May 4, 2005

Mr. Bryce L. Shriver
President, PPL Generation, LLC and
Chief Nuclear Officer
PPL Generation, LLC
2 North Ninth Street
Allentown, PA 18101

SUBJECT: SUSQUEHANNA STEAM ELECTRIC STATION - NRC INTEGRATED INSPECTION REPORT 05000387/2005002 AND 05000388/2005002

Dear Mr. Shriver:

On March 31, 2005, the US Nuclear Regulatory Commission (NRC) completed an inspection at your Susquehanna Steam Electric Station Units 1 and 2. The enclosed integrated inspection report presents the results of that inspection, which was discussed with Mr. B. McKinney and other members of your staff on April 15, 2005.

This inspection examined activities conducted under your licenses 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.

This report documents one finding of very low safety significance (Green). This finding was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because the issue was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Susquehanna Steam Electric Station.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any) 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/

Mohamed Shanbaky, Chief
Projects Branch 4
Division of Reactor Projects

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

Enclosures: Inspection Report 05000387/2005002 and 05000388/2005002
Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket Nos.: 50-387, 50-388

License Nos.: NPF-14, NPF-22

Report No.: 05000387/2005002 and 05000388/2005002

Licensee: PPL Susquehanna, LLC

Facility: Susquehanna Steam Electric Station

Location: 769 Salem Boulevard
Berwick, PA 18603

Dates: January 1, 2005 - March 31, 2005

Inspectors: A. Blamey, Senior Resident Inspector
F. Jaxheimer, Resident Inspector
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N. McNamara, Emergency Preparedness Inspector
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S. Chaudhary, Senior Reactor Inspector

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

CONTENTS

SUMMARY OF FINDINGS

IR 05000387/2005-002, 05000388/2005-002; 01/01/2005 - 03/31/2005; Susquehanna Steam Electric Station, Units 1 and 2; Operability Evaluations and Cross-Cutting Areas.

The report covered a 3-month period of inspection by resident inspectors and announced inspections by a regional senior health physicist, an emergency preparedness inspector, a senior reactor inspector, and a reactor inspector. One Green non-cited violation (NCV) of very low safety significance was identified. The significance of most findings are indicated by their color (Green, White, Yellow, Red) using Manual Chapter 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 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Barrier Integrity

- Green. A self-revealing non-cited violation (NCV) was identified because PPL did not correctly implement the equipment status control procedure, in accordance with Technical Specification 5.4.1.a, which resulted in degrading the radiological barrier function for the control room.

  This finding is greater than minor because the loss of equipment status control resulted in an actual degradation of barrier performance which is an attribute of the Barrier Integrity cornerstone. This finding is of very low safety significance because only the radiological barrier function provided for the control room was affected.

  The inspectors identified that a contributing cause of this finding is related to the organizational performance category of the Human Performance cross-cutting area, in that PPL did not initially recognize the radiological barrier function of the control structure boundary door because the references utilized by PPL to determine the functions of the degraded door did not contain complete design information (Section 1R15).

B. Licensee-Identified Violations.

None

REPORT DETAILS

Summary of Plant Status

Susquehanna Steam Electric Station (SSES) Unit 1 began the inspection period at full Rated Thermal Power (RTP) and operated at or near full power during the inspection period except for a reduction to 70% power to perform a control rod sequence exchange and reactor feedwater pump speed control maintenance on February 19, 2005. Unit 1 returned to full RTP on February 22, 2005.

Unit 2 operated at or near full RTP at the beginning of the inspection period and continued to operate at or near full RTP through January 20, 2005, except for brief power reductions to support control rod pattern adjustments. On January 20, 2005, Unit 2 reached the end of full power operation due to fuel depletion and started the reactor power coast down. Reactor power was 85% on February 26, 2005, when the unit was shutdown to begin a refueling and maintenance outage. Unit 2 started up on March 22, 2005, and achieved full RTP on March 28, 2005.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection (71111.01 - 1 Sample)

a. Inspection Scope

Adverse Weather Readiness - System. During the week of February 21, 2005, the inspectors reviewed the readiness of the supplemental decay heat removal system for extreme cold weather conditions. This review included cold weather operation and freeze protection features such as heat tracing, space heaters, and weather enclosures used to ensure operability of the system. Walkdowns were performed of system components which included instrumentation and alarm functions utilized to support cold weather operation. This inspection activity represented one sample of extreme weather readiness for a risk significant system. The following documents were reviewed:

- OP-011-001, Section 2.17, “Supplemental Decay Heat Removal Freeze Protection”
- OP-009-001, “River Water Makeup System”
- NDAP-00-0024, “Winter Operation Preparation”
- Safety Evaluation 95-3012/96-3004, “River Water Makeup Line Taps for Shutdown Decay Heat Removal and Heat Trace”
- Calculation for Time to Freeze Supplemental Decay Heat Removal Piping, dated March 8, 2005

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q - 4 Samples, 71111.04S - 1 Sample)

a. Inspection Scope

Partial System Walkdowns. The inspectors performed partial system walkdowns 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. This inspection activity represented four samples. The walkdowns included the following systems:

- "E" and "D" emergency diesel generators (EDGs) alignment during "B" EDG outage for six year overhaul, January 28, 2005, RLWO 626067
- Unit 1 standby liquid control system, March 17, 2005
- Unit 2 Division II core spray after a valve lock was found on the floor by the core spray pump, February 17, 2005
- Unit 2 Division II core spray when protected for inventory make up, March 5, 2005

