

Surry 1

1Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform an adequate Risk Assessment for Unit 2 Cross-Under Relief Valve 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. Specifically, in assessing the increase in risk of planned maintenance activities, the licensee failed to adequately assess planned risk. The licensee entered this issue in their corrective action program as CR-003611 for resolution.

The finding was considered to be more than minor because the licensee's risk assessment had known errors or incorrect assumptions that had the potential to change the outcome of the assessment. 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. The inspectors determined that the cause of the finding was related to the proper work planning aspect of the human performance cross-cutting area.

Inspection Report# : [2007003](#) (*pdf*)

Mitigating Systems

Significance:  Mar 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Start-up Procedure which Resulted in Leaving Loose Fibrous Insulation in Containment

An NRC-identified, non-cited violation (NCV) of very low safety significance was identified for the failure to follow start-up procedure 1-GOP-1.7, revision 2, "Unit Startup, RCS Heat Up from Ambient to HSD", which resulted in leaving loose fibrous insulation in containment (Unit 1).

This finding is greater than minor because it is associated with the mitigating systems cornerstone attribute of equipment performance and affected the cornerstone objective of ensuring the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Using the IMC 0609, "Significance Determination Process," Phase 1 Worksheets, the finding is determined to have very low safety significance (Green) since it only affected the mitigating systems cornerstone and did not represent a loss of system safety function. The cause of this finding had cross-cutting aspects associated with work practices of the Human Performance area in that the licensee did not provide the appropriate oversight of contractors conducting the containment walk downs (H.4.c). The finding was entered into the corrective action program as Condition Report 02564. Corrective actions to remove the fibrous material from containment prior to startup and to establish the extent of condition and potential impact on Unit-2 were adequate.

Inspection Report# : [2008002](#) (*pdf*)

Significance:  Feb 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate and Use Limiting Case 4160 VAC Bus Frequency and Voltage in Design Calculations

The inspectors identified two examples of a Green non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for failure to evaluate variations of emergency diesel generator (EDG) output frequency in electrical

design loading calculations, and failure to consider worst case 4160 VAC bus voltage in safety related motor starting calculations. This finding was entered into the licensee's corrective action program as condition reports (CR) 091493 and 091494. Planned corrective actions included revision of the EDG loading calculations to incorporate the most limiting voltages and frequencies.

This finding is more than minor because it affects the Mitigating Systems Cornerstone objective ensuring the availability, reliability, and operability of the EDGs to perform the intended safety function during a design basis event and the cornerstone attribute of Design Control, i.e. initial design. The inspectors assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the deficiencies did not result in any EDG being inoperable based upon additional analysis that showed that the EDGs had sufficient margin to accommodate the increased loading due to worst case acceptably high EDG output frequency; and all safety related motor loads remained operable since they were still capable of starting with the revised worst case low voltage values.

Inspection Report# : [2008006](#) (pdf)

Significance:  Feb 29, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Use Appropriate Acceptance Criteria for Testing Battery Voltage at the One Minute Mark

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XI, Test Control, for incorrect acceptance criteria in test procedure 1-EPT-0106-01, Main Station Battery 1A Service Test. This finding was entered into the licensee's corrective action program as condition report 091906. Planned corrective actions included revision of the main station battery test procedures to include the correct voltage at the one minute mark.

This finding is more than minor because it affects the Mitigating Systems Cornerstone objective ensuring the availability, reliability, and operability of the station batteries to perform the intended safety function during a design basis event and the cornerstone attribute of Procedure Quality, i.e. maintenance and testing procedures. The inspectors assessed the finding using the SDP and determined that the finding was of very low safety significance (Green) because the deficiency did not result in station batteries being inoperable based upon a recent review of station battery discharge test results.

The inspectors determined that the lack of a thorough evaluation of condition report 022112, which addressed deficiencies in station battery test procedures such that resolutions addressed causes, was a significant cause of this performance deficiency. Failure to thoroughly evaluate problems such that resolutions address causes is directly related to the Corrective Action Program component of the cross-cutting area of Problem Identification and Resolution and the aspect of thorough evaluation of problems (P.1(c)).

Inspection Report# : [2008006](#) (pdf)

Significance:  Dec 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Emergency Service Water Pump 1-SW-P-1B Inoperable Due to an Inadequate Maintenance Instruction for Reassembly of the ESW strainer

A Green self-revealing non-cited violation of Technical Specification 6.4, "Unit Operating Procedures and Programs," was identified for failure to have an adequate maintenance procedure for the emergency service water (ESW) pump strainer. This resulted in the emergency service water pump 1-SW-P-1B being declared inoperable. This procedure failed to provide adequate instructions for the reassembly of ESW strainer 1-SW-STR-4B. The finding was documented in the licensee's corrective action program as condition report CR023818. Corrective action was taken to restore pump operability and to correct the procedure and post-maintenance test error.

The finding is more than minor, because it is associated with the operability, availability, reliability, or function of a system or train in a mitigating system. This finding was evaluated using the Significance Determination Process and was determined to be of very low safety significance because it did not result in a loss of safety function or the loss of a single train of ESW for more than the allowed Technical Specification outage time. This finding has a cross-cutting aspect in the area of human performance work practices (H.4.a), because personnel proceeded in the face of uncertainty when they continued to re-assemble the strainer operating mechanism without the requisite work

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Temporary Fire Suppression Capacity Not Equivalent to Unit 1 Containment Fire Hose Stations

A Green NRC-identified non-cited violation of paragraph (a)(1) of 10 CFR 50.48, "Fire Protection," was identified for failure to maintain the fire suppression capability for the Unit 1 containment building as specified by the approved fire protection plan. On October 27, 2007, the licensee failed to provide equivalent fire suppression capacity when the Unit 1 containment fire hose stations were removed from service for repair. This finding was entered into the licensee's corrective action program as condition report CR025073. Planned corrective actions included developing equivalent fire suppression capacity determinations for other hose stations.

