

Susquehanna 2

4Q/2006 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate work instructions for the disassembly and inspection of IST check valves

The inspectors identified a non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," because PPL did not provide adequate work instructions for the disassembly and inspection activities, required by Technical Specification 5.5.6, Inservice Testing (IST), for emergency service water (ESW) check valve 011514. Consequently, undetected degradation of the valve internals, led to the valve's failure in the full open position and the diversion of approximately 1000 gallons per minute of ESW system flow from the operating loop into the idle ESW Loop. PPL has entered the finding into the corrective action program (CR 824522) and plans to revise its maintenance instructions.

The finding is more than minor because it is associated with the Procedure Quality attribute of the Mitigating System Cornerstone and it adversely affected the cornerstone's objective to ensure the availability, reliability, and capability of systems (e.g. ESW) that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance in the Phase 1 screening conducted per Appendix A of the SDP. This finding has a cross-cutting aspect in the area of human performance because the work package was not sufficiently complete to define and implement the required disassembly and inspection of check valves (1R12).

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions for EPA Breaker Failures

Inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," because PPL failed to correct a long standing condition adverse to quality with regard to RPSP EPA circuit breaker problems. The failures were attributed, in part, to PPL's inadequate prior evaluations with respect to not following recommended preventive maintenance replacement activities. PPL entered the finding into its corrective program (CR 710737) and plans to modify its preventive maintenance practices for the EPA breakers and to continue to work with the vendor to establish a permanent resolution.

The finding is more than minor because it is associated with the equipment performance attribute and affected the objective of the Mitigating Systems Cornerstone to ensure the availability, reliability and capability of equipment (e.g. the reactor protection system) that respond to initiating events to prevent undesirable consequences. The finding was determined to have very low safety significance (Green) in Phase 1 of Appendix A to the SDP because it was not a design or qualification deficiency, did not result in the loss of system safety function, did not represent the actual loss of safety function of a single train of equipment for greater than its technical specification allowed outage time, did not result in the loss of safety function of a train of risk significant non-technical specification equipment for greater than 24 hours, nor is it potentially risk significant due to seismic, flood, or severe weather initiating events. This finding has a cross-cutting aspect in the area of problem identification and resolution because PPL did not thoroughly evaluate similar breaker failures and take into account vendor information such that the extent of condition was considered and the problem resolved (4OA2).

Inspection Report# : [2006005](#) (*pdf*)

G**Significance:** Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Risk Assessment

The inspectors identified a non-cited violation (NCV) of 10 CFR 50.65 (a)(4), for an inadequate risk assessment. PPL did not correctly assess the risk associated with planned maintenance activities on the "A" emergency service water pump and the diesel fire pump on August 25, 2006. PPL entered this deficiency into their corrective action program and revised the risk assessment to correctly assess plant risk.

The finding is greater than minor because it was similar to Example 7.e in IMC 0612, Appendix E, "Examples of Minor Issues," and because PPL underestimated the cumulative increase in core damage probability for ongoing planned maintenance which when correctly assessed placed Unit 2 into a higher risk category. The finding was determined to be of very low safety significance (Green) using Appendix K of Inspection Manual Chapter 0609, "Maintenance Risk Assessment and Risk Management Significance Determination Process," using Flowchart 1, because the incremental core damage probability deficit was determined to be less than 1.0 E-6 and the incremental large early release probability deficit was determined to be less than 1.0 E-7. The finding has a cross-cutting aspect in the area of human performance because PPL's planned work activities did not effectively incorporate risk insights. (Section 1R13)

Inspection Report# : [2006004](#) (*pdf*)**G****Significance:** Jun 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Identify Material Degradation Which Resulted in a Failure of the "C" ESW Pump Breaker

A self-revealing non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, Corrective Action was identified because PPL failed to adequately evaluate and correct degraded material in the "C" Emergency Service Water (ESW) pump breaker that caused a failure on April 5, 2006. PPL's corrective action for this failure included replacing the breaker with a new style breaker.

The finding was more than minor because the condition affected the Equipment Performance attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. This finding is of very low safety significance because the finding was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single train for greater than its Technical Specification Allowed Outage Time, did not represent an actual loss of safety function of one or more non-Technical Specification trains of equipment designated as risk significant per 10 CFR 50.65, for greater than 24 hours, and did not screen as potentially risk significant due to external events. This finding has a PI&R (evaluation) cross-cutting aspect because PPL did not perform a thorough evaluation of the problem so that the resolution addressed causes and extent of condition as necessary to prevent the subsequent failure of the 4Kv breaker due to material degradation.

Inspection Report# : [2006003](#) (*pdf*)**G****Significance:** Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Corrective Actions to Assure Training and Qualification of Workers as Required by 10 CFR 50 Appendix B, Criterion XVI

The inspectors identified a non-cited violation of 10 CFR 50 Appendix B, Criterion XVI, "Corrective Action" because PPL did not correct long standing issues related to worker qualifications. This resulted in unqualified workers performing tasks important to safety as described by the Quality Assurance (QA) program. Inspectors observed that over a four year period, PPL took action to reconcile the qualification of the individuals involved in each event. PPL has developed a plan to address this issue and an effectiveness review of the implemented actions is scheduled for November 2006.

