

Perry 1

1Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: FIN Finding

FAILURE TO PROMPTLY COMPLETE HOT WEATHER PREPARATIONS

The inspectors identified a finding of very low significance when licensee personnel failed to complete tasks designed to prepare equipment for operation during high temperature conditions by March 30, 2006. The finding also affected the cross-cutting area of Human Performance because the licensee organization failed to effectively coordinate, plan, and schedule completion of summer preparation activities prior to the onset of hot weather.

This finding was more than minor because it was associated with the protection against external factors attribute of the initiating events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability. The finding was of very low safety significance because 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. No violation of NRC requirements occurred.

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

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO DEMONSTRATE SIMULATOR FIDELITY FOR STEADY STATE OPERATIONS

The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR 55.46, "Simulation Facilities," when licensee personnel failed to adhere to simulator fidelity requirements prescribed by ANSI/ANS-3.5-1998 for annual steady-state operation testing. Specifically, the licensee failed to provide adequate documentation that demonstrated that heat balance testing was performed and evaluated annually as required. The finding was related to the cross-cutting area of Problem Identification and Resolution because the licensee failed to thoroughly evaluate the simulator model limitations to address extent of condition concerns. The reviews and analyses did not fully analyze the impacts of simulator model limitations on previous testing or identify that some test results were not documented. The correction of the simulator model limitations was expected to be accomplished by a simulator model upgrade, scheduled for completion in July 2007.

The failure to evaluate and document simulator performance testing was more than minor because it affected the Mitigating Systems cornerstone and did not meet the requirements of 10 CFR 55.46 because of the realistic potential of providing negative training based on significant simulator deficiencies compared to the plant. The finding was considered to be of very low safety significance because it involved simulator fidelity and the simulator did not meet the performance requirements of 10 CFR 55.46 and had the potential to impact operator actions.

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

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT DEGRADED CONDITION OF THE REACTOR RECIRCULATION PUMP CO2 SYSTEM

The inspectors identified a finding of very low safety significance and an associated non-cited violation of License Condition C(6) for the failure to promptly correct the long-term recurring condition of insufficient CO2 tank level that was required to support the operability of the reactor recirculation pump CO2 system. The inspectors noted the reactor recirculation pumps' CO2 system did not meet fire protection requirements on several occasions since 2001 due to the same failure mechanism. The primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution because the licensee failed to take appropriate corrective actions to address the recurring condition of low tank level in a timely manner. As part of their immediate corrective actions, the licensee restored tank CO2 level to restore system operability and performed maintenance on the CO2 tank to stop the CO2 leak.

This finding was more than minor because it was associated with the Protection Against External Factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined through a Significance Determination Process analysis to be of very low safety significance because of safety functions that were assumed to remain available in the event of a reactor recirculation pump fire even though the finding was assigned a high degradation rating due to inadequate agent concentration required for deep seated fires.

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

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: FIN Finding

MINIMUM PUMP FLOW SETTING NOT SUFFICIENT FOR UNLIMITED OPERATION

The inspectors identified a finding of very low safety significance associated with the minimum flow settings for the high pressure core spray, low pressure core spray, and residual heat removal pumps. Bulletin 88-04 identified that many pump minimum flow values were too low because they did not account for flow instability concerns. The inspectors identified that when licensee personnel addressed this operating experience item, they failed to properly verify the minimum flow settings with the pump manufacturer in accordance with the bulletin. The licensee's corrective actions included having the manufacturer perform a new analysis, which concluded that the existing minimum flow settings did not allow continuous operation of the pumps, and provided a monitoring and maintenance schedule based on the minimum flow values in order to promptly detect degradation. This performance deficiency was entered into the licensee's corrective action program for resolution. No violation of NRC requirements was identified.

This finding represented a performance deficiency because the licensee did not verify with the manufacturer that the minimum flow settings for these safety-related pumps were acceptable. The finding was more than minor because these pumps were operated since original plant start-up with an increased potential for unusual wear and aging without establishing increased monitoring and maintenance, or other compensatory actions and, therefore, was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and impacted the cornerstone objective of ensuring the availability and reliability of safety-related pumps. The finding was of very low safety significance based on the results of the licensee's analysis and screened as Green using the Significant Determination Process Phase 1 screening worksheet.

