

Saint Lucie 1

3Q/2009 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Unit 1 Loss of Shutdown Cooling

A self-revealing Non-Cited Violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when a reactor operator (RO) failed to comply with a system surveillance procedure while restoring the 1A Low Pressure Safety Injection Pump from its minimum flow test resulting in a loss of shutdown cooling during a refueling operation on October 22, 2008. The licensee provided remedial training to those operators involved and entered the event in their corrective action program (CAP) as condition report (CR) 2008-32977.

This finding is more than minor because it is associated with the configuration control and human performance attributes of the initiating events cornerstone and adversely impacted the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. In addition, if left uncorrected, this finding would result in a more significant safety concern. At the time of the event, the unit was in Mode 6 and had been shutdown for approximately 7 days. The temperature change in the RCS was minimal (less than 10° F) and the time to boiling was greater than 300 minutes with the upper cavity flooded (RCS level > 23 feet) and the reactor vessel head removed. The inspectors evaluated the finding using Inspection Manual Chapter (IMC) 0609, Appendix G, Figure 1, Road Map for Shutdown Findings, Table 1, Losses of Control and Attachment 1, Shutdown Operations Significance Determination Process Phase 1 Operational Checklist 4 PWR Refueling Operation, RCS level > 23' or PWR Shutdown Operation With Time to Boiling > 2 hours And Inventory in the Pressurizer. The inspectors determined that this finding was screened as having very low safety risk significance (Green) per Figure 1 because this finding did not increase the likelihood of a loss of RCS inventory or could result in a loss of RCS level instrumentation; the finding did not degrade the licensee's ability to terminate a leak or add RCS inventory when needed; and the finding did not degrade the licensee's ability to recover SDC once it is lost. Also, the inspectors determined that this finding did not meet conditions for Losses of Control Criteria per Table 1 and quantitative assessment was not required. This finding was related to the use of human error prevention techniques aspect in the work practices component in the human performance cross-cutting area (IMC 0305 aspect H.4.a) (Section 40A2.1)

Inspection Report# : [2008005](#) (*pdf*)

Mitigating Systems

Significance:  Sep 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Take Timely and Effective Corrective Actions to Prevent Recurrence of EDG Day Tank Level Switch Failures

A self-revealing Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for failure of the licensee to take timely and effective corrective actions to prevent recurrence of Unit 1 emergency diesel generator (EDG) day tank level switch failures following identification of Murphy® switch reliability issues and issuance of NRC NCV 05000335/2009002-02. Specifically, on July 19, 2009, during functional testing of the 1B EDG day tank level switches, both the low and low-low level Murphy® switches failed.

The finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone. The finding was previously determined to have very low safety significance based on an SDP Phase 3 analysis. The analysis determined that the risk was less than 1E-6/year. This finding was related to the corrective action attribute of the problem identification and resolution cross-cutting area in the aspect of appropriate and timely corrective actions (IMC 0305 aspect P.1.d).

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

Significance:  Jun 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Risk Assessment When Performing Weekly Pump Venting

The inspectors identified NCV of 10 CFR 50.65 (a)(4) when the licensee did not perform an adequate risk assessment which resulted in an underestimation of the associated risk while performing weekly Emergency Core Cooling System (ECCS) pump venting. On April 20, 2009, the inspectors were reviewing the Unit 2 control room chronological logs and noted that during the weekly High Pressure Safety Injection (HPSI) pump venting, the assessed risk using the Online Risk Monitor (OLRM) was recorded as green (low) instead of the required yellow (medium). During the venting evolution, the HPSI pump hand switch is taken to STOP rendering the pump incapable of performing its safety-related function to automatically inject water into the RCS, thereby requiring entry into the associated TS Action Statement and yellow OLRM risk determination. The issue was entered in the licensee's corrective action program as CR 2009-12037.

The finding was more than minor because it affected the Human Performance attribute of the Mitigating Systems cornerstone and using MC 0612, Appendix E, Example 7.e, because if the overall risk had been correctly assessed, it would have placed both units' into a higher risk category. The finding was evaluated in accordance with MC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process (SDP)," and determined to be of very low safety significance (Green), using Flowchart 1. This determination was based on the incremental core damage probability deficit being less than 1E-6 for the given condition of the HPSI pumps being out of service during the weekly pump venting. This finding has a crosscutting aspect in the area of human performance, component of work control because the licensee did not incorporate appropriate risk insights when planning maintenance that effects the OLRM value. [H.3(a)]. (Section 1R13).

