Fermi 2
4Q/2013 Plant Inspection Findings

Initiating Events

Significance: G Sep 20, 2013
Identified By: NRC
Item Type: FIN Finding
Not Following AQP and NPOA for Switchyard Modifications
The inspectors identified a finding of very low safety significance for the licensee's failure to follow the augmented quality program (AQP), nuclear plant operating agreement (NPOA), and Updated Final Safety Analysis Report (UFSAR) for plant modifications installed in the 345-kilovolt (kV) and 120-kV switchyards by the International Transmission Company (ITC) around September 2011. Specifically, the ITC liaison did notify his counterpart at Fermi of the planned installation of new equipment in the switchyards, but no condition assessment resolution document (CARD) was issued or other communication made to Fermi 2 plant support engineering to conduct the required evaluation of proposed design modifications. In addition, no 10 CFR 50.59 review was performed of proposed changes to a modification.

The finding was determined to be more than minor because the inspectors did not see a similar example in IMC-0612, Appendix E, "Examples of minor issues." Further, because the licensee (nor ITC) had performed any design evaluation to assure the proposed activity would not have an adverse impact on the plant, the inspectors concluded that if left uncorrected this failure to perform a systematic design process in accordance with the AQP, NPOA, and UFSAR could lead to more significant safety concerns. Therefore, the issue screened as being more than minor. The inspectors evaluated the significance of the finding using Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at-Power," "Exhibit 1 – Initiating Events Screening Questions," and answered "no" to the "Transient Initiators" question, "Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?" Therefore, the issue screened as having very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance, work control, because the licensee did not properly coordinate with ITC on the switchyard work to ensure the requirements of the AQP, NPOA, and UFSAR were met (H.3(b)).

Inspection Report# : 2013003 *(pdf)*

Significance: G Sep 20, 2013
Identified By: NRC
Item Type: FIN Finding
Failure to Maintain Configuration Control during Plant Operation
The inspectors identified a finding of very low safety significance for the licensure's failure to maintain configuration control during plant operations. Specifically, the inspectors identified multiple instances concerning the improper storage of equipment and control of scaffolding from January 1 through June 30, 2013. These instances did not meet the requirements of several licensee programs and management expectations.

The multiple instances constitute a programmatic issue with configuration control. This issue is more than minor because if left uncorrected would lead to a more significant safety concern and is similar to Inspection Manual Chapter (IMC) 0612, Appendix E, Section 4, Example a, in that the licensee routinely failed to perform procedurallyrequired engineering evaluations on similar issues. Specifically, multiple examples were identified where the licensee placed items in the plant without proper engineering evaluation. The inspectors evaluated the significance of the finding using IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings at-Power,” “Exhibit 1 – Initiating Events Screening Questions,” and answered “no” to the “Transient Initiators” question, “Does the finding contribute to both the likelihood of a reactor trip AND the likelihood that mitigation equipment or functions will not be available?” Therefore, the issue screened as having very low safety significance (Green). The finding has a cross-cutting aspect in the area of human performance, work practices, because the licensee either failed to follow established procedures or removed the controls from applicable procedures (H.4(b)).

Inspection Report# : 2013003 *(pdf)*

Significance: G Jun 14, 2013
Identified By: Self-Revealing
Item Type: FIN Finding
Failure to Implement Foreign Material Exclusion Procedure Requirements Adversely Affected the Reliability of the Main Turbine Generator and Caused a Reactor Scram
A finding of very low safety significance was self-revealed from an event that resulted in a reactor scram. The licensee failed to correctly implement its foreign material exclusion procedure following a reactor scram on September 30, 2009. The scram was caused by a turbine trip which was caused by the presence of a very small metallic particle (foreign material) that had bored into a main generator stator bar over time and created a hole that allowed hydrogen cooling gas to leak into the stator cooling water system. The ineffective corrective actions resulted in a second reactor scram for the same cause on November 7, 2012. Because the main turbine generator is not safety-related, no violation of regulatory requirements was identified. The licensee implemented appropriate mitigation actions until a permanent corrective action involving replacement of the generator or a modification to the existing stator design can be implemented.

The finding was of more than minor significance because this issue was associated with the Equipment Performance attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during power operations. Specifically, inadequate foreign material exclusion controls coupled with a stator design that allows magnetized particles to be trapped in between the stator bars resulted in a reactor scram following development of a hydrogen leak through a stator bar. The finding was of very low safety significance because the issue: (1) did not involve a loss-of-coolant accident initiator; (2) did not cause a reactor trip AND the loss of mitigation equipment; (3) did not involve the complete or partial loss of a support system that contributes to the likelihood of, or cause, an initiating event AND affect mitigation equipment; and (4) did not increase the frequency of a fire or internal flooding initiating event. The inspector did not identify a cross-cutting aspect related to this finding.
Inspection Report# : 2013009 *(pdf)*

Mitigating Systems

Significance: G Dec 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
RHR Pump Seal Cooler Test Was Not Adequately Implemented
The inspectors identified a finding of very low safety significance with an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XI, “Test Control,” for the failure to demonstrate the cooling capability of the residual

heat removal pump seal coolers. Specifically, on December 4, 2013, the inspectors noted examples of missed and late inspections, and examples of as-found conditions not evaluated. This finding was entered into the licensee's corrective action program, in part, to provide additional guidance in the preventive maintenance program database to ensure the Generic Letter 89-13 Program inspection requirements were implemented for these heat exchangers.

The performance deficiency was determined to be of more than minor safety significance because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of the residual heat removal pumps to respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance because it did not result in the loss of operability or functionality. Specifically, the licensee reviewed the maintenance history of the coolers and determined it provided reasonable assurance of acceptable heat transfer. The inspectors did not identify a cross-cutting aspect associated with this finding because it was confirmed to not reflect current performance due to the age of the performance deficiency.

Inspection Report# : 2013005 *(pdf)*

Significance: G Dec 31, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Acceptance Criteria for UHS Level and Temperature Did Not Consider Instrument Uncertainties
The inspectors identified a finding of very low safety significance with an associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to include appropriate acceptance criteria for ultimate heat sink level and temperature in surveillance procedures. Specifically, as of December 5, 2013, the inspectors identified that these acceptance criteria did not account for instrument uncertainties. This finding was entered into the licensee's corrective action program, in part, to revise the acceptance criteria included in the associated surveillance procedure to account for instrument uncertainties.

The performance deficiency was determined to be of more than minor safety significance because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of the ultimate heat sink to respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance because it did not result in the loss of operability or functionality. Specifically, a historic review did not find an example where the Technical Specification limits were exceeded when accounting for instrument uncertainties. The inspectors did not identify a cross-cutting aspect associated with this finding because it was confirmed to not reflect current performance due to the age of the performance deficiency.

Inspection Report# : 2013005 *(pdf)*

Significance: G Dec 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Nonconforming Materials Used in EDG Air Coolant Piping System
A finding of very low safety significance with an associated Non-Cited Violation of 10 CFR 50, Appendix B, Criterion XV, "Nonconforming Materials, Parts, or Components," was self-revealed on August 9, 2013, when operators had to manually shut down emergency diesel generator (EDG) 14 due to high air coolant system inlet temperature during a 24-hour surveillance test run. The high temperature condition occurred due to the licensee's failure to adequately control the installation of the EDG 14 air coolant system control air pipe fitting between the relief valve and pressure regulator to prevent the use of materials that did not conform to design requirements. The licensee completed repairs to the EDG 14 air coolant system and returned the EDG to an operable status. The issue

was entered into the licensee's corrective action program for evaluation and additional corrective actions.

The finding was of more than minor safety significance since it was associated with the Design Control attribute and adversely affected the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the use of nonconforming materials led to failure of the EDG 14 air coolant system control air pipe fitting, which rendered the EDG inoperable. Although the finding involved an actual loss of function of a single train for greater than its Technical Specification allowed outage time, it was determined to be of very low safety significance during a detailed quantitative Significance Determination Process review since the delta core damage frequency was determined to be less than 1E-7/year using the NRC Standardized Plant Analysis Risk model. The inspectors concluded that because the nonconforming control air pipe fitting was installed in the EDG 14 air coolant system in 1988 and the most recent missed opportunity to correct the problem occurred in 2005 or 2006, this issue would not be reflective of current licensee performance and no cross-cutting aspect was identified.

Inspection Report# : 2013005 *(pdf)*

Significance: G Sep 06, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Battery Rack Configuration Not in Accordance with Design Basis
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to assure the battery rack end rail configuration for battery 2P-29 was in accordance with the design basis Seismic Category I qualification. Specifically, the licensee failed to install battery 2P-29 with the battery rack end rails within 1/8 inch from the battery. The inspectors found one end rail gap for battery 2P-29 greater than 1/8 inch and up to approximately 1/4 inch. The licensee entered this concern into its Corrective Action Program, provided reasonable assurance the installed oversized battery rack end rail gap did not result in a loss of battery 2P-29 battery rack system functionality, completed corrective actions to install a battery rack end rail shim and readjust the battery rack end rail gap within 1/8 inch.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green), because the finding was a design deficiency that did not result in a loss of battery functionality. The inspectors did not identify a cross-cutting aspect associated with this finding, because the finding was not representative of current performance.

