May 3, 2007

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

SUBJECT: SALEM AND HOPE CREEK NUCLEAR GENERATING STATION NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT NOS. 05000272/2007006, 05000311/2007006, AND 05000354/2007007

Dear Mr. Levis:

On March 23, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed a team inspection at your Salem Nuclear Generating Station. The enclosed inspection report documents the inspection results, which were discussed on March 23, 2007, with Mr. Joyce and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to the identification and resolution of problems, and compliance with the Commission's rules and regulations and the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and representative records, observations of activities, and interviews with personnel. The inspectors identified two findings related to your Fitness-For-Duty Program, a program common to both Salem and Hope Creek stations, therefore this report includes the Hope Creek Nuclear Generating Station so that the findings are appropriately docketed.

Based on the samples selected for review, the team concluded that overall, problems were properly identified, evaluated, and corrected. There were four Green findings identified by the inspectors during this inspection. The four findings were determined to be violations of NRC requirements. However, because each violation was of very low safety significance (Green) and because they were entered into your corrective action program, the NRC is treating these as Non-Cited Violations (NCVs), in accordance with Section VI.A of the NRC's Enforcement Policy. If you deny any of these NCVs, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the U.S. 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, U.S. Nuclear Regulatory Commission, Washington, D.C., 20555-0001; and the NRC Resident Inspector at the Salem Nuclear Generating Station.

In addition, some minor issues were identified, including conditions adverse to quality that had not been entered into the corrective action program and narrowly focused or incomplete evaluations of problems.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

Docket Nos. 50-272; 50-311; 50-354
License Nos. DPR-70; DPR-75; NPF-57

Enclosure: Inspection Report Nos. 05000272/2007006, 05000311/2007006, and 05000354/2007007
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos:	50-272, 50-311, 50-354
License Nos:	DPR-70, DPR-75, NPF-57
Report Nos:	05000272/2007006, 05000311/2007006, 05000354/2007007
Licensee:	Public Service Enterprise Group Nuclear LLC
Facility:	Salem Nuclear Generating Station, Units 1 & 2 Hope Creek Nuclear Generating Station
Location:	P.O. Box 236 Hancocks Bridge, NJ 08038
Dates:	March 5, 2007 through March 23, 2007
Team Leader:	G. Malone, Senior Resident Inspector Division of Reactor Projects (DRP)
Inspectors:	B. Norris, Senior Project Engineer, DRP A. Rosebrook, Project Engineer, DRP N. Sieller, Reactor Engineer, DRP G. Smith, Physical Security Inspector, DRS
Approved by:	Arthur L. Burritt, Chief Projects Branch 3 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000272/2007006, 05000311/2007006, 05000354/2007007; 03/05/2007 - 03/23/2007; Salem Nuclear Generating Station Units 1 and 2 and Hope Creek; Biennial Baseline Inspection of the Identification and Resolution of Problems (PI&R). Four non-cited violations (NCVs) were identified in the area of problem identification and resolution.

This team inspection was performed by four regional inspectors and one resident inspector. Four findings of very low safety significance (Green) were identified during this inspection. Each finding was classified as a Non-Cited Violation (NCV). 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.

Identification and Resolution of Problems

The inspectors concluded that the implementation of the corrective action program (CAP) at Salem was effective. Salem had a low threshold for identifying problems and entering them in the CAP. Once entered into the system, items were screened and prioritized in a timely manner using established criteria. Items entered into the CAP were properly evaluated commensurate with their safety significance. Corrective actions were implemented in a timely manner. PSEG's audits and self-assessments were adequate, however, some self-assessment recommendations were not entered into the CAP. The inspectors observed that PSEG adequately identified, reviewed, and applied relevant industry operating experience through station programs. Based on interviews conducted during the inspection, workers at the site expressed freedom to enter safety concerns into the CAP.

A. NRC Identified and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. A self-revealing non-cited violation of Technical Specification 6.8.1 was identified when improper maintenance caused the 12 control area chiller to trip and remain unavailable for approximately 70 hours on July 15, 2006. Maintenance was incorrectly performed on a chiller unloader device that caused the chiller to overcool the chilled water system resulting in a valid automatic freeze-protection trip of the refrigerant compressor. PSEG repaired the chiller, verified that the other five chiller units were correctly maintained, trained maintenance technicians on the error, and are currently reviewing the maintenance procedure for enhancement opportunities.

  The performance deficiency was determined to be more than minor because it rendered the 12 chiller unavailable for use. The performance deficiency was determined to be of very low risk significance (Green) by a Phase 3 analysis by a regional Senior Risk Analyst. The performance deficiency had a cross-cutting aspect in the area of human performance because PSEG personnel did not

follow applicable maintenance procedures when performing maintenance on the 12 control area chiller unloader device. (Section 4OA2.3.a)

Cornerstone: Mitigating Systems

- Green. The NRC identified a non-cited violation of 10 CFR 50, Appendix B, criterion XVI, 'Corrective Action', when the 22 service water (SW) suction strainer tripped on February 24, 2007, rendering the 22 service water pump unavailable for 44 hours to repair the strainer. PSEG did not identify or correct deficiencies that caused five trips of the 22 SW strainer since March 2006. PSEG replaced the 22 service water strainer assembly on March 23, 2007.

  The performance deficiency was determined to be more than minor because it rendered the 22 service water pump unavailable for use. The finding was determined to be of very low safety significance (Green) based on a Phase 3 analysis by the regional Senior Risk Analyst. The finding had a cross-cutting aspect in the area of Problem Identification and Resolution in that PSEG did not thoroughly evaluate a problem such that resolutions addressed causes and extent of condition. (Section 4OA2.3.b)

Cornerstone: Physical Security

- Green. The NRC identified a non-cited violation of 10 CFR 26, Appendix A, subpart B, 2.3 (1) when the inspectors observed PSEG's fitness-for-duty (FFD) collection technicians and security officers perform urine and breath collection on co-workers on March 21, 2007. PSEG implemented immediate corrective actions by stopping the practice of collection personnel performing urine and breath collections on other collection technicians, enhancing the station FFD procedures, and by conducting FFD testing of the affected individuals.

  The performance deficiency was determined to be more than minor because, if left uncorrected, it would affect the integrity of the FFD program. The finding was determined to be of very low safety significance (Green) using the Physical Protection Significance Determination Process. The finding had a cross-cutting aspect in the area of Human Performance in that PSEG did not have FFD adequate procedures that ensured that the regulatory requirements prohibiting collectors from collecting samples from co-workers were followed. (Section 4OA2.3.c.)

- Green. The NRC identified a non-cited violation of 10 CFR 26, Appendix A, Subpart B, 2.4 (g) (20) when the inspectors observed PSEG's fitness-for-duty (FFD) collection technicians leaving split FFD urine specimens in unsealed aliquot tubes and sealed specimen containers in unattended work areas on March 21, 2007. The licensee implemented immediate corrective measures by capping and sealing FFD aliquot specimens, requiring that FFD donors witness the transfer of their FFD urine specimen to a laboratory technician through a chain-of-custody form, and by sampling an additional 25 percent of PSEG employees for a FFD test.

