



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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KING OF PRUSSIA, PENNSYLVANIA 19406-1415

August 10, 2007

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

SUBJECT: HOPE CREEK GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000354/2007003

Dear Mr. Joyce:

On June 30, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Hope Creek Generating Station. The enclosed inspection report documents the inspection results that were discussed on July 12, 2007, with Mr. Barnes 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.

The report documents one NRC-identified and one self-revealing finding of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as non-cited violations (NCVs) consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest any NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Hope Creek Generating Station.

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

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Sincerely,

/RA by Leonard M. Cline For/

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

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

Enclosure: Inspection Report 05000354/2007003
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 050000354

License No: NPF-57

Report No: 05000354/2007003

Licensee: Public Service Enterprise Group Nuclear LLC (PSEG)

Facility: Hope Creek Generating Station (HCGS)

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

Dates: April 1, 2007 through June 30, 2007

Inspectors: G. Malone, Senior Resident Inspector
T. Wingfield, Resident Inspector
J. Schoppy, Senior Reactor Inspector

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

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SUMMARY OF FINDINGS

IR 05000354/2007003; 04/01/2007 - 06/30/2007; Hope Creek Generating Station; Maintenance Risk Assessments and Emergent Work Control, Other Activities.

The report covered a 13-week period of inspection by resident inspectors and one regional senior reactor inspector. Two Green NCVs were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," occurred when technicians did not follow a procedure during undervoltage relay testing on the normal supply breaker for the 10A401 4 kV bus. This resulted in a momentary loss of power to the 10A401 4kV vital bus that caused the loss of two reactor feed pumps (RFPs) and required the manual insertion of all control rods (scram). PSEG's corrective actions included changing the procedure guidance for the sequence of breaker testing and adding independent verification steps for the removal of test equipment.

The finding was greater than minor because it affected the human performance attribute of the Initiating Events cornerstone and impacted the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during plant operations. Specifically, failure to follow surveillance test procedures resulted in the momentary loss of power to the 10A401 vital bus and a reactor scram. The inspectors determined the finding was of very low safety significance (Green). The finding had a cross-cutting aspect in the area of human performance because personnel did not follow procedures (H.4.b). Specifically, maintenance technicians failed to remove test equipment in accordance with the test procedure. (Section 4OA3)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50.65(a)(4) when PSEG did not assess and manage the increase in risk for corrective maintenance activities on the 'C' SSW pump following an emergent failure of a 'B' SSW ventilation supply fan. PSEG updated the risk assessment, implemented appropriate risk management actions, repaired and restored the 'B' SSW fan to service, and created notification 20326624 to address the inadequate risk assessment.

The finding was greater than minor because PSEG's risk assessment had errors or incorrect assumptions that changed the outcome of the plant risk assessment. Specifically, PSEG's risk assessment did not consider the emergent failure of the 'B' SSW supply fan risk prior to performing planned maintenance on the 'C' SSW pump. The inspectors determined that the finding was of very low safety significance (Green) because the incremental core damage probability deficit was in the low E-8 range. The finding had a cross-cutting aspect in the area of human performance because PSEG did not appropriately plan work activities by incorporating risk insights (H.3.b). Specifically, PSEG did not adjust the work schedule to ensure overall plant risk was minimized because PSEG did not evaluate the change in plant risk caused by the emergent failure of the 'B' SSW ventilation supply fan. (Section 1R13)

B. Licensee Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

The Hope Creek Generating Station (HCGS) operated continuously at or near full power for the duration of the inspection period except for a forced maintenance outage initiated by an unplanned reactor scram on May 29, 2007. Hope Creek resumed full power operation on June 3, 2007.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope (2 samples)

The inspectors performed a detailed review of PSEG's seasonal readiness procedures and reviews associated with hot weather conditions. Station procedures and system health reports were reviewed, and systems that could be subject to increased heat conditions were walked down to assess reliability and availability during periods of extreme heat. The inspectors focused on the readiness of the SSW, control area chilled water, electro-hydraulic control, and hydrogen seal oil, stator water cooling, and isophase bus cooling system health. This inspection sample satisfied the inspection requirement to review two to four risk-significant systems prior to the onset of hot weather.

The inspectors also reviewed PSEG's response to a site-specific weather-related condition. Specifically, during a period of historically high concentrations of river grass, the inspectors walked down the service water (SW) intake structure (including the SW traveling screens) and the safety auxiliary cooling system (SACS) and reactor auxiliary cooling system heat exchanger (HX) rooms to verify proper operation of safety significant equipment. The inspectors also monitored various plant parameters using the computerized plant monitoring system that could be affected by the fouling of plant HXs and piping. The inspectors verified that these adverse weather conditions did not adversely impact mitigating systems or increase the likelihood of a loss of offsite power. Inspectors interviewed operations personnel to assess personnel readiness and availability for adverse weather response. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

.1 Partial Walkdown (71111.04)

a. Inspection Scope (3 samples)

The inspectors performed a partial walkdown of the following three systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors completed walkdowns to determine whether there were discrepancies that could impact the function of the system, and therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control systems 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 CAP. Documents reviewed are listed in the Attachment.

- 'B', 'C', and 'D' service water (SW) trains while the 'A' SW train was out-of-service on April 30, 2007.
- 'A', 'B', and 'C' emergency diesel generators (EDGs) and 1E switchgear during planned maintenance on the 'D' EDG on May 23, 2007.
- 'B' standby liquid control (SLC) during planned maintenance on the 'A' SLC pump and train on June 5, 2007.

.2 Complete Walkdown (71111.04S)

a. Inspection Scope (1 sample)

The inspectors conducted one complete walkdown of accessible portions of the auxiliary building chilled water (CW) system on June 19, 2007. The inspectors used PSEG procedures and other documents listed in the Attachment to verify proper system alignment and functional capability. The inspectors also verified the chiller and chilled water pump electrical power requirements, labeling, operator workarounds, hangers and supports, and associated support systems status. The walkdowns also included evaluation of system piping and equipment to verify pipe hangers were in satisfactory condition, oil reservoir levels appeared normal, running pump noise and vibration levels appeared normal, 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)a. Inspection Scope (10 samples)

The inspectors conducted tours of ten areas 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 ten areas toured are listed below with their associated pre-fire plan designator. Other documents reviewed are listed in the Attachment.

