Susquehanna 2
4Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: FIN Finding
Inadequate Post-Modification Testing Results in Main Turbine Trip and Automatic Scram
A self-revealing finding of very low safety significance (Green) was identified when PPL personnel did not have adequate procedures to perform post-modification testing on the digital integrated control system (ICS). Specifically, scheme checks and functional testing failed to identify an improper termination in the high reactor water level main turbine trip circuit. This error reduced the channel trip circuitry from a two-out-of-three logic to allowing a main turbine trip from a single channel. As a result, on August 19, 2011, during the first implementation of quarterly surveillance testing for the trip function, a main turbine trip and automatic reactor scram occurred.

The performance deficiency was determined to be more than minor because the finding was associated with the Initiating Events cornerstone attribute of Equipment Performance, and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during power operation. Specifically, inadequate post-modification testing failed to identify an improperly terminated jumper which ultimately led to a main turbine trip and automatic reactor scram during subsequent surveillance testing. The inspectors evaluated the finding using IMC 0609, Attachment 4, “Initial Screening and Characterization of Findings,” and determined the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available. Consequently, the finding is of very low safety significance (Green). This finding is related to the CCA of Human Performance – Resources because PPL did not ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. Specifically, PPL did not ensure that complete, accurate and up-to-date maintenance and test procedures were available to perform post-modification testing on the digital ICS. (H.2(c)) (4OA3)
Inspection Report# : 2011005 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: FIN Finding
Failure to Properly Implement Work Instructions Results in C EDG Inoperability
An NRC-identified Green finding of TS 5.4.1, “Procedures,” due to PPL’s failure to properly plan and implement work instructions and Quality Control (QC) hold point inspections associated with a modification to the ‘C’ Emergency Diesel Generator (EDG) fuel pump assemblies was identified. The error resulted in the failure of the ‘C’ EDG to continue running during surveillance testing on December 6, 2011. This resulted in PPL failing to meet the requirements of TS 3.8.1, “AC Sources- Operating”, when it was determined that the ‘C’ EDG was inoperable from September 19, 2011, following restoration from its maintenance outage, until December 6, 2011, when the operable ‘E’ EDG was substituted for the ‘C’ EDG. Additionally, the failure to implement work instructions resulted in PPL failing to meet the requirements of 10 CFR Part 50, Appendix B, Criterion X, “Inspection,” which requires, in part, that licensees execute a program for inspection of activities affecting quality to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. The deficiency was entered into PPL’s corrective action program (CAP) as condition Report (CR) 1506105 and a root cause analysis (RCA) was performed.
The performance deficiency was determined to be more than minor because the finding was associated with the

Mitigating Systems cornerstone attribute of Human Performance, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding was evaluated using Phase 1 and inspectors determined the finding was potentially greater than very low safety significance because the finding represented an actual loss of safety function of a single train for greater than its TS Allowed Outage Time. The Phase 2 analysis determined the finding was potentially greater than very low safety significance given an exposure time of 75 days. A Phase 3 analysis was conducted by an NRC Senior Reactor Analyst (SRA). This analysis indicated an increase in core damage frequency (? CDF) for internal initiating events in the range of 1 core damage accident in 40,000,000 years of reactor operation, in the low E-8 range per year for each unit. The dominant core damage sequences included losses of offsite power with the failure of all EDGs, due to common cause, resulting in a station blackout, followed by operator failure to extend RCIC operation with loss of DC power, failure to depressurize the reactor and failure to recover offsite power within 4 hours. The finding is related to the CCA of Human Performance, Work Practices, in that PPL personnel did not use human error prevention techniques, such as holding pre-job briefings, self and peer checking, and proper documentation of activities, commensurate with the risk of the assigned task, such that work activities are performed safely. Specifically, PPL did not perform adequate human error prevention techniques such that the incorrect assembly of delivery valve springs and stops avoided. (H.4(a)) (Section 1R13)