The performance deficiency was determined to be more than minor because, if left uncorrected, it could affect the integrity of the FFD program. The inspector determined that the finding was of very low safety significance (Green) using the Physical Protection Significance Determination Process. The finding had a cross-cutting aspect in the area of Human Performance in that PSEG failed to effectively communicate expectations regarding procedural compliance and personnel did not follow procedures. (Section 4OA2.3.d.)

B. Licensee-Identified Violations

None.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (PI&R) (Biennial - IP 71152B)

.1 Assessment of the Corrective Action Program

a. Inspection Scope

The inspectors reviewed procedures describing the corrective action program (CAP) at the Salem Nuclear Generating Station. PSEG identified problems and entered them into their CAP by initiating notifications (NOTFs). The notifications were then reviewed for conditions adverse to quality, human performance problems, equipment non-conformance, industrial or radiological safety concerns, and other significant issues. The notifications were subsequently screened for operability, categorized by priority and significance, and assigned to a department for evaluation and resolution.

The inspectors reviewed notifications selected across the seven cornerstones of safety in the NRC's Reactor Oversight Program (ROP) to determine if problems were being properly identified, characterized, and entered into the CAP for evaluation and resolution. The inspectors selected items from the maintenance, operations, engineering, emergency preparedness, physical security, chemistry, radiation safety, licensed operator training, and nuclear oversight programs to ensure that PSEG was appropriately considering problems identified in each functional area. The inspectors used this information to select a risk-informed sample of notifications that had been issued since the last NRC PI&R inspection, which was conducted from February 28 through March 18, 2005.

The inspectors also selected items from other station processes to verify that PSEG appropriately considered these items for entry into the CAP. Specifically, the inspectors reviewed a sample of temporary plant modifications, operator log entries, control room deficiency and operator work-around lists, operability determinations, engineering system health reports, and completed surveillance tests. In addition, the inspectors interviewed plant staff and management to determine their understanding of and involvement with the CAP. The notifications and other documents reviewed, and a list of key personnel contacted, are listed in the attachment to this report.

The inspectors considered risk insights from the NRC's and PSEG's risk analyses to focus the sample selection and plant tours on risk-significant components. The inspectors focused on 4kV vital alternating current (ac) power, emergency diesel generator, service water, control air, auxiliary feedwater, and residual heat removal systems as the most risk-significant systems. The inspectors also sampled other safety-related systems. For the selected risk significant systems, the inspectors reviewed the applicable system health reports, maintenance rule documents, a sample of engineering documents, and results from surveillance tests and maintenance work orders.

The inspectors reviewed the notifications to assess whether PSEG adequately evaluated and prioritized the identified problems. The notifications reviewed encompassed the full range of PSEG's evaluation methods, including root cause analyses (RCA), apparent cause evaluations (ACE), common cause evaluations (CCE), and work group evaluations (WGE). The review included assessing the appropriateness of the assigned significance, the scope and depth of the causal analysis, and the timeliness of the resolutions. For significant conditions adverse to quality, the inspectors reviewed the effectiveness of PSEG's corrective actions to preclude recurrence. The inspectors observed meetings of the Station Ownership Committee (SOC) and the Management Review Committee (MRC), in which Salem personnel reviewed new notifications for significance and prioritization and evaluated preliminary corrective action assignments, analyses, and plans. The inspectors also reviewed equipment operability determinations, reportability assessments, and extent-of-condition reviews for selected problems. The inspectors reviewed backlogs of corrective actions, with emphasis in the maintenance and engineering departments, to determine if there was an unacceptable increase in plant risk due to delays in implementation. The inspectors also reviewed equipment performance results and assessments documented in completed surveillance procedures, operator log entries, and trend data to determine whether the equipment performance evaluations were technically adequate to identify degrading or non-conforming equipment.

The inspectors reviewed the corrective actions associated with selected notifications to determine whether the actions addressed the identified problem causes. The inspectors reviewed notifications for repetitive problems to determine whether previous corrective actions were effective. The inspectors also reviewed PSEG's timeliness in implementing corrective actions. The inspectors reviewed the notifications associated with selected non-cited violations (NCVs) and findings (FINs) to determine whether PSEG properly evaluated and resolved these issues.

The inspectors reviewed self-assessment reports and audits to assess PSEG's ability to identify negative trends and enter them into the CAP. The NRC inspection results were contrasted with PSEG audits and self-assessments to identify any significant deviations. The inspectors also reviewed PSEG's use of NRC and industry operating experience (OE) by reviewing the station's OE procedures and verifying that various samples of OE had been identified and evaluated in the CAP.

b. Assessment

Identification of Issues

The inspectors determined that PSEG adequately identified problems. PSEG had a low threshold for the identification of issues. Approximately 17,000 notifications were created per year in 2005 and 2006. The actual number of new issues entered into the CAP is lower than the number of NOTFs created because PSEG's CAP database occasionally requires more than one NOTF to be created per issue. For example, a significant equipment failure might require two notifications, one to contain the corrective maintenance order and another to contain an apparent cause evaluation. The

housekeeping and cleanliness of the plant were good with the exception of a few areas. Particularly, the service water intake structure (SWIS) pump rooms were dimly lit due to a number of failed lights, had many wet spots and puddles on the floor due to various water and oil leaks, and contained several items that were being stored there (hoses, scaffolding, and tools) contrary to station standards. Further, permanent scaffolding built in the SWIS pump rooms obstructed lighting and interfered with the viewing of some components.

The inspectors identified that equipment malfunction identification system (EMIS) tag use was inconsistent. The inspectors sampled ten tags hanging on safety-related equipment in the plant and found that three of the ten tags were associated with equipment issues that had already been repaired and administratively closed in the CAP, potentially masking new problems with the equipment. The inspectors identified that the station was operating under two procedures for identification of problems, one of which does not require use of EMIS tags. PSEG wrote a notification to address the inconsistency and tasked the training group to evaluate the need for training.

The inspectors identified a number of minor issues during plant walkdowns that were not identified by PSEG in the CAP. For example, before an NRC tour of the Unit 1 auxiliary building, the inspectors were briefed by radiation protection (RP) technicians that radioactive spent resin, used to condition primary coolant, was being drained from the number 1 Spent Resin Storage Tank (SRST) and, therefore, was a new high radiation area posted in the plant. A draining evolution expected to be completed in less than one hour took more than 36 hours to complete. PSEG determined that the normal drain path was clogged. An alternate drain path was used but was also draining much slower than expected. Although operations and radiation protection personnel knew of the deficiency, the issue was not entered into the CAP. Following questions from NRC inspectors, PSEG entered the issue into the CAP.

