Fermi 2
4Q/2011 Plant Inspection Findings

Initiating Events

Significance: G Apr 29, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Unauthorized Transient Combustibles
The inspectors identified a finding of very low safety significance (Green) and associated NCV of License Condition 2.C(9) for the licensee's failure to control transient combustibles in accordance with the fire protection program requirements. Specifically, the inspectors determined that the licensee stored combustible materials in an area containing safety-related equipment without evaluating the location or obtaining a transient combustible permit as required by procedure. Upon discovery, the licensee removed the transient combustibles and placed the issue into their corrective action program.

The inspectors determined that this finding was more than minor because the transient combustibles were stored directly under safety-related cables and formed a credible fire scenario. This finding was of very low safety significance because the materials would not result in ignition of a fire from existing sources of heat or electrical energy. The finding has a cross-cutting aspect in the area of Human Performance, because the licensee did not appropriately plan work activities by incorporating job-site conditions that may impact plant structures, systems, and components. [H.3(a)] (Section 1R05.1.b)
Inspection Report# : 2011009 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Design Control Measures Failed to Ensure Adequacy of the Design Relating to the Reactor Building Crane Support Structure and Reactor Building Superstructure
A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to ensure the adequacy of the design for the reactor building crane support structure and reactor building superstructure. Specifically, the inspectors identified six representative examples where the licensee failed to perform adequate design calculations resulting in the design not being in conformance with Seismic Category I requirements as defined in Updated Final Safety Analysis Report (UFSAR) Sections 3.8.4.3.1 and 3.8.4.5.1 and referenced codes. The licensee documented the corrective actions in CARDs 10 22393, 10 22958, 10 22979, 10 23882, 10 24166, 10 26278 and 10 26691. The licensee also performed a re analysis of the reactor building crane support structure and reactor building superstructure to address the deficiencies, and determined the structure to be operable but nonconforming and initiated modifications.

The inspectors determined the licensee's failure to meet design requirements for Seismic Category I compliance for the reactor building crane support structure and reactor building superstructure was a performance deficiency. The performance deficiency was determined to be more than minor because the finding was associated with the Initiating Events Cornerstone attribute of design control and affected the cornerstone objective to limit the likelihood of those events that upset the plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, compliance with Seismic Category I requirements for the reactor building crane support structure and superstructure was to demonstrate safe handling of heavy loads over the reactor core, the spent fuel pool, or safety related components. Also, the performance deficiency was determined to be more than minor because it was associated with the Barrier Integrity Cornerstone attribute of design control and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding screened as having very low safety significance (Green) because it was a design deficiency that did not to result in a loss of functionality/operability. The inspectors did not identify a cross cutting aspect associated with this finding because the concern was related to calculations from the 1980s and 1990s and thus

was not necessarily indicative of current licensee performance.
Inspection Report# : 2011002 *(pdf)*

Significance: G Mar 31, 2011
Identified By: Self-Revealing
Item Type: FIN Finding
Reactor Scram due to Loss of Vacuum
A finding of very low safety significance (Green) for failure to evaluate and incorporate the operating experience received from the Boiling Water Reactors Owners Group (BWROG) Off Gas committee was self revealed when Fermi 2 experienced a reactor scram due to degraded condenser vacuum on October 24, 2010. The cause of the loss of vacuum was the failure of No. 3 steam jet air ejector (SJAE) steam supply to nozzle gasket, which caused steam erosion of the seating surface and loss of capacity. The licensee repaired the air ejector.

The inspectors determined this finding was more than minor because it was associated with the equipment performance attribute of the Initiating Events Cornerstone and impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The issue resulted in a scram. This finding was determined to be of very low safety significance, Green, because, while it did contribute to the likelihood of a reactor trip, it did not contribute to the likelihood that mitigating equipment would not be available. This finding was not cross cutting because the licensee received the operating experience input over 3 years ago and was not necessarily indicative of current licensee performance. Finally, no violation of NRC requirements was identified since the SJAEs and the off gas system are nonsafety-related.

