



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PA 19406-1415

April 27, 2009

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

**SUBJECT: HOPE CREEK GENERATING STATION - NRC INTEGRATED INSPECTION  
REPORT 05000354/2009002**

Dear Mr. Joyce:

On March 31, 2009, the U. S. Nuclear Regulatory Commission (NRC) completed an integrated inspection at the Hope Creek Generating Station. The enclosed inspection report documents the inspection results discussed on April 8, 2009, with Mr. George Barnes and other members of your staff.

The inspections 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.

Based on the results of this inspection, no findings of significance 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 NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Arthur L. Burritt, Chief  
Projects Branch 3  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000354/2009002  
w/Attachment: Supplemental Information

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Sincerely,  
*/RA/*  
 Arthur L. Burritt, Chief  
 Projects Branch 3  
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U.S NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-354

License No: NPF-57

Report No: 05000354/2009002

Licensee: PSEG Nuclear LLC

Facility: Hope Creek Generating Station

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

Dates: January 1, 2009 through March 31, 2009

Inspectors: B. Welling, Senior Resident Inspector  
A. Patel, Resident Inspector  
S. Barr, Senior Emergency Preparedness Specialist  
J. Furia, Senior Health Physicist

Approved By: Arthur L. Burritt, Chief  
Projects Branch 3  
Division of Reactor Projects

Enclosure

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**SUMMARY OF FINDINGS**

IR 05000354/2009002; 01/01/2009 – 03/31/2009; Hope Creek Generating Station; Routine Integrated Inspection Report.

This report covers a three-month period of inspection by resident inspectors and announced inspections by regional specialist inspectors. 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 of significance were identified.

## REPORT DETAILS

Summary of Plant Status

The Hope Creek Generating Station operated at or near full power for the duration of the inspection period with the following exceptions. On January 9, operators reduced power to approximately 76 percent for planned testing and maintenance. The unit was restored to full power on January 10. On January 17, operators performed a manual scram in response to a turbine runback caused by a loss of stator cooling to the main generator. The unit was restarted on January 18, and reached full power on January 19. Additionally, on February 28, operators reduced power to approximately 81 percent to repair a condenser tube leak. The unit was restored to full power on March 1. On March 23, the unit entered end-of-cycle coastdown. The unit was operating at approximately 97 percent power at the end of the inspection period.

1. **REACTOR SAFETY**

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R01 Adverse Weather Protection (71111.01 - 1 sample).1 Evaluate Readiness for Impending Adverse Weather Conditionsa. Inspection Scope

The inspectors completed one adverse weather preparation sample. The inspectors reviewed PSEG's preparation activities for river grass intrusion conditions that may impact the station service water system. Inspectors assessed implementation of PSEG's grassing readiness plan through service water system walkdowns, corrective action program review, and discussions with cognizant managers and engineers. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04 - 3 samples, 71111.04S - 1 sample).1 Partial Walkdowna. Inspection Scope

The inspectors completed three partial system walkdown inspection samples. For the systems listed below the inspectors verified the operability of redundant or diverse trains and components when the listed safety equipment was unavailable. The inspectors completed walkdowns to determine whether there were discrepancies in the system's alignment that could impact the function of the system, and therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control system components, and verified that selected breakers, valves, and support

equipment were in the correct position to support system operation. The inspectors also verified that PSEG had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program. Documents reviewed are listed in the Attachment.

- A emergency diesel generator (EDG) during B EDG maintenance on February 9, 2009
- A, B, and D service water (SW) system with C SW system out of service on March 9, 2009
- B safety auxiliary cooling system (SACS) loop with A SACS loop 2522 C valve maintenance on March 23, 2009

.2 Complete Walkdown

a. Inspection Scope

The inspectors completed one complete walkdown inspection of accessible portions of the standby liquid control system. The inspectors used PSEG procedures and other documents listed in the Attachment to verify proper system alignment and functional capability. The inspectors independently verified the alignment and status of standby liquid control system valves, labeling, hangers and supports, and associated support systems. The walkdown also included checks that oil reservoir levels were normal, pump rooms and pipe chases were adequately ventilated, system parameters were within established ranges, and equipment deficiencies were appropriately identified.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 6 samples)

.1 Fire Protection – Tours

a. Inspection Scope

The inspectors completed six quarterly fire protection inspection samples. 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 combustibles and ignition sources were controlled in accordance with PSEG's administrative procedures; fire detection and suppression equipment was available for use; that passive fire barriers were maintained in good material condition; and that compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with PSEG's fire plan. The six areas toured are listed below with their associated pre-fire plan designator. Other documents reviewed are listed in the Attachment.

- FRH-II-713, A/C SW Bay
- FRH-II-713, B/D SW Bay
- FRH-II-713, SW Intake Screen Room

- FRH-II-434, Reactor Building MCC Area
- FRH-II-542, Lower Control Equipment Area
- FRH-II-541, 1E Switchgear 130'

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06 - 1 sample)

a. Inspection Scope

The inspectors completed one flood protection measure inspection sample. The inspectors reviewed selected risk-important plant design features and PSEG procedures intended to protect the plant and its safety-related equipment from internal flooding events. Specifically, the inspectors focused on internal flood mitigation features for the 54' elevation of the reactor building that contains significant portions of the core spray, residual heat removal, high pressure coolant injection, reactor core isolation cooling, and reactor building sump systems. The inspectors reviewed flood analysis and design documents, including the Updated Final Safety Analysis Report (UFSAR), engineering calculations, and abnormal operating procedures. The inspectors observed the condition of wall penetrations, watertight doors, flood alarm switches, and drains to assess their readiness to contain flow from an internal flood in accordance with the design basis.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q - 1 sample)

.1 Requalification Activities Review By Resident Staff

a. Inspection Scope

The inspectors observed a licensed operator annual requalification simulator scenario on February 10, 2009, to assess operator performance and training effectiveness. The scenario involved a safety relief valve failing open, a loss of primary condensate pumps, a mode switch failure, a failure of the high pressure coolant injection system to initiate, and event classification. The inspectors verified that control room staff correctly identified and declared emergency action levels in a timely manner. The inspectors assessed simulator fidelity and observed the simulator instructor's critique of operator performance. The inspectors also observed control room activities with emphasis on simulator-identified areas for improvement. Finally, the inspectors reviewed applicable documents associated with licensed operator requalification as listed in the Attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12 - 3 samples)a. Inspection Scope

The inspectors completed three maintenance effectiveness inspection samples. For the systems listed below the inspectors evaluated items such as: appropriate work practices; identifying and addressing common cause failures; scoping in accordance with 10 CFR 50.65(b) of the maintenance rule (MR); characterizing reliability issues for performance; trending key parameters for condition monitoring; charging unavailability for performance; classification and reclassification in accordance with 10 CFR 50.65(a)(1) or (a)(2); and appropriateness of performance criteria for structures, systems, and components (SSCs) functions classified as (a)(2) and/or appropriateness and adequacy of goals and corrective actions for SSCs/functions classified as (a)(1). Documents reviewed are listed in the Attachment.

- Feedwater system
- High pressure coolant injection (HPCI) pump
- Service water pumps

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 4 samples)a. Inspection Scope

The inspectors completed four maintenance risk assessment and emergent work control inspection samples. The inspectors reviewed on-line risk management evaluations through direct observation and document reviews for the following four configurations:

- A control rod drive pump and C SACS pump out of service on January 6, 2009;
- B EDG and one offsite line out of service on February 10, 2009;
- C EDG and B reactor building ventilation system out of service on February 3, 2009; and
- B reactor protection system motor generator set and one of two supply breakers for the B 4kV bus out of service on March 10, 2009.

The inspectors reviewed the applicable risk evaluations, work schedules and control room logs for these configurations to verify that concurrent planned and emergent maintenance and test activities did not adversely affect the plant risk already incurred with these configurations. PSEG's risk management actions were reviewed during shift turnover meetings, control room tours, and plant walkdowns. The inspectors also used PSEG's on-line risk monitor (Equipment Out-Of-Service workstation) to gain insights into the risk associated with these plant configurations. Finally, the inspectors reviewed notifications documenting problems associated with risk assessments and emergent work evaluations. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 6 samples)

a. Inspection Scope

The inspectors completed six operability evaluation inspection samples. The inspectors reviewed the operability determinations for degraded or non-conforming conditions associated with:

- Degraded control rods due to channel distortion;
- HPCI booster pump wear particles in oil;
- SW strainer differential pressure increase;
- B EDG jacket water leak;
- Condensate storage tank to torus swapover for high pressure coolant injection/reactor core isolation cooling; and
- EDG fuel oil transfer pump cross-connect flow path.

The inspectors reviewed the technical adequacy of the operability determinations to ensure the conclusions were justified. The inspectors also walked down accessible equipment to corroborate the adequacy of PSEG's operability determinations. Additionally, the inspectors reviewed other PSEG identified safety-related equipment deficiencies during this report period and assessed the adequacy of their operability screenings. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18 - 1 sample)

.1 Temporary Modifications

a. Inspection Scope

The inspectors completed one plant modification inspection sample. The inspectors reviewed the temporary plant modification package for temporary power feeds from offsite power supply substation #9. This review verified that the design bases, licensing bases, and performance capability of the system was not degraded by the modification. The inspectors verified the new configuration was accurately reflected in the design documentation, and the post-modification testing was adequate to ensure the structures, systems, and components would function properly. The inspectors interviewed plant staff, and reviewed issues that had been entered into the corrective action program to determine whether PSEG had been effective in identifying and resolving problems associated with temporary modifications. The 10 CFR 50.59 evaluation associated with this temporary modification was also reviewed. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19 - 6 samples)

a. Inspection Scope

The inspectors completed six post-maintenance testing inspection samples. The inspectors reviewed the post-maintenance tests for the maintenance items listed below to verify that test activities confirmed system operability and functional capability following completion of maintenance. The inspectors reviewed applicable test procedures to verify that they tested all safety functions potentially affected by the associated maintenance activities. The inspectors verified that for each potentially affected safety function the acceptance criteria stated in the procedure was consistent with the UFSAR and other design documentation. The inspectors also witnessed completion of the testing or reviewed the completed test results to verify satisfactory restoration of all safety functions affected by the maintenance activities. Documents reviewed are listed in the Attachment.

- A control rod drive pump motor replacement on January 8, 2009
- CD482 inverter card replacement on January 5, 2009
- D EDG SACS cooling water valve 2395 D relay replacement on January 12, 2009
- C EDG scheduled maintenance on March 9, 2009
- B, C, and D EDG day tank level switch calibrations on March 11, 2009
- B control room chiller scheduled maintenance on March 19, 2009

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 6 samples)

a. Inspection Scope

The inspectors completed six surveillance testing (ST) inspection samples. The inspectors witnessed performance of and/or reviewed test data for the risk-significant STs listed below to assess whether the SSCs tested satisfied technical specification, UFSAR, and procedure requirements. The inspectors verified that test acceptance criteria were clear, demonstrated operational readiness and were consistent with design documentation; that test instrumentation had current calibrations and the range and accuracy for the application; and that tests were performed, as written, with applicable prerequisites satisfied. Upon ST completion, the inspectors verified that equipment was returned to the status required to perform its safety function. Documents reviewed are listed in the Attachment.

- Nuclear instrumentation intermediate range monitor testing on January 18, 2009
- B EDG monthly operability test on February 11, 2009
- D EDG 24-hour surveillance test on February 18, 2009

- Control room envelope filtration surveillance test on February 19, 2009
- Reactor core isolation cooling surveillance test on February 19, 2009
- High pressure coolant injection in-service test on February 24, 2009

b. Findings

No findings of significance were identified.

1EP2 Alert and Notification System (ANS) Evaluation (71114.02 - 1 sample)

a. Inspection Scope

An onsite review was conducted to assess the maintenance and testing of the Salem and Hope Creek ANS. During this inspection, the inspectors interviewed Emergency Preparedness (EP) staff responsible for implementation of the ANS testing and maintenance and reviewed corrective action program notifications pertaining to the ANS for causes, trends, and PSEG's corrective actions. The inspector reviewed the ANS procedures and the ANS design report to ensure PSEG's compliance with system maintenance and testing commitments. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .02. Planning Standard, 10 CFR 50.47(b) (5) and the related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Staffing and Augmentation System (71114.03 - 1 sample)

a. Inspection Scope

The inspectors conducted a review of Salem/Hope Creeks' ERO augmentation staffing requirements and the process for notifying and augmenting the ERO. This was performed to ensure the readiness of key staff for responding to an event and to ensure timely facility activation. The inspectors reviewed the ERO roster, training records, applicable procedures, drill reports for augmentation, quarterly EP drills and corrective action program notifications related to the ERO staffing augmentation system. The inspectors also reviewed the implementation of the change in the ERO augmentation time from 60 to 90 minutes. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .03. Planning Standard, 10 CFR 50.47(b)(2) and related requirements of 10 CFR 50, Appendix E, were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level (EAL) and Emergency Plan Changes (71114.04 - 1 sample)

a. Inspection Scope

Prior to this inspection, the NRC had received and acknowledged changes made to the Salem/Hope Creek Emergency Plan and its implementing procedures. PSEG developed these changes in accordance with 10 CFR 50.54(q), and determined that the changes did not result in a decrease in effectiveness of the Plan. PSEG also determined that the Plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. During this inspection, the inspectors conducted a review of Salem's and Hope Creek's 10 CFR 50.54(q) screenings for all changes made to the EALs, and for a sample of the changes made to the Plan, from May 2008 through March 2009, that could have potentially resulted in a decrease in effectiveness. This review of the EAL, Plan, and EPIP changes did not constitute NRC approval of the changes and, as such, the changes remain subject to future NRC inspection. In addition, the inspectors reviewed notifications written related to this area. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .04. The requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses (71114.05 - 1 sample)

a. Inspection Scope

The inspectors reviewed a sampling of self-assessment procedures and reports to assess PSEG's ability to evaluate their EP performance and programs. The inspectors reviewed a sampling of notifications written between January 2008 and March 2009 that were initiated by PSEG at Salem and Hope Creek for issues identified during drills, self-assessments and audits. Additionally, the inspectors reviewed: Nuclear Oversight audits; the event report for the August 2008 Unusual Event declaration at Hope Creek; and, the 2007 and 2008 50.54(t) audit reports. This inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment .05. Planning Standard, 10 CFR 50.47(b) (14) and the related requirements of 10 CFR 50 Appendix E were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - 1 sample)

a. Inspection Scope

The inspectors completed one drill evaluation inspection sample. The inspectors observed control room operator emergency plan response actions during a licensed operator requalification training scenario on February 10, 2009. The inspectors verified that emergency classification declarations and notifications were completed in accordance with 10 CFR 50.72, 10 CFR 50, Appendix E, and the Hope Creek emergency plan implementing procedures. Documents reviewed for this inspection are listed in the Attachment.

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151 - 6 samples)

a. Inspection Scope

The inspectors reviewed PSEG's program for gathering, evaluating and reporting information for the performance indicators (PIs) listed below. The inspectors used the definitions and guidance contained in NEI (Nuclear Energy Institute) 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, to assess the accuracy of PSEG's collection and reporting of PI data. The documents reviewed by the inspectors are listed in the Attachment.

Cornerstone: Initiating Events

- Unplanned Scrams per 7000 Critical Hours
- Unplanned Scrams with Complications
- Unplanned Power Changes per 7000 Critical Hours

The inspectors reviewed the data reported for these PIs for the period January 1 through December 31, 2008. The records reviewed included PI data summary reports, licensee event reports, monthly operating reports, and operator narrative logs. The inspectors verified the accuracy of the number of critical hours reported, and interviewed the system engineers responsible for data collection and evaluation.

Cornerstone: Emergency Preparedness

- Drill and Exercise Performance
- ERO Drill Participation
- ANS Reliability

For the PIs listed above, to verify the accuracy of the reported data, the inspectors reviewed the PI data, supporting documentation and the information PSEG reported, from the second quarter through the fourth quarter of 2008

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Review of Items Entered into the Corrective Action Program:

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of all items entered into

PSEG's corrective action program. This was accomplished by reviewing the description of each new notification and attending daily management review committee meetings.

#### 4OA3 Event Followup (71153 - 1 sample)

##### .1 (Closed) LER 05000354/2009-001, Reactor Manual Scram Due to Turbine Runback

On January 17, 2009, operators initiated a manual reactor scram in response to a main turbine runback caused by a loss of main generator stator cooling. The loss of stator cooling occurred due to a turbine auxiliary cooling system isolation valve that failed shut. The solenoid for the valve was determined to have a detached lead. This lead had been replaced approximately one week prior to the event. This condition was not caused by a performance deficiency associated with the maintenance activity.

The resident inspectors responded to the site and verified that plant systems responded as designed to the transient and operator response was consistent with plant procedures. The inspectors reviewed control board indications, plant logs, computer alarm data, and other post-transient records and data. The inspectors also reviewed PSEG's prompt investigation, apparent cause evaluation, and root cause evaluation for this event.

The inspectors reviewed LER 05000354/2009-001 and determined that the direct cause, the solenoid failure, was not within PSEG's ability to foresee and correct, and therefore would not meet the screening criteria for a finding. The inspectors identified no findings of significance and determined there was no violation of NRC requirements. This LER is closed.

#### 4OA5 Other Activities

##### .1 Quarterly Resident Inspector Observations of Security Personnel and Activities

###### a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with PSEG security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours. These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

###### b. Findings

No findings of significance were identified.

##### .2 TI 2515/173, Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative

###### a. Inspection Scope

On March 9-13, 2009, the inspectors assessed PSEG's ground water protection program to verify that PSEG implemented the voluntary industry Ground Water Protection Initiative (GPI). The GPI was unanimously approved by a formal vote of the Nuclear Energy Institute (NEI) member utility chief nuclear officers. This established the industry's commitment to implement the initiative. The GPI identifies the actions the industry deemed necessary for implementation of a timely and effective ground water protection program.

The inspectors verified that the following objectives for the GPI were contained in PSEG's program:

- 1.1 Site Hydrology and Geology
- 1.2 Site Risk Management
- 1.3 On-Site Ground Water Monitoring
- 1.4 Remediation Process
- 1.5 Record Keeping
- 2.1 Stakeholder Briefing
- 2.2 Voluntary Communication
- 2.3 Thirty-Day Reports
- 2.4 Annual Reporting
- 3.1 Perform a Self-Assessment
- 3.2 Review the Program Under the Auspices of NEI

#### Unit 2 Emergency Sump

The inspectors reviewed documentation and PSEG actions related to the identification of tritium in the Unit 2 emergency sump, located below the 54' elevation in the turbine building. The inspectors discussed with PSEG the testing and reviews conducted to determine the source of the tritium. PSEG's investigation determined that the source of the tritium was condensation from the turbine building administrative area heating ventilation and air conditioning (HVAC) unit, and that the tritium from the condensation came from the Technical Specification/Offsite Dose Calculation Manual authorized effluent releases from the plant vents being drawn into the HVAC intake. The inspectors confirmed that the information developed from PSEG's investigation, including various system testing and data collection, supported this conclusion.

The inspectors also reviewed PSEG's investigation efforts and actions taken to determine the cause of frequent makeup of water volume to the condensate storage tank. While investigation is still continuing, PSEG's efforts did provide basis to conclude that there were no leaks to ground water in associated underground piping, valving, or the tank.

#### b. Findings

No findings of significance were identified.

- .3 Correction to NRC Cross-Cutting Aspect Coding of NRC Finding NCV 05000354/2009006-03, Failure to Follow Procedures Contributes to Emergency Diesel Generator Inoperability

NRC Inspection Report 05000354/2009006 dated March 16, 2009, documented a Green finding associated with PSEG's failure to follow a surveillance test procedure. The finding had a cross-cutting aspect in the area of human performance and the aspect of work practices, procedural compliance, because PSEG personnel did not follow procedures. However, the finding documentation in Inspection Report 05000354/2009006 contained a typographical error. Specifically, in analysis section for the finding and the summary of findings section for the report the cross-cutting aspect code for this finding was incorrectly listed as H.2(b). The correct cross-cutting aspect code for this finding was H.4(b).

.4 TI 2515/175, Emergency Response Organization, Drill/Exercise Performance Indicator Program Review

The inspectors performed TI 2515/175, ensured the completeness of PSEG's completed Attachment 1 from the TI, and then forwarded the data to NRC, HQ.

40A6 Meetings, Including Exit

The resident inspectors presented the inspection results to Mr. George Barnes and other members of PSEG staff on April 8, 2009. The inspectors verified that proprietary material reviewed by the inspectors during this period was properly controlled and the content of the report includes no proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

**SUPPLEMENTAL INFORMATION**

**KEY POINTS OF CONTACT**

Licensee Personnel

G. Barnes, Site Vice President  
B. Booth, Operations Director  
D. Burgin, Corporate Emergency Preparedness Manager  
R. Canziani, Maintenance Director  
E. Casulli, Shift Operations Superintendent  
K. Chambliss, Assistant Plant Manager  
P. Duca, Senior Engineer, Regulatory Assurance  
K. Knaide, Engineering Director  
M. Gaffney, Regulatory Assurance Manager  
J. Perry, Plant Manager  
J. Sears, Chemistry Manager  
H. Trimble, Radiation Protection Manager

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Closed

05000354/2009-001	LER	Reactor Manual Scram Due to Turbine Runback (Section 4OA3.1)
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Discussed

05000354/2009006-03	NCV	Failure to Follow Procedures Contributes to Emergency Diesel Generator Inoperability (Section 4OA5.3)
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**LIST OF DOCUMENTS REVIEWED**

In addition to the documents identified in the body of this report, the inspectors reviewed the following documents and records:

Hope Creek Generating Station (HCGS) Updated Final Safety Analysis Report  
Technical Specification Action Statement Log (SH.OP-AP.ZZ-108)  
HCGS NCO Narrative Logs  
HCGS Plant Status Reports  
Weekly Reactor Engineering Guidance to Hope Creek Operations  
Hope Creek Operations Night Orders and Temporary Standing Orders

**Section 1R01: Adverse Weather Protection**

Procedures

WC-AA-107, Seasonal Readiness, Revision 8

Notifications \*NRC identified

20319618    20319616    20346435  
20329266    \*20403377    \*20403912

Other Documents

HWM-08-0013, 2008 Site Winter/Grassing Readiness – Hope Creek Generating Station,  
10/31/2008

Hope Creek Winter/Grassing Readiness Report and Weekly Information Update

**Section 1R04: Equipment Alignment**

Procedures

HC.OP-SO.KJ-0001, Emergency Diesel Generators Operation, Revision 46

HC.OP-SO.EA-0001, Service Water System Operation, Revision 34

HC.OP-SO.EG-0001, Safety and Turbine Auxiliaries Cooling Water System Operation, Revision  
40

HC.OP-IS.BH-0001, Standby Liquid Control Valve Operability Test - Monthly, Revision 42

HC.OP-IS.BH-0101, Standby Liquid Control System Valves – Inservice Test, Revision 9

HC.OP-ST.BH-0002, Standby Liquid Control Flow Test – 18 Months, Revision 25

HC.OP-SO.BH-0001, Standby Liquid Control System Operation, Revision 10

Drawings

M-11-1, Safety Auxiliaries Cooling Reactor Building, Revision 40

M-48-1, Standby Liquid Control, Revision 15

**Section 1R05: Fire Protection**

Procedures

NC.FP-AP.ZZ-0005, Fire Protection Surveillance and Periodic Test Program, Revision 14

NC.FP-AP.ZZ-0025, Operational Fire Protection Program, Revision 7

OP-AA-201-009, Control of Transient Combustible Material, Revision 1

HC.FP-SV.ZZ-0026(F), Flood and Fire Barrier Penetration Seal Inspection, Revision 4

NC.FP-AP.ZZ-0009, Fire Protection Training Program, Revision 5

Notifications \*NRC-identified

\*20406254

Other Documents

FRH-II-541, 1E Switchgear, Revision 7

FRH-II-542, Control Equipment Mezzanine Area, Revision 9

FRH-II-713, Service Water Intake Structure, Revision 4

FRH-II-434, MCC Area, Revision 3

**Section 1R06: Flood Protection Measures**

Procedures

OP-HC-103-102-1005, High Energy and Internal Flooding Barrier Control Program, Revision 0

Drawings

A-4641-1, Reactor Building Unit 1 Floor Plan at Elevation 54'

A-4642-1, Reactor Building Unit 1 Floor Plan at Elevation 77'