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

Significance:  Dec 15, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to provide full electrical isolation in the design of the post-fire safe shutdown control logic circuitry

The team identified a NCV of the Perry 1 Nuclear Power Plant Facility Operating License Condition 2.C.(6) and 10 CFR Part 50, Appendix R, Section III.L.3, having very low safety significance (Green), for failure to provide the required electrical isolation in the design of the post-fire safe shutdown control logic circuitry. Specifically, the control logic for Emergency Service Water Pump Discharge Shutoff Valve 1P45F0130A, did not have a transfer switch isolation contact provided, that would open to isolate main control room (MCR) fire-induced electrical faults when transferring controls to the remote shutdown location. This is required to ensure that postulated fire-induced electrical faults would not result in the loss of post-fire alternative safe shutdown equipment. The licensee's immediate corrective action was to perform an extensive evaluation of the associated circuitry and cables, to contact the panel's vendor, and other BWR6 plants, and to perform an extent of condition review. The licensee entered the issue into the corrective action program as CR 06-11399.

The finding was more than minor because it was associated with the mitigating systems cornerstone attribute of protection against external factors (fire) and had the potential to impact the mitigating systems cornerstone objective of ensuring the

capability of systems, that respond to initiating events to prevent undesirable consequences. The violation is associated with degradation of a fire protection feature. Using Part 1 of the Inspection Manual Chapter 0609, fire protection Significance Determination Process Phase 1 Worksheet, the performance issue was determined to be in the post-fire safe shutdown category. The degradation rating was low based on FirstEnergy Nuclear Operating Company's (FENOC's) engineering evaluation that concluded that there were no fire induced electrical faults resulting from a MCR fire that would prevent the plant from achieving and maintaining a safe shutdown in the event of a control room fire. Therefore, the finding screens as Green or of very low safety significance in the Phase 1 Worksheet. This violation is being treated as a NCV consistent with Section VI.A of the Enforcement Policy (Section 1R05.4). The cause of the finding related to cross-cutting aspect of problem identification and resolution.

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

Significance:  Dec 15, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to evaluate the floor drain capacity in the division 1 and 2 cable spreading rooms

The team identified a NCV of the Perry 1 Nuclear Power Plant Facility Operating License Condition 2.C.(6) having very low safety significance (Green) for failing to implement and maintain in effect all provisions of the approved fire protection program as described in section 9A.5, D.1.(i) of the Updated Safety Analysis Report (USAR). The USAR stated that floor drains were designed to remove the expected fire fighting water flow from areas where fixed fire suppression systems were installed or where a fire hose may be used. The team identified that the licensee failed to evaluate the water flow capacity of the floor drains in the Division 1 and 2 cable spreading rooms.

The finding was more than minor because it affected a cornerstone objective. The finding was associated with the Mitigating System cornerstone attribute of protection against external factors (i.e., flood hazard) and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events, (i.e., flood hazard) to prevent undesirable consequences. The finding was of very low safety significance due to the fact that internal flooding would not result in the total loss of any safety function because the loss of safety related equipment in one division cable spreading room would not affect the safety related equipment in the other division cable spreading room. (Section 1R05.10)

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

Significance:  Dec 13, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

IMPROPER FUSE REMOVAL DURING CLEARANCE HANGING

A finding of very low safety significance and a non-cited violation of Technical Specification 5.4, "Procedures," was self revealed after licensee personnel failed to adhere to clearance procedures affecting the Division 1 emergency diesel generator (EDG) room ventilation system. While performing a clearance instruction, licensee personnel erroneously removed a fuse that disabled a required remote shutdown function associated with the Division 1 EDG ventilation system. The error was discovered during the clearance restoration process. As part of their immediate corrective actions, the licensee counseled involved personnel regarding procedure adherence expectations. The finding affected the cross-cutting area of human performance because licensee personnel failed to follow the established decision-making process when faced with the decision to remove a fuse that was not listed on the clearance instruction.