Inspection Report# : 2011002 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
FAILURE TO DEVELOP APPROPRIATE CORRECTIVE ACTIONS FOR A MAINTENANCE RULE (a)(1) MONITORED SYSTEM
The NRC inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.65 for failure to develop appropriate corrective actions for an (a)(1) monitored system. The licensee failed to determine the cause of repeated SS 1 computer and printer lock ups in the D1100 process radiation monitor system. They determined the D1100 SS-1 computer should be monitored as (a)(1) status, and established (a)(1) monitoring goals, established a get-well plan, and implemented their plan. However, the get-well plan corrective actions failed to meet the (a)(1) monitoring goals and further inspection revealed the weaknesses in the causal determination and the ineffectiveness of the corrective actions. The inspectors determined this finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and impacted the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). This finding was determined to be of very low safety significance because all the screening questions in IMC 0609, Attachment 04, Table 4a, for the Mitigating Systems Cornerstone were answered “no.”
This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action, problem evaluation aspect because the licensee failed to appropriately evaluate the causes of the D1100 SS-1 computer problems (P.1 (c)).
Inspection Report# : 2011005 *(pdf)*

Significance: G Jun 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation

SPENT FUEL CASK LAY-DOWN AREAS DID NOT MEET SEISMIC CATEGORY I REQUIREMENTS
A finding of very low safety significance and associated NCV of Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion III, “Design Control,” was identified by the inspectors for failure to provide adequate design control measures for the reactor building radial girders, reactor building concrete floor slab and beam structures, spent fuel pool structure, and spent fuel cask leveling plate which were used to support the spent fuel cask placement. Specifically, the inspectors identified four examples where the licensee failed to perform adequate evaluations of the reactor building radial girders, reactor building concrete floor slab and beam structures, spent fuel pool structure, seismic restrain for multiple purpose canister cask transfer configurations, and spent fuel cask leveling plate in accordance with Seismic Category I requirements as defined in the Updated Final Safety Analysis Report, Section 3.8.4.5.1. The licensee documented the violation examples in condition assessment resolution documents (CARDs) 10 21097, 10 21205, 10 21943, 10 22955, 10 25226, 11 22993, and 11 25507.

The performance deficiency was determined to be more than minor because if left uncorrected the performance deficiency could lead to a more significant safety concern. The inspectors determined the finding could be evaluated using the SDP in accordance with Inspection Manual Chapter 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 Initial Screening and Characterization of Findings,” Table 4a, for the Mitigating Systems Cornerstone. The inspectors answered “yes” to the question; is the finding a design qualification deficiency confirmed not to result in loss of operability or functionality in the Mitigating Systems column based on the licensee revising design calculations and initiating modifications where necessary to demonstrate compliance. The inspectors concluded the finding was of very low safety significance (Green). The inspectors identified a Human Performance, Work Practices, management and supervisory oversight (H.4.c) cross cutting aspect associated with this finding. Specifically, the licensee failed to have adequate oversight of design calculations and documentation for establishing structural adequacy of the reactor building concrete floor slab, spent fuel pool structure and the spent fuel cask leveling plate used to support spent fuel cask placement. (H.4(c)) (Section 4OA5.4)
Inspection Report# : 2011003 *(pdf)*

Significance: G Apr 29, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Procedures to Control the Plant from the Dedicated Shutdown Panel
The inspectors identified a finding of very low safety significance (Green) and associated NCV of License Condition 2.C(9) for the failure to implement procedures which would ensure that reactor vessel water level would be maintained above the top of the core in the event of a fire. Specifically, procedure deficiencies could have resulted in delays in restoring make-up to the reactor vessel causing reactor vessel water level to lower more than the level assumed in the accident analyses. The licensee placed the issue into their corrective action program and revised procedures to address identified deficiencies.