Prioritization and Evaluation of Issues

The team determined that PSEG's performance in this area was adequate. PSEG screened notifications appropriately and properly classified them for significance and priority. PSEG's SOC and MRC meetings were observed to be effective at providing a detailed review and prioritization of issues.

The overall quality of the causal analyses reviewed was adequate. The inspectors identified a wide range of quality among the reviewed evaluations. In general, the quality of the evaluations improved with time, particularly in the latter few months of the inspection period.

The inspectors identified a number of maintenance rule (MR) functional failure determinations for some equipment failures to be weak or incorrect. Specifically, a sample of MR evaluations for the containment fan coil units, control area chillers, and the gas-powered turbine generator provided examples of misidentification of system functional failures (SFF) and maintenance preventable functional failures (MPFF). All three of these systems were being monitored against goals in accordance with

10CFR50.65(a)(1). Following correction of the evaluations, none of the systems exceeded established goal parameters and thus did not require a reevaluation in accordance with 10CFR50.65(a)(1). The missed evaluations were not a violation of regulatory requirements.

The inspectors identified two instances where defective equipment was not quarantined for troubleshooting in accordance with station procedures, but instead was discarded. The first instance involved troubleshooting a potentially degraded power cable for a containment fan coil unit (CFCU) motor. Corrective actions were specified to retain and test the cable to allow engineering to determine the cause of the problem. During subsequent maintenance activities on the CFCU motor, the suspect cable was discarded and the extent of cause was not completed. The second instance involved the failure of damper ABV-1ABS4 on the Unit 1 turbine-driven auxiliary feed pump high energy line break housing. The instrument air solenoid and the damper actuator were replaced following the failure. However, the failed parts were not quarantined and were discarded before engineering could inspect them and determine the cause of the failure.

The inspectors identified inconsistencies with documenting the operability of systems, structures, or components (SSCs) in notifications. Inspectors observed examples where the initial operability screening of an issue was not documented. Nevertheless, staff at the SOC and MRC meetings assumed that an operability determination had been made and did not question if the operability of the SSC was known. One example was notification 20315317, "2CS26 Pipe Hanger is Missing Pin." The notification was created on March 5, 2007, at 1:46 p.m. At the SOC meeting at 10:00 a.m. on March 6, 2007, there was no operability declaration on the notification. The failure to document an SSC's initial operability screen has the potential to reduce the effectiveness of the SOC and MRC.

The inspectors identified one unresolved item. On October 5, 2005, PSEG discovered that both dampers, S1-ABV-1ABS4 and S1-ABV-1ABS20, for the Unit 1 turbine-driven auxiliary feedwater (TDAFW) pump high energy line break (HELB) enclosure failed. An operability determination was completed for the impact on safety-related equipment for the failure of S1-ABV-1ABS4. However, an operability determination was not performed for the cumulative impact of both dampers failing for the TDAFW pump. The configuration resulting from the two failed dampers may result in the inoperability of the TDAFW pump. PSEG is analyzing the configuration to determine if the TDAFW pump was inoperable beyond its TS allowed outage time. This issue is related to past operability of the TDAFW pump. No current deficiencies were identified with the TDAFW HELB dampers. This item is unresolved pending NRC review of PSEG's analysis of the TDAFW pump operability. (**URI 05000272/2007006-01, Evaluation of Past Operability of the Turbine-Driven Auxiliary Feedwater Pump due to Multiple High Energy Line Break Damper Failures)**

Effectiveness of Corrective Actions

The inspectors identified one finding of very low safety significance (Green) concerning effectiveness of corrective actions. The finding involved the failure to identify and

correct conditions adverse to quality that resulted in repetitive failures of a service water strainer. The 22 service water strainer tripped five times between July 2006 and March 2007, resulting in unnecessary unavailability of the 22 service water pump.

Excluding the example above, the inspectors concluded that PSEG's corrective actions were adequate and completed in a timely manner. Significant conditions adverse to quality were corrected to prevent recurrence. The inspectors observed that PSEG had made progress in reducing the corrective maintenance backlog and maintaining it below station goals.

There are three other findings of very low safety significance (Green) documented in this section. These findings are not directly related to deficiencies in PSEG's CAP, but were identified during this inspection.

c. Findings

1. Unavailability of 12 Control Area Chiller Due to Inadequate Maintenance

Introduction. A self-revealing, non-cited violation (NCV) of Technical Specification (TS) 6.8.1 was identified when the 12 control area chiller automatically tripped on a freeze protection signal. Maintenance was performed incorrectly on a chiller unloader device which caused the chiller to overcool the chilled water system resulting in a valid automatic trip of the refrigerant compressor. The finding was determined to be of very low safety significance (Green).

Description. On May 4, 2006, PSEG replaced the 12 control area chiller control system as part of a control system upgrade design change package (DCP). The DCP instructed maintenance technicians to set the unloader device set-point in accordance with the chiller compressor inspection and repair procedure (CH-1). The unloader device receives a pressure input from the chiller condenser to determine the amount of cooling needed to maintain chill water temperature in the required range.

CH-1 required a test pressure gage to be connected to the suction manifold of the compressor. The technician connected the pressure gage to the incorrect connection on the suction manifold of the compressor. The gage read approximately 5 psig less than the actual condenser pressure due to a flow induced pressure drop over a valve. Consequently, the chiller unloader device allowed the chilled water system temperature to be reduced below the chiller control system's freeze protection set-point.

On July 15, 2006, the 12 chiller tripped on a freeze protection signal following the start of the 13 chiller. All three control area chillers were running. The 12 chiller should have unloaded in response to the additional cooling provided by the 13 chiller, but did not due to the incorrectly calibrated unloader device. The trip resulted in approximately 70 hours of unavailability to diagnose and repair the problem. PSEG's evaluation of the 12 chiller trip identified corrective actions to review the issue for training deficiencies and opportunities, verify the unloader settings on both the Unit 1 and Unit 2 chillers, and review the chiller maintenance procedure for enhancements.

Analysis. PSEG did not perform the calibration of the 12 chiller unloader device in accordance with station maintenance procedure CH-1. This was determined to be a performance deficiency and a finding. The finding was more than minor because the performance deficiency was associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones. The finding affected the cornerstones' objectives to ensure the reliability of systems that respond to initiating events to prevent undesirable consequences and to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The risk associated with the performance deficiency was determined using Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors screened the finding and determined a Phase 2 analysis was required because the finding affects more than one cornerstone. The Risk-Informed Notebook for Salem Generating Station does not specifically address the control area chiller units. Accordingly, a Phase 3 risk assessment was performed by a regional Senior Risk Analyst (SRA).

The SRA conducted a qualitative risk assessment and concluded that significance of this finding was of very low risk significance (Green). The basis for this conclusion was that the chiller is one of three 50 percent capacity chillers and the two other chiller units were fully operational and provided full mitigation capability for the duration of the unavailability. Although the unavailability of the 12 chiller resulted in an increased likelihood of a total loss of control area ventilation cooling, the failure of all chiller units would not result in rapid room temperature rises and could be compensated for by opening the affected room doors to provide natural convection cooling.