Inspection Report# : 2011005 *(pdf)*

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate RCIC Post Maintenance Testing
An NRC-identified, Green NCV of 10 CFR 50, Appendix B, Criterion XI, “Test Control,” occurred when the Unit 2 RCIC ramp generator signal converter (RGSC) failed during maintenance but post maintenance testing (PMT) failed to identify the failure, which went unrecognized until RCIC tripped on overspeed during its normal operating pressure surveillance on June 29, 2011. Consequently, from June 26, 2011, when PPL commenced a reactor startup and transitioned to plant conditions under which RCIC was required to be operable, until June 29, 2011, PPL RCIC was inoperable. After the RGSC was replaced, RCIC was re-tested via SO-250-002 on July 1 and declared operable on July 2. In response to the event, PPL initiated an apparent cause evaluation (ACE), an RCA, and RGSC post-mortem investigation. PPL entered this issue into their CAP as CRs 1430270, 1450534, and 1516769.
The failure to conduct adequate post-maintenance testing (PMT) that demonstrates RCIC would perform satisfactorily in service via test procedures was a performance deficiency that was reasonable for PPL to foresee and correct. The finding was more than minor since it affected the equipment performance attribute of the Mitigating Systems cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, reliable operation and the capability of RCIC in automatic were affected by a failure of its RGSC during the refueling outage. The inspectors evaluated the finding in accordance with IMC 0609 Attachment 4, Phase I – Initial Screening and Characterization of Findings, and determined it to be Green, since it was not a design or qualification deficiency, was not a loss of system safety function, and was not risk significant due to an external initiating event. This finding had a cross-cutting aspect in the area of Problem Identification and Resolution (PI&R) - Operating Experience (OE), in that licensees are to implement and institutionalize OE through changes to station processes, procedures, equipment, and training programs. Specifically, PPL did not implement and institutionalize various OE pertinent to RCIC in maintenance, PMTs, and system monitoring. (P.2(b)) (Section 4OA3)

Inspection Report# : 2011005 *(pdf)*

Significance: SL-IV Nov 08, 2011
Identified By: NRC
Item Type: VIO Violation
Violation of 10CFR55.25, Failure to Notify NRC of a Change in Medical Status and Request a Conditional License
The inspectors identified a SL IV NOV of 10 CFR 55.25, “Incapacitation Because of Disability or Illness,” for PPL failing to notify the NRC of a known permanent change in medical status of a licensed operator, and 10 CFR 55.3, “License Requirements,” for failing to ensure that an individual license holder, in the capacity of a reactor operator (RO), met the medical prerequisites prior to performing licensed operator duties. Specifically, an RO failed a medical

examination in both 2009 and 2011 which identified a disqualifying condition and performed licensed duties without an NRC-approved, amended license. He performed the function of an RO while on watch from April 2009 through August 2011, when the NRC identified this issue. However, the operator did wear corrective lenses while standing watch since April 2009. Upon notification PPL submitted, and the NRC approved, a conditional license to address the disqualifying medical condition. PPL entered this issue into their corrective action program (CAP) as condition report (CR) 1450138.

The inspectors determined that PPL's failure to notify the NRC of a known permanent change in a licensed operator's medical status and request an amended license in order to assume licensed duties was a performance deficiency. This finding was evaluated using the traditional enforcement process because the issue had the potential to impact or impede the regulatory process. Specifically, there was a potential for license termination or the issuance of a conditional license to accommodate for a medical condition. The RO performed licensed duties from April 2009 through August 2011 with a disqualifying condition that required his license to be amended. Using the NRC Enforcement Policy, this violation was characterized at SL IV, in accordance with Section 6.4.

This violation is being cited in the enclosed Notice in accordance with NRC Enforcement Manual Section 3.1.2, because the violation was determined to be repetitive of NRC Enforcement Action (EA) 09-248 dated January 28, 2010, an SLIII Notice of Violation related to a Senior Reactor Operator (SRO) standing watch without meeting a medical qualification requirement. The medical conditions in both the former and current cases were similar; therefore, it was reasonable that an adequate extent of condition review for EA-09-248 should have identified the additional discrepancy.

This significance of the associated performance deficiency was screened against the Reactor Oversight Process (ROP) per the guidance of IMC 0612, Appendix B. No associated ROP finding was identified and no cross-cutting aspect was assigned. (Section 1R11)

Inspection Report# : 2011004 *(pdf)*

Significance: G Nov 08, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Operability Assessment of Safety Relief Valve Seat Leakage
An NRC-identified Green NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when PPL did not perform an adequate operability assessment in accordance with procedure NDAP-QA-0703, "Operability Assessments and Requests for Enforcement Discretion," Revision 15, to ensure the continued operability of the 'M' safety relief valve (SRV). Upon identification, operators initiated an Operability Follow-up Request which ultimately resulted in the 'M' SRV being declared inoperable.

The finding was more than minor because it was similar to example 3.j in IMC 0612 Appendix E, "Examples of Minor Issues" in that an error in a calculation is not minor if the error results in reasonable doubt on the operability of the system or component. In this case, the error made in evaluating the operability of the SRV resulted in reasonable doubt of operability. The finding was evaluated for significance using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Since the finding was not a design or qualification deficiency, did not result in a loss of system safety function, did not result in loss of a single train for greater than its allowed outage time, and was not potentially risk significant due to external events, the finding was determined to be of very low safety significance (Green). This finding was related to the cross-cutting area of Problem Identification and Resolution (Pl&R) - CAP because PPL did not thoroughly evaluate problems such that the resolutions address the causes and extent of conditions, to include properly classifying, prioritizing and evaluating for operability. Specifically, PPL failed to consider the effect that seat leakage had on the lift point of the 'M' SRV and failed to correctly assess the SRV for operability.

Inspection Report# : 2011004 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC

Item Type: NCV NonCited Violation
Failure to Implement Risk Management Actions during Dual Unit Elevated Risk
The inspectors identified a Green NCV of 10 CFR 50.65a(4) when PPL failed to manage risk as assessed on June 1, 2011. During a period of dual unit Orange risk, PPL did not adequately implement protected equipment risk management actions (RMAs) designated in its risk assessment. During a walkdown, the inspectors identified that none of the core spray divisions or safety relief valves (SRVs) on either unit had been protected. They also identified that Unit 1 Division II low pressure coolant system (LPCI) had not been protected and Unit 2 Division I LPCI was only partially protected. Finally, the inspectors identified that some Unit 1 Division II residual heat removal (RHR) shutdown cooling equipment listed as protected in the Station Leadership Report had not been protected. This issue was documented in PPL's CAP as Condition Report (CR) 1417135.

The inspectors determined that the performance deficiency was more than minor due to its similarity to examples 3.j and 3.k of IMC 0612 Appendix E, "Examples of Minor Issues." The issue also affected the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and its human performance attribute. Specifically, the issue was programmatic based on the extent of protected equipment deficiencies, five consecutive quarters of 10 CFR 50.65a(4) violations, the timing of the violation during dual unit Orange risk, and that if left uncorrected could lead to more significant issues such as pre-event human error that impacts mitigating equipment availability during a subsequent initiating event with already elevated plant risk. Since the exposure time of the deficiency was limited to four hours and with due consideration of the other RMAs taken by PPL, this finding is determined to be of very low safety significance (Green). This finding was determined to have a cross-cutting aspect in Problem Identification and Resolution, (PI&R) CAP. Specifically, although PPL had recognized the negative trend with execution of a root cause analysis (RCA), interim corrective actions for the adverse trend of 10 CFR 50.65 a(4) violations proved inadequate to prevent another violation of this regulation for the fifth consecutive quarter. (P.1 (d)) (1R13)
Inspection Report# : 2011003 *(pdf)*

Significance:  Jun 24, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Provide Redundant Fire Water Pumps
The team identified a non-cited violation of Susquehanna Unit 1 Operating License Condition 2.C.(6), and Unit 2 Operating License Condition 2.C.(3) for the failure to implement all provisions of the approved Fire Protection Program. Specifically, PPL had not adequately implemented a fire water supply system with two redundant 100% capacity fire water pumps and three sources of supply water. PPL's hydraulic analysis determined that after 20 minutes of single pump operation, two fire water pumps would need to operate to supply the design rated flow for several sprinkler systems required to be operable by the Susquehanna Steam Electric Station (SSES) Technical Requirements Manual. Subsequently, seven sprinkler systems were determined to be degraded because design flow rates could not be achieved and maintained by a single pump. PPL performed an operability evaluation that determined the affected sprinkler systems were capable of performing their intended functions at lower flow rates and for a shorter duration than originally specified by plant design. In addition, the Unit 2 cooling tower basin was determined to be inoperable as a sole source of supply water for the fire water system. An Operations Directive was issued to not align the fire water system to the Unit 2 cooling tower.