The inspectors determined that this finding was more than minor because the failure to ensure that water level would be maintained above the top of the core affected the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding was of very low safety significance because sufficient margin still existed to prevent core damage. This finding has a cross-cutting aspect in the area of Human Performance because procedures did not provide guidance on which operators should be used to fulfill safe shutdown roles. [H.2(c)] (Section 1R05.5.b)
Inspection Report# : 2011009 *(pdf)*

Significance: G Apr 29, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate Detection in Emergency Diesel Generator Rooms
The inspectors identified a finding of very low safety significance (Green) and associated NCV of License Condition 2.C(9) for the licensee’s failure to install heat detectors at the ceiling in the emergency diesel generator (EDG) rooms. Specifically, the licensee failed to install heat detectors at the ceiling level of the open grated areas directly above each of the four EDGs. The licensee entered the issue into their corrective action program, declared the carbon dioxide (CO2) suppression systems associated with the heat detectors inoperable, and established an hourly fire watch as a compensatory measure.

The inspectors determined that this finding was more than minor because the lack of heat detectors in the ventilation corridors above the EDGs resulted in a reasonable doubt with respect to the functionality of the CO2 suppression systems in the EDG rooms. This finding was of very low safety significance because a fire would only affect the EDG in that room. This finding does not have a cross-cutting aspect because the finding is not representative of current performance. (Section 1R05.3.b)
Inspection Report# : 2011009 *(pdf)*

Significance: G Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Fully Evaluate the Failure of H2O2 Sampling Pump Trips during Caligration
The inspectors identified a finding and associated NCV of Technical Specification 5.4.1 for failure follow their Conduct Manual MES 43, "Instrument Calibration Specification Sheets (ICSS)," as established in Regulatory Guide 1.33, Appendix A.10, to ensure proper verification and calibration of the H2 O2 sample pump trip switch had been done during the annual preventative maintenance (PM) calibration. Specifically the engineering organization did not verify the actual setpoint until the inspector requested the calculations, then the licensee determined that the setpoint was out of tolerance. The licensee entered this into their corrective action program (CAP) as CARD 11 23023. The licensee completed the re-calibration of the flow switch.

The inspectors determined that the failure to have a proper calibration of the switch was within their ability to foresee and correct, since the licensee failed to perform an evaluation when it was identified that the pump could trip at a flow setpoint in their normal band of operation established in procedures. Therefore the issue was a performance deficiency. This finding impacted the Mitigating System Cornerstone. The inspectors determined this finding was more than minor because, if left uncorrected, the early loss of the H2O2 sampling pump could have lead to a more significant safety concern and it was similar to the more than minor example of IMC 0612 Appendix E, 4.c. The flow switch for the H2 O2 sampling pump was outside of the acceptable range and would trip early causing a loss of the H2O2 monitoring system. This could complicate the verification of mitigating system equipment in a timely manner during plant events. The finding was determined to be of very low safety significance, Green, using IMC 0609, Significance Determination Process, Attachment 0609.04, Table 4a as all Mitigating System Cornerstone answers were 'no.' This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action, because Fermi 2 personnel proceeded in the face of uncertainty or unexpected circumstances by continuing with the calibration procedure and equipment use even though the pump tripped repeatedly at a setpoint value which the procedure established as acceptable, without performing an engineering evaluation that either determined the cause or provided conclusive justification for continued operation.
Inspection Report# : 2011002 *(pdf)*

Barrier Integrity

Significance: G Dec 31, 2011
Identified By: Self-Revealing
Item Type: FIN Finding
PLACING A FUEL BUNDLE IN THE WRONG CELL DURING FUEL SHUFFLE
A self-revealed finding of very low safety significance (Green) was identified by the inspectors for placing a fuel bundle in the wrong cell during a fuel shuffle in the spent fuel pool. The error was noted later in the fuel shuffle when another bundle was moved to the same location, and the operators noted that the cell was filled. Specifically, on November 1, 2011, movement of spent fuel in the Spent Fuel Pool was taking place in preparation for testing of boron concentration in the high density racks. While performing step 150 of the approved MES32003, "Special Nuclear Material/Component Transfer Form," the presence of a fuel bundle already occupying the target location (4N 12) for step 150 was self-revealed. The Refuel Floor Coordinator was informed, and the bundle was returned to its original starting location. This issue was placed in the licensee's corrective action program as CARD 11-29841, "Fuel Move Error in Spent Fuel Pool." The inspectors determined that this finding was more than minor because if left uncorrected the performance deficiency had the potential to lead to a more significant safety concern. This finding was determined

