

July 19, 2006

Mr. William Levis
Senior Vice President and Chief Nuclear Officer
PSEG LLC - N09
P. O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: SALEM NUCLEAR GENERATING STATION - NRC INTEGRATED
INSPECTION REPORT 05000272/2006003 and 05000311/2006003

Dear Mr. Levis:

On June 30, 2006, the US Nuclear Regulatory Commission (NRC) completed an inspection at the Salem Nuclear Generating Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on July 6, 2006, with Mr. T. Joyce 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.

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

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Sincerely,

/RA/

Mel Gray, Chief
Projects Branch 3
Division of Reactor Projects

Docket Nos: 50-272; 50-311
License Nos: DPR-70; DPR-75

Mr. W. Levis

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Enclosure: Inspection Report 05000272/2006003 and 05000311/2006003
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos: 50-272, 50-311

License Nos: DPR-70, DPR-75

Report No: 05000272/2006003 and 05000311/2006003

Licensee: Public Service Enterprise Group Nuclear LLC

Facility: Salem Nuclear Generating Station, Units 1 & 2

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

Dates: April 1, 2006 through June 30, 2006

Inspectors: J. Daniel Orr, Senior Resident Inspector
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SUMMARY OF FINDINGS

IR 05000272/2006003, 05000311/2006003; 04/01/2006 - 06/30/2006; Salem Nuclear Generating Station Units 1 and 2; routine integrated report.

The report covered a 13-week period of inspection by resident inspectors, and announced inspections by a regional radiation specialist, a regional projects inspector, reactor inspectors and operations engineers. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

Unit 1 began the period at 100 percent (%) power and remained at or near 100% for the entire quarter.

Unit 2 began the period at 100% power. Unit 2 was reduced to 75% reactor power on May 6, 2006, for planned maintenance on the main turbine governor control valves. Unit 2 returned to 100% power on the same day and remained at or near 100% for the remainder of the quarter.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope (1 sample)

The inspectors reviewed PSEG's completed procedure SC.OP-PT.ZZ-0002, "Station Preparations for Seasonal Conditions," for hot weather conditions. Inspectors reviewed Unit 1 and Unit 2 system health reports for the service water, component cooling, and auxiliary building ventilation systems, and interviewed responsible system engineers. The inspectors also reviewed operability determinations potentially impacted by hot weather and interviewed station personnel responsible for implementing severe weather preparations. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope (3 samples)

Partial Walkdowns. The inspectors performed partial walkdowns of three systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors focused their review on potential 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 corrective action program. Documents reviewed are listed in the attachment. The following three systems were walked down:

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- C Unit 2 component cooling (CC) system during the 22 CC heat exchanger outage;
- C Unit 2 boration flow paths during maintenance to the 22 boric acid tank; and
- C Unit 2 chemical and volume control system during and after maintenance to the 22 charging pump discharge check valve (2CV52).

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope (6 samples)

Fire Protection - Tours. The inspectors walked down six 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. Documents reviewed are listed in the attachment. The following fire areas were inspected:

- C Unit 1 and Unit 2 emergency diesel generator fuel oil storage area;
- C Unit 1 and Unit 2 spent fuel, safety injection, and component cooling pump area; and
- C Unit 1 and Unit 2 230Vac and 460Vac vital switchgear rooms and corridor.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope (1 sample)

Internal Flooding Review. The inspectors evaluated internal flood protection measures for the 460/230Vac vital switchgear and relay rooms for both Salem Units. The areas were walked down to assess operational readiness of various features to protect vital electric power systems from internal flooding. These features included plant drains, flood barrier curbs, and wall penetration seals. The inspectors also reviewed the results of the most recent flood barrier penetration seal inspection and notifications associated with flood protection measures. Finally, the inspectors interviewed main control room operators regarding their knowledge of indications, procedures and required actions during a postulated non-seismic fire protection piping rupture. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

Resident Inspector Annual Review (1 sample). The inspectors reviewed performance data and interviewed the program manager responsible for implementation of NRC Generic Letter 89-13 to verify that potential heat exchanger or heat sink deficiencies were identified and that PSEG adequately resolved heat sink performance problems. Specifically, the inspectors reviewed the 15 service water pump upper motor bearing heat exchanger performance data. Inspectors evaluated trending data and verified equipment would perform satisfactorily under design basis conditions. The method of performance monitoring was compared against NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," and EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines," for conformance to these guidance documents. Additional documents reviewed are listed in the attachment.

Biennial Review by Regional Staff (3 samples). Based on plant specific risk importance and resident inspector input, the inspectors selected the 21 charging pump gear oil cooler, the 11 auxiliary feedwater pump room cooler, and the 2C emergency diesel generator (EDG) lube oil cooler as samples for this inspection.

For the selected components, the inspectors reviewed the testing and cleaning methods used by PSEG to ensure heat removal capabilities were consistent with commitments made in response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment," and accepted industry practices. The inspectors determined that the procedure used to quantify macrofouling of the charging pump coolers was adequate and in accordance with accepted industry practices. The inspectors also reviewed methods for monitoring and controlling biotic and macro-fouling and verified their effectiveness.

The inspectors walked down the selected components and the service water intake structure to assess the general material condition of the selected heat exchangers and associated service water components. The inspectors also inspected the internal components of the 22 service water pump strainer, which was open for corrective maintenance, and observed the type and quantity of material present within the strainer. The inspectors reviewed a sample of notifications related to the selected heat exchangers to ensure that problems related to these components were appropriately identified, characterized, and corrected. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

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1R11 Licensed Operator Requalification Program (71111.11)a. Inspection Scope (1 sample)

Resident Inspector Quarterly Review. The inspectors observed a simulator training scenario conducted on May 30, 2006, to assess operator performance and training effectiveness. The scenario involved a 2B emergency diesel generator malfunction, a 21 hydrogen analyzer instrument failure, total loss of component cooling water, and a total loss of all ac electrical power. The inspectors verified operator actions were consistent with operating, alarm response, abnormal, and emergency procedures. The inspectors assessed simulator fidelity and verified that evaluators identified deficient operator performance where appropriate. The inspectors observed the simulator instructors' critique of operator performance. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)a. Inspection Scope (2 samples)

Resident Inspector Quarterly Review. The inspectors reviewed performance monitoring and maintenance effectiveness issues for a 15 service water pump motor upper bearing overheating condition and a 22 service water pump strainer motor overload trip. These issues were initially entered into PSEG's corrective action program as notifications 20275072 and 20275035, and both occurred on March 10, 2006. The inspectors assessed whether PSEG was adequately monitoring equipment performance to ensure that preventive maintenance was effective. The inspectors verified that the components were monitored in accordance with the maintenance rule program requirements. The inspectors compared documented functional failure determinations and unavailability hours to those being tracked by PSEG to evaluate the effectiveness of PSEG's condition monitoring activities and to determine whether performance goals were being met. The inspectors reviewed applicable work orders, corrective action notifications, and preventive maintenance tasks. The inspectors also interviewed pertinent system engineers. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified. However, issues involving maintenance effectiveness for the 22 service water strainer (SWS) are unresolved pending further inspection of PSEG's evaluation of maintenance practices, engineering evaluation of the repeat 22 SWS trips, and testing of the thermal overload protective devices.