The performance deficiency had a cross-cutting aspect in the area of human performance because PSEG personnel did not follow applicable maintenance procedures when performing maintenance on the 12 control area chiller unloader device.

Enforcement. Salem Technical Specification 6.8.1 states, in part, that written procedures shall be implemented covering the activities referenced in Appendix 'A' of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)", Revision 2, February 1978. Regulatory Guide 1.33 states that maintenance activities that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures appropriate to the circumstances. Contrary to the above, PSEG did not implement maintenance procedures correctly on May 4, 2006, while performing calibrations on the 12 control area chiller unloader device. Consequently, the 12 chiller tripped on July 15, 2006 resulting in approximately 70 hours of unnecessary unavailability. PSEG implemented corrective actions to correct the chiller unloader device calibrations, retrained personnel qualified to work on the chiller, and plans to review the maintenance procedure for enhancement. Because this finding is of very low safety significance and has been entered into PSEG's corrective action program (order 70059410), this finding is being treated as a non-cited violation consistent with Section VI.A.1 of the NRC Enforcement

Policy. **(NCV 05000272/2007006-02, 12 Chiller Rendered Unavailable due to Inadequate Maintenance)**

2. Repetitive Trips of the 22 Service Water Strainer.

Introduction. The NRC identified a non-cited violation of 10 CFR 50, Appendix B, criterion XVI, "Corrective Action" because PSEG did not implement effective corrective actions to prevent repetitive trips of the 22 Service Water (SW) suction strainer. The finding was determined to be of very low safety significance (Green).

Description. The 22 SW strainer motor breaker tripped on a current overload on February 24, 2007. The associated service water pump was rendered unavailable for 36 hours to troubleshoot and repair the strainer. The 22 SW strainer tripped five times over the past year due to excessive current causing an overload trip including trips in June 2006, July 2006, and August 2006. The strainer tripped for the fifth time on March 20, 2007, while the inspection team was onsite. PSEG completed evaluations following the trips and determined the trips were caused by either drum shaft packing issues or river grass causing excessive drag on the strainer body as it rotated.

The 22 SW strainer package is different from the other five strainers. Specifically, a pilot project on the 22 strainer installed a hardened wear ring opposite the O-ring used to seal the lower portion of the strainer assembly. The strainer manufacturer's troubleshooting guide states that if measured amperage is higher than rated amperage or if amperage is fluctuating, internal debris may be restricting strainer basket movement. Regarding internal debris, the vendor manual states, "This condition is serious and requires immediate correction," and states further, "Any deep grooves, broken area or excessively worn areas are indication that debris has been lodged in such a manner that it would create a problem." On June 29, 2006, PSEG engineers identified wear grooves in the strainer body above and below the fixed wear ring. These grooves allowed grass to build up in this area, which could not be cleared by the backwash process, and caused increased friction on the strainer as it rotated. The extra friction load resulted in the strainer motor amps progressively increasing until the thermal overloads tripped at 6.6 Amperes. Excessive amounts of grass were identified in this area during troubleshooting efforts on multiple occasions. PSEG did not develop corrective actions to address the identified material deficiency.

PSEG did not adequately monitor the performance of the strainer. The strainer motor vendor manual recommended monitoring motor current to detect problems. The accumulation of grass in a strainer is a gradual process which can be detected by trending motor current. PSEG did not have permanent ammeters on the strainer motor power supply cables to measure or display motor currents. In July 2006, corrective actions were proposed to install local meters to allow monitoring of strainer motor amps, however, this was not approved by PSEG management. Prior to this trip, PSEG planned to replace the 22 strainer following the replacement of the other five service water strainers. As a result, the 22 service water strainer would have remained in service for approximately eight additional years. This plan was revised following

February 24, 2007 trip and again following the March 20, 2007 trip. The 22 strainer assembly was replaced on March 23, 2007.

There were opportunities for PSEG to identify and correct strainer deficiencies before the strainer trips in February and March 2007. For example, in January 2006, following maintenance, maintenance technicians identified that the strainer drum was difficult to turn by hand. This issue was not entered into the corrective action program (CAP) and, therefore, was not addressed formally by PSEG. On February 5, 2007, a NRC inspector observed an abnormally loud noise coming from the 22 SW strainer. This was entered into the CAP and evaluated and determined to be the strainer grinding out a mat of grass. PSEG developed a troubleshooting plan, however, the noise stopped after a day and a half and no further actions were taken. According to the vendor guidance, the condition required immediate correction.

Analysis. The inspectors determined that PSEG's failure to properly evaluate, monitor, and correct a condition adverse to quality which resulted in repetitive trips of the 22 SW strainer over a period of 8 months to be a performance deficiency and a finding. The finding was more than minor because it was associated with the equipment performance attribute of the initiating events and mitigating systems cornerstones. The finding affected the cornerstones' objectives to limit the likelihood of those events that could upset plant stability and challenge critical safety functions during power operations and to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to correct a material deficiency for the 22 SW strainer degraded both the availability and reliability of the 22 service water train. The risk associated with the performance deficiency was determined using Inspection Manual Chapter 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations." The inspectors screened the finding and determined a Phase 2 analysis was required because the finding affected more than one cornerstone. The Risk-Informed Inspection Notebook for Salem Nuclear Generating Station does not evaluate loss of service water initiating events, therefore, a NRC regional Senior Reactor Analyst (SRA) conducted a Phase 3 analysis.

The SRA's Phase 3 analysis determined that the finding was of very low safety significance (Green). The analysis used the NRC's Standardized Plant Analysis Risk (SPAR) model, Revision 3.22, for the Salem facility, modified for all high temperature reactor coolant pump (RCP) seals installed at Unit 2, and assumed the 22 SWP was out-of-service for 36 hours and that the loss of service water initiating event frequency increased during this time because of lost redundancy in the service water trains as a result of the performance deficiency. The increase in core damage frequency due to internally initiated events was in the low 1E-8 range (an increase in the core damage frequency in the range of 1 core damage accident in 30,000,000 years of reactor operation). The dominant accident sequence involved a loss of service water initiating event, assuming no recovery of service water. Core damage then results following a reactor coolant pump seal failure due to lack of cooling and the failure of high pressure recirculation.

This finding had a cross-cutting aspect in the area of problem identification and resolution because PSEG did not thoroughly evaluate a problem such that resolutions addressed causes and extent of condition.