Complete System Walkdown. The inspectors conducted a detailed review of the alignment and condition of the supplemental decay heat removal system (SDHR). The inspectors reviewed operator rounds, checkoff lists, system operating procedures and system piping and instrumentation diagrams. The inspectors evaluated ongoing maintenance and outstanding condition reports associated with the SDHR system to determine the effect on system health and reliability. The test results obtained before placing the system in service for the Unit 2 refueling outage were reviewed against acceptance criteria and system design documents. This inspection activity represented one sample. The documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q - 10 Samples)

a. Inspection Scope

Tour Plant Areas Important to Reactor Safety. The inspectors reviewed PPL's fire protection program 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 to assess PPL's fire protection program in those areas. This inspection activity represented ten samples. The inspected areas included:

- Units 1 and 2 emergency diesel generator A elevation 677', 711', fire zone 0-41A
- Unit 1 heating and ventilation fan and filter rooms elevation 799' reactor building, fire zone 1-7A

- Unit 1 standby control area and nuclear boiler instrumentation, fire zone 1-5A-S
- Unit 2 reactor building 683' elevation, fire zones 2-3A, 2-3BN and 2-3BW
- Unit 2 residual heat removal pump rooms, fire zones 2-1E, 2-1F
- Unit 2 heating and ventilation fan and filter rooms elevation 799' reactor building, fire zone 2-7A
- Unit 2 condenser gallery, fire zone 2-320
- Unit 2 moisture separator area, fire zone 2-35B
- Unit 2 drywell during refuel outage, (no zone)
- Unit 2 standby control area and nuclear boiler instrumentation, fire zone 2-5A-N

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07 - 1 Sample)

a. Inspection Scope

The inspectors reviewed PPL's inspection, cleaning, and maintenance activities, and reviewed PPL's evaluation of the as-found conditions for the "B" emergency diesel generator, lube oil and jacket water heater exchangers. The inspectors verified whether PPL properly evaluated the results to identify adverse trends and ensure adequate heat transfer capabilities. The inspectors compared their observations against PPL's procedures and specifications to assess whether the heat exchangers were capable of performing their safety function under design basis accident conditions. This inspection activity represented one sample. The inspectors' review included the following documents:

- RTPM 583347, "B" Emergency Diesel Generator, Lube Oil and Jacket Water Heater Exchanger Inspections
- Condition Report (CR) 640822, "Excessive Debris found in Heat Exchanger 0E506B, Diesel Lube Oil Cooler"

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08 - 1 Sample)

a. Inspection Scope

The inspector observed selected samples of in-process nondestructive examination (NDE) activities. Also, the inspector reviewed documentation of additional samples of NDE and component replacement activities which involved welding processes. The sample selection was based on the inspection procedure objectives and risk priority of those components and systems where degradation would result in a significant increase in risk of core damage. The observations and documentation review were performed to verify activities were performed in accordance with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code requirements. The inspector reviewed a sample of inspection reports initiated as a result of nonconforming conditions

identified during Inservice Inspection (ISI) examinations. Also, the inspector evaluated effectiveness in the resolution of problems identified during ISI activities.

The inspector observed automatic and manual ultrasonic (UT), magnetic particle (MT) and visual testing (VT) activities to verify effectiveness of the examiner, test equipment and process in identifying degradation of risk significant systems, structures and components and to evaluate those activities for compliance with the requirements of ASME Section XI of the Boiler and Pressure Vessel Code.

The inspector selected condition report (CR) 651393 for review as representative of a nonconforming condition that was evaluated and dispositioned "accept as is" for continued service without repair. This report identified a relevant indication in the Unit 2 steam dryer tie bar attachment weld TB-BC-5B. The indication was characterized as a crack and the condition report was initiated at that time to capture the nonconformance for analysis and disposition within the licensee's corrective action program. The inspector assessed the licensee's evaluation and disposition for continued service without repair of a non-conforming condition identified during ISI activities.

The inspector observed the manual UT test of the reactor pressure vessel (RPV) top head meridional weld (designated DP), the MT testing of the RPV top head to flange weld (designated AG 0-120) and the automatic UT testing of RPV recirculation system nozzle N1B. In addition, the inspector performed a documentation review of the MT testing results of field welds 26A and 33A in the reactor water cleanup (RWCU) system. The inspector verified by both direct observation and documentation review that these test activities were performed in accordance with the ASME Boiler and Pressure Vessel Code requirements. The inspector reviewed the radiographs and examination test results of field welds 11, 12A, 26A and 33 made to install replacement valves 245034A and 245038B in the RWCU system. The inspector confirmed the radiographs evaluated in the examination were in compliance with the requirements of ASME Section XI.

Also, the inspector interviewed PPL's radiographic personnel responsible for the review and interpretation of the film to assess examiner experience and knowledge of the ASME Code requirements. The inspector reviewed a sample of video recordings of the remote in-vessel visual inspection (IVVI) of the steam dryer base metal and tie bar welds. This review was conducted to confirm the examiner skill, test equipment capabilities, examination technique, and that the environment (water clarity) enabled the performance of the visual examination of the selected vessel internals. The inspector confirmed this remote visual examination met the requirements of ASME Section XI.

The inspector reviewed welding activities associated with the replacement of valves 245034A and 245038B to verify that the welding activities on field welds 11,12A, 26A and 33A were performed in accordance with the requirements of ASME Section IX and XI. The inspector reviewed selected portions of plant component work orders (PCWO) 416209 and 416144 (replacement of valves 245034A and 245038B in the RWCU system). The inspector reviewed the joint process control instructions, welding instructions, welding procedure specification N-A-IA-MA-11, Rev. 8, welding procedure qualification records 02-01 and 7A, welders' performance qualifications, NDE requirements and the test results of the completed welds for compliance with the requirements of ASME Section IX and XI. The inspector confirmed the activities reviewed were in compliance with the applicable Code. These inspection activities

represented one sample. The documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance identified.

