

# Fermi 2

## 2Q/2008 Plant Inspection Findings

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### Initiating Events

**Significance:**  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Expand Scope of Pipe Support Hanger Examinations**

The inspectors identified a Green NCV of 10 CFR 50.55a(b)5 for failure to perform additional pipe support examinations required by the American Society of Mechanical Engineers Code following adjustments to spring can settings on reactor water cleanup system support hanger G33-3096-G10. As a corrective action, the licensee performed a review of past pipe support examinations and identified ten similar examples (including support G33-3096-G10) and performed evaluations to confirm these pipe supports were operable.

This finding was of more-than-minor significance because the finding could be reasonably viewed as a precursor to a significant event involving leakage from the reactor coolant system or attached support systems. In addition, the finding was associated with the Initiating Events Cornerstone attribute of "Equipment Performance," and affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors applied the IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for the At-Power Situation," to this finding. The inspectors answered "no" to question 1 of the Initiating Events Cornerstone column of the phase 1 worksheet which asked, "Assuming worst case degradation, would the finding result in exceeding the Technical Specification limit for identified reactor coolant system leakage?" In this case, the worst case degradation would be leakage from fatigue cracks caused by inadequately supported piping. Because this issue was identified by the NRC prior to fatigue failure of Code piping components, this scenario did not occur. Therefore, the inspectors answered "no" to this question and the finding was determined to be of very low safety significance (Green). The primary cause of this finding was related to the cross-cutting area of Human Performance, Work Control Component (Item H.3(b) of IMC 0305) because the licensee failed to appropriately coordinate work activities between onsite work groups.

Inspection Report# : [2007006 \(pdf\)](#)

**Significance:**  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Inadequate Work Planning for Shield Block Wall Removal**

A self-revealed NCV of 10 CFR 50.65(a)(4) was identified for the failure to adequately assess the increased risk associated with the removal of shield blocks in the turbine building. After the licensee removed the shield blocks, the airflow in the turbine building was altered which caused steam tunnel temperatures to approach the main steam isolation valve closure trip set point. After operators identified the increased temperatures during routine rounds, the licensee installed a temporary barrier over the opening in the wall which restored normal ventilation flow throughout the building as immediate corrective actions. Consequently, steam tunnel temperatures returned to normal.

This finding was more than minor because had the risk assessment correctly recognized the potential for uncontrolled temperature increase leading to a plant trip, additional risk management actions that eventually needed to be taken would have been prescribed. This finding was of very low safety significance because although a reactor scram could have occurred, it had no affect on the availability of mitigation equipment or functions. The inspectors determined the finding was associated with cross-cutting aspect H.3(a), Human Performance, Work Control.

Inspection Report# : [2007006 \(pdf\)](#)

**Significance:**  Dec 31, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

### **Transient During Testing of #5 Low Pressure Stop Valve**

A self-revealed finding was identified for the failure to operate the plant in accordance with the documented instructions while performing a maintenance activity on the number 5 low pressure stop valve, which resulted in an unplanned power transient caused by the inadvertent opening of the main turbine bypass valves. The operators immediately stabilized the plant. Corrective actions taken by the licensee included performance management (coaching) of the involved personnel.

This finding was more than minor because the failure to follow procedures led to an unplanned power transient. This finding was of very low safety significance because although an unplanned power transient occurred, it had no effect on the availability of mitigation equipment or functions. The inspectors determined the finding was associated with a cross-cutting aspect in the area of Human Performance, Work practices, because licensee personnel failed to follow written procedures when manipulating plant equipment (H.4(b)). No violation of NRC requirements occurred.

Inspection Report# : [2007006](#) (pdf)

**G**

**Significance:** Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Improper Valve Operation Caused Reactor Scram**

A self-revealed NCV of Technical Specification 5.4.1.a was identified for the failure to perform a maintenance activity in accordance with the documented instructions which resulted in an unplanned scram from nine percent power. During a maintenance tagging activity, an operator inappropriately manipulated a valve in the open direction while verifying it was fully closed. The brief valve opening caused an unanticipated reactor water level reference leg pressure perturbation which was sensed as a drop in reactor water level, thereby initiating an alternate rod insertion on a reactor water level 2 signal. Operators immediately placed the mode switch in shutdown which completed the reactor scram. Corrective actions taken by the licensee included performance management (coaching) of the involved personnel and sharing the lessons learned from this event with other plant personnel.

