April 26, 2002

Mr. Robert G. Byram
Senior Vice President and
Chief Nuclear Officer
PPL Susquehanna, LLC
Susquehanna Steam Electric Station
2 North Ninth Street
Allentown, Pennsylvania 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION - NRC INSPECTION REPORT 50-387/02-02, 50-388/02-02

Dear Mr. Byram:

On March 30, 2002, the NRC completed an inspection at your Susquehanna Steam Electric Station Units 1 and 2. The enclosed report documents the inspection findings which were discussed on April 2, 2002, with Mr. B. Shriver, Vice President - Nuclear Site Operations, and other members of your staff.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

The reports documents one finding of "No-Color". This finding is not a violation of NRC requirements.

Immediately following the terrorist attacks on the World Trade Center and the Pentagon, the NRC issued an advisory recommending that nuclear power plant licensees go to the highest level of security, and all promptly did so. With continued uncertainty about the possibility of additional terrorist activities, the Nation's nuclear power plants remain at the highest level of security and the NRC continues to monitor the situation. This advisory was followed by additional advisories, and although the specific actions are not releasable to the public, they generally include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with law enforcement and military authorities, and more limited access of personnel and vehicles to the sites. The NRC has conducted various audits of your response to these advisories and your ability to respond to terrorist attacks with the capabilities of the current design basis threat (DBT). On February 25, 2002, the NRC issued an Order to all nuclear power plant licensees, requiring them to take certain additional interim compensatory measures to address the generalized high-level threat environment. With the issuance of the Order, we will evaluate PPL's compliance with these interim requirements.

Additionally, licensee identified violations are listed in Section 4OA7 of this report. If you contest any Non-Cited violation in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Susquehanna Steam Electric Station.

In accordance with 10 CFR 2.790 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 NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm.html (The Public Electronic Reading Room).

If you have any questions please contact me at 610-337-5209.

Sincerely,

/RA/

Mohamed Shanbaky, Chief
Projects Branch 4
Division of Reactor Projects

Docket Nos. 50-387, 50-388
License Nos. NPF-14, NPF-22

Enclosure: Inspection Report 50-387/02-02, 50-388/02-02

Attachment 1 - Supplemental Information

cc w/encl: B. L. Shriver, Vice President - Nuclear Site Operations
R. Anderson, General Manager - SSES Operations
R. L. Ceravolo, General Manager - Plant Support
A. J. Wrape III, General Manager - Nuclear Engineering
T. Harpster, Manager - Regulatory Affairs
R. R. Sgarro, Supervisor, Nuclear Licensing - SSES
C. D. Markley, Supervisor - Nuclear Licensing
M. M. Golden, Manager - Nuclear Security
P. Nederostek, Nuclear Services Manager, General Electric
D. Roth, Manager, Quality Assurance
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Region I Docket Room (with concurrences)

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DATE	04/24/02		04/24/02		04/26/02	

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 05000387, 05000388

License Nos.: NPF-14, NPF-22

Report No.: 50-387/02-02, 50-388/02-02

Licensee: PPL Susquehanna, LLC

Facility: Susquehanna Steam Electric Station

Location: Post Office Box 35
Berwick, PA 18603

Dates: February 10, 2002 to March 30, 2002

Inspectors: S. Hansell, Senior Resident Inspector
J. Richmond, Resident Inspector
A. Blamey, Senior Operations Engineer
C. Sisco, Operations Engineer
P. Frechette, Physical Security Inspector
J. Jang, Senior Radiation Specialist
J. Noggle, Senior Health Physicist
J. Carrasco, Reactor Inspector

Approved by: Mohamed M. Shanbaky, Chief
Projects Branch 4
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000387-02-02, 05000388-02-02; on 02/10/2002-03/30/2002; PPL Susquehanna, LLC; Susquehanna Steam Electric Station; Units 1&2. Cross-cutting Issues.

The report covered a 7 week period of inspection by resident inspectors, and announced inspections by regional operations engineers, a physical security inspector, a reactor inspector, a radiation specialist, and a health physicist. The inspection identified one finding of "No Color." The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by a severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process web site at http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html

A. Inspection Findings

Other Activities:

- **No Color**. The inspector identified a finding regarding a performance trend which appears to have developed in the barrier integrity and mitigating systems safety cornerstone areas with non-licensed plant operator errors being the common element. (Section 4OA4)

B. Licensee Identified Violations

Violations of very low safety significance (Green) which were identified by PPL have been reviewed by the inspectors. Corrective actions taken or planned by PPL have been entered into PPL's corrective action program. These violations are listed in section 4OA7 of this report.

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Report Details

Summary of Plant Status

Susquehanna Steam Electric Station (SSES) Unit 1 was operating at 85% power at the beginning of the inspection period and plant power declined gradually due to the end of the two year operating cycle. Plant power was 75% on March 1, when Unit 1 was shut down to begin a refueling and maintenance outage.

Unit 2 was operated at or near full power for during inspection period, with exceptions for control rod pattern adjustments and main turbine control valve testing, until March 29. On March 29, reactor power was reduced to approximately 22% for planned repairs to the cooling tower makeup system. Reactor power was approximately 80% at the end of the report period.

1. REACTOR SAFETY
Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity [R]

1R04 Equipment Alignments (71111.04)

.1 Partial System Walk-downs

a. Inspection Scope

The inspectors performed partial system walk-downs to verify system and component alignment and to note any discrepancies that would impact system operability. The inspectors verified selected portions of redundant or backup systems or trains were available while certain system components were out of service. The inspectors reviewed selected valve positions, electrical power availability, and the general condition of major system components. The walk-downs included the following systems:

- Unit 2 residual heat removal (RHR) system fuel pool cooling assist mode while Unit 1 RHR was not available during the Unit 1 refuel outage on March 7
- Unit 1 supplemental decay heat removal system while RHR shutdown cooling was not available on March 11-15
- Unit 1 125V DC and 250V DC Batteries and DC distribution during service discharge test on the division-2 250V DC battery on March 14
- Security Control Center and Alternate Security Control Center on March 14

b. Findings

No findings of significance were identified.