On March 3, 2006, maintenance technicians completed preventive maintenance (Order 30083454) on the 22 SWS. Between March 3 and March 10, 2006, the 22 SWS

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operated for 114 hours. On March 10, 2006, the 22 SWS tripped on the strainer motor thermal overload. Operators reset the thermal overload protective devices and tested the 22 SWS by running it in manual. PSEG procedure SC.OP-DD.ZZ-0006, Protective Circuit/Breaker Reset and Reclosure Policy, Revision 0, permitted equipment operators to reset the overload devices one time without determining the cause of the trip. The 22 SWS was next started on March 11, 2006, and operated for approximately two hours before tripping again.

PSEG entered this issue into the corrective action program (20275035) and completed corrective maintenance (20275118). The corrective maintenance included increasing the internal drum-to-body clearances from approximately 0.020 inches to approximately 0.050 to 0.063 inches. The inspectors noted that PSEG did not evaluate the cause of the 22 SWS trip. Salem personnel later determined the 22 SWS tripped because internal drum-to-body clearances were too tight following the maintenance on March 3, 2006 (20280934).

Subsequently, the inspectors reviewed the completed work package (30083454) and found the internal drum-to-body clearances following the maintenance on March 3, 2006, may not have been too tight. Moreover, the drum-to-body clearances were adjusted during this preventive maintenance activity, but the portion of the procedure that directed clearance adjustment was marked not applicable. Finally, the drum-to-body clearances decreased while 22 SWS operated between March 3 and March 10, 2006.

PSEG then evaluated the 22 SWS trip and concluded, consistent with inspector observations, the 22 SWS internal clearances decreased during operation (70057833). PSEG identified two possible causes: the 22 SWS lower locknut may not have been tightened, or the 22 SWS lower locknut may not have been locked in place. Either cause would have decreased the 22 SWS internal clearances by allowing the internal drum to drift deeper into the external body. Both locknut tightening and locknut locking were required by procedure SC.MD-PM.SW-0003, Service Water Auto Strainer Adjustment, Inspection, Repair and Replacement, Revision 25.

Late in the inspection period, on June 27, 2006, the 22 SWS tripped twice on thermal overload and was removed from service for troubleshooting and corrective maintenance (20289327, 20289407). The inspectors noted that the 22 SWS motor overload protective devices were not tested during this troubleshooting activity.

The issue is unresolved pending inspector review of PSEG's evaluation of maintenance practices, engineering reevaluation of the repeat 22 SWS trips and testing of the thermal overload protective devices. PSEG issued corrective action notification 20289840 to reevaluate the 22 SWS trips. **(URI 05000311/2006003-01, 22 Service Water Strainer Multiple Trips)**

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

The inspectors reviewed six maintenance activities to verify that the appropriate risk assessments were performed as required by 10 CFR 50.65(a)(4) prior to removing equipment for work. The inspectors reviewed the applicable risk evaluations, work schedules and control room logs for these configurations to verify that concurrent planned, and emergent maintenance and test activities did not adversely affect the plant risk already incurred with these configurations. PSEG's risk management actions were reviewed during shift turnover meetings, control room tours, and plant walkdowns. The inspectors also used PSEG's on-line risk monitor (Equipment Out Of Service Workstation) to evaluate the risk associated with the plant configuration and to assess PSEG's risk management. Documents reviewed are listed in the attachment. The following plant configurations were assessed:

- C Unit 3 gas turbine generator and 1PR2 pressurizer power operated relief valve maintenance;
- C 1C emergency diesel generator and 15 service water pump maintenance;
- C 22 component cooling pump maintenance;
- C 22 charging pump during repairs to discharge check valve, 2CV52;
- C 22 component cooling heat exchanger outage; and
- C 12 switchgear exhaust fan, 13 service water pump and 11 rod drive motor generator maintenance.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)a. Inspection Scope (5 samples)

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

- C Notification 20284189, 22 service water strainer blowdown valve remained mid-position;
- C Notification 20276469, 1C emergency diesel generator (EDG) over-crank trip on March 21, 2006;
- C Condition report (NUCR) 70057799, operability determination (OD) for reliability of Salem Unit 1 and 2 EDGs with potentially degraded cylinder heads supplied by a vendor;
- C Notifications 20237806 and 20272927 concerning potential centrifugal charging pump run out during safety injection; and
- C Notification 20276480 concerning operability of the 23 auxiliary feedwater pump room ventilation with solenoid valve 2ABS2-SV1093 degraded.

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The inspectors reviewed the technical adequacy of the operability determinations to ensure that technical specification operability and technical conclusions were justified. Inspectors verified that no unrecognized increase in risk occurred due to the listed conditions. The inspectors also walked down accessible equipment to corroborate the adequacy of PSEG's operability determinations. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope (6 samples)

The inspectors observed portions of and/or reviewed results of six post-maintenance tests for the following equipment:

- Work order (WO) 60061092, 22 component cooling pump mechanical seal replacements;
- WO 60062984, 1C emergency diesel generator 5R cylinder head replacement;
- WO 60061996, 1C 125 VDC battery cell replacement;
- WO 60060740, on-line repair of 22 charging pump discharge check valve (2CV52);
- WO 60060959, replacement of service water valve 13SW46; and
- WOs 30074181, 30074221, 30107211, 30124651, 30132800 and 30134087, 12 service water pump preventive maintenance outage.

The inspectors assessed whether: (1) the effect of testing on the plant had been adequately addressed by control room and engineering personnel; (2) testing was adequate for the maintenance performed; (3) acceptance criteria were clear and adequately demonstrated operational readiness, consistent with design and licensing basis documentation; (4) test instrumentation had current calibration, range, and accuracy for the application; (5) tests were performed, as written, with applicable prerequisites satisfied; and (6) equipment was returned to an operational status and ready to perform its safety function. Documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)a. Inspection Scope (6 samples)

The inspectors observed portions of and/or reviewed results for six surveillance tests to verify, as appropriate, whether the applicable system requirements for operability were adequately incorporated into the procedures and that test acceptance criteria were consistent with procedure requirements, the technical specification requirements, the Updated Final Safety Analysis Report (UFSAR), and ASME Section XI for pump and valve testing. Documents reviewed are listed in the attachment. The following surveillance tests were inspected:

- C Work Order (WO) 50093126, SC.MD-ST.125-0003, Quarterly Inspection and Preventive Maintenance of Units 1, 2 & 3 125 Volt Station Batteries, Rev. 22, for the 1C 125Vdc safety-related battery;
- C WOs 50083926, 50083906, 50090925, 50093004, and 50094225, 2B diesel generator monthly surveillance, cyclic endurance run and cyclic hot restart test;
- C WOs 50094379 and 50093177, 1C diesel generator monthly surveillance pursuant to adverse condition monitoring plan 06-10;
- C WOs 30102967, 40023364, and 50093561, S2.OP-ST.RHR-0001, Inservice Testing - 21 Residual Heat Removal Pump, Rev. 20;
- C WOs 50094702 and 50094702, S2.OP-ST.AF-0003, Inservice Testing - 23 Auxiliary Feedwater Pump, Rev. 41; and
- C WO 50094596, S1.OP-ST.CVC-0003, Inservice Testing - 11 Charging Pump, Rev. 17.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness [EP]1EP6 Drill Evaluation (71114.06)a. Inspection Scope (1 sample)

The inspectors observed one EP drill from the control room simulator on June 7, 2006. The inspectors evaluated drill performance relative to developing event classifications and implementation of notifications. The inspectors reviewed the Salem Event Classification Guides and Emergency Plans. The inspectors referenced Nuclear Energy Institute 99-02, Regulatory Assessment Performance Indicator (PI) Guideline, Revision 3, and verified that PSEG correctly counted this drill's contribution to the NRC PI for Drill and Exercise Performance. Additional documents reviewed are listed in the attachment.

b. Findings

No findings of significance were identified.

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2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope (6 samples)

The inspectors reviewed PSEG's self-assessments, audits, licensee event reports, and special reports related to the access control program since the previous NRC inspection and determined that identified problems were appropriately entered into the corrective action program for resolution.

The inspectors reviewed notifications and corrective action evaluations related to access controls. Included in this review were PSEG-identified high radiation area radiological incidents in high radiation areas <1R/hr. For repetitive deficiencies or significant individual deficiencies in problem identification and resolution, the inspectors verified that PSEG self-assessment activities were also identifying and addressing these deficiencies.

The inspectors reviewed PSEG documentation packages for all NRC Performance Indicator (PI) events occurring since the last NRC inspection and determined if any of these PI events involved dose rates >25 R/hr at 30 centimeters or >500 R/hr at 1 meter. The inspectors ascertained what barriers failed and if any barriers remained to prevent personnel access. For unintended exposures >100 mrem Total Effective Dose Equivalent, >5 rem Skin Dose Equivalent, or >1.5 rem Lens Dose Equivalent, the inspectors determined if overexposure or a substantial potential for overexposure also occurred.

The inspectors reviewed radiological problem reports which included causal factors related to radiation worker or radiation protection technician errors and assessed if adverse trends existed. Corrective actions completed or intended by PSEG were also reviewed. The inspectors verified adequate posting and locking of entrances, if reasonably accessible, to all high dose rate - high radiation area and very high radiation areas.

The inspectors also reviewed PSEG surveys and walked down the areas identified by PSEG as having groundwater in-leakage containing small amounts of cesium-137 within Unit 1. These areas were the 4kV vital bus area, the mechanical penetration area, and the electrical penetration area. Each was determined by the inspectors to be appropriately posted and controlled for the radiological contamination identified.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)a. Inspection Scope (2 samples)

The inspectors reviewed PSEG's self assessments, audits, and special reports related to the as low as is reasonably achievable (ALARA) program since the last NRC inspection. The inspectors verified PSEG's overall audit program's scope and frequency (for all applicable areas under the Occupational Cornerstone) satisfied the requirements of 10 CFR 20.1101.c.

The inspectors reviewed dose significant post-job and post-outage ALARA report critiques and verified that identified problems were appropriately entered into the corrective action program. The inspectors assessed the description, priority and resolution of each issue.

On May 8, 2006, the inspectors attended a station ALARA committee meeting. The principal topic of the meeting reviewed the residual heat removal system area painting project, and alternative methods to minimize the dose for the project, which was estimated at 1.994 person-rem.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)a. Inspection Scope (1 sample)

The inspectors reviewed the Salem Updated Final Safety Analysis Report to identify applicable radiation monitors associated with transient high and very high radiation areas, including those used in remote emergency assessment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES [OA]

4OA1 Performance Indicator (PI) Verification (71151)

d. Inspection Scope (6 samples)

Cornerstone: Mitigating Systems

C Safety System Function Failures

The inspectors reviewed all Salem Unit 1 and 2 licensee event reports issued from second quarter 2004 through the first quarter 2006 for safety system functional failures as defined by NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 3.

Cornerstone: Barrier Integrity

The inspectors sampled PSEG submittals for the two PIs listed below for Salem Unit 1 and 2. For both PIs, the inspectors reviewed the period from second quarter 2004 through the first quarter 2006. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 3, were used to verify the basis in reporting for each data element.

C Reactor Coolant System (RCS) Identified Leak Rate

C RCS Specific Activity

The inspectors reviewed main control room logs and were familiar with identified leak rate data through plant status reviews required by NRC Inspection Manual Chapter 2515, Appendix D, "Plant Status." The inspectors also observed a RCS specific activity sample to inspect performance of chemistry technicians and to determine how radio-chemistry results are transferred from field data to the NRC PI report.

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 followup, the inspectors performed a screening of all items entered into PSEG's corrective action program. This was accomplished by reviewing the description of each new notification.

.2 Semi-Annual Review to Identify Trends

a. Inspection Scope

As required by Inspection Procedure 71152, Identification and Resolution of Problems, the inspectors performed a review of PSEG's corrective action program (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. A specific repetitive equipment issue included low 11 component cooling (CC) header flow rates identified during periodic surveillance testing. The review also included issues documented outside the normal CAP in system health reports, PSEG performance indicators, site monthly management review meeting reports and attendance at the Nuclear Review Board. The inspectors' review nominally considered the six-month period of January through June 2006, although some examples expanded beyond those dates when the scope of the trend warranted. Specific documents reviewed are listed in the attachment.

b. Assessment and Observations

No findings of significance were identified.

For each instance of low 11 CC header flow, PSEG reviewed past operability of the Unit 1 residual heat removal system and concluded that operability was always maintained. PSEG also considered the potential causes of CC header flow drifting low between surveillance tests and adequately reviewed current operability of the CC system. PSEG self-identified the repetitive low CC header flow. PSEG initiated long term corrective actions to resolve the issue within corrective action evaluation 70055970.

.3 Annual Sample: Review of Human Performance Improvement Initiative

a. Inspection Scope

The inspectors reviewed PSEG's evaluation of human performance at the Salem and Hope Creek sites and the status of corrective actions. The facility initiated notification 20265044, "Cross-Cutting Issue (Human Performance)," due to multiple NRC green inspection findings with a documented human performance aspect plus a determination that human performance deficiencies were involved in fifty percent of Salem licensee event reports for calendar year 2005.