This finding is more than minor because it was associated with a degradation of a fire protection feature. The finding is of very low safety significance because it involved low degradation of a fixed fire protection system. A significant cause of this finding involved the Decision-Making component of the cross-cutting area of Human Performance and the aspect of making safety-significant or risk-significant decisions using a systematic process, in that, a formal evaluation was not used to determine equivalent capacity (H.1.a).

Inspection Report# : [2007005 \(pdf\)](#)

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Carbon Dioxide Suppression System Degraded in Two Fire Areas in Unit 1 and Three Fire Areas in Unit 2

The NRC identified a Green NCV of Unit 1 and Unit 2 Operating License Condition 3.I because the installed carbon dioxide (CO₂) fire suppression systems could not be shown to deliver the design basis gas concentration. This finding applied to the Unit 1 and Unit 2 normal switchgear rooms, the Unit 2 cable tunnel, and the Unit 1 and Unit 2 cable vaults. The licensee had implemented or initiated system modifications to address this violation.

The finding is more than minor because it affects the Mitigating Systems cornerstone objective of ensuring reliability and capability of systems that respond to initiating events and the cornerstone attribute of protection against external factors, i.e. fire. The finding was determined to be of very low safety significance in a Significance Determination Process Phase 3 analysis. For the cable vault areas, the analysis showed that fires could initiate scenarios which could challenge the mitigating systems. However, the risk of these scenarios was calculated to be in the very low significance band. Analysis with respect to the normal switchgear rooms led to the conclusion that it was of very low safety significance primarily due to the frequency of fires potentially challenging mitigating systems being relatively low and the availability of unaffected safety-related shutdown systems. The finding for the Unit 2 cable tunnel was also of very low safety significance because it did not have any significant fixed ignition sources (cables were thermoset type) and the probability for transient combustible fires or hot work initiated fires damaging important cables was judged to be low.

Inspection Report# : [2007005 \(pdf\)](#)

Significance:  Oct 12, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Properly Categorize a Maintenance Preventable Functional Failure

The inspectors identified an NCV of 10 CFR 50.65 (a)(2) after Surry Power Station failed to categorize the failure of the Unit 2 Charging Pump Component Cooling System as a maintenance preventable functional failure and accordingly, failed to monitor the component as required by 10 CFR 50.65 (a)(1). Condition Report 021045.

The finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the availability, reliability, and capability of the Charging System. Example 7.b in MC 0612, App. E, states that violations of Paragraph 10 CFR 50.65 (a)(2), failure to demonstrate effective control of performance or condition and not putting the affected (SSCs) in (a)(1), are not minor because they necessarily involve degraded SSC performance or condition. The finding is of very low safety

significance because the failure to place the system in (a)(1) status did not lead to any further instances of system unreliability or unavailability. The cause of this finding was directly related to the aspect of "Training of personnel" in the cross-cutting area of human performance (resources component) because the engineer conducting the maintenance rule evaluation, the Maintenance Rule Program Coordinator, and Engineering Supervisor reviewing the evaluation, did not fully understand when to apply the functional failure exemptions. (IMC 0305, H.2.b)

Inspection Report# : [2007008](#) (pdf)

Significance:  Oct 12, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Identify and Correct Procedures Related to the Operation of the Auxiliary Feedwater System

NRC identified non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to revise procedure ECA 0.0, Loss of all AC Power, as corrective action for a condition identified by the licensee that could cause a loss of Net Positive Suction Head (NPSH) to the Turbine Driven Auxiliary Feedwater Pump (TDAFW), and potential damage to the only available feedwater pump during a loss of all AC power event. Other procedures where single AFW pump operation could cause inadequate NPSH had been revised.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affects the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was determined to be of very low safety significance because no actual safety function was lost. The cause of the finding is related to the cross-cutting area of problem identification and resolution and the aspect of lack of thoroughness of evaluation such that the resolution addresses the causes and extent of conditions. (IMC 0305, P.1.c) [Section 40A2.a (3)(ii)]

Inspection Report# : [2007008](#) (pdf)

Significance:  Jun 30, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure the Suitability of Application of Equipment Essential to Safety-Related Functions

The NRC identified a non-cited violation (NCV) for the failure to ensure the suitability of application of equipment essential to the safety-related functions of structures, systems, and components (SSCs) through their commercial dedication process as required by 10 CFR Part 50, Appendix B, Criterion III, Design Control. The licensee entered each of the two examples identified by the team into their corrective actions program as CR-013984, including an action to review their overall commercial dedication program.

The examples involve Agastat 7000 relays used in supporting the emergency diesel generator (EDG) start sequence and pressure control valves (PCVs) for use in the safety-related air supply supporting design operation of the power-operated relief valves (PORVs). In the first example, the licensee's commercial grade dedication did not verify the adequacy of seismic qualification. In the second, the licensee utilized a non-conservative test pressure as part of their dedication to critical characteristics. Both examples of the finding are more than minor because they are associated with the Design Control attribute affecting the Reactor Safety Mitigating Systems Cornerstone objective. The examples to the finding were evaluated using the SDP for Reactor Inspection Findings for At-Power Situations. The SDP Phase 1 analysis demonstrates the finding to be of very low safety significance (Green) as the licensee confirmed operability in accordance with plant procedures for both examples. The cause of the first example is related to the cross cutting aspect of human performance.

Inspection Report# : [2007003](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Last modified : June 05, 2008