- FRH-II-414, 'A' core spray pump room
- FRH-II-414, 'C' core spray pump room
- FRH-II-411, 'B' core spray pump room
- FRH-II-411, 'D' core spray pump room
- FRH-II-412, reactor core isolation cooling (RCIC) pump room
- FRH-II-413, high pressure coolant injection (HPCI) pump room
- FRH-II-413 & FRH-II-423, 'A' residual heat removal (RHR) HX and pump rooms
- FRH-II-412 & FRH-II-422, 'B' RHR HX and pump room
- FRH-II-532, lower control equipment room, 102 ft elevation
- FRH-II-511, EDG fuel oil storage tank rooms, 54 ft elevation

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)a. Inspection Scope (1 sample)

The inspectors reviewed selected risk-important plant design features and PSEG procedures intended to protect the plant and its safety-related equipment from external flooding events. The inspectors reviewed flood analysis and design documents, including the 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 a flood in accordance with the design basis. In addition, the inspectors walked down the 13kV electrical switchyard and switchyard control house, service water intake structure, and several locations in the reactor building, turbine building, and radioactive waste building to examine where conduit penetrations entered these structures from outside. The inspectors reviewed station drawings to identify areas of external flooding susceptibility through underground electrical conduits.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A)a. Inspection Scope (1 sample)

The inspectors reviewed performance data associated with the B1 and B2 SACS HXs to verify their readiness and availability. PSEG performed functional tests of the B1 HX on April 20 and 26, 2007, and the B2 HX on April 25, 2007, following a period of elevated river-grass levels in the Delaware River which caused a number of high differential pressure alarms on SSW strainers in April 2007. The inspectors also reviewed PSEG's use of biofouling controls in the SSW system, observed photographs of the B1 HX inspection on May 16, 2007, and reviewed HX operating data to assess performance. The inspectors walked down the HXs to identify leaks or other component degradation.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11Q)a. Inspection Scope (2 samples)

The inspectors completed two licensed operator requalification training program inspection samples. Documents reviewed for this inspection are listed in the Attachment.

For each scenario observed, the inspectors assessed the clarity and effectiveness of communications, the implementation of appropriate actions in response to alarms, the performance of timely control board operation and manipulation, and the oversight and direction provided by the shift manager. During the scenario the inspectors also compared simulator performance with actual plant performance in the control room. The following simulator scenarios were observed:

- The inspectors observed licensed operator response in the simulator during an emergency preparedness training drill on May 17, 2007. The scenario involved a fire in the SLC room, a design basis loss of coolant accident with fuel cladding failure, and a leak from a core spray pump suction line into the reactor building.
- The inspectors observed a licensed operator requalification control room simulator scenario on May 29, 2007. The scenario examined the operator's response to an inadvertent reactor recirculation pump runback that placed the reactor in an operating region susceptible to power oscillations. The scenario also tested the operator's response to a stuck control rod and a loss of reactor feedwater. The scenario included a failure of the high pressure injection cooling pump during a small break loss-of-coolant accident.

b. Findings

No findings of significance were identified.

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

The inspectors reviewed the three samples listed below for 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; 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.

- Screen failures on the 'B' and 'C' service water strainer baskets
- 'A' & 'D' EDG field flashing relay problems
- Intermittent power loss on the 1AD482 uninterruptible power supply output

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)a. Inspection Scope (6 samples)

The inspectors reviewed on-line risk management evaluations through direct observation and document reviews for the following six configurations:

- HPCI system planned maintenance on April 10, 2007, concurrent with planned maintenance on the 'C' SSW traveling screen during heavy grassing season.
- 'B' SSW loop planned maintenance requiring an operational technical decision making evaluation due to potentially heavy grassing conditions on May 14, 2007.
- Concurrent planned maintenance on the 'D' SSW pump, 'D' EDG, 'C' circulating water pump, and the emergent unavailability of Salem Unit 3 on May 23-24, 2007.
- Concurrent planned maintenance on the 'C' SSW pump, 'A' SLC pump, 'A' primary containment instrument gas compressor, and the emergent discharge filter change-out on the 'A' electro-hydraulic control train on June 5, 2007.
- Planned maintenance on the 'C' SSW ventilation fans concurrent with emergent corrective maintenance on the 'C' SSW lube water solenoid valve and an emergent failure of 'B' SSW ventilation fans on June 8, 2007.
- Emergent unavailability of the 'A' EDG during a 'B' channel work-week on June 10, 2007.

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 "EOOS" 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

Introduction. The inspectors identified a non-cited violation of 10 CFR Part 50.65(a)(4) when PSEG did not assess and manage the increase in risk for corrective maintenance activities on the 'C' SSW pump following an emergent failure of 'B' SSW ventilation supply fan. The inspectors determined the risk associated with the finding to be of very low safety significance (Green).

Description. On June 7, 2007, the 'C' SSW ventilation fans were removed from service for scheduled maintenance. On June 8, the 'B' SSW ventilation supply fan power supply breaker tripped open and operators declared the 'B' SSW ventilation train inoperable. Later on June 8, the 'C' SSW pump was removed from service for corrective maintenance on the 'C' SSW lube water solenoid valve. The inspectors asked the operators about the current plant risk assessment and the control room supervisor subsequently updated EOOS to reflect the unavailable SSW equipment. The control room supervisor determined that the risk categorization changed state from Green to Yellow. PSEG then implemented appropriate risk management actions, repaired and restored the 'B' SSW fan to service, and created notification 20326624 to address the missed risk assessment.

The 'C' SSW pump and 'C' SSW ventilation fans were included in the Hope Creek risk assessment for the week of June 3, 2007; however, the 'B' SSW ventilation fans were not included. PSEG's administrative procedure SH.OP-AP.ZZ-0027, "On-Line Risk Assessment," contained PSEG management's expectations for the operating shift to maintain the current risk state of the plant updated using EOOS. Specifically, Section 5.4.2 states, "Emergent conditions during the current work week should be assessed by referring to EOOS." In addition, Section 3.2 states, "For Yellow risk configurations, ensure compensatory a(4) measures have been considered and are implemented as appropriate." Operators did not update EOOS to reflect the out-of-service SSW equipment until questioned by the inspectors. As a result, PSEG was unaware of the Yellow risk condition and did not consider and implement additional risk management actions. Specifically, operators did not postpone work on the 'C' SSW pump lube water piping until the 'B' SSW ventilation train was restored, nor did they administratively protect remaining SSW ventilation equipment.

