

Fermi 2

4Q/2005 Plant Inspection Findings

Initiating Events

G**Significance:** Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Second Failure of Drywell Cooler Number 4

Green. A Green self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified when a joint gasket on drywell cooler number 4 failed on June 25, 2005. Specifically, after maintenance in January 2005 to correct a similar gasket leak, the licensee neither checked nor re-torqued the bolts on drywell cooler number 4 as required and, therefore, failed to ensure that the gasket was sufficiently compressed to prevent the June failure. The licensee entered the issue into their corrective action (CA) program for resolution, performed a root cause evaluation, and implemented several design change packages and temporary modifications to ensure the condition does not recur. The cause of the finding is related to the cross-cutting element of problem identification and resolution (corrective action).

This finding is greater than minor because the size of the leak caused the licensee to lose the ability to reliably monitor drywell unidentified leakage which ultimately resulted in an unplanned reactor shutdown. The finding is of very low safety significance because the finding did not contribute to both the likelihood of an initiating event and the unavailability of mitigating equipment or functions or increase the likelihood of a fire or internal/external flood. (Section 40A3.2)

Inspection Report# : [2005014\(pdf\)](#)**G****Significance:** Mar 31, 2005

Identified By: NRC

Item Type: FIN Finding

Inadequate Power Converter Module Post Maintenance Testing

Green. The inspectors identified a finding of very low safety significance for the failure to perform an adequate post maintenance test after the licensee replaced the three main generator excitation power converter modules during refueling outage 10. The failure to perform an adequate test contributed to an automatic reactor shutdown when the automatic voltage regulator tripped.

The finding was determined to be more than minor because it affected the Initiating Events Cornerstone in that it ultimately contributed to a reactor scram. The finding was of very low safety significance because it did not contribute to the likelihood of a primary or secondary system loss of cooling accident initiator, that mitigation equipment or functions would be unavailable, or increase the likelihood of a fire or internal/external flood. No violations of regulatory requirements were identified. Immediate corrective actions consisted of thoroughly troubleshooting the automatic voltage regulator and related modules as well as initiating a root cause analysis. (Section 1R19.2)

Inspection Report# : [2005004\(pdf\)](#)**G****Significance:** Mar 31, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Design Control for Assembling Drywell Cooler Gaskets

Green. A finding of very low safety significance was self-revealed when design control measures were not implemented during plant construction while changing the drywell cooler gasket design from a wide to a narrow gasket. Consequently, wide instead of narrow gaskets were employed, and sufficient torque values used to secure the cooler end bells to the cooler tube sheet were not translated to maintenance procedures to ensure reassembly of a leak tight joint. As a result, the gasket on drywell cooler 4 failed and caused unidentified leakage to increase above 5 gallons per minute resulting in a plant scram and an alert declaration.

The finding was determined to be more than minor because it affected the Initiating Events Cornerstone in that operators manually shutdown the reactor in response to an apparent increase in unidentified leakage caused by the leak from the failed gasket. The finding was of very low safety significance because it did not contribute to the likelihood of a primary or secondary system loss of cooling accident initiator, that mitigation equipment or functions would be unavailable, or increase the likelihood of a fire or internal/external flood. A Non-Cited Violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified. Immediate corrective actions included replacing the wide gasket with the appropriate narrow gasket and torque the end bell bolts sufficiently for a leak tight joint. (Section 40A3.1).

Inspection Report# : [2005004\(pdf\)](#)

Mitigating Systems

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\(pdf\)](#)

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Scaffold Variance Evaluations

Green. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to follow established procedures. Specifically, licensee personnel failed to properly evaluate an issue regarding the installation of scaffolding near safety-related equipment. The licensee entered the deficiency into their CA program, re-evaluated all relevant scaffolds, and made adjustments as necessary. The cause of the finding is related to both the cross-cutting elements of human performance (personnel) and problem identification and resolution (corrective action).

This finding is greater than minor because the licensee routinely failed to perform the proper evaluations. Using IMC 0609, "Significance Determination Process," all the Phase I questions under the Mitigating Systems Cornerstone were satisfied to indicate that the finding was Green and considered to be of very low safety significance. (Section 1R15.2)

Inspection Report# : [2005014\(pdf\)](#)

Significance:  Jul 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Have Separation Between Redundant Safe Shutdown Cables (Section 1R05.2)

The team identified a Non-Cited Violation of the Operating License for the failure to ensure that one redundant train of systems necessary to achieve and maintain hot shutdown conditions was free of fire damage.

Inspection Report# : [2005006\(pdf\)](#)

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Significance: Jul 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure that Adequate Electrical Coordination Existed in Post -Fire Alternate Shutdown Circuits (Section 1R05.3)

The team identified a Non-Cited Violation of the Operating License for a failure to provide adequate electrical coordination of protective devices to ensure that postulated fire-induced electrical faults would not result in the loss of post-fire alternative safe shutdown equipment.

