

Surry 1

4Q/2004 Plant Inspection Findings

Initiating Events

Significance: N/A Apr 28, 2004

Identified By: NRC

Item Type: FIN Finding

Results of Supplemental Inspection for White Performance Indicator

This supplemental inspection was conducted to assess the licensee's evaluation associated with a White performance indicator in the initiating events cornerstone. The Unplanned Scrams per 7,000 Critical Hours Performance Indicator crossed the threshold from Green to White in the third quarter of calendar year 2003. Specifically, the licensee experienced two reactor trips during the first quarter of 2003, one reactor trip during the second quarter of 2003, and one reactor trip in the third quarter of 2003. The first reactor trip, which occurred on January 14, 2003, was a manual trip from approximately 100 percent reactor power due to high temperature and shaft vibration alarms on the C reactor coolant pump. The second reactor trip, which occurred on January 25, 2003, was an automatic trip from approximately 27 percent reactor power due to problems associated with manually controlling steam generator water level. The third reactor trip, which occurred on June 13, 2003, was a manual trip from less than one percent reactor power due to a control rod misalignment. The fourth reactor trip, which occurred on September 18, 2003, was a manual reactor trip from approximately 79 percent reactor power due to inclement weather conditions and a loss of the 1G and 2G buses which supplied power to all the circulating water pumps for both units.

The licensee's problem identification, root cause and extent-of-condition evaluations, and corrective actions for the four reactor trips were adequate. Common cause aspects linking the four reactor trips from a risk perspective were not evident.

Inspection Report# : [2004009\(pdf\)](#)

Mitigating Systems

Significance: N/A Dec 10, 2004

Identified By: NRC

Item Type: FIN Finding

95002 Supplemental Inspection Results for Degraded Mitigating Systems Cornerstone

This supplemental inspection was performed by the NRC to assess the licensee's problem identification, root cause evaluation, extent of condition determination, and corrective actions associated with a White performance indicator (PI) and a White inspection finding. These two issues, which were in the Mitigating Systems Cornerstone, placed the performance of Surry Units 1 and 2 in the Degraded Cornerstone Column of the NRC's Action Matrix for the first quarter 2004. The PI, Safety System Unavailability - Emergency AC Power, crossed the threshold from Green to White in the fourth quarter 2001 for both units and remained through the first quarter 2004 for Unit 2, and through the third quarter 2004 for Unit 1. The White PI was evaluated in Supplemental Inspection Report 05000280,281/2002008. The White inspection finding involved Surry fire response procedures that were not effective in ensuring safe shutdown for a fire in Emergency Switchgear and Relay Room Numbers 1 or 2, of Surry Power Station Units 1 and 2 respectively. Specifically, the procedures may not have precluded an extended loss of reactor coolant pump (RCP) seal injection flow, resulting in an RCP seal loss of coolant accident. The performance issue associated with this inspection finding was previously characterized as having low to moderate risk significance (White) in NRC "Final Significance Determination" letter dated September 15, 2004.

During this supplemental inspection, which was performed in accordance with Inspection Procedure 95002, the inspectors utilized the results from Supplemental Inspection Report 05000280,281/2002008 to address the White PI, Safety System Unavailability - Emergency AC Power. The combined assessment of the White PI and the White inspection finding that resulted in the degraded Mitigating Systems cornerstone is summarized below.

As indicated in Supplemental Inspection Report 05000280,281/2002008, the licensee's formal root cause evaluations (RCE) for the White PI, Safety System Unavailability - Emergency AC Power, was acceptable. The licensee implemented adequate corrective actions to prevent recurrence based upon their RCEs.

The licensee performed a Category 1 RCE, S-2003-1490, to address the fire response procedure finding associated with restoration of seal injection flow to the RCPs. This RCE was considered by the inspectors to be independent and consistent with the prescribed charter. However, the inspectors noted that the licensee's extent of condition reviews lacked thoroughness with regard to the RCE findings. Additionally, the licensee performed Common Cause Evaluation (CCE) S-2004-1504 in January 2004 to assess Surry Power Station Units 1 and 2 performance in the NRC's Reactor Oversight Process. The licensee also performed CCE S-2004-3295 in October 2004 to address the degraded Mitigating Systems cornerstone for Surry Units 1 and 2. The inspectors considered that, although CCE S-2004-3295 did not possess the attributes of an extent of condition evaluation, this CCE determined, through review of various corrective action system documents, that there was a common cause for these White issues. During this 95002 supplemental inspection, the licensee performed more comprehensive extent of condition

related actions through additional reviews of external information programs and processes, and reviews of various management committees' charters/procedures for dispositioning technical concerns. These additional extent of condition and extent of cause related reviews, combined with the efforts in CCE S-2004-3295, were considered to be appropriately focused based on the inspectors' independent extent of condition review.

Although corrective actions appeared to be appropriately prioritized and tracked, the inspectors noted that the licensee was still evaluating long-term corrective action options for resolving the White inspection finding related to restoration of RCP seal injection flow. Consequently, the licensee had not identified all of the corrective actions for this finding and a completion date was not available. Overall, corrective actions related to this White inspection finding adequately addressed compliance restoration and the identified root causes and causal factors. While the inspectors considered that the appropriate root causes were identified by the licensee in RCE S-2003-1490, the contributing cause identified in this RCE was not considered to be the most appropriate. Specifically, the licensee identified that the failure to install Westinghouse (W) high temperature O-rings in the RCP seals in a timely manner was a contributing cause to the failure to revise the Surry Fire Contingency Action (FCA) procedures once the difference between the FCAs and the emergency response guidelines (ERG) was identified. The inspectors noted that the RCE did not recommend any corrective actions for this identified contributing cause. However, the inspectors considered that this contributing cause identified in the RCE was not the most appropriate one. The inspectors considered that the more appropriate contributing cause should have been the unclear responsibilities and inaccurate perception of who had ownership of the FCA procedures. This determination was based on the inspectors' review of RCE S-2003-1490, Potential Problem Report (PPR) 2000-004, and the meeting minutes of the Management Problem Review Team (MPRT) related to PPR 2000-004. The inspectors noted that the licensee had implemented corrective actions to address ownership of the FCA procedures by revising Virginia Power Administrative Procedure (VPAP)-0502, Procedure Process Control.