The performance deficiency was that PSEG did not implement risk management actions identified by procedure SH.OP-AP.ZZ-0027 before removing the 'C' SSW pump from service for corrective maintenance because operators did not evaluate the increase in core damage frequency when the 'B' SSW ventilation supply fan failed.

Analysis. The finding was greater than minor because PSEG's risk assessment had errors or incorrect assumptions that changed the outcome of the plant risk assessment. Specifically, PSEG's risk assessment did not consider the emergent failure of the 'B' SSW supply fan risk prior to performing planned maintenance on the 'C' SSW pump.

The inspectors assessed the finding using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management SDP," Flowchart 1, "Assessment of Risk Deficit," and determined the finding to be of very low safety significance (Green). With assistance from the Regional Senior Reactor Analyst (SRA), the inspectors calculated the incremental core damage probability (ICDP) deficit for the SSW equipment unavailability. The inspectors calculated the ICDP deficit to be in the low E-8 range. Because the calculated risk deficit was not greater than E-6, the finding was of very low safety significance (Green).

The inspectors determined that the finding had a cross-cutting aspect in the area of human performance because PSEG did not appropriately plan work activities by incorporating risk insights (H.3.b). Specifically, PSEG did not adjust the work schedule to ensure overall plant risk was minimized following the emergent failure of the 'B' SSW ventilation supply fan.

Enforcement: 10 CFR 50.65 (a)(4), states, in part, "Before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities." Contrary to the above, on June 8, 2007, PSEG did not assess and manage the increase in risk for corrective maintenance activities prior to tagging out the 'C' SSW pump, following an emergent failure of the 'B' SSW ventilation supply fan. The unanalyzed risk condition existed for approximately two hours. Because this finding was of very low safety significance and was entered into PSEG's corrective action program as notification 20326624, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000354/2007003-01, Failure to Perform a Risk Assessment When Required by 10 CFR 50.65(a)(4)).**

1R15 Operability Evaluations (71111.15)

a. Inspection Scope (7 samples)

The inspectors reviewed seven operability determinations for degraded or non-conforming conditions associated with:

- A blown fuse in HPCI valve isolation logic on April 12, 2007.
- 'D' SSW traveling screen drive chain slippage during periods of elevated river grass concentration on April 24, 2007.
- Degraded performance of the B1 safety auxiliary cooling system HX on April 26, 2007.
- 'B' SSW strainer trip on May 20, 2007.
- Bailey 890 system logic card failure impact on safety auxiliary cooling system on May 15, 2007.

- Power supply deficiencies on the 1BD483 uninterruptible power supply system on May 15, 2007.
- RCIC turbine trip on low suction pressure on May 29, 2007.
- Failed contacts in the K1 relay (field flash permissive) for the 'D' EDG on June 10, 2007.

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. Notifications and documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (5 samples)

The inspectors reviewed the five post-maintenance tests (PMTs) listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed test procedures to verify the procedure adequately tested the safety functions that may have been affected by the maintenance activity and the acceptance criteria in the procedure were consistent with the UFSAR and other design or license basis documentation. The inspectors also witnessed the test or reviewed the test data to verify test results adequately demonstrated restoration of the affected safety functions. Documents reviewed are listed in the Attachment.

- Emergent repair of HPCI valve isolation logic optical isolator card on April 12, 2007
- 'B' SSW strainer flow reduction due to heavy grass on April 24, 2007
- 'A' SSW pump replacement and traveling screen and strainer maintenance on May 4, 2007
- 'D' EDG support system leak repairs on May 25, 2007
- Replacement of the K1 relay in the 'A' EDG and contacts within the K1 relay in the 'D' EDG on June 11 and 12, 2007

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope (1 sample)

The plant was shutdown on May 29, 2007, in response to lowering reactor pressure vessel (RPV) water level following the loss of two main feedwater pumps. The transient is described further in section 4OA3.

The inspectors reviewed PSEG's forced outage schedule and activities to verify that risk was considered appropriately and that license and technical specification requirements were adhered to. The inspectors observed post-scrum activities and subsequent plant start up from the control room to verify that PSEG adhered to station procedures and to evaluate operator performance. Documents reviewed are listed in the Attachment.

Hope Creek completed the forced outage on May 31, 2007, at 9:22 p.m. when the main generator was synchronized to the 500 kV grid.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope (6 samples)

The inspectors witnessed six surveillance tests and/or reviewed test data of selected surveillance tests listed below to verify that the test met the requirements of the technical specifications, UFSAR, and station procedures. The inspectors also determined whether the testing effectively demonstrated that the SSCs were operationally ready and capable of performing their intended safety functions. Documents reviewed are listed in the Attachment.

- Division 1 and 3 recirculation flow unit trip function test on May 2, 2007
- 'A' SSW pump inservice test conducted on May 5, 2007
- HPCI 250 volt battery weekly surveillance on May 20, 2007
- Drywell sump leak detection on April 23, 2007
- RCIC pump inservice test on June 12, 2007
- 'A' EDG 24-hour endurance run and hot restart tests on June 27, 2007

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)a. Inspection Scope (2 samples)

The inspectors reviewed the following two temporary plant modifications:

- Reactor core isolation cooling pump low suction pressure time delay circuit modification; and
- Drywell equipment sump pump circuit modification.

The inspectors verified the modifications were consistent with the design and licensing bases of the affected systems and that the performance capabilities of these systems were not degraded by these modifications. The inspectors also reviewed the modifications to verify applicable technical specification operability requirements were met during installation. The inspectors verified the modified equipment alignment through control room instrumentation and plant walkdowns of accessible portions of the affected equipment. Documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)a. Inspection Scope (2 samples)

Resident inspectors evaluated the conduct of an emergency preparedness training drill on May 17, 2007, and a control room simulator scenario on May 29, 2007, to identify weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulated control room and the emergency operations facility to verify that event classification and notifications were done in accordance with the Hope Creek Event Classification Guide. The inspectors also observed PSEG's critique of the examination to compare any inspector-observed weakness with those identified by PSEG personnel to verify whether PSEG was properly identifying weaknesses.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification (71151)

a. Inspection Scope (2 samples)

Cornerstone: Barrier Integrity

- Reactor Coolant System (RCS) Specific Activity
- RCS Leakage

The inspectors verified the methods used to calculate the RCS specific activity PI and reviewed the accuracy of the PI data submitted for the period July 1, 2006 through March 31, 2007.

The inspectors verified the methods used to calculate the RCS leakage. The inspectors verified the accuracy of PI data submitted for the period of July 1, 2006 through March 31, 2007.

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 CAP. This was accomplished by reviewing the description of each new notification and attending daily management review committee meetings. Documents reviewed are listed in the Attachment.

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope (1 sample)

As required by Inspection Procedure 71152, "Identification and Resolution of Problems," the inspectors performed a review of PSEG's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment and corrective maintenance issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.1. The review also included issues documented outside the normal CAP in system health reports, corrective maintenance work orders, component status reports, site monthly meeting reports and maintenance rule assessments. The inspectors' review nominally considered the ten-month period of August 2006 through May 2007, although some examples expanded beyond those dates when the scope of the trend warranted. The inspectors reviewed trends in reactivity management issues,

such as plant trips and unplanned down-powers, and compared them with PSEG's Reactivity Management PI. Corrective actions associated with a sample of the issues identified in PSEG's PI were reviewed for adequacy. Documents reviewed are listed in the Attachment.

b. Assessment and Observations

No findings of significance were identified.

PSEG promptly identified and fully evaluated eight risk-significant reactivity management challenges in their CAP. Examples of these issues include two emergent power reductions in August 2006 due to a turbine auxiliaries cooling system (TACS) problem and a condensate drain tank problem as well as an unplanned scram during start-up from a January 2007 maintenance outage.

PSEG conducted a common cause evaluation of significance level five (SL-5) reactivity management issues since January 2004. These "reactivity management concerns" are the lowest-level reactivity management issues identified in their reactivity management program and are below the reactivity management PI threshold. PSEG noted that the number of SL-1 through SL-4 issues has reduced since January 2004 and attributed the trend to the reactivity management improvement plan being implemented at the site. PSEG identified reactor manual control system lockups, plant process computer software design, and local power range monitor card failures as the most common SL-5 reactivity management issues. PSEG was using an appropriately low threshold to identify lower level reactivity management issues and had taken reasonable and timely action commensurate with their significance.

Nonetheless, PSEG did not enter a recirculation pump speed oscillation problem into their CAP until questioned by the inspectors nor did they evaluate the problem such that the cause of the condition was known. The inspectors also observed that, because PSEG did not determine the cause of the problem, they have not determined if the problem can become more significant. Through plant status inspection and CAP reviews, the inspectors noted that PSEG was aware of 'A' reactor recirculation pump speed oscillations of approximately 10 rpm but had not entered the condition into the CAP. In addition, operators indicated they were not concerned with this level of uncontrolled speed change because they thought that plant engineers had evaluated it as acceptable. Following discussions with the inspectors, PSEG evaluated the oscillations as not significantly impacting plant reactivity management due to their small magnitude (not greater than 0.25 percent power) and plans to monitor the condition without any specific immediate corrective action or troubleshooting effort to address the issue. PSEG engineering monitors recirculation system performance daily and control room operators monitor these parameters several times per shift. Routine preventive maintenance activities on the voltage regulator, Bailey positioner, and tachometer components are scheduled for the Hope Creek R14 refueling outage in October 2007. This issue was not a violation of regulatory requirements because the recirculation pump was not a safety-related component, no technical specifications or license requirements were violated, and there was no impact to a cornerstone of safety.

.3 Annual Sample: Trends in Procedural Quality and Human Performance Issues

a. Inspection Scope (1 sample)

In the last twelve months inspectors documented several inspection findings with human performance cross-cutting aspects. In response to the number of inspection findings PSEG initiated a procedure use and quality improvement plan. PSEG also initiated a common cause evaluation (CCE) to evaluate the causal factors associated with the NRC findings with human performance cross-cutting aspects. This CCE was in progress at the end of the second quarter of 2007.

The inspectors reviewed PSEG's actions related to procedure use and procedure quality improvement initiatives at Hope Creek to assess whether PSEG was appropriately addressing identified human performance issues and whether those actions were effective.

During this review, the inspectors reviewed corrective action program notifications, human performance improvement plans, and discussed the actions with Hope Creek management.

b. Assessment and Observations

No findings of significance were identified. In response to the number of NRC inspection findings and PSEG-identified issues with human performance cross-cutting aspects in the procedure quality, procedural compliance, and human error reduction areas, PSEG initiated a procedure use and quality improvement plan. The plan included improvement initiatives for the operations, maintenance, engineering, chemistry, radiation protection, training, and security work groups. The plan focused on employee training, management observation, standards reinforcement and personal accountability. Actions taken by PSEG included but were not limited to: daily end of shift reviews to increase accountability and teamwork between operations, maintenance, and work management; increased emphasis on manager and supervisor field observations to enforce standards for safety awareness, pre job briefs and procedure place keeping; and completed-procedure audits by the operations department.

All functional areas were trained in the use of human performance tools and technical human performance fundamentals in the first and second quarters of 2007, and management periodically reinforced human performance improvement expectations to staff and supervisors through first line supervisor meetings, shift briefs, and other plant meetings. The scope and depth of the training was comprehensive and covered all of the human performance areas that have led to inspection findings.

In operations, PSEG augmented their licensed and non-licensed training programs to emphasize the use of human performance tools and scrutinize procedural adherence. Job performance measure evaluations were changed to include grading on use of human performance tools and procedural compliance.

One corrective action implemented specifically to improve site-wide procedure compliance and the use of error prevention tools was the Fundamental Management System (FMS). The FMS is a computer software program that will enable managers to

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increase accountability of personnel through documentation of positive and negative behaviors observed. FMS will enable supervisors to detect and correct problem behavior trends more easily than the previous observation documentation system. PSEG will fully implement FMS in July 2007.

The inspectors observed through review of the CAP that PSEG used a low threshold to identify procedure improvement opportunities. However, implementation of the numerous procedure improvements identified by this process was slow and procedure revision backlogs have increased. The inspectors determined that PSEG properly prioritized risk-significant procedure improvements, but continued to experience low-level procedural quality issues.

4OA3 Event Followup (71153)

.1 Reactor Scram on May 29, 2007 (1 sample)

a. Inspection Scope

On May 29, 2007, at 0835, control room operators manually inserted (scrammed) all control rods to shutdown the reactor. The operators shutdown the reactor because of lowering RPV water level that was caused by a loss of two of the three operating RFPs. Plant equipment responded to the transient as designed. The plant commenced startup activities on May 30, 2007.

The inspectors responded to the control room following the reactor scram to observe post-scram operations. The inspectors collected data from the plant computer to evaluate plant conditions prior to, during, and following the transient. The inspectors observed and participated in interviews with plant personnel to gain an understanding of how operators and plant equipment responded to the transient. The inspectors observed engineering technical analysis and evaluation meetings and interviewed engineers to gain an understanding of the transient and to assess PSEG's evaluation process. The inspectors observed the Plant Oversight Review Committee meeting prior to plant startup to evaluate whether PSEG appropriately resolved the issues that led to the transient.

b. Findings

Introduction. A self-revealing non-cited violation of 10 CFR 50, Appendix B, criterion V, "Instructions, Procedures, and Drawings," was identified when errors made by technicians during equipment testing resulted in a reactor scram on May 29, 2007. The finding was determined to be of very low safety significance (Green).

Description. On May 29, 2007, PSEG was testing the degraded voltage relays associated with breaker 52-40108, a normally shut breaker that supplies offsite power to the 'A' 4kV vital bus (10A401 bus). An unexpected condition was created during testing that caused the 52-40108 breaker to sense a degraded voltage condition. As a result, the 52-40108 breaker opened as designed removing power from all loads on the 10A401 bus. The alternate power supply breaker 52-40101 closed as designed to restore power to the 10A401 bus. The non-vital motor control center breakers powered from the 10A401 bus supply power to the 'A' reactor feed water pump turbine (RFPT)

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main lube oil pump and the 'B' RFPT auxiliary lube oil pump. These breakers tripped due to the undervoltage and, as designed, did not automatically close when the alternate power supply restored power to the 10A401 bus. The loss of the two lube oil pumps caused the 'A' and 'B' RFPTs to trip due to low bearing oil pressure. The trip of the two RFPTs caused RPV water level to decrease. The control room operators manually inserted all control rods in response to lowering RPV water level. PSEG's root cause analysis determined that instrument and controls technicians left in place test leads on a timer module contrary to step 5.3.8.B.5.b of procedure HC.MD-ST.PB-0003, "Class 1E 4.16kV Feeder Degraded Voltage Monthly Instrumentation Channel Functional Test." The degraded voltage logic for the 52-40101 and 52-40108 breakers consisted of two contacts in series, one from the phase A-B relay and the other from the phase B-C relay. With both contacts closed the logic to swap power supply breakers was satisfied. When technicians left the timer module test jacks installed, this bypassed the phase A-B contact and simulated a closed contact for the logic. When technicians commenced testing on the B-C contact, the logic to transfer the power supply from the 52-40108 breaker to the 52-40101 breaker was satisfied. This caused a slow transfer and resulted in the feed pump trip and subsequent reactor scram due to lowering RPV level.

PSEG's corrective actions included enhancing the procedure guidance for the testing sequence and adding independent verification steps for the removal of the test equipment. To further reduce the potential of a slow transfer during the testing, PSEG also revised the procedure to require that maintenance perform the test only on an open breaker.

The performance deficiency associated with this event was that maintenance technicians failed to remove test equipment in accordance with test procedure HC.MD-ST.PB-0003. As a result, operators were required to perform a manual reactor scram due the loss of reactor feed pumps and lowering RPV water level.

Analysis. The finding was greater than minor because it affected the human performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during plant operations. Specifically, the failure to follow station surveillance procedures resulted in an unplanned reactor scram. The inspectors determined the risk associated with the performance deficiency using Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors used a phase 1 analysis and determined the finding was of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. The finding had a cross-cutting aspect in the area of human performance because personnel did not follow procedures (H.4.b). Specifically, maintenance technicians failed to remove test equipment in accordance with the test procedure.

Enforcement. 10 CFR 50, Appendix B, criterion V, "Instructions, Procedures, and Drawings," states that "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings." Contrary to the above, on May 29, 2007, PSEG technicians did not remove test

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equipment in accordance with step 5.3.8.B.5 of test procedure HC.MD-ST.PB-0003. As a result, degraded voltage was sensed by the 52-40108 breaker causing the 10A401 bus to momentarily lose power during a slow transfer to the alternate power supply. The momentary loss of power caused a low RPV water level and reactor scram. Because this finding is of very low safety significance and has been entered into the CAP as notification 20325469, this violation is being treated as an NCV, consistent with section VI.A.1 of the NRC Enforcement Policy. **(NCV 05000354/2007003-02, Failure to Follow Test Procedure Results in Reactor Scram.)**

4OA6 Meetings, Including Exit

On July 12, 2007, the inspectors presented their findings to members of PSEG management led by Mr. Barnes. None of the information reviewed by the inspectors was considered proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

G. Barnes, Site Vice President
J. Perry, Plant Manager
B. Booth, Operations Director
M. Gaffney, Regulatory Assurance Manager
G. Daves, Electrical Systems Manager
J. Watson, Maintenance Supervisor
W. Hickey, Senior Reactor Operator

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened/Closed

05000354/2007003-01	NCV	Failure to perform a risk assessment when required by 10 CFR 50.65(a)(4). (Section 1R13)
05000354/2007003-02	NCV	Failure to Follow Test Procedure Results in Reactor Scram. (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

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

HCGS Updated Final Safety Analysis Report
Technical Specification Action Statement Log (SH.OP-AP.ZZ-0108)
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

SH.OP-DG.ZZ-0011, Rev. 5, Station Seasonal Readiness Guide
OP-SH-108-1001, Rev. 0, Severe Weather and Natural Disaster Guidelines

Orders

80090191 70061205

Section 1R04: Equipment Alignment**Procedures**

HC.OP-SO.EA-0001, Rev. 29, Service Water Operation
 HC.OP-SO.KJ-0001, Rev. 44, Emergency Diesel Generators Operation
 HC.OP-ST.ZZ-0001, dated 5/24/07, Power Distribution Lineup - Weekly
 HC.OP-SO.BH-0001, Rev. 9, Standby Liquid Control System Operation
 HC.OP-AR.ZZ-0008 Attachment G, Rev. 32, D2382 - SLCS Tank Level
 HC.OP-SO.GJ-0001, Rev. 44 Control Area Chilled Water System Operation
 HC.OP-AB.HVAC-0001, Rev. 4, HVAC

