

Fermi 2

4Q/2003 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Wrong Spring Installed in West Station Air Compressor Breaker Causes Compressor Failure

A self revealed finding was identified for inappropriate maintenance on the breaker for the west station air compressor on December 20, 1999. This led to excessive cycling of the breaker and failure of the compressor coupling during compressor shutdown on March 13, 2003. This issue was considered more than minor because it affected an attribute and objective of the Initiating Events Cornerstone. No violation of regulatory requirements occurred because the issue occurred on plant support equipment, which was nonsafety-related.

A phase 2 risk assessment was performed and it was determined that the issue had low safety significance (Green) do to a low initiating event frequency of a Loss of Instrument Air with one of three station air compressors unavailable.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  Jun 30, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Include Technical Specification Amendment 114 into UFSAR

The inspectors identified a non-cited violation for failing to comply with 10 CFR 50.71 (e). This violation was related to not updating the Updated Safety Analysis Report (USAR) with the effects of a safety analysis and evaluation performed by the licensee in support of approved license amendment 114, which allowed average reactor coolant system temperature to be between 200 and 212 degrees Fahrenheit for conducting in-service leakage tests and hydrostatic tests while in MODE 4. Specifically the licensee's safety analysis and evaluation credited all control rods as fully inserted to ensure additional shutdown margin during these testing evolutions, but this condition (all rods inserted) was not incorporated into the USAR or licensee procedures.

This finding was more than minor because this condition permitted the conduct of control rod scram testing during hydrostatic and system leakage testing, which was different from the initial condition that all control rods were fully inserted as assumed in the analysis and evaluation for approved license amendment 114. The licensee provided this initial condition in their amendment request and the NRC staff used this initial condition in the safety evaluation for approval of license amendment 114. The failure to comply with 10 CFR 50.71(e) caused inappropriate pressure testing procedure changes and created a situation where less shutdown margin than originally evaluated and accepted by the NRC staff was present at times when these activities were conducted concurrently. As such, the performance of scram time testing during hydrostatic or system leakage testing would have required prior NRC approval in accordance with 10 CFR 50.59. The issue was considered of very low safety significance because the finding did not contribute to the likelihood of a primary or secondary system loss of coolant accident, it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available nor did it increase the likelihood of a fire or internal/external flood. Adequate shutdown margin had always been maintained.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  Jun 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Operator Error Causes Loss of Shutdown Cooling

A self revealed violation of 10 CFR 50, Appendix B, Criterion V, occurred on April 28, 2003, when operators improperly shifted reactor protection system busses and caused a loss of shutdown cooling. 10 CFR 50, Appendix B, requires, in part, that activities affecting quality shall be accomplished in accordance with prescribed procedures. The licensee developed Procedure 23.316 to shift reactor protection system busses and require depression of the open pushbutton for E1150-F008. Contrary to these requirements, the operator failed to depress the pushbutton and caused a loss of shutdown cooling.

The inspectors determined that the violation is more than minor using the guidance provided in NRC Inspection Manual Chapters 0609 and 0612. Chapter 0609 provides guidance on evaluation of the significance of findings for a shutdown reactor. In accordance with Appendix G, Table 1 of 0609, loss of shutdown cooling is a finding of very low safety significance.

Inspection Report# : [2003006\(pdf\)](#)

Significance:  Mar 31, 2003

Identified By: Licensee

Item Type: FIN Finding

Failure of Circulating Water Pump No. 2 Casing Bolts

One Green finding was identified regarding performance issues which resulted in the unexpected failure of circulating water pump No. 2, and an initiating event (a plant scram). The pump diffuser casing bolts were cleaned of rust and reinstalled following preventive maintenance in 2000. Residual rust left on the bolts caused an inadequate torque to be applied to the bolts. After running the pump for about 29 months, the bolts fatigued and failed. The diffuser casing separated from the pump column and struck and damaged the pump shaft on October 2, 2002. These failures led to a loss of condenser vacuum, a turbine trip, and a reactor scram.

This finding was more than minor because the failure of the pump caused a plant transient. However, the failure of the pump was of very low risk significance because the condition neither contributed to: (1) the likelihood of a primary or secondary loss of coolant accident initiator, (2) the likelihood of a reactor trip and unavailability of mitigating equipment or loss of mitigating equipment functions, or (3) the increased likelihood of a fire or an internal or external flood. There were no violations of NRC requirements because the pump is a nonsafety-related component and the pump pieces did not impact the operation of safety-related equipment.

