

## Fermi 2

# 3Q/2006 Plant Inspection Findings

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## Initiating Events

**Significance:**  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Maintenance Risk Assessment**

The inspectors identified a non-cited violation of 10 CFR 50.65(a)(4) for the failure to perform an adequate risk assessment for the Division I battery load test. The licensee failed to consider the effect the test would have on the temperature in the reactor protection system motor generator set rooms. Consequently, the load bank used for the test caused the room temperature to increase which necessitated the unanticipated installation of a temporary fan to cool the room. The licensee entered this issue into their corrective action program to evaluate any programmatic or procedural deficiencies that may have contributed to this event.

This finding is more than minor because the licensee's risk assessment failed to consider maintenance activities that could increase the likelihood of an initiating event, specifically a loss of shutdown cooling from a reactor protection system motor generator set trip on high temperature. The finding is of very low safety significance because it did not affect the ability of operators to recover from a loss of shutdown cooling if it had occurred. The cause of the finding is related to the cross-cutting element of Human Performance.

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

**Significance:**  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Control Transient Combustibles**

The inspectors identified a finding of very low significance (Green) associated with a Non-Cited Violation of license condition 2.C(9) for the failure to appropriately control transient combustibles on multiple occasions. Personnel left aerosol cans containing flammable materials unattended on a workbench in violation of the licensee's procedure for the control of transient combustibles. Once these issues were identified, the licensee moved the cans to an appropriate flammable storage locker. The primary cause of this finding is related to the corrective action aspect of the problem identification and resolution cross-cutting area in that the NRC had previously identified issues relating to the failure to control transient combustible materials but adequate corrective actions were not put in place to prevent recurrence of this issue.

The finding was more than minor because the repeated failure to properly control combustible materials, if left uncorrected, could become a more safety-significant concern. This finding was of very low safety significance because the quantity of transient combustibles involved was low and the applicable fire barriers and suppression systems remained operable. (Section 4OA2.3)

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

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## Mitigating Systems

**Significance:**  Sep 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Maintain Adequate Emergency Diesel Generator Surveillance Test Procedures**

The inspectors identified a finding of very low safety significance and an associated Non-Cited Violation of Technical Specification (TS) 5.4, "Procedures," for the licensee's failure to maintain surveillance test procedures for the Division 1 Emergency Diesel Generators (EDGs) that were appropriate to the circumstances. Specifically, on August 22, 1986, the NRC issued TS Amendment Number 4 to the operating license to address a design deficiency associated with the Division 1 electrical system. This amendment increased the Division 1 degraded grid relay voltage setpoints to allow for Division 1 operability. However, the licensee failed to increase the minimum voltage acceptance criteria for the Division 1 EDG surveillance test procedures to ensure operability of the affected components under all postulated conditions. As part of their corrective actions, licensee personnel established administrative controls pending procedure, and TS revision to ensure that future testing of the Division 1 EDGs would include the revised minimum required voltage acceptance criteria.

This finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of procedure quality 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 was of very low safety significance because: (1) it was not a design or qualification deficiency; (2) it did not represent an actual loss of safety function of a system; (3) it did not represent an actual loss of safety function of a single train for greater than its TS allowed outage time; (4) it did not represent an actual loss of safety function of one or more non-TS trains of equipment designated as risk significant per 10 CFR 50.65 for greater than 24 hours; and (5) it did not screen as potentially risk significant due to a seismic, fire, flooding, or severe weather initiating event.

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

**Significance:**  Sep 29, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Control Design Change Leading to Undersized Control Power Transformers**

The inspectors identified a finding and an associated NCV of 10 CFR Part 50, Appendix "B," Criterion III (Design Control) for the failure to adequately review the suitability of the design of 480 Volt breakers used for all four emergency diesel generator service water (EDGSW) pumps and the engine room supply ventilation fans for both Division 1 emergency diesel generators (EDGs). Licensee personnel failed to properly model the control power transformers (CPTs) when they calculated the minimum available voltage at the starting coils. As a result, all four EDGSW pumps and the Division 1 engine room fans could have failed to start due to inadequate voltage available to their respective starter coils. The licensee's immediate corrective actions included placing this issue into the corrective action program, completion of an extent of condition review, and performance of hardware modifications to restore operability to affected components.

