



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415**

May 3, 2012

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 05000354/2012002**

Dear Mr. Joyce:

On March 31, 2012, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Hope Creek Generating Station. The enclosed inspection report documents the inspection results, which were discussed on April 12, 2012, with Mr. J. Perry 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.

No findings were identified during this inspection.

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 Agencywide Document Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA Andrey Turilin Acting for/

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

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

Enclosure: Inspection Report 05000354/2012002
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

Enclosure

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-354

License No: NPF-57

Report No: 05000354/2012002

Licensee: PSEG Nuclear LLC (PSEG)

Facility: Hope Creek Generating Station

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

Dates: January 1, 2012 through March 31, 2012

Inspectors: F. Bower, Senior Resident Inspector
J. Krafty, Acting Senior Resident Inspector - Salem
A. Patel, Resident Inspector
J. Schoppy, Senior Reactor Inspector
S. Pindale, Senior Reactor Inspector
R. Nimitz, Senior Health Physicist
R. Montgomery, Project Engineer

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

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SUMMARY OF FINDINGS

IR 05000354/2012002; 01/01/2012 - 03/31/2012; Hope Creek Generating Station; Routine Integrated Inspection Report.

This report covered a three-month period of inspection by resident inspectors and announced inspections performed by regional 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 were identified.

REPORT DETAILS

Summary of Plant Status

The Hope Creek Generating Station began the inspection period at or near full rated thermal power (RTP) where it generally remained until the end of the inspection period with the following exceptions:

- On January 26, 2012, operators reduced power to approximately 82 percent RTP to support chemistry sampling and fuel defect testing and the unit was returned to full power later the same day.
- On January 28, 2012, operators reduced power to approximately 60 percent RTP to support fuel defect power suppression testing. On January 30, 2012, following the completion of testing the unit was returned to full power.
- On January 30, 2012, the unit was returned to full power where it generally remained except for brief periods to support planned testing and rod pattern adjustments.
- On March 1, 2012, the plant entered end of cycle coast down and power was reduced to 88 percent to remove the 6C feedwater (FW) heater from service to support a return to full rated thermal power. During the power ascension that followed the removal of the 6C FW heater from service, an unplanned downpower occurred when the B reactor recirculation pump (RRP) tripped from approximately 92.5 percent RTP. The plant was stabilized at approximately 55 percent in single loop operation and the 6C FW heater was returned to service. On March 3, power was further reduced to 33 percent to support a restart of the B RRP for troubleshooting. On March 4, power was reduced to approximately 9 percent to support entry into the drywell for maintenance on the B RRP. On March 5, the B RRP was returned to service, power ascension was begun, and full RTP was reached on March 8, 2012.
- Between March 12, 2012, and March 24, 2012, Hope Creek reduced power as necessary to remove the 4C, 5C, 6B and 6C FW heaters from service in support of end-of-cycle coastdown. In each instance, the plant was returned to full RTP later the same day. At the end of the inspection period, Hope Creek was at 98 percent RTP in end-of-cycle coastdown.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (711111.01 - 1 sample)

.1 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors reviewed PSEG's preparation activities for river grass intrusion conditions that may impact Hope Creek's service water system between March 12 and

26, 2012. The inspectors assessed implementation of PSEG's grassing readiness plan through service water system reviews, corrective action program (CAP) reviews, and discussions with cognizant plant personnel. Documents reviewed for each section of this inspection report are listed in the Attachment.

b. Findings

No findings were identified.

1R04 Equipment Alignment

.1 Partial System Walkdowns (71111.04Q - 3 samples)

a. Inspection Scope

The inspectors performed partial walkdowns of the following systems:

- B residual heat removal (RHR) system while A RHR system was out-of-service on January 4, 2012
- A and B emergency diesel generators (EDGs), switchgear, and 1E Logic Panels while D filtration, recirculation and ventilation system fan was out-of-service on January 26, 2012
- B control room emergency filtration system while A control room emergency filtration system was out-of-service on February 8, 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 updated final safety analysis report (UFSAR), technical specifications (TSs), work orders, condition reports, 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.

.2 Full System Walkdown (71111.04S - 1 sample)

a. Inspection Scope

On January 9 and 10, 2012, the inspectors performed a complete system walkdown of accessible portions of the B and D core spray (CS) systems to verify the equipment lineup was correct. The inspectors reviewed operating procedures, surveillance tests, drawings, equipment lineup procedures, and the UFSAR to verify the system was aligned to perform its required safety functions. The inspectors also reviewed electrical power availability, component lubrication and equipment cooling, hangar and support functionality, and operability of support systems. The inspectors performed field walkdowns of accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the

material condition of the components and observed operating parameters of equipment to verify that there were no deficiencies. The inspectors also reviewed whether PSEG staff had properly identified equipment issues and entered them into the CAP for resolution with the appropriate significance characterization. Additionally, the inspectors reviewed a sample of related condition reports and work orders to ensure PSEG appropriately evaluated and resolved any deficiencies.

b. Findings

No findings were identified.

1R05 Fire Protection

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-512, Battery Rooms
- FRH-II-563, Control Area HVAC Equipment Rooms
- FRH-II-533, Electrical Access Area
- FRH-II-542, Control Equipment Mezzanine
- FRH-II-551, Battery Rooms and Cable Chases

b. Findings

No findings were identified.

.2 Fire Protection - Drill Observation (71111.05A - 1 sample)

a. Inspection Scope

The inspectors observed an unannounced fire brigade drill scenario conducted on February 22, 2012, that involved a fire in the turbine lube oil tank room (1314). The inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that PSEG personnel identified deficiencies; openly discussed them in a self-critical manner at the post-drill debrief; and took appropriate corrective actions as required. The inspectors evaluated specific attributes as follows:

- Proper wearing of turnout gear and self-contained breathing apparatus
- Proper use and layout of fire hoses
- Employment of appropriate fire-fighting techniques
- Sufficient fire-fighting equipment brought to the scene

- Effectiveness of command and control
- Search for victims and propagation of the fire into other plant areas
- Smoke removal operations
- Utilization of pre-planned strategies
- Adherence to the pre-planned drill scenario
- Drill objectives met

The inspectors also evaluated the fire brigade's actions to determine whether these actions were in accordance with PSEG's fire-fighting strategies.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06 - 1 sample)

Internal Flooding Review

a. Inspection Scope

The inspectors reviewed the UFSAR, the site internal flooding analysis, and plant procedures to verify that the PSEG's flooding mitigation plans and equipment are consistent with the design requirements and the risk analysis assumptions. The inspectors also reviewed the CAP to determine if PSEG identified and corrected flooding problems and whether operator actions for coping with flooding were adequate. The inspectors also focused on: the C CS pump room (4116); the C RHR pump room (4114); the high pressure coolant injection (HPCI) pump room (4111); and the reactor core isolation cooling (RCIC) pump room (4110) areas to verify the adequacy of penetration seals located below the flood line, watertight door seals, floor drain line check valves, and room level alarms.

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11Q - 2 samples)

.1 Regualification Activities Review by Resident Staff

a. Inspection Scope

The inspectors observed licensed operator simulator training on February 21, 2012, which included a loss of the main turbine electronic hydraulic control system that was followed by an electrical fire and an anticipated transient without a scram. The inspectors evaluated operator performance during the simulated event and verified completion of 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 classification made by the shift manager and the technical specification action statements entered by licensed

operations personnel. Additionally, the inspectors assessed the ability of the operations personnel and 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 reactivity manipulations associated with fuel defect power suppression testing on January 28, 2012. On March 1, 2012, the inspectors observed control room activities during the initial phase of End-of-Cycle FW temperature reduction plan. The inspectors observed the planned power reduction to 88 percent, the removal from service of the 6C FW heater, and portions of the subsequent power ascension. During these control room observations, the inspectors assessed the adequacy of: procedure use, crew communications, human performance tool use, supervisory oversight, and coordination of activities between work groups to verify that PSEG's established expectations and standards were met.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12 - 3 samples)

a. Inspection Scope

The inspectors reviewed the samples listed below to assess the effectiveness of maintenance activities on structure, system, and component (SSC) performance and reliability. The inspectors reviewed CAP documents (notifications), maintenance work orders (orders), and maintenance rule basis documents to ensure that PSEG was identifying and properly evaluating performance problems within the scope of the maintenance rule. As applicable, 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; for SSCs classified as (a)(1), the inspectors assessed the adequacy of goals and corrective actions to return these SSCs to (a)(2); and 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.

- B EDG lube oil strainer high differential pressure (Notification 20546788)
- A safety auxiliary cooling system (SACS) (Notification 20545124)
- Functional failure of the rod position indication system (RPIS) (Notification 20544170)

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13 - 5 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.

- A RHR and 10K107 service air compressor out-of-service for preventive maintenance on January 1 – 7, 2012 (Orders 50092134 and 60097371)
- A CS loop out-of-service for preventive maintenance on January 9 - 11, 2012 (Orders 50132287 and 60086989)
- Emergent inoperability of the HPCI system January 11 - 23, 2012 (Order 60100684)
- Emergent inoperability of the control RPIS January 25 - 26, 2012 (Notification 20544170)
- A RHR and A SACS out-of-service for preventive maintenance on February 1, 2012

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15 - 6 samples)

a. Inspection Scope

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

- Unexpected HPCI governor valve response during HPCI auxiliary oil pump start (Order 80105814)
- A standby liquid control (SLC) pump non-conforming condition due to insufficient thread engagement on SLC pump discharge relief valve outlet flange (Order 80105757)
- Step change in offgas Xenon ratio (Notification 20543906)
- Increase in water content in HPCI lube oil system (Order 60100187)
- Degraded RCIC jockey pump due to flow blockage (Order 80101359)
- Reactor building exhaust fan trip and loss of secondary containment (Notification 20544775)

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.

1R18 Plant Modifications (71111.18 - 1 samples)

.1 Temporary Modifications

a. Inspection Scope

The inspectors completed a review of one temporary plant modification package for the RRP differential overcurrent protection (TCCP No. 4HT-12-004) to determine whether the modifications affected the safety functions of systems that are important to safety. The temporary configuration change package (TCCP) defeats the differential overcurrent trip for the B recirculation motor/generator set power to the B recirculation pump motor by jumpering the A, B, and C phase current transformers. The TCCP also removed the differential overcurrent trip relay from the multi-trip circuit. The inspectors reviewed 10 CFR 50.59 documentation and post-modification testing results to verify that the temporary modifications did not degrade the design bases, licensing bases, and performance capability of the affected systems.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19 - 5 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.

- A CS pump after pump suction relief valve replacement on January 1, 2012 (Order 50056020)

- C SACS pump after motor replacement on January 12, 2012 (Order 30163690)
- RPIS after data receiver card replacement on January 25 – 30, 2012 (Order 60101039-0020)
- B EDG recirculation fan after F-V-412 fan flow switch replacement on February 17, 2012 (Order 60093646)
- RCIC jockey pump after discharge piping replacement on March 31, 2012 (Order 60101431)

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22 - 6 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 technical specifications, 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.KJ-0001, A EDG inservice test on January 3, 2012
- HC.OP-IS.BC-0004, D RHR Pump (DP202) inservice test on January 24, 2012
- HC.OP-DL.ZZ-0026, Drywell floor drain leakage monitoring during February 6 - 9, 2012
- HC.OP-ST.KJ-0014, A EDG 24 hour surveillance test on February 1, 2012
- HC.OP-IS.BJ-0001, HPCI surveillance test on March 9, 2012
- HC.IC-FT.SE-0032, Nuclear Instrumentation System, Divisions 1 & 3 - Channel E Average Power Range Monitor, Single Loop Operations from March 2 - March 27, 2012

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06 - 1 sample)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated PSEG's conduct of a focused area routine emergency drill on February 23, 2012, to identify any weaknesses and deficiencies in the classification and notification activities. The inspectors observed emergency response operations in the

Hope Creek technical support center to determine whether the event classification and notification were performed in accordance with procedures. The inspectors also attended the facility post-drill critique to compare inspector observations with those identified by Hope Creek emergency response organization personnel in order to evaluate the adequacy of PSEG's critique and to verify whether PSEG staff were properly identifying weaknesses and entering them into the CAP.

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Radiation Safety - Public and Occupational

2RS1 Access Control to Radiologically Significant Areas (71124.01)

a. Inspection Scope

The inspectors reviewed selected activities, and associated documentation, in the areas listed below. The evaluation of PSEG's performance was against criteria contained in 10 CFR Part 20, applicable TSs, and applicable station procedures.

Inspection Planning

The inspectors reviewed performance indicators (PIs) for the Occupational Exposure cornerstone. The inspectors also reviewed the results of recent radiation protection program audits and assessments and any reports of operational occurrences, related to occupational radiation safety since the last inspection.

Radiological Hazard Assessment

The inspectors reviewed plant operations to identify any significant new radiological hazards for onsite workers or members of the public. The inspectors assessed the potential impact of the changes and monitoring, as appropriate, to detect and quantify the radiological hazards.

The inspectors toured and conducted walk-downs of radiological controlled areas (RCA) and reviewed radiological surveys from selected plant areas (e.g., refueling floor, reactor buildings, radioactive processing building, and turbine building), to verify that the thoroughness and frequency of the surveys were appropriate for the given radiological hazard. The inspectors also evaluated material conditions and potential radiological conditions. The inspectors made independent radiation measurements to verify radiological conditions.

The inspectors evaluated the radiological survey program to determine if it included: identification of discrete particles, the presence of alpha emitters, the potential for airborne radioactive materials, potential changes in radiological conditions, and non-uniform exposures of the body.

The inspectors selectively reviewed and discussed air sample survey records associated with various work activities to verify that samples were representative of breathing zone and collected and counted in accordance with procedures.

Instructions to Workers

The inspectors toured the RCAs and reviewed labeling of containers of radioactive materials to verify labeling was consistent with requirements and was informative to workers.

The inspectors reviewed various documents including radiation work permits (RWP), as low as is reasonably achievable (ALARA) reviews, and radiological surveys used to access high radiation areas (HRAs) to identify work control instructions or control barriers specified, use of stay times or permissible dose, and appropriate electronic personal dosimeter alarm set-points.

Contamination and Radioactive Material Control

The inspectors observed locations where PSEG monitors potentially contaminated material leaving the RCA, and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use to verify that it was performed in accordance with plant procedures and the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site. The inspectors selectively evaluated the radiation monitoring instrumentation sensitivity for the types of radiation present.

The inspectors reviewed PSEG's criteria for the survey and release of potentially contaminated material. The inspectors verified that there was guidance on how to respond to an alarm that indicated the presence of radioactive material.

The inspectors reviewed PSEG's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters including application of alarm set-points based on the instrument's typical sensitivity. The inspectors also discussed alarm set-points and typical detection capabilities with cognizant PSEG personnel.

The inspectors selected risk significant sources from PSEG's inventory records to verify sources were accounted for. The inspectors verified transactions involving nationally tracked sources and reporting.

Radiological Hazards Control and Work Coverage

The inspectors toured the facility and reviewed ongoing work and evaluated ambient radiological conditions (e.g., radiation levels or potential radiation levels). The inspectors verified the existing conditions were consistent with posted surveys, RWPs, and worker briefings.

The inspectors conducted selective inspection of posting and physical controls for HRAs and very high radiation areas (VHRAs), to verify conformance with the Occupational PI. The inspectors evaluated down-posting of areas from HRAs.

Risk-Significant HRA and VHRA Controls

The inspectors selectively discussed with the Radiation Protection Manager, supervisors, and technicians the controls and procedures for high-risk HRAs and VHRAs and procedural changes since the last inspection. The inspectors discussed methods employed by PSEG to provide control of VHRA access including potential reduction in the effectiveness and level of worker protection (e.g., use of lock boxes).

The inspectors discussed with health physics supervisors, controls for special areas that had the potential to become VHRAs during certain plant operations including controls to ensure that an individual was not able to gain unauthorized access to the VHRA.

Radiation Worker Performance

The inspectors toured radiological controlled areas and observed radiation worker performance with respect to stated radiation protection work requirements to determine if performance reflected the level of radiological hazards present.

The inspectors selectively reviewed radiological problem reports since the last inspection to identify human performance errors and determine if there were any observable patterns. The inspectors discussed corrective actions for identified concerns with PSEG personnel.

Problem Identification and Resolution

The inspectors verified that problems associated with radiation monitoring and exposure control were being identified by PSEG at an appropriate threshold and were properly addressed for resolution in their CAP. The inspectors discussed corrective actions for identified concerns.

b. Findings

No findings were identified.

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

Inspection Planning

The inspectors reviewed pertinent information regarding plant collective exposure history, current exposure trends, and ongoing or planned activities in order to assess current exposure performance and exposure challenges. The inspectors determined the plant's 3-year rolling average collective exposure.

The inspectors evaluated and determined the site-specific trends in collective exposures using various methods such as plant historical data, including outage work activity dose, evaluation of ALARA data, and source term data.

The inspectors reviewed site-specific procedures associated with maintaining occupational exposures ALARA including the processes used to estimate and track exposures from specific work activities.

Radiological Work Planning

The inspectors obtained from PSEG a list of work activities ranked by actual or estimated exposure that were planned for the next outage and selected work activities of the highest exposure significance. These included reactor disassembly, reactor cavity decontamination, suppression pool work, scaffolding, in-service inspection, control rod drive work, and valve work.

The inspectors reviewed ALARA work activity plans and evaluations, exposure estimates, and exposure mitigation requirements. The inspectors determined if PSEG reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

The inspectors verified that PSEG's planning identified appropriate dose mitigation features; considered, commensurate with the risk of the work activity, alternate mitigation features; and defined reasonable dose goals. As applicable, the inspectors verified that the ALARA assessments had taken into account decreased worker efficiency from use of respiratory protective devices.

The inspectors determined if work planning considered the use of remote technologies (such as teledosimetry, remote visual monitoring, and robotics) as a means to reduce dose and the use of dose reduction insights from industry operating experience and plant-specific lessons learned. The inspectors verified the integration of ALARA requirements into work procedure and RWP documents.

Verification of Dose Estimates and Exposure Tracking Systems

The inspectors selected various ALARA work packages and reviewed the assumptions and bases for the collective exposure estimate for reasonable accuracy. The inspectors reviewed applicable procedures to determine the methodology for estimating exposures for specific work activities and the intended dose outcome. The inspectors also reviewed approvals by the station ALARA committee as applicable.

Source Term Reduction and Control

The inspectors used PSEG records to determine the historical trends and current status of significant tracked plant source term known to contribute to elevated facility aggregate exposure. The inspectors discussed the outage Chemistry Plan and long term plans for source term reduction (e.g., Cobalt reduction). The inspectors discussed contingency plans for potential changes in the source term as the result of changes in plant fuel performance issues or changes in plant primary chemistry. The inspectors discussed source term reduction efforts including system flushing and use of additional demineralization and filtration systems.

Problem Identification and Resolution

The inspectors verified that problems associated with ALARA planning and controls were being identified by PSEG at an appropriate threshold and were properly addressed

for resolution in their CAP. The inspectors discussed corrective actions for identified ALARA concerns with the health physics staff.

b. Findings

No findings were identified.

2RS3 In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

Inspection Planning

The inspectors selectively reviewed the plant UFSAR to identify areas of the plant designed as potential airborne radiation areas and any associated ventilation systems or airborne monitoring instrumentation. The inspectors also reviewed the UFSAR for overview of the respiratory protection program and a description of the types of devices used.

The inspectors reviewed procedures for maintenance, inspection, and use of respiratory protection equipment including procedures for air quality maintenance and breathing air quality sampling.

The inspectors reviewed the reported PIs to identify any related to unintended dose resulting from personnel intakes of radioactive materials.

Engineering Controls

The inspectors evaluated the use of selected ventilation systems to control airborne radioactivity. The inspectors discussed procedural guidance for use of installed plant systems to verify system use during high-risk activities. The inspectors discussed verification of plant ventilation systems during reactor cavity work.

The inspectors evaluated PSEG's use of decision criteria for evaluating levels of hard-to-detect airborne radionuclides.

Use of Respiratory Protection Devices

The inspectors selected three individuals qualified to use respiratory protection devices, and verified that they were qualified (by training and medical certification) to use the devices.

Self-Contained Breathing Apparatus for Emergency Use

The inspectors selected three individuals on control room shift crews to determine if control room operators were trained and qualified in the use of self-contained breathing apparatus. The inspectors verified that appropriate mask sizes and types were available for use in the control room.

The inspectors entered the control room and selected on-shift operators to verify that they had no facial hair that would interfere with the sealing of the mask to the face and

that required vision correction devices were available that did not penetrate mask sealing surface.

Problem Identification and Resolution

The inspectors reviewed and discussed problems associated with the control and mitigation of in-plant airborne radioactivity to evaluate PSEG's identification and resolution in their CAP.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

Inspection Planning

The inspectors reviewed available radiation protection program audits related to internal and external dosimetry or corrective action documents to gain insights into overall PSEG performance in the area of dose assessment.

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report for PSEG's dosimetry.

The inspectors reviewed PSEG procedures associated with dosimetry operations, including issuance/use of external dosimetry (routine, multi-badging, extremity, neutron, etc.), assessment of internal dose (operation of whole body counter, assignment of dose based on derived air concentration hours, urinalysis, etc.), and evaluation of and dose assessment for radiological incidents. The inspectors evaluated implementation of dose determination by use of effective dose equivalent for external exposure (EDEX). The inspectors evaluated procedure guidance for personnel monitoring.

External Dosimetry

The inspectors evaluated the use of personnel dosimeters that require processing, to verify NVLAP accreditation. The inspectors determined if PSEG uses a "correction factor" to address the response of the electronic dosimeter (ED) as compared to its NVLAP accredited dosimeter for situations when the ED must be used to assign dose.

Internal Dosimetry

The inspectors selectively evaluated the routine whole body counting program, including use of passive monitoring provided for detection and measurement of intakes of radioactive materials.

The inspectors evaluated the minimum detectable activity (MDA) of PSEG's instrumentation used for passive whole body counting to determine if the MDA was adequate to determine the potential for internally deposited radionuclides sufficient to prompt additional investigation.

Special Dosimetric Situations

The inspectors reviewed PSEG's program to inform workers of the risks of radiation exposure to the embryo/fetus, the regulatory aspects of declaring a pregnancy, and the specific process to be used for declaring a pregnancy.

The inspectors reviewed PSEG's methodology for monitoring external dose in situations in which non-uniform fields are expected or large dose gradients could exist (e.g., diving activities) to verify that PSEG established criteria for determining when alternate monitoring techniques (i.e., use of multi-badging or determination of effective dose EDEX using an approved method) were to be implemented. The inspectors selectively reviewed use of multi-badging (e.g., diving).

Problem Identification and Resolution

The inspectors selectively reviewed corrective action documents to verify that problems associated with occupational dose assessment were being identified by PSEG at an appropriate threshold and were properly addressed for resolution in their CAP.

b. Findings

No findings were identified.

2RS5 Radiation Monitoring Instrumentation (71124.05)

a. Inspection Scope

Inspection Planning

The inspectors reviewed the plant UFSAR to identify radiation instruments associated with monitoring area radiological conditions including airborne radioactivity, process streams, effluents, materials/articles, and workers.

The inspectors obtained a list of in-service survey instrumentation including air samplers and small article monitors (SAMs), along with instruments used for detecting and analyzing workers' external contamination (personnel contamination monitors (PCM)) and workers' internal contamination (portal monitors, whole body counters, etc.), including neutron monitoring instrumentation to determine whether an adequate number and type of instruments are available to support operations.

The inspectors selectively reviewed procedures that govern instrument source checks and calibrations. The inspectors review the calibration and source check procedures for adequacy.

Walkdowns and Observations

The inspectors selected various portable radiological survey instruments in use and checked calibration and source check stickers for currency, and to assess instrument material condition and operability.

The inspectors walked down portable area radiation monitors and continuous air monitors to determine whether they were appropriately positioned relative to the radiation source(s) or area(s) they were intended to monitor. The inspectors compared monitor response (via local or remote indication) with actual area conditions for consistency.

The inspectors selected portal monitors, PCMs, and SAMs and verified that the periodic source checks were performed in accordance with PSEG procedures.

Calibration and Testing Program

The inspectors reviewed alarm set-point data for various personnel and equipment monitors at the radiological controlled area exit to verify that the alarm set-point values were reasonable under the circumstances to ensure that licensed material was not released from the site.

Calibration and Check Sources

The inspectors discussed PSEG's 10 CFR Part 61 waste stream report to determine if the calibration sources used were representative of the types and energies of radiation encountered in the plant.

Problem Identification and Resolution

The inspectors selectively reviewed corrective action documents associated with radiation monitoring instrumentation to determine if PSEG identified issues at an appropriate threshold and placed the issues in their CAP for resolution. In addition, the inspectors evaluated the appropriateness of the corrective actions for a selected sample of problems documented by PSEG that involve radiation monitoring instrumentation.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

.1 Initiating Events Performance Index (3 samples)

a. Inspection Scope

The inspectors reviewed PSEG submittal of the following Hope Creek initiating events PI results for the period of January 1, 2011 through December 31, 2011:

- Unplanned (automatic and manual) scrams per 7,000 critical hours
- Unplanned Power Changes per 7,000 critical hours
- Unplanned Scrams with Complications

To determine the accuracy of the PI 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 Hope Creek's monthly operating reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

.2 Safety System Functional Failures (1 sample)

a. Inspection Scope

The inspectors sampled PSEG's submittals for the Safety System Functional Failures PI for Hope Creek for the period from July 1, 2011, through December 31, 2011. To determine the accuracy of the PI data reported during those periods, inspectors used definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 10 CFR 50.73." The inspectors reviewed PSEG's licensee event reports to validate the accuracy of the submittals.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152 - 3 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 CAP 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 CAP and periodically attended management review committee meetings.

b. Findings

No findings were identified.

.2 Annual Sample: Feedwater Temperature Reduction

a. Inspection Scope

On September 14, 2011, the NRC issued Amendment No. 190 to the Hope Creek Generating Station (HCGS) Renewed Facility Operating License (FOL) to allow HCGS

to operate at a reduced FW temperature for purposes of extending the normal fuel cycle. The amendment also allows operation with FW heaters out-of-service at any time during the operating cycle. In addition, the amendment revised TS surveillance requirements related to testing of the oscillation power range monitors (OPRMs). PSEG developed design change package (DCP) 80100455 to evaluate and implement this modification. PSEG used their CAP to control and track the various evaluations, procedure changes, operator training activities, and corrective action notifications for identified potential problems associated with this DCP. On March 1, 2012, PSEG implemented the first phase of their planned FW temperature reduction to extend current cycle operation at rated RTP to delay the onset of the power coastdown period prior to the April 2012 refueling outage.

The inspectors reviewed PSEG's associated apparent cause evaluations (ACEs), simulator scenarios, independent assessments, implementation plans, and short- and long-term corrective actions. The inspectors also reviewed a sample of operator narrative logs, completed OPRM surveillance tests, operating and abnormal procedures, operator training material, industry operating experience, and maintenance work orders to assess the adequacy of PSEG's corrective actions to ensure alignment with the HCGS FOL and TSs. The inspectors performed several walkdowns of the associated control room FW, OPRM, 3D Monicore, and Safety Parameter Display System instrumentation to independently assess PSEG's design control, TS and FOL compliance, the material condition, procedure adequacy, potential operator challenges, and configuration control. The inspectors also discussed the DCP and OPRM performance with reactor engineers, reactor operators, and senior reactor operators to assess their awareness and knowledge level, to assess the DCP training effectiveness, and to obtain plant performance and trend data. The inspectors reviewed a sample of DCP and OPRM related issues that PSEG entered into the CAP to verify PSEG's threshold for identifying issues and to evaluate the effectiveness of corrective actions. In addition, the inspectors reviewed corrective action notifications written on issues identified during the inspection to verify adequate problem identification and incorporation of the problem into the CAP.

b. Findings and Observations

No findings were identified.

The inspectors concluded that PSEG had taken timely and appropriate action in accordance with TS requirements, the HCGS FOL, surveillance and operating procedures, and PSEG's CAP. The inspectors determined that PSEG's associated technical evaluations and independent reviews were sufficiently thorough and based on appropriate analyses, sound engineering judgment, and relevant operating experience. PSEG's assigned corrective actions, which included various procedure revisions and operator training, were aligned with the identified causal factors, adequately tracked, appropriately documented, and completed as scheduled. Based on the documents reviewed, control room walkdowns, and operator interviews, the inspectors noted that PSEG personnel identified problems and entered them into the CAP at an appropriate threshold.

.3 Annual Sample: Inadequate Corrective Actions Associated with a Known Degraded Condition/Preventive Maintenance Evaluation Backlog

a. Inspection Scope

The inspectors performed an in-depth review of PSEG's cause analysis and corrective actions associated with a May 12, 2011, failure of a service air compressor check valve after several completed preventive maintenance (PM) tasks had identified corrosion and rust on the valve internals. PSEG had not changed the PM frequency of the degraded check valve or evaluated the use of materials less susceptible to corrosion. Specifically, about a year prior to the failure, a PM change request had been submitted to evaluate changing the PM frequency, however, the request was not evaluated and had been maintained in a relatively large change request backlog.

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 May 12, 2011, incident when the check valve failure resulted in a service and instrument air system transient. In addition, the inspectors interviewed station personnel and reviewed selected PM evaluations that were completed in order to reduce the backlog to assess the effectiveness of PSEG's corrective actions. The inspectors reviewed relevant procedures, corrective action notifications, and PM backlog related documents to verify PSEG reduced the PM change request backlog to a manageable level.

b. Findings and Observations

No findings were identified.

The inspectors determined that PSEG's overall response to the issue was commensurate with the safety significance, was timely, and included appropriate corrective actions such as evaluating items in the backlog to develop or modify PM activities as appropriate. Additionally, the inspectors determined that the actions taken were reasonable to resolve the issue and that PSEG had appropriately prioritized the backlog reduction effort. Further, the inspectors determined, based upon review of a selected sample of completed PM evaluations, PSEG appropriately performed various PM frequency analyses and made appropriate changes as indicated in the associated evaluations.

.4 Annual Sample: Review of the Operator Workaround Program

a. Inspection Scope

The inspectors reviewed the cumulative effects of the existing operator workarounds, operator challenges, operator burdens, disabled alarms, and open main control room deficiencies to identify any effect on emergency operating procedure operator actions, and any impact on possible initiating events and mitigating systems. The inspectors evaluated whether station personnel had identified, assessed, and reviewed operator workarounds as specified in PSEG procedures OP-AA-102-103, "Operator Work-Around Program," and OP-AA-102-103-1001, "Operator Burdens Program."

The inspectors reviewed Hope Creek's process to identify, prioritize, and resolve main control room distractions to minimize operator burdens. The inspectors reviewed the system used to track these operator workarounds and observed the Hope Creek plant operations review committee's safety review of the fourth quarter 2011 cumulative impact assessment of operator burdens. The inspectors also toured the control room to review current operator burdens and ensure the items were being addressed on a schedule consistent with their relative safety significance.

b. Findings and Observations

No findings were identified.

The inspectors observed that Hope Creek had not identified any current operator workarounds providing an obstacle to safe plant operations and there were two operator challenges providing an obstacle to normal plant operations. These operator challenges and identified operator burdens were entered into the corrective action program for correction at an appropriate threshold. Additionally, the inspectors noted that the aggregate impacts of operator burdens are assessed quarterly in accordance with OP-AA-102-103-1001 for impact on: personnel safety, plant trips and transients, operator procedure performance, radiological concerns, reactivity events, and environmental concerns.

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

.1 Plant Events

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant events to appropriate regional personnel and compared the event details with criteria contained in Inspection Manual Chapter 0309, "Reactive Inspection Decision Basis for Reactors," for consideration of potential reactive inspection activities. As applicable, the inspectors verified PSEG made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed PSEG's follow-up actions related to the events to assure that PSEG implemented appropriate corrective actions commensurate with their safety significance.

- HPCI system declared inoperable on January 11, 2012, and was retracted on January 13, 2012 (Event # 47585)
- HPCI system declared inoperable on March 14, 2012 (Event # 47745)
- An unplanned power reduction to approximately 55 percent RTP on March 1, 2012, due to a differential over-current trip of the B RRP (Notification 20549229)

b. Findings

No findings were identified.

4OA6 Meetings, including Exit

On April 12, 2012, the inspectors presented inspection results to Mr. J. Perry and other members of his staff. The inspectors verified that no proprietary information was retained by the inspectors or documented in this report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

PSEG Personnel

J. Perry, Hope Creek Site Vice President
D. Lewis, Hope Creek Plant Manager
E. Carr, Operations Director
K. Knaide, Work Management Director
W. Kopchick, Engineering Director
F. Mooney, Maintenance Director
P. Duca, Senior Engineer, Regulatory Assurance
M. Gaffney, Regulatory Assurance Manager
H. Trimble, Radiation Protection Manager
D. Boyle, Operations Support Manager
J. Krall, Reactor Engineering Manager

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

NONE

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 UFSAR
Hope Creek Generating Station TS
Technical Specification Action Statement Log
HCGS NCO Narrative Logs

Section 1R01: Adverse Weather Protection

Procedures

WC-AA-107, Seasonal Readiness, Revision 10

Other Documents

Winter Monitoring Program Matrix
List of Open Notifications Codes for Winter Season Readiness and Grassing Season Readiness
Memo HCSVP 2011-017 from John F. Perry to Thomas P. Joyce regarding 2011 Hope Creek
Winter/Grassing Seasonal Readiness Affirmation, dated 11/1/2011
2010 Winter and Grassing Readiness Critique
2010 - 2011 Winter and Grassing Readiness Critique

Plant System Readiness Reviews

Condensate Pre-filters, dated 8/29/2011

Condensate Storage and Transfer, dated 8/29/2011

Circ Water/Cooling Tower, dated 8/29/2011

Service Water/Service Water Screens, with Open Challenges Attachment, dated 8/29/2011

Safety and Turbine Auxiliary Cooling, with Open Challenges Attachment, dated 8/30/2011

Boilers and Plant Heating Steam, with Open Challenges Attachment, dated 8/29/2011

Fire Pump House HVAC, with Open Challenges Attachment, dated 8/29/2011

Turbine Building HVAC, with Open Challenges Attachment, dated 8/29/2011

Miscellaneous HVAC, with Open Challenges Attachment, dated 8/29/2011

Radwaste Area HVAC, with Open Challenges Attachment, dated 8/29/2011

Control Room HVAC, with Open Challenges Attachment, dated 8/29/2011

Auxiliary Service Area HVAC, with Open Challenges Attachment, dated 8/29/2011

Diesel Area HVAC, with Open Challenges Attachment, dated 8/29/2011

Service Water Intake Structure HVAC, with Open Challenges Attachment, dated 8/29/2011

Reactor Building Ventilation System, dated 8/29/2011

Orders

70112779, Auxiliary Boiler Start Failures

Notifications

20510130, Cooling Coil Failures

Section 1R04: Equipment Alignment

Procedures

HC.OP-SO.BC-0001, Residual Heat Removal System, Revision 50

HC.OP-SO.BE-0001, Core Spray System Operation, Revision 13

HC.OP-AB.ZZ-0155, Degraded ECCS Performance/Loss of NPSH, Revision 7

HC.OP-SO.GK-0001, Control Area Ventilation System Operation, Revision 16

Notifications (*NRC-identified)

20542035*, Evaluate Core Spray Runout Flow Values

20542333*, HC.OP-AB.ZZ-0155 Revision Request

20546201*, NRC ID - Missing Nut in Drain Pipe Flange

20541207, Work Not Completed as Scheduled

20518650, HC.OP-SO.BE-0001 Core Spray System

20544635, NRC Identified A and B EDG Concerns

Drawings

M-51-1, Residual Heat Removal, Revision 41

M-52-1, Core Spray System, Revision 31

M-78-1, Aux Bldg Control Area Flow Diagram, Revision 23

Calculations

BE-0016, Core Spray System Hydraulic Analysis - EPU, Revision 5

Orders

70126290, HC.OP-SO.BE-0001 Core Spray System

Section 1R05: Fire Protection Measures

Procedures

Hope Creek Pre-Fire Plan, FRH-II-512, Battery Rooms, Elevation: 54' - 0", Revision 5
Hope Creek Pre-Fire Plan, FRH-II-563, Control Area HVAC Equipment Rooms, Elevation:
155' - 3" and 175' - 0", Revision 6
Hope Creek Pre-Fire Plan, FRH-II-533, Electrical Access Area, Elevation: 102' - 0", Revision 6
Hope Creek Pre-Fire Plan, FRH-II-542, Control Equipment Mezzanine, Elevation: 117' - 6" and
124' - 0", Revision 9
Hope Creek Pre-Fire Plan, FRH-II-551, Battery Rooms and Cable Chases, Elevation: 146' - 0"
and 150' - 0", Revision 6

Notifications

20548494, HC.FP-EO.ZZ-0001 Revision Request

Other Documents

Form 4, Fire Drill Scenario UADS3022212 (SAP#52990936), Hope Creek Turbine Building,
Elevation 102', Room 1314, drill date 2/22/2012
Training Record, Unannounced Fire Drills 2012 - 2/22/2012, dated 3/6/2012

Section 1R06: Flood Protection Measures

Procedures

HC.FP-SV.ZZ-0026, Flood and Fire Barrier Penetration Seal Inspection, Revision 6
HC.IC-DC.ZZ-0212, Fluid Components Inc. Liquid Level Switch, Model(s) 8-66 and 8-66/R,
Revision 5
OP-HC-103-102-1005, High Energy and Internal Flooding Barrier Control Program, Revision 1
H-1-ZZ-FEE-1803, Separation Barrier Control Aid for Hope Creek, Revision 0

Calculations

D7.5, Hope Creek Generating Station Environmental Design Criteria, Revision 21
11-92, Reactor Building Flooding - Elevation 54' and 77', Revision 5
SC-SK-0075, Room and Structure Flooding Alarm, Revision 6
BC-31, ECCS Pump Rooms Flood Level Alarm Set Point, Revision 1

Notifications (*NRC identified)

20531121*, Cable Floor Penetration Appears Not Sealed
20547429*, NRC Question Regarding Room Flooding
20453845, Check Valve Allowed Water into Room 4110
20542423, Water Tight Door in Reactor Building Found Open
20530986, Pump Room 55' Drain Grates Removed

Orders

50128924, Flood and Fire Barrier Penetration Seal Inspection in accordance with HC.FP-
SV.ZZ-0026, Revision 6
70130239, Cable Floor Penetration Appears Not Sealed
70107724, Check Valve Allowed Water into Room 4110
30219778, 18 Month PM, H1HG-1A-T-265, Exercise Check Valves
40017561, 10 Year EQ PM Gland Seal - H1BELSH-4581C2
40013720, 7.91 Year EQ PM Gland Seal - H1BDLE-4151-2
40015840, 10 Year EQ H1BCLSH-4403C2 Replace RHR Room Flood Detector
40004760, 7.36 Year EQ H1BJLE-4808 Gland Seal Replacement

Drawings

M-97-1, Building and Equipment Drain - Reactor Building, Revision 16

Other Documents

Hope Creek PSA (HC-PSA)-17, Internal Flood Walkdown Notebook, April 2008

Hope Creek PSA (HC-PSA)-12, Internal Flood Evaluation Summary and Notebook, August 2008

HCGS Environmental Qualification Binder File: EQ-HC-059 for FCI (Fluid Components Inc.), Level Sensor Model(s) 8-66, 8-66R, FR-72, Revision 0

PSEG Programmatic Standard ND.DE-PS.ZZ-0010-A5, Internal Hazards Program, Appendix A5, Flooding Analysis Methodology, Revision 1

PSEG Programmatic Standard HC.DE-PS.ZZ-0021, Hope Creek Penetration Seal Program, Revision 0

Vendor Technical Document 327741-001, Penetration Seal Inspection List - HC, Revision 1, dated 5/9/2005

Vendor Technical Document 327741-009, Penetration Seal Inspection List - HC18, Revision 1, dated 5/6/2005

Section 1R11: Licensed Operator Regualification Program

Procedures

HC.OP-IO.ZZ-0006, Power Changes During Operation, Revision 52

Notifications

20544829, Dual Rod Select – Entered AB.IC-0001

Other Documents

Main Control Room Operator Narrative Logs for Day Shift of January 28, 2012

Simulator Scenario Guide (SG)-685, HPCI Retest/Loss of EHC/Electrical Fire/ATWS/Reactor Recir Restart, dated 2/21/2012

Section 1R12: Maintenance Effectiveness

Procedures

HC.OP-ST.KJ-0002, Emergency Diesel Generator 1BG400 Operability Test, Revision 75

HC.OP-ST.KJ-0015, EDG 1BG400 - 24 Hour Operability Run and Hot Restart, Revision 35

Notifications (*NRC identified)

20547224*, NRC Identified Issue - 1/16/2012 B EDG ST

20547017*, NRC Question Re Ground Cable

20538601, B EDG Lo Strnr at 6 PSID

20546788, B EDG Lube Oil Strainer DP Hi

20545124, 1A-P-210 SACS Pump Oil Sample Discolored

20543275, Oil in Inboard Bubbler Discolored

20442420, Outboard Oil is Discolored

20538977, B Safety Auxiliary Cooling Pump Metal in Oil Sample

20546036, IST Rebaseline Evaluation Required

20544170, RPIS Inop

20551338, Review Current TS Against STS/ITS

Orders

30175983, 72 MO - 1B-F-407 Replace DG Lo Strainer
50146280, 1M ST HC.OP-ST.KJ-0002 B EDG Test
70132256, B Safety Auxiliary Cooling Pump Metal in Oil Sample

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Notifications (*NRC identified)

20544439*, Loss of RPIS TS Compliance Question
20544550*, NRC Question Regarding RPIS Tech Spec
20541207, Work Not Completed as Scheduled
20541995, LCO Window Contingencies for Breakers
20542141, A CS Pump Breaker INOP Light
20541991, Valve Failed Stroke from Control Room
20542440, HPCI Turbine Governor Control Valve Unexpected Operation
20542570, HPCI Turbine Governor Control Valve Unexpected Operation
20544785, Clean/Inspect HPCI Flow Control Contacts
20542501, Charter for HPCI Governor Not Completed
20542730, PCR for HPCI Flow Controller RZ Module
20544170, RPIS Inoperable
20544279, Control Rod Alternate Position Procedure Required
20544110, Control Rod Alternate Position Procedure Required
20551338, Review Current TS Against STS/ITS

Orders

50092134, 1BCHV-F24A: Perf MCC Starter Inspection
60097371, 1KAV-004: Repl 4" Ck Viv Disch 10E129
50132287-030, Troubleshoot and Repair Thermal Overload Block for A CS Loop Outboard Injection Valve
60086989, Replace MCC H1BE-52-212034 for A CS Loop Outboard Injection Valve
60100684, HPCI Turbine Governor Control Valve Unexpected Operation
30069645, 1BCHV-F006A: Perform Diagnostic Testing
60095077, 1AP210: Disassemble for Outboard Mech Seal Replacement

Other Documents

LCO Action Statement Log Index Number 12-002, A Core Spray Loop, dated 1/9/2012
HCGS PRA Risk Evaluation Form for Work Week 1202, 1/8/2012 - 1/15/2012, Revision 0, dated 12/20/2011
LCO Action Statement Log Index Number 12-005, HPCI Pump and Turbine, dated 1/11/2012
HCGS PRA Risk Evaluation Form for Work Week 1202, 1/8/2012 - 1/15/2012, Revision 2, dated 1/12/2012
HC.OP-AB.IC-001, Control Rod, Revision 14, dated October 10, 2011
Hope Creek Narrative Log, dated January 25, 2012
HCGS PRA Risk Evaluation Form for Work Week 1205, 1/29/2012 - 2/4/2012, Revision 0

Section 1R15: Operability Evaluations

Procedures

OP-HC-108-115-1001, Operability Assessment and Equipment Control Program, Revision 15
HC.OP-IS.BD-0002, Reactor Core Isolation Cooling Jockey Pump In Service Test, Revision 40
ER-HC-1051, Leakage Reduction Program, Revision 1

NF-AA-430, Failed Fuel Action Plan, Revision 7
CY-AB-120-340, Offgas Chemistry, Revision 8
NF-AB-400-1700, BWR Fuel Reliability Indicator (FRI) Calculation and Transmittal, Revision 1
HC.OP-AB.CONT-0003, Reactor Building, Revision 4

Notifications (*NRC identified)

20545122*, NRC Identified Issue on Operability Screening
20455885, RCIC Jockey Pump Failed IST
20456011, RCIC Jockey Pump Failed IST
20546177, Extent of Condition UT Jockey Pump Pipe
20543356, F/W Seal Functionality Basis Validity
20542312, Revise HPCI CRIDS Page A083
20542730, PCR for HPCI Flow Controller RZ Module
20542440, HPCI Turb Gov CV Unexpected Operation
20537974, Elevated Water in HPCI Oil Sample
20547381, HPCI EG-R Inspection
20549780, EG-M Output Voltage During HPCI IST
20547560, Drop in Xe-138/ Xe-133 Ratio in Offgas
20545744, January 2012 FRI Performance Indicator
20545734, Outage In-Mast Sipping for Fuel Defect
20546358, Evaluate FME Program and Zero by Ten Actions
20546053, Dose Saving Idea INRE Fuel Sipping
20545246, B RBVS Exhaust Fan Trip
20544775, B RBVS Exhaust Fan Trip
20545696, B Reactor Building Exhaust Fan Trip on Start
20547824, Entered HC.OP-AB.CONT-0003 for RB D/P
20547754, B Exhaust Fan Will Not Stay Running
20547556, Air Line for Damper separated from Damper
20547758, C RBVS Exhaust Fan Tube Replace

Orders

80105814, HPCI Turb Gov CV Unexpected Operation
70132033, Elevated Water in HPCI Oil Sample
60100187, HPCI Controller Troubleshooter
80101359, Technical Evaluation RCIC Jockey Pump
30221143, HC Emergent Investigate and Repair - Reactor Bldg Ventilation System Exhaust Fan
70133807, B RBVS Exhaust Fan Trip

Other Documents

Plant Issue Resolution Document Number HC-2012-0002, Determine If a Downpower Is
Required to Validate the Presence of a Fuel Defect
Main Control Room Operator Narrative Log, dated 1/29/2012

Section 1R18: Plant Modifications

Notifications

20549184, TCCP Installation for the B Phase CT
20549318, TCCP Approved with Design Error
20549309, Technical Conscience Case Study
20549426, TCCP 12-004 Discrepancies
20549494, DCP to Eliminate CTs and K15B Relay
20549496, DCP to Eliminate CTs and K15A Relay

Drawings

VTD PN1-B31-1030-0024, Sheet 20, Elementary Diagram - Reactor Recirc Pump and MG Set, Revision 20
VTD PN1-B31-1030-0024, Sheet 11, Elementary Diagram - Reactor Recirc Pump and MG Set, Revision 19
VTD PN1-B31-P003-0215, Sheet 5, Connection Diagram - Recirc MG Sets, Revision 5

Other Documents

TCCP No. 4HT-12-004 (NUCP Order No. 80106076), Hope Creek RX-Recirculating Differential Protection, Revision 0
50.59 Screening No. HC-12-018, Defeat the Differential Overcurrent Trip for the B Recirc Pump Motor and MG-set, Revision 0

Section 1R19: Post-Maintenance Testing

Procedures

MA-AA-716-012, Post Maintenance Testing, Revision 17
HC.IC-DC.ZZ-0057, Dwyer Differential Pressure Switch Series 1600, 1800, and 1900, Revision 10

Completed Surveillances

HC.OP-IS.BE-0001, A & C Core Spray Pumps In-Service Test, dated 1/10/2012
HC.OP-IS.EG-0003, C SACS Pump - CP210 - In-Service Test, dated 1/14/2012
HC.OP-SO.GM-0001, Diesel Area Ventilation System Operation, dated 1/16/2012
HC.OP-IS.BD-0002, Reactor Core Isolation Cooling Jockey Pump IST, dated 3/31/2012

Notifications (*NRC identified)

20552093*, NRC Identified Question
20552440*, RCIC Lube Oil Flange Bolt
20552752*, RCIC Pressure Gage Thread Engagement
20552564*, Perform Common Cause for Bolting Engagement
20542141, A CS Pump Breaker INOP Light
20542344, Unable to Isolate C SACS Pump
20542845, Rebaseline of 'C' SACS Pmp IST Data
20542507, Motor Bolt Bound During Alignment
20542265, C SACS LCO Window Delayed
20544170, RPIS Inop
20487082, Replace 1F-V-412 Fan Flow Switch
20545815, Replace Jockey Pump Piping Online
20552414, Perform RCIC Troubleshooting
20552369, Possible Corrosion Found in 1B-P228

Orders

50056020, 10Y PM: 1BEPSV-F032A Remv/Instl 'A' CS Pmp Suct
30163690, 20Y PM: 1C-P-210-MTR/Install Replacement Motor
60101039, RPIS Inop
60093646, Replace 1F-V-412 Fan Flow Switch
60101431, Replace Section of Jockey Pump Discharge
60101966, HPCI Gov Vlv FD-HV-4879 Open w/0% Demand

Drawings

M-52-1, Core Spray System, Revision 31

M-11-1, Safety Auxiliaries Cooling Reactor Building, Revision 29

Calculations

BE-0016, Core Spray System Hydraulic Analysis - EPU, Revision 5

EG-0046, STACS Operation, Revision 7

Other Documents

Main Control Room Operator Narrative Log, dated 1/25/2012

Vendor Manual PM780AQ-0112, Series 1950 Integral Pressure Switches, Revision 6

Section 1R22: Surveillance Testing

Procedures

HC.OP-DL.ZZ-0026, Surveillance Log, Revision 128

HC.OP-GP.ZZ-0005, Drywell Leakage Source Detection, Revision 9

HC.OP-IO.ZZ-0006, Power Changes During Operation, Revision 53

HU-AA-101-104, Procedure Use and Adherence

NF-HC-701-1003, Reactor Engineering Guidance for Single Loop Operation, Revision 3

Completed Surveillances

HC.OP-ST.KJ-0001, Emergency Diesel Generator 1AG400 Operability Test - Monthly, dated 1/3/2012

HC.OP-IS.BC-0004, DP202, D Residual Heat Removal Pump In-Service Test - Quarterly, dated 1/24/2012

HC.OP-ST.KJ-0014, Emergency Diesel Generator 1AG400 - 24 Hour Operability Run and Hot Restart Test, dated 2/1/2012

HC.OP-IS.BJ-0001, HPCI Main and Booster Pump Set - Inservice Test, dated 3/9/2012

HC.IC-FT.SE-0028, Nuclear Instrumentation System, Divisions 1 - Channel A Average Power Range Monitor, Single Loop Flow Operation, dated 3/1/2012

HC.IC-FT.SE-0029, Nuclear Instrumentation System, Divisions 2 - Channel B Average Power Range Monitor, Single Loop Flow Operation, dated 3/2/2012

HC.IC-FT.SE-0030, Nuclear Instrumentation System, Divisions 3 - Channel C Average Power Range Monitor, Single Loop Flow Operation, dated 3/2/2012

HC.IC-FT.SE-0031, Nuclear Instrumentation System, Divisions 4 - Channel D Average Power Range Monitor, Single Loop Flow Operation, dated 3/2/2012

HC.IC-FT.SE-0032, Nuclear Instrumentation System, Divisions 1 & 3 - Channel E Average Power Range Monitor, Single Loop Flow Operation, dated 3/2/2012

HC.IC-FT.SE-0033, Nuclear Instrumentation System, Divisions 2 & 4 - Channel F Average Power Range Monitor, Single Loop Flow Operation, dated 3/1/2012

HC.IC-FT.SE-0034, Nuclear Instrumentation System, Channel A Rod Block Monitor, Single Loop Flow Operation, dated 3/2/2012

HC.IC-FT.SE-0035, Nuclear Instrumentation System, Channel B Rod Block Monitor, Single Loop Flow Operation, dated 3/2/2012

HC.IC-FT.SE-0026, Surveillance Log; Attachment 1, Surveillance Log; Attachment 1a, Surveillance Log - Control Room; Attachment 3v, Single Loop Operation (SLO) T/S 3.4.1.1 Action a; and Attachment 5, T/S Surveillance and Planned Evolution AOT Tracking Log; dated 3/1/2012

Notifications (*NRC identified)

20549981*, HPCI Chase Light Ballast Exposed Wires
20549980*, Conduit Cracked for H1GU-1 GUTE-9437-1
20550198*, NRC Resident Observations
20544132, B RHR Min Flow Valve Bolt Missing
20545339, Jacket Water Leak on A Diesel
20545289, Fuel Oil Seeping from Union
20545351, Added Oil to A EDG
20545542, Oil Seeping from Expansion Joint
20550013, Added Oil to HPCI Booster Pump
20549891, Added Oil to HPCI Booster Pump
20551955*, Single Loop Surveillance Test
20551964*, HU-AA-104-101 Violations in Procedure Steps
20549232, HC.IC-FT.SE-0028 Revision Request
20549254, OTSC for HC.IC-FT.SE-0028
20545239, Clarification on Intent of HU-AA-104-101
20552754, APRM Procedure Not Revised

Orders

50145810, A Emergency Diesel Generator Surveillance Test
50144713, D RHR Pump 1DP202 Quarterly In-Service Test
50146539, 24 Mo. ST: Perform OP-ST.KJ-001(Q) A EDG Surv Test
50145775, HPCI Comprehensive IST
60101778, Reactor Recirc Pump Single Loop Operations
70136792, APRM Procedure Not Revised

Calculations

Setpoint Calculation SC-SE-0002-2, Average Power Range Monitor (APRM) Channels A - F & Rod Block Monitors (RBM) Channels A & B, Revision 9, dated 9/18/2008

Other Documents

Shift Training Notebook 2012-10, Oil Addition or Manual Makeup to Head Tanks, dated 3/4/2012

Section 1EP6: Drill Evaluation

Other Documents

DEP Observation Checklist, Scenario Guide Reference Number FAD-C12-04, EAL 9.6.2, drill date February 23, 2012
TSC Initial Contact Message Form, ECG Attachment 2, EAL# 9.6.2 (Alert), drill date February 23, 2012
TSC Primary Communicator Log, ECG Attachment 6, page 2 of 2, EAL# 9.6.2 (Alert), drill date February 23, 2012
Controller Scenario Information, TSC/EOF, Drill Number FAD-C12-04, drill date February 23, 2012

Section 2RS1: Access Control to Radiologically Significant Areas

Procedures

RP-AA-19, High Radiation Area Program Description, Revision 3
RP-AA-350, Response to Potentially Contaminated personnel, Revision 10

RP-AA-302, Determination of ALPHA Monitoring Level, Revision 3
 RP-AA-203, Exposure Control and Authorization, Revision 5
 RP-AA-203-1001, Personnel Exposure Investigation, Revision 7
 RP-AA-300 – 1003, Discrete Radioactive Particle Control, Revision 0
 RP-AA-300-1002, Electron Capture Isotope Control, Revision 2
 RP-AA-460, Control for High and Very High Radiation Areas, Revision 15
 RP-AA-463, High Radiation Area Key Control, Revision 3
 RP-AA-503, Unconditional Release Survey Method, Revision 7

Notifications

20548017	20546901	205458535	20543556	20541049	20540772
20540709	20540694	20533588	20531739	20530092	

Other Documents

Radiation Protection Work Group Evaluation - Ladder Lock
 Self Assessment 70120848, Occupational Radiation Safety
 Self Assessment 70125986, Collective Radiation Exposure Performance
 Self Assessment 70123903, Public Radiation Safety
 Self Assessment 70118157, Occupational Radiation Safety
 Self-Assessment 70119900 – Posting 7
 Self-Assessment 70118559, Corrective Action Effectiveness
 Hope Creek BRAC Point/Source Term Table

Section 2RS2: Occupational ALARA Planning and Controls

Procedures

RP-AA-400, ALARA Program, Revision 6
 RP-AA-401, Operational ALARA Planning and Control, Revision 11
 RP-AA-1001, Establishing Collective Radiation Exposure Estimates and Goals, Revision 2
 RP-AA-403, Administration of the Radiation Work Permit Program, Revision 3
 RP-AA-15, Radioactive Contamination Control Program Description, Revision 2
 RP-HC-4002, RP Refuel Outage Readiness, Revision 1
 RP-AA-460, Controls for High and Very High Radiation Areas, Revision 15
 HC.RP-TI.XX.0001, Primary Containment Drywell Entries, Revision 29
 RP-AA-462, Controls for Radiographic Operations
 RP-AA-301, Radiological Air Sampling Program, Revision 3
 RP-AA-281, Comparison of Personnel Dosimeter Results, Revision 2
 RP-AA-250, External Dose Assessment from Contamination, Revision 6
 RP-AA-224, Evaluation of Bioassay Data, Revision 0
 RP-AA-223, Effective Dose Equivalent, Revision 0
 RP-AA-221, Whole Body Count Data Review, Revision 3
 RP-AA-220, Rev. 7, Bioassay Program, Revision 7
 CY-AB-120-1225, Chemistry Shutdown, Refuel and Start-up Plan, Revision 0

Other Documents

Radiation Protection Audit Report NOSA-HPC-11-08
 Hope Creek Five Year Exposure Reduction Plan
 RFO-17 Co-60 Extraction Plan (draft)
 Hope Creek Preliminary Dose Estimates - RWP ALARA Plans 4245, 4701, 4704, 4705, 4223

Section 2RS3: In-Plant Airborne Radioactivity Control and Mitigation

Procedures

RP-AA-301, Radiological Air Sampling Program, Revision 3
RP-AA-440, Respiratory Protection Program
RP-AA-825, Maintenance Care and Inspection of Respiratory Protection Equipment, Revision 4
RP-AA-441, Evaluation and Selection Process for Radiological Respirator Use, Revision 4
RP-AA-442, Selection of Respiratory Protection for Non-radiological Use, Revision 5
NC.RP-TI.ZZ-0404, Testing and Evaluation of Compressed Breathing Air, Revision 1
NC.RP-TI.ZZ-0403, Operation of Breathing Air System, Revision 3
RP-AA-825-1001, Inspection and Use of the Mururoa V4 Air Supplied Suit, Revision 1

Other Documents

Respirator Qualification Records (training, medial certification, fit testing)

Section 2RS4: Occupational Dose Assessment

Procedures

RP-AA-213-1001, Electronic Dosimeter Alarm Investigation, Revision 0
RP-AA-210, Dosimetry Issuance Usage and Control, Revision 11
RP-AA-301, Radiological Air Sampling Program, Revision 3
RP-AA-281, Comparison of Personnel Dosimeter Results, Revision 2
RP-AA-250, External Dose Assessment from Contamination, Revision 6
RP-AA-224, Evaluation of Bioassay Data, Revision 0
RP-AA-223, Effective Dose Equivalent, Revision 0
RP-AA-221, Whole Body Count Data Review, Revision 3
RP-AA-220, Bioassay Program, Revision 7

Other Documents

NVLAP Testing Certification
General Source Term Data

Section 2RS5: Radiation Monitoring Instrumentation

Procedures

NC.RS-TI.ZZ-0560, Calibration and Source Check of the SPM-906 Portal Monitor, Revision 0
NC.RS-TI.ZZ-0550, Calibration of the Bicron NE Technology IPM 8 and IPM9
Installed Portal Monitors, Revision 2
NC.RS.TI.ZZ-0518, Calibration of the Bicron NE Technology Article Monitor, Revision 5
RP-AA-503, Unconditional Release Survey Method, Revision 7

Other Documents

General Source Term Data
General Instrumentation Calibration and Source Check Data: (Portal Monitor SPM-906
SN 906011, Portal Monitor IPM8/9 SN 03044, Small Article Monitor (SAM 9) SN1013,
CAM SN 103780, MGP calibrator)
Sealed Source Data (S-409, S-417, S-334)

Section 4OA1: Performance Indicator Verification

Procedures

LS-AA-2080, Monthly Data Elements for NRC SSFFs, Revision 5
LS-AA-2001, Collecting and Reporting of NRC Performance Indicator Data, Revision 11
LS-AA-2003, Use of the INPO Consolidated Data Entry Database for NRC and WANO Data Entry, Revision 6
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

Other Documents

LER 05000354/2011-001-00, HPCI Operation Credit in UFSAR Scenario not Supported by Existing Documentation, event date 7/28/2011
LER 05000354/2011-002-00. Unattended Opening uncompensated with Security plan required time, event date 8/18/2011

Section 4OA2: Problem Identification and Resolution

Procedures

OP-AA-102-103, Operator Work-Around Program, Revision 3
OP-AA-102-103-1001, Operator Burdens Program, Revision 0
HC.IC-CC.SB-0001, Reactor Protection System - Division 1 Channel C71-N652A First Stage Turbine Pressure, Revision 13
HC.IC-CC.SB-0002, Reactor Protection System - Division 2 Channel C71-N652B First Stage Turbine Pressure, Revision 13
HC.IC-CC.SB-0003, Reactor Protection System - Division 3 Channel C71-N652C First Stage Turbine Pressure, Revision 13
HC.IC-CC.SB-0004, Reactor Protection System - Division 4 Channel C71-N652D First Stage Turbine Pressure, Revision 14
HC.OP-AB.BOP-0001, Feedwater Heating, Revision 14
HC.OP-AB.RPV-0003, Recirculation System/Power Oscillations, Revision 24
HC.OP-AR.ZZ-0009, Overhead Annunciator Window Box C3, Revision 26
HC.OP-AR.ZZ-0010, Overhead Annunciator Window Box C5, Revision 15
HC.OP-AR.ZZ-0015, Overhead Annunciator Window Box E1, Revision 26
HC.OP-AR.ZZ-0020, CRIDS Computer Points Book 1 A214 Thru D2270, Revision 15
HC.OP-AR.ZZ-0023, CRIDS Computer Points Book 4 D3258 Thru D3610, Revision 10
HC.OP-DD.ZZ-0020, Review of Reactor Core Performance Information, Revision 25
HC.OP-IO.ZZ-0003, Startup from Cold Shutdown to Rated Power, Revision 98
HC.OP-IO.ZZ-0004, Shutdown from Rated Power to Cold Shutdown, Revision 91
HC.OP-IO.ZZ-0006, Power Changes During Operation, Revision 52
HC.OP-SO.AC-0001, Main Turbine Operation, Revision 66
HC.OP-SO.AF-0001, Extraction Steam, Heater Vents and Drains System Operation, Revision 47
HC.OP-SO.BB-0001, Reactor Recirculation System Operation, Revision 90
HC.OP-SO.SB-0001, Reactor Protection System Operation, Revision 32
HC.RE-AB.ZZ-0001, Transient Plant Conditions, Revision 5
HC.RE-IO.ZZ-0001, Core Operations Guidelines, Revision 47
OP-HC-108-115-1002, Technical Specification Matrix, Revision 6
MA-AA-716-210, Performance Centered Maintenance Process, Revision 6

MA-AA-716-210-1003, Preventive Maintenance Ownership Committee, Revision 1
 MA-AA-716-210-1004, First Call Preventive Maintenance Strategy, Revision 2
 MA-AA-716-210-1005, Predefine Change Processing, Revision 0

Notifications (*NRC Identified)

20523536*, NRC ID'd Potential Operator Work-Around

20553672, Measure Effect of FFTR Initiative

20523860	20533712	20539284	20543368	20544101	20544929
20549018	20549035	20549038	20549080	20549324	20549325
20549332	20549339	20549508	20549728	20341918	20452586
20460823	20484874	20510973	20539176		

Orders

70093216	70111526	70111622	70124136	70131491	80103778
80104008	80104311	80104355	80105697		

Completed Surveillances

- HC.IC-CC.SE-0048, Nuclear Instrumentation System Division 1 - OPRM Channel A1 Oscillation Power Range Monitor, performed 12/1/10
- HC.IC-CC.SE-0049, Nuclear Instrumentation System Division 1 - OPRM Channel A2 Oscillation Power Range Monitor, performed 12/3/10
- HC.IC-CC.SE-0050, Nuclear Instrumentation System Division 3 - OPRM Channel C1 Oscillation Power Range Monitor, performed 1/13/11
- HC.IC-CC.SE-0051, Nuclear Instrumentation System Division 3 - OPRM Channel C2 Oscillation Power Range Monitor, performed 1/14/11
- HC.IC-CC.SE-0052, Nuclear Instrumentation System Division 2 - OPRM Channel B1 Oscillation Power Range Monitor, performed 1/20/11
- HC.IC-CC.SE-0053, Nuclear Instrumentation System Division 2 - OPRM Channel B2 Oscillation Power Range Monitor, performed 1/21/11
- HC.IC-CC.SE-0054, Nuclear Instrumentation System Division 4 - OPRM Channel D1 Oscillation Power Range Monitor, performed 1/25/11
- HC.IC-CC.SE-0055, Nuclear Instrumentation System Division 4 - OPRM Channel D2 Oscillation Power Range Monitor, performed 1/25/11
- HC.IC-FT.SE-0049, Nuclear Instrumentation System Division 1 - OPRM Channel A2 Oscillation Power Range Monitor, performed 11/30/11
- HC.IC-FT.SE-0050, Nuclear Instrumentation System Division 3 - OPRM Channel C1 Oscillation Power Range Monitor, performed 1/12/12
- HC.IC-FT.SE-0051, Nuclear Instrumentation System Division 3 - OPRM Channel C2 Oscillation Power Range Monitor, performed 1/12/12
- HC.IC-FT.SE-0052, Nuclear Instrumentation System Division 2 - OPRM Channel B1 Oscillation Power Range Monitor, performed 1/16/12
- HC.IC-FT.SE-0053, Nuclear Instrumentation System Division 2 - OPRM Channel B2 Oscillation Power Range Monitor, performed 1/16/12
- HC.IC-FT.SE-0054, Nuclear Instrumentation System Division 4 - OPRM Channel D1 Oscillation Power Range Monitor, performed 1/27/12
- HC.IC-FT.SE-0055, Nuclear Instrumentation System Division 4 - OPRM Channel D2 Oscillation Power Range Monitor, performed 1/27/12

Evaluations

70133704, Revise CRIDS Power/Flow Maps for FFWTR, dated 2/27/12
70133886 (Op 040), Final Feedwater Temperature Reduction (FFWTR) Apparent Cause Evaluation Report, dated 2/3/12
70134038, Implementing FFWTR with Failed Fuel Technical Evaluation, dated 2/8/12
70134038 (Op 140), FFWTR with Failed Fuel Technical Evaluation Independent Peer Review, dated 2/9/12
80100455-106, Final Feedwater Temperature Reduction & Feedwater Heaters Out of Service Independent Third Party Review Summary, dated 2/2/12
Evaluation Orders: 70132599 and 80100455

Operator Training

80100455-081, FFWTR Final Feedwater Temperature Reduction Operator Training Needs Analysis, dated 1/17/12
MF12-SEG1-JITT-01, Final Feedwater Temperature Reduction FFWTR Phase 1, Revision 1
MF12-SEG1-JITT-02, Final Feedwater Temperature Reduction FFWTR Phase 2, Revision 1

Other Documents

Quarterly Operator Burden Assessment, 2011 - 4th Qtr, dated 1/20/2012
Hope Creek Plant Operations Review Committee Minutes, Meeting Number H2012-02, dated March 6, 2012
ACM HC12-003, Fuel Reliability Parameters used to Monitor Fuel Defect in Suppressed Control Cell 38-23 Adverse Condition Monitoring and Contingency Plan, Rev. 3
Amendment No. 174 to Facility Operating License No. NPF-57 for the Hope Creek Generating Station, Extended Power Uprate (TAC No. MD3002), dated 5/14/08
Amendment No. 190 to Facility Operating License No. NPF-57 for the Hope Creek Generating Station, Operation with Final Feedwater Temperature Reduction and Feedwater Heaters Out-of-Service (TAC No. ME4786), dated 9/14/11
Core Operating Limits Report for Hope Creek Generating Station Unit 1 Reload 16, Cycle 17, dated 2/24/12
Final Feedwater Temperature Reduction IPA Brief, performed 3/1/12
HCGS CRIDSA Primary Alarm Message File (Chronology), dated 3/1/12
HC-2012-004, Final Feedwater Temperature Reduction Operational Technical Decision Making Evaluation, Rev. 1
Hope Creek Narrative Log, dated 3/1/12 - 3/5/12
NRC Information Notice No. 88-39: LaSalle Unit 2 Loss of Recirculation Pumps with Power Oscillation Event, dated 6/15/88
Offgas Activity Trend Data, dated 2/27/12 - 3/5/12

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

Procedures

HC.OP-AB.RPV-0001, Reactor Power, Revision 13
HC.OP-AB.RPV-0003, Reactor Power, Revision 24
HC.RE-AB.ZZ-0001, Transient Plant Conditions, Revision 5
HC.OP-IO.ZZ-0006, Power Changes During Operation, Revision 52
HC.OP-DL.ZZ-0026, Attachment 3v, Single Loop Operation (SLO) T/S 3.4.1.1 Action a, Revision 130
HC.OP-SO.BB-0002, Reactor Recirculation System Operation, Revision 90
HC.OP-SO.BB-0001, Reactor Protection System Operation, Revision 32
HC.OP-AR.ZZ-0009, Overhead Annunciator Window Box C3, Revision 26

Notifications (*NRC Identified)

20550717*, NRC Resident Question HC.OP-ST.BB-0007
 20551348, Ops AB Enhancement Revision - HC.OP-AB.RPV-0003
 20542440, HPCI Turbine Governor Control Valve Unexpected Operation
 20542570, HPCI Turbine Governor Control Valve Unexpected Operation
 20542501, Charter for HPCI Governor Not Completed
 20542730, PCR for HPCI Flow Controller RZ Module
 20550672, HPCI Governor Valve FD-HV-4879 Open with 0% Demand
 20550811, HPCI EGR Oil Tubing Discrepancy
 20550937, Erratic HPCI Indications on 10C650
 20551121, Chart Recorder Noise Obscures Speed Data
 20551124, HC.OP-ST.BJ-0002 HPCI 18M Time Response Procedures Revision
 20551122, HPCI Procedure Revision
 20551062, HPCI Governor - Woodward Failure Analysis
 20550857, Added 5 Gallons of Oil to HPCI Turbine Reservoir
 20550672, HPCI Prompt Investigation
 20549905, HC.OP-ST.BB-0007, Out of Spec Readings
 20549018, OPRM Alarms in MCR
 20549034, Operator Response During Recirc Trip
 20549035, Operator Response During Recirc Trip
 20549036, Operator Response During Recirc Trip
 20549037, Operator Response During Recirc Trip
 20549039, HC.OP-IO.ZZ-0006 Revision Request
 20549059, OPRM Alarms Received in MCR
 20549164, RRMG Troubleshooting Prior to HU-AA-1212
 20549229, 1B-G-122 Trip RRP Motor Generator/Pump Motor Differential Overcurrent
 20549232, HC.IC-FT.SE-0028 Revision Request
 20549280, Inspect B Recirc CT and Motor Leads
 20549281, OTDM for Restart of B Recirc Pump
 20549290, Issue Disapproved by PORC
 20549301, Drywell Gaseous Permit
 20549324, H1SE-1SEOPRM-D2, OPRM Alarm
 20549325, H1SE-1SEOPRM-A2, OPRM Alarm
 20549332, H1SE-1SEOPRM-C2, OPRM Alarm
 20549337, Create Contingency WO for B Recirc Pump
 20549401, Extent of Condition Inspection - A Motor
 20549501, HC.OP-IO.ZZ-0006 Revision Request
 20550036, 1B-G-122 Trip RRP Motor Generator/Pump Motor Differential Overcurrent
 20550261, HC.OP-IO.ZZ-0004 Revision Request
 20550262, HC.OP-IO.ZZ-0007 Revision Request
 20549760, HC.IC-CC.SE-0032 Not Completed
 20550936, Forced Outage Critique Gap #1
 20550860, Forced Outage Critique Gap #2
 20551125, Forced Outage Critique Gap #3
 20551064, Forced Outage Critique Gap #4
 20550861, Forced Outage Critique Gap #5
 20550992, Forced Outage Critique Gap #6
 20551065, Forced Outage Critique Gap #7
 20550862, Forced Outage Critique Gap #8
 20551001, Forced Outage Critique Gap #9

Orders

60100684, HPCI Turbine Governor Control Valve Unexpected Operation

60101966, HPCI Governor Valve FD-HV-4879 Open with 0% Demand

30221770, OC#1 - HC Emergent - Investigate and Repair

70135315, 1B-G-122 Trip RRP Motor Generator/Pump Motor Differential Overcurrent

Other Documents

Event Notification Number 47585, High Pressure Coolant Injection (HPCI) System Declared Inoperable, dated 1/11/2012 and 1/13/2012

Event Notification Number 47745, HPCI Inoperable Due to Failure of Turbine Governor Valve, dated 3/14/2012

Operator Narrative Logs, dated 3/1/2012

Action Statement Log Sheet Number 12-058, B Reactor Recirc Pump, entry at 1519 hours on 3/1/2012

Action Statement Log Sheet Number 12-059, Reactor Coolant System Specific Activity, entry at 1519 hours on 3/1/2012

Action Statement Log Sheet Number 12-063, Drywell O2 Concentration, entry at 1420 hours on 3/4/2012

Action Statement Log Sheet Number 12-065, Core Thermal Limits Surveillance, entry at 0954 hours on 3/5/2012

LIST OF ACRONYMS

ACE	Apparent Cause Evaluation
ADAMS	Agency-wide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CS	Core Spray
DCP	Design Change Package
ED	Electronic Dosimeter
EDEX	Effective Dose Equivalent for External Exposure
EDG	Emergency Diesel Generator
FOL	Facility Operating License
FW	Feedwater
HCGS	Hope Creek Generating Station
HPCI	High Pressure Coolant Injection
HRA	High Radiation Area
MDA	Minimum Detectable Activity
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
OPRM	Oscillation Power Range Monitor
PCM	Personnel Contamination Monitor
PI	Performance Indicator
PM	Preventive Maintenance
PSEG	Public Service Enterprise Group Nuclear LLC
RCA	Radiological Controlled Area
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RPIS	Rod Position Indication System
RRP	Reactor Recirculation Pump
RTP	Rated Thermal Power
RWP	Radiation Work Permit
SACS	Safety Auxiliary Cooling System
SAM	Small Article Monitor
SLC	Standby Liquid Control
SSC	Structures, Systems, and Components
TCCP	Temporary Configuration Change Package
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
VHRA	Very High Radiation Area