Inspection Report# : 2013008 *(pdf)*

Significance: G Sep 06, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Design Loads for ECCS Suction Strainer Modification Not in Conformance with Design Basis Plant Unique Analysis Report
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to establish measures to assure the design basis was correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure appropriate quality standards are specified and deviations from such standards are controlled. Specifically, the design loads used in a calculation that supported the emergency-core-cooling system suction strainer modification deviated from the loads used in the original design analysis of torus attached piping without providing

sufficient justification the design load changes were in conformance with the original torus attached piping design and licensing basis.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring the capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green) because the finding was a design deficiency that did not result in a loss of piping system functionality. The inspectors did not identify a cross-cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : 2013008 *(pdf)*

Significance: G Sep 06, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Correct Non-Conservative Technical Specification
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the failure to ensure a non-conservative battery technical specification (TS) was corrected in a timely manner. Specifically, the licensee failed to apply for a license amendment to correct the maximum allowed 150 micro-ohm resistance values for the battery cell-to-cell and terminal connections to an acceptable value.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green), because the licensee provided test results that indicated the measured resistance values had never approached the TS allowed values. The inspectors determined this finding has a cross-cutting aspect in the area of human performance associated with decision making – systematic processes, because the licensee did not make safety significant or risk significant decisions using a systematic process.

Inspection Report# : 2013008 *(pdf)*

Significance: G Sep 06, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Untimely Resolution of Non-Conservative Battery Technical Specification
he inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to correctly translate the requirements of IEEE 450-1972 into TS surveillance requirements. Specifically, TS surveillance requirements (SR) 3.8.4.8 required verifying battery capacity every "18 months when the battery shows degradation or has reached 85 percent of expected life," contrary to the requirements for annual capacity tests in the IEEE standard, which the licensee was committed to follow.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green), because the finding was a design deficiency that did not result in a loss of battery functionality. The inspectors did not identify a cross cutting aspect associated with this finding because the finding was not representative of current performance.

Inspection Report# : 2013008 *(pdf)*

Significance: Sep 06, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Battery Testing Not in Conformance with Design Standard
The inspectors identified a finding of very low safety significance and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the failure to translate the design standard requirements for battery test periodicity into procedures and instructions. Specifically, after calculations determined battery 2B-1 had an expected life of less than 20 years, the licensee failed to adjust the capacity test periodicity and 85 percent life point in accordance with the battery design standard or provide for battery replacement at 97.1 percent of rated capacity.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of design control and affected the cornerstone objective of ensuring capability and reliability of systems that respond to initiating events to prevent undesirable consequences. The finding screened as very low safety significance (Green), because the finding was a design deficiency that did not result in a loss of battery functionality. The inspectors identified the finding had a cross-cutting aspect in the area of problem identification and resolution, Corrective Action Program because the licensee failed to ensure issues potentially impacting nuclear safety are promptly identified and fully evaluated such that the resolutions address causes and extent of conditions, as necessary.

Inspection Report# : 2013008 *(pdf)*

Barrier Integrity

Significance: Dec 31, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Correctly Connect Thermovouple Wiring During Maintenance Resulted in Inoperable Reactor Core Isolation Cooling system Isolation Instrumentation
A finding of very low safety significance with an associated Non-Cited Violation of Technical Specification (TS) 5.4.1.a on procedures was self-revealed on August 30, 2013, when the Division 1 Reactor Core Isolation Cooling (RCIC) Equipment Room temperature input to the associated steam line isolation logic was discovered inoperable during a scheduled surveillance test. Maintenance craftsmen had failed to correctly terminate thermocouple wiring as specified by the work instructions during maintenance to replace terminal block knife switches two weeks earlier. As a result, the Division 1 RCIC Equipment Room temperature input to the associated steam line isolation logic for RCIC steam supply primary containment outboard isolation valve 1E51-F008 was rendered inoperable for greater than the TS 3.3.6.1 completion time. The licensee promptly corrected the wiring discrepancy and restored the Division 1 RCIC system steam line isolation logic to an operable status. The issue was entered into the licensee's corrective action program for evaluation and additional corrective actions.

The finding was of more than minor safety significance since it was associated with the Human Performance attribute and adversely affected the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the Division 1 RCIC system steam line isolation logic was rendered inoperable for greater than the TS 3.3.6.1 completion time because maintenance craftsmen failed to correctly terminate thermocouple wiring as specified by the procedure when replacing terminal block knife switches. The finding was a licensee performance deficiency of very low safety significance because it only represented a degradation of the radiological barrier function provided for the Reactor Building and was not a complete loss of the barrier function provided by the RCIC system steam line isolation instrumentation since the Division 2 RCIC system steam line isolation logic remained operable. The inspectors concluded that this finding affected the cross-cutting area of human performance since adequate licensee personnel work practices did not support successful human performance. Specifically, human error prevention techniques, such as self and peer checking, were not adequately used to ensure the thermocouple wiring was correctly terminated upon replacing the terminal block knife switches (H.4(a)).

Inspection Report# : 2013005 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the cover letters to security inspection reports may be viewed.

Miscellaneous

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