This finding is more than minor because it reduced the reliability of all four EDGs. This finding was also determined to potentially have greater significance because the loss of emergency alternating current electrical power would significantly impact the ability to ensure adequate core cooling following a loss of offsite power event. Because the unavailability of the EDG affected both the mitigating systems and barrier integrity cornerstones, a Phase 2 Significance Determination Process (SDP) analysis was performed. Because the Phase 2 analysis indicated potentially greater than very low safety significance, a Phase 3 SDP analysis was performed by the RIII Senior Reactor Analysts (SRAs). The result of the Phase 3 SDP analysis, after considering contributions from internal events, external events, and large early release frequency, was a change in core damage frequency less than 1.0 E-6, which is a finding of very low safety significance (Green). The primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution because licensee personnel failed to identify, in a timely manner, the use of under-sized CPTs despite numerous reasonable opportunities to do so during the design change implementation period from 1998 to 2006 and during investigation activities in response to NRC concerns about the adequacy of CPT sizing in 2005.

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

**Significance:**  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Unauthorized Transient Combustibles in Safety-Related Areas**

The inspectors identified a non-cited violation of license condition 2.C(9) due to the presence of unauthorized transient combustible materials in the residual heat removal complex. An office chair and a plastic trash bin half filled with paper

were secured next to the electrical panel and associated cable raceway for emergency diesel generator 12 ventilation in the emergency diesel generator 12 switchgear room. The licensee entered this issue into their corrective action program and removed the unauthorized transient combustible materials from the residual heat removal complex.

This finding is more than minor because it affected the Mitigating Systems Cornerstone attribute for protection against external factors. Specifically, a fire involving the unauthorized transient combustibles could have affected a nearby electrical panel and associated cable raceway containing mitigating system equipment important to safety. The finding is of very low safety significance because the unauthorized transient combustible materials would not have ignited from existing sources of heat or electrical energy. The cause of the finding is related to the cross-cutting element of Problem Identification and Resolution.

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

**Significance:**  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Improper Storage of Chemicals Affecting Fire Fighting Response**

The inspectors identified a non-cited violation of license condition 2.C(9), for the failure to appropriately store chemicals in accordance with the fire hazards analysis. The licensee failed to evaluate the fire fighting response guidelines in NFPA-49 for various chemicals brought into the protective area and, therefore, failed to appropriately store them as required by the licensee's fire hazards analysis. As a result, five normally stored chemicals in the building have recommended fire fighting strategies that are inconsistent with the licensee's approved fire protection pre-plan. The licensee entered this issue into their correction action program.

This finding is more than minor because it represented a programmatic deficiency in the licensee's chemical control program which affected the ability of the fire brigade to respond to and mitigate the effects of a fire. Upon management review, the finding is of very low safety significance because the quantities of the relevant chemicals were low and the storage location was sufficiently remote from mitigating equipment.

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

**Significance:**  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Improper Evaluation of Standby Liquid Control Operability During Tank Sparging**

The inspectors identified a non-cited violation of Technical Specification 3.1.5.a.2, Amendment 38, for the standby liquid control (SLC) system being inoperable for longer than the allowed time without the plant being placed in hot shutdown. The licensee failed to properly evaluate the operability of SLC during sparging activities when the issue was raised in 1999. As a result, the licensee initiated a 21-hour sparge on the SLC tank on August 24, 1999, and failed to take actions in accordance with the Technical Specifications. After the deficient evaluation was identified on June 1, 2006, the licensee revised the applicable procedures to declare the SLC system inoperable during sparging the SLC tank. The licensee entered this issue into their corrective action program.

This finding is more than minor because it affected the equipment performance attribute of the reactor safety cornerstone objective of ensuring the availability, reliability, and capability of mitigating equipment to respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because the total time of sparging activities was short.

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

**Significance:**  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure of Breaker to Open**

The inspectors identified a finding of very low significance associated with a Non-Cited Violation (NCV) of 10CFR50, Appendix B, Criterion XVI (Corrective Action) for the failure to identify and correct a condition adverse to quality related

to the emergency diesel generator 12 (EDG-12) output circuit breaker cubicle. A newly installed, refurbished circuit breaker failed to open during an EDG-12 operability run on August 6, 2004. The licensee did not adequately identify and correct the conditions associated with this breaker failure, and, on February 3, 2006, a newly installed, refurbished breaker failed to open upon demand, resulting in additional unavailability time for EDG-12 and a challenge to the EDG's limiting condition for operation. The primary cause of this finding is related to the identification aspect of the problem identification and resolution cross-cutting area. The licensee replaced the refurbished breaker with the original breaker and successfully conducted the EDG operability run. In addition, the licensee planned to thoroughly inspect the breaker cubicle when the associated bus was de-energized during the April 2006 refueling outage.