Enforcement. 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action" requires that measures shall be established to ensure that conditions adverse to quality such as failures, malfunctions, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure the cause of the condition is determined and corrective action taken to preclude recurrence. Contrary to the above, PSEG did not correct the cause of the failing strainer motor, a significant condition adverse to quality, in a timely manner. As a result, the 22 SW strainer tripped on February 24, 2007, resulting in 36 hours of unnecessary unavailability of the 22 SW pump. The material deficiency in the 22 SW strainer assembly existed from June 2006 until the strainer assembly was replaced on March 21, 2007. Because this finding is of very low safety significance and has been entered into the corrective action program in notification 20314620, this violation is being treated as a NCV, consistent with section VI.A of the NRC Enforcement Policy. **(NCV 05000311/2007006-03, Repetitive Trips of the 22 Service Water Strainer)**

3. FFD Collection Personnel Collecting FFD Samples From Co-Workers

Introduction. The inspectors identified a non-cited violation (NCV) of 10 CFR 26, Appendix A, Subpart B, 2.1 (1) when the inspectors observed PSEG's fitness-for-duty (FFD) collection technicians and security officers perform urine and breath collection on co-workers on March 21, 2007. The finding was determined to be of very low safety significance (Green).

Description. On March 21, 2007, the inspectors observed that PSEG FFD collection technicians and security officers performed urine and breath collection on co-workers (other FFD collectors). PSEG stationed a third party observer, who was not a FFD collector, in the work area to observe the sampling process when collectors were sampling other collectors. 10 CFR 26 does not allow workers to collect FFD samples from coworkers even with an independent observer present. The inspectors notified PSEG management of the violation of NRC requirements observed on March 21, 2007. PSEG stopped FFD sampling activities to investigate the sampling errors identified by the inspectors. PSEG resumed operation of their FFD program on March 24, 2007, after making changes to their FFD sampling procedures, training their FFD employees, and performing FFD tests on the collectors. Based on interviews with licensee personnel, the inspector determined that FFD collection personnel performed FFD collection on co-workers since April 30, 1996.

Analysis. PSEG collection technicians collecting FFD samples on coworkers was determined to be a performance deficiency and a finding. The finding was more than minor because, if left uncorrected, it would affect the integrity of the FFD program. The finding was determined to be of very low safety significance (Green) using the Physical Protection Significance Determination Process. The logic and assumptions used to

determine the significance of this finding were not documented in this report because the Physical Protection Significance Determination Process contains sensitive security information that is not made available to the public. The finding had a cross-cutting aspect in the area of Human Performance in that PSEG did not have adequate FFD procedures that ensured that the regulatory requirements prohibiting collectors from collecting samples from co-workers were followed.

Enforcement. 10 CFR 26, Appendix A, Subpart B, Section 2.3 (1), states, in part, "As a minimum: Supervisors, co-workers, and relatives of the individual being tested shall not perform any collection, assessment, or evaluation procedures." Contrary to the above, PSEG's FFD collection personnel performed collection procedures on FFD collection co-workers from April 30, 1996, to March 21, 2007. PSEG corrected the deficiency by changing FFD procedures, retraining collection technicians, and resampling all of the collection technicians. Because this finding was of very low safety significance and has been entered into the corrective action program in notification 20317397, this violation is being treated as a NCV, consistent with section VI.A of the NRC Enforcement Policy. **(NCV 05000272/2007006-04, 05000311/2007006-04, and 05000354/2007007-01, FFD Collection Personnel Collecting FFD Samples From Co-Workers).**

4. FFD Collectors Leaving FFD Specimens Unattended

Introduction. The inspectors identified a non-cited violation (NCV) of 10 CFR 26, Appendix A, Subpart B, 2.4 (g) (20) when the inspectors observed PSEG's fitness-for-duty (FFD) collection technicians leaving split FFD urine specimens in unsealed aliquot tubes and sealed specimen containers in unattended work areas on March 21, 2007. The finding was determined to be of very low safety significance (Green).

Description. On March 21, 2007, the inspector observed FFD collectors leaving split FFD urine specimens in uncapped and unsealed aliquot tubes and sealed specimen containers in unattended work areas (cubicals). Based on interviews with licensee personnel, the inspector determined that FFD collection personnel failed to control FFD urine specimens from approximately March 7, 2007, to March 21, 2007.

PSEG immediately implemented corrective actions by changing their FFD procedures to require capping and sealing of all FFD specimen aliquots. Further, PSEG procedures now require FFD donors to witness and document transfer of FFD specimens to a laboratory technician through a chain-of-custody form. PSEG also conducted additional FFD testing on a randomly selected sample comprising 25 percent of the employee population.

Analysis. PSEG's failure to seal and control FFD specimens in accordance with the requirements of 10 CFR 26, Appendix A, Subpart B, 2.4 (g)(20) was determined to be a performance deficiency and a finding. The finding was more than minor because, if left uncorrected, it would affect the integrity of the FFD program. Specifically, the FFD collectors did not maintain control of urine specimens and could have affected the integrity of these FFD test results. The finding was determined to be of very low

significance (Green) using the Physical Protection Significance Determination Process. The logic and assumptions used to determine the significance of this finding are not documented in this report because the Physical Protection Significance Determination Process contains sensitive security information that is not made available to the public. The finding had a cross-cutting aspect in the area of Human Performance in that PSEG failed to effectively communicate expectations regarding procedural compliance and personnel did not follow procedures.

Enforcement. 10 CFR 26, Appendix A, Subpart B, Section 2.4 (g) (20), states, in part, "Both the individual being tested and the collection site person shall keep urine specimens in view at all times prior to their being sealed and labeled." Contrary to the above, PSEG did not keep urine samples in view at all times prior to being sealed and sampled from approximately March 7, 2007, to March 21, 2007. PSEG implemented immediate corrective actions and entered this issue into their corrective action program. Because this finding was of very low safety significance and has been entered into the corrective action program in notification 20317397, this violation is being treated as a NCV, consistent with section VI.A of the NRC Enforcement Policy. **(NCV 05000272/2007006-05, 05000311/2007006-05, and 05000354/2007007-02, FFD Collectors Leaving FFD Specimens Unattended)**

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The inspectors reviewed a sample of operating experience (OE) issues for applicability to Salem and the associated actions PSEG implemented to address the potential issues. The inspectors selected the samples from NRC Generic Communications, industry OE sources, reports made pursuant to 10 CFR 21, and NRC inspection findings from other reactor sites. The inspectors verified that the issues were entered into the CAP and reviewed associated evaluations to ensure that problems associated with each issue were appropriately considered for resolution in accordance with the corrective action process.

b. Assessment

No findings of significance were identified in the area of operating experience.

The identification, evaluation, and implementation of OE at Salem were effective. All OE items sampled were contained in Salem's corrective action program, analyzed for applicability, and had corrective actions assigned to address identified issues. Salem's use of OE increased in both volume and quality over the inspection period due, in part, to an increased focus by processes and by management oversight to include relevant OE in daily management and team meetings, work packages, and training materials.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The inspectors reviewed a sample of Nuclear Oversight (NOS) audits, Functional Area Self-Assessments (FASA), and departmental self-assessments, including the most recent CAP FASA completed in March 2007. The inspectors verified that problems identified through the audits and self-assessments were properly addressed through the CAP. The effectiveness of the audits and self-assessments was evaluated by comparing audit and self-assessment results against NRC findings and NRC observations during the inspection.

b. Assessment

No findings of significance were identified in the area of audits and self-assessments.