1R11 Licensed Operator Requalification (71111.11Q - 1 Sample)

a. Inspection Scope

Simulator Evaluation. On February 7, 2005, the inspectors observed licensed operator performance in the simulator during operator requalification training. The inspectors compared their observations to Technical Specifications, emergency plan implementation, and the use of emergency operating procedures. The inspectors also evaluated PPL's critique of the operators' performance to identify discrepancies and deficiencies in operator training. This inspection activity represented one sample. The following training scenario was observed:

- OP 002-05-03-03, "Loss of All Normal Shutdown Cooling, With Large Leak on Shutdown Cooling Line (F008 Valve)"

b. Findings

No findings of significance were identified.

1R12 Maintenance Implementation (71111.12Q - 2 Samples)

a. Inspection Scope

The inspectors evaluated PPL's work practices and follow-up corrective actions for selected system, structure, or component (SSC) issues to assess the effectiveness of PPL's maintenance activities. The inspectors reviewed the performance history of those SSCs and assessed PPL's extent of condition determinations for these issues, with potential common cause or generic implications, to evaluate the adequacy of PPL's corrective actions. 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, "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. This inspection activity represented two samples. The following issues were reviewed:

Equipment Issues

- Supplemental decay heat removal pump vibration and pump bearing failure, CR 650595
- Inadvertent shutdown and start failures of control structure chillers, CR 643703 and CR 643812

Documents Reviewed

- PCWO 470249, overhaul temporary supplemental decay heat removal pumps
- AR 648978, need to perform overhaul of supplemental decay heat removal pumps
- CR 652910, intermittent loss of fuel pool cooling
- CR 650595, evaluate the stations current management of the supplemental decay heat removal system

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation (71111.13 - 6 Samples)

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. 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 emergent work activities. The inspectors performed control room and field walkdowns to verify whether the compensatory measures identified by the risk assessments were appropriately performed. This inspection activity represented six samples. The selected maintenance activities included:

- Station blackout diesel trip during test run, CR 635065, revised risk evaluation EWR 635036
- Control of secondary containment during 101 bay door opening, ZWO 638004, PCAF 2005-5013
- Unit 2 Division I acoustic monitor failure during performance of SI-283-326, PCWO 646208
- Installation of emergency service water blank flanges on both divisions of reactor building closed cooling water and turbine building closed cooling water, February 23, 2005
- 125 volt battery 2D630 low pilot cell specific gravity, CR 643040
- Bus 2A201 outage with “A” emergency diesel generator not available and service air cross tied between units, TP-204-013

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14 - 1 Sample)

1. Unit 2 Fire (Black Smoke) in Moisture Separator

a. Inspection Scope

Non-Routine/Transient Operations. On March 5, 2005, during welding and grinding operations in the "A" moisture separator a weld rod contacted a rubber bladder that was being used as a barrier to prevent material from entering the moisture separator piping. The bladder ignited producing black smoke which resulted in evacuation of the workers from the moisture separator. PPL entered the emergency plan and declared an Unusual Event for a fire in the protected area boundary for greater than 15 minutes. The inspectors assessed PPL's response by reviewing control room logs and interviewing licensed reactor operators. The inspectors verified that PPL correctly classified the event and the notification of the Unusual Event was correctly reported within the required time. This inspection activity represented one sample.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15 - 5 Samples)

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, and associated design basis documents as references during these reviews. This inspection activity represented five samples. The issues reviewed included:

- "B" emergency diesel generator line filters LF-0344581/82 cracked and extent of condition, CR 641239, AR 641299
- "C" emergency diesel generator standby fuel oil booster pump slow pressure system response, CR 642698
- Degradation of control room emergency outside air supply (CREOAS) function, CR 645092, 645152, and 648579
- Unit 1 feeder breaker to "C" bus (1A20301) racking problem, CR 635070
- Unit 1 Division I residual heat removal heat exchanger bypass valve (HV15148A) not in the normal system alignment, CR 644632 and 644534.

b. Findings

Introduction. A Green self-revealing NCV was identified for not implementing equipment status control procedures, in accordance with Technical Specification 5.4.1.a, which resulted in degrading the radiological barrier function provided for the control room.

Description. PPL did not apply a status control tag to the degraded control structure boundary door 810 after closing and locking the door on February 8, 2005. As a result of not status tagging the door, individuals were not aware of the identified limitations of the door latching mechanism. The workers did not ensure proper door closure and after they left the area, the door was found open, a condition that degraded the radiological barrier function provided for the control room.

On February 8, 2005, door 810 was found unlocked and the door would not stay closed due to a broken latch. Although the degraded condition of the door was entered into the corrective action program and an operability determination for the door was completed, no equipment status control tag was hung on the door. On February 9, 2005, a contractor obtained a door key and permission from the Work Control Center to unlock and pass through door 810 to perform work. As a result of not status tagging the door, the door was opened by workers that were unaware of the identified limitations of the door latch. Workers did not ensure the door would remain locked before they left the area and the door was found open during security rounds. At this time, the radiological barrier function of the door was recognized and the plant entered Technical Specification limiting condition for operation (LCO) 3.7.3, ”Control Room Emergency Outside Air Supply System”. Operations then locked the door and applied a status control tag to door 810 until the door latch was repaired.

PPL procedure, NDAP-QA-0302, “System Status and Equipment Control”, step 6.5.1 states that status control tags are used when components have operating restrictions or limitations. PPL did not utilize status control tags to maintain equipment status control for door 810. Tagging this door may have prevented the release of work, would have communicated the component limitations to workers in the field and could have provided specific instructions on how to properly secure door 810. These actions could have prevented the degradation of the radiological barrier function provided for the control room on February 9, 2005.