.2 Complete System Walk-down

a. Inspection Scope

The inspectors performed a comprehensive walk-down on the Unit 1 primary containment pressure instrument rack (1C057) to verify whether the equipment was properly aligned. The walk-down was conducted following a modification which moved the instrument rack, including instrument tubing and electrical cabling, into a different area of the plant. In addition, the inspectors reviewed the design documentation and issues tracked by the system health report (condition reports, work orders, and maintenance rule issues). These reviews were conducted to identify discrepancies that would impact system operability. The following documents were included in the review:

- Maintenance Rule Basis Document for Reactor Protection System (RPS) and Reactor Building Secondary Containment
- System Health Report for RPS and Reactor Building Secondary Containment
- M-151 sheet 5, "Residual Heat Removal System P&ID"
- DBD-007, "Reactor Building HVAC and Standby Gas Treatment System"
- DCP 352940, "Reactor Building Instrument Rack 1C057 Relocation"

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors reviewed PPL's Fire Protection Review Report and pre-fire plans to determine the required fire protection design features, fire area boundaries, and combustible loading requirements for selected areas. The inspectors walked down those areas to assess PPL's control of transient combustible material and ignition sources, fire detection and suppression capabilities, fire barriers, and any related compensatory measures. The areas and documents included:

Plant Areas and Fire Zones

- Unit 1 4.16kV emergency switchgear, Fire Zones 1-4C,D and 1-5F,G, during refueling outage on March 9
- Unit Common refuel floor, Fire Zone 0-8A, during setup activities for chemical decontamination and inspections of the reactor vessel internals on March 9
- Unit 1 reactor protection system (RPS) motor-generator MG) area, Fire Zone 1-5A-W, during modification work in adjacent area on March 14
- Unit 1 battery rooms and DC distribution panel areas, Fire Zones 0-28I,J,K,L,M, and N, during battery service discharge testing on March 14
- Unit 1 primary containment (drywell), Fire Zone 1-4F, during outage maintenance on March 15
- Unit 1 outboard main steam isolation valve (MSIV) room (reactor building wing slab area), Fire Zone 1-4G, during modification of the MSIVs on March 18 & 26

Pre-fire Plans

- FP-013-132, "Common Refuel Floor"
- FP-013-168 and 169, "Equipment and Battery Rooms, Elevation 771"
- FP-113-100, "Drywell"
- FP-113-115, "Switchgear Rooms, Elevation 719"
- FP-113-118, "Main Steam Pipeway"
- FP-113-119, "RPS MG Set Room (I-517), Elevation 762"
- FP-113-123, "Load Center Rooms, Elevation 749"

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection (ISI) (71111.08)

a. Inspection Scope

The inspector reviewed various Unit 1 Inservice Inspection activities performed during the twelfth refueling outage. This review included volumetric and surface nondestructive examinations and focused on safety related and high risk components. Specifically, the inspector reviewed a modification that replaced three existing valves in the line from the reactor head vent to the drain tank and a modification that installed new feedwater flow sensors. The inspector reviewed a sample of the radiographs of the six welds for the feedwater flow sensor modification to determine their adequacy, identify indications, and verify whether PPL properly documented and dispositioned indications. The radiographs reviewed correspond to weld DBD-101-5 FW32 six views and weld DBD-101-1 FW30R1 two views. In addition, the inspector reviewed the liquid penetrant, magnetic particle, and ultrasonic examinations for both modifications to evaluate compliance with the pertinent approved procedures and to verify whether they were implemented following the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section XI.

The inspector also reviewed the disposition of nondestructive examination indications which included the core spray sparger weld defect documented in condition report 391537. In addition, the inspector reviewed PPL's response to Generic Letter 94-03 which requested boiling water reactor licensees inspect the core shrouds and perform an appropriate evaluation and/or repairs based on the results of the inspections. The inspector reviewed the Unit 1 analysis based on the last core shroud inspection performed during the 2000 refueling outage to determine the adequacy of PPL's inspection schedule and reporting of the results.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Re-qualification Training

.1 Routine Re-qualification Training Review (71111.11Q)

a. Inspection Scope

On February 26, the inspectors observed licensed operator performance during simulator training and PPL's critique of the operators' performance to assess operator performance and identify discrepancies and deficiencies in training. The inspectors compared their observations to Technical Specifications, emergency plan, and off-normal and emergency operating procedures. The inspectors' evaluation focused on the operating crews' satisfactory completion of crew critical tasks. Critical tasks are operational limits placed on key reactor plant and containment parameters that will ensure safety margins are maintained during the simulated malfunctions. In addition, the inspectors reviewed the ability of the simulator to model the actual plant performance. The observed training scenario's included:

- OP-002-405, "ADS Pressure Switch Failure, LOOP, Large LOCA, RPV Flooding"
- OP-002-608, "HPCI Leak Detection Failure, RPS B-Bus Trip, Hydraulic ATWS with power > 5%, small LOCA"

b. Findings

No findings of significance were identified.

.2 Biennial Re-qualification Training Review (71111.11B)

a. Inspection Scope

The inspectors reviewed recent PPL operating history documentation found in inspection reports, event reports, corrective action program, and the most recent NRC plant issues matrix to identify any operational issues that were indicative of significant training deficiencies. In addition, the senior resident inspector was consulted for insights regarding licensed operator performance, and PPL's training and operation management were interviewed for feedback regarding the implementation of the licensed operator re-qualification program.

The simulator performance and fidelity were reviewed for conformance to the Susquehanna control room and expected plant response. Susquehanna risk significant operator actions, industry operating experience and licensed operator training feedback were reviewed to verify that appropriate information has been translated into training materials and exams.

A sample of records for license reactivations, re-qualification training attendance, program feedback, reporting, and medical examinations were reviewed for compliance

with license conditions and NRC regulations. In addition, eighteen remediation plans for the current two year re-qualification program cycle were reviewed to assess the effectiveness of the remedial training.