The inspectors reviewed the common cause analysis (CCA) completed in response for this notification, and the notifications and corrective action documentation for the individual green findings. The CCA considered data from the Salem site, which included all, but one of the human performance related findings. The adequacy of these analyses and corrective actions for both the Salem and Hope Creek sites was evaluated against the performance attributes of NRC inspection procedure 71152.

The inspectors reviewed implementation of the corrective actions. A plan of the day (POD) meeting was observed which included a discussion of a selected human performance tool. The facility implemented the EPRI Proactive Assessment of Organizational and Workplace Factor (PAOWF) software to document work observations. A selection of completed PAOWF observations was reviewed. The inspectors also reviewed lesson plans for human performance fundamentals presented to supervisors and managers and the lesson plan presented to engineering personnel for improvement of apparent cause evaluations.

b. Findings and Observations

No findings of significance were identified.

The CCA considered nine LERs, 12 non-cited violations, 3 findings, and 18 associated condition reports describing human performance issues from calendar year 2005. Two common causes were identified: less than adequate utilization of "human performance fundamentals" applicable to individual functional areas, and failure to address and/or identify human performance deficiencies during engineering technical evaluations of plant problems. The review described in this CCA and the human performance improvement initiatives PSEG was undertaking were considered by the inspectors to be thorough. In addition to the common cause corrective actions, specific corrective actions were implemented for each individual issue that prompted the common cause analysis.

Some corrective actions to address the common causes included implementation of a Human Performance Steering Committee, new station procedures directing human performance tools, and the new PAOWF work observation forms which included specific questions to evaluate human performance fundamentals. Training on human performance fundamentals and attention to human performance initiatives were ongoing. Training for engineering department personnel was conducted and intended to improve quality of apparent cause evaluations.

Ongoing evaluation by PSEG regarding the effectiveness of these human performance initiatives was planned through evaluations of work observation card data and human reliability performance indicators. The inspectors concluded that the value of PAOWF assessment appeared to be highly dependent on how well they were used by the assessor; some cards were simply numerical scores, others contained explanations or commentary. The initial self assessment of the effectiveness of these corrective actions was scheduled for later in 2006, after training completion and PAOWF observation accumulation.

.4 Annual Sample: Review of Operator Workaround Program

a. Inspection Scope

The inspectors conducted a cumulative review of operator workarounds for Salem Units 1 and 2 and assessed the effectiveness of PSEG's operator workaround program. Particular focus was placed on the potential impact on mitigating systems and the potential to affect the operators' ability to implement abnormal and emergency operating procedures. The review included interviews with licensed operators and walk downs of main control room panels. The inspectors reviewed PSEG's operator burden list, control room distraction report, and operator burden self assessment.

b. Findings and Observations

No findings of significance were identified.

PSEG characterized one item in its operator burden list as an operator workaround. The inspectors did not identify additional operator workarounds. There were 38 of 152 operator burden items classified as operator challenges. The inspectors noted that SH.OP-AP.ZZ-0030, "Operator Burden Program," Revision 8, specified that the quarterly operator burden assessment should include groupings of burdens by system, and that the aggregate impact by system for each watch station should be evaluated to determine if an individual operator may be overburdened. These items were not documented in the most recent quarterly assessment for either Salem unit.

The inspectors observed that the 22 steam generator feed pump (SGFP) suction flow indication was faulted (notification 20261237) and could provide a balance-of-plant challenge to operators during a reactor trip, yet the issue was not captured in the operator burden program. This issue was listed as a priority 4, low level issue, on the control room distractions report. The inspectors also identified informal guidance to reactor operators for the failed 22 SGFP suction flow indication.

PSEG initiated corrective action notification 202777133 and temporary standing order 06-04 to properly control the 22 SGFP guidance. PSEG also promptly communicated the improper administrative control to all control room operators via a night order entry. PSEG noted the other minor OWA administrative issues. The inspectors concluded that PSEG was making noticeable progress towards reducing operator burdens.

.5 Safety Conscious Work Environment Metric Review

a. Inspection Scope

The inspectors reviewed PSEG's progress in addressing safety conscious work environment (SCWE) issues that were discussed in the NRC's annual assessment letter dated March 3, 2006. In that letter, the NRC staff documented a SCWE substantive cross-cutting issue and stated the NRC's intention to continue to monitor progress in this area.

On May 10, 2006, the inspectors conducted a sampling review of PSEG's SCWE metrics, or performance indicators (PIs), for first quarter 2006. Documents reviewed are listed in the attachment.

b. Findings and Observations

No findings of significance were identified.

In first quarter 2006, PSEG identified twenty-four PIs as being green or satisfactory while six PIs were identified as red or needing improvement. An additional PI documenting the results of a recent Synergy Consulting Services Corporation survey of the Salem/Hope Creek workforce was added in the first quarter 2006 PIs. The first quarter 2006 PIs indicated an improvement from the fourth quarter 2005 results of twenty-one green PIs and eight red PIs.

4OA3 Event Followup (71153 - 1 sample)

.1 (Closed) Licensee Event Report (LER) 05000272/2006-001-00, Salem Unit 1 Turbine Trip - Reactor Trip with Reactor Power Above P-9

On March 8, 2006, Salem Unit 1 received an automatic reactor trip from a turbine trip condition that was caused by an anomalous turbine electronic overspeed signal. The reactor trip actions and plant recovery were performed without complications. This issue was discussed in sections 1R14 and 4OA3.1 of NRC Inspection Report 05000272&311/2006002. The anomalous electronic overspeed signal was most likely caused by radio-frequency interference (RFI) or electro-magnetic interference (EMI) by an unknown source. Three turbine overspeed conductors are routed together in a single cable. PSEG established additional administrative controls to reduce the likelihood of RFI or EMI in the cable route area. PSEG also planned to evaluate longer term actions such as additional cable shielding or cable separation for the three turbine overspeed conductors. The LER was reviewed by the inspectors and no findings of significance were identified, and no violations of NRC requirements occurred. PSEG documented the root cause evaluation in order 70054731. This LER is closed.

4OA5 Other Activities

.1 Implementation of Temporary Instruction (TI) 2515/165 - Operational Readiness of Offsite Power and Impact on Plant Risk

a. Inspection Scope

The objective of TI 2515/165, "Operational Readiness of Offsite Power and Impact on Plant Risk," was to gather information to support the assessment of nuclear power plant operational readiness of offsite power systems and impact on plant risk. The inspectors evaluated PSEG procedures against the specific offsite power, risk assessment, and system grid reliability requirements of TI 2515/165. The inspectors also discussed the attributes with PSEG personnel.

Enclosure

The information gathered while completing this TI was forwarded to the Office of Nuclear Reactor Regulation for further review and evaluation on April 3, 2006.

b. Findings

No findings of significance were identified.

