

Surry 2

4Q/2007 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*)

Significance:  Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Perform an Adequate Extent of Condition Review for Unit 1 June 29, 2006, Turbine Building Damage Event

A Green self-revealing finding was identified for not performing an adequate extent of condition review in accordance with the licensee's established procedures. The potential consequences of having siding torn from the Turbine Building if Unit 2 experienced steam relief valve actuations, as had occurred on Unit 1 on June 29, 2006, was not recognized. Consequently on October 7, 2006, the actuation of Unit 2 steam relief valves resulted in the loss of normal power to two emergency buses on Unit 1 and one emergency bus on Unit 2 due to flying debris impacting electrical conductors. The finding was entered into the licensee's corrective action program as Condition Report (CR) 003598. Sections of the Turbine Building near the discharge of the steam relief valves were temporarily strengthened while additional long term corrective actions were being evaluated.

The finding is more than minor due to its impact on the Initiating Events objective to limit the likelihood of those events that upset plant stability and the related attribute of human performance. This finding was of very low safety significance (Green) because the increase in risk was limited by the duration of the condition. The cause of the finding was directly related to the appropriate and timely corrective actions aspect of the problem identification and resolution cross-cutting area because sufficient information was available for the licensee to have identified potential damage to plant equipment and taken actions to limit it when the Unit 2 steam relief valves actuated.

Inspection Report# : [2007002](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to meet ASME Section XI requirements for replacement of safety injection valve 2-SI-82

The inspectors identified a Green non-cited violation of 10 CFR 50.55a(g)(4) for failure to meet requirements of ASME Section XI for the replacement of safety injection valve 2-SI-82 performed during the last Unit 2 refueling outage. The licensee failed to perform a visual examination for leakage of the upstream pipe to valve weld and failed to obtain the Authorized Nuclear Inservice Inspection (ANII) signature on the NIS-2 Form. The NRC relies on the ANII approval to ensure Code compliance. The licensee promptly entered the issue into their Corrective Action Program as condition report CR024453 for resolution during the next outage.

The finding is more than minor because it affects the Mitigating Systems cornerstone objective and is associated with the cornerstone attribute of operability, availability, and reliability of a mitigating system, in that, the system was not properly tested and certified after repair/replacement activities. The inspectors assessed the finding using the Significance Determination Process and determined the finding to be of very low safety significance because there was no loss of operability of the safety injection system. A contributing cause of the violation was related to the Decision-Making component of the cross-cutting area of Human Performance, and the aspect of using conservative assumptions in decision making, in that, the licensee knew they did not meet the intent of the Code requirement but mistakenly believed that they met the Code as-written. (H.1.b).

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 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*)

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Include the Pressurizer Power Operated Relief Valve in the On-line Risk Assessment Prior to Other Maintenance Activities

The inspectors identified a Green, non-cited violation (NCV) of 10 CFR 50.65 (a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for failure to assess the increase in risk that results from proposed maintenance activities. Specifically, in assessing the increase in risk of planned maintenance activities, the licensee failed to adjust their on-line risk evaluation for operation with a pressurizer power operated relief valve (PORV) block valve closed. The licensee entered this violation in their corrective action program as CR007055 for resolution.

This finding is more than minor because it relates to risk management, in that, the maintenance risk assessments failed to consider the unavailability of a PORV, a risk significant component. The inspectors determined that the finding is of very low safety significance (Green) since the inclusion of the closed PORV block valve into the risk assessments showed no appreciable increase in plant risk during the performed maintenance activities. The cause of the finding was directly related to the proper work planning aspect of the human performance cross-cutting area because the licensee had not included the PORV block valve in their on-line risk monitoring program.

Inspection Report# : [2007002](#) (*pdf*)

Significance:  Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Procedural Instructions Results in Inoperable Charging Pump Component Cooling Water System

A self-revealing non-cited violation of Technical Specification 6.4.A, "Unit Operating Procedures and Programs," was identified for failure to have adequate written procedures for normal startup of systems and components involving nuclear safety. Specifically, the licensee failed to have adequate procedural instructions to preclude the Unit 2 charging pump component cooling water system from becoming air bound when returning it to service. As a result all three Unit 2 charging pumps, also emergency core cooling system (ECCS) pumps, were declared inoperable due to

lack of seal cooling. This violation was entered in the licensee corrective action program as CR000031 for resolution, which included performing an apparent cause analysis, and determining corrective actions.

The finding is more than minor because a procedural error that results in a consequence, in this case the inoperability of three ECCS pumps, is more than of minor safety significance. The significance of the finding was determined to be of very low safety significance (Green) due to the short period of time the cooling water system was unavailable. The cause of the finding was directly related the complete documentation and component labeling aspect of the human performance cross-cutting area because procedural instructions for venting the component cooling water system were not adequate.

Inspection Report# : [2007002](#) (*pdf*)

Significance:  Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Breaker Control Circuit Design Deficiency Results in Failure to Supply Emergency Bus 1J

A self-revealing, non-cited violation of 10 CFR 50.63 was identified regarding a breaker control circuit design deficiency which prevented the licensee from supplying the 1J emergency bus on Unit 1 from the alternate AC diesel generator. The problem occurred during a transient on October 7, 2006, in which the actuation of Unit 2 steam relief valves resulted in the loss of normal power to two emergency buses on Unit 1 and one emergency bus on Unit 2 due to flying debris impacting electrical conductors. The licensee installed a modification to correct the breaker circuit design deficiency.

The finding is more than minor because it impacted the Mitigating Systems 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 related attribute of design control. This finding was of very low safety significance (Green) because the recovery of the alternate AC diesel generator's ability to energize a safety bus after four hours was credible.

Inspection Report# : [2007002](#) (*pdf*)

Barrier Integrity

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

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