The operating exams administered during the week of January 28, 2002, as well as seven other dynamic simulator exams were reviewed for quality. During this week the inspectors observed two dynamic simulator exams and six job performance measures (JPMs). These observations included PPL's evaluations of the crews and individuals. In addition, the inspectors reviewed the licensed operator performance during the 2000 and 2001 re-qualification exams to determine if the failure rates were consistent with the guidance in NUREG-1021, Revision 8, "Operator Licensing Examination Standards for Power Reactors". The review verified the following:

- Crew pass rates were greater than 80%.
- Individual pass rates on the written exam were greater than 80%.
- Individual pass rates on the job performance measures of the operating exam were greater than 80%.
- More than 75% of the individuals passed all portions of the exam.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12Q)

a. Inspection Scope

The inspectors evaluated the follow-up actions for selected system, structure, or component (SSC) issues and reviewed the performance history of these SSCs to assess the effectiveness of PPL's maintenance activities. The inspectors reviewed PPL's problem identification and resolution actions for these issues to evaluate whether PPL had appropriately monitored, evaluated, and dispositioned the issues in accordance with PPL procedures and the requirements of 10 CFR 50.65(a)(1) and (a)(2), "Requirements for Monitoring the Effectiveness of Maintenance." In addition, the inspectors reviewed selected SSC classification, performance criteria and goals, and PPL's corrective actions that were taken or planned, to verify whether the actions were reasonable and appropriate. The following issues were reviewed:

Equipment Issues

- Unit 1 "A" RHR pump failure to start from a cross-divisional initiation signal during logic system functional testing due to a failed MDR relay (CR 393592)
- Unit Common "B" control structure chiller trip due to positioning the chill water pump hand-switch from "automatic" to "start." The ability to maintain positive pressure in the control room was lost for 6 minutes because the "A" control structure chiller and fans were not available. (CR 3861000)
- Unit Common 125 Volt DC control power transfer switches not aligned properly during Unit 1 battery maintenance. This resulted in the unavailability of the "B"

and “D” emergency service water pumps, the “B” control structure chiller, and the “B” emergency diesel generator. (CR 390276)

Procedures and Documents

- Maintenance Rule Basis Documents for RHR, DC Power, and control structure chillers/ventilation
- System Health Reports for RHR, DC Power, and control structure chillers/ventilation
- NDAP-QA-0413, "SSES Maintenance Rule Program"
- EC-RISK-0528, "Risk Significant SSCs for the Maintenance Rule"
- EC-RISK-1054, "Maintenance Rule SSC Availability Performance Criteria"
- EC-RISK-1060, "Risk Significant SSC Acceptable Failure Limits"

b. Findings

No significant observations or findings were identified.

1R13 Maintenance Risk Assessment and Emergent Work (71111.13)

a. Inspection Scope

The inspectors reviewed the assessment and management of selected maintenance activities to evaluate the effectiveness of PPL's risk management for planned and emergent work. The inspectors compared the risk assessments and risk management actions to the requirements of 10 CFR 50.65(a)(4) and the recommendations of NUMARC 93-01 Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities." The inspectors evaluated the selected activities to determine whether risk assessments were performed when required and appropriate risk management actions were identified.

The inspectors reviewed scheduled and emergent work activities with licensed operators and work-coordination personnel to verify whether risk management action threshold levels were correctly identified. The inspectors assessed those activities to evaluate whether appropriate implementation of risk management actions were performed in accordance with the following PPL procedures:

- NDAP-QA-1902, "Maintenance Rule Risk Assessment & Management Program"
- NDAP-QA-0340, "Protected Equipment Program"
- PSP-22, "Susquehanna Sentinel Program"
- SSES Team Manual

In addition, the inspectors compared the assessed risk configuration to the actual plant conditions and any in-progress evolutions or external events to evaluate whether the assessment was accurate, complete, and appropriate for the issue. The inspectors performed control room and field walk-downs to verify whether the compensatory measures identified by the risk assessments were appropriately performed. The selected maintenance activities included:

- Unit Common fire protection pump monthly flow test (SO-013-001) not performed within the required Technical Requirements Manual (TRM) periodicity. The missed surveillance was treated an as emergent condition and risk assessed as allowed by the TRM. The surveillance was missed because the Unit 1 service water system (test return path for the fire pump) was drained for maintenance. (CR 390380)

b. Findings

No findings of significance were identified.

1R14 Non-Routine Plant Evolutions (71111.14)

.1 Control Room Emergency Outside Air Supply System Inoperable

a. Inspection Scope

On February 22, both divisions of the control structure chillers were inoperable when the "B" chiller breaker tripped while the "A" chiller was out of service for maintenance. The control structure chillers are a safety related support system for the control room emergency outside air supply system, a safety system required by Technical Specifications. Both Unit 1 and Unit 2 entered Technical Specification 3.0.3, "Limiting Condition for Operations Not Met" for approximately 6 minutes until the "B" control structure chiller was re-started. PPL entered this issue into their corrective action program as condition report 386100.

The inspectors reviewed operating logs, plant procedures, and interviewed plant personnel for this issue to independently determine what occurred and evaluate the initiating cause. The inspectors assessed personnel performance during this event to evaluate whether the operator response was appropriate and in accordance with procedures and training.

b. Findings

No findings of significance were identified.

.2 Common DC Control Power Not Transferred as Required

a. Inspection Scope

On March 12, PPL determined that the Division-2 Common 125V DC control power had not been properly transferred from the Unit 1 battery to the Unit 2 battery prior to removing the Unit 1 battery from service. The operators performing the DC control power transfer were only given the second page of a two page transfer switch list (Appendix-J of OP-102-002). As a result, the operators failed to align fifteen transfer switches to the Unit 2 battery, as required by OP-102-002, section 3.1, "Transfer of Common 125V DC Loads." This resulted in multiple Division 2 common safety systems ("B" and "D" emergency service water pumps, "B" control structure chiller, and "B" emergency diesel generator) being inoperable and unavailable. PPL properly aligned the DC control power transfer switches approximately 6 hours after the Unit 1 battery was removed from service. PPL entered this issue into their corrective action program as condition report 390276. (See Section 4OA4)

The inspectors reviewed operating logs, plant procedures, and interviewed plant personnel for this unplanned event to independently determine what occurred and evaluate the initiating cause. The inspectors assessed personnel performance during this event to evaluate whether the operator response was appropriate and in accordance with procedures and training.

b. Findings

This issue is considered a licensee identified Non-cited Violation and is documented in section 40A4 and 4OA7 of this report.

