

Surry 1

2Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2010

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Rigging Practices Result in Damage to Safety Related Equipment

A self-revealing Green Finding was identified for failure to adequately rig a 300 pound motor in the auxiliary building in accordance with the manufacturer's recommendations on May 11, 2010. As a result, the motor slipped from its rigging and dropped approximately 15 feet onto the A component cooling water (CCW) pump motor below, damaging the motor's cabling and electrical junction box. The CCW pump was declared inoperable (CR 380834), the damage was repaired, and the CCW pump restored to an operable status on May 15, 2010.

Inspectors determined that the failure to implement adequate rigging practices in accordance with vendor recommendations as required by procedure MA-AA-101, Revision 5, "Fleet Lifting and Material Handling" constituted a performance deficiency and a finding which was reasonably within the licensee's ability to foresee and correct and which should have been prevented. The finding is similar to MC 0612, Appendix E example 4.f, and is more than minor because it resulted in damage to and inoperability of a risk significant component. The finding is associated with the human performance attribute of the initiating events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events which upset plant stability and challenge critical safety functions during shutdown as well as power operations because a loss of the component cooling water system would have resulted in a unit transient. The finding, evaluated per Attachment 4 of MC-0609, "Phase 1 – Initial Screening and Characterization of Findings," was determined to be of very low safety significance (Green) because it did not contribute to both the likelihood of a plant transient and the loss of accident mitigation equipment. This finding has a cross-cutting aspect in the area of human performance, decision making because the licensee did not make safety/risk significant decisions using a systematic process, especially when faced with uncertain decisions, to ensure safety is maintained (H.1(a)). Specifically, the rigging team made safety/risk significant decisions within lifting/rigging procedures that did not include a systematic process for evaluating each lift, especially loads <5000 lbs in the vicinity of risk significant equipment.

Inspection Report# : [2010003](#) (*pdf*)

Mitigating Systems

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Demonstrate that the Reliability of Systems or Components were effectively controlled per 10 CFR 50.65 (a)(2)

The NRC identified a Green Non-Cited Violation of 10CFR50.65 a(2) for the licensee's failure to demonstrate that the reliability of High Safety Significant (HSS) systems and Low Safety Significant (LSS) systems in stand-by was being effectively controlled through the performance of appropriate preventative maintenance, such that the systems or components remain capable of performing their function. Specifically, the licensee's MR program would not demonstrate that a system should remain in category a(2) as defined by regulatory requirements.

The inspectors determined the licensee's MR program could not demonstrate that reliability of High Safety Significant (HSS) systems and Low Safety Significant (LSS) systems in stand-by were being effectively controlled through the performance of appropriate preventative maintenance, such that the systems or components remain capable of performing their function is a performance deficiency. Specifically, the monitoring established by the

license did not effectively demonstrate that systems in a(2) were being effectively controlled through performance of appropriate preventative maintenance. This masking of poor equipment performance does not allow the licensee to determine if a system should be in increased monitoring of a(1).

The finding was more than minor because it adversely affected the equipment performance attribute of the reactor safety mitigating systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of HSS and LSS systems to perform their functions when required. Specifically, multiple HSS and LSS systems could have a high probability of failure, because poor equipment performance would not be recognized by the licensee. This could prevent a poor performing system from being placed into the a(1) category when required and appropriate corrective action would not be taken.

The finding was evaluated using MC-0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," and determined to be of very low safety significance (Green), because the finding did not involve an actual failure of equipment. This finding had a crosscutting aspect in the area of human performance and resources because the licensee did not ensure that personnel, procedures, and other resources were available and adequate to assure proper implementation of MR program. The MR personnel did not have the training required to implement the program within the required industry regulations and guidelines (H.2.b).

Inspection Report# : [2010003](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to identify a non-conservative error in the quarterly TS surveillance for the Unit 1 A battery

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action" for failure to identify that a non-conservative error had been introduced into the Unit 1 A main station battery quarterly technical specification surveillance procedure (CR 366388). The licensee modified the procedure to eliminate the non-conservative error.