Inspection Report# : [2003002\(pdf\)](#)

Mitigating Systems

Significance:  Dec 31, 2003

Identified By: NRC

Item Type: FIN Finding

Inadequate implementation of the modification process prevented CTG 11-1 from starting during the August 14, 2003 loss of offsite power

Green. A finding of very low safety significance was self-revealed during the August 14, 2003, blackout when station blackout combustion turbine generator (CTG) 11-1 failed to start. An improper modification process used in 1996 to install an inverter on CTG 11-1 did not include updating the design basis central component (CECO) database with the appropriate low voltage inverter trip set point. The low voltage trip set point was set too high and prevented CTG 11-1 from starting on demand during the blackout.

This finding was more than minor because it affected the mitigating systems cornerstone objective to ensure availability, reliability, and capability of the CTG 11-1 system that responds to initiating events to prevent undesirable consequences. The issue was of very low safety significance because the inspectors answered "no" to all five screening questions in the Phase 1 Screening Worksheet under the mitigating systems column. Since CTG 11-1 was a non-Technical Specification system and not required by 10 CFR Part 50, Appendix B, no violation of regulatory requirements occurred. (Section 4OA5.1)

Inspection Report# : [2003010\(pdf\)](#)

G

Significance: Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50, Appendix B Criterion V violation for failure to follow procedures resulting in a RCIC steam isolation

Green. A finding of very low safety significance was self-revealed on November 25, 2003, when a technician failed to follow procedures and improperly connected test equipment to the wrong terminals to perform a reactor core isolation cooling (RCIC) steam diaphragm pressure test. This caused a short circuit and an unexpected steam isolation of the RCIC system.

This finding was more than minor because RCIC was rendered inoperable and unavailable for about 3 hours, thereby affecting the availability and reliability of a mitigating system as described in the mitigating systems cornerstone. The finding was of very low safety significance because RCIC could be quickly restored by opening RCIC steam supply outboard containment isolation valve E5150F008. Thus, the safety function of providing high pressure water to the core in the event of a loss of feedwater was not lost. This failure to follow procedures was a violation of 10 CFR 50, Appendix B Criterion V and is classified as a Non-Cited Violation. (Section 1R22.2)

Inspection Report# : [2003010\(pdf\)](#)

G

Significance: Oct 24, 2003

Identified By: NRC

Item Type: FIN Finding

Multiple equipment problems experienced with station blackout combustion turbine generator (CTG) 11-1

Inspectors identified a finding that multiple equipment problems experienced with station blackout combustion turbine generator (CTG) 11-1 over several years showed system unreliability and that the licensee failed to establish corrective actions to provide adequate assurance that CTG 11-1 would start on demand. Subsequently, during the loss of offsite power event that occurred on August 14, 2003, CTG 11-1 did not start. The finding represented a decrease in availability, reliability, and capability of the station blackout combustion turbine generator to respond to initiating events. No violation of regulatory requirements occurred.

The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." The inspectors determined that the finding was more than minor because it affected the Mitigating Systems cornerstone objective to ensure availability, reliability, and

capability of the CTG 11-1 system to respond during initiating events. This issue was considered a finding of very low safety significance.

Inspection Report# : [2003009\(pdf\)](#)

Significance:  Oct 24, 2003

Identified By: NRC

Item Type: FIN Finding

Repeat low oil pressure trips on the control center chillers.

The inspectors identified a finding of very low safety significance for failure to adequately evaluate the cause of repeat low oil pressure trips on the control center chillers. No violation of regulatory requirements occurred.

This finding is greater than minor because, if left uncorrected, it would become a more significant safety concern.

Specifically, the inoperability of both chillers is an immediate Technical Specification 3.0.3 entry. When the Div. 1 chiller failed to start on September 30, 2003, coincident with the simultaneous failure of the Div. 2 chiller, a plant shutdown was commenced. Thus, the failure to adequately address this issue could have resulted in a reactor shutdown via Technical Specification 3.0.3. Because operators successfully restarted the chiller before the control room temperature rose too high, this finding does not represent an actual loss of a safety function and Technical Specification requirements were met. Therefore, this performance deficiency is an issue of very low safety significance.

Inspection Report# : [2003009\(pdf\)](#)

Significance:  Sep 30, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Apply Adequate Design Control Measures Results in Equipment Exceeding Its Design Basis Service Life.

The inspectors identified a Non-Cited Violation of Criterion III of Appendix B to 10 CFR Part 50, for failure to assure adequate design controls were in place to ensure that Agastat general purpose relays would be replaced prior to exceeding their design basis life. Although the licensee's preventive maintenance program allowed safety-related general purpose relays to remain in service beyond their design basis life, a review of work history identified no general purpose relays that had malfunctioned due to heat-related problems.

This finding is greater than minor because, if left uncorrected, it would become a more significant safety concern.