The inspectors determined that PSEG's audits and self-assessments were adequate. However, the inspectors identified a potential weakness in the methodology that PSEG used to assess problem identification effectiveness in the 2007 CAP FASA. The FASA evaluation consisted of a review of documentation, including notifications, corrective maintenance orders, operating logs, system engineering notebooks, and observation of management meetings. The FASA focused on whether identified problems were placed in the CAP. The inspectors identified that the self-assessment did not independently identify problems in the plant and measure the effectiveness of the staff to identify issues. This weakness was made apparent when, despite the very high volume of notifications generated at Salem, the inspectors identified several minor issues during plant walkdowns that were not in the CAP.

.4 Assessment of Safety Conscious Work Environment (SCWE)

a. Inspection Scope

Through interviews with several plant employees, the inspectors assessed the willingness of PSEG's staff to raise concerns and use the CAP without fear of retaliation. The inspectors interviewed staff from several functional areas and levels in the organization. The inspectors also reviewed PSEG's Employee Concerns Program (ECP) to determine if employees were aware of the program and used it to raise concerns. Samples of ECP cases were reviewed to ensure that issues raised were entered into the CAP.

b. Assessment

No findings of significance were identified related to SCWE.

The inspectors determined that the plant staff was aware of the ECP and expressed a willingness to raise safety concerns. The staff interviewed possessed an adequate knowledge of the CAP and other means of raising safety issues. No interviewee

experienced retaliation for raising safety issues or knew of anyone who refused to raise issues. The inspectors observed that PSEG advertised in several obvious locations how and where to raise safety concerns. The ECP office was located in an area easily accessible to site workers. The inspectors observed that PSEG analyzed ECP data to identify potential problem areas in the organization and created action plans to address the potential problems. Based on the above, the inspectors concluded there was no evidence of a degraded SCWE.

4OA6 Meetings, including Exit:

On March 23, 2007, the inspectors presented the inspection results to Mr. Thomas Joyce and other members of the PSEG staff. The inspectors confirmed that no proprietary information reviewed during inspection was retained.

The inspectors conducted another exit meeting with PSEG on April 20, 2007, to communicate changes made in the cross-cutting aspects of the two findings associated with the PSEG fitness-for-duty program. The inspectors also communicated that the findings were not considered to be Safeguards Information, therefore, a separate report would not be required.

ATTACHMENT: Supplemental Information

In addition to the documentation that the inspectors reviewed (listed in the attachment), copies of information requests given to the licensee are located in the Agencywide Document Access and Management System (ADAMS), under accession number ML071150197.

ATTACHMENT - SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel:

H. Berrick - Regulatory Compliance Engineer
S. Bowers - System Engineer, Chemical Volume Control System
D. Burgin - Emergency Preparedness Manager
T. Cachaza - Station Corrective Action Program Coordinator (CAPCO)
R. Coon - Training Manager
A. Crampton - Tag Out Planner (SRO)
G. Delp - Component Optimization Engineer, Rotating Equipment
J. Garecht - Operations Manager
H. Hanson - Nuclear Oversight (NOS) Manager
G. Reed - Lead NOS Assessor
G. Suey - Chemistry Manager
T. Wygant - Work Management SRO
A. Garcia - Service Water System Manager
G. Jones - Engineering Department CAPCO
R. Moore - Radiation Monitoring System Manager
T. Mullholland - AFW System Manager
K. King - System Engineering
G. Pahwa - Ventilation Systems Manager
J. Duffy - Design Engineer
K. Weigel - Engineering Manager, NSSS
A. Weslock - Radiation Protection CAPCO
M. Bruecks - Security Manager
B. Watson - Supervisor, Site Access Services
D. Adams - Supervisor, Fitness For Duty

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Items Opened:

05000272/2007006-01	URI	Evaluation of Past Operability of the Turbine Driven Auxiliary Feedwater Pump due to Multiple High Energy Line Break Damper Failures

Items Opened and Closed:

05000272/2007006-02	NCV	12 Chiller Rendered Unavailable due to Inadequate Maintenance
05000311/2007006-03	NCV	Repetitive Trips of 22 Service Water Strainer

05000272,311/2007006-04 & 05000354/2007007-01	NCV	FFD Collection Personnel Collecting FFD Samples From Co-Workers
05000272,311/2007006-05 & 05000354/2007007-02	NCV	FFD Collectors Leaving FFD Specimens Unattended

LIST OF DOCUMENTS REVIEWED

Procedures:

LS-AA-115, Operating Experience Procedure, Revision 10
LS-AA-126-1001, Focused Area Self-assessments, Revision 3
LS-AA-126-1005, Check-in Self-assessments, Revision 2
LS-AA-125-1003, Apparent Cause Evaluation Manual, Revision 7
LS-AA-125-1004, Effectiveness Review Manual, Revision 2
LS-AA-125, Revision 11, Corrective Action Program (CAP) Procedure
AD-SH-9910, AD Platform Transition Rules, Revision 2
DD-11, Nuclear Oversight Department Description, Revision 6
EI-AA-101, Employee Concerns Program, Revision 6
EI-AA-101-1001, Employee Concerns Program Process, Revision 4
EI-AA-101-1002, Employee Concerns Program Trending Tool, Revision 3
HU-AA-101, Human Performance Tools and Verification Practices, Revision 3
HU-AA-104-101, Procedure Use and Adherence, Revision 1
HU-AA-1081, Fundamentals Tool Kit, Revision 1
HU-AA-1081-F-05, Functional Area and Cross-Functional Fundamentals, Operations Fundamentals, Revision 1
LS-AA-105, Operability Determinations, Revision 1
LS-AA-120, Issue Identification and Screening Process, Revision 6
LS-AA-126, Self-Assessment Program, Revision 4
NC.CA-DG.ZZ-0103, Adverse Condition Monitoring and Contingency Planning, Revision 1
NC.WM-AP.ZZ-0000, Notification Process, Revision 12
NO-AA-21, Nuclear Oversight Audit Process Description, Revision 2
NO-AA-22, Nuclear Oversight Performance Assessment Process Description, Revision 2
RP-AA-502, Catch Containment Program, Revision 0
S1.OP-AB.CR-0002, Control Room Evacuation Due to Fire in the Control Room, Relay Room, 460/230v Switchgear Room, or 4Kv Switchgear Room, Revision 20
SC.OP-AP.ZZ-0108, Operability Assessments and Equipment Control Program, Revision 11
SH.OP-AA.ZZ-0030, Operator Burden Program, Revision 8
NC.CA-TM-0009, Roll-Up Process Manual, Revision 2
SC.MD-PM.CH-0001, ACME Chiller Compressor Inspection and Repair, Revision 12
MA-AA-706-010, Maintenance Planning, Revision 8
S1.OP-AR.DG-0001, Alarm Response Procedures, Revision 12
IG-02, Design Change Packages, Revision 0
NC.DE-WB.ZZ-0001,Design Change Packages, Revision 0
S1.OP-AB.CR-0001, Shutdown From Outside the Control Room, Revision 15
DE-AP-ZZ-0606 ,20 inch Model ”A” strainer, Revision 3
ER-AA-310-1004, Attachment 8, Functional Failure Determination Evaluation, Revision 4