The finding is more than minor because it was associated with the equipment performance attribute and affected the reliability objective of the Mitigating Systems Cornerstone. Using the Mitigating Systems Significance Determination Process, the inspectors determined the finding to be of very low safety significance because the inspectors answered no to all five phase 1 screening questions. (Section 1R19)

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

**Significance:**  Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Control of Cables and Wiring in the Power Block**

The inspectors identified a finding of very low significance (Green) associated with a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the failure to adequately control cabling for cameras, vibration monitoring, and telephones in the power block. The licensee did not perform the required evaluations prior to installing 195 cables in the reactor and auxiliary buildings, 4 of which crossed divisional boundaries. The licensee entered this issue into their corrective action program and conducted a thorough walkdown of all plant areas documenting all uncontrolled cables. The cables are being evaluated and processed through the new temporary modification process for engineering evaluation or removal. The primary cause of this finding is related to the corrective action aspect of the problem identification and resolution cross-cutting area.

The finding is greater than minor because it was associated with the design control attribute and affected the reliability objective of the Mitigating Systems Cornerstone. Using the Mitigating Systems Significance Determination Process, the inspectors determined the finding to be of very low safety significance because the finding was a design deficiency that did not result in a loss of function per GL 91-18 (rev 1). (Section 1R23.2)

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

**Significance:**  Jan 13, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Non Conservative Calculation for Diesel Generator Loading**

The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to consider the effects of frequency variation on diesel generator loading. Specifically, the licensee's diesel generator loading calculations failed to account for increased loading that could result from allowable frequency variations above the nominal generator frequency of 60 Hz. The licensee's corrective action was to evaluate the need for revised margin in the calculation due to frequency variations. This issue was more than minor because it affected the Mitigating Systems Cornerstone objective of ensuring availability, reliability, and capability of systems needed to respond to a DB accident by failing to assure that the diesel generators would not inadvertently become overloaded. This finding was of very low safety significance because it screened out as Green using the SDP Phase 1 worksheet. (Section 1R21.2.b.1)

Inspection Report# : [2005016\(pdf\)](#)

**Significance:**  Jan 13, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Adequate Leakage Criterion Not Established for the EDG Air Start System**

The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to translate the design basis requirements for each of the Emergency Diesel Generator starting air systems into specifications, procedures, and instructions. As a result of this failure, no objective evidence existed that the required emergency diesel generator starting air system capacity was being maintained. The licensee's corrective actions were to develop a formal calculation to document the acceptability of the Technical Specifications limit for the air capacity and to implement changes to the diesel starting air system and check valve testing, the process computer alarm setpoint, and the alarm response procedures. This issue was more than minor because it affected the Mitigating Systems Cornerstone objective of ensuring availability, reliability, and capability of systems needed to respond to a DB accident by failing to assure that the degradation of the capability of the diesel starting air system would be detected. This finding was of very low safety significance because it screened out as Green using the SDP Phase 1 worksheet. (Section 1R21.2.b.2)

Inspection Report# : [2005016\(pdf\)](#)

**Significance:**  Jan 13, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Translate CST Temperature Limit into Design Documents and Procedures**

The inspectors identified a Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to establish the correct condensate storage tank temperature limit for use in the plant accident analyses and net positive suction head calculations and for the failure to translate the condensate storage tank temperature limit into plant procedures to ensure that temperature limits are not exceeded. The licensee's corrective action was the implementation of a tentative maximum condensate storage tank temperature limit and an analysis to demonstrate that there was adequate margin in the accident analysis. This issue was more than minor because it affected the Mitigating Systems Cornerstone objective of ensuring the reliability of Reactor Core Isolation Cooling, High Pressure Coolant Injection, and the Core Spray Systems because the failure to establish a temperature limit had the potential to reduce the margin of safety that the licensee believed to be available as a result of calculations. The finding was of very low safety significance because it screened out as Green using the SDP Phase 1 worksheet. (Section 1R21.2.b.3)

Inspection Report# : [2005016\(pdf\)](#)

**Significance:**  Dec 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Inadequate Corrective Actions To Ensure Availability Of Safe Shutdown Equipment During Fire**

The inspectors identified a finding of very low safety significance and an associated non-cited violation of license condition 2.C(9) for the failure to implement adequate corrective actions in a timely manner. From December 21, 2004, to July 17, 2005, the licensee failed to implement requirements delineated in calculation DC-4921, "Appendix R Calculation," Revision E, to rack out (open) four 4160 V maintenance tie breakers to ensure that one safe shutdown division is maintained free of fire damage. This finding also affected the cross-cutting area of Problem Identification and Resolution (corrective action) because the licensee failed to take appropriate corrective actions when the issue was discovered in December 2004. Once identified in July 2005, the licensee implemented an hourly fire watch, racked out the four affected maintenance tie breakers, and revised the relevant operating procedures.