.2 (Closed) URI 05000272&311/2005004-01 Chemical Volume Control System (CVCS) Cross-Tie Implementation

URI 05000272&311/2005004-01, Chemical Volume Control System (CVCS) Cross-Tie Implementation, was opened pending inspector review of PSEG's corrective actions to resolve maintenance rule scoping, 10 CFR 50.59 safety evaluation, and procedure quality and consistency issues for the CVCS cross-ties between Salem Units 1 and 2. The inspectors earlier reviewed maintenance rule applicability of the reactor coolant seal injection function via the cross-tie, CVCS cross-tie operating instructions within several abnormal and emergency operating procedures, and associated 10 CFR 50.59 safety evaluations.

The CVCS cross-tie was a plant modification (80029150) to Salem Units 1 and 2 made operational in late 2002. PSEG installed the inter-unit cross-tie of the CVCS to provide continued charging flow in a postulated post fire condition. PSEG revalidated a post fire safe shutdown analysis and determined that the existing safe shutdown charging pumps required cable separation or protection upgrades. PSEG stated in evaluation 80029150 that greater plant safety could be achieved by installing a charging cross-tie between the Salem Units rather than protecting impacted cables associated with the charging system. The charging cross-tie resulted in having all active components associated with a new, alternate charging train in a totally separate fire area (i.e. the opposite or unaffected unit). The alternate charging train consisted of the existing non-safety related positive displacement pump and a newly installed CVCS cross-tie, and according to PSEG, provided a suitable fix for addressing postulated fires. When the URI was opened, the inspectors noted utilization of the CVCS cross-tie expanded to non-fire emergency operational scenarios. The inspectors also noticed inconsistent application of the CVCS cross-tie to various abnormal and emergency operating conditions.

The inspectors reviewed corrective actions within notifications 20254207, 20253052, 20253019, and 20253153 initiated by PSEG in response to the NRC questions. The inspectors interviewed licensing engineers, maintenance rule engineers and operators with particular focus on RCP seal injection restoration strategies after a total loss of RCP seal cooling condition. The inspectors considered station blackout (SBO), fire, loss of service water, loss of component cooling water, and loss of charging scenarios. The inspectors verified that adequate precautions existed within applicable PSEG operating procedures to prevent thermal shock of RCP shaft seals prior to seal injection restoration. Finally, the inspectors reviewed PSEG's RCP seal restoration strategies for SBO, 10 CFR 50 Appendix R fire, and loss of RCP seal cooling scenarios. PSEG determined that because of human reliability considerations, the CVCS cross-tie could not be credited for seal injection during SBO and loss of seal cooling events. The time

Enclosure

frame allowed to restore seal injection was not feasible. The inspectors concluded there were no findings of significance. This URI is closed.

4OA6 Meetings, Including Exit

NRC/PSEG Management Meeting - Reactor Oversight Process Annual Assessment.

The NRC conducted a meeting with PSEG on May 17, 2006, to discuss the NRC's annual assessment of safety performance at Salem and Hope Creek for calendar year 2005, and PSEG actions to improve the safety conscious work environment. The meeting occurred at the Holiday Inn Select in Bridgeport, New Jersey and was open for public observation. A copy of slide presentations and other background documents can be found in ADAMS under accession number ML060680412.

Exit Meeting. On July 6, 2006, the resident inspectors presented the inspection results to Mr. Tom Joyce, Site Vice President - Salem, and other members of PSEG's staff. The inspectors verified that no proprietary information is contained in the report.

ATTACHMENT: SUPPLEMENTAL INFORMATION

Enclosure

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel:

T. Joyce, Salem Vice President
C. Fricker, Salem Plant Manager
S. Robitski, Salem Engineering Director
T. Gierich, Salem Operations Manger
J. Stone, Salem Maintenance Director
G. Sosson, Salem System Engineering Manager
A. Roberts, Manager - Engineering Programs
R. Gary, Salem Technical Superintendent - Radiation Protection
S. Mannon, Salem Regulatory Assurance Manager
T. Neufang, Radiological Engineering Manager
P. Steinhauer, Training Support Manager
P. Quick, Operational Chemistry Supervisor
J. Melchionna, Generic Letter 89-13 Program Manager
C. Pupek, PRA Engineer
T. Carrier, PRA Engineer
E. Villar, Nuclear Licensing/Compliance
J. Wearne, Nuclear Licensing/Compliance
D. Kabachinski, Emergency Preparedness

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000311/2006003-01	URI	22 Service Water Strainer Multiple Trips (Section 1R12)
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Opened/Closed

05000272/2006-001-00	LER	Salem Unit 1 Turbine Trip - Reactor Trip with Reactor Power Above P-9 (Section 4OA3.1)
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Closed

05000272&311/2005004-01	URI	Chemical Volume Control System Cross-Tie Implementation (Section 4OA5.2)
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LIST OF DOCUMENTS REVIEWED

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

Section 1R01: Adverse Weather Protection

Procedures

NC.OP-DG.ZZ-0002, Severe Weather Guide, Revision (Rev.) 6
SH.OP-DG.ZZ-0011, Station Seasonal Readiness Guide, Rev. 4
SC.OP-AB.ZZ-0001, Adverse Environmental Conditions, Rev. 9
SC.OP-PT.ZZ-0002, Station Preparations for Seasonal Conditions, Rev. 10
WC-AA-107, Seasonal Readiness, Rev. 2
S2.OP-SO.CBV-0001, Containment Ventilation Operation, Rev. 30
S1.OP-DL.ZZ-0001, Control Room Logs, Rev. 5

Notifications

20272148, 20281752, 20281787, 20283271, 20283958, 20284189, 20284885, 20286563

Orders

80088650, 70049239, 60062651, 60029373, 60046922,

Other Documents

PSEG letter dated May 9, 2006 to Bill Levis from Carl Fricker, re: Salem Station Summer Readiness
2006 Salem Summer Readiness Status report
Salem Generating Station Environmental Summer Readiness response plan
Summer Readiness Just-in-Time Training for Licensed and Non-Licensed Operators

Section 1R04: Equipment Alignment

Procedures

S2.OP-AB.CC-0001, Component Cooling Abnormality, Rev. 11
S2.OP-SO.CC-0002, 21 & 22 Component Cooling Heat Exchanger Operation, Rev. 19
2-EOP-APPX-1, Component Cooling Water Restoration, Rev. 23
S2.OP-ST.CVC-0008, Reactivity Control Systems - Boration, Rev. 9
S2.OP-ST.CVC-0009, Reactivity Control Systems - Boration, Rev. 22
S2.OP-ST.CVC-0010, Borated Water Sources, Rev. 8