Completed Surveillances

HC.OP-ST.BH-0001, dated 6/6/07, SLC Valve Operability Test - Monthly
 HC.OP-IS.BH-0003, dated 6/6/07, Standby Liquid Control Pump - AP208 - Inservice Test
 HC.OP-IS.BH-0101, dated 6/6/07, Standby Liquid Control System Valves - Inservice Test

Drawings

C-0200-0, Rev. 7, Service Water Intake Structure Pump Bay Bulkhead and Ice Barrier Framing
 C-0206-0, Rev. 4, Service Water Intake Structure Ice Barriers Plan Sections & Details
 M-48-1, Rev. 14, Standby Liquid Control
 M-90-1, Rev. 25, Auxiliary Building Control Area Chilled Water System

Notifications

2028836 20324632 20324635 20325230 20326311 20313243
 20316272

Orders

70058754 70066093 70067281

Other Documents

NRC Regulatory Guide 1.29, Rev 3 & 4, Seismic Design Classification
 VTD 10855-D3.9, Design, Installation and Test Specification for the Service Water System
 DE-CB.EA-0052, Configuration Baseline Documentation for the Station Service Water System
 Work Clearance Document (WCD) 4197856
 WCDs 4200381, 4200445

Section 1R05: Fire Protection**Procedures**

Hope Creek Pre-Fire Plan FRH-II-412, Rev. 3, RCIC Pump & Turbine Room, RHR Pump & Heat Exchanger Rooms & Electrical Equipment Room Elevation: 54'-0"
 Hope Creek Pre-Fire Plan FRH-II-413, Rev. 3, HPCI Pump and Turbine Room, RHR Pump and Heat Exchanger Rooms Elevation: 54'-0"
 Hope Creek Pre-Fire Plan FRH-II-422, Rev. 3, RHR Heat Exchanger Room & MCC Area Elevation: 77' 0"
 Hope Creek Pre-Fire Plan FRH-II-423, Rev. 4, MCC Area, RHR Heat Exchanger Room, Safeguard Instrument Rooms and Reactor Auxiliary Cooling System Pumps and Heat Exchanger Area Elevation: 77' 0"
 Hope Creek Pre-Fire Plan FRH-II-511, Rev. 6, Diesel Fuel Oil Storage Tanks Area Elevation:

54' 0"

Hope Creek Pre-Fire Plan FRH-II-532, Rev. 6, Lower Control Equipment Room Elevation: 102'
HC.FP-AP.ZZ-0004, Rev. 10, Actions for Inoperable Fire Protection - Hope Creek Station
HC.FP-ST.ZZ-0031, Rev. 2, Class 1 Fire Damper Functional Test
HC.FP-PM.ZZ-0027, Rev. 3, Non-Class 1 Fire Door Inspection and Operability Test

HC.FP-SV.ZZ-0027, Rev. 5, Class 1 Fire Door Inspection and Operability Test

Notifications

20307377 20324920 20325215

Other Documents

Salem and Hope Creek Fire Impairment Log Book, dated 5/23/07

Section 1R06: Flood Protection Measures

Drawings

A-P103-1 A-P509-1 A-0202-0 E-1695-0 E-1682-1

Notifications

20320576

Orders

50055806

Other Documents

LR-N07-0094, Response to Generic Letter 2007-01, "Inaccessible or Underground Power Cable Failures that Disable Accident Mitigation Systems or Cause Plant Transients"

Section 1R07: Heat Sink Performance

Procedures

HC.OP-FT.EA-0001, Rev. 6, Validating SSWS Flow Through SACS HXs

Drawings

M-10-1, Sh. 2, Service Water

Notifications

20323208 20323398

Orders

30151873 30148277 70068574 70069198

Other Documents

EA-0033, Biofouling Monitoring and Trending Calculation

Section 1R11: Licensed Operator Regualification Program

Procedures

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SH.OP-AS.ZZ-0001, Rev. 13, Operations Standards
HC.OP-AP.ZZ-0108, Rev. 27, Operability Assessment and Equipment Control Program
HC.OP-EO.ZZ-0101FC, Rev. 10, Reactor Pressure Vessel (RPV) Control Flow Chart
HC.OP-EO.ZZ-0102FC, Rev. 11, Primary Containment Control Flow Chart

Other Documents

HCGS Event Classification Guide and Procedures
Completed Emergency Classification Paperwork
ECG attachment 3, Initial Contact Message Form
Simulator Scenario Guide, SG-328A, Loss of 10B140/Loss of Feedwater/LOCA

Section 1R12: Maintenance Effectiveness

Procedures

SH.WM-DG.ZZ-0004(Z), Production Risk Review and Screening Desk Guide, Rev. 1
HC.OP-AB.ZZ-0136(Q), Loss of 120 VAC Inverter, Rev. 9
HC.MD-PM.ZZ-0006(Q), General Preventive Maintenance For Distribution Panels, MCC's, Unit Substations, and Switchgear, Rev. 13
HC.IC-AP.ZZ-0017(Q), Bailey Module Reliability Program, Rev. 0
HC.OP-SO.EA-0001, Rev. 29, Service Water System Operation
HC.OP-AB.COOL-0001, Rev. 11, Station Service Water
HC.OP-AB.COOL-0005, Rev. 1, Total Loss Of Station Service Water
HC.MD-CM.EP-0002, Rev. 13, Service Water Traveling Screen Removal and Replacement
HC.MD-CM.EP-0003, Rev. 15, Service Water Traveling Screen Overhaul and Repair
HC.MD-PM.EP-0001, Rev. 17, Service Water Traveling Screen Inspection

Notifications

20324659	20324689	20324690	20324756	20324774	20325702
20326008	20326009	20326039	20326087	20326199	20322906
20326620	20282700	20184959	20263699	20276570	

Orders

70069296	60064728	70041887	70068320	70057131	70070364
70057192	70038689	70052199	70055579		

Other Documents

WC-AA-104, Review and Screening For Production Risk, Rev. 10
Specification 10855-E-154(Q), Instrument Alternating Current Power Supply
OTDM HC-2007-0007, 1AD482 Inverter (Class E, 120 V AC Power Supply)
4kv Switchgear Vendor Manual, 1B 8.2.7-2J, Installation/Maintenance Instructions, I-T-E Medium-Voltage Power Circuit Breakers
Regulatory Guide 1.9, Application and Testing of Safety-Related Diesel Generators in Nuclear Power Plants, Rev. 4
NRC Palo Verde Special Inspection Report 05000528/2006012; 05000529/2006012; 05000530/2006012, dated December 6, 2006
DE-CB.EA/EP-0052, Rev. 2, Configuration Baseline Documentation For Station Service Water System
M-076, Sh. 1, Rev. 9, Design Specification For Service Water Self-Cleaning Strainers