Analysis. The finding was a performance deficiency because PPL did not maintain equipment status control as required by procedure NDAP-QA-0302, which resulted in an unalized opening in the radiological barrier for the control room. Traditional enforcement does not apply because the issue did not have any actual safety consequences or potential for impacting the NRC’s regulatory function and was not the result of any willful violation of NRC requirements or PPL procedures. This finding is greater than minor because the loss of equipment status control resulted in an actual degradation of barrier performance which is an attribute of the Barrier Integrity cornerstone. Therefore, the open control room boundary door negatively impacted the barrier cornerstone objective, in that this degraded condition resulted in declaring the control room emergency outside air supply system inoperable. A SDP phase 1 evaluation determined this finding to be of very low safety significance (Green) because it only affected the radiological barrier function provided for the control room.

A contributing cause of this finding is related to the organization performance category of the Human Performance cross-cutting area because PPL did not initially recognize the radiological barrier function of the control structure boundary door. When performing the initial operability determination, the references utilized by PPL to determine the functions of the degraded door did not contain complete design information

Enforcement. TS 5.4.1 a. requires that written procedures be established, implemented and maintained covering the activities in Regulatory Guide 1.33, Revision 2 Appendix A. Equipment control is included in the list of safety-related activities in paragraph 1c of Appendix A. PPL procedure NDAP-QA-0302, step 6.5.1, requires status control tags be used when components have operating restrictions or limitations. Contrary to the above, status control tags were not hung on door 810 following a February 8, 2005, operability determination which assumed the door would remain closed and locked. Because this failure to implement equipment status control is of very low safety significance (Green) and has been entered into the PPL corrective action program (CR 645152), this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy and is identified as **NCV 05000387, 388/2005002-001, "Inadequate Equipment Status Control for a Degraded Control Room Radiological Barrier Door".**

1R16 Operator Work-Arounds (71111.16 - 1 Sample)

a. Inspection Scope

The inspectors reviewed the manual control of the Unit 2 main generator coolers to determine if this would impact the operators' ability to respond to transients or follow abnormal procedures. The normally automatic temperature control of the Unit 2 main generator hydrogen coolers was transferred to manual operation due to equipment problems with the hydrogen cooler temperature control valves during highly throttled conditions. The inspectors reviewed the control of main generator coolers in manual to assess if this action could increase the likelihood of an initiating event. This inspection activity represented one sample. The following document was included in the review:

- Unit 2 main generator hydrogen cooler temperature control valve in manual, AR 633330

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17 - 2 Samples)

a. Inspection Scope

The inspectors reviewed two system design packages and the associated design and licensing documents for all functions and design attributes that could affect the plant specific SDP worksheets. Field implementation activities were observed and compared to the design requirements and installation standards. The inspectors reviewed the

results of post modification testing. The inspectors also reviewed the affected procedures and design basis documents to verify that the affected documents were appropriately updated. This inspection activity represented two samples. The following engineering change orders (ECOs) were included as part of the review:

- Unit 2, ECO 432626, emergency service water isolation valve replacements
- Unit 1 & 2, ECO 601512, 360 degree refueling work platform

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19 - 7 Samples)

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 approved procedures. The inspectors assessed the tests' adequacy by comparing the testing methodology to the scope of maintenance work performed. In addition, the inspectors evaluated the tests' acceptance criteria to verify that the tests demonstrated the restored components would meet 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. This inspection activity represented seven samples. The post maintenance testing activities reviewed included:

- Units 1 and 2, SO-024-001, "Monthly Diesel Generator Operability Test," following six year overhaul of the "B" diesel, February 3, 2005
- Unit 1, SO-150-002, "Quarterly Reactor Core Isolation Cooling Flow Verification," WO 633477 and 633507, January 25, 2005
- Unit 1, OP-024-001, "Diesel Operation," synchronized and loaded the "A" emergency diesel generator to verify breaker operability after bus maintenance
- Unit 2, SO-251-A02, "Quarterly Core Spray Flow Verification Div. I," February 28, 2005
- Unit 2, post maintenance votes test on HV244F004 reactor water cleanup inlet outboard isolation valve AR 655754, March 10, 2005,
- Unit 2, SO-216-A03, "Quarterly Residual Heat Removal System Flow Verification Div. I," after maintenance March 12, 2005,
- Unit 2, SE-200-002, "American Society of Mechanical Engineers Class I Boundary Leakage Test," March 20, 2005

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20 - 1 Sample)

a. Inspection Scope

Refueling Outage. The inspectors reviewed the outage risk management plan for the Unit 2 refueling outage, conducted February 26, 2005 to March 25, 2005, to confirm that PPL had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the refueling outage, the inspector observed and / or reviewed the outage activities listed below.