Drawings

205331, 205328

Notifications

20280800, 20261197

Other Documents

Lineup Id 976, Boration Flowpath Validation

Section 1R05: Fire Protection

Procedures

FRS-II-431, Pre-Fire Plan U1 & U2 460V Switchgear Rooms and Corridor, Rev. 6
FRS-II-432, Pre-Fire Plan U1 & U2 Spent Fuel/Component Cooling Heat Exchanger & Pump Area, Rev. 5
FRS-II-435, Pre-Fire Plan U1 & U2 Diesel Fuel Oil Storage Area, Rev. 5
SC.FP-AP.ZZ-0003, Actions for Inoperable Fire Protection - Salem Station, Rev. 11
NC.FP-AP.ZZ.0020, Compensatory Measure Firewatch Program, Rev. 1

Notifications

20281144, 20287544

Other Documents

Hourly Fire Watch Patrol Inspection Log dated June 15, 2006
Salem and Hope Creek Fire Impairment Log Book

Section 1R06: Flood Protection Measures

Procedures

S1.OP-SO.AF-0001, Auxiliary Feedwater System Operation, Rev. 21
SC.FP-ST.FS-0007, Class 1 Fire Water System' Valve Cycling, Rev. 2
SC.FP-SV.FBR-0026, Flood and Fire Barrier Penetration Seal Inspection, Rev. 2

Drawings

207095, 207096, 207080, 207081

Notifications

20280721, 20281348, 20287431, 20287412, 20287502, 20273398, 20287512, 20287431,
20273733, 2016470

Orders

70058383, 30100224, 70042667, 70035088

Other Documents

Updated Final Safety Analysis Report section 3.6.5.12
Salem Generating Station Individual Plant Examination for External Events dated January 1996,
PSEG VTD 320758-01
Flood Assessment for IPEEE of Salem Nuclear Generating Station Units 1 & 2 dated
September 29, 1994, PSEG VTD 320058
S-C-A364-CSE-0500-0, Effects on Safety Related Control Equipment Due to Fire Protection
Piping Failure dated October 29, 1972

Section 1R07: Heat Sink Performance

Procedures

NC.ER-AP.ZZ-0039, Service Water Reliability Program, Rev. 1
SC.ER-DG.ZZ-0002, System Function Level Maintenance Rule Scoping, Rev. 2
SC.MD-GP.SW-0001, Service Water Silt Survey, Rev. 9
SC.RA.TI.ZZ-0029, Trending Lube Oil Cooler Parameters for Centrifugal Charging, Safety Injection, Service Water Pumps and Emergency Power Diesel Generators, Rev. 1
S1.OP-ST.SW-0005, Inservice Testing - 15 Service Water Pump, Rev. 23
S1.RA-ST.SW-0005, Inservice Testing 15 Service Water Pump Acceptance Criteria, Rev. 9
NC.ER-TI.ZZ-0001, Inspection of Service Water Heat Exchangers, Piping, Flanges and Miscellaneous Valves, Rev. 1
S1.OP-DL.ZZ-0006, Primary Plant Log, Rev. 45
S2.OP-PT.SW-0004, Service Water Fouling Monitoring Safety Injection and Charging Pumps, Rev. 8
S2.OP-PT.SW-0006, Service Water Fouling Monitoring Diesel Generators, Rev. 9

Drawings

VTD 176448-02, Service Water Pump Motor Upper Bearing Cooler
205242
205342

Notifications

20288028, 20285658, 20285654, 20219903, 20229808, 20235849, 20236105,
20236531, 20237939, 20238593, 20245374, 20261312, 20271959, 20285658

Orders

30032579, 30044728, 30103346, 30121419, 30138065, 30138353

Other Documents

NLR -N90021PSEG Letter dated January 26, 1990 to United States Nuclear Regulatory Commission re: Response to Generic Letter 89-13
NLR-N90165, Revised Response to Generic Letter 89-13, Service Water Problems Affecting Safety Related Equipment, Salem Generating Station, dated August 31, 1990
PSEG Generic Letter 89-13 White Paper regarding service water reliability
EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines
S-C-SW-MDC-1068, Service Water System Design Basis Temperature, Rev. 3
S-2-ABV-MDC-1697, MDAFW Pump Room Temp Following the Room Cooler Failure, Rev. 2
S-C-ABV-NEE-0504, Engineering Evaluation on the Effect an Inoperable Room Cooler has on the Operability of Vital Pumps, dated December 20, 1990
S-C-AF-MEE-1749, Effect of Loss of Room Cooler for Turbine Driven Auxiliary Feedwater Pump Room, Rev. 0
S-C-SW-MDC-1068, Service Water System Design Basis Temperature, Rev. 1
S-C-SW-MDC-1860, Reduced Service Water Flow to Safety Injection and Charging Pump Lube Oil and Gear Oil Coolers, Rev. 1
28443, Heat Exchanger Inspection Report 'C' EDG Lube Oil and Jacket Water Cooler, dated April 10, 2005

S-1-SW-MEE-1496, Salem Unit 1 No. 1 Aux Feedwater Pump Room Cooler Eddy Current Inspection 1R14, Rev. 0, dated May 23, 2001
S2DG-2DAE3, Eddy Current Inspection Results for 2C Diesel Lube Oil Cooler, dated April 15, 2005
S-C-N100-MDM-0315, Replace Speed Increaser Gear Lube Oil Coolers, dated February 14, 1986
S-C-N100-NDS-0076, Charging/SI Speed Increaser Gear Lube Oil Coolers, dated September 10, 1986
S-C-SW-MDS-0348, Nuclear Safety Injection and/or Charging Pump Lubricating Oil Cooler Detailed Specification, dated November 19, 1998
S-C-SW-MEE-1182, Salem Station - Charging Pump Lube Oil Cooler Heat Exchanger Specification Sheet, dated March 26, 1986
3rd Quarter 2005 Service Water System Health Report Salem 1
3rd Quarter 2005 Service Water System Health Report Salem 2
4th Quarter 2005 Service Water System Health Report Salem 1
4th Quarter 2005 Service Water System Health Report Salem 2
Plant Health Committee System Presentation - Unit 1 Service Water 1st Quarter 2006
Plant Health Committee System Presentation - Unit 2 Service Water 1st Quarter 2006

Section 1R11: Licensed Operator Requalification Program

Procedures

Salem Event Classification Guide, Rev. 63
S2.OP-AB.CC-0001, Component Cooling Abnormality, Rev. 11
2-EOP-TRIP-1, Reactor Trip or Safety Injection, Rev. 25
2-EOP-LOPA-1, Loss of All AC Power, Rev. 25
S2.OP-AR.DG-0002, 2B Diesel Generator Alarm Response Salem Operating Department, Rev. 13

Notifications

20260710, 20274238, 20286742

Orders

70051642, 70054916

Other Documents

Simulator Scenario Guide S-ESG-0602, Rev. 0

Section 1R12: Maintenance Effectiveness

Procedures

SC.ER-DG.ZZ-0002, System Function Level Maintenance Rule Scoping vs. Risk Reference, Rev. 2
S1.OP-ST.SW-0005, "Inservice Testing - 15 Service Water Pump," Rev. 22
NC.ER-AP.ZZ-0039, "Service Water Reliability Program," Rev. 1
SH.MD-GP.ZZ-0011, Meggering of Rotating Electrical Equipment, Rev. 4