to be of very low safety significance because all the screening questions in IMC 0609 Attachment 0609.04 Table 4a, Characterization Worksheet for IE, MS, and BI Cornerstones were answered “no”. This finding had a cross-cutting aspect in the area of human performance, work practices because the licensee failed to provide direct licensed operator oversight (H.4(c)) of fuel handling operations in the spent fuel pool

Inspection Report# : 2011005 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Jun 30, 2011
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
ENTRY TO A HIGH RADIATION AREA ON THE WRONG RADIATION WORK PERMIT
A finding of very low safety significance (Green) was self revealed when two radiation workers entered a high radiation area without proper authorization. This issue was an NCV of licensee Technical Specification 5.4.1, Procedures. Specifically, radiation workers failed to adhere to a radiation work permit that limited access in the radiologically restricted area to radiation areas. This issue was placed in the licensee’s corrective action program as CARD 10 29820.

The finding was more than minor because the individuals entered into a high radiation area on the wrong RWP, which is similar to the example in IMC 0612, Appendix E, Example 6.H, that states entry to a high radiation area is, “not minor if: The individual was not authorized to enter a high radiation area.” In addition it is associated with the human performance attribute of the Occupational Radiation Safety cornerstone and affected the cornerstone objective to ensure adequate protection from exposure to radiation. The finding was determined to be of very low safety significance (Green) because it did not involve the as low as reasonably achievable program, did not involve an over exposure, did not involve a substantial potential for an over exposure, and did not compromise the ability to assess dose. The finding was not associated with a cross cutting aspect as no aspects listed in IMC 0310 were characteristic of the finding. (Section 2RS1.7)
Inspection Report# : 2011003 *(pdf)*

Public Radiation Safety

Significance: G Sep 30, 2011
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Maintain Separation of Metal Containers and Combustible Radwaste
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 licensee’s failure to ensure combustible radwaste was not stored with spent charcoal filter material and HEPA filters. Specifically, the licensee failed to ensure the radwaste combustible material for the cleanup of the December 2010 resin spill was not in the same storage area as the metal containers in the on-site storage facility as required by Updated Final Safety Analysis (UFSAR) Chapter 11, “Radwaste Waste Management,” Section 7.2.2.4, “Onsite Storage Facility, Fire Protection.” This issue was placed in the licensee’s corrective action program as CARD 11-28704, NRC Issue with Resin Storage in the Offsite Storage Facility. The site has taken action to separate the material as required by the UFSAR.

The finding was more than minor because if left uncorrected, the storage of the combined material in bay 1 and bay 4,

could lead to a more significant safety concern in that the potential for an unplanned radiation release was possible. The licensee was using the area for storage of the metal containers and normal combustible radwaste. A fire in this area of the plant has the potential to affect radioactive material. The finding affected the Public Radiation Safety Cornerstone, Radioactive Material Control Program. Screening under IMC 0609, Appendix D, “Public Radiation Protection Significance Determination Process” was required. Based on a review of Appendix D, the inspectors concluded that the exposure received would be less than 0.005 rem total effective dose equivalent. Therefore, the finding screened to very low safety significance (Green). This finding has a cross-cutting aspect in the area of Human Performance, Work Control, because the licensee failed to coordinate work activities between Radiation Protection and Fire Protection groups to ensure combustible material was not stored with the metal containers in accordance with the UFSAR. H.3 (b) (Section 1R05.1)
Inspection Report# : 2011004 *(pdf)*

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

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