.3 Unit 1 4kV Buses Inoperable due to Seismic Restraints Not Installed

a. Inspection Scope

On March 16, PPL determined that the Unit 1 "A" and "D" 4kV emergency buses were not operable when an operator discovered that a 4kV breaker in each bus had not been properly racked out in the bus cubical because the required seismic restraints were not installed. As a result, both divisions of the control structure chillers were considered inoperable. The control structure chillers are a safety related support system for the control room emergency outside air supply system, a safety system required by Technical Specifications. Unit 2 entered Technical Specification 3.0.3, "Limiting Condition for Operations Not Met," for approximately 30 minutes while the Unit 1 4kV buses were restored to an operable condition.

The two breakers had been in an incorrect condition (not seismically restrained) since March 8, when the breakers had been racked out to remove the control rod drive system from service. The operators performing the breaker rack-outs on March 8, had not installed the seismic breaker restrain devices as required by section 4.3.3 of OP-000-001, "4.16kV Breaker Positions and Effects on Equipment." PPL entered this issue into their corrective action program as condition report 391452.

The inspectors reviewed operating logs, walked down the Unit 1 4kV buses, and interviewed plant personnel for this unplanned event to independently determine what occurred and evaluate the initiating cause. The inspectors assessed personnel performance during this event to evaluate whether the operator response was appropriate and in accordance with procedures and training.

b. Findings

This issue is considered a licensee identified Non-cited Violation and is documented in section 40A4 and 4OA7 of this report.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed operability determinations that were selected based on risk insights, to assess the adequacy of the evaluations, the use and control of compensatory measures, and compliance with the Technical Specifications. In addition, the inspectors reviewed the selected operability determinations to verify whether the determinations were performed in accordance with NDAP-QA-0703, "Operability Assessments." The inspectors used the Technical Specifications, Technical Requirements Manual, Final Safety Analysis Report (FSAR), and associated Design Basis Documents as references during these reviews. The issues reviewed included:

- Unit Common "D" EDG motor driven jacket water pump unexpected auto stated during routine diesel run (CR 385022, February 18)
- Unit 1 jet pump mixer set screw gaps greater than allowable limit (CR 389953 and ECO 390210, March 12 & 29)
- Unit 1 main steam isolation valves failed the local leak rate test (CR 388086, on March 3)
- Unit Common 125 Volt DC control power transfer switches not aligned properly during Unit 1 battery maintenance. This resulted in multiple Division 2 common safety systems ("B" and "D" emergency service water pumps, "B" control structure chiller, and "B" emergency diesel generator) being inoperable and unavailable. (CRs 390276 and 390510, on March 13)

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

.1 Unit 1 Containment Pressure Instrument Rack Re-location

a. Inspection Scope

The inspectors reviewed the modification which relocated the Unit 1 primary containment pressure instrument rack (1C057) from a location outside of secondary containment to inside secondary containment.

The inspectors reviewed the post-modification test procedures and test acceptance criteria to assess whether the testing would verify that affected instrument's performance characteristics and closed loop pressure boundary satisfied regulatory and design requirements. The inspectors observed portions of testing activities to verify whether the activities were properly performed in accordance with approved procedures. The inspectors reviewed the test data to evaluate whether the test acceptance criteria were satisfied and whether any unintended system interactions had been identified. The following documents were included in the review:

Procedures and Documents

- DCP 352940, "Reactor Building Instrument Rack 1C057 Relocation"
- Modification Safety Assessment for DCP 352940
- LDCN 3370, "Relocation of Reactor Building Instrument Rack 1C057"
- LDCN 3374, "Relocation of 1C057 from Fire Zone 1-6D to 1-6C"
- FSAR Section 6.2.3, "Secondary Containment Functional Design"
- EC-083-1043, "Impact of increasing tube length for rack 1C057 on instrument response time"
- SI-114-302, SI-151-301, SI-158-301, and SI-183-321, "1C057 Pressure Switch Calibration Checks"
- TP-159-028 and TP-159-029, "Leakage Test of Penetration X-3B"
- Engineering Work Request 373261
- Work orders 364614 and 373255
- Condition reports 314150 and 259739

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors observed portions of post-maintenance testing activities in the field to determine whether the tests were performed in accordance with the approved procedures. The inspectors assessed the test's adequacy by comparing the test methodology to the scope of maintenance work performed. In addition, the inspectors evaluated the test acceptance criteria to verify whether the test demonstrated that the tested components satisfied the applicable design and licensing bases and the

Technical Specification requirements. The inspectors reviewed the recorded test data to determine whether the acceptance criteria were satisfied. The maintenance activities reviewed included:

- Unit 1 outboard main steam isolation valve (MSIV) in-process assembly checks, WO 345890 on March 12
- Unit 1 standby liquid control system pump discharge pressure relief valve PSV-148-F029A/B retest, following setpoint change for DCP 318280, WO 319468 and 319558 on March 21-22
- Unit 1 outboard MSIV (HV-141-F028B) assembly checks after local leak rate test (LLRT) failure (SE-159-022, "LLRT of MSIV Penetration Number X-7B"), WO 345911 on March 26

b. Findings

No findings of significance were identified.

1R20 Unit 1 Refueling and Maintenance Outage Activities (71111.20)

.1 Refuel Outage Plan Review

a. Inspection Scope

The inspectors reviewed PPL's risk assessment for the scheduled outage plan to evaluate whether PPL had appropriately considered overall plant risk, industry experience, and previous SSES outage problems. In addition, the inspectors reviewed PPL's ORAM-Sentinel model basis for selected key safety factors. The following documents were included in the review:

- NDAP-QA-0613, "Outage Implementation and Assessment"
- PSP-22, "ORAM-Sentinel Program"
- SSES Team Manual

b. Findings

No findings of significance were identified.

