

## North Anna 2

### 3Q/2005 Plant Inspection Findings

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#### Initiating Events

**G****Significance:** Sep 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Follow Procedures During Solid State Protection System Testing**

On July 22, 2005, a self-revealing non-cited violation of Technical Specification 5.4.1.a was identified for a failure to follow a surveillance procedure which resulted in placing an incorrect bistable in a trip condition on Unit 2. Only unexpected control room alarms occurred as a result of the performance deficiency since no other logic channel's bistables were in trip.

The inspectors determined that the finding is more than minor because it could reasonably be viewed as a precursor to a more significant event. If another channel in the logic had already been tripped, the plant would have been adversely affected. The finding is of very low safety significance (Green) because it did not involve any loss of coolant accident initiators, did not contribute to both a reactor trip or mitigating system unavailability, nor increase the likelihood of a fire. This finding contains aspects relating to the cross-cutting area of human performance.

Inspection Report# : [2005004\(pdf\)](#)**G****Significance:** Sep 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Identify and Correct Deficiencies in Instrumentation Results In Reactor Trip**

A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, was identified regarding a failure to promptly identify and correct deficiencies which caused anomalies in the Unit 2 channel 1 over-temperature delta-temperature (OTDT) instrumentation. The anomalies occurred during a lightning storm on July 29, 2003 and the licensee took no corrective actions to correct the condition. As a result, it was not until a Unit 2 automatic reactor trip from an OTDT signal on August 5, 2005, during a lightning storm, that the licensee identified an installation deficiency associated with a 1989 modification. A similar Unit 2 automatic reactor trip from an OTDT signal occurred during a lightning storm on September 17, 1998.

The finding had an impact on safety based on the deficiencies resulting in two reactor trips and a third documented "near miss" event. The finding was more than minor because it affected the Initiating Events cornerstone objective to limit the likelihood of those events that upset plant stability and the cornerstone attribute of design control. The finding is of very low safety significance because it did not contribute to the likelihood of a primary or secondary system loss of coolant accident, a loss of mitigation equipment functions or the likelihood of a fire or flood event. This finding contains aspects relating to the cross-cutting area of problem identification and resolution.

Inspection Report# : [2005004\(pdf\)](#)**G****Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

**Fire Response Procedures Not Adequate to Maintain Reactor Coolant Level Within the Level Indication of the Pressurizer (Section 4OA5)**

In May 2003, the licensee failed to have procedures in effect which would maintain the reactor coolant level in the level indication of the pressurizer during some fires in the Unit 1 and Unit 2 emergency switchgear and relay rooms (ESGRs). A fire in these areas could result in loss of cooling to the reactor coolant pump (RCP) seals and subsequent seal failure loss of coolant accident. The licensee has established interim measures to address this finding while long term corrective actions are evaluated.

An inspector-identified non-cited violation of 10 CFR 50, Appendix R, Sections III.L.2 and .3 was identified. The finding is more than minor, in that, it affected the objective of the Mitigating Systems Cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events. For a severe fire in the ESGRs, established fire protection procedures would not preclude a RCP seal failure and subsequent loss of the capability to maintain the reactor coolant system level within the pressurizer level indication. A Significance Determination Process Phase 3 analysis determined that the finding was of very low safety significance mainly due to recovery actions in procedures and the low likelihood of fire damage to control and power cables due to their routing. (Section 4OA5)

Inspection Report# : [2004006\(pdf\)](#)

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## Mitigating Systems

**Significance:**  Sep 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Inadequate Design Control Results in Degradation of SW Supports/Restraints**

A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion III, was identified for inadequate design controls. During the development of a service water (SW) expansion joint modification, which was implemented in December 2003, the licensee failed to verify the design adequacy of adjacent pipe support and restraints. The design failed to incorporate normal system pressure loads in the design. As a result, on June 14, 2005, during inspections of the SW expansion joints, the licensee noted severe damage on adjacent pipe support and restraints. Both the Unit 1 and Unit 2 'A' and 'B' trains of SW were affected. The SW system was determined to operable but degraded.

This finding had a credible impact on safety based on a design control error which impacted both trains of the SW system which is a link between the transfer of reactor decay heat to the plant's ultimate heat sink. The finding is more than minor due to the impact on 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) and the cornerstone attribute of design control of plant modifications. The finding is of very low safety significance because the design deficiency was confirmed not to result in loss of function per Generic Letter 91-18. This finding contains aspects relating to the cross-cutting area of human performance.

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

**Significance:**  Jan 28, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Determine the Cause and take Appropriate Corrective Actions for the Installation of Incorrect Thermocouples in the Charging Pump Bearings.**

Between 1993 and 2004, the licensee replaced 5 of the 18 thermocouples associated with the Unit 1 and 2 charging pump inboard, outboard, and thrust bearings. The replacement thermocouples were of the incorrect type. The finding was a failure of the licensee to take corrective actions following the identification of the incorrect thermocouples being used on the charging pump bearings in 2002. The finding was more than minor as the condition could have adversely impacted the ability of control room operators to detect charging pump bearing degradation or an impending failure during normal or emergency operations.

The event was determined to be of very low safety significance (Green) because the alternate train charging pumps which had the original "T" type thermocouples were available to perform their safety function for the period between 1993 and 2004. This finding is a non-cited violation of 10 CFR 50 Appendix B Criterion XVI, "Corrective Actions." This finding involved the cross-cutting aspect of Problem Identification and Resolution.

Inspection Report# : [2005006\(pdf\)](#)

**Significance:**  Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Adequately Address Vulnerabilities in the Containment Checklist Procedures Resulting in Foreign Material Being Left in Unit 1 Containment (Section 40A2.2)**

The licensee failed to take appropriate corrective actions to preclude the recurrence of a significant condition adverse to quality. Corrective actions taken after the spring outage in 2004 for Unit 2 for inadequate closeout of containment failed to correct the procedure used to ensure all foreign material was removed from containment prior to entry into Mode 4. On October 4, 2004, after the licensee had completed the revised procedure, the inspectors found a large quantity of debris inside the Unit 1 containment.

An inspector-identified non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified. This finding is more than minor because it could be reasonably viewed as a precursor to a significant event. The transport of loose materials to the containment sumps would have caused a restricted flow or blockage and impeded the ability of the containment sumps to provide adequate net positive suction head to the recirculation spray pumps. The finding was determined to have very low safety significance because the amount of material found would not have prevented the containment sumps from performing their intended safety functions, i.e., an actual loss of safety function was not identified. (Section 40A2.2)

Inspection Report# : [2004006\(pdf\)](#)

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## Barrier Integrity

**G****Significance:** Sep 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Follow Procedures Affecting Safety-Related Breakers**

A self-revealing non-cited violation of Technical Specification 5.4.1.a was identified for a failure to follow a maintenance procedure. On February 19, 2005, the Unit 2 'B' quench spray pump motor breaker overload setpoints were not set in accordance with procedures. As a result, the pump tripped while starting on August 19, 2005.

The finding had a credible impact on safety due to the starting failure of one of the components required to reduce containment pressure following a design basis accident. The finding was more than minor because it affected the Barrier Integrity cornerstone objective to provide reasonable assurance that the containment physical design barriers protect the public from radio nuclide releases caused by accidents or events, and the respective cornerstone of human performance. The finding was determined to be of very low safety significance because it did not impact design deficiencies, result in a loss of system safety functions, exceed related TS outage times, nor involved a seismic, flooding, or severe weather initiating event. This finding contains aspects relating to the cross-cutting area of human performance.

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

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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## Physical Protection

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

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## Miscellaneous

**Significance:** N/A Jan 28, 2005

Identified By: NRC

Item Type: FIN Finding

**BIENNIAL NRC PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT NOS. 50-338/2005-006 AND 50-339/2005-006**

The team concluded that, in general, problems were properly identified, evaluated, and corrected. The licensee was effective at identifying problems and entering them in the corrective action process. Issues were prioritized and evaluated appropriately, and in a timely fashion. The evaluations of significant problems were in general of sufficient depth to determine the likely root or apparent causes, as well as, address the potential extent of the circumstances contributing to the problem and provide a clear basis to establish corrective actions. Corrective actions that addressed the causes of problems were generally identified and implemented. Reviews of sampled operating experience information were comprehensive. Licensee audits and assessments were found to be adequately broad based and effective in providing management a tool for identifying adverse trends. Previous noncompliance issues documented as non-cited violations were properly tracked and resolved via the corrective action program. Based on discussions with plant personnel and the low threshold for items entered in the corrective action program database, the inspectors concluded that workers at the site were free to raise safety concerns to their management.

Inspection Report# : [2005006\(pdf\)](#)

Last modified : November 30, 2005