

## Summer 4Q/2006 Plant Inspection Findings

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### Initiating Events

**Significance:**  Dec 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Follow Procedure for Maintaining Steam Generator Water Level Results in Turbine Trip During Power Escalation**

A green self-revealing non-cited violation of Technical Specification 6.8.1.a was identified for operator failure to follow procedure for maintaining steam generator water level while transitioning from the emergency feedwater system to the main feedwater system. This resulted in a turbine trip including feedwater isolation and feedwater pump trip. As immediate corrective actions, the oncoming operations crew was provided simulator training on the evolution emphasizing lessons learned from the incident and procedures were enhanced to limit the main feedwater pump acceleration response ramp rate.

This finding is more than minor because it affected the human performance attribute of the Initiating Events cornerstone and affected the cornerstone objective, in that, the failure to utilize all available indications and anticipate plant response resulted in a plant transient causing a turbine trip. The finding was evaluated using Inspection Manual Chapter 0609, Significance Determination Process, Phase I Worksheet for initiating events. The finding is determined to be of very low safety significance because all necessary plant safety equipment responded as designed to the turbine trip event. The contributing cause of this finding involved the human performance and error prevention aspect of the Human Performance cross-cutting area

Inspection Report# : [2006005](#) (*pdf*)

**Significance:**  Mar 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Use Adequate Maintenance Procedures to Inspect and Repair Main Steam Isolation Valves**

A self-revealing, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for failure to establish, implement, and maintain adequate maintenance procedures to ensure that the Main Steam Isolation Valves (MSIVs) were capable of performing their safety-related function. Specifically, maintenance procedure MMP-300.023, Main Steam Isolation Valve Air Actuator Maintenance, was inadequate in that it did not include hot-condition checks of the alignment of the bottom spring plate and stanchion gap tolerances.

This finding is greater than minor because it impacts the equipment performance attribute of the Reactor Safety Mitigating Systems Cornerstone in that the failure of the MSIV to close affects the reliability and availability of that valve. This finding was determined to be of very low safety significance because the valve did go closed within a relatively short time, and because the effects of the failure of a single MSIV to close are bounded by accident analysis assumptions.

Inspection Report# : [2006007](#) (*pdf*)

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### Mitigating Systems

**Significance:**  Dec 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Follow Surveillance Procedure Resulting in Inoperability of "B" ECCS Accumulator**

A green self-revealing non-cited violation of Technical Specification 6.8.1.c was identified for failure to follow surveillance testing procedure resulting in the inadvertent partial draining of the "B" emergency core cooling system (ECCS) accumulator. The licensee was in the process of completing an apparent cause evaluation for the human performance error at the end of the inspection period.

This finding is more than minor because it affected the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the capability of systems that respond to initiating events to prevent undesirable consequences, in that, it had an actual impact of rendering an ECCS accumulator inoperable requiring an unexpected Technical Specification Limiting Condition for Operation entry. The finding was evaluated using Inspection Manual Chapter 0609, Significance Determination Process, Phase I Worksheet for mitigating systems. The finding is determined to be of very low safety significance because the accumulator always maintained adequate inventory to fulfill its safety function, it did not result in an actual loss of a single train for greater than its Technical Specification allowed outage time, and is not potentially risk significant due to external events. The direct cause of this finding involved the procedural compliance aspect of the Human Performance cross-cutting area.

Inspection Report# : [2006005](#) (*pdf*)

**Significance:**  Sep 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Corrective Actions Associated with a Previous Violation Involving Failure to Implement Procedures for a Loss of Control Room Annunciator Event**

The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to take adequate corrective actions for a previously identified NCV. The corrective actions taken were not adequate as demonstrated by the failure of control room personnel to be cognizant of the new procedural guidance when a partial loss of control room annunciators occurred on July 24, 2006. The licensee presently plans to develop an abnormal operating procedure which has a formal training review.

