

Susquehanna 1

4Q/2004 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: FIN Finding

Diesel Driven Fire Pump Lack of Engine Cooling

A finding of low safety significance was identified because PPL did not adequately evaluate and correct a degraded condition associated with the high engine operating temperatures and repetitive overheating of the diesel driven fire pump (DFP) which occurred following engine shutdown.

This issue is greater than minor because it affected the Mitigating Systems cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance, based on a Phase 1 significance determination process evaluation, because the finding did not result in the loss of a function of equipment designed as risk significant for greater than 24 hours and the finding does not increase the potential or risk of a seismic event, flood or severe weather event.

A contributing cause of this finding is related to the Problem Identification and Resolution (PI&R) cross-cutting area. PPL did not sufficiently evaluate the condition to identify and correct the reduced cooling water flow to the DFP engine. This resulted in ineffective corrective actions because the DFP was removed from service several times without taking action to correct the DFP high engine coolant temperature issue. (Section 4OA2.3)

Inspection Report# : [2004004\(pdf\)](#)

Significance:  Sep 30, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Reactor Building Floor and Equipment Drains Not Fully Scoped into the Maintenance Rule

The inspectors identified a non-cited violation of 10CFR 50.65 paragraph (b)(2) of the Maintenance Rule, because PPL did not scope the Unit 1 and Unit 2 reactor building (RB) equipment and floor drain systems (EFDS) into the Maintenance Rule program and as a result did not demonstrate the effectiveness of preventive maintenance for the RB EFDS. The inclusion of the RB EFDS in the scope of the monitoring program was necessary because the RB EFDS are relied upon to mitigate internal flooding events. Failure of the EFDS to function could have prevented safety-related structures, systems and components from fulfilling their safety-related function.

This finding was more than minor because it had greater significance than similar issues described in the NRC Inspection Manual Chapter 0612, "Examples of Minor Issues," Section 1.h and 1.i. In addition, the RB EFDS's performance is associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. On August 18, 2004, the Unit 1 RB EFDS was unable to pass 80 gpm as assumed in the Final Safety Analysis Report during an overflow of the reactor water cleanup backwash receiving tank. Inspectors identified that system performance problems were such that a Maintenance Rule (a)(2) demonstration could not be justified. This finding was considered to have very low safety significance because the finding did not contribute to an actual loss of mitigation equipment functions, and did not increase the likelihood of a fire or flooding event.

A contributing cause of this finding was related to Problem Identification and Resolution cross-cutting area. PPL had eleven previous EFDS blockages and the evaluation of those events did not recognize that portions of the non-safety related EFDS were relied upon to mitigate accidents or transients. Therefore, PPL did not monitor the EFDS under the maintenance rule and this contributed to the degradation of the RB EFDS. (Section 1R12).

Inspection Report# : [2004004\(pdf\)](#)

Significance:  Jun 30, 2004

Identified By: NRC

Item Type: FIN Finding

Loss of One Offsite Power Source to Unit 1 (Outage Unit)

A self-revealing finding was identified because PPL did not ensure that the contract workers cleaning the Unit 1 cooling tower maintained the required minimum distance from an energized electrical line as required by PPL's Safety Operations Safety Rule Book. Subsequently, the bucket lift contacted the 230 KV line which resulted in the loss of one of two offsite electrical power sources for Unit 1. Unit 1, shutdown for a

refuel and maintenance outage, lost one of two alternate decay heat removal systems that provide cooling for the shutdown reactor fuel. This finding is more than minor because it affects the Mitigating Systems cornerstone attributes in that the human performance deficiency led to an actual loss of the Unit 1 fuel pool cooling system. The deficiency resulted in a loss of electrical power to an alternate decay heat removal system (spent fuel pool cooling) for the shutdown Unit 1 reactor. The error adversely affected the objective of the Mitigating Systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events to prevent reactor core damage. The finding is of very low safety significance because the Unit 1 reactor water temperature minimally increased approximately 2 degrees Fahrenheit. (Section 1R14.1)

Inspection Report# : [2004003\(pdf\)](#)

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Significance: Apr 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify Loose Governor Hold-Down Bolts

The inspectors identified a non-cited violation for the licensee's failure to identify loose governor mounting screws on the 'A' EDG prior to January 2004. The loose mounting screws could have been identified in September and December 2003 when oil leaks were identified, documented, and cleaned without determining the source of the leak.

The finding is more than minor because, if not corrected, the loose governor mounting screws could have resulted in erratic operation of the diesel generator when needed to mitigate loss of offsite power scenarios.