.2 Reactor Plant Shutdown Activities

a. Inspection Scope

The inspectors observed selected portions of operator activities during the plant shutdown, plant cool down, and residual heat removal system operation in the shutdown cooling mode. The inspectors evaluated whether the activities were performed in accordance with approved procedures and training. The inspectors reviewed computer data and operator logs to spot check whether the cool down rate remained below the Technical Specification limit of 100 °F per hour. The following documents were included in the review:

- GO-100-004, "Plant Shutdown to Minimum Power"
- GO-100-005, "Plant Shutdown to Cold Shutdown"
- GO-100-006, "Cold Shutdown, De-fueled and Refueling"

b. Findings

No findings of significance were identified.

.3 Control of Outage Activities

a. Inspection Scope

Decay Heat Removal: While the service water system was removed from service, PPL used a temporary supplemental decay heat removal (SDHR) system to provide river water cooling directly to the Unit 1 fuel pool cooling heat exchangers. The Unit 2 residual heat removal (RHR) system, in the fuel pool cooling assist mode, provided a backup for the SDHR. The inspectors performed a walk-down of the SDHR system and those portions of Unit 2 RHR system that would be operated in the fuel pool cooling assist mode. The inspectors observed SDHR system operation and reviewed operating logs, operating procedures, and off-normal procedures to verify that activities were performed in accordance with PPL procedures and appropriate design basis documents.

Configuration Management & Risk Management: The inspectors observed selected portions of maintenance activities, equipment and system operations and restoration, and reviewed selected test procedures. The inspectors monitored the availability of reactor coolant makeup water sources to evaluate whether PPL maintained a defense-in-depth commensurate with the outage risk management goals and in accordance with Technical Specification requirements. The inspectors evaluated whether the component configuration management, test control, and post maintenance checks were performed in accordance with NRC requirements and approved PPL procedures. In addition, inspectors reviewed unexpected plant conditions, emergent work, and system configuration control during testing and maintenance activities to evaluate whether PPL appropriately identified, assessed, and managed plant risk during those activities.

Activities

- Visual inspection of the reactor vessel head
- Main steam isolation valve local leak rate testing
- Unit 1 turbine building closed cooling water system temporary tie-in to Unit 2, TP-115-009
- In-vessel Visual Inspection of core spray headers and jet pump assemblies
- Control rod drive mechanism change out, WO 298542
- Recirculation system chemical decontamination, WO 346924
- Freeze Seal on reactor water cleanup suction line to the reactor vessel, during chemical decontamination, WO 346198
- Suppression pool diving operations with "B" Core Spray system aligned for automatic initiation (ME-059-001), AR 389133
- Foreign material exclusion control around suppression pool area, CR 392612

- Division-1 RHR logic system functional test (SE-149-001), CR 393592
- Primary containment isolation system logic functional testing, SE-159-200
- I&C calibration and functional testing of main steam bypass valves, WO 292608
- Reactor cavity to spent fuel pool gate installation

Procedures and Documents

- OI-TA-009, "Determination of Heat Removal Capacities & Vessel Heat-up Rates"
- OP-135-001, "Fuel Pool Cooling and Cleanup System Operation"
- ME-059-001, "Suppression Pool Cleaning, Inspection, and Underwater Work"
- TP-135-011, "Refuel Outage Decay Heat Removal and Tie-in of SDHR Temporary Cooling Equipment"
- OP-011-001, "SDHR (supplemental decay heat removal) System"
- NL-95-001, revision-2 dated March 17, 2002, "Safety Evaluation for Tie-in and Operation of SDHR System"
- ON-149-001, "Loss of RHR Shutdown Cooling Mode"
- OP-249-003, "Unit 2 RHR in Fuel Pool Cooling Assist Mode"
- GO-100-010, "ECCS / Decay Heat Removal in Mode 4, 5, or De-fueled"
- NDAP-QA-0412, "Leakage Rate Test Program"
- SE-159-021,22,23,&24, "Main Steam Line Penetration Leakage Test"
- MT-164-012, "Chemical Decontamination of the Reactor Recirculation System"

b. Findings

No findings of significance were identified.

.4 Refueling Activities

a. Inspection Scope

The inspectors observed portions of fuel handing and refueling operations to assess the impact on the fuel barrier during handling and from related activities that could impact the integrity of the fuel barrier during subsequent reactor operation. The inspectors spot checked fuel assembly movement from the refuel platform to verify whether the locations of fuel assemblies were tracked, from core off-load through core reload. In addition, the inspectors reviewed related reactor vessel maintenance, inspection, and testing activities to evaluate whether the activities were performed in accordance with the Technical Specification requirements and approved procedures. The following activities and documents were observed or reviewed:

Refueling Activities

- New fuel receipt inspection and channeling
- Fuel handling between spent fuel pool and reactor core
- Foreign material exclusion control around fuel pools and reactor cavity
- Refueling interlock surveillance checks on refuel platform
- Refuel floor secondary containment integrity during fuel handling operations
- Highly radioactive discrete particle control on refuel floor

Procedures and Documents

- NDAP-QA-0507, "Conduct of Refuel Floor Operations"
- OP-0RF-005, "Refueling Operations"
- OP-181-001, "Refueling Platform Operation"
- ON-081-001, "Fuel Handling Accident"
- ON-081-002, "Refueling Platform Operation Anomaly"

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed portions of selected surveillance test activities in the control room and in the field and reviewed the test data results. The inspectors compared the test result to the established acceptance criteria and the applicable Technical Specification or Technical Requirements Manual operability and surveillance requirements to evaluate whether the systems were capable of performing their intended safety functions. The observed or reviewed surveillance tests included:

- Unit 1 reactor water cleanup system isolation from the remote shutdown panel (TP-100-012, on February 21)
- Unit 1 primary containment high pressure signal actuation instrumentation calibration checks (SI-183-321, SI-151-301, and SI-114-302, on March 11)
- Unit 1 Division-2 250V DC Battery Service Discharge Test (SM-188-203, on March 14)

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY
Cornerstone: Occupational Radiation Safety [OS]