The finding was more than minor because the failure to adhere to procedures associated with the maintenance of safety-related equipment, if left uncorrected, could become a more significant safety concern. In this case, the removal of a fuse contrary to the clearance procedure affected the remote shutdown capability of the Division 1 EDG. Because the finding only affected the remote shutdown operations capability of the EDG, the finding was determined to be of very low safety significance.

Inspection Report# : [2006017](#) (pdf)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROMPTLY CORRECT A TESTING DEFICIENCY AFFECTING A REACTOR CORE ISOLATION COOLING REMOTE SHUTDOWN SYSTEM FUNCTION

The inspectors identified a finding of very low safety significance and an associated non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," following a review of Licensee Event Report 05000440/2006-001-00, "Incorrect Wiring in the Remote Shutdown Panel Results in a Fire Protection Program Violation," which identified that licensee personnel failed to correct a test deficiency associated with the remote shutdown circuit in a timely manner. The test deficiency was identified on September 9, 2003. The licensee corrected a wiring error and adequately tested the circuit on January 17, 2006. As part of their corrective actions, in addition to correcting the wiring error, licensee personnel performed an extent of condition review, which did not identify any additional wiring errors. The primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution because licensee personnel failed to appropriately evaluate the significance of the issue when the test deficiency was identified and therefore failed to appropriately prioritize and implement corrective actions in a timely manner.

This finding was more than minor because it was associated with the equipment performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding affected the reliability of the reactor core isolation cooling system during a control room fire scenario. The finding was determined through a Significance Determination Process Phase 3 analysis to be of very low safety significance due, in large part, to the low initiating event frequency of fires in the main control room as well as the availability of other mitigating systems. Inspection Report# : [2006003](#) (*pdf*)

Significance: **W** Dec 31, 2003

Identified By: NRC

Item Type: VIO Violation

INADEQUATE LPCS/RHR 'A' FILL AND VENT PROCEDURES RESULTS IN SYSTEM INOPERABILITY AFTER LOSS OF OFFSITE POWER

An apparent self-revealed violation of Technical Specification 5.4 occurred when the waterleg pump for low pressure core spray (LPCS) and residual heat removal (RHR) 'A' became air bound following a loss of offsite power. Subsequent investigation revealed that the procedures for venting these systems did not include the high point vent valve on the discharge of the pump, thus allowing gas to accumulate in a vertical section of system piping. When the waterleg pump lost power on August 14, 2003, the accumulated gas expanded and caused voiding of the pump. As a result, both LPCS and RHR 'A' were rendered inoperable.

The NRC assessed this finding through Phase 3 of the Significance Determination Process and made a preliminary determination that it is an issue with low to moderate safety significance.

After considering the information developed during the inspection, the NRC has concluded that the inspection finding is appropriately characterized as White (i.e., an issue with low to moderate increased importance to safety) and a final Significance Determination Process letter was issued on March 12, 2004, and will be inspected within the scope of a supplemental 95002 inspection in May 2004.

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

Inspection Report# : [2005003](#) (*pdf*)

Significance: **W** Sep 30, 2003

Identified By: NRC

Item Type: VIO Violation

IMPROPER MAINTENANCE CAUSES EMERGENCY SERVICE WATER PUMP FAILURE

A self-revealed apparent violation of Technical Specification (TS) 5.4 occurred when the Division 1 emergency service water (ESW) pump failed during routine pump operation. The licensee rebuilt the pump in 1997 and during this reassembly, failed to properly reassemble the pump shaft connections. The improper reassembly led to pump failure on September 1, 2003.

The NRC assessed this finding through Phase 3 of the Significance Determination Process and made a preliminary determination that it is an issue with low to moderate safety significance. On January 28, 2004, a final significance

determination letter was issued which characterized this issue as white.

On March 14, 2006, the NRC completed a CAL Followup Inspection in the IP 95002 Issues area that reviewed selected commitments and action items described in the Perry Phase 2 PII Detailed Action and Monitoring Plan (DAMP) and your August 8 and August 17, 2005, letters. In the area of ESW Pump Coupling Assembly Concerns, no findings of significance were identified and we concluded that your corrective actions have been effective. In particular, you have established an adequate Quality Control Inspection Point Assignment Program and have effectively implemented this program.