This finding was more than minor because the inappropriate valve operation led to a reactor scram. This finding was of very low safety significance because although a reactor scram occurred, the scram had no effect on the availability of mitigation equipment or functions. The inspectors determined the finding was associated with cross-cutting aspect H.4(b), Human Performance, Work Practices.

Inspection Report# : [2007006](#) (pdf)

**G**

**Significance:** Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadvertent RPS Undervoltage Trip**

A self-revealed NCV of 10 CFR 50.65(a)(4) was identified for the failure to appropriately assess the risk associated with removing the Reactor Protection System (RPS) from its normal power source. During refueling outage 12, the licensee placed RPS 'B' on its alternate power source to perform maintenance while RPS 'A' was out of service for maintenance. The licensee later started a residual heat removal pump while in this configuration which caused a voltage drop on the electrical bus powering RPS 'B'. The voltage drop caused RPS 'B' to trip on undervoltage which caused several system isolations including one system that was being relied upon as a method of decay heat removal. Corrective actions included revising the pertinent procedures to include a caution about not starting a residual heat removal pump while RPS was being powered from its alternate power source.

This finding was more than minor because had the risk assessment correctly recognized the potential for the loss of a shutdown key safety function, additional risk management actions to preclude such a loss would have been prescribed. This finding was of very low safety significance because it did not affect the ability of operators to restore decay heat removal and the increase in average reactor coolant system temperature was negligible.

Inspection Report# : [2007006](#) (pdf)

**Significance:**  Sep 14, 2007

Identified By: NRC

Item Type: FIN Finding

### **failure to maintain adequate maintenance procedures to clean the '2B' Main Unit Transformer**

A finding involving the failure to maintain adequate maintenance procedures to clean the '2B' Main Unit Transformer was self-revealed during an event. The procedure did not contain adequate controls over the removal of the cooling fans from service with the transformer energized. As a result, the licensee removed too many coolers which caused localized overheating subsequently resulting in the transformer failure, turbine trip, and reactor scram. The licensee entered the issue into their corrective action program as CARD 06-24046 and created procedures for cleaning the transformers. The inspectors determined that the finding was associated with cross-cutting aspect H.2(c), Human Performance - Resources.

This finding was determined to be more than minor because the improper transformer cleaning resulted in a reactor scram. This finding was determined to be of very low safety significance because it did not contribute to the likelihood that mitigation equipment or functions would not be available. No violation of regulatory requirements was identified

Inspection Report# : [2007007](#) (*pdf*)

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## **Mitigating Systems**

**Significance:**  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Properly Maintain Plant Flooding and Pipe Break Design Basis Requirements**

A finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to ensure the design basis flooding and pipe break criteria were properly incorporated into drawings, procedures, and instructions. Specifically, the inspectors identified three examples of where the failure to either install or properly control flood mitigation barriers could have adversely impacted safety-related equipment during a postulated medium energy pipe break. The licensee entered this issue into their corrective action program. Immediate corrective actions included the installation of barriers to mitigate postulated pipe breaks.

This finding was more than minor because the performance deficiency rendered the Division I AC power sources inoperable. This finding was of very low safety significance because the risk significance due to external events (flooding) and large early release fraction was very low.

Inspection Report# : [2008003](#) (*pdf*)

**Significance:**  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Properly Maintain Configuration Control of Pipe Spray Shrouds**

A finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to ensure the configuration of spray shrouds was properly controlled. The inspectors identified four locations where the shrouds were not properly secured. The licensee had unstapled the shrouds to install temporary flow meters on the pipes but did not re-staple the shrouds upon completion of the work. The licensee entered this issue into their corrective action program. Immediate corrective actions included re-securing the affected spray shrouds.