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

The inspector reviewed the access control program (as required under Plant Technical Specifications and 10 CFR 20.1601) by examining the controls established for exposure in significant areas, including postings, barricades and locking controls of access to radiologically significant areas. In-plant areas and activities reviewed included: drywell access to high radiation areas including reactor vessel nozzle penetration inspections; transient dose rate controls for chemical decontamination of the recirculation and reactor water cleanup piping system; and suppression pool filter removal activities. These high radiation area work areas were reviewed with respect to radiation work permit and Technical Specification requirements. The following radiation protection corrective action reports were also reviewed with respect to regulatory requirements: 388018, 388875, 389343, 289917, 390307, 391033, 390300, 388006, 391601, 391072, 389738, and 378906.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspector reviewed PPL's As Low As is Reasonably Achievable (ALARA) performance in accordance with 10 CFR 20.1101(b). Areas reviewed included an evaluation of ALARA planning and in-plant observations for the 5 highest exposure outage tasks: drywell main steam isolation valve (MSIV) modifications, drywell temporary shielding, recirculation and reactor water cleanup piping chemical decontamination, drywell scaffolding, drywell piping insulation, drywell main steam relief valves, and suppression pool underwater vacuuming activities. Interviews were conducted with MSIV mechanics and applicable radiation protection (RP) technicians; the ALARA and drywell RP technicians responsible for drywell shielding, scaffolding and pipe insulation work activities; and the suppression pool filter replacement ALARA specialist. A suppression pool filter replacement ALARA pre-job meeting was attended and several drywell RP technician radiological briefings of workers were observed. Drywell shielding installations were independently surveyed with respect to ALARA plans. Observations were made of drywell radiation workers and RP technicians actions with respect to reducing doses in accordance with ALARA principles. Actual man-loading of MSIV work, with respect to ALARA, was reviewed several times during the inspection period. In addition, the results and problems associated with the recirculation and reactor water cleanup piping chemical decontamination were reviewed to determine if the associated problems were properly identified and assigned the appropriate level in the corrective action program.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety [PS]

2PS1 Radioactive Gaseous and Liquid Effluent Treatment Monitoring Systems (71122.01)

a. Inspection Scope

The inspector reviewed the following documents to evaluate the effectiveness of PPL's radioactive gaseous and liquid effluent control programs. The requirements of the radioactive effluent control programs were specified in the Technical Specifications (TS), Technical Requirements Manual (TRM), and Offsite Dose Calculation Manual (ODCM):

- 2000 Radiological Annual Effluent Release Report
- 2000 Radiation Dose Assessment Reports
- ODCM (January 14, 2002) and technical justifications for ODCM changes made
- ODCM updating process for revision, including technical justifications
- Analytical results for charcoal cartridge, particulate filter, and noble gas samples
- Compensatory sampling and analysis program, for periods when the effluent radiation monitoring system (RMS) was out of service
- Trending evaluation of the effluent RMS availability
- 2000 and 2001 selected radioactive liquid and gaseous release permits
- NRC Bulletin 80-10 sampling program implementation
- Effluent control procedures, including analytical laboratory procedures
- Laboratory measurement equipment (i.e., gamma and liquid scintillation counters) calibration records
- Laboratory measurement equipment quality control program, including effluent intra-laboratory measurement and inter-laboratory comparisons and control charts
- Self-assessments for effluent control programs
- Condition Reports 367555 , 382567, and 385794
- NAS Quality Assurance audits for the radiological effluent control and ODCM implementations:

    - Report # PS-2002-001, ODCM
    - Report # OP-2002-002, Plant Systems and Chemistry Management
    - Report # 2001-003, Chemistry and Effluents Release Program

- Most recent surveillance testing results (visual inspection, delta pressure, in-place testing for high efficiency particulate air filters and charcoal filters, air capacity test, and laboratory test for iodine collection efficiency) for the standby gas treatment system (TS 3.6.4.3) and the control room emergency outside air supply system (TS 3.7.3)

- Most recent channel calibration and channel functional test results for the radioactive liquid and gaseous effluent RMS and its flow measurement devices as listed in TRM Tables 3.11.1.4-1, 3.11.1.5-1, and 3.11.2.6-2

Radiation Monitoring Systems

- Liquid radioactive waste effluent line radiation monitor
- Service water system effluent line radiation monitors
- RHR service water system effluent line radiation monitors
- Reactor Building ventilation noble gas monitors (low & high ranges)
- Turbine Building ventilation noble gas monitor (low & high ranges)
- Standby gas treatment system noble gas monitors (low & high ranges)

Flow Measurement Device

- Liquid radwaste effluent line
- Cooling tower blowdown line
- Reactor Building ventilation effluent system
- Turbine Building ventilation effluent system
- Standby gas treatment system effluent system

The inspector walked down selected systems and observed activities to evaluate PPL's radioactive gaseous and liquid effluent control program effectiveness. The selected items included:

- Radioactive liquid and gaseous effluent RMS, to determine equipment availability and evaluate material condition
- Air cleaning systems, to assess system operability and evaluate material condition
- Radioactive filter and charcoal cartridge sampling, including preparation for gamma spectrometry measurements were observed

b. Findings

No findings of significance were identified.

3. SAFEGUARDS
Cornerstone: Physical Protection

3PP1 Access Authorization Program (71130.01)

a. Inspection Scope

The following activities were conducted to determine the effectiveness of PPL's behavior observation portion of the personnel screening and fitness-for-duty programs as measured against the requirements of 10 CFR 26.22 and PPL's Fitness for Duty Program documents.

Five supervisors representing the Chemistry, Maintenance, Special Projects, Engineering, and Effluents departments were interviewed on February 14, 2002, regarding their understanding of behavior observation responsibilities and the ability to recognize aberrant behavior traits. Two Access Authorization/Fitness-for-Duty self-assessments, two semi-annual Fitness for Duty performance data reports, two audits, and event reports and loggable events for the four previous quarters were reviewed. On February 14, 2002, five (5) individuals who perform escort duties were interviewed to establish their knowledge level of those duties. Behavior observation training procedures and records were reviewed on February 13, 2002.

b. Findings

No findings of significance were identified.