Other Documents

Calculation 11-92, Reactor Building Flooding – El. 54' and 77', Revision 5

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

Procedures

HC.OP-AB.ZZ-0001, Transient Plant Conditions, Revision 16

HC.OP-AB.RPV-0006, Safety Relief Valve, Revision 3

HC.OP-AB.RPV-0004, Reactor Level Control, Revision 6

HC.OP-AB.ZZ-0000, Reactor Scram, Revision 3

Other Documents

Hope Creek Generating Station Emergency Classification Guide

Simulator Scenario Guide SG-654, SRV fails open / Loss of Primary Condensate Pumps / Mode Switch Failure / Failure of HPCI to Auto-initiate

**Section 1R12: Maintenance Effectiveness**

Procedures

HC.OP-AB.COOL-001, Station Service Water, Revision 17

HC.OP-SO.EA-0001, Service Water System Operation, Revision 34

HC.OP-SO.BJ-0001, High Pressure Coolant Injection Operation, Revision 37

WC-AA-101, On-line Work Management Process, Revision 16

ER-AA-310, Implementation of the Maintenance Rule, Revision 6

ER-AA-310-1001, Maintenance Rule - Scoping, Revision 3

ER-AA-310-1003, Maintenance Rule – Performance Criteria Selection, Revision 3

ER-AA-310-1004, Performance Monitoring, Revision 7

Drawings

PN1-E41-C002-0050, Oil Piping Diagram, Revision 0

M-55-1, HPCI P&ID Mech/Cont, Revision 39

Notifications

20373393	20383071	20382963	20389013
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20356470	20402660	20402671	20402908
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20402662	20402661	20402653	20401726
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Orders

70086290

70070456

Other Documents

Hope Creek Maintenance Rule Status and Projections, dated February 5, 2009  
 Hope Creek SHIP System Summary Report, 4<sup>th</sup> Quarter 2008  
 System Function Level Maintenance Rule Scoping Information  
 Maintenance Rule System Function and Risk Information

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

Procedures

OP-AA-101-112-1002, On-Line Risk Assessment, Revision 2  
 WC-AA-101, On-Line Work Management Process, Revision 16

Notifications \*NRC-identified

\*20400675  
 20403118

Orders

70094278

**Section 1R15: Operability Evaluations**

Procedures

HC.OP-SO.BJ-0001, High Pressure Coolant Injection Operation, Revision 37  
 HC.OP-IS.BJ-0001, HPCI Main and Booster Pump Set – In-service Test, Revision 51  
 HC.OP-AR.ZZ-0023, CRIDS Computer Points Book 4, Revision 6  
 HC.OP-AR.ZZ-0022, CRIDS Computer Points Book 3, Revision 5  
 HC.OP-AR.AP-0001, Condensate and Refuel Storage and Transfer Local Panel, Revision 8  
 OP-AA-108-115, Operability Determinations, Revision 1  
 HC.OP-AB.COOL-001, Station Service Water, Revision 17  
 HC.OP-SO.EA-0001, Service Water System Operation, Revision 34  
 HC.RE-RA.BF-0002, Channel Distortion Testing, Revision 5

Calculations

SC-AP-0001, Condensate Storage Tank Low Level Switch to HPCI & Tank 135,000 Gal Reserve, Revision 6  
 SC-AP-0003, Condensate Storage Tank Low Level to RCIC, Revision 7  
 AP-0004, Condensate Storage Tank Level Set Points – EPU, Revision 7  
 PN0-E41-4010-0072, High Pressure Coolant Injection, Revision 10  
 22A6237, High Pressure Coolant Injection

Drawings

M-55-1, HPCI P&ID Mech/Cont, Revision 39  
 M-30-1, Diesel Engine Auxiliary Systems Fuel Oil, Revision 26

Notifications \*NRC-identified

*20405785	*20406260	*20405617	*20407300	20396692	20198545
20400785	20401222	20400174	20399809	20399810	20400121
20406048	20404376	20399912	20367624		

Orders

50097446	50104249	50106733	50093625	70093928
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Other Documents

Hope Creek Generating Station Human Reliability Analysis, Revision 3  
 GE/Hitachi 10 CFR 21 Communication SC08-05, Updated Surveillance Program for Channel -  
 Control Blade Interference Monitoring, Revision 1

**Section 1R18: Plant Modifications**

Procedures

CC-AA-112, Temporary Configuration Changes, Revision 11  
 CC-AA-112-1001, Temporary Configuration Change Implementation T&RM, Revision 1  
 LS-AA-104-1001, 50.59 Review Coversheet Form, Revision 2  
 LS-AA-104-1002, 50.59 Applicability Review Form, Revision 2  
 LS-AA-104-1003, 50.59 Screening Form, Revision 1

Orders

80097753

Other Documents

4HT-09-001, Temporary Power Feeds From Substation #9, Revision 1

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

Procedures

HC.IC-FT.JE-0003, Emergency Diesel Generator C Day Tank Level Switches, Revision 3  
 HC.IC-GP.ZZ-0067, General Instrument Calibration, Revision 13  
 HC.MD-GP.ZZ-0055, Magnetrol Liquid Level Detector P.M. and Calibration, Revision 7  
 MA-AA-716-012, Post Maintenance Testing, Revision 12  
 HC.OP-ST.KJ-0003, Emergency Diesel Generator Operability Test – Monthly, Revision 66

