

## North Anna 1 2Q/2006 Plant Inspection Findings

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### Initiating Events

G**Significance:** Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Perform a Risk Assessment Related to Scaffold-Arc Event**

The inspectors identified a non-cited violation of 10 CFR 50.65 (a)(4) which requires that the licensee assess and manage the increase in risk that may result from the proposed maintenance activities. During the removal of scaffolding beneath conductors associated with 'C' Reserve Station Service Transformer a section of scaffolding contacted a lightning arrestor connected to the 'B' phase conductor. The resultant arc and impending relay actuation increased the risk for a loss of normal power to a 4160V safety-related bus on each unit. The licensee entered this problem into their corrective action program following the inspectors review of the licensee's root cause evaluation which failed to address the risk assessment aspects of this event.

This finding is more than minor because the licensee risk assessment failed to consider maintenance activities that could increase the likelihood of initiating events. The inspectors determined that the finding is of very low safety significance, Green, since the incremental core damage probability deficit was less than 1E-6 and a loss of normal power to a safety-related bus did not occur. This finding impacts the cross-cutting area of human performance.

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

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### Mitigating Systems

G**Significance:** Jun 30, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Inadequate Corrective Action Results in Failure of Control Room Chiller to Start**

A self-revealing non-cited violation of 10 CFR 50 Appendix B Criterion XVI was identified for inadequate corrective action which resulted in an inoperable control room chiller. On May 16, 2006, the chiller failed to start due to a faulty chilled water flow switch. Previously, a work order was initiated as part of a corrective action document to replace the flow switch due to aging. However, the work order was completed without performing the switch replacement. The licensee documented this failure in their corrective action program.

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 and its attribute of procedure quality. The finding is of very low safety significance because it did not result in a loss of safety function of one or more trains and was not potentially risk-significant due to possible external events. The cause of this finding involved the problem identification and resolution cross-cutting area based on the failure of the work order to complete the actions of a corrective action document.

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

**G****Significance:** Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Implement a Maintenance Procedure Impacting Pressurizer PORV Operability**

The inspectors identified a non-cited violation of Technical Specification (TS) 5.4.1a associated with the licensee's failure to correctly implement a maintenance procedure which resulted in a failure of a Unit 1 pressurizer power operated relief valve (PORV) on March 31, 2006. The inspectors' review of the root cause evaluation in conjunction with the associated work order and interview with plant personnel resulted in the conclusion that a critical cause of the degraded PORV was a failure to correctly implement the maintenance procedure by installing AC voltage versus the required DC voltage solenoid operated valves in the PORV control system. The licensee entered this problem into their corrective action program.

This 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 and its attribute of procedure quality. The finding is of very low safety significance because it did not result in a loss of safety function of one or more trains and was not potentially risk-significant due to possible external events. This finding involved the human performance cross-cutting area based on the failure to implement a procedure correctly. Inspection Report# : [2006003\(pdf\)](#)

**G****Significance:** Mar 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to translate TS operable-operability definition regarding hazard barriers into instructions as required by 10 CFR 50 Appendix B Criterion III**

An NRC-identified non-cited violation of 10 CFR 50 Appendix B Criterion III was identified for failure to translate design requirements into procedures. Specifically, the licensee failed to properly translate the Technical Specification (TS) "Operable-Operability" definition into procedures which established the time the environmental hazard barriers between the turbine building and either the main control room or the emergency switchgear room were allowed to be inoperable during maintenance. This issue is documented in the licensee's corrective action program as Plant Issues N-2005-1080 and N-2005-2236.

This issue is more than minor because it could become a more significant condition, in that the unit could continue to operate at full power with main control room and emergency switchgear equipment exposed to potentially harsh environmental conditions (e.g. steam from a high energy line break in the turbine building) for a period of time greater than that allowed by TS. However, the time period that the pressure boundary door 2-BLD-STR-S54 was inoperable on March 16, 2005 did not result in a violation of TS 3.0.3 and thus no performance deficiency existed for that specific event. After management review, the issue was assigned a significance of Green because the inoperability period was limited to a maximum of 24 hours by other TS.

Inspection Report# : [2006002\(pdf\)](#)**G****Significance:** Mar 31, 2006

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Inadequate Design Control Results in Safeguards Instrument Rack Room Flood Problem**

A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion III was identified for inadequate design control resulting in a flood potential for the Units 1 and 2 safeguards instrument rack rooms. On July 9, 2005, back flush of control room chiller service water strainers 2-HV-S-1A and 1B as directed by engineering transmittal ET N-05-0034, "Operability of 2-HV-P-22C, Service Water Pump for 2-HV-E-4C," was performed in the Unit 2 air conditioning chiller room (ACCR). Following this work activity, the licensee observed water around a floor drain in the adjacent air conditioning fan rooms (ACFR) and initiated Plant Issue N-2005-2565 to evaluate the abnormal condition. Subsequently, the licensee determined that back-flow preventers were not installed in the floor drains on the ACFRs on both units. The back-flow preventers are necessary to prevent leakage in the ACCR from bypassing the flood wall protecting the ACFR and adjoining safeguards instrument rack room from flooding.

The inspectors determined that the finding had a credible impact on safety based on the potential for flooding to impact the instrument rack room which contains both trains of Solid State Protection System cabinets used for engineered safeguards. The finding, if left uncorrected, would result in a more significant safety concern and is consequently more than minor. A Phase III evaluation was performed for the SDP due to the loss or degradation of equipment specifically designed to mitigate a flooding event and the impact on two trains of a safety system. This evaluation concluded that the performance deficiency was of very low safety significance (Green) based on the existence of high level alarms for the associated sumps and the response time allowed for an operator to isolate the leak (approximately 40 minutes). The inspectors also concluded that this finding had aspects relating to the cross-cutting area of problem identification and resolution.

Inspection Report# : [2006002\(pdf\)](#)**G****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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## **Barrier Integrity**

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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**

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