Inspection Report# : [2009003](#) (pdf)

Significance:  Apr 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Correct Conditions Adverse to Quality

The team identified two examples of a non-cited violation of St. Lucie's Unit 1 and Unit 2 Operating License Conditions 3.E for the licensee's failure to promptly correct conditions adverse to quality. The first example involved failure to take prompt corrective action for a noncompliance that was identified during the 2006 triennial fire protection inspection (Inspection Report 05000335, 389/2006010). Specifically, the licensee did not implement corrective actions to perform surveillance tests on the Unit 1 eight-hour battery powered portable emergency lights. The second example identified by the team during the 2009 inspection, involved four eight-hour battery powered fixed emergency lights that failed an annual surveillance test and were not repaired or replaced. The licensee initiated Condition Reports 2009-4010, -4056 and -4220 to implement corrective actions to address these issues.

The licensee's failure to correct the above conditions adverse to quality involving fire protection, as required, was a performance deficiency. The finding is more than minor because it is associated with the reactor safety, mitigating systems, cornerstone attribute of protection against external factors (i.e., fire) and it affects the objective of ensuring reliability and capability of systems that respond to initiating events. The team determined that this finding was of very low safety significance (Green) because the operators had a high likelihood of completing the task using flashlights. This performance deficiency is associated with the cross-cutting area: Human Performance, Work Control: H.3(b). The finding was directly related to the licensee not planning and coordinating work activities to support long-

term equipment reliability and their maintenance scheduling was more reactive than preventive. (Section 1R05)

Inspection Report# : [2009007](#) (pdf)

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform a Required TS Surveillance

The inspectors identified a Green noncited violation of Technical Specifications 3.8.1, “AC Sources,” for failure to perform a required monthly surveillance test in its entirety. Specifically, the inspectors identified that St. Lucie has not performed Unit 1 Emergency Diesel Generator (EDG) technical specification (TS) surveillance requirement 4.8.1.1.2 as written to verify the fuel oil transfer pumps will transfer fuel from the storage tank to the engine mounted day tanks at least every 31 days to demonstrate operability. The licensee entered the finding in their CAP as CR 2009-4976.

The finding is more than minor in accordance with Inspection Manual Chapter (IMC) 0612, Power Reactor Inspection Reports, “Appendix B, Issue Screening.” Specifically, it impacts the mitigating systems cornerstone objective in that it affects the operability, availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, “Significance Determination Process,” Phase 1 worksheet, this finding was determined to be of very low safety significance since it did not represent an actual loss of a safety function. The inspectors determined that the cause of this finding has a crosscutting aspect in the area of human performance associated with the resources attribute, in that the operators did not have adequate procedural guidance available to completely test the fuel oil transfer system as required by technical specifications. (IMC 0305 aspect H.2.c). (Section 1R22)

Inspection Report# : [2009002](#) (pdf)

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Take Timely and Effective Corrective Actions for EDG Day Tank Level Switch Failure

The inspectors identified a Non Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for failure of the licensee to take timely and effective corrective actions to prevent recurrence of Unit 1 emergency diesel generator (EDG) day tank low level switch failures starting in 2007. Specifically, in June 2007, the licensee performed an apparent cause evaluation of “sticking” level switches and determined that a manufacturing defect associated with the packing gland of the float’s pivot shaft caused some restricted movement. The licensee also determined that extended shelf life contributed to the failures of these level switches. However, other than replacing the switches with new ones, the only corrective action(s) that resulted from this evaluation were to ensure that switches manufactured before 2000 were not used for plant applications. Subsequently, in October 2008, the 1A-EDG day tank low level switch failed during the 24 hour EDG run and again failed during maintenance activities in February 2009.

The finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone. The finding was determined to have very low safety significance because an SDP Phase 3 analysis determined that the risk was less than 1E-6/year. This finding was related to the corrective action attribute of the problem identification and resolution cross-cutting area in the aspect of appropriate and timely corrective actions (IMC 0305 aspect P.1.d).

Inspection Report# : [2009002](#) (pdf)

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform an Adequate Post Maintenance Test on the 1A-EDG Fuel Oil Day Tank Low Level Switch

The inspectors identified a NCV of TS 6.8.1.a and Regulatory Guide (RG) 1.33, for the licensee failing to specify and

ensure an appropriate post maintenance test (PMT) was performed as required by administrative procedure ADM-78.01, "Post Maintenance Testing." Specifically, the inspectors identified that after replacement of an emergency diesel generator (EDG) fuel oil day tank low level instrument, an inadequate PMT was performed because the instrument switch mechanism was not demonstrated functional by actual lowering of the fuel oil level within the tank to actuate the float assembly. The licensee entered the finding in their CