

North Anna 1

3Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2005

Identified By: Self-Revealing

Item Type: FIN Finding

Untimely Corrective Actions for Actuator Oil Leakage on Turbine Interface Valve Results in Rapid Down Power

A self-revealing finding was identified for untimely corrective action resulting in a rapid reduction of power on Unit 1 due to a severe oil leak on the valve actuator for 1-EH-TV-100, main turbine auto stop oil interface valve. A similar problem on this valve resulted in a manual reactor trip on April 19, 2003. Subsequent evaluations from a Unit 2 similar issue determined that torque values as specified by procedure for the valve actuator diaphragm bolts were below the values as recommended by the vendor, but untimely corrective actions resulted in a rapid Unit 1 down-power on August 5, 2005.

This finding had a credible impact on safety due to the challenge of plant control systems from the rapid reduction of power. The finding is consequently more than minor based on the impact to the Initiating Events cornerstone objective to limit the likelihood of those events that upset plant stability and the cornerstone attribute of equipment reliability. This finding contains aspects relating to the cross-cutting area of problem identification and resolution.

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

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 40A5)

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 40A5)

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

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\(pdf\)](#)

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Significance: Sep 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Maintenance of a Procedure Results in Loss of Safety Related 480V Buses

A self-revealing non-cited violation of Technical Specification 5.4.1.a was identified for an inadequate procedure which resulted in the loss of two Unit 1 safety-related 480V buses on May 1, 2005.

The finding had a credible impact on safety due to the loss of two safety-related 480V buses resulting in the loss of power to multiple B train components two minutes after a containment depressurization signal during a design basis accident. The finding is more than minor due to the impact on two cornerstones, Mitigating Systems and Barrier Integrity. A Phase II evaluation of the significance determination process concluded the finding was of very low safety significance (Green) because only the B train was affected, a two minute time delay allowed safety-related component reposition, and emergency procedures identified appropriate operation action for manual component operation following the fault. This finding contains aspects relating to the cross-cutting area of human performance.

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

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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\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

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

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