The team determined the failure to verify the adequacy of design to satisfy licensing basis requirements was a performance deficiency. This issue was more than minor because it was similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," Example 3.k, which states that an analysis to verify the adequacy of design contained incorrect assumptions. The example concludes that the issue is more than minor if the error resulted in a condition where there was a reasonable doubt on the operability of the component. For this issue, a knowledgeable engineer could not determine the adequacy of design based on a review of the existing hydraulic analysis and associated design details without performing additional complex analysis and preliminary calculations. The team performed a Phase 1 Significance Determination Process screening, in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected the fixed fire protection systems category, and was screened to very low safety significance because the affected sprinkler systems were determined to have a low degradation rating. This finding did not have a cross-cutting aspect because it was determined to be a legacy issue and was not considered to be indicative of current licensee performance.
Inspection Report# : 2011007 *(pdf)*

Significance: G Jun 24, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Establish Adequate Test Acceptance Criteria for Fire Pump Performance Testing
The team identified a non-cited violation of Susquehanna Unit 1 Operating License Condition 2.C.(6), and Unit 2 Operating License Condition 2.C.(3) for the failure to implement all provisions of the approved Fire Protection Program. Specifically, PPL established acceptance criteria in the fire pump performance tests that was non-conservative compared to design basis requirements and the test acceptance criteria was insufficient to demonstrate that the fire pumps could provide sufficient pump pressure to satisfy required sprinkler system hydraulic needs. PPL performed an operability evaluation that determined the fire pumps were capable of performing their intended functions based on predicted flow rates and current pump degradation.

The team determined the failure to establish acceptance criteria in annual pump performance tests that demonstrated the pumps would perform satisfactorily in service was a performance deficiency. This issue was more than minor because it was similar to NRC Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," Example 3.k, which states that an analysis to verify the adequacy of design contained incorrect assumptions. The example concludes that the issue is more than minor if the error resulted in a condition where there was a reasonable doubt on the operability of the component. For this issue, a knowledgeable engineer could not determine whether pump performance was adequate to satisfy design needs based on a review of the existing pump test results, hydraulic analysis, and associated design details without performing additional complex analysis and preliminary calculations. The team performed a Phase 1 Significance Determination Process screening, in accordance with NRC IMC 0609, Appendix F, "Fire Protection Significance Determination Process." This finding affected the fixed fire protection systems category, and was screened to very low safety significance because the affected sprinkler systems were determined to have a low degradation rating. This finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program because annual fire pump performance testing in 2009 and 2010 identified significant pump degradation, but PPL failed to initiate a condition report or correct the condition. [IMC 0310, Aspect P.1(a)]
Inspection Report# : 2011007 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: FIN Finding
RWST Level Transmitter Failure Not Entered in CAP
Inspectors identified a Green finding of MT-AD-605, “Maintenance and Calibration of Installed Plant Instrumentation (IPI),” Revision 11, when as-found calibration results of the refueling water storage tank (RWST) level transmitter were discovered outside tolerance and not captured in the CAP. Consequently, RWST level was later discovered to be 25 percent lower than indicated in the control room and below emergency operating procedure (EOP) procedural expectations. The inspectors concluded that finding the level transmitter out of tolerance by more than twice the as-found tolerance should have been entered into the CAP as a Level 3 condition adverse to quality (CAQ) Cause CR with a due date not to exceed September 28, 2010, and that the CR would have directed PPL to investigate the issue earlier, avoided inaccurate level indications to control room operators, and prevented RWST level from ultimately lowering below EOP normal levels. This issue was entered into PPL’s CAP as CR 1371594.
The finding was more than minor since it affected the Mitigating Systems cornerstone objective to maintain the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and was associated with its equipment performance and configuration control attributes. Specifically, the lack of accurate level indication caused operators to believe that more RWST inventory was available than actually present and an EOP procedural decision is based, in part, on the available RWST inventory. The finding was determined to be of very low safety significance in accordance with IMC 0609, Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations” using SDP Phases 1, 2, and 3. Phase 1 screened the finding to Phase 2 because it represented an actual loss of safety function to makeup to the condensate storage tank (CST) from the RWST per 10CFR50.65, for greater than 24 hours. A Region I Senior Reactor Analyst (SRA) conducted a Phase 3 analysis because the Phase 2 analysis, conducted by the inspectors using the Susquehanna pre-solved Risk-Informed Inspection Notebook, indicated that the finding could be of more than very low safety significance. In conducting the Phase 3 analysis the SRA determined that refilling the CST from the RWST was not modeled in the Susquehanna Standardized Plant Analysis Risk (SPAR) model, Revision 8.15. The SRA reviewed a PPL-completed risk