3PP2 Access Control (71130.02)

a. Inspection Scope

The following activities were conducted during the inspection period to verify that PPL had effective site access controls and equipment in place to detect and prevent the introduction of contraband (firearms, explosives, incendiary devices) into the protected area, as measured against 10 CFR 73.55(d) and PPL's Physical Security Plan and procedures.

Site access control activities at the personnel access point were observed, including personnel and package processing through the search equipment during peak ingress periods on February 12-13, 2002. On February 13, 2002, the inspector observed testing of all access control equipment at the personnel access point; including metal detectors, explosive material detectors, and X-ray examination equipment. On February 13, 2002, observation was made of a vehicle search conducted by PPL. The Access Control event log, an audit, three self assessments and three maintenance work requests were also reviewed.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Performance Indicator Verification (71151)

a. Inspection Scope

The inspector reviewed PPL's programs for gathering and submitting data for the Fitness-for-Duty, Personnel Screening, and Protected Area Security Equipment Performance Indicators. The review included PPL's tracking and trending reports, personnel interviews and security event reports for the Performance Indicator data submitted from the 1st quarter of 2001 through the 1st quarter of 2002.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 LER 50-387/01-003-00 Licensed Power Limit Exceeded due to Reactor Heat Balance Calculation Error

On September 7, 2001, PPL identified an error in a reactor heat balance calculation that was used to determine reactor power. PPL determined that the actual reactor power had been approximately 6 megawatts-thermal higher (approximately 0.17%) than the indicated power level. This error resulted in PPL exceeding their licensed maximum thermal power level. PPL corrected the calculation error.

This issue was reviewed by the inspectors and no findings of significance were identified. This issue was determined to be a minor violation, not subject to formal enforcement. This issue was documented in PPL's corrective action program as condition report 349191. This LER is closed.

4OA4 Cross-cutting Issues

a. Inspection Scope

The inspectors reviewed several inspection reports to determine if a pattern or trend was emerging which may not be captured in individual issues.

b. Findings

A finding regarding a performance trend appears to have developed in the Barrier Integrity and Mitigation Systems cornerstone areas with non-licensed plant operator (NPO) errors being the common element. The inspectors identified that:

- Two months prior to this inspection a NPO did not close a manual isolation valve which resulted in the overflow of the reactor water cleanup backwash receiving tank and contamination of approximately 800 square feet of the Unit 1 reactor building floor. The NPO did not perform a step in an operations procedure. (Licensee identified NCV affecting the Barrier Integrity Cornerstone ; Inspection Report 2001-012)

- During this inspection NPOs did not properly transfer DC control power for common safety systems to the Unit 2 battery before the Unit 1 battery was removed from service. This resulted in multiple Division 2 common safety systems ("B" and "D" emergency service water pumps, "B" control structure chiller, and "B" emergency diesel generator) being inoperable and unavailable for approximately 6 hours. The NPOs did not perform one page of steps in an operations procedure. (Licensee identified NCV affecting the Mitigating Systems and Barrier Integrity Cornerstones; this report section 1R14.2)

- During this inspection NPOs did not install seismic restraints during racking out of two 4 kV breakers which resulted in two Unit 1 4kV emergency buses becoming inoperable but still available. NPOs did not perform a section in an operations procedure regarding installing of seismic restraints. (Licensee identified NCV affecting the Mitigating System and Barrier Integrity Cornerstones; this report section 1R14.3)

The causal relationships of these NPO errors is that the NPOs did not follow the operations procedures. These individual findings each had a direct impact on safety causing equipment inoperability or affecting the reliability, availability, operability, and functionality of trains of equipment. This performance trend is considered a cross-cutting issue not captured in the individual findings. This performance trend is a finding characterized as **"No Color." (FIN 50-387;388/2002-002-03)**.

4OA6 Meetings

.1 Exit Meeting Summary

On February 1, 2002, at the conclusion of the on-site inspection, the operations engineer inspectors presented the licensed operator re-qualification program inspection results to Mr. James Miller, President, PPL - Generation, LLC, and other members of PPL's staff, who acknowledged the findings. The inspection was completed on March 18, after the final pass/fail examination results became available for the inspector's review and SDP analysis.

On February 15, 2002, the security inspector presented the physical security inspection results to Mr. Ronald Ceravolo, General Manager - Plant Support, and other members of PPL's staff, who acknowledged the findings.

On March 8, 2002, the radiation specialist inspector presented the public radiation safety inspection results to Mr. Bryce Shiver, Vice President - Nuclear Site Operations, and other members of PPL's staff, who acknowledged the findings.

On March 22, 2002, the health physicist inspector presented the occupational radiation safety inspection results to Mr. Richard Anderson, General Manager - SSES, and other members of PPL's staff, who acknowledged the findings.

On March 29, 2002, the reactor engineering inspector presented the Inservice Inspection Program inspection results to Mr. Bryce Shiver, Vice President - Nuclear Site Operations, and other members of PPL's staff, who acknowledged the findings.

On April 2, 2002, the resident inspectors presented the resident inspection results to Mr. B. Shriver, Vice President - Nuclear Site Operations, and other members of PPL's staff, who acknowledged the findings.

The inspectors asked PPL whether any material examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee Identified Non-Compliance

The following findings of very low significance (green) were identified by PPL and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600 for being dispositioned as Non-cited Violations (NCVs).