- Plant shutdown and cool down activities
- Outage configuration controls including:
  1) availability and accuracy of reactor coolant system instrumentation
  2) electrical power alignments
  3) decay heat removal system operation, including fuel pool cooling system
  4) availability of reactor inventory makeup water systems
  5) secondary containment controls and integrity
- Drywell, suppression chamber, and refuel floor walkdowns after shutdown and prior to final closeout
- Unit 2, 4 Kilovolt emergency buses and supplemental decay heat removal equipment clearance
- Fuel handling operations including fuel movement, control of reactivity, fuel assembly tracking, and core verification activities
- Reactor startup, including plant restart reviews, system restoration and testing, preparation for reactor mode changes, control rod withdrawal, reactor criticality, low power physics tests, reactor coolant system heat up, reactor power increases and main turbine roll

During the conduct of the refueling inspection activities, the inspectors reviewed the associated documentation to ensure that the tasks were performed safely and in accordance with plant Technical Specification requirements and operating procedures. This inspection activity represented one sample. The documents reviewed are listed in the Attachment.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22 - 9 Samples)

a. Inspection Scope

The inspectors observed selected portions of surveillance test activities in the control room and in the field. The inspectors compared the test results to the established acceptance criteria and the applicable Technical Specification or Technical Requirements Manual requirements to verify the systems were capable of performing their intended safety functions. This inspection activity represented nine samples. The observed or reviewed surveillance tests included:

- Units 1 and 2, SO-070-001, “B Train Monthly Standby Gas Treatment Operability Run,” January 10, 2005
- Unit 1, SO-149-A05, “Quarterly Residual Heat Removal Loop A Valve Exercising,” February 8, 2005
- Unit 1, SO-116-B02, “Quarterly Residual Heat Removal Service Water Valve Exercising (Division II),” March 17, 2005
- Unit 2, SE-259-041 “Local Leak-Rate Test of Containment Purge Supply Valves Penetration No. X-25/201A,” February 22, 2005
- Unit 2, SO-284-006, “Main Steam Isolation Valve Stroke Timing,” February 26, 2005
- Unit 2, SE-250-003, “Reactor Core Isolation Cooling Isolation Logic System Functional Test,” March 12, 2005
- Unit 2, SE-224-207, “Emergency Diesel Generator Loss-of-Coolant Accident Loss of Offsite Power Test (Division II),” March 17, 2005
- Unit 2, SE-224-107, “Emergency Diesel Generator Loss-of-Coolant Accident Loss of Offsite Power Test (Division I),” March 19, 2005
- Unit 2, SO-252-002, “Quarterly High-Pressure Coolant Injection Flow Verification,” during unit startup, March 23, 2005

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modification (71111.23 - 1 Sample)

a. Inspection Scope

The inspectors reviewed a temporary plant modification to determine whether the temporary changes adversely affected system or support system availability and functions important to plant safety. The inspectors reviewed the associated system design bases, including the Final Safety Analysis Report and Technical Specifications. The adequacy of the safety determination screening and evaluations were assessed. The inspectors also assessed configuration control of the temporary changes by reviewing selected drawings and procedures to verify that appropriate updates had been made. The inspectors reviewed selected post installation test results to verify that the actual impact of the temporary changes had been adequately demonstrated by the test. This inspection activity represented one sample. The following temporary modification was included in the review:

- Unit 1 TMOD 650003 turbine control valve fast closure and stop valve reactor trip bypass

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes (IP 71114.04 - 1 Sample)

a. Inspection Scope

During the period of January 11 through March 31, 2005, the NRC has received and acknowledge the changes made to Susquehanna's emergency plan in accordance with 10 CFR 50.54(q). PPL has determined that these changes resulted in no decrease in effectiveness to the Plan and, therefore, PPL concluded that they continue to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR 50. The inspector conducted a sampling review of the Plan changes which could potentially result in a decrease in effectiveness. This review does not constitute an approval of the changes and, as such, the changes are subject to future NRC inspection. The inspection was conducted in accordance with NRC Inspection Procedure 71114, Attachment 4, and the applicable requirements in 10 CFR 50.54(q) were used as reference criteria.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06 - 1 Sample)

a. Inspection Scope

On February 1, 2005, the inspectors observed an emergency preparedness drill. The inspectors assessed licensed operator adherence to emergency plan implementing procedures, and their response to simulated degraded plant conditions. The review was conducted to identify weaknesses or deficiencies in the event classification and subsequent notifications. The inspectors observed PPL's critique of the drill participants in the simulator and technical support center, to evaluate the adequacy of PPL's identification of weaknesses and deficiencies. The inspectors compared PPL's identified findings against the inspectors' observations to determine whether PPL adequately identified problems. This inspection activity represented one sample. The documents reviewed are listed in the attachment. The following drill scenario was evaluated:

- 2005 Gold Team full-scale drill - Loss of off-site power and loss-of-coolant accident (LOCA)

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01 - 10 Samples)

a. Inspection Scope

The inspector identified exposure significant work areas within radiation areas, high radiation areas (<1 R/hr), or airborne radioactivity areas in the plant and reviewed the associated controls and surveys of these areas to determine if PPL's controls (e.g. surveys, postings, barricades) were acceptable. The inspector walked down these areas or their perimeters to determine whether prescribed radiation work permit (RWP), procedure, and engineering controls were in place, whether PPL's surveys and postings were complete and accurate, and whether air samplers were properly located.

The inspector reviewed the RWPs used to access these and other high radiation areas and identified what work control instructions or control barriers had been specified, and reviewed electronic personal dosimeter (EPD) alarm set points (both integrated dose and dose rate) for conformity with survey indications and plant policy.

Based on PPL's schedule of work activities, the inspector selected three jobs being performed during the Unit 2 12th refueling outage, in radiation areas, airborne radioactivity areas, or high radiation areas (<1 R/hr) for observation (RHR HV251F050 valve work; scaffolding work in drywell; drywell temporary shielding). The inspector reviewed radiological job requirements (RWP requirements and work procedure requirements), observed job performance with respect to these requirements, and verified that radiological conditions in the work area were adequately communicated to workers through briefings and postings.

During job performance observations, the inspector verified the adequacy of radiological controls, such as required surveys (including system breach radiation, contamination, and airborne surveys), radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. For high radiation work areas with significant dose rate gradients (factor of 5 or more), the inspector reviewed the application of dosimetry to effectively monitor exposure to personnel and verified that PPL's controls were adequate.