Inspection Report# : [2004007\(pdf\)](#)

G

Significance: Apr 23, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Maintenance Work Instructions Not Implemented to Tighten a "D" Emergency Diesel Generator Governor Bolt

The inspectors identified a non-cited violation for the licensee's failure to comply with work package instructions during replacement of the governor on the "D" emergency diesel generator (EDG). This violation is related to the failure to torque the connecting bolt between the governor output shaft arm and the fuel rack linkage, which resulted in the fuel rack linkage becoming detached in March, 2003, making the EDG inoperable. This finding is greater than minor because it affected the Mitigating System Cornerstone objective of equipment reliability, in that the function of the 'D' emergency diesel generator was compromised when the fuel rack linkage separated. The finding is of very low safety significance because the other three divisional EDGs remained operable, and the 'E' EDG could have been substituted for the failed 'D' EDG. This issue also covers Human Performance cross-cutting area.

Inspection Report# : [2004007\(pdf\)](#)

G

Significance: Mar 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

A EDG Unplanned Start due to Procedure Implementation Error

A self-revealing event resulted in a non-cited violation of Technical Specification section 5.4.1, because a non-licensed plant operator (NPO) did not implement the alternating current (AC) electrical system shutdown procedure TP-105-006, "Load Center 1B210 Outage Coordination Procedure," as written in accordance with Technical Specification 5.4.1.a. The error resulted in an unplanned start of the "A" emergency diesel generator and extended the unavailability of the "A" emergency service water (ESW) pump.

This finding is greater than minor because it adversely impacts the equipment performance attribute of the mitigating system cornerstone and adversely affects the cornerstone objective in that the finding is associated with the increased unavailability of the "A" ESW pump to support Unit 2, the operating unit. A Phase-1 significance determination evaluation screened this finding as Green because the issue does not result in an actual loss of safety function of a system, or the loss of safety function of a single train for greater than the Technical Specification allowed ESW outage time of 7 days, or the loss of safety function for a TS risk significant system for greater than 24 hours. In addition, the finding is not risk significant due to seismic, fire, flooding, or severe weather initiating events.

A contributing cause of this finding was related to the Human Performance cross-cutting area, in that a non-licensed plant operator did not follow an electrical bus shutdown procedure. As a result, an unplanned start of the "A" emergency diesel generator occurred. The untimely restoration of the electrical bus resulted in the "A" emergency service water pump unavailability time was extended by 14 hours.

Inspection Report# : [2004002\(pdf\)](#)

G

Significance: Mar 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Unavailability of RHR on Loss of Condensate Transfer

A self-revealing non-cited violation was identified following the loss of one offsite electrical power supply when the normal Emergency Core Cooling System (ECCS) keepfill pumps lost power. The recent ECCS passive keepfill tank modification did not properly translate the expected or the minimum ECCS system keepfill pressure into operating procedures as is required by Appendix B, Criterion III. As a result, station operators declared one loop of RHR inoperable and disabled both pumps making them unavailable for greater than 2 hours. Operating procedures did not contain the expected or minimum keepfill pressures from current design calculations and this resulted in the removal of

fully functional stand-by safety systems during a plant electrical transient.

This finding is more than minor because it is associated with both the design control and procedure quality attributes and adversely affects the objective of the Mitigating Systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The Phase-1 significance determination evaluation screened this finding as Green because the issue does not result in an actual loss of safety function of a system, or the loss of a safety function of a single train for greater than the Tech Spec time of 7 days or the loss of safety function for a TS risk significant system for greater than 24 hours. In addition, the finding is not risk significant due to seismic, fire, flooding, or severe weather initiating events.

The finding is related to the Human Performance cross-cutting area because PPL engineering did not adequately translate the design information (minimum ECCS keepfill pressure) into the operating procedures.

Inspection Report# : [2004002\(pdf\)](#)

G

Significance: Feb 13, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Susquehanna did not promptly correct a condition adverse to quality associated with foaming of lubricating oil on the "D" core spray pump motors for both Units 1 and 2

A non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified because PPL did not adequately evaluate and promptly correct a condition adverse to quality associated with foaming of lubricating oil on the 'D' core spray pump motors for both Units 1 and 2.

This issue is greater than minor because the 'D' core spray pump was allowed to remain in service with a degraded condition that rendered it inoperable. Thus, the finding affected the Mitigating Systems cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance, based on a Phase 2 significance determination process evaluation, because only one core spray train of the low pressure injection function on each unit was affected by this condition.

Inspection Report# : [2004006\(pdf\)](#)

Barrier Integrity

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Significance: Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Reactor Recirculation and Residual Heat Removal System Instrument Lines Outside of Secondary Containment

The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design control," because PPL did not have adequate measures established to control the alignment of the central railroad bay ventilation to the secondary containment as described in the accident analysis in the FSAR. This resulted in several reactor recirculation system and residual heat removal system instrument lines being outside of secondary containment. Upon discovery PPL aligned the central railroad bay ventilation to secondary containment.