This finding was more than minor because the performance deficiency contributed to the failure to re-secure the spray shrouds in four locations which would have impacted the ability of the shrouds to perform their function. This finding was of very low safety significance because the risk significance due to external events (flooding) and large early release fraction was very low. The inspectors identified a cross-cutting aspect in the area of Human Performance, Work Control, H.4(a).

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**Significance:** Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Undocumented Technical Basis for Change to EOP ATWS Mitigation Strategy**

The inspectors identified a finding of very low safety significance and associated NCV of Fermi Unit 2 Technical Specification (TS) 5.4.1, for failing to maintain adequate procedures for implementing the emergency operating procedures (EOPs). Specifically the licensee developed and implemented a procedure (flowchart) that altered an EOP mitigation strategy without establishing and documenting the technical basis for the deviation from the Boiling Water Reactor Owners Group (BWROG) Emergency Procedure Guidelines (EPG). The licensee entered the issue into their corrective action program. Licensee corrective actions included revision of the flowchart to bring the mitigation strategy into alignment with the BWROG EPG.

This issue is associated with the Procedure Quality attribute of the Mitigating Systems cornerstone and is more than minor in that the licensee implemented an EOP mitigation strategy that deviated from the BWROG EPG without providing adequate technical justification for the deviation, thereby affecting the cornerstone objective of ensuring that the licensee is capable of mitigating the undesirable consequences associated with an anticipated transient without scram (ATWS). The finding was determined to be of very low safety significance because no actual event or transient requiring use of the deficient procedure occurred while the deficient procedure was in effect.

Inspection Report# : [2008003](#) (pdf)

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**Significance:** May 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Ensure Air Supply Tubing for Safe Shutdown Valves Free of Fire Damage**

A finding of very low safety significance and an associated Non-Cited Violation (NCV) of the Fermi 2 Facility Operating License Condition 2.C(9), for the fire protection program, was identified by the inspectors for the licensee failure to ensure that one redundant train of systems necessary to achieve and maintain hot shutdown conditions was free of fire damage during the process of implementing a plant modification. Specifically, the licensee failed to ensure that the air supply and its associated tubing for safe shutdown air operated valves T4901F468 and T4901F469 was free of fire damage for III.G.2 fire zones. The modification was lacking thorough review of the separation requirement specified in Appendix R. As a result, subsequent walkdown and analysis were required to verify that the air tubing associated with the above valves was not routed through the fire zone of concern.

The finding was more than minor because it affected the mitigating systems cornerstone attribute of protection against external factors (fire) and it impacted the objective of the mitigating systems cornerstone. Specifically, spurious closure of the above air operated valves due to loss of air could have rendered the Division II SRVs inoperable and could have complicated plant safe shutdown. The finding was of very low safety significance because the inspectors answered "no" to all five questions under the Mitigating Systems Cornerstone Column of the Phase 1 worksheet.

Inspection Report# : [2008006](#) (pdf)

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**Significance:** May 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **High Pressure Coolant Injection Room Sprinkler System Failed to Protect Against Hazard**

A finding of very low safety significance and an associated NCV of the Fermi 2 Facility Operating License Condition 2.C(9), for the fire protection program, was identified by the inspectors for the failure to ensure the adequacy of a sprinkler system in Fire Zone 03RB. Specifically, the licensee failed to ensure that the capability of the sprinkler system installed in High Pressure Coolant Injection (HPCI) pump and turbine room (Fire Zone 03RB) was adequate to protect against the identified lubricating oil hazard of the HPCI turbine. The licensee entered the issue into their corrective action program and established hourly fire watches in Fire Zone 03RB as a compensatory measure.

The finding was more than minor because it affected the mitigating systems cornerstone attribute of protection against

external factor (fire) and it impacted the objective of the mitigating systems cornerstone. The failure to ensure that the sprinkler system installed in Fire Zone 03RB protected against a fire involving the HPCI turbine impacted a defense and depth element of the fire protection program. The inspectors concluded that the finding was of very low safety significance because the majority of the mitigating systems were not being affected by the finding.

