

Crystal River 3

4Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: FIN Finding

Inadequate procedure guidance resulted a Loss of Condensate flow and a Manual Reactor Trip

A self-revealing finding was identified for failure to provide adequate condensate system procedural guidance to preclude condensate pump operation at critical speed. As a result, prolonged operation at critical speed caused the condensate pump to fail and subsequently, the reactor was manually tripped in anticipation of a loss of the normal heat sink. The licensee entered this issue into the licensee's corrective action program as nuclear condition reports (NCRs) 174440 and 174442.

This finding is more than minor because it affected the procedure quality attribute of the Initiating Events cornerstone and resulted in an event that upset plant stability and challenged critical safety functions. This finding also affected the equipment reliability attribute of the Mitigating Systems Cornerstone objective and resulted in a loss of the normal heat sink. Because two Cornerstones were affected, a Phase 2 analysis was required. The consequences of the finding were assessed through the Significance Determination Process (SDP) Phase 2, and although the likelihood of a unit trip was increased and resulted in a loss of the normal heat sink, the exposure time for this condition was less than 3 days and all other mitigation capabilities described on the Phase 2, SDP worksheet for transient (reactor trip) core damage sequences were maintained. Consequently, the finding was determined to be of very low safety significance (Green). The finding was associated with non-safety related equipment and therefore, no violation of regulatory requirements occurred (Section 40A3.2).

Inspection Report# : [2005005\(pdf\)](#)

Mitigating Systems

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to properly assess and correct condition of water in the 1A diesel fuel tank

An NRC identified, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI was identified for failure to properly assess and correct a long standing issue associated with minor amounts of water intrusion into the 1A Emergency Diesel Generator (EGDG) diesel fuel tank (DFT). As a result, the DFT remained susceptible to water intrusion during a postulated peak high tide associated with a probable maximum hurricane which could have affected the operability of the 1A EGDG. The licensee entered the issue into the corrective action program and is performing a root cause evaluation to determine short and long term corrective actions.

This finding is more than minor because it affected the protection against external factors attribute of the mitigating system cornerstone and affected the cornerstone objective of ensuring availability of a mitigating system. During a design basis flood event, enough water could have entered the DFT through a loose cap adapter connection to render the 1A EGDG inoperable. Using NRC Manual Chapter 0609, "Significance Determination Process," Appendix A, Phase 1, this finding was determined to require a Phase 3 analysis since the finding screened as potentially risk significant due to a flooding initiating event. A Regional Senior Reactor Analyst performed the Phase 3 evaluation and determined that the finding was of very low safety significance. This finding also involved a cross cutting aspect of Problem Identification and Resolution, because station personnel missed several opportunities to properly assess and correct this degraded condition.(Section 1R06)

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

Significance:  Sep 07, 2005

Identified By: NRC

Item Type: VIO Violation

Unprotected Post-Fire Safe Shutdown Cables and Related Non-feasible Local Manual Operator Action

10 CFR 50.48(b)(1) requires, in part, that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of 10 CFR Part 50, Appendix R, Section III.G, Fire Protection of Safe Shutdown Capability.

Section III.G.2 states that, except as provided for in Section III.G.3, where cables or equipment (including associated non-safety circuits that

could prevent operation or cause maloperation due to hot shorts, open circuits, or shorts to ground) of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

- a. separation of cables and equipment and associated non-safety circuits of redundant trains by a fire barrier having a 3-hour rating (Structural steel forming a part of or supporting such fire barriers shall be protected to provide fire resistance equivalent to that required of the barrier.);
- b. separation of cables and equipment and associated non-safety circuits of redundant trains by a horizontal distance of more than 20 feet with no intervening combustible or fire hazards (In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.); or
- c. enclosure of cable, equipment, and associated non-safety circuits of one redundant train in a fire barrier having a 1-hour rating. (In addition, fire detectors and an automatic fire suppression system shall be installed in the fire area.)