This finding was greater than minor because it adversely impacted the Barrier Integrity cornerstone objective to ensure the capability of containment in that inadequate design control allowed the instrument lines in the central railroad bay to be outside of secondary containment. Allowing the instrument lines to be outside of secondary containment resulted in the plant being outside of the FSAR assumptions and analysis. This finding was considered to have very low safety significance (Green), using Phase-1 of the significance determination process. This finding was Green because the finding only represents a degradation of the radiological barrier function provided by secondary containment and the standby gas treatment system.

Inspection Report# : [2004005\(pdf\)](#)

Significance: SL-IV Dec 31, 2004

Identified By: NRC

Item Type: VIO Violation

Failure to Complete 10 CFR 50.59 Analysis

The inspectors identified a Severity Level IV violation of 10 CFR 50.59 requirements for the failure to evaluate a change in plant system configuration that was known to be inconsistent with accident analysis and the final safety analysis report (FSAR) description. On December 16, 20, 23 2004, and on January 4, 2005, PPL aligned the ventilation of the Unit 1 Reactor Building railroad bay to be outside of secondary containment which was inconsistent with the assumptions of a previously analyzed accident described in FSAR Chapter 15.6.2. PPL did not perform an evaluation in accordance with the requirements of 10 CFR 50.59 to determine if the change required a license amendment prior to implementation of this change in plant configuration.

This finding was addressed using traditional enforcement since it potentially impacts or impedes the regulatory process in that a required 10 CFR 50.59 evaluation was not performed and documented. A SDP Phase-1 screening was performed and determined that the condition resulting from the violation of 10CFR 50.59 was of very low safety significance because the finding only represents a degradation of the radiological barrier function provided by secondary containment and the standby gas treatment system. This is a Severity Level IV Violation of NRC requirements in accordance with Section VI.A of the NRC Enforcement Policy (Supplement I - Reactor Operations; Example D.5). This violation is being cited in a Notice of Violation under Section VI of the NRC Enforcement Policy since PPL did not restore compliance within a reasonable time after the violation was identified nor did they enter the violation into a corrective action program to address recurrence.

Inspection Report# : [2004005\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Post Horizontal Spent Fuel Storage Module B-5 s a High Radiation Area

A self-revealing non-cited violation of 10 CFR20.1501(a)(1) was identified for not conducting an adequate radiation survey to ensure compliance with the High Radiation Area (HRA) posting requirements of 10 CFR 20.1902(b) during the removal of spent fuel module shield walls. PPL posted and shielded the location and conducted occupational dose assessments for individuals working in the unposted high radiation area.

This finding is a greater than minor because PPL did not conduct adequate radiation surveys to ensure proper posting and control of the area. This finding was evaluated against the criteria in NRC Manual Chapter 609, Appendix C, and found to be of very low safety significance (Green) because it was not an ALARA finding, it did not involve an overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised.

The cause of this non-cited violation is related to the Human Performance cross-cutting area because PPL did not complete an adequate survey to identify a high radiation area.

Inspection Report# : [2004005\(pdf\)](#)

Public Radiation Safety

Significance:  Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correctly Package Waste Resin for Shipment

A self-revealing non-cited violation of 10 CFR20.1501(a)(1) was identified for not conducting an adequate radiation survey to ensure compliance with the High Radiation Area (HRA) posting requirements of 10 CFR 20.1902(b) during the removal of spent fuel module shield walls. PPL posted and shielded the location and conducted occupational dose assessments for individuals working in the unposted high radiation area.

This finding is a greater than minor because PPL did not conduct adequate radiation surveys to ensure proper posting and control of the area. This finding was evaluated against the criteria in NRC Manual Chapter 609, Appendix C, and found to be of very low safety significance (Green) because it was not an ALARA finding, it did not involve an overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised.

The cause of this non-cited violation is related to the Human Performance cross-cutting area because PPL did not complete an adequate survey to identify a high radiation area.

Inspection Report# : [2004005\(pdf\)](#)

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Feb 13, 2004

Identified By: NRC

Item Type: FIN Finding

PI&R Inspection Summary

The team determined that, in general, Susquehanna Steam Electric Station properly identified, evaluated and corrected problems. However, the team's findings supported the conclusion in the Annual Assessment Letter (NRC Inspection Report 50-387/2004-01) of the existence of a substantive cross cutting issue in the problem identification and resolution area. The team identified one finding that indicated deficiencies with the evaluation of issues and the effectiveness of corrective actions. Susquehanna was generally effective at identifying problems and placing them in the corrective action program. These items were screened and prioritized using established criteria, but some potentially risk-significant issues were not fully evaluated. Corrective actions were implemented in a timely manner, but some actions were not completed in a comprehensive manner or were not tracked appropriately. The team determined that workers utilized the corrective action program to address problems.

Inspection Report# : [2004006\(pdf\)](#)

Last modified : March 09, 2005