Inspection Report# : [2008006 \(pdf\)](#)

**Significance:**  May 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Reactor Core Isolation Cooling Room Sprinkler System Improperly Installed**

A finding of very low safety significance and an associated NCV of the Fermi 2 Facility Operating License Condition 2.C(9), for the fire protection program, was identified by the inspectors for the failure to install sprinkler system in accordance with the NFPA code of record. Specifically, the licensee failed to install three sprinkler heads located in the Reactor Core Isolation Cooling (RCIC) corner room in accordance with NFPA 13 Guidance in that the sprinkler deflectors were installed in excess of 12 inches below a smooth non-combustible ceiling. The licensee entered the issue into their corrective action program and established hourly fire watches in the RCIC fire zone as a compensatory measure. The finding has a cross-cutting aspect in the area of Human Performance, Decision Making, because the licensee did not use conservative assumptions in decision making in that evaluation FPEE-05-0020 failed to consider that activation of more distant sprinkler heads could result in preventable damage of other equipment. [H.1(b)]

The finding was more than minor because it affected the mitigating systems cornerstone attribute of protection against external factor (fire) and it impacted the objective of the mitigating systems cornerstone. Specifically the improper sprinkler installation impacted the defense and depth element of the fire protection program in the RCIC room in that it could have resulted in the delayed activation of the sprinkler system and an increased likelihood of damage to other safety-related equipment (i.e., Division 1 Core Spray pumps). The finding has a cross-cutting aspect in the area of Human Performance, Decision Making. The inspectors concluded that the finding was of very low safety significance because the majority of the mitigating systems were not being affected by the finding.

Inspection Report# : [2008006 \(pdf\)](#)

**Significance:**  May 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Lack of Basis for Diesel Fire Pump Temperature De-Rating**

A finding of very low safety significance and an associated NCV of the Fermi 2 Facility Operating License condition 2.C(9), for the fire protection program, was identified by the inspectors for the failure to provide a design basis for the general service water pump house (GSWPH) ambient temperature of 104°F used to evaluate the capacity of the diesel fire pump. The licensee entered the issue into their corrective action program and completed a preliminary analysis that showed the 104°F as a bounding value.

The finding was more than minor based on review of IMC 0612, “Power Reactor Inspection Reports,” Appendix E, “Examples of Minor Issues,” Example 3k. Specifically, the failure to provide a design basis for the assumed general service water pump house ambient temperature resulted in a reasonable doubt with regards to the functionality of the diesel fire pump because minimal margin for operability existed. The finding affected the mitigating systems cornerstone attribute of protection against external factor (fire) and it impacted the objective of the mitigating systems cornerstone. The inspectors concluded that the finding was of very low safety significance because the finding represented a low degradation since the functionality of the diesel fire pump was not affected.

Inspection Report# : [2008006 \(pdf\)](#)

**Significance:**  May 08, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Alternate Shutdown Procedure Failed to Identify Time-Critical Steps**

A finding of very low safety significance and an associated NCV of the Fermi 2 Facility Operating License Condition 2.C(9), for the fire protection program, was identified by the inspectors for the failure to have adequate shutdown

procedure in the event of a fire in any of the alternate shutdown areas. Specifically, Abnormal Operating Procedure (AOP) 20.000.18 "Control of the Plant from the Dedicated Shutdown Panel," did not specify the need to complete time-critical operator actions early in the procedure. Upon discovery, the licensee entered the issue into their corrective action program and revised procedure 20.000.18 and added an override caution note directed the operators to immediately perform the required steps in the event of multiple spurious operations of the SRVs.

The finding was more than minor because it affected the mitigating systems cornerstone attribute of procedure quality in the event of a fire and it impacted the objective of the mitigating systems cornerstone. Specifically, the failure to perform actions to mitigate the spurious opening of multiple SRVs in timely manor could have complicated plant shutdown in the event of a fire. The finding was of very low safety significance based on a phase 3 SDP evaluation completed by Region III senior reactor analyst (SRA) in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process."