Specifically, the licensee's process of including a 25 percent grace period on most preventive maintenance tasks could allow a component to remain in service longer than the design basis lifetime, thus reducing the reliability of that component to perform its intended safety function. Because the relay that was found in service beyond its design basis lifetime remained functional, this finding did not represent an actual loss of a safety function. Therefore, this finding is characterized as an issue of very low safety significance.

Inspection Report# : [2003008\(pdf\)](#)

Significance:  Sep 30, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Implement Design Control Processes for Adding Plastic Sleeves on EDG Drain Line.

The inspectors identified a Non-Cited Violation of Criterion III of Appendix B to 10 CFR Part 50, for site personnel installing plastic sleeves on the drain lines for all four emergency diesel generators without using the design control measures for design changes specified in Procedure MES 12, "Temporary Modifications." Consequently, installation of the plastic sleeves for the drain line on Emergency Diesel Generator 11 restricted the oil draining capacity of the diesel and was a contributing cause for oil reaching the hot exhaust manifold and creating a fire.

This finding is greater than minor because it affected the Mitigating System Cornerstone of equipment reliability. Specifically, the plastic sleeves restricted the fuel oil draining flow for Emergency Diesel Generator 11. The restriction caused the fuel oil to collect on the injector deck, migrate, and collect on the hot exhaust manifold piping insulation and catch fire. The finding is of very low safety significance because the fire was manually suppressed using available fire extinguishers before substantial damage to Emergency Diesel Generator 11 occurred. Also, emergency onsite power availability was maintained in that only one of four emergency diesel generators was impacted.

Inspection Report# : [2003008\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Significance: SL-IV Dec 31, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50.54(q) Violation for decreasing the effectiveness of the E-Plan by changing EALs that address toxic gases without prior NRC approval

Severity Level IV. The inspectors identified that the licensee changed its standard emergency action level (EAL) scheme on December 19, 2000, for those events related to toxic gas releases for Unusual Event and Alert classifications. The inspectors determined these changes decreased the effectiveness of the emergency plan, and the licensee did not obtain prior NRC approval, contrary to the requirements of 10 CFR 50.54(q).

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. According to Supplement VIII 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 two EALs and was not indicative of a functional problem with the EAL scheme. Because the licensee has entered this issue into its corrective action program it is being treated as a Non-Cited Violation. (Section 1EP4)

Inspection Report# : [2003010\(pdf\)](#)

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 20, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN CONTROL OF LICENSED RADIOACTIVE MATERIAL

A self-revealing violation of 10 CFR 20.1802 was identified, when the licensee failed to maintain control of a measurable amount of licensed radioactive material (i.e., external radioactive contamination on a lanyard) identified during whole body counting of a contractor.

The finding 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 in ensuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain. The vendor operator's apparent lack of knowledge as to the requirements to control measurable amounts of radioactive material, which was exacerbated by less than adequate radiation protection oversight of the vendor and procedure deficiencies, led to the unrestricted release of measurable radioactive material. However, this finding, associated with the licensee's radioactive material control program, was of very low safety significance in that public radiation exposure was not greater than 0.005 rem and the licensee did not have more than five radioactive material control occurrences (in the previous eight quarters). An associated Non-Cited Violation of 10 CFR 20.1802 was identified for the failure to control licensed radioactive material in an unrestricted area and not in storage.

Inspection Report# : [2003006\(pdf\)](#)

Physical Protection

Miscellaneous

Significance: N/A Oct 24, 2003

Identified By: NRC

Item Type: FIN Finding

Identification, Evaluation and Resolution of Issues

The team concluded that the licensee was generally effective in the identification, evaluation and resolution of issues. However, the team's reviews of events documented in CARDS over the past 2 years pointed at decline in performance that was not related to the corrective action program, but related to poor performance in other areas. The corrective action process was being used to address these events. In July of 2002, mechanics simultaneously opened core spray containment isolation valves, and in October of 2002, the failure of circulating water pump casing bolts caused a reactor scram. In 2003, removal of residual heat removal system insulation at power put system operability at risk, including a potential entry into the reactor shutdown requirements of Technical Specification 3.0.3. This issue distracted operators, contributing to a violation of Technical Specifications for a primary containment isolation penetration not being isolated within 4 hours. During the loss of grid voltage in August of 2003, the station blackout combustion turbine generator failed to start, and in October, a reactor shutdown was initiated when the chillers in both trains of control room ventilation failed to start.

There were several observations by inspectors that were already identified in the licensee's assessments of the corrective action program. These included a backlog of Level 4 CARDS, documentation that was not clear and complete, and the self-assessment program in need of restructuring. Inspectors also observed that tracking corrective action through the documentation was sometimes difficult, although no lost items were identified. Quality Assurance assessments were thorough and added value.

Inspection Report# : [2003009\(pdf\)](#)

Last modified : March 02, 2004