Perry 1
3Q/2007 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
IMPROPER STORAGE OF COMBUSTIBLE MATERIAL
The inspectors identified a finding of very low significance and an associated non-cited violation of the operating license section C(6) for the storage of transient combustible material in the Turbine Building 620' elevation. Specifically, on May 7 and May 16, 2007, the inspectors identified several acetylene and oxygen cylinders as well as other combustible material in the area that exceeded the fire hazards analysis for the fire zone. The primary cause of this finding was related to the cross-cutting area of Human Performance per Inspection Manual Chapter 0305 H.4(b) because the licensee failed to properly communicate expectations regarding procedural compliance that specified combustible loading of the fire zone. As part of their immediate corrective actions, licensee personnel removed the excess combustible material from the area and entered the issue into their corrective action program.

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. Specifically, the combustible storage amount exceeded the licensee's fire hazard analysis limits. The finding was determined to be of very low safety significance because the inspectors determined that the combustible materials of significance, that exceeded the fire hazards analysis limits, were in approved containers.

Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 30, 2007
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO IMPLEMENT APPROPRIATE PROCEDURE IN REASSEMBLY OF REACTOR CORE ISOLATION COOLING PIPING
A finding of very low safety significance and a non-cited violation of Technical Specification 5.4, "Procedures," was self-revealed when reactor water level indication was lost while the reactor was shut down on May 5, 2007. Specifically, licensee personnel failed to implement appropriate procedures in the re-assembly of reactor core isolation cooling head spray piping during a 1993 refueling outage. This resulted in leakage from a flange connection that affected the reference leg of the reactor shutdown and upset range level indication system, which caused a loss of reactor level indication. As part of their immediate corrective actions, licensee personnel repaired the flange, restored reactor water level indication, and entered the issue into the corrective action program.

The finding was more than minor because it was associated with the equipment performance attribute of the reactor safety Initiating Events cornerstone and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the finding resulted in a loss of reactor water level indication. The finding was determined to be of very low safety significance because the inspectors determined that it did not result in a loss of control of reactor water level and it did not affect decay heat removal systems.
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: FIN Finding
MAIN TURBINE GENERATOR TRIPPED ON REVERSE POWER

A finding of very low safety significance was self-revealed when, during reactor power ascension after a refueling outage, the main turbine generator tripped on reverse power on May 13, 2007. The primary cause of this event was licensee personnel's failure to appropriately install an electro-hydraulic control (EHC) circuit card following maintenance. The primary cause of this finding was related to the cross-cutting area of Human Performance per Inspection Manual Chapter 0305 H.4(a) because the organization failed to properly communicate human error prevention techniques for proper insertion of the control cards. As part of their immediate corrective actions, licensee personnel repaired the installation of the affected card and also repaired the installation of several other EHC system cards that were subsequently identified by the licensee as incorrectly installed. The licensee entered the issue into their corrective action program.

This finding was considered more than minor because it was associated with the availability and reliability of equipment attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability. Specifically, the finding resulted in a turbine trip. The finding was determined to be of very low safety significance because it did not affect the likelihood that mitigation equipment or functions would be available. No violation of NRC requirements occurred.
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 30, 2007
Identified By: NRC
Item Type: FIN Finding
REACTOR SCRAMMED ON LOW REACTOR WATER LEVEL
A finding of very low safety significance was self-revealed when, during post-modification testing of the feedwater system after a refueling outage, the reactor scrammed on low reactor water level on May 15, 2007. The primary cause of this event was the licensee's failure to appropriately control the implementation of a digital feedwater control system design modification. Specifically, the licensee installed the modification with a control system software logic that was contrary to plant design and this resulted in a loss of feedwater flow to the reactor. The primary cause of this finding was related to the cross-cutting area of Human Performance per Inspection Manual Chapter 0305 H.3(a) because the organization failed to properly plan work activities that incorporated insights to risk. As part of their immediate corrective action, the licensee revised the digital feedwater control system software and entered the issue into their corrective action program.

This finding was considered more than minor because it was associated with the availability and reliability of equipment attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability. Specifically, the finding resulted in a reactor scram. The finding was determined to be of very low safety significance because it did not affect the likelihood that mitigation equipment or functions would be available. No violation of NRC requirements occurred.
Inspection Report# : 2007003 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2007
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
FAILURE TO FOLLOW PROCEDURES DISABLES EMERGENCY DIESEL OVERSPEED TRIP
A finding of very low safety significance and a non-cited violation of Technical Specification 5.4, "Procedures," was self-revealed when the Division 2 emergency diesel generator failed to trip during surveillance testing on August 20, 2007. Specifically, operators failed to position an overspeed trip reset valve in accordance with diesel startup procedures on August 19, 2007, and this disabled the essential overspeed trip function of the diesel. The primary cause of this finding was related to the cross-cutting area of Human Performance per Inspection Manual Chapter 0305 H.4(b) because the licensee failed to communicate and use human error prevention techniques commensurate with the risk of the assigned task. As part of their immediate corrective actions, licensee personnel restored the diesel to the appropriate equipment alignment and conducted additional training for operators on procedure adherence.

The finding was more than minor because it was associated with the Human Performance attribute of the reactor safety 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. Specifically, the finding adversely affected an essential trip feature designed to protect the diesel from an overspeed condition. The finding was determined to be of very low safety significance because it was determined not to represent a loss of safety function.
Inspection Report# : 2007004 *(pdf)*

Significance: G 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: G 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: G 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: G 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: G 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: G 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)*

Barrier Integrity

Significance: G 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: G 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

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 : December 07, 2007