significance analysis which included the increase of both core damage and large early event release frequencies (i.e., delta CDF and delta LERF) assuming that the RWST was not available for a year. This PPL analysis, which appeared conservative given the actual volume of water in the RWST during the approximately 6 months that the RWST level instruments were not functioning properly, indicated that the delta CDF and delta LERF were in the very low safety significance range.
The finding was determined to have a cross-cutting aspect in Human Performance, Work Practices, in that the licensee defined and communicated expectations regarding procedural compliance, however, personnel did not follow procedures. Specifically, PPL technicians did not enter the out-of-tolerance level instrument calibration into the CAP in accordance with procedures.

Inspection Report# : 2011002 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: FIN Finding
B CS Chiller Inoperable due to Refrigerant Stacking
The inspectors identified a Green finding for failure to evaluate the condition of the 'B' control structure (CS) chiller after completion of SE-054-301, "Emergency Service Water/Control Structure Chilled Water System Leakage Test," Revision 12. Specifically, personnel failed to evaluate whether system parameters were restored to normal prior to restoring the chiller to an operable status and, when maintenance subsequently reported that refrigerant level was non-visible, failed to appropriately evaluate the degraded condition with regard to equipment operability. PPL entered this issue into their CAP as CR 1382448.
The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating systems cornerstone and affected its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the condition of refrigerant stacking that occurred affected the reliability of the 'B' CS Chiller. The finding was evaluated for significance using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Since the finding did not result in a loss of safety function or the loss of a train for greater than its Technical Specification (TS) allowed outage time, and was not potentially risk significant due to external event initiators, the finding was determined to be of very low safety significance (Green). This finding is related to the cross-cutting area of PI&R – CAP, because PPL did not thoroughly evaluate problems such that the resolutions address the causes and extent of conditions, to include properly classifying, prioritizing and evaluating for operability. Specifically, PPL failed to appropriately evaluate the effect that refrigerant stacking had on the operability of the CS chiller and subsequently, failed to evaluate the CAQ and assign corrective actions.
Inspection Report# : 2011002 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Replace Piping on B CS Chiller
An NRC-identified, Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," was identified because PPL failed to correct a condition adverse to quality, an adverse trend of Freon leaks, by identifying that previous work orders (WOs) have not been implemented as required prior to new leaks occurring. Three separate refrigerant leaks were identified that collectively led to the inoperability of the 'B' CS chiller due to an inability to meet its mission time. The leaks occurred on a section of pipe that was prescribed to be replaced as part of the extent of condition review of similar Freon leaks. However, the corrective actions to replace the line were not implemented as planned. PPL entered this issue into their CAP as CR 1387934.
The finding was more than minor since it was associated with the equipment performance attribute of the Mitigating systems cornerstone and affected its objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the availability and reliability of the control room emergency outside air supply (CREOAS) and CR floor cooling systems was impacted by the 'B' CS chiller failure. In accordance with IMC 0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," the finding was determined to be of very low safety significance (Green) because the finding was not a design or qualification deficiency, did not represent a loss of a system/train safety function and did not screen as potentially risk significant due to external events. This finding is related to the cross-cutting area of

PI&R – CAP, because PPL did not thoroughly evaluate problems such that the resolutions address the causes and extent of conditions, to include properly classifying, prioritizing, and evaluating for operability. Specifically, despite four condition reports generated in 2010 that identified adverse trends in Freon leaks or chiller performance issues, PPL failed to appropriately evaluate the trend so as to identify causes, evaluate the effectiveness of past corrective actions, include similar equipment in extent of condition reviews, or identify that the 'B' CS chiller filter/dryer line was not replaced as planned.

Inspection Report# : 2011002 *(pdf)*

Significance: G Dec 31, 2009
Identified By: NRC
Item Type: FIN Finding
Scenarios for NRC Annual Operating Examinations Did Not Meet Quantitative Standards for Total Malfunctions
The inspectors identified greater finding in that 20% of the NRC annual operating exam simulator scenarios reviewed did not meet the quantitative standard for total malfunctions, 4 to 8 for a single scenario, and 10 to 14 for a scenario set established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Form ES-604-1, "Simulator Scenario Review Checklist." In addition, the licensee's procedures NTP-QA-31.11, "Operator Requalification Exam Preparation and Implementation" and NTP-QA-31.7, "Simulator Scenario Writers Guides," recommend these same quantitative standards. The quantitative guidelines for malfunctions is an important metric because it establishes an objective standard used throughout the nuclear industry to ensure that the simulator portion of the NRC-required annual operating exams are written at an appropriate level of difficulty. As an immediate corrective action, the licensee entered this finding into their corrective action process (CR 1187760).