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

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Procedures

SH.OP-AP.ZZ-0027, Rev. 13, On-Line Risk Assessment

HC.OP-AR.GQ-0001, Rev. 5, Intake Structure HVAC Local Panel 1EC581

Notifications

20325200	20326559	20326624	20326642	20325815	20326050
20326199	20326349	20326467	20320340		

Orders

60069815	30143365	60067475	30151176	60068352
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Other Documents

WCDs 4190012, 4197856, 4199203, 4202247, 4200111, 4200116, 4200306, 4200381, 4200445, 4202422

HCGS PRA Risk Assessment, Rev. 0, dated 6/3/07

Equipment Out Of Service Risk Tool

HCGS Risk Evaluation Form, Work Weeks 0715 and 0720

Operational Technical Decision Making (OTDM) Evaluations HC-2007-0002 and 0004

Section 1R15: Operability Evaluations

Procedures

HC.OP-FT.EA-0001, Rev. 6, Validating SSWS Flow Through SACS Hxs

HC.OP-AP.ZZ-0108, Rev. 28, Operability Assessment and Equipment Control Program

HC.OP-AB.ZZ-0136, Rev. 10, Loss of 120 VAC Inverter

HC.OP-AM.TSC-0001, Rev. 2, Alternate Injection Using Service Water

HC.OP-EO.ZZ-0314, Rev. 4, Suppression Chamber Makeup from Fire Water or Service Water

HC.OP-AB.COOL-0001, Rev. 11, Station Service Water

HC.MD-CM.EA-0003, Rev. 28, Service Water Strainer Overhaul and Repair

HC.MD-PM.EA-0001, Rev. 22, Service Water Strainer - Clean and Inspect

HC.MD-PM.EP-0001, Rev. 17, Service Water Traveling Screen Inspection

Drawings

PN1-E41-1040-0062, Sh. 2, Rev. 14, Elementary Diagram HPCI System

PN1-E41-1040-0062, Sh. 6, Rev. 20, Elementary Diagram HPCI System

PN1-E41-1040-0062, Sh. 12, Rev. 14, Elementary Diagram HPCI System

Notifications

20322153	20322134	20320447	20324022	20324090	20324184
20326031	20326084	20326392	20326429	20322801	20322061
20321593	20322151	20321363	20321985	20322235	20322177

Orders

30147759	30148277	30151873	60068841	30151810	60668986
30150793	60069106				

Other Documents

Calculation EA-0033, Rev. 9, Biofouling and Trending Calculation

Calculation D7.5, Rev. 19, HCGS Environmental Design Criteria

PM076Q-0028, Rev. 9, Strain-O-Matic Instruction Manual

PM020Q-0056, Rev. 19 & 20, Instruction for Installation, Operation, and Maintenance For "Q"
 Class Traveling Screens
 VTD 10855-D3.10, Design, Installation and Test Specification for Safety and Turbine Auxiliaries
 Cooling System
 DE-CB.EG-0054, Configuration Baseline Document for Safety and Turbine Auxiliaries Cooling
 System
 T/S Surveillance and Planned Evolution AOT Tracking Log, dated April 12, 2007
 Technical Specification Action Statement Log #07-126

Section 1R19: Post-Maintenance Testing

Procedures

NC.NA-AP.ZZ-0050, Rev. 7, Station Post Maintenance Testing
 NC.MD-AP.ZZ-0050, Rev. 9, Maintenance Testing Program Matrix
 HC.OP-IS.BJ-0101, Rev. 52, High Pressure Coolant Injection Valves - Inservice Test
 HC.MD-PM.EA-0001, Rev. 22, Service Water Strainer - Clean and Inspect
 HC.OP-IS.EP-0001, Rev. 25, 'A' Spray Water Pump - AP507 - Inservice Test
 HC.OP-IS.EA-0001, Rev. 40, 'A' Service Water Pump - AP502 - Inservice Test

Completed Surveillances

HC.OP-ST.KJ-0004, dated 5/25/07, Emergency Diesel Generator 1DG400 Operability Test -
 Monthly

Notifications

20324836	20325140	20320447	20326769	20321593	20321363
20322061	20321528				

Orders

60064506	60064507	60067382	60067547	60068572	60068841
50090069	30140450	70070457	60068986	30151810	50103254
50103252	30137326	30143874	60060811		

Section 1R20: Refueling and Outage Activities

Procedures

HC.OP-IO.ZZ-0003, Rev. 75, Startup from Cold Shutdown to Rated Power
 HC.OP-IO.ZZ-0007, Rev. 22, Operations from Hot Standby
 HC.OP-IO.ZZ-0010, Rev. 6, Scram Recovery

Other Documents

Hope Creek Forced Outage Plan, May 29, 2007

Section 1R22: Surveillance Testing

Procedures

HC.OP-DL.ZZ-0026 Attachment 1, Rev. 110, Surveillance Log

Completed Surveillances

HC.MD-ST.PJ-0001, dated 5/20/07, 250 Volt Weekly Battery Surveillance (10-D-421)
 HC.MD-ST.PJ-0001, dated 5/20/07, 250 Volt Weekly Battery Surveillance (10-D-431)

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HC.OP-IS.BD-0001, dated 6/11/07, Reactor Core Isolation Cooling Pump-OP203-Inservice Test

HC.OP-IS.BD-0001, dated 6/14/07, Reactor Core Isolation Cooling Pump-OP203-Inservice Test

HC.OP-IS.SK-0101, dated 3/9/07, Plant Leak Detection System Valves - Inservice Test

HC.OP-DL.ZZ-0026 Attachment 1, dated 6/4/07, Surveillance Log

HC.IC-FT.SK-0016; dated 4/23/07, 3/23/07, 2/24/07, & 1/25/07; Radiation Monitoring - Channel D Monitor H1SK -1SKLY -4930 Drywell Leak Detection Sump Monitoring System (DLD-SMS)

HC.IC-FT.SE-0021, Rev. 15, Nuclear Instrumentation System - Division 1 & 3 Channel B31-K607A Flow Unit A