This finding is more than minor because if left uncorrected, it would result in a more significant safety concern if appropriate compensatory actions were not implemented for loss of control room annunciator events. The finding is of very low safety significance because during the latest loss of annunciator event, operators took reasonable actions to address the condition; there was no actual loss of mitigating system equipment; and no other plant transients occurred during the time period the annunciators were inoperable. The direct cause of this finding involved the cross-cutting area of problem identification and resolution, in that, previous corrective actions were not adequate to ensure that operators were cognizant of, and implemented, procedures for responding to a loss of control room annunciator event

Inspection Report# : [2006004](#) (*pdf*)

**Significance:**  Sep 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Follow Fire Protection Surveillance Procedure to Prevent Inadvertent Fire Damper Closures and High Temperatures in the Relay Room**

A Green self-revealing non-cited violation (NCV) of Technical Specification (TS) 6.8.1.f was identified for failure to follow a fire protection surveillance testing procedure resulting in a TS Limiting Condition for Operation (LCO) entry due to exceeding the allowed room temperature of the control building relay room. The licensee is considering procedural enhancements and associated training.

This finding is more than minor because it is associated with the human performance and configuration control attributes of the Mitigating Systems cornerstone, and affected the cornerstone objective of ensuring the reliability of systems which respond to initiating events to prevent undesirable consequences, in that, it resulted in an unexpected TS LCO entry and high temperatures in an area of the plant containing temperature sensitive safety-related electronic equipment which could have been adversely impacted by the elevated temperatures. The finding is of very low safety significance because the environmental qualification temperatures of the most limiting equipment in the affected area was not exceeded; it did not result in a loss of safety function of one or more trains of mitigating system equipment; and was not potentially risk-significant due to possible external events. The direct cause of this finding is related to the procedural compliance aspect of the cross-cutting area of human performance.

Inspection Report# : [2006004](#) (*pdf*)

**Significance:**  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Take Adequate and Timely Corrective Actions to Preclude Repetitive Spurious Tripping of Safety Related Molded Case Circuit Breakers**

The inspectors identified a non-cited violation of 10 CFR 50 Appendix B Criterion XVI was identified for the licensee's failure to take adequate and timely corrective actions to preclude repetition of a significant condition adverse to quality. Specifically, the licensee failed to prevent the spurious tripping of safety-related molded case circuit breakers for the Emergency Diesel Generator (EDG) room ventilation supply fans due to asymmetrical in-rush current. The licensee has entered this issue in its corrective action program for resolution.

This finding is more than minor because it is 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 EDGs. The finding is of very low safety significance because it did not result in a loss of safety function of one or more EDG trains and was not potentially risk-significant due to possible external events. The direct cause of this finding involved the cross-cutting area of Problem Identification and Resolution, in that, the identified corrective actions were not adequate to resolve the fans tripping due to asymmetrical in-rush current.

Inspection Report# : [2006003](#) (*pdf*)

**Significance:**  Jun 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Identify the SBLOCA Most Limiting Condition for Verification of RHR MOV Operability**

The team identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, the licensee's corrective action to address an industry operating experience issue applicable to their station was inadequate in that the evaluation did not correctly identify the most limiting condition of a small break loss of coolant accident (SBLOCA) on their ability to open the residual heat removal (RHR) system containment suction motor operated valves (MOVs) which was the subject of a previous industry operating experience report from the McGuire Nuclear Station in 2005. The licensee entered the deficiency into their corrective action program for resolution.

This finding is more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance (Green) because subsequent analysis demonstrated that the valves remained capable of performing their design function. This finding involved the cross-cutting area of Problem Identification and Resolution because the problem evaluation did not correctly identify the most limiting condition for operation of the RHR containment suction MOVs following a SBLOCA scenario.

Inspection Report# : [2006008](#) (*pdf*)

**Significance:**  Jun 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Deficient Extent of Condition Review for EDG B Lube Oil TCV Malfunction**

The team identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, the licensee's corrective action to evaluate an extent of condition on emergency diesel generator (EDG) A following identification of an EDG B lube oil thermostatic control valve (TCV) malfunction was deficient. The extent of condition review to assess the potential for a similar component malfunction on EDG A was technically inadequate, incomplete, and did not provide assurance that the EDG A remained operable for all possible operating conditions, particularly increased heat sink conditions occurring in the summer. The licensee entered the deficiency into their corrective action program for resolution.