SC.ER-DG.ZZ-0002, System Function Level Maintenance Rule Scope, Revision 2
SY-AA-102-240, Collection of Urine in an Exelon Facility

Audits:
NOSA-PSEG-05-01 - Corrective Action Program (August 2005)
NOSA-SLM-05-07 - Operations Functional Area (September 2005)
NOSA-HPC-06-03 - Emergency Preparedness (April 2006)
NOSA-SLM-06-04 - Chemistry, RadWaste, Effluent and Environmental Monitoring (April 2006)
NOSPA-SA-06-4Q - Nuclear Oversight Quarterly Report (Fourth Quarter 2006)
NOSA-HPC-07-04 - Emergency Preparedness (February 2007)
NOSPA-SA-06-1Q - Nuclear Oversight Quarterly Report (First Quarter 2006)
NOSA-SLM-06-01, Maintenance Functional Area Audit Report, Order 80087882
QA/Onsite Independent Review Quarterly Report, 1st Quarter 2005
QA/Onsite Independent Review Quarterly Report, 2nd Quarter 2005
NOSPA-SS-05-3Q, Nuclear Oversight Quarterly Report (Third Quarter 2005)
NOSPA-SS-05-4Q, Nuclear Oversight Quarterly Report (Fourth Quarter 2005)
NOSPA-SS-06-1Q, Nuclear Oversight Quarterly Report (First Quarter 2006)
NOSPA-SS-06-2Q, Nuclear Oversight Quarterly Report (Second Quarter 2006)
NOSPA-SS-06-3Q, Nuclear Oversight Quarterly Report (Third Quarter 2006)
NOSPA-SS-06-4Q, Nuclear Oversight Quarterly Report (Fourth Quarter 2006)

Self Assessments:
2005 Effectiveness Review of 2004 Focused Self-Assessment of Operations - Equipment Operator Effectiveness, Seasonal Readiness Process, Reactivity Management, & Industrial Safety
2005 Emergency Preparedness Self-Assessment with State Exercise
2005 Training Focused Assessments
2006 Common Nuclear Oversight Focused Self-Assessment
2006 Emergency Preparedness Self-Assessment
2006 Focused Self-Assessment of Training
2006 Operations Equipment Monitoring Self-Assessment
2007 Emergency Planning Program Self-Assessment
2007 Problem Identification and Resolution (PI&R) Self Assessment
Mitigating Systems performance Index (MSPI) Recovery Plan
SW System Reliability & Performance
2005 Salem Engineering Organizational Self Assessment - Third Quarter
Quality of Engineering Products/ Technical Rigor
RP Outage Preparation
Access Control to Radiological Significant Areas
Control of Radioactive Material

Notifications (* denotes a notification generated as a result of this inspection):

20254689	20196424	20220640	20228680	20241195	20248643
20229934	20217903	20220936	20228765	20245069	20248644
20229949	20218145	20221165	20231490	20245548	20248872
20229934	20218550	20222875	20236889	20248135	20250244
20312233	20218558	20223951	20239469	20248136	20251698
20254546	20220305	20225706	20240681	20248485	20254084

20260185	20291415	20315151	20256571	20298713	20246545
20260710	20295172	20315182	20315520	20298713	20245437
20261601	20295174	20315250	20272121	20298370	20243042
20262925	20295904	20315317	20233706	20298243	20241469
20263824	20298370	20315357	20272284	20296708	20241195
20264351	20298812	20315359	20226113	20294739	20238106
20264465	20298950	20315376	20273582	20293352	20237818
20265075	20299616	20315386*	20229212	20292556	20237558
20265128	20300075	20315451*	20313574	20291480	20237203
20266304	20300082	20315469	20191172	20289840	20236947
20266852	20300166	20315518*	20256571	20289407	20236889
20268569	20300397	20315528*	20155325	20289327	20234255
20268714	20300422	20315696*	20246324	20285842	20232521
20268931	20300423	20315747*	20317282*	20274612	20229065
20270735	20300889	20316624*	20316762	20274188	20228755
20270994	20300992	20316762*	20315544*	20274174	20227347
20271206	20301261	20317282*	20315542*	20273707	20225310
20271488	20301503	20317397*	20315529*	20272927	20223395
20272768	20301666	20317461*	20315528*	20271675	20223162
20274637	20301692	20282504	20315520*	20271549	20221357
20274797	20302404	20293352	20315519*	20269606	20221307
20275282	20302979	20307391	20315469	20268767	20220312
20276965	20303193	20287495	20315451*	20268714	20219290
20277177	20303206	20253937	20314620	20263240	20218840
20277247	20303383	20312513	20314524	20262583	20218717
20277499	20305229	20257578	20313234	20262214	20192889
20278805	20305318	20309864	20312695	20259987	20120669
20280036	20307503	20311067	20312519	20259465	20057773
20281080	20307748	20311584	20312095	20259092	20317397
20282967	20307833	20311461	20311844	20258214	20317417
20283475	20308043	20291357	20311584	20258011	20315226
20286802	20309005	20296257	20311461	20255706	20309233
20286852	20309444	20272063	20311461	20255145	20307981
20287171	20310230	20306740	20311342	20255139	20294696
20287492	20310526	20238928	20311067	20254546	20293647
20290232	20311338	20277709	20309150	20254260	20280790
20290480	20311477	20303505	20308571	20253266	20278415
20291276	20311948	20237033	20308535	20252358	20273993
20291363	20312077	20219185	20307395	20252333	20273987
20291364	20312088	20288573	20305229	20251719	20273926
20291365	20312144	20294626	20305209	20250527	20273645
20291366	20312201	20308194	20304889	20250244	20273253
20291367	20312229	20155325	20304496	20249774	20270909
20291368	20312988	20226697	20300992	20248802	20268936
20291369	20314520	20220601	20299906	20248567	20299445
20291370	20315110				

<u>Technical Support Orders and Evaluations</u>:

80888580	80088824	80079702	80079702	80088580	70064392

70058253	70052064	70046441	70059905	70065602	
70057833	70051438	70050946	70047408		

Work Orders:

30134320	80088611	70063658	70058966	70049515	60058449
30134321	80074702	70062413	70052827	70048247	60057800
70065004	70066438	70062026	70051438	70044072	60056363
30088364	70064741	70059066	70051267	70044072	60055448
60060946	70064741	70058986	70051157	70043159	
80089963	70063783	70058966	70050522	60067986	
80089131	70063783	70058966	70049515	60058837	

Operating Experience Reviews:

NRC IN 2005-30	Safe Shutdown Potentially Challenged by Unanalyzed Internal Flooding Events and Inadequate Design
NRC IN 2006-04	Design Deficiency in Pressurizer Heaters for Pressurized-Water Reactors
NRC IN 2006-14S1	Potentially Defective External Lead-Wire Connections in Barton Pressure Transmitters
NRC IN 2006-17	Recent Operating Experience of Service Water Systems Due To External Conditions
NRC IN 2006-18	Significant Loss of Safety-Related Electrical Power at Forsmark, Unit 1, in Sweden
NRC IN 2006-27	Circumferential Cracking in the Stainless Steel Pressurizer Heater Sleeves of Pressurized Water Reactors
Part 21 report	Westinghouse - Centrifugal Charging Pump Runout During Safety Injection
Part 21 report	Engine Systems, Inc., Woodward Governor “Compensating” EG Series Actuators

20298369 Dual Unit Loss of Power at Catawba

Non-Cited Violations and Findings Reviewed:

NCV 2005003-01, #15 Containment Fan Coil Unit Inoperable Due to Configuration Control Error
NCV 2005003-07, Containment Closure Requirements Not Satisfied
NCV 2005003-08, Failure to Complete 50.54(t) Audit
NCV 2005004-04, 2A Emergency Diesel Generator Inoperable Due to Operator Procedure Error
NCV 2005005-01, #11 Safety Injection Pump Inoperable due to Operator Procedure Error
NCV 2005005-04, Inadequate Risk Assessment
NCV 2005005-09, Inadequate Containment Closure Procedure Requirements
FIN 2005007-04, Component Cooling Water Configuration Control Deficiency
NCV 2006006-05, Inadequate Procedure for Loss of Component Cooling Water
NCV 2006006-06, RHR Pump Room Internal Flood Protection
NCV 2006007-03, Failure to Comply with Station Cold Shutdown Procedures
NCV 2005012-01, Freon Leaks on 11 Control Area Chiller

NCV 2005012-02, Failure of 12SW39 Renders 1B Emergency Diesel Generator Unavailable
NCV 2005007-06, Deficient Control Area Chiller Controls

System Health Reports:
Unit 1 Chilled Water (4th Quarter 2006)
Unit 2 Chilled Water (4th Quarter 2006)
Unit 1 Radiation Monitoring System (4th Quarter 2006)
Unit 1 Service Water System (4th Quarter 2006)
Unit 2 Service Water System (4th Quarter 2006)
Unit 3 Gas Turbines (4th Quarter 2006)

Drawings:
236112 A 1444-0, "No2 Unit-Aux Building Steam Driven Auxiliary Feed Water Pump Enclosure El 84' 0" Rev 0.

Miscellaneous:
Salem NOS Site Status Report
Maintenance Rule Unavailability Graphs for the Gas Turbine Generator, 10/01/05-2/01/07
Maintenance Rule Reliability Graphs for the Gas Turbine Generator, 3/01/04-2/01/07
Maintenance Rule Unavailability Graphs for #13 & #23 Charging Pumps, as of February 1, 2007
NRC Regulatory Issue Summary 2005-20, Revision to Guidance Formerly Contained in NRC Generic Letter 91-18, "Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and On Operability"
2006 1Q Salem Engineering Department Roll-up Meeting (DRUM) report
2005 4Q Salem Maintenance DRUM report
2006 3Q Salem Engineering DRUM report
2006 1Q & 2Q, Station Roll-up Meeting (SRUM)
DE-CB.CH-0025, Configuration Baseline Documentation fo Chilled Water System, Revision 3
Salem Nuclear Review Board Support Subcommittee Report, September 9, 2006
Salem Nuclear Review Board Engineering Subcommittee Report, January 23, 2007
Salem Nuclear Review Board Operations Subcommittee Report, September 9, 2005
Salem Nuclear Review Board Maintenance Subcommittee Report, June 15, 2005
List of unplanned shutdown LCO entries for Unit 1 & Unit 2 from March, 2005 to March, 2007
Salem Regulatory Assurance Department 2007 Excellence Plan
NC.CA-TM.SS-0009(Z), Attachment 2, Department Roll-up Meeting (DRUM) Minutes from 3/21/05, 7/25/05, 11/22/05, 2/21/06, 4/27/06 & 5/5/06, 9/15/06, 12/19/06, 2/6/07
Maintenance Rule A(1) Action Plans for Service Water and gas Turbine Systems.
Adverse Condition Monitoring Plan 07-012 Revs 0 and 1,"22 SW Strainer"
Calculation S-C-ABV-MDC-1881 Revs 0 and 3 "Salem Units 1&2 ABV Gothic App R Scenarios"
Control Room OTDM Log Dated 3/16/07
Control Room List of Adverse Condition Monitoring Plans Dated 3/16/07
Control Room Narrative Logs 2/24/07.
Control Room Distractions Report dated 3/7/07
Licensee Event Report 05000272 2006-002 Rev 0
MR Basis Scoping Documents for Service Water and Gas Turbine Systems
MSPI Basis for Service Water System
PSEG Prompt Investigation Report, Observation by NRC Security Inspector of the Fitness for Duty collection Process

LIST OF ACRONYMS

ACE	Apparent Cause Evaluations
CAP	Corrective Action Program
CCE	Common Cause Evaluation
CFCU	Containment Fan Coil Unit
DCP	Design Change Package
DRP	Division of Reactor Projects
ECP	Employee Concerns Program
EMIS	Equipment Malfunction Identification System
FASA	Functional Area Self-Assessments
FFD	Fitness-For-Duty
FIN	Finding
HELB	High Energy Line Break
IMC	Inspection Manual Chapter
MPFF	Maintenance Preventable Functional Failure
MR	Maintenance Rule
MRC	Management Review Committee
NCVs	Non-Cited Violations
NOS	Nuclear Oversight
NOTF	Notification
NRC	Nuclear Regulatory Commission
OE	Operating Experience
PI&R	Problem Identification and Resolution
RCA	Root Cause Analyses
ROP	Reactor Oversight Process
RP	Radiation Protection
SCWE	Safety Conscious Work Environment
SDP	Significant Determination Process
SFF	System Functional Failure
SOC	Station Ownership Committee
SPAR	Standardized Plant Analysis Risk
SRA	Senior Risk Analyst
SRST	Spent Resin Storage Tank
SSC	System, Structure, or Component
SW	Service Water
SWIS	Service Water Intake Structure
TDAFW	Turbine Driven Auxiliary Feedwater
TS	Technical Specification
URI	Unresolved Item
WGE	Work Group Evaluation