Inspection Report# : [2008006](#) (pdf)

**Significance:**  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Properly Control High Pressure Gas Cylinders in Proximity to Safety-Related Equipment**

A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, was identified by the inspectors for the failure to properly control high pressure gas cylinders in proximity to safety-related equipment. The inspectors identified high pressure gas cylinders that were not seismically restrained whose failure during a seismic event could have damaged safety-related equipment. The licensee immediately removed the cylinders and walked down all other compressed gas cylinders to ensure they were adequately restrained. The licensee entered this issue into their corrective action program.

The finding was more than minor because no engineering evaluation was performed to assess the seismic impact on the gas cylinders and a later evaluation determined that safety-related equipment was potentially affected. The finding was of very low safety significance because the calculated change in core damage frequency was  $4.8E-7$  and there was no large early release frequency significance. The inspectors did not identify a cross-cutting aspect associated with this finding.

Inspection Report# : [2008002](#) (pdf)

**Significance:**  Dec 31, 2007

Identified By: NRC

Item Type: FIN Finding

### **High Failure Rate on Licensed Operator Requalification Examination**

A finding of very low safety significance was identified by the inspectors. The inspectors identified a performance deficiency based on licensed operators' failure to pass an NRC comprehensive biennial written examination. Of the 48 licensed operators evaluated, 10 did not pass their required biennial written examination.

The finding was more than minor because it reflects potential shortcomings in the ability to conduct routine operation/maintenance and respond to actual abnormal or emergency conditions. The finding is of very low safety significance because the operators were removed from watch-standing duties during the period in which the annual testing of the operators was conducted, there were no actual consequences due to the failures, and the associated operators were retrained and re-evaluated before they were authorized to resume the performance of licensed operator duties. Based on the licensee's successful remediation and subsequent re-testing of individuals who failed the examinations, no violation of regulatory requirements occurred. (Section 1R11.10)

Inspection Report# : [2007006](#) (pdf)

**Significance:**  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Maintain Configuration Control of the Reactor Core Isolation Cooling Pump**

A self-revealed NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified for the failure to properly maintain design control of the reactor core isolation cooling pump. The licensee replaced all four pump impellers in 1996 but failed to ensure the design documentation correctly identified the actual installed impeller diameters. As a result, one of the installed impellers was larger than specified on the design documents. When the licensee procured a new rotating assembly for installation in refueling outage 12, those design documents were used to specify the replacement impeller sizes. Consequently, one of the four replacement impellers was smaller than the one it replaced and the pump would not have been able to develop sufficient head to perform its intended safety function. Once identified, the licensee reinstalled the old rotating assembly and updated the design documents accordingly as immediate corrective actions.

This finding was more than minor because the incorrect design documents were used to procure an inadequately-sized impeller; the impeller was later installed in the pump; the undersized impeller adversely affected the operation of the pump; and the pump was returned to service prior to discovery of the problem. This finding was of very low safety significance because it did not represent an actual loss of safety function for greater than its Technical Specification allowable outage time because high pressure coolant injection remained available during all relevant periods.

Inspection Report# : [2007006](#) (*pdf*)

**Significance:**  Oct 19, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Procedures Not Appropriate to the Circumstances for Evaluating Potential Tampering**

Green: The inspectors identified a finding of very low safety significance and an associated Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when licensee personnel failed to establish a conduct of operations procedure appropriate to the circumstances for responding to potential tampering events. The conduct of operations procedure (MOP03) was deficient in that the guidance to inform security personnel of potential tampering events in a timely manner and develop actions to perform equipment walkdowns was inadequate.