During job performance observations, the inspector observed radiation worker performance with respect to stated radiation protection work requirements. The inspector verified that the workers were aware of the significant radiological conditions in their workplace, the RWP controls/limits in place, and that their performance took into consideration the level of radiological hazards present.

During job performance observations, the inspector observed radiation protection technician performance with respect to all radiation protection work requirements. The inspector verified that radiation technicians were aware of the radiological conditions in their workplace and the RWP controls and limits. The inspector also verified that the radiation technicians' performance was consistent with their training and qualifications with respect to the radiological hazards and work activities. These inspection activities

represented ten samples. The documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (7112102 - 3 Samples)

a. Inspection Scope

The inspector reviewed the as low as is reasonably achievable (ALARA) work activity evaluations, exposure estimates, and exposure mitigation requirements. These ALARA actions were reviewed for the three work activities listed in section 2OS1 above, and verified that PPL had established procedures, engineering and work controls, based on sound radiation protection principles, to achieve occupational exposures that are ALARA.

The inspector evaluated PPL's use of ALARA controls for these work activities by reviewing PPL's use of engineering controls to achieve dose reductions; evaluating procedures and controls for consistency with PPL's ALARA reviews; verifying that sufficient shielding of radiation sources was provided; and evaluating dose expended to install/remove the shielding to determine if it exceed the dose reduction benefits afforded by the shielding. These inspection activities represented three samples. The documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (7112103 - 1 Sample)

a. Inspection Scope

The inspector conducted a review of selected radiation protection instruments located in the radiologically controlled area. The inspector verified that each instrument functioned properly and had appropriate certification. In addition, the inspector verified that the calibration of instruments used for determining occupational exposure were maintained in accordance with 10 CFR 20.1201. This inspection activity represented one sample. The documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Identification and Resolution of Problems (71152 - 1 Annual Sample)

1. Reactor Recirculation System Vibration Review

a. Inspection Scope

The inspector reviewed PPL's actions to monitor and assess the vibration levels associated with the reactor recirculation pumps and piping systems on both units. The review focused on actions to address the potential impact of the vibrations on the recirculation pumps, associated small bore piping, and components located external to the drywell. The inspection activities included an examination of the documents listed in the attachment, interviews with plant engineering personnel, walkdowns of accessible equipment and a review of vibration data.

PPL monitored the reactor recirculation pump 1X and 2X vibration amplitudes and phase angle measurements using a continuous data collection system. The inspector reviewed the vibration data for the recirculation pumps to determine whether the data indicated an adverse trend. The inspector also questioned the vibration amplitude levels for the 1A reactor recirculation pump which appeared higher than the values recorded for the other pumps. PPL provided mechanical measurements of the pump hub and minimum operating speed vibration data which indicated that the measured levels could be attributed to the location of the pump vibration probe and not a pump operating problem.

The inspector reviewed PPL's actions to address previous small bore piping problems that had been attributed to vibration. The inspector noted that PPL had implemented actions to repair or modify the affected areas. PPL also implemented a non-destructive examination program to better detect potential problems. PPL had installed vibration monitoring sensors on safety-related components located outside the drywell. The inspector reviewed whether the indicated vibration levels were within the acceptance limits and whether the acceptance criteria considered appropriate factors such as seismic loading. This inspection activity constitutes one annual sample. The documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

2. Inservice Inspection Activities

a. Inspection Scope

The inspector reviewed a sample of corrective action reports shown in the attachment, which identified nonconforming conditions discovered during the Unit 2 refuel outage 12 and the previous Unit 1 refueling outage 13. The inspector verified that flaws and other nonconforming conditions identified during nondestructive testing were reported, characterized, evaluated and appropriately dispositioned and entered into the corrective

action program. The documents reviewed during the inspection are listed in the attachment.

b. Findings

No findings of significance were identified.

3. Routine PI & R Review

a. Inspection Scope

The inspectors reviewed selected condition reports (CRs), as part of the routine baseline inspection documented in this report. The CRs were assessed to verify whether the full extent of the various issues were adequately identified, appropriate evaluations were performed, and reasonable corrective actions were identified. The inspectors evaluated the CRs against the requirements of NDAP-QA-0702, "Action Request and Condition Report Process," and 10 CFR 50, Appendix B. During this inspection period, the inspectors performed a screening review of each item that PPL entered into their corrective action program, to assess whether there were any unidentified repetitive equipment failures or human performance issues that might warrant additional follow-up.

b. Findings

Within this limited review, no findings of significance were identified.

4OA4 Cross Cutting Aspects of Findings

Cross Reference to Human Performance Findings Documented Elsewhere

Section 1R15 describes an NCV where PPL did not initially recognize the radiological barrier function of the control room boundary door because the references used by operations to determine the functions of the degraded door did not contain complete design information. Thus, the contributing cause of this finding is related to the resource performance category of the Human Performance cross-cutting area .