Contrary to the above, on January 26, 2005, the licensee failed to ensure that one of the redundant trains of systems necessary to achieve and maintain hot shutdown conditions would be free of fire damage via one of the three means specified in 10 CFR Part 50, Appendix R, Section III.G.2. Specifically, cables for the electrical protection and metering circuit located in the 3A 4160-V engineered safeguards (ES) switchgear room were vulnerable to fire damage that could disable both the 3A 4160-V ES switchgear and the redundant train 3B 4160-V ES switchgear resulting in a loss of all safety-related alternating current power.

This violation is associated with a White Significance Determination Process finding for Unit 3 in the mitigating systems cornerstone.

Inspection Report# : [2005011\(pdf\)](#)

G

Significance: Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish appropriate quantitative acceptance criteria to assure Crystal River 3 Technical Specification 3.8.1 operability of the offsite power supply

The inspectors identified a non-cited violation when the licensee failed to establish appropriate quantitative acceptance criteria to assure offsite power operability for compliance with Crystal River 3 Technical Specification 3.8.1.

This finding is more than minor because if left uncorrected, a more significant safety concern could occur if a low voltage condition of the offsite power supply was not immediately recognized and corrected. The finding was of very low safety significance according to the SDP Phase 1 worksheet since none of the functions identified in phase 1 were degraded as a result of this deficiency. (Section 1R22)

Inspection Report# : [2005003\(pdf\)](#)

G

Significance: Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to properly evaluate and correct emergency diesel generator loss of fuel oil header prime condition caused by leakage past the fuel header check valves

A self revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI was identified for failure to properly evaluate and correct a long standing emergency diesel generator (EGDG) loss of fuel oil header prime condition caused by leakage past the fuel header check valves. As a result, two separate slow fast start failures occurred in the 'A' EGDG during fast start surveillance tests, conducted on April 23, 2004 (NCR 125149) and March 23, 2005 (NCR 154522). A third related failure was identified in July 5, 2001, when the 'B' EGDG failed to start during a monthly surveillance test (NCR 44603).

This finding is more than minor because it directly affected the mitigating system cornerstone objective of ensuring the reliability and operability of a mitigating system. This issue was of very low safety significance because the condition did not affect the capability of the 'A' EGDG to perform its design safety function. In addition, the slower fast start time was bounded by the accident analysis calculations. Corrective actions included, replacing the fuel oil check valves with a higher closing spring force valve, priming the system three times per month, and initiating actions to modify the fuel oil system. (Section 4OA3)

Inspection Report# : [2005003\(pdf\)](#)

Barrier Integrity

G**Significance:** Sep 26, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Conduct Adequate Corrective Actions During Review of Steam Generator Inspection Results During 12R Refueling Outage Inspections

The inspectors identified a Non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for inadequate corrective action during review of the results of the refueling outage 12 steam generator Tube End Crack inspections. As a result, Crystal River 3 operated with the calculated leakage exceeding the Technical Specification leakage limit. The licensee entered this condition into their corrective action program.

The finding is more than minor because it was associated with steam generator tube integrity and affected the barrier integrity cornerstone, and if left uncorrected, a more significant safety concern could occur if appropriate corrective actions were not applied to unexpected results found during steam generator inspection activities. This finding represents a cross cutting aspect of problem identification and resolution. The finding was of very low safety significance because it did not result in loss of structural integrity of the steam generators, the small increase in estimated leak rate under main steam line break accident scenarios would not have any significant effect on core damage frequency or large early release frequency, and the contained location of flaws in the tubes makes it impossible to cause spontaneous tube ruptures.

Inspection Report# : [2005009\(pdf\)](#)**Significance:** SL-IV Sep 26, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Completeness and Accuracy of Information Provided to the NRC Concerning Steam Generator Inspection Results

The inspectors identified a Non-cited violation (NCV) of 10 CFR 50.9, Completeness and Accuracy of Information, for several examples of inaccuracies and incomplete information in required reports and correspondence. The licensee entered this condition into their corrective action program.

This violation was assessed using traditional enforcement because it impacted the regulatory process. The issue is more than minor because the NRC relies on complete and accurate information to reach conclusions concerning the allowable time between steam generator inspections. It was determined to be a Severity Level IV violation because it was not willful, the technical issue associated with the incomplete and inaccurate information was of very low safety significance, and the NRC had not yet made a regulatory decision based on the information.

Inspection Report# : [2005009\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : March 03, 2006