

## Fermi 2

### 3Q/2013 Plant Inspection Findings

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#### 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 not 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 licensee'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 procedurally-

required 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)

**Significance:** G Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Inadequate Implementation of Overhaul Post-Maintenance Testing and Operation of South Reactor Feed Pump Turbine**

A self-revealed finding of very low safety significance and associated NCV of Technical Specification 5.4.1.a was identified for the licensee’s failure to establish and implement procedures recommended by Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Specifically, the licensee failed to control the three factors identified by the root cause evaluation team within their refueling outage (RF)-15 south reactor feed pump turbine (SRFPT) overhaul maintenance instructions and post-maintenance testing instructions; and within the operating procedures for the reactor feed pumps during synchronizing the main generator to the electrical grid following recovery from repairs

performed on main unit transformer 2B. The south reactor feed pump (SRFP) catastrophically failed, and as a result, the reactor was shut down because of decreasing condenser vacuum.

The inspectors determined the failure to control the presence of three factors in concert: (1) no turbine diaphragm alignment with tight clearances; (2) automatic admission of steam with challenging thermal properties; and (3) less than adequate post-maintenance testing, was a performance deficiency that required evaluation using the SDP. 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. This finding was determined to be of very low safety significance because, following IMC 0609, Table 4a, "Characterization Worksheet for Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstones," the inspectors concluded the finding did not require quantitative assessment. Therefore, the finding was determined to be of very low safety significance. This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, supervisory and management oversight aspect because the licensee failed to appropriately oversee the overhaul of the SRFPT by a vendor, and the post maintenance testing and operation of the SRFPT during and after RF-15 (H.4 (c)).

Inspection Report# : [2012005](#) (*pdf*)

## Mitigating Systems

**Significance:**  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:**  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:**  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:**  Sep 06, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Untimely Resolution of Non-Conservative Battery 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 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)

**Significance:**  Dec 31, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

### **Failure of E4150F002**

A finding of very low safety significance was self-revealed for failing to adequately inspect and identify, and then correct severe degradation of the motor operator for E4150F002 [HPCI turbine steam supply inboard containment isolation valve], which failed on July 23, 2012, when operators were attempting to place the high pressure coolant injection (HPCI) system into standby. The failure analysis of the motor identified the severe degradation. The apparent cause evaluation team identified three apparent and contributing causes for the severe degradation: first, prolonged moisture from steam leaks or other water sources; second, improper end ring coatings; and third, failing to identify a degraded condition during a video probe inspection.

The inspectors determined the failure to adequately inspect and identify, and then correct severe degradation of the motor operator for E4150F002 was a performance deficiency that required an SDP evaluation. The inspectors determined this finding was more than minor because it was associated with the configuration control attribute of the Mitigating Systems Cornerstone and impacted the cornerstone objective of ensuring the capability of systems to prevent undesirable consequences (i.e., core damage). This finding was determined to be of very low safety significance because, following IMC 0609, Appendix E, Table 4a, "Characterization Worksheet for Initiating Events,

Mitigating Systems, and Barrier Integrity Cornerstones,” all questions were answered ‘no.’ Therefore, the finding was determined to be of very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, appropriate corrective actions aspect because the licensee failed to adequately inspect and identify, and then correct severe degradation of the motor operator for E4150F002 (P.1 (d)).

Inspection Report# : [2012005](#) (*pdf*)

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **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.

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## **Miscellaneous**

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