Calculations

SC-JE-0059, Diesel Fuel Oil Day Tank Level, Revision 6  
 10855-JE-13, Volume of Diesel Fuel Oil in Diesel Fuel Oil Day Tank at Setpoints, Revision 3

Drawings

PM018Q-0087, Tank 550 Gallon Fuel Oil Day ASME III, 8/31/94

Notifications \*NRC-identified

*20404345	*20397661	*20397987	*20402772	*20402389	*20407000
20393065	20403928	20088715	20379530		

Orders

30134833	50120642	70035038	60078265	60080169
60080750	70093493	70091844	50120642	

**Section 1R22: Surveillance Testing**

Procedures

OP-HC-103-102-1005, High Energy and Internal Flooding Barrier Control Program, Revision 0

Completed Surveillances

HC.IC-FT.SE-0006, Nuclear Instrumentation Intermediate Range Monitor Test, 1/19/09  
 HC.OP-ST.KJ-0002, Emergency Diesel Generator 1BG400 Operability Test, 2/11/09

HC.OP-IS.BJ-0001, HPCI Main and Booster Pump Set – In-service Test, 2/24/09  
HC.OP-ST.KJ.0017, Emergency Diesel Generator 1DG400 – 24 Hour Operability Run and Hot Restart Test, 2/18/09  
HC.OP-IS.BD-0001, Reactor Core Isolation Cooling Pump, 2/19/09  
HC.OP-ST.GK-0005, Control Room Emergency Air Supply Fan Operability Test, 3/19/09

Orders

50120468

Notifications

20406899

**Section 1EP2: Alert and Notification System (ANS) Evaluation**

American Signal Corporation Final REP-10 Design Review Report, PSEG Salem and Hope Creek Generating Stations  
EP-AA-121, Emergency Response Facilities and Equipment Readiness, Revision 0  
EP-AA-121-1002, PSEG Alert Notification System (ANS) Program, Revision 0  
EP-AA-121-1004, PSEG ANS Corrective Maintenance, Revision 0  
EP-AA-121-1005, PSEG ANS Preventive Maintenance Program, Revision 1  
EP-AA-121-1006, PSEG ANS Siren Monitoring, Troubleshooting, and Testing, Revision 0  
ANS-related Condition Reports, dated January 2008 - March 2009

**Section 1EP3: Emergency Response Organization (ERO) Staffing and Augmentation System**

PSEG Nuclear LLC Emergency Plan, Revision 62  
EP-AA-121-1001, Automated Call-Out System Maintenance  
NC.EP-AP.ZZ-1011 (Z), Maintenance of Emergency Response Organization, Revision 9  
EPIP 204S, Emergency Response Callout/Personnel Recall, Revision 70  
EPIP 204H, Emergency Response Callout/Personnel Recall, Revision 70  
January Monthly Callout Check (pagers)  
February Monthly Callout Check (pagers)  
ERO Roster  
ERO Assignment  
ERO Qualifications

**Section 1EP4: Emergency Action Level (EAL) and Emergency Plan Changes**

PSEG Nuclear LLC Emergency Plan, Revision 62  
EP-AA-120, Emergency Plan Administration, Revision 0  
EP-AA-120-1001, 10CFR50.54(q) Change Evaluation, Revision 0  
EP-AA-120-1003, Emergency Preparedness Document Processing, Revision 0  
EP-AA-120-1005, Emergency Plan and Event Classification Guide Content/Format, Revision 1  
EP-AA-124, Inventories and Surveillances, Revision 0  
EP-AA-124-1001, Facilities Inventories and Equipment Tests, Revision 0  
LS-AA-104, Exelon 50.59 Review Process, Revision 5  
LS-AA-104-1000, 50.59 Resource Manual, Revision 4  
LS-AA-104-1007, Emergency Plan Guidance for Salem and Hope Creek Stations, Revision 0  
Emergency Preparedness 10CFR50.54(q) screenings performed between May 2008 – March 2009

**Section 1EP5: Correction of Emergency Preparedness Weaknesses**

LS-AA-120, Issue Identification and Screening Process, Revision 8  
LS-AA-125, Corrective Action Program (CAP) Procedure, Revision 12  
EP-AA-122, Drills and Exercises, Revision 0  
EP-AA-122-1001-F10, Drill and Exercise Post Event Critique and Report Development Guidance, Revision 0  
EP-AA-121-1001, Automated Call-Out System Maintenance, Revision 0  
Nuclear Oversight Audits:  
    NOSA-HPC-08-02  
    NOSA-HPC-07-04  
    NOSA-HPC-06-03  
Event Follow-up Report for the Hope Creek August 2008 Unusual Event Declaration  
ERO Common Cause Analysis Report  
ERO Common Cause Analysis Report, Revision 1  
Emergency Preparedness Drill Reports, dated January 2008 – March 2009  
Emergency Preparedness-related Condition Reports, dated January 2008 – March 2009