The finding was of more than minor significance because this issue 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. The inspectors determined that the finding was not suited for SDP evaluation, but has been reviewed by NRC management and was determined to be a finding of very low safety significance. The finding was not greater than very low safety significance because operations personnel took the necessary actions, although untimely, to notify security personnel and perform appropriate actions. The inspectors determined the finding was associated with a cross-cutting aspect in the area of H.2(c), Human Performance, Resources, because the licensee did not establish an adequate procedure for involving security in a more timely manner for potential tampering events. (4OA3.A.1)

Inspection Report# : [2007010](#) (*pdf*)

**Significance:**  Oct 19, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Procedures Not Appropriate to the Circumstances for SRV Insulation Maintenance**

Green: The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," when licensee personnel failed to establish procedures appropriate to the circumstances for removing insulation from SRVs. On October 11, 2007, a drilled hole and other indentations were discovered on SRV tailpipe discharge piping caused during removal of riveted insulation while performing a maintenance procedure for SRV removal. The procedure was deficient in that it did not specify actions to prevent damage to the underlying piping while removing or installing insulation.

The finding was of more than minor significance because this issue 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. The finding represented a design or qualification deficiency that did not result in loss of operability; therefore, the finding screened as Green. The inspectors determined the finding was associated with a cross-cutting aspect in the area of H.2(c), Human Performance, Resources, because the licensee did not establish an adequate procedure for performing

maintenance on the SRVs. (4OA3.A.2.4)

Inspection Report# : [2007010](#) (*pdf*)

**Significance:**  Oct 19, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

**Design Specification Not Adhered to for Installation of Pop Rivets to Join SRV Thermal Shield Sections**

Green: The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to ensure that the design specifications for SRV tailpipe insulation were correctly translated into the maintenance procedure for SRV removal and installation. In particular, the design specification permitted the use of fasteners, such as buckles, but did not permit use of pop rivets.

The finding was of more than minor significance because this issue 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. The finding represented a design or qualification deficiency that did not result in loss of operability; therefore, the finding screened as Green. The inspectors determined the finding was associated with a cross-cutting aspect in the area of H.2(c), Human Performance, Resources, because the licensee did not establish adequate design control measures for the SRVs. (4OA3.A.5)

Inspection Report# : [2007010](#) (*pdf*)

**Significance:**  Sep 06, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

**EDG Cable Design Deficiency**

The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green) involving inadequate cable design. Specifically, the inspectors identified that the licensee failed to implement licensing and design basis requirements when specifying and purchasing safety-related and non-safety-related cables. The cables installed between the residual heat removal complex and the reactor building, which were located below the maximum ground water level, were not designed for continuous underwater service. The licensee performed an operability evaluation and concluded that the cables remained operable, but were non-conforming. The licensee entered this performance deficiency into their corrective action program for resolution. This finding also has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program because the licensee did not thoroughly evaluate the conditions identified in previous corrective action documents.

The finding was more than minor because the failure of these cables could prevent both onsite and offsite power from energizing safety-related busses and could have affected the mitigating systems cornerstone objective of design control. The finding was of very low safety significance based on the results of the licensee's analysis and screened as Green using the SDP Phase 1 screening worksheet.

Inspection Report# : [2007003](#) (*pdf*)

**Significance:**  Sep 06, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

**HPCI Vortex and NPSHA Calculations Were Not Based on Maximum System Flow Rate**

The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green) involving the available Net Positive Suction Head (NPSHA) and vortex calculation for the high pressure core injection (HPCI) pump. Specifically, the inspectors identified that the licensee failed to evaluate the effect of the system controller set point being set to control the HPCI flow at 5250 gallons per minute (gpm); whereas the calculation established the NPSHA and vortex limits based on the nominal system flow of 5000 gpm. There was not an operability issue, as the licensee verified through calculations that there was still a positive margin available to ensure the pump would function as designed. The licensee entered this performance deficiency into their corrective action program for resolution.



The finding was more than minor because the failure of the pump could have prevented the HPCI system from injecting water into the reactor vessel as required and could have affected the mitigating systems cornerstone objective of design control. The finding was of very low safety significance based on the results of the licensee's analysis and screened as Green using the SDP Phase 1 screening worksheet.