The inspectors determined the failure to identify a non-conservative error which was introduced into the TS quarterly surveillance procedure following the replacement of individual battery cells, was a condition adverse to quality and a performance deficiency which was reasonably within the licensee's ability to foresee and correct, and should have been prevented. The finding was more than minor because if left uncorrected the non-conservative error in 1-EPT-0103-01 would have the potential to lead to a more significant safety concern. Specifically, this is because the error was large enough to mask cell degradation and an inoperable cell. The finding was associated with the equipment performance attribute of the reactor safety mitigating systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of the safety related 125 VDC station batteries that provide class 1E backup power to risk significant components needed to prevent undesirable consequences during a loss of offsite power event. The finding was evaluated using MC-0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and determined to be of very low safety significance (Green) because operability of the Unit 1 A battery was not lost and the error was removed prior to the next quarterly surveillance. This finding had a cross cutting aspect in the area of problem identification and resolution because the licensee did not evaluate and communicate relevant external OE, including vendor recommendations, to affected internal stakeholders in a timely manner (P.2(a)). Specifically, the caveat to have cells on a float charge for 72 hours was not fully evaluated when the battery cells were replaced.

Inspection Report# : [2010002](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Compensatory Measures for the Impairment of Fire Detection Systems

The inspectors identified a Green NCV of the Surry operating license, section 3.1 "Fire Protection," for an inadequate procedure that resulted in compensatory continuous fire watches in MERs #3 and #4 being inadequate (CR342078). Corrective action, revising the requirements for a continuous fire watch, has been implemented. The finding is greater than minor because it is associated with the reactor safety mitigating systems cornerstone attribute to provide

protection against external events and adversely affects the cornerstone objective to ensure the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors used MC 0609, Appendix F, "Fire Protection Significance Determination Process," to analyze this finding because the condition had an adverse affect on the "Fixed Fire Protection Systems" element of fire watches posted as a compensatory measure for fixed fire protection system outages or degradations. A low degradation rating was assigned to this finding as the provision affected by this finding is expected to display nearly the same level of effectiveness and reliability. Using MC 0609, Appendix F, this finding was determined to be of very low safety significance (Green). A cross-cutting aspect was not assigned to this finding because the performance deficiency for the inadequate procedure occurred long ago and is not a reflection of current performance (Section 1R05)
Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: FIN Finding

Failure to Provide an Adequate Basis for Operability of ESW Pump !-SW-P-1B.

The inspectors identified a Green finding for the incorrect operability determination for emergency service water pump 1-SW-P-1B on August 1, 2009, after vibrations had increased 391% in the vertical plane (CR 343396). A violation of regulatory requirements was not identified. The pump, declared inoperable on August 2, was replaced within the Technical Specification allowed outage time.

The finding is more than minor because if left uncorrected the performance deficiency could potentially lead to more significant safety concerns. The finding is associated with the equipment performance attribute of the mitigation systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding, evaluated per MC-609, Attachment 4, "Phase 1-Initial Screening and Characterization of Findings," was determined to be of very low safety significance (Green) because it did not result in a loss of safety function or the loss of a single train of ESW for greater than the allowed outage time. This finding has a cross-cutting aspect in the area of human performance, decision making, because the licensee failed to use conservative assumptions in their operability decision for !-SW-P-1B (H.1.b). (Section 1R15)

Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Tornado Protection for Engine Driven Emergency Service Water Pumps 1-SW-P-1A/B/C

The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion III, "Design Control". The design change for the emergency service water pumps (DC-SU-08-0001) was not adequate to protect the diesel-driven emergency service water pumps from damage resulting from a tornado missile as required by the UFSAR (CRs 337720, 337337, 341557). Pending resolution, interim compensatory measures have been established to provide assurance the pumps will be capable of performing their safety function.

The finding, associated with the design control attribute of the mitigation systems cornerstone, is more than minor because it adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that evaluated per MC-0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-power Situations," was determined to be of very low safety significance (Green) because of the extremely low initiating event frequency for a tornado. A phase III risk analysis was performed because the finding screened potentially risk significant for a severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance resources, because the licensee's design documentation for DC SU-08-0001 and ET-S-08-0032 was not complete and accurate which led to the installation of inadequate modifications on ESWPs 1-SW-P-1A/1B/1C (H.2.c)(Section 1R18)

Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Work Instructions Lead to Packing Failure of ESW Pump 1-SW-P-1B.