On August 15, 2006, the NRC completed a CAL Followup Inspection in the area of ESW Pump Coupling Assembly Concerns. No findings of significance were identified and we concluded that corrective actions have been effective. In particular, an adequate Quality Control Inspection Point Assignment Program have been established and this program has been effectively implemented.

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

Inspection Report# : [2005003](#) (*pdf*)

Inspection Report# : [2006007](#) (*pdf*)

Inspection Report# : [2006014](#) (*pdf*)

Barrier Integrity

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

NON-NRC APPROVED CODE USED IN FLAW EVALUATION OF AN ASME CLASS 3 SYSTEM

The inspectors identified a finding a very low safety significance and an associated non-cited violation of 10 CFR 50.55(a)(b)(5), "Codes and Standards," for the failure to appropriately implement American Society of Mechanical Engineers (ASME) Section XI Code Cases in the operability evaluation of a through-wall leak on a Class 3 component. Specifically, the licensee identified a through-wall leak on an emergency service water (ESW) pipe weld on the outlet of the 'B' emergency closed cooling heat exchanger. The piping was ASME Code Class 3 and the licensee applied Code Case N-513-2, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Piping," for flaw acceptance in lieu of a Code repair. This Code Case was not approved in Regulatory Guide 1.147 and therefore could not be used without prior NRC approval. Subsequently, when Code Case N-513-1 was used, the licensee did not account for all flaws in the leaking pipe section. The primary cause of this finding was related to the cross-cutting area of Human Performance because licensee personnel were not trained adequately to recognize the inappropriate implementation of the Code (H.2(b)). As part of their immediate corrective actions, licensee personnel revised the flaw analysis to account for all flaws in the affected pipe section and the licensee concluded that the structural requirements of Section XI were met.

The finding was more than minor because the failure to appropriately implement Code requirements in the operability evaluation of through-wall leaks in safety system piping was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone 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). This finding was determined to be of very low safety significance because the revised flaw characterization and flaw analysis determined that the structural integrity of the pipe met Code acceptance limits.

Inspection Report# : [2007002](#) (*pdf*)

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

PROCEDURES INAPPROPRIATE TO CIRCUMSTANCES FOR DEGRADED CONTAINMENT LOWER AIRLOCK INNER DOOR SEAL SYSTEM

The inspectors identified a finding of very low safety significance and a non-cited violation of Technical Specification 5.4, "Procedures," during a review of the containment airlock system. Specifically, the inspectors identified that the licensee had failed to implement airlock test and maintenance procedures that were appropriate to the circumstances when the lower airlock seal system was found to be degraded and subject to frequent failure. The primary cause of this finding was related

to the cross-cutting area of Problem Identification and Resolution because licensee personnel failed to implement internal operating experience through changes in station processes, procedures, or equipment to address the frequent failures of the lower airlock seal system (P.2(b)). As part of their immediate corrective actions, the licensee initiated a procedure review to determine appropriate torque values and test frequencies for the affected valves. As a long-term corrective action, the licensee planned to replace all affected valves.

The finding was more than minor because it was associated with the Containment Procedure Quality attribute of the Barrier Integrity cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Because the lower airlock outer door containment barrier was determined to be available during the periods when the inner door barrier was affected, the finding was determined to be of very low safety significance.

Inspection Report# : [2007002](#) (*pdf*)

Significance: G Dec 13, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

INADEQUATE REPAIRS TO OUTER LOWER CONTAINMENT AIRLOCK

A finding of very low safety significance and an associated non-cited violation of Technical Specification 5.4.1.a, "Procedures," was self-revealed when the lower outer containment airlock door failed to close as a result of improper maintenance on the door about 3 months prior to the failure. As part of the licensee's immediate corrective actions, the door was repaired and the event was discussed with involved maintenance personnel.

This finding was greater than minor because the finding was associated with the Human Performance attribute of the Barrier Integrity cornerstone and adversely impacted the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents. The inspectors determined that the issue was of very low safety significance because the finding did not represent an actual open pathway in the physical integrity of reactor containment, or involve an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of the reactor containment. This finding had a cross-cutting aspect in the area of human performance because licensee personnel failed to appropriately plan work activities to incorporate the need for planned contingencies, compensatory actions, and abort criteria.

Inspection Report# : [2006015](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