4OA6 Meetings, Including Exit

On April 15, 2005, the resident inspectors presented the inspection results to Mr. B. McKinney, Vice President - Nuclear Site Operations, and other members of your staff, who acknowledged the findings. The inspectors confirmed that the information contained in this report did not contain any proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

D. Brophy, Senior Engineer, Regulatory Affairs
A. Fitch, Assistant Operations Manager
J. Fritzen, Radiological Support Supervisor
R. Hock, Radiological Operations Supervisor
R. Kessler, Health Physicist - ALARA
A. Mueller, Manager - Nuclear Maintenance
J. Potter, Maintenance Production Supervisor
R. Saccone, Vice President - Nuclear Operations
V. Schuman, Radiological Protection Manager
R. Vazquies, Senior Engineer, Mechanical Design

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000387/2005002-001 and 05000388/2005002-001	NCV	Inadequate Equipment Status for a Degraded Control Room Radiological Barrier Door

LIST OF DOCUMENTS REVIEWED

(Not Referenced in the Report)

Section 1R04: Equipment Alignment

Procedures and Documents

TP-235-011,"Refuel Outage Decay Heat Removal and Tie-In of the SDHR Temporary Cooling Equipment"
ON-249-001,"Loss of Residual Heat Removal Shutdown Cooling Mode"
OP-011-001,"Supplemental Decay Heat Removal System"
Calculation EC-035-1016, "Fuel Pool Time to Boil Evaluation"
Calculation EC-011-1003, "Frictional Head Loss with 6000 gpm Flow in SDHR Piping"
Drawing M!2153, "Unit 2 Fuel Pool Cooling"

Section 1RO8: Inservice Inspection Activities

Equivalency Evaluation

ECO 595803 Erosion/Corrosion Piping Replacement

Radiograph Reviews

FW 11A Radiographic Film Review of Weld 11A in RWCU System
FW 12A Radiographic Film Review of Weld 12A in RWCU System
FW 26A Radiographic Film Review of Weld 26A in RWCU System
FW 33A Radiographic Film Review of Weld 33A in RWCU System

NDT Examination Reports

ISI-03-789 Liquid Penetrant Examination Data (End Preps for FW 33A)
ISI-03-799 Visual Examination (Leak Detection-Valves 245034A&245038B))
ISI-03-788 Magnetic Particle Test (Final Test of FW 26A and 33A)
ISI-03-793 Magnetic Particle Test (Final Test of FW 11A and 12A)
MT-05-001 Magnetic Particle Exam of RPV Top Head to Flange Weld AG(0-120)
2-B1.22.0013 Manual Ultrasonic Test of RPV Top Head Meridional Weld DP
SMART-05-001 Automatic Ultrasonic Test of RPV Nozzle (Recirc) N1B
VT-05-015 VT3 Exam of GBC2018-H42 Main Steam Variable Support
VT-05-014 VT3 Exam of VBB2021-H6 Control Rod Drive Rigid Hanger
ISI-03-794 Radiographic Exam of FW11 RWCU System
ISI-03-795 Radiographic Exam of FW12A RWCU System
ISI-03-796 Radiographic Exam of FW26A RWCU System
ISI-03-797 Radiographic Exam of FW33A RWCU System
ISI-03-792 Magnetic Particle Test (Final Test of FW 26A and 33A)

NDT Examination Procedures

NDE-UT-034 R3 Automated Ultrasonic Examination of Dissimilar Metal Welds, and Nozzle to Safe End Welds
NDE-VT-003 R3 Visual Examination VT-3
NDE-MT-001 R2 Wet and Dry MT Examination
NDE-UT-042 R2 Manual Examination of Reactor Vessel Assembly Welds in Accordance with PDI
NDE-RT-001 R1 Radiographic Specification for Examination of Welds

In Vessel Remote Visual Examination

VT-3 Steam Dryer Tie Bar Structural Welds

Repair-Replacement Work Orders

PCWO 416209 Replacement of Ball Valve 245034A
PCWO 416144 Replacement of Ball Valve 245038B

Welding Procedure Specification

N-A-IA-MA-11 R8 Gas Tungsten/Shielded Metal Arc Welding of P1 to P1 Including Procedure Qualification Record (PQRs) 7A and 02-01

Action Requests

AR 461408 Jet Pump Hold Down Beam UT Examination
AR 613384 Failed Pipe Hangers Feedwater Heater 1B Drain
AR 612719 OE Item Identifying Hope Creek Manual Scram Event

Replacement Item Evaluation

420239 R0 Replacement Item Evaluation (Ball Valve 0002 for S6)

Section 1R20: Refueling and Outage Activities

Risk Management Documents

Unit 2 12 Refuel Outage Schedule Logic for Decay Heat Removal, Core Alterations, and Electrical Division-1 and 2 Work and Testing
Unit 2 ORAM Risk Profile
Unit 1 EOOS Risk Profile Mode 1

Calculations

EWR 383453, "Fuel Pool Time-to-Boil Predictions"

Procedures

NDAP-QA-0613, "Outage Implementation and Assessment"
GO-200-004, "Plant Shutdown to Minimum Power"
GO-200-005, "Plant Shutdown to Cold Shutdown"
GO-200-006, "Cold Shutdown, De-fueled and Refueling"
OP-249-002, "RHR Shutdown Cooling Operation"
ON-249-001, "Loss of RHR Shutdown Cooling Mode"
SE-250-003, “Unit 2 RCIC Isolation Logic System Functional Test”
SE-252-003, “Unit 2 HPCI Isolation Logic System Functional Test”
NDAP-QA-0507, "Conduct of Refuel Floor"
OP-0RF-008, "Fuel and Blade Guide Handling Activities"
OP-181-001, "Unit 1 Refueling Platform Operation [Unit 1 bridge used on Unit 2]"
SO-181-001, “Weekly Unit 1 Refueling Platform Grapple Operability [Unit 1 bridge used on Unit 2]"
SO-256-003, “Refuel Mode One-Rod Out Interlock Check”
ON-118-001, “Loss of Instrument Air”
ON-081-002, "Refueling Platform Operation Anomaly"
SR-200-008, “In-Sequence Critical and Shutdown Margin Demonstration”
GO-200-002, "Plant Startup Heatup and Power Operation”
NDAP-QA-0338, “Reactivity Management and Controls Program”
GO-200-010, “ECCS / Decay Heat Removal in Mode 4, 5 or Defueled”

Condition Reports (CRs)