A self-revealing Green NCV of Technical Specification 6.4, "Unit Operating Procedures and Programs," was identified for the failure to provide adequate work instructions for maintenance on 1-SW-P-1B, a safety-related component, which led to failure of the pump's packing gland on August 26, 2009, and required the pump be removed from service and repacked (CR 346268).

The finding is associated with the equipment performance attribute of the mitigation systems cornerstone and is more than minor because it adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding, evaluated per MC-0609, Attachment 4, "Phase 1- Initial Screening and Characterization of Findings" was determined to be of very low safety significance (green) because it did not result in a loss of safety function or loss of a single train of ESW for more than its allowed outage time. This finding has a cross-cutting aspect in the area of human performance, resources, in that a complete and accurate procedure was not available to assure nuclear safety during replacement of 1-Sw-P-1B (H.2.c) (Section 1R19)

Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Promptly Identify and Correct a Ground on Safety Bus 1H

A green NCV of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified by the inspectors for failure to promptly identify and correct a condition adverse to quality related to a ground on emergency safety bus 1H. This resulted in the degraded condition being allowed to exist for 72 days prior to de-energizing the containment recirculation fan and correcting the adverse condition (CR 336041).

This finding is more than minor because it adversely impacted the equipment performance attribute of the reactor safety mitigation system cornerstone and its objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding, evaluated per MC-0609, Appendix A, "Determining the Significance of Reactor Inspection Findings for At-power Situations," was determined to be of very low safety significance (Green). The finding screened to a phase II assessment on the assumption that a second ground would result in a complete loss of the safety bus and its safety function. The phase II analysis was performed for the core damage sequence "Loss of a 4.16Kv Bus (1J or 1H)" utilizing an increased initiating event likelihood (IEL) value of 1 due to the degraded condition of the 1H bus. The duration of the degraded condition was 72 days. The finding was not greater than Green because full mitigation capability of the opposite train remained available. This finding has a cross cutting aspect in human performance, decision making, in that the licensee did not use conservative assumption in their decision making process and adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than to demonstrate that it is unsafe in order to disapprove the action of continuing to operate with a ground on the 1H emergency bus (H.1.b) (Section 4OA2).

Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Action for ELU Performance Deficiencies

The inspectors identified a Green NCV of Surry Operating Licenses, Section 3.1 "Fire Protection," for failure to promptly identify and correct a condition adverse to fire protection in regard to Appendix R emergency lighting unit performance failures due to inadequate configuration control of the emergency light's defeat switch. Failure to reposition the switch following maintenance and or inadvertent switch manipulation has over time led to numerous Appendix R emergency lights being discovered non-functional. Corrective action to address the failure to restore the switch following maintenance has been taken and actions to prevent inadvertent manipulation are being evaluated (CR 352214).

The finding is more than minor because it adversely affected the external factors attribute (fire) of the mitigating system cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating

events to prevent undesirable consequences. Specifically, the reliability and availability of the emergency lighting units (ELUs) was affected. The finding, evaluated per MC-0609, Appendix F, "Fire Protection Significance Determination Process," was determined to be of very low safety significance (Green). The finding affected post fire safe shutdown and was assigned a low degradation rating because the issue did not have a significant impact on safe shutdown operations because there was not a simultaneous wide spread failure of the ELUs. This finding has a cross-cutting aspect in the area of problem identification and resolution, because the licensee did not take adequate corrective action in a timely manner to address an adverse trend in ELU functionality (P.1.d). (Section 40A2)
Inspection Report# : [2009004](#) (pdf)

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Remove Blocking Device From Piping Supports

The inspectors identified a Green NCV of Technical Specification 6.4, "Unit Operating Procedures," associated with blocking devices not being removed from piping supports following maintenance due to procedure issues related to procedure adequacy and adherence. The blocking devices were removed upon discovery and appropriate corrective action established to address the issue (ACE017736).

the finding is more than minor because if left uncorrected the performance deficiency could potentially lead to more significant safety concerns. The finding is associated with the procedure quality attribute of the mitigating systems cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding evaluated per MC-0609, Attachment 4, "Phase 1-Initial Screening and Characterization of Findings," was determined to be of very low safety significance (Green) because operability of a safety system, though challenged, was never lost. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee's corrective actions were not effective in identifying additional blocked spring hangers on safety-related systems or preventing further configuration control issues associated with spring hanger blocking devices (P.1.d). (Section 40A2)

Inspection Report# : [2009004](#) (pdf)

Barrier Integrity

Significance:  Dec 31, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inoperability of MCR isolation Damper 1-VS-MOD-103D due to failure to promptly identify and correct internal hydraulic leakage

A self-revealing Green NCV of 10 CFR 50 Appendix B, Criterion XVI, was identified for the failure to correct a condition adverse to quality which led to main control room isolation damper 1-VS-MOD-103D being inoperable for approximately 19 hours on September 21-22, 2009 (CR 349075). The actuator was repaired and is scheduled for replacement in 2010.