The finding is more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to

prevent undesirable consequences. This finding is of very low safety significance because the licensee determined that the EDGs were operable based on heat sink temperatures and that TCV performance monitoring would be accomplished when heat sink temperatures are expected to increase. This finding involved the cross-cutting area of Problem Identification and Resolution because the evaluation, specifically the extent of condition review, was inadequate in that it failed to assure that the EDG B component malfunction did not apply to EDG A.

Inspection Report# : [2006008](#) (*pdf*)

**Significance:** **G** Jun 23, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

### **Inadequate Acceptance Criteria for EDG Intercooler Performance Testing**

The team identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control. Specifically, the licensee used non-conservative acceptance criteria for the emergency diesel generator (EDG) intercooler performance test, PTP-213.002, Service Water System Heat Exchanger Data Collection. The acceptance criteria for the allowed heat exchanger fouling factor based on tubes plugged was non-conservative and could allow heat exchanger degradation below design limits. Additionally, the wall thickness criteria for tube pitting would allow full penetration to occur between tube inspections. Loss of tube integrity would degrade the ability of the heat exchanger to remove the design heat load of the EDG. The licensee entered the deficiency into their corrective action program for resolution.

The finding is more than minor because it affected the procedure quality attribute of the mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance because the licensee determined that EDGs were operable based on the affected heat exchanger having been recently cleaned; the latest intercooler performance results indicated substantial heat exchanger duty margin; and the proposed monthly trending of the heat exchanger.

Inspection Report# : [2006008](#) (*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**

**Significance:** **W** Mar 03, 2006

Identified By: Self-Revealing

Item Type: VIO Violation

### **Failure to Properly Prepare a Radioactive Material Package for Shipment**

The inspectors identified an apparent self-revealing finding of low to moderate safety significance. The licensee failed to prepare a shipment of radioactive material to a waste processing facility in a manner such that, under conditions normally incident to transportation, the radiation level at any point on the external surface of the package would not exceed 200 millirem per hour (mR/hr), as specified by the Department of Transportation (DOT) Regulation 49 CFR 173.441(a). When the shipment arrived at the processing facility on May 27, 2005, the radiation dose rates, measured on portions of the external surface of the package, were as high as 600 mR/hr, which is in excess of the limits specified by the regulatory requirement.

The failure to properly prepare the shipment in a manner to assure conformance with the requirements of 49 CFR 173.441 (a) was determined to have low to moderate safety significance, using the Public Radiation Safety Significance Determination Process. The finding involved the transportation of radioactive material in which the external radiation that was accessible to members of the public exceeded DOT limits but was less than five times the regulatory limit.

In Inspection Report 05000395/2006-011, issued May 5, 2006, the final significance of this item was determined to be White. The apparent violation was closed to a violation, designated as 05000395/2006011-01. The violation is listed below.

10 CFR 71.5 requires that NRC licensees ship radioactive materials in accordance with the applicable provisions of the Department of Transportation regulations found in 49 CFR 100-177.

49 CFR 173.441(a) requires that each package of radioactive material offered for transport must be designed and prepared for shipment so that under conditions normally incident to transportation, the radiation level does not exceed 200 millirem per hour at any point on the external surface of the package.

Contrary to the above, the licensee failed to properly design and prepare for shipment a package of radioactive material that was transported from the licensee's facility to an offsite waste processing vendor. Specifically, a package was shipped by V. C. Summer on May 26, 2005, and arrived at a waste processing vendor facility in Oak Ridge, Tennessee, on May 27, 2005, with contact radiation levels of 600 millirem per hour on the side external surface of the package approximately 10 feet from the ground.

Inspection Report# : [2006009](#) (*pdf*)

Inspection Report# : [2006011](#) (*pdf*)

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## Physical Protection

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

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## Miscellaneous

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