This finding was more than minor because it was associated with the Human Performance attribute of the Mitigation Systems cornerstone and affected the objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the finding affected the level of difficulty of simulator operating exams which potentially impacted PPL's ability to appropriately evaluate licensed operators. A review of the possible cross-cutting aspects was performed and no cross-cutting aspect was identified that would be considered a contributor to the cause of the finding.
Inspection Report# : 2009005 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Operability Assessment of Suppression Pool Spray
An NRC-identified Green NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when PPL did not perform an adequate operability assessment for a failed suppression pool (SP) spray flow indicator in accordance with procedure Nuclear Department Administrative Procedure (NDAP)-QA-0703, "Operability Assessments and Requests for Enforcement Discretion," Revision 15. The issue was entered into PPL's CAP as Condition Report (CR) 1478716.

The finding is more than minor because it was similar to example 3.j in IMC 0612 Appendix E, "Examples of Minor Issues" in that an error in a calculation is not minor if the error results in reasonable doubt on the operability of the system or component. In this case, the error made in evaluating the operability of the SP spray mode of residual heat removal (RHR) resulted in reasonable doubt on its operability. Additionally, it affected the structures, systems and components (SSCs) and barrier performance attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system (RCS), and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, one subsystem of SP spray was declared inoperable, constituting 62.5 hours of subsystem unavailability. The finding was evaluated for significance using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Since the

finding was not a degradation of the barrier function of the control room against smoke or toxic gas, did not represent an actual open pathway of the physical integrity of containment, and did not involve an actual reduction in function of hydrogen ignitors in the reactor containment, the finding was determined to be of very low safety significance (Green). This finding is related to the CCA of Problem Identification and Resolution (Pl&R) - CAP because PPL did not thoroughly evaluate problems such that the resolutions address the causes and extent of conditions, to include properly classifying, prioritizing and evaluating for operability. Specifically, PPL failed to appropriately evaluate the effect that an instrumentation failure had on the operability of the SP spray subsystem. (P.1(c)) (1R15)
Inspection Report# : 2011005 *(pdf)*

Significance: G Nov 08, 2011
Identified By: Self-Revealing
Item Type: FIN Finding
Inadequate Maintenance Practices Result in Trip of Protected Equipment Spent Fuel Pool Cooling Pump
A self-revealing Green finding of NDAP-QA-0340, "Protected Equipment Program," Revision 10, was identified when the 2A fuel pool cooling (FPC) pump tripped during maintenance on the 2A FPC heat exchanger (HX). The pump and HX had been designated as protected equipment. The unavailability and loss of pump functionality resulted in an off normal procedure entry. PPL entered this issue into their CAP as CR 1438904 and completed an apparent cause evaluation (ACE).

The finding was more than minor due to its adverse effect on the Barrier Integrity cornerstone attribute of system, structure, and component performance to maintain spent fuel pool cooling (SFPC) system functionality and its objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding was screened in accordance with IMC 0609 Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and was determined to be of very low safety significance, Green, due to its not being associated with the loss of cooling to the spent fuel pool (SFP) that would have precluded restoration prior to boiling, a fuel handling error, or loss of SFP inventory. The finding had a cross-cutting aspect in the area of Human Performance, Work Practices, in that PPL did not use human error prevention techniques commensurate with the risk of the assigned task nor did personnel stop work in the face of uncertainty.

Inspection Report# : 2011004 *(pdf)*

Significance: G Nov 08, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Surveillance Procedure Results in Missed Technical Specification Surveillance Requirements for Secondary Containment
An NRC-identified Green NCV of Susquehanna Unit 1 and 2 TS 5.4.1, "Procedures," was identified for an inadequate surveillance procedure for implementing Technical Specifications (TS) Surveillance Requirement (SR) 3.6.4.1.4 and 3.6.4.1.5. Specifically, the implementing procedure was revised allowing the SR to be missed and subsequently required entry into SR 3.0.3. PPL entered this issue in their CAP as CR 1460362.

