FLOOD  
20589942, FUKUSHIMA F PENS NOT FOUND IN FIELD  
20589944, FUKUSHIMA F - UNIDENTIFIED PENETRATIONS  
20589947, FUKUSHIMA F- PEN SEAL MISSING LABELS  
20589948, FUKUSHIMA F- PEN DWG DOES NOT MATCH FIELD

Drawings

A-0203-0, General Plant Floor Plan Level 3 - Elevation 102'-0", Revision 19  
A-P509-1, Wall Penetration Seals Reactor Building - Unit 1 EL 54'-0", EL 77'-0", EL 102'-0",  
Revision 4  
A-P505-1, Wall Penetration Seals Reactor Building - Unit 1 EL 54'-0", EL 77'-0", EL 102'-0",  
Revision 3  
A-P504-1, Wall Penetration Seals Reactor Building - Unit 1 EL 54'-0", EL 77'-0", EL 102'-0",  
Revision 3

Other Documents

HCGS Walkdown Record Forms, SL-2012-11167, Revision 0  
HCGS Flood Walkdown Report, SL-2012-10794, Revision 0  
Area Walk-By Checklist, Reactor Building, Elevation 54', Room 4110  
Seismic Walkdown Checklists, RCIC Room, Reactor Building, Elevation 54', Room 4110

**LIST OF ACRONYMS**

ADAMS	Agencywide Documents Access and Management System
AOP	auxiliary oil pump
CFR	Code of Federal Regulations
EDG	emergency diesel generator
EGR	electronic governor-remote actuator
FRVS	filtration recirculation ventilation system
HPCI	high pressure coolant injection
HVAC	heating, ventilation, and air conditioning
IMC	Inspection Manual Chapter
JPM	job performance measure
LER	licensee event report
NCV	non-cited violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records
PIIM	performance improvement integrated matrix
PM	preventive maintenance
PSEG	Public Service Enterprise Group Nuclear LLC
RCIC	reactor core isolation cooling
RHR	residual heat removal
RTP	rated thermal power
SDP	Significance Determination Process
SRO	senior reactor operator
SRV	safety relief valve
SSC	structure, system, or component
SSWS	station service water system
SW	service water
SWEL	seismic walkdown equipment list
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report