SC.MD-PT.230-0001, Thermal Overload Relay Overcurrent Trip Testing, Rev. 2
SC.MD-PM.SW-0003, Service Water Auto Strainer Adjustment, Inspection, Repair and Replacement, Rev. 25
SC.OP-DD.ZZ-0006, Protective Circuit/Breaker Reset and Reclosure Policy, Rev. 0

Notifications

20286043, 20275072, 20275035, 20275390, 20031405, 20247761, 20082332, 20285561, 20289327, 20289407, 20288573, 20275035, 20275118, 20280934, 20194299, 20288491

Orders

70036522, 70055065, 70033927, 70007766, 60062841, 30137220, 70057833, 80009391, 30136477

Other Documents

NRC Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment"
EPRI NP-7552, "Heat Exchanger Performance Monitoring Guidelines"
VTD 320202, Service Water Pump Application List
VTD 306208, Installation, Operating & Maintenance Manual for S.W. Strainers, Serial No. 6168-6180

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

SH.OP-AP.ZZ-0027, On-Line Risk Assessment, Rev. 10
WC-AA-101, On-Line Work Control Process, Rev. 11
NC.CC-DG.ZZ-0003, PRA Weekly Risk Assessment (a)(4) Desktop Guide, Rev. 4
NC.WM-AP.ZZ-0001, Work Management Process, Rev. 12
WC-AA-101, Exelon's On-line Work Control Process, Rev. 11
S1.OP-SO.PC-0001, Switchgear and Penetration Areas Ventilation Operation, Rev. 13

Notifications

20285671

Other Documents

Completed Salem Generating Station Weekly Risk Evaluation Forms
Risk-Informed Inspection Notebook For Salem Generating Station, Rev. 2
PRA Risk Evaluation Forms (published weekly on PSEG LAN website)
Protected Equipment/Heightened Awareness Log
Operations Department Night Orders of Tuesday, April 25, 2006

Section 1R15: Operability Evaluations

Procedures

SH.OP-AP.ZZ-0108, Operability Assessment and Equipment Control Program, Rev. 24

Drawings

205337, 611003, 218664

Notifications

20285394, 20285636, 20285638, 20285254, 20005823, 20185075, 20251471, 20276469, 20284189, 20237806, 20272927, 20276480, 20255139, 20263228, 20252333, 20255146, 20280010, 20276147, 20288355, 20288356, 20288357, 20288358, 20288646, 20288587

Orders

70038389, 70050150, 70055356, 70055356, 70057799, 80088928, 70047446, 70054581, 70050779, 70057799, 60061674

Other Documents

MPR Associates, Inc. root cause report of the jacket water leak on the 1C emergency diesel generator 5L cylinder head dated October 12, 2005
Adverse Condition Monitoring and Contingency Plan (ACM) 06-010
ACM 06-017
Westinghouse Electric Company letter LTR-NRC-05-44, Rev. 1, dated February 9, 2005
PSEG Calculation S-2-AUX-MDC-1627, Pipe Break Pressures in Auxiliary Building Rooms
CROD 05-020 (70050799), 1ABS4 Damper Stuck in Mid Position
CROD 06-13 (70057799), Reliability of Salem Unit 1 and 2 EDGs with potentially degraded heads supplied by Canada Allied Diesel

Section 1R19: Post-Maintenance Testing

Procedures

NC.MD-AP.ZZ-0050, Maintenance Testing Program Matrix, Rev. 6
NC.NA-AP.ZZ-0050, Station Post Maintenance Testing, Rev. 7
S2.OP-ST.CC-0002, Inservice Testing - 22 Component Cooling Pump, Rev. 20
S2.RA-ST.CC-0002, Inservice Testing - 22 CC Pump Acceptance Criteria, Rev. 14
SC.MD-CM.DG-0002, Emergency Diesel Generator Cylinder Head Replacement, Revs. 4 & 5
S1.OP-ST.DG-0003, 1C Diesel Generator Surveillance Test, Rev. 42
SC.MD-ST.125-0003, Quarterly Inspection and Preventive Maintenance of Units 1, 2 & 3 125 Volt Station Batteries, Rev. 22
SC.MD-CM.125-0005, 125VDC Vital Battery Cell Replacement, Rev. 7
S1.OP-ST.125-0001, Electrical Power Systems 125VDC Distribution, Rev. 10
SH.MD-GP.ZZ-0240, System Pressure Test at Normal Operating Pressure and Temperature, Rev. 7
SH.MD-SP.ZZ-0002, Use of Freeze Seals, Rev. 3
NC.CC-AP.ZZ-0080, Engineering Change Process, Rev. 18
SC.MD-PM.ZZ-0052, Disassembly, Inspection and Reassembly of Velan Swing Check Valves Mark #s A-160, A-165, A-224, AA-64, AA-121, AA-122, AA-153, E-6, EA-8, FA-33 and FA-34, Rev. 5
S2.OP-ST.CVC-0004, Inservice Testing - 22 Charging Pump, Rev. 20
S1.OP-ST.SW-0002, Inservice Testing - 12 Service Water Pump, Rev. 23
S1.RA-ST.SW-0002, Inservice Testing 12 Service Water Pump Acceptance Criteria, Rev. 7

Notifications

20278547, 20282082, 20260268, 20270268, 20281879, 20280766, 20280788, 20279828, 20283434, 20052643, 20032801, 20270528

Orders

60061092, 60062825, 60062984, 60061996, 60060740, 50093207, 60060959, 80034597, 80022704, 80022704, 30074181, 30074221, 30107211, 30124651, 30132800, 30134087, 70053556

Other Documents

Adverse Condition Monitoring Plan 05-008, Charging Pump Check Valve Back Leakage Salem Inservice Testing Program Basis Data Sheets for 12SW24

Section 1R22: Surveillance Testing

Procedures

SC.MD-ST.125-0003, Quarterly Inspection and Preventive Maintenance of Units 1, 2 & 3 125 Volt Station Batteries, Rev. 22
S2.OP-ST.DG-0002, 2B Diesel Generator Surveillance Test, Rev. 43
S2.RA-ST.DG-0002, 2B Diesel Generator Surveillance Test Acceptance Criteria, Rev. 3
S2.OP-ST.DG-0013, 2B Diesel Generator Endurance Run, Rev. 23
S2.OP-ST.DG-0020, 2B Diesel Generator Hot Restart Test, Rev. 11
S1.OP-ST.DG-0003, 1C Diesel Generator Surveillance Test, Rev. 42
S1.RA-ST.DG-0003, 1C Diesel Generator Surveillance Test Acceptance Criteria, Rev. 5
S2.OP-ST.RHR-0001, Inservice Testing - 21 Residual Heat Removal Pump, Rev. 20
S2.RA-ST.RHR-0001, Inservice Testing 21 Residual Heat Removal Pump Acceptance Criteria, Rev. 7
S2.OP-ST.AF-0003, Inservice Testing - 23 Auxiliary Feedwater Pump, Rev. 41
S2.OP-ST.AF-0003, Inservice Testing - 23 Auxiliary Feedwater Pump, Rev. 42
S2.RA-ST.AF-0003, Inservice Testing 23 Auxiliary Feedwater Pump Acceptance Criteria, Rev. 16
S2.OP-ST.AF-0002, Auxiliary Feedwater Backleakage, Rev. 8
S1.OP-ST.CVC-0003, Inservice Testing - 11 Charging Pump, Rev. 17
S1.RA-ST.CVC-0003, Inservice Testing 11 Charging Pump Acceptance Criteria, Rev. 8