**Section 1EP6: Drill Evaluation**

Procedures

HC.OP-AB.ZZ-0001, Transient Plant Conditions, Revision 16  
HC.OP-AB.RPV-0006, Safety Relief Valve, Revision 3  
HC.OP-AB.RPV-0004, Reactor Level Control, Revision 6  
HC.OP-AB.ZZ-0000, Reactor Scram, Revision 3

Other Documents

Hope Creek Generating Station Emergency Classification Guide

**Section 4OA1: Performance Indicator Verification**

Procedures

LS-AA-2001, Collecting and Reporting of NRC Performance Indicator Data, Revision 10  
LS-AA-2010, Monthly Data Elements for NRC/WANO Unit/Reactor Shutdown Occurrences, Revision 6  
LS-AA-2030, Monthly Data Elements for NRC Unplanned Power Changes per 7000 Critical Hours, Revision 6  
EP-AA-125-1001, EP Performance Indicator Guidance, Revision 0  
DEP PI data, April 2008 – December 2008  
ERO Drill Participation PI data, April 2008 - December 2008  
ANS Reliability PI data, April 2008 - December 2008

Other Documents

Hope Creek Integrated Inspection Reports 2008002, 2008003, 2008004, 2008005  
NRC Performance Indicators for 1<sup>st</sup> quarter, 2<sup>nd</sup> quarter, 3<sup>rd</sup> quarter, and 4<sup>th</sup> quarter  
NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 5

**Section 4OA3: Event Followup**

Procedures

OP-AA-108-114, Post Transient Review, Revision 3

OP-HC-108-114-1001, Hope Creek Post-Trip Data Collection Guidelines, Revision 2

Notifications

20398232    20398234    20308825    20402784

Orders

70093613    70064952

Other Documents

Prompt Investigation for 20398232  
LER 05000354/2009001, dated 3/16/2009  
Training diagram 080-01, Safety and Turbine Auxiliaries Cooling System  
Post-transient alarm data

**Section 4OA5: Other Activities**

Procedures

CY-AA-170-400, Revision 3, Radiological Ground Water Protection Program  
ER-AA-5400, Revision 1, Buried Piping Program Guide  
ER-AA-5400-1002, Revision 1, Buried Piping Examination Guide  
SH.RA-IS.ZZ-0109(Q), Revision 4, Storage Tank Integrity Testing  
OP-SH-111-101-1001, Revision 1, Use and Development of Operating Logs  
LS-AA-125, Revision 12, Corrective Action Program Procedure  
HC.MD-DG.ZZ-0091(Z), Revision 1, Desktop Guide Leak Management Coordination  
CY-AA-170-4000, Revision 6, Radiological Ground Water Protection Program Implementation  
CY-AA-170-4160, Revision 1, Station RGPP Controlled Sample Point Parameters  
CY-AA-170-000, Revision 3, Radioactive Effluent and Environmental Monitoring Programs  
RP-AA-228, Revision 0, 10CFR50.75(G) and 10CFR72.30(D) Documentation Requirements  
NC.CH-AP.ZZ-8011(Q), Revision 1, Unplanned Radiological Effluent Releases  
CY-AA-170-100, Revision 2, Radiological Environmental Monitoring Program  
LA-AA-126-1005, Revision 3, Check-In Self-Assessment

Other Documents

Preliminary Assessment and Site Investigation Work Plan – Hope Creek Generating Station,  
April 2006  
Site Investigation Report, Hope Creek Generating Station, July 2006  
Updated Final Safety Analysis Report, Section 2.4 – Hydrology  
American Nuclear Insurers Nuclear Liability Insurance Inspection – Report L071108.230,  
Salem/Hope Creek Nuclear Power Plant, July 23, 2008  
Memorandum from E. Keating to J. Shelton, March 6, 2009, Subject: NEI 07-07 Objective 2.1.a  
and 2.1.b  
Maplewood Testing Services, Work Instruction HBLF-68, Groundwater Sampling Procedure  
Off-Site Dose Calculation Manual, Revision 22  
Check-In Self-Assessment, Tritium Ground Water, SAP Order 70087553

**LIST OF ACRONYMS**

ANS	Alert and Notification System
CFR	Code of Federal Regulations
DEP	Drill and Exercise Performance
EAL	Emergency Action Level
EDG	Emergency Diesel Generator
EP	Emergency Preparedness
EPIP	Emergency Plan Implementing Procedure
ERO	Emergency Response Organization
GPI	Ground Water Protection Initiative
HCGS	Hope Creek Generating Station
HPCI	High Pressure Coolant Injection
HVAC	Heating Ventilation and Air Conditioning
MCC	Motor Control Center
MR	Maintenance Rule
NCV	Non-cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
PIs	Performance Indicators
PS	Planning Standard
PSEG	Public Service Enterprise Group Nuclear LLC
PSID	Pounds per Square Inch Differential
SACS	Safety Auxiliaries Cooling System
SSC	Structures, Systems, and Components
ST	Surveillance Testing
SW	Service Water
TI	Temporary Instruction
UFSAR	Updated Final Safety Analysis Report