Inspection Report# : [2007003](#) (pdf)

**Significance:**  Sep 06, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

### **HPCI Pump IST Acceptance Criterion Was Not Conservative with Respect with the System Performance Requirements**

The inspectors identified a NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," having very low safety significance (Green) involving a non-conservative acceptance criteria used to verify that high pressure core injection (HPCI) pump could meet its Technical Specifications performance requirement. Specifically, the inspectors identified that the licensee failed to evaluate the effect of the instrument error. The licensee determined that the current acceptance criterion was non-conservative with respect to the system performance requirement. The licensee's review of previous test results identified that with the exception of one point, all previous tests conducted during past two and a half years exceeded the minimum required performance. The licensee entered this performance deficiency into their corrective action program for resolution with actions including addressing past reportability of the test point below the system performance requirement and development of the new acceptance criterion. This finding also has a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program because the licensee did not thoroughly evaluate the known low margin conditions existing in the system as noted in previous corrective actions documents. (P.1(c))

The finding was more than minor because the failure of the pump to provide its design flow could have prevented the HPCI system from performing its safety function and could have affected the mitigating systems cornerstone objective of design control. The finding was of very low safety significance based on the results of the licensee's analysis and screened as Green using the SDP Phase 1 screening worksheet.

Inspection Report# : [2007003](#) (pdf)

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## **Barrier Integrity**

**Significance:**  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Perform a Proper Engineering Evaluation on Replacing the Torus-to-Reactor Building Vacuum Breaker Differential Pressure Switches**

A self-revealing finding of very low safety significance and associated NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified for the failure to perform a proper engineering evaluation. The licensee replaced both differential pressure switches associated with two torus vacuum breakers with a different model than previously installed but failed to ensure the suitability of the replacement switches for use in the intended application. Once identified, the licensee replaced both switches with suitable components. The licensee entered this issue into their corrective action program.

This finding was more than minor because the licensee installed both torus vacuum breaker switches without testing them under normal operating conditions to ensure they would perform their intended function. Specifically, both vacuum breakers were unavailable to provide their low pressure relief function after operating under normal conditions. This finding was of very low safety significance because the calculated change in large early release frequency was 8.42E 8. The inspectors determined the finding was associated with cross-cutting aspect H.2(c), Human Performance, Procedures.

Inspection Report# : [2008002](#) (pdf)

**Significance:**  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

### **Licensee Procedures Failed to Contain Adequate Controls to Prevent Materials Stored on the Refuel Floor from Becoming Missiles During a Tornado Strike**

A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, was identified by the inspectors for the failure to maintain adequate procedures. Licensee procedures failed to contain adequate controls to prevent materials stored on the refuel floor from becoming missiles during a tornado strike that could damage spent fuel assemblies. The licensee entered this issue into their corrective action program, removed all non-essential items from the refuel floor, properly restrained other items, and developed requirements for storing materials on the refuel floor.

The finding was more than minor because the finding could be reasonably viewed as a precursor to a significant event. Specifically, the failure to properly restrain heavy objects on the refuel floor posed a credible missile hazard to the spent fuel during a tornado strike on the reactor building. The finding was of very low safety significance after management review because the limiting consequence from fuel damage was associated with the regulatory limits for the radiological dose to control room staff. The inspectors did not identify a cross-cutting aspect associated with this finding.

Inspection Report# : [2008002](#) (*pdf*)

**Significance:**  Sep 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Preventive Maintenance Deferral Evaluations**

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion V, "Procedures," for the failure to follow procedural requirements for evaluating a preventive maintenance deferral for a main steam line drain valve. The inadequate deferral evaluation contributed to the inadequate response to the valve failing to close which led to conditions warranting a Notification of Unusual Event. The licensee entered the issue into their corrective action program as condition assessment resolution document (CARD) 07-24284, increased the level of management oversight, revised procedures, and trained personnel. The inspectors determined the finding was associated with cross-cutting aspect H.4(b), Human Performance - Work Practices.

This finding was determined to be more than minor because the failure to properly evaluate a preventive maintenance deferral contributed to a significant event, specifically high radiation levels exceeding the emergency action level limit for a notification of unusual event. This finding was determined to be of very low safety significance because it did not represent a degradation of the control room barrier, an actual open pathway in the physical integrity of reactor containment, or an actual reduction in defense-in-depth for the atmospheric pressure control or hydrogen control functions of containment. (Section 1R15.b.1).