Inspection Report# : [2005006\(pdf\)](#)

G

Significance: Jul 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Install Smoke Detectors in Accordance with NFPA 72-E (Section 1R05.10)

The team identified a Non-Cited Violation of the Operating License for the failure to have adequate fire detection installed in the Division I Switchgear Room (Fire Zone 04AB2) in accordance with the applicable National Fire Protection Association (NFPA) codes. Specifically, the licensee failed to install detectors in three beam pockets and in the mezzanine area. The licensee also failed to have compensatory measures established for the lack of adequate detection in the area.

Inspection Report# : [2005006\(pdf\)](#)

G

Significance: Jul 15, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Adequate Corrective Actions in a Timely Manner (Section 40A2)

The team identified two examples in which the licensee failed to implement adequate corrective actions in a timely manner. The first example illustrates the licensee's failure to implement corrective actions for the issues identified in their 10 CFR Part 50, Appendix R analysis. The second example illustrates the licensee's failure to take timely and adequate corrective actions for the lack of fuse coordination and cable protection.

Inspection Report# : [2005006\(pdf\)](#)

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Significance: Jun 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Torque Switch Corrosion Due to Heat Degraded Wires

Green. A finding of very low safety significance was self-revealed when a steam isolation valve failed to close during surveillance testing on August 12, 2004. The licensee later discovered a section of insulation missing from the steam line that could have affected the ability of the valve to close due to increased heating of the actuator wiring.

The finding was determined to be more than minor because it would become a more significant safety concern if left uncorrected. The finding was of very low safety significance because the inboard steam isolation valve remained operable. A non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," was identified. Immediate corrective actions included replacing the internal wires and installing insulation on the pipe. (Section 40A3.1)

Inspection Report# : [2005012\(pdf\)](#)

G

Significance: Mar 31, 2005

Identified By: Self-Revealing

Item Type: FIN Finding

Loss of Essential Trip Function for Emergency Diesel Generator 14

Green. A finding of very low safety significance for the failure to properly connect a test lead was self-revealed during an event. An electrician inadvertently caused a short in the essential trip logic of emergency diesel generator (EDG)-14 which rendered it unavailable and inoperable. No violation of regulatory requirements was identified. The primary cause of the finding was related to the cross-cutting area of Human Performance.

The finding was determined to be more than minor because it was associated with the Human Performance attribute of ensuring the availability, reliability, and capability of EDG-14 to respond to initiating events. The finding was of very low safety significance because all other EDGs remained operable and the actual loss of safety function of EDG-14 was shorter than its technical specification allowed outage

time of 7 days. No violations of regulatory requirements were identified. Immediate corrective actions consisted of troubleshooting the effects of the short and replacing a damaged fuse. (Section 1R13.2)

Inspection Report# : [2005004\(pdf\)](#)

G

Significance: Mar 31, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Residual Heat Removal Pressure Transient Due to Valve Misalignment

Green. A finding of very low safety significance was self-revealed on February 4, 2005, when the "D" residual heat removal (RHR) pump tripped on high suction pressure while attempting to initiate shutdown cooling. The primary cause of this finding was related to the cross-cutting area of Human Performance because operators failed to follow procedures for placing shutdown cooling in service. The issue was a Non-Cited Violation of Technical Specification 5.4.1.a for the failure to follow procedures.

This finding was more than minor because it can be reasonably viewed as a precursor to a more significant event and it was associated with the Human Performance attribute of ensuring the availability, reliability, and capability of RHR to respond to initiating events. The finding was of very low safety significance because the inspectors answered "no" to all five screening questions for the Mitigating Systems Cornerstone. Initial corrective actions consisted of an RHR system walkdown to verify the system integrity followed by an operability evaluation. (Section 1R15.2).

Inspection Report# : [2005004\(pdf\)](#)

Barrier Integrity

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Significance: Sep 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Division 1 Control Center Heating Ventilation and Air Conditioning Return Fan Bearing Slippage

Green. A self-revealing NCV was identified for the failure to comply with 10 CFR 50, Appendix B, Criterion III, "Design Control." The licensee did not adequately translate vendor design information regarding the torque values for installing a bearing for the division 1 control center heating, ventilation and air conditioning return fan. Consequently, the bearing degraded and required immediate shutdown for repairs during normal operation.

This finding is greater than minor because it affected the licensee's ability to protect the control room operators from radio-nuclide releases caused by accidents or events and was associated with the Barrier Integrity Cornerstone and the respective attribute of structure system and components and Barrier Performance. The finding was determined to be of very low safety significance because it did not result in an actual loss of safety function due to the other redundant system being available to fulfill their safety function. (Section 4OA3.1)

Inspection Report# : [2005014\(pdf\)](#)

Emergency Preparedness

Significance: SL-IV Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform a 10CFR50/54(q) Review to Determine if Changing the Augmentation Process for the Station Nuclear Engineer Decreased the effectiveness of the Emergency Plan

Severity Level IV. The inspectors identified a violation of 10 CFR 50.47(b)(2) when the process for timely augmentation of on-shift staff was changed for the station nuclear engineer (SNE) position without performing a review to determine if the change decreased the effectiveness of the emergency plan. The inspectors determined this change decreased the effectiveness of the emergency plan and that the licensee did not obtain prior NRC approval contrary to the requirements of 10 CFR 50.54(q). The primary cause of this finding was related to the cross-cutting area of Human Performance in that changes were made to the emergency response organization augmentation process which were not recognized and corrected by the organization.