The finding, associated with the performance attribute of the barrier integrity cornerstone, is more than minor because it adversely affected the cornerstone objective, as it relates to control room integrity, to provide reasonable assurance physical design barriers protect public health and safety. The finding, evaluated per MC-0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," was determined to be of very low safety significance (Green) because it did not result in a loss of safety function or loss of a single train of the control room isolation boundary for more than its allowed outage time. This finding has a crosscutting aspect in the area of human performance, resources, in that equipment and other resources were not made available to assure nuclear safety by minimizing preventative maintenance deferrals (H.2.a).

Inspection Report# : [2009005](#) (pdf)

Significance:  Dec 31, 2009

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to perform an adequate operability determination for main control room isolation damper 1-VS-MOD-103D

A self-revealing Green Finding was identified for the incorrect operability determination of main control room isolation damper 1-VS-MOD-103D. The damper, declared operable and left in-service following loss of power to its hydraulic pump on September 21, 2009 (CR 349003), failed to close on demand, on September 22, 2009. The damper was inoperable for approximately 19 hours (CR 349075) before power was restored to the pump, the damper closed, and the actuator repaired.

The finding, associated with the performance attribute of the barrier integrity cornerstone, is more than minor because it adversely affected the cornerstone objective as it relates to control room integrity, to provide reasonable assurance physical design barriers protect public health and safety. The finding, evaluated per MC-0609, Attachment 4, "Phase 1 – Initial Screening and Characterization of Findings," was determined to be of very low safety significance (Green) because it did not result in a loss of safety function or the loss of a single train of the control room isolation boundary for more than its allowed outage time. This finding has a cross-cutting aspect in the area of problem identification, corrective action program, in that an adequate operability assessment that thoroughly evaluated the degraded condition of 1-VS-MOD-103D was not performed (P.1.c).

Inspection Report# : [2009005](#) (*pdf*)

Significance:  Oct 02, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Demonstrate Effective Preventive Maintenance of Safety Injection Check Valves nor Set Goals and Monitor under 10CFR50.65(a)(1)

The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Plants," for failure to demonstrate effective preventive maintenance of Unit 1 low head safety injection (LHSI) cold leg check valves in accordance with 10CFR50.65(a)(2) and not establish goals and monitor against those goals in accordance with 10CFR50.65(a)(1).

The finding is more than minor because it affected the Barrier Integrity cornerstone objective of providing reasonable assurance that physical design barriers (e.g., reactor coolant system (RCS)) protect the public from radionuclide releases caused by accidents or events. Specifically, the finding affected the LHSI cold leg check valves, which provide an isolation barrier from the high pressure RCS when the SI System is in standby to ensure that the integrity of the reactor RCS boundary is maintained. The finding is also associated with the cornerstone attribute of reactor coolant system equipment and barrier performance. The inspectors determined that this performance deficiency was a separate consequence of the degraded performance associated with the LHSI cold leg check valves. Because of this characterization, the inspectors determined that this issue should not be processed through the Significance Determination Process. Therefore, in accordance with the guidance in NRC Inspection Procedure 7111.12, Appendix D, this issue was determined to be a maintenance rule Category II finding and is of very low safety significance (Green). Based on the assessment performed by the team on the current licensee's implementation of 10CFR50.65, the results of the licensee's extent of condition review for this finding, and because this finding occurred on November 18, 2007, the team determined that this finding was not indicative of current licensee performance and, therefore, no Cross Cutting Aspect was assigned to this issue. This issue was entered in the licensee's CAP as CR02560. The licensee restored compliance by establishing goals and monitoring the system performance against those goals in accordance with 10CFR50.65(a)(1). (Section 40A2.a(3)i)

Inspection Report# : [2009006](#) (*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 : September 02, 2010