659279, 659281, 659282, 659286, 659419**,** 659757, and 651675

Section 1EP6: Drill Evaluation

Procedures

Susquehanna Emergency Plan, revision 45
EP-PS-100, "Emergency Director Control Room"
EP-PS-211, "ENS Communicator position specific procedure"
EP-PS-101, "TSC Emergency Director Eplan specific procedure"
EP-TP-001, "EAL Classification Levels"
EP-AD-005, "SSES Drill Exercise program"

Section 2OS1: Access Control to Radiologically Significant Areas
Section 2OS2: ALARA Planning and Controls
Section 2OS3: Radiation Monitoring Instrumentation

RWP & ALARA Reviews

2005-2343 Rework RHR HV251F050 and HV251F122 Valves
2005-2320 Scaffolding Work in Drywell
2005-2360 Undervessel Work
2005-2372 In-Service Inspection - Outside of Bioshield Doors
2005-2370 Nozzle and Vessel In-Service Inspection
2005-2315 Effluents Drywell Temporary Shielding and Support

Quality Assurance Internal Audit Report 527450, Radiation Protection

Condition Reports

643146, 655192, 653609, 654244, 653426, 651678, 651983, 646209, 649313, 652591, 646186, 649719, 635056, 641493, 635449, 648572, 648206, 649459, 653820, 653793, 652525, 656232, 656443

Section 4OA2: Problem Identification and Resolution

1. Reactor Recirculation System Vibration Review

Condition Reports

CR 596615; CR 400193; CR 359821; CR 325995; AR599177; AR 614688;

Engineering Work Request EWR 605067

Engineering Calculations and Evaluations

SSES-15Q-301, ICF Vibration Evaluation
SSES-15Q-302, ICF Vibration Evaluation
EC-052-1052, Evaluation of high pressure coolant injection (HPCI) Steam Admission Piping Vibration
EC-PIPE-6048, Evaluation of Vibration on the Unit 2 HPCI Steam Supply Piping

SIS-04-002, Recirculation Piping Vibration Monitoring Data Acquisition

Procedures

AR-161-001, Rev. 5, “Reactor Recirculation Pump Vibration Monitoring - Unit 1"
AR-261-001, Rev. 5, “Reactor Recirculation Pump Vibration Monitoring - Unit 2"
OI-TA-20, Rev. 2, “Response to Reactor Recirculation Vibration Alarms”

Miscellaneous Evaluations

Vibration data sheets records for amplitude and phase angle for recirculation pumps 1 A & B, and 2 A & B;
Unit 2 residual heat removal low pressure coolant injection valve recommendations, 08/24/2004;
Evaluation report for CR 400193;
Reactor recirculation pump vibration summary;
Data sheets for slow roll vectors for compensating recirculation pump data

2. Inservice Inspection Activities

Condition Reports/Action Reports

651331	Jet Pump N2K JP19 Wedge Wear
651739	Jet Pump N2K JP20 Wedge Wear
611311	Shroud Horizontal H7 Weld Inspection
610214	Assessment of BWRVIP Program Performed by INPO
612619	Upper Tie Plate Interference on New Fuel Inspection Stand
611319	Thermal Sleeve Weld Not Identified In ISI Database
555758	Main Steam Dryer Indications, Unit 1
651393	Tie Bar Weld TB-BC-5B Has Crack in HAZ
656227	Steam Dryer Inspection Results
648749	In-Vessel Core Spray P8B Weld Examinations
614425	Two Failed Pipe Hangers FW Htr 1B Drain (Includes Evaluation)

LIST OF ACRONYMS

AR	Action Request
ALARA	As Low As Is Reasonably Achievable
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	Condition Report
CREOAS	Control Room Emergency Outside Air Supply
EAL	Emergency Action Level
ECO	Engineering Change Order
EDG	Emergency Diesel Generator
ENS	Emergency Notification System
EOOS	Equipment Out of Service Risk Model
EP	Emergency Preparedness
EPD	Electronic Pocket Dosimeter
EWR	Engineering Work Request

FSAR	[SSES] Final Safety Analysis Report
FW	Field Welds
gpm	Gallons per minute
HP	Health Physics
HPCI	High-Pressure Coolant Injection
ISI	Inservice Inspection
IVVI	In-Vessel Visual Inspection
LCO	Limiting Condition for Operation
LOCA	Loss-of-Coolant Accident
MT	Magnetic Particle
NCV	Non-cited Violation
NDAP	Nuclear Department Administrative Procedure
NDE	Nondestructive Examination
NRC	Nuclear Regulatory Commission
NUMARC	Nuclear Management and Resources Council
NUREG	[NRC] Nuclear Regulatory Guide
OE	Operating Experience
ON	Off Normal [procedure]
PARS	Publically Available Records
ORAM	Operational Risk Assessment Model [shutdown]
PCAF	Procedural Change Application Form
PCWO	Plant Component Work Order
PDI	Performance Demonstration Initiative
PI & R	Problem Identification and Resolution
PPL	PPL Susquehanna, LLC
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RLWO	Release Work Order
RPV	Reactor Pressure Vessel
RTP	Rated Thermal Power
RTPM	Routine Task Preventative Maintenance
RWCU	Reactor Water Cleanup
RWP	Radiation Work Permit
SDHR	Supplemental Decay Heat Removal
SDP	Significant Determination Process
SE	System Engineering [procedure]
SSC	Structure, System or Component
SSES	Susquehanna Steam Electric Station
TMOD	Temporary Modification
TS	Technical Specifications
TSC	Technical Support Center
UT	Ultrasonic Testing
VT	Visual Testing
WO	Work Order
ZWO	Administrative Work Request