Because the issue affected the NRC's ability to perform its regulatory function, it was evaluated with the traditional enforcement process as specified in Section IV.A.3 of the Enforcement Policy. This issue was determined to be a Severity Level IV violation because it involved a failure to meet a requirement not directly related to assessment and notification. Further, this problem was isolated to one 30-minute responder

position and was not indicative of a functional problem with the emergency response organization augmentation process. Corrective actions included discussions with the SNEs that it was no longer acceptable to remotely activate the 3-D Monocore program to respond to an emergency at the plant instead of responding to the control room and that response to the control room was required within 30 minutes of the declaration of an emergency at the plant. In addition, the Emergency Call Out System test forms were revised to remove the option for the SNE to activate the software remotely in lieu of responding to the control room. (Section 1EP3)

Inspection Report# : [2005012\(pdf\)](#)

G

Significance: Jun 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Declare an Unusual Event Upon Determining that an ARM Reading Exceeded the Maximum Normal Operating Level

Green. A finding of very low safety significance and an associated non-cited violation of 10 CFR 50.47(b)(4), which required a standard emergency classification and action level scheme be in use by the licensee, was self-revealed. On February 7, 2005, the operators failed to declare an Unusual Event upon determining that an area radiation monitor reading inside secondary containment exceeded the maximum normal operating level for the area. The area radiation monitor reading of approximately 100 millirem per hour met the threshold specified in the licensee's emergency plan for declaring an Unusual Event. The primary cause of this finding was related to the cross-cutting area of Human Performance in that licensed operators failed to recognize an Emergency Action Level threshold had been exceeded and an Unusual Event declaration was required.

The finding was more than minor because it was associated with the Reactor Safety/ Emergency Preparedness Cornerstone Attribute of Response Organization performance and affected the cornerstone objective of providing reasonable assurance that the licensee was capable 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, although it involved an actual event, the appropriate classification was an Unusual Event and the finding involved a failure to comply with the emergency plan while there were no indications of Planning Standard problems. Corrective actions taken by the licensee included initiating a root cause evaluation to determine the reasons for missing the emergency action level. Also, lessons learned training was identified for all operations personnel and emergency directors to reinforce emergency classification capabilities. Additionally, the Operations Engineer coached individuals on ensuring roles and responsibilities were carried out during all off normal events. (Section 1EP5.b.1.)

Inspection Report# : [2005012\(pdf\)](#)

G

Significance: Jun 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure of Four of Six Required RP Technicians to Augment the On-shift Staff in the Required 30 Minutes for the January 24, 2005, Declared Alert

Green. A finding of very low safety significance and an associated Non-Cited Violation of 10 CFR 50.47(b)(2) was self-revealed when four of the six RP technicians failed to augment the on-shift staff in the required 30 minutes for the declared Alert emergency on January 24, 2005. The primary cause of this finding was related to the cross-cutting area of Human Performance in that individuals failed to recognize expectations and responsibilities associated with requirements for timely augmentation of the on-shift staff in an emergency.

The finding was more than minor because it was associated with the Reactor Safety/ Emergency Preparedness Cornerstone Attribute of Response Organization performance and affected the cornerstone objective of providing reasonable assurance that the licensee was capable 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, although it involved an actual event, the event was classified as an Alert, and the finding involved a failure to comply with the emergency plan while there were no indications of Planning Standard problems. Corrective actions taken by the licensee included a change to the emergency response organization callout process to activate all RPTs instead of the first six that called in during an emergency. Also, the callout for RPTs was added to the Unusual Event emergency class and higher instead of at the Alert class and higher. (Section 1EP5.b.2.)

Inspection Report# : [2005012\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

G**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\(pdf\)](#)**G****Significance:** Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Complete Outbound Shipment Vehicle Radiation Survey as Required by the Department of Transportation

Green. The inspectors identified a finding of very low safety significance and an associated violation of NRC requirements for the failure to perform complete radiation surveys of an outbound shipment of radioactive material to demonstrate compliance with Department of Transportation limits for the applicable mode of transport.

This issue was more than minor because it was associated with the Program and Process and Human Performance attributes of the Public Radiation Safety Cornerstone and affected the Cornerstone objective that ensures adequate protection of public health and safety from exposure to radioactive materials transported into the public domain. The issue represented a finding of very low safety significance because shipment package and vehicle radiation limits were not exceeded, no package breach occurred during transit, nor were certificate of compliance or low level burial ground issues applicable, and shipment notification and emergency information requirements were met. A Non-Cited Violation of 10 CFR 71.5(a) was identified for the failure to complete transport vehicle surveys applicable to the mode of transport as required by 49 CFR 173.475. Immediate corrective actions included postponement of further radioactive material shipments until tailgate training was provided to those staff that perform shipment radiation surveys. The primary cause of the finding was related to the cross-cutting area of Human Performance. (Section 2PS2.4)

Inspection Report# : [2005004\(pdf\)](#)

Physical Protection

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

Miscellaneous

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