- **NCV 50-388/2002-002-01**: Common safety system loads were not transferred to Unit 2 125V DC control power as required by procedure. Technical Specification 5.4.1 stated, in part, "written procedures shall be established, implemented, and maintained" that meet the requirements of NRC Regulatory Guide 1.33, revision 2, Appendix A, February 1978. Operations procedure OP-102-002, "Operations of 125V DC Common Load Manual Transfer Switches," section 3.1.3 required that common loads are transferred to the alternate source in accordance with Attachment J, "Battery 1D620 Common Load Transfer Switches." On March 12, 2002, the 1D620 battery (Unit 1 DC power source) was removed from service and the common loads, listed on page 1 of Appendix J, were not transferred to the alternate source, as required. (see section 1R14.2)

- **NCV 50-387,388/2002-002-02**: Control room emergency outside air supply system was inoperable because Unit 1 4kV emergency bus breakers were not properly seismically restrained when the breakers were in a racked-out position. Technical Specification (TS) 5.4.1 stated, in part, that "written procedures shall be established, implemented, and maintained" that meet the requirements of NRC Regulatory Guide 1.33, revision 2, Appendix A, February 1978. Operations

procedure OP-000-001, "Breakers," section 4.3.3, in part, stated that without a seismic breaker restraint device installed, the 4.16 kV switchgear bus is inoperable. Section 5.4 stated when breakers are in the test or racked-out position, a breaker restraint device must be installed or the bus TS Limiting Condition for Operation (LCO) will be entered. On March 8, 2002, breaker 1A20107, in the Unit 1 "A" Bus, and breaker 1A20407, in the Unit 1 "D" Bus, were placed in the racked out position without seismic restraints and the TS LCO was not entered. (see section 1R14.3)

ATTACHMENT 1

a. Key Points of Contact

Licensee Personnel
B. Shriver, VP - Site Operations
R. Anderson, General Manager, Operations
R. Saccone, Manager, Operations
R. Ceravolo, General Manager, Site Services
W. Hunt, Manager, Nuclear Training
R. Pagodin, Manager, Nuclear Technology
R. Smith, Radiation Protection Manager
M. Golden, Security Manager
S. Sienkeiwicz, Supervisor - ISI
R. Linden, ISI, Level III
H. Webb, Supervisor, Maintenance Technology
J. Helsel, Supervisor, Nuclear Instruction
B. Stitt, Training Supervisor, Nuclear Operations
B. McBride, Security Support Supervisor
R. Hock, Radiological Operations Supervisor
R. Kessler, Radiological Support Supervisor
K. Mattern, Chemical Decontamination Project Manager
T. Nargoski, PPL Auditor
E. Gerlach, Site Modifications Group
C. Markley, Site Supervisor, Regulatory Affairs
J. Meter, Regulatory Affairs
G. Machalick, Regulatory Affairs
C. Hess, Operations Instructor
E. Banks, Effluents Foreman
J. Jessick, Health Physicist - Instruments
K. Kiniry, Health Physics Technician
S. Laubach, Health Physics Technician
D. Leddy, ALARA Specialist
P. McLean, NP Services Chemical Decontamination Engineer
D. Murphy, Health Physics Technician
J. Pacer, Operations Technology Senior Scientist

b. List of Items Opened, Closed and Discussed

Opened

None

Opened and Closed

50-388/2002-002-01	NCV	Common safety system loads not transferred to Unit 2 125V DC control power as required by procedure. (Sections 1R14.2 and 4OA7)
50-387;388/2002-002-02	NCV	Control room emergency outside air supply system inoperable, due to Unit 1 4kV emergency bus breakers not seismically restrained (Sections 1R14.3 and 4OA7)
50-387;388/2002-002-03	FIN	A performance trend which appears to have developed in the barrier integrity and mitigating systems safety cornerstone areas with plant equipment operator errors being the common element. (Section 4OA4)

Closed

50-387/01-003-00	LER	Licensed Power Limit Exceeded due to Reactor Heat Balance Calculation Error (section 4AO3.1)

Discussed

None

c. List of Documents Reviewed

Documents not listed in body of report:

Work Orders

273883	Replacement of valves HV141F005, F001, F002 with Anchor Darling valves, September 29, 2000
200499	HV141F005, 001,002 Replace Head Vent Valves, March 15, 2002
332695	Cut Pipe, Prepare pipe, weld (install) new FW/FE B line, March 20, 2002
332692	Cut Pipe, Prepare pipe, weld (install) new FW/FE A line, March 25, 2002
332698	Cut Pipe, Prepare pipe, weld (install) new FW/FE C line, March 22, 2002

Condition Reports

389349	Core Spray Internal Piping - Flaw Indication - B Loop, P6 Weld @ 7 Degrees, dated March 26, 2002
391537	Core Spray Sparger Tee Box P Linear Indication, dated March 25, 2002

Miscellaneous

- Drawing SP-DBA-112-1, revision 17, Reactor Vessel Head Vent from 4-inch DBA-112 to 26" Main Steam Line, June 8, 1979
- Calculation EC-062-1075, revision 0, "Unit 1 Core Spray S2 Weld Defect Analysis," March 2, 2002
- Security Self-Assessment # 138, Unarmed Defense Training, January, 2002
- Security Self-Assessment # 136, Security Self-Assessment Program, December, 2001
- Security Self-Assessment # 130, Weapons issue and return, November, 2001
- NAS Audit 2001-009, Fitness for Duty & Access Authorization Program, October, 2001
- NAS Audit 2001-009, Fitness for Duty & Access Authorization Program, October, 2001
- NAS Audit 2001-012, Security Plans and Procedures, December, 2001

d. List of Acronyms

ALARA	As Low As is Reasonably Achievable
ASME	American Society of Mechanical Engineers
BWR	Boiling Water Reactor
CFR	Code of Federal Regulations
CR	Condition Report
DBT	Design Basis Threat
ECCS	Emergency Core Cooling System
FSAR	[SSES] Final Safety Analysis Report
HPCI	High Pressure Coolant Injection
ISI	[ASME] Inservice Inspection
JPM	Job Performance Measure
LCO	[TS] Limiting Condition for Operation
LLRT	Local Leak Rate Test
MSIV	Main Steam Isolation Valve
NCV	Non-cited Violation
NDE	Nondestructive Examination
NPO	Non-licensed plant operator
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PPL	PPL Susquehanna, LLC
QA	Quality Assurance
RHR	Residual Heat Removal
RMS	Radiation Monitoring System
RP	Radiation Protection
RPS	Reactor Protection System
SDHR	Supplemental Decay Heat Removal
SDP	[NRC] Significance Determination Process
SSC	Structure, System, or Component
SSES	Susquehanna Steam Electric Station
TRM	Technical Requirements Manual
TS	Technical Specification
WO	Work Order