HC.IC-TR.SE-0013, Rev. 22, Nuclear Instrumentation System Average Power Range Monitor (Reactor Protection System) Channel E (A1 and A2)

HC.IC-CC.SE-0017, Rev. 26, Nuclear Instrumentation System Channel E Average Power Range Monitor

HC.OP-IS.EP-0001, Rev. 25, 'A' Spray Water Pump - AP507 - Inservice Test

HC.OP-IS.EA-0001, Rev. 40, 'A' Service Water Pump - AP502 - Inservice Test

HC.OP-ST.KJ-0001, Rev. 61, Emergency Diesel Generator 1AG400 Operability Test - Monthly

HC.OP-ST.KJ-0014, Rev. 25, EDG 1AG400 - 24 Hour Operability Run and Hot Restart Test

Drawings

M-50-1, sh. 1, Rev. 19, RCIC Pump Turbine

Notifications

20326871	20325292	20326258	20326447	20326563	20322751
20328077	20145712				

Orders

50105282	50105283	50102404	50092135	50100588	50103254
50103252	30137326	30143874	60060811	50104183	50105476
70029787	70068694				

Other Documents

American National Standard / Institute of Electrical and Electronics Engineers (IEEE) Std 450-1987, IEEE Recommended Practice for Maintenance, Testing, and Replacement of Large Lead Storage Batteries for Generating Stations and Substations

Prompt Investigation and Complex Troubleshooting Evaluation for RCIC high discharge pressure on June 11, 2007

D3.34, Design, Installation and Test Specification for Reactor Core Isolation Cooling System for the HCGS

GETARS plot of RCIC discharge pressure, turbine speed, and pump flow

Technical Specification Surveillance Requirement 4.8.1.1.2.k

Engineering Evaluation H-1-PB-EEE-1832, Rev. 6

Calculation SC-KJ-0513, Rev. 1

Calculation SC-PB-0003, Rev. 2

PSEG M&TE Calibration Certificate C200604248

PSEG M&TE Calibration Certificate C200700002

Operating Experience

NRC Information Notice No. 84-83: Various Battery Problems, dated 11/19/84

NRC Information Notice No. 86-37: Degradation of Station Batteries, dated 5/16/86

Section 1R23: Temporary Plant Modifications

Drawings

E-6795-0 SH 1, Rev. 2, Electrical Schematic Diagram Main Control Room Annunciators Plant Leak Detection System

J-25-0 SH 12, Rev. 5, Logic Diagram Plant Leak Detection

J-4025-0 SH 2, Rev. 2, Loop Diagram Plant Leak Detection

M-61-1, Rev. 20, Liquid Radwaste Collection

Evaluations

TCCP No. HC-07-013, Rev. 1, Jumper 1HBHV-F019 Position Permissive

Orders

60069805 80092608

Other Documents

WCD 4202694

Section 1EP6: Drill Evaluation

Procedures

SH.OP-AS.ZZ-0001, Rev. 13, Operations Standards

HC.OP-AP.ZZ-0108, Rev. 27, Operability Assessment and Equipment Control Program

HC.OP-EO.ZZ-0101FC, Rev. 10, Reactor Pressure Vessel (RPV) Control Flow Chart

HC.OP-EO.ZZ-0102FC, Rev. 11, Primary Containment Control Flow Chart

Other Documents

HCGS Event Classification Guide and Procedures

Completed Emergency Classification Paperwork

Section 4OA1: Performance Indicator Verification

Procedures

LS-AA-2090, Rev. 4, Monthly Data Elements for NRC RCS Specific Activity

LS-AA-2100, Rev. 5, Monthly Data Elements for NRC RCS Leakage

Other Documents

PSEG PI Data From April, 2006 Through March, 2007

PSEG Computerized Plant Information/Data System

Section 4OA2: Identification and Resolution of Problems

Procedures

NC.NA-AP.ZZ-0089, Rev. 0, Reactivity Management

OP-AA-300-1540, Rev. 3, Reactivity Management Administration

NC.RE-AP.ZZ-0001, Rev. 2, Reactivity Management Performance Indicator

Notifications

20309761 20327097 20327137 20327014 20323178

Orders

70065285

Other Documents

Reactivity Management PI Information From August, 2006 to May, 2007
 Hope Creek Reactivity Management Improvement Plan Dated March 8, 2007
 Boiling Water Reactor Owners Group (BWROG) Reactivity Controls Review Committee
 Guidelines For Excellence "Monitoring Of Reactivity Management Issues" Rev. 11

Section 4OA3: Event Followup

Procedures

HC.MD-ST.PB-0003, Rev. 21, Class 1E 4.16 kV Feeder Degraded Voltage Monthly
 Instrumentation Channel Functional Test

Drawings

E-0068-0, Rev. 10, Schematic Diagram for 52-40108
 E-0106-0, Sht 3, Rev 11, Schematic Diagram for A403 and A404 undervoltage protection

Notifications

20325769 20325469 20325621 20325677 20325667 20325524
 20326236 20325541 20325658 20325537 20325538

Orders

70069878 (root cause evaluation of May 29, 2007 event)

Other Documents

USNRC Information notices: 81-01, 82-13, 83-19, 84-02, 88-14, 88-69, 88-83

LIST OF ACRONYMS

ADAMS	Agency-wide Documents Access and Management System
CAP	Corrective Action Program
EDG	Emergency Diesel Generator
EOOS	Equipment Out-Of-Service
HCGS	Hope Creek Generating Station
HPCI	High Pressure Coolant Injection
HX	Heat Exchanger
I&C	Instrumentation and Controls
IEEE	Institute of Electrical and Electronics Engineers
MCC	Motor Control Center
MR	Maintenance Rule
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PI	Performance Indicator

PMT	Post-maintenance Test
PSEG	Public Service Enterprise Group Nuclear LLC
RCIC	Reactor Core Isolation Cooling
RCS	Reactor Coolant System
RFP	Reactor Feed Pump
RFPT	Reactor Feed Pump Turbines
RHR	Residual Heat Removal
RPV	Reactor Pressure Vessel
SACS	Safety Auxiliaries Cooling System
SDP	Significance Determination Process
SL	Significance Level
SLC	Standby Liquid Control
SSC	Structures, Systems, and Component
SSW	Station Service Water
UFSAR	Updated Final Safety Analysis Report
WCD	Work Clearance Document