Inspection Report# : [2004011\(pdf\)](#)

W

Significance: Feb 02, 2004

Identified By: NRC

Item Type: VIO Violation

Alternative Shutdown Capability and Response Procedures Not Adequate to Ensure Safe Shutdown of Unit 1 and 2

A violation of 10 CFR 50, Appendix R, Sections III.L.2.b and III.L.3 was identified, in that, for a severe fire in the Emergency Switchgear and Relay Room Number 1 (Fire Area 3), the licensee's fire response procedures were not effective in assuring a safe shutdown of the Unit 1 reactor. The licensee has revised the affected fire response procedures and is evaluating the need for additional corrective action.

This finding is greater than minor because it was associated with "protection against one of the external factors" attribute. It affected the objective of the Initiating Events cornerstone to limit the likelihood events that challenge critical safety functions as well as affected the objective of the Mitigating Systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events. This degraded condition increased plant risk because, if a severe fire occurred in Fire Area 3, these procedures may not preclude an extended loss of reactor coolant pump seal injection flow and may initiate a reactor coolant pump seal loss of coolant accident which could result in pressurizer level failing to be maintained within the indicating range as required.

This violation was dispositioned as a White finding by NRC Inspection Report 05000280/2004008 and 05000281/2004008, dated September 15, 2004.

Inspection Report# : [2004008\(pdf\)](#)

G

Significance: Jan 07, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Fire Response Procedures 1-FCA-3.00 And 0-FCA-14.00 Not Adequate To Ensure Safe Shutdown Of Unit 1.

A Green non-cited violation of 10 CFR 50, Appendix R, Sections III.L.2.b and III.L.3, was identified, in that, for a severe fire in the Unit 1 Cable Vault and Tunnel (Fire Area 1), the licensee's alternative shutdown capability may not ensure that the reactor coolant makeup function would be capable of maintaining the reactor coolant level within the level indication of the pressurizer. The licensee has entered this finding into its corrective action program.

This finding is greater than minor because it was associated with "protection against one of the external factors" attribute. It affected the objective of the Initiating Events cornerstone to limit the likelihood events that challenge critical safety functions as well as affected the objective of the Mitigating Systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events. This finding was determined to be of very low safety significance because the likelihood of a severe fire in the service building cable vault (SBCV) or the cable tunnel that could cause a loss of all three Unit 1 charging pumps is very low and a 3-hour rated fire door would prevent a severe fire in the remaining sections of Fire Area 1 from spreading through the cable tunnel to the SBCV.

Inspection Report# : [2003008\(pdf\)](#)

G

Significance: Jan 07, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Alternate Shutdown Panel Ventilation System Not Independent From Impacts Of A Main Control Room Fire.

A Green non-cited violation was identified for failure to comply with 10 CFR 50, Appendix R, Sections III.G.3.a and III.L.3. Specifically, the shared ventilation system between the main control room (MCR) and the Unit 1 and Unit 2 emergency switchgear and relay rooms (ESGRs), did not have adequate separation, isolation, or barriers to preclude smoke and toxic gases from being transported to the ESGRs during a fire in the MCR. The alternative shutdown capability for an MCR fire is located in each unit's ESGR, respectively. Consequently, operators may not have the environmental conditions or visibility to safely man and accomplish a successful shutdown of either Unit 1 or Unit 2 from the Auxiliary Shutdown Panels. The licensee has entered this finding into its corrective action program.

This finding is greater than minor because it was associated with the "protection against external factors" attribute and affected the objective of the Mitigating Systems cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events. This finding was determined to be of very low safety significance because heat from a fire, and the natural buoyancy of smoke, will cause the smoke gas layer to accumulate near the ceiling of the MCR (away from the ESGRs), the likelihood of a severe fire in the MCR is low, and the prompt response and actions of the MCR operators and the fire brigade would prevent any fires that start from becoming severe.

Inspection Report# : [2003008\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Sep 25, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement and maintain a respiratory protection program that includes written procedures regarding training of respirator users in the change out of SCBA air cylinders

The inspectors identified a violation of 10 CFR 20.1703(c)(4)(ii) which requires the licensee to implement and maintain a respiratory protection program that includes written procedures regarding training of respirator users. In addition, this was related to the emergency planning standards of 10 CFR 50.47(b) (10). Specifically, procedures were not in place to ensure that all Control Room staff had demonstrated proficiency in changing Self Contained Breathing Apparatus (SCBA) air cylinders during emergencies.

This finding is greater than minor because emergency workers who are required to use respiratory protective equipment are not trained to use that equipment. This finding is of very low safety significance because an adequate number of SCBA qualified plant personnel/staff, which were designated emergency responders, would have been available to respond in the event of an actual emergency.

Inspection Report# : [2004004\(pdf\)](#)

Public Radiation Safety

Physical Protection

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

Miscellaneous

Last modified : March 09, 2005