This finding is more than minor because if left uncorrected, the tasks being performed by unqualified workers will become a more significant safety concern. An unqualified worker calibrating safety-related equipment affected the Equipment Performance attribute of the mitigating systems cornerstone and unqualified fire brigade members affect the Protection Against External Factors attribute of the same cornerstone. The finding affects the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events. This finding is of very low safety significance because the work performed by the unqualified individual performing the recirculation flow calibration did not result in a loss of system safety function, and did not represent an actual loss of safety function of any single train of equipment. The

Significance Determination Process (SDP), Appendix F, does not specifically address fire brigade issues and allows for management discretion to determine issue significance. This performance issue was reviewed by NRC management and is determined to be a finding of very low safety significance.

Inspection Report# : [2006003](#) (*pdf*)

Significance:  Mar 31, 2006

Identified By: NRC

Item Type: FIN Finding

Incomplete Corrective Actions contribute to CRD Flow control failure.

The inspectors identified a finding for not implementing Corrective Action procedure, NDAP-QA-702, which requires all actions to correct and prevent recurrence be completed before the closure of a condition report. Following electrolytic capacitor failures at Susquehanna corrective actions were not completed which directly contributed to loss of control rod drive hydraulic flow on February 22, 2006. PPL has entered this issue into their corrective action program.

This finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone. The finding negatively affected the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences because the failure resulted in increased scram times on 20 control rods. The finding was determined to be of very low significance (Green) since the finding does not represent a loss of safety function and is not potentially risk significant due to external events. The cause of the problem is related to the Problem Identification and Resolution cross-cutting area. (Section 1R12)

Inspection Report# : [2006002](#) (*pdf*)

Significance:  Feb 10, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify Scaffolding that Affected the Safety-Related RHR Discharge Pressure Instrument Tubing Input to Automatic Depressurization System

The inspectors identified a NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to identify, for greater than a year, that a scaffold was constructed contacting a safety-related instrument sensing line which provided an input to the automatic depressurization system (ADS). The affected system was declared inoperable until the scaffold was removed. The licensee took prompt corrective action to remove the subject scaffold and entered the issue into the corrective action program. The licensee conducted an extensive plant walk-down that identified other scaffolds which were not properly constructed. The licensee subsequently determined that ADS was operable but degraded.

This finding was greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of the ADS system that responds to initiating events to prevent undesirable consequences. The inspectors noted the issue was also greater than minor, based on a review of NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues and Cross-Cutting Aspects," Example 4.a - the issue is not minor if later evaluation determined that safety-related equipment was adversely affected. The finding was determined to be of very low safety significance (Green) because the performance deficiency did not represent a design deficiency and did not result in the loss of a safety function. The finding had a cross-cutting aspect related to the area of Problem Identification and Resolution; specifically, station personnel did not identify that the incorrect construction of the scaffolding was a condition adverse to quality. (Section 4OA2.1.b.(1))

Inspection Report# : [2006006](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Procedure Results in Elevated Reactor Coolant System Leakage

A self-revealing non-cited violation of 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was

identified for failure to have adequate work instructions prescribed in a maintenance procedure, which resulted in a reactor coolant system mechanical joint leak. PPL entered this condition into the corrective action program and properly reassembled the mechanical joint during the Unit 2 Spring maintenance outage.

This finding is greater than minor because the condition affected the Procedure Quality attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers (reactor coolant system) protect the public from radionuclide releases caused by accidents or events. The finding was determined to be of very low safety significance because the reactor coolant system leak would not have resulted in exceeding the Technical Specification limit for identified leakage, nor would it have likely effect other mitigation systems resulting in a total loss of their safety function.

Inspection Report# : [2006003](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Significance: N/A Feb 10, 2006

Identified By: NRC

Item Type: FIN Finding

PI&R Inspection Summary

The team concluded that the implementation of the corrective action program (CAP) at Susquehanna was generally good. The team determined that Susquehanna was effective at identifying problems and entering them in the CAP. However, while the identification of equipment deficiencies was acceptable, the team identified one finding and several minor issues where there appeared to be an attitude of acceptance of deficiencies and abnormal conditions. Once entered into the system, the items were screened and prioritized in a timely manner using established criteria. Items entered into the CAP were properly evaluated commensurate with their safety significance. The causal evaluations reasonably identified the causes of the problems and developed appropriate corrective actions. The team noted a trend over the last two years of a lack of rigor with regard to operability evaluations. Corrective actions were typically implemented in a timely manner and appropriately addressed the root causes. However, the team identified one example where the corrective actions to prevent repetition for a NRC identified NCV were implemented in an ineffective manner constituting a minor violation. Licensee audits and self-assessments were generally adequate. The team also noted that the licensee's efforts to reduce human performance error rates were continuing. On the basis of interviews conducted during the inspection, the team concluded that workers at the site felt free to input safety concerns into the CAP.

Inspection Report# : [2006006](#) (*pdf*)

Last modified : March 01, 2007