Inspection Report# : [2007005](#) (*pdf*)

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## **Emergency Preparedness**

**Significance:**  Oct 19, 2007

Identified By: NRC

Item Type: FIN Finding

### **Late NOUE Classification**

Green: The inspectors identified a finding of very low safety significance involving failure to follow the requirements of the Fermi 2 Radiological Emergency Response Preparedness (RERP) Plan during a Notice of Unusual Event (NOUE) level event on October 11, 2007. During this event, the control room crew received a report of possible tampering or vandalism in the owner controlled area from Security and failed to declare an NOUE in a timely manner.

The finding is greater than minor because it was associated with the Emergency Response Organization Performance attribute of the Emergency Preparedness cornerstone and affected the cornerstone objective of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was of very low safety significance because Fermi 2 failed to implement a risk significant planning standard (RSPS) in a timely manner during an actual NOUE. No violation of regulatory requirements was identified. The inspectors determined the finding was associated with a cross-cutting aspect in the area of H.4(b), Work Practices, Resources, because the licensee did not implement its emergency classification and action level scheme to classify an emergency when conditions warranted as required in the Fermi 2 RERP Plan in a timely manner. (4OA3.B.1)

Inspection Report# : [2007010](#) (pdf)

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## Occupational Radiation Safety

**Significance:**  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**An HRA was entered without adequate awareness of radiological conditions and without an RWP that allowed HRA entry.**

A self-revealed finding of very low safety significance and an associated NCV of regulatory requirements was identified for workers entering a high radiation area without an adequate awareness of radiological conditions and without performing work using a radiation work permit that allowed entry into a high radiation area. The electronic dosimetry worn by one of the workers alarmed when elevated dose rates were encountered. Corrective actions taken by the licensee included performance management (coaching) of the involved personnel. The licensee also performed additional communications to the plant population through informational notices and a site stand-down to reinforce that all workers ensure they read all posted signs and work on the correct radiation work permits.

The issue was more than minor because it was associated with the Program/Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. The issue represents a finding of very low safety significance because it did not involve as-low-as-is-reasonably-achievable (ALARA) planning or work controls, there was no overexposure or substantial potential for an overexposure given the radiological conditions in the area, nor was the licensee's ability to assess worker dose compromised. An NCV of Technical Specification 5.7.1.b was identified for entering a high radiation area without an adequate awareness of radiological conditions and without a radiation work permit that allowed access into a high radiation area. Additionally, this finding has a cross cutting aspect in the area of Human Performance because the radiation protection technician did not validate the intended work area and the workers did not perform a self check or peer check of the requirements needed before entering the high radiation area. (H.4(a)).

Inspection Report# : [2007006](#) (pdf)

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## 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.

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## Miscellaneous

**Significance:** N/A Sep 14, 2007

Identified By: NRC

Item Type: FIN Finding

**PI&R Summary**

In summary, the inspectors concluded that the corrective action process was generally effective at identifying and resolving issues as indicated by the conditions observed in the plant, process meetings observed, and the issues that had been entered in the process that inspectors reviewed. The licensee had program managers monitoring performance of the program and pursuing improved implementation. Operating experience was reviewed for plant applicability and also used in issue evaluations. The audit and self-assessment programs were functioning adequately, but had not identified some broad trends such as an NRC substantive crosscutting issue. The licensee periodically monitored the safety conscious work environment and results were acceptable and consistent with input to the corrective action process and employee concerns program. Two areas of concern were identified by inspectors based on issues in corrective action documents. Licensee staff had previously identified that there was acceptance of inadequate procedures and work instructions that inspectors concluded was continuing based on recent issues. Also, inspectors observed that some activities that required interfacing with off site organizations had problems due to lack of ownership by station personnel.

Inspection Report# : [2007007](#) (*pdf*)

Last modified : August 29, 2008