The finding is more than minor because it was similar to example 3.d in IMC 0612 Appendix E, "Examples of Minor Issues" in that the failure to implement the TS SR as required is not minor if the surveillance had not been conducted. In this case, the SR had not been completed for all configurations of secondary containment and required both Unit 1 and Unit 2 to enter SR 3.0.3 for a missed surveillance. Additionally, it is associated with the procedure quality attribute to maintain functionality of containment and the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the inadequate surveillance procedure resulted in missed surveillances, SRs 3.6.4.1.4 and 3.6.4.1.5 and entry into SR 3.0.3 for missed surveillances. The finding was evaluated for significance using IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings." Since the finding only represented a degradation of the radiological barrier function provided for the reactor building (RB) (i.e. secondary containment), the finding was determined to be of very low safety significance (Green). This finding is related to the cross-cutting area of Human Performance – Resources because PPL did not ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. Specifically, the procedures did not ensure surveillance requirements (SRs) required by TS 3.6.4.1 were implemented.

Inspection Report# : 2011004 *(pdf)*

Significance: SL-IV Nov 08, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inaccurate RCS PI Data Submittal
An NRC-identified SL-IV NCV of 10 CFR 50.9(a), “Completeness and Accuracy of Information,” occurred when PPL inaccurately reported reactor coolant system (RCS) leakage values under the RCS leakage performance indicator (PI) for both units since inception of the PI in April 2000. PPL entered the issue in their CAP as CR 1441824, completed an apparent cause evaluation, and plans to revise PI data previously submitted. No performance indicator crossed the Green/White threshold once the values were updated.

Because violations of 10 CFR 50.9 are considered to potentially impede or impact the regulatory process, they are dispositioned using the traditional enforcement process. The inspectors concluded that PPL had reasonable opportunity to foresee and correct the inaccurate information prior to the information being submitted to the NRC. PPL's failure to identify and correct the recurring errors over this period of time indicated the existence of a programmatic issue. Additionally, verification of the corrected PI data in a subsequent inspection will have more than an insignificant regulatory impact on the NRC. Accordingly, although none of the affected PIs in this case would have crossed the threshold, the NRC has determined that the violation is of more than minor significance. The finding was not considered to be more significant since had this information been accurately reported, it would not have likely caused the NRC to reconsider a regulatory position or undertake a substantial further inquiry. The significance of the associated performance deficiency was screened against the ROP per the guidance of Manual Chapter 0612, Appendix B. No associated ROP finding was identified and no cross-cutting aspect was assigned
Inspection Report# : 2011004 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Surveillance Procedure Results in Failure to Meet Required Action of Technical Specifications for Secondary Containment Isolation Valves
The inspectors identified a Green NCV of Susquehanna Unit 1 and 2 TS 3.6.4.2, “Secondary Containment Isolation Valves” and TS 5.4.1, “Procedures” for an inadequate surveillance procedure for implementing TS Surveillance Requirements and Action Statements. Specifically, the procedure failed to ensure that SCIVs were verified administratively when in a high radiation areas as required. PPL entered this issue in their CAP as 1421356 and 1431750.

The finding is more than minor because it was similar to example 3.d in IMC 0612 Appendix E, ”Examples of Minor Issues” in that the failure to implement a requirement of TSs is not minor if the action had not been conducted. In this case, the valves inside of high radiation areas had not been verified in their closed position as required by TS 3.6.4.2 Required Action A.2. Additionally, it is associated with the procedure quality attribute of the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the inadequate surveillance procedure resulted in a violation of TS 3.6.4.2, “SCIVs” since valves that were closed to isolate a pathway due to an inoperable blind flange were not verified in the correct position as required. The finding was evaluated for significance using IMC 0609, Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings.” Since the finding only represented a degradation of the radiological barrier function provided for the reactor building (RB) (i.e. secondary containment), the finding was determined to be of very low safety significance (Green). This finding is related to the cross-cutting area of Human Performance – Resources because PPL did not ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. Specifically, the surveillance procedures SO-000-010, Revision 23, “Monthly Zone III Integrity,” SO-100-010, Revision 24, “Monthly Zone 1 Integrity Verification” and SO-200-010, Revision 24, “Monthly Zone II Integrity Verification,” did not ensure surveillance requirements or actions statements required by TS 3.6.4.2 were implemented. (H.2(c)) (1R04)
Inspection Report# : 2011003 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

Last modified : March 02, 2012