The finding was more than minor because a potential existed whereby postulated fire-induced cable damage due to hot shorts at the maintenance tie breakers could have adversely affected the emergency diesel generators in the alternate division rendering safe shutdown equipment inoperable. The finding was of very low safety significance because the postulated fire scenario involved a low fire frequency combined with the likelihood of a random loss of offsite power to the opposite division and the probability of two hot shorts.

Inspection Report# : [2005019\(pdf\)](#)

**Significance:**  Dec 16, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Follow Corrective Action Program Procedure**

The inspectors identified a Non-Cited Violation (NCV) of 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to follow procedural requirements that all actions specified for two conditions adverse to

quality were complete before the associated Level 1 condition assessment resolution documents (CARDS) were closed. Specifically, the licensee did not complete all specified corrective actions for degraded fire penetration seals in the reactor building steam tunnel and for a loose tubing connection on a bulkhead fitting for EDG 12. Upon discovery, the licensee ensured all specified corrective actions for the degraded conditions were addressed and entered this issue into the corrective action program.

The finding was more than minor because, if left uncorrected, the issue may have resulted in a more significant safety concern. Specifically, the failure to complete corrective actions for Level 1 CARDS could result in the failure to correct significant conditions adverse to quality. The finding was of very low safety significance because it did not result in the actual loss of the safety function of the train or system. The finding was a Non-Cited Violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." (Section 40A2).

Inspection Report# : [2005020\(pdf\)](#)

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## Barrier Integrity

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  Jun 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadequate Design Control for Venting the Reactor Pressure Vessel Head**

A self-revealed NCV was identified for the licensee's failure to comply with Technical Specification 5.4.1.a, written procedures shall be established, implemented, and maintained covering applicable procedures recommended in Regulatory Guide 1.33. The licensee did not adequately control the modification of the ventilation equipment used to vent airborne radioactive particulate to the refuel floor during reactor vessel floodup. Consequently, while raising reactor vessel water level, the improper venting led to personnel contaminations, uptakes of radioactive material, and the evacuation of the Reactor Building. The licensee entered this issue into their corrective action program and conducted an investigation into the event. The corrective actions recommended the development and implementation of an acceptable methodology for raising reactor water level.

This finding is more than minor because it affected the Occupational Radiation Safety Cornerstone of Radiation Safety due to individual worker unplanned, unintended dose. The finding was evaluated using the SDP and was determined to be a finding of very low safety significance because there was not a substantial potential for overexposure and the licensee's ability to assess dose was not compromised.

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

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## Public Radiation Safety

**Significance:**  Dec 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### **Processing Radwaste With RW Ventilation System Isolated**

The inspectors identified a finding of very low safety significance and an associated non-cited violation of Technical Specification 5.4.1.a for the failure to follow procedures that ensure the control of radioactivity to the environment during the processing of radioactive waste. Procedures required the radioactive waste building ventilation system to be in operation during the processing of radioactive waste. Immediate corrective actions included the issuance of night orders prohibiting waiving the prerequisite and revising the relevant procedures to clearly identify this requirement. The primary cause of this finding was related to the cross-cutting area of Problem Identification & Resolution (corrective action) because the licensee failed to take effective corrective actions when a related question was raised within the corrective action process on two previous occasions.

The issue was more than minor because it was associated with the Program/Process attribute of the Public Radiation Safety Cornerstone and potentially affected the cornerstone objective to ensure adequate protection of the public from exposure to radioactive materials released into the environment. Also, waiving a prerequisite for equipment required to limit offsite radiological dose to members of the public without a proper assessment can reasonably be viewed as a precursor to a more significant event. The issue represents a finding of very low safety significance because no radiological release occurred during radioactive waste processing; therefore, there was minimal actual risk to the public.

Inspection Report# : [2005019\(pdf\)](#)

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## **Physical Protection**

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

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## **Miscellaneous**

Last modified : December 21, 2006