Drawings

205303

Notifications

20279193, 20279009, 20279127, 20283150, 20208030, 20281590, 20270956, 20265800, 20265861, 20276816, 20267219

Orders

50093126, 50083926, 50083906, 50090925, 50093004, 50094225, 30122885, 30102967, 40023364, 50093561, 70037915, 50094702

Section 1EP6: Drill Evaluation

Procedures

Salem Event Classification Guide, Rev. 63

NC.EP-EP.ZZ-0102, Emergency Coordinator Response, Rev. 11

NC.EP-EP.ZZ-0401, Emergency Preparedness Coordinator Response, Rev. 3

Notifications

20287764

Other Documents

Salem full drill S06-03 critique notes dated June 7, 2006

Section 2OS1: Access Control to Radiologically Significant Areas

Notifications

20259540, 20259550, 20262064, 20263536, 20263574, 20264198, 20264315, 20264800,
20267305, 20267909, 20270397, 20114071, 20124320, 20272974, 20283233

Other Documents

Nuclear Oversight Audit NOSA-SLM-05-06, Salem Radiation Protection Function Area
Ongoing Self-Assessment Reports: 80077786-0010, 80077786-0020, 80077786-0090,
80077786-0100

Quality Assurance Assessment Reports: 2005-0042, 2005-0053, 2005-0047

Radiological Survey Maps: #1407808 (dated 4/13/06, 2/23/06); #1407800 (dated 5/4/06,
4/27/06; #11064-Q (dated 2/8/06)

Section 2OS2: ALARA Planning and Controls

Other Documents

ALARA Review 2006-23, Painting in Unit 2 RHR Pit (Elevations 55' and 45')

Section 2OS3: Radiation Monitoring Instrumentation

Other Documents

UFSAR Section 11.4, Radiological Monitoring

Section 4OA1: Performance Indicator Verification

Procedures

NC.CH-RC.ZZ-2525, Gamma Spectroscopy Analysis Using CAS, Rev. 4

SC.CH-SA.ZZ-0208, Radiochemical Sample Preparation, Rev. 10

SC.CH-SA.CVC-0221, CVCS Demineralizer Sampling, Rev. 6

SC.CH-SA.RC-0222, Sampling Reactor Coolant and RHR Heat Exchanger Outlet, Rev. 16

Notifications

20287861

Section 4OA2: Identification and Resolution of Problems

Procedures

HU-AA-1081, Rev. 0, Fundamentals Tool Kit
HU-AA-101, Rev. 3, Human Performance Tools and Verification Practices
HU-AA-102, Rev. 1, Technical Human Performance Practices
HU-AA-1212, Rev. 1, Technical Task Risk/Rigor Assessment, Pre-Job Brief, Independent Third Party Review, and Post-Job Brief
HU-AA-1101, Rev. 1, Change Management
HU-AA-104-101, Rev. 1, Procedure Use and Adherence
HU-AA-1211, Rev. 2, Briefings - Pre-Job, Heightened Level of Awareness, Infrequent Plant Activity, and Post-Job Briefings
S1.OP-ST.CC-0003, Inservice Testing Component Cooling Pump, Rev. 18
SH.OP-AP.ZZ-0030, Operator Burden Program, Rev. 8

Notifications

20265044, 20216735, 20235815, 20250244, 20233706, 20261768, 20259571, 20260710, 20256302, 20263496, 20285228, 20279126, 20218230, 20267739, 20265473, 20249632, 20214271, 20261237, 202777133

Orders

70055970, 70045648, 70043024

Other Documents

Human performance improvement lesson plans and presentation materials
Human Performance Fundamentals - powerpoint presentation
S-1-CC-MDC-1817, "Component Cooling System Thermal-Hydraulic Analysis - Unit 1," Rev. 4
S-1-CC-MEE-1281, "Component Cooling Safety Load Flow Requirements - Unit 1," Rev. 0
Quarterly Operator Burden Assessment, First Quarter 2006, Unit 1 and Unit 2
PSEG Metrics for Improving the Work Environment, Salem and Hope Creek Generating Stations, Quarterly Report, April 28, 2006
Salem Unit 1 Unplanned Shutdown LCO Entries PI for January, 2006 and February, 2006
Salem Unit 2 Unplanned Shutdown LCO Entries PI for January, 2006 and February, 2006
Temporary Standing Order 06-04 dated April 1, 2006

Section 4OA5: Other Activities

Procedures

NC.WM-AP.ZZ-0001, Work Management Process, Rev. 12
NC-CC-DG.ZZ-0003, PRA Weekly Risk Assessment (a)(4) Desktop Guide, Rev 3
S1.OP-AB.GRID-0001, Abnormal Grid, Rev. 16
SH.OP-AP.ZZ-0027, On-Line Risk Assessment, Rev. 9
SH.OP-DD.ZZ-0001, Electric System Emergency Operations and Electric System Operator Interface, Rev. 3

WC-AA-101, On-Line Work Control Process, Rev. 11

Notifications

20253052, 20216063, 20254207, 20265691, 20262452

Orders

70050691, 80084855

LIST OF ACRONYMS

ALARA	As Low As Is Reasonably Achievable
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CC	Component Cooling
CCA	Common Cause Analysis
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CVCS	Chemical Volume Control System
EDG	Emergency Diesel Generator
EPRI	Electric Power Research Institute
LER	Licensee Event Report
MR	Maintenance Rule
NCV	Non-cited Violation
NRC	Nuclear Regulatory Commission
OD	Operability Determination
PAOWF	Proactive Assessment of Organizational and Workplace Factor
PARS	Publicly Available Records
PI	Performance Indicator
POD	Plan of the Day
PSEG	Public Service Enterprise Group Nuclear LLC
RCS	Reactor Coolant System
SBO	Station Blackout
SCWE	Safety Conscious Work Environment
SDP	Significance Determination Process
SGFP	Steam Generator Feed Pump
SWS	Service Water Strainer
TI	Temporary Instruction
UFSAR	Updated Final Safety Assessment Report
URI	Unresolved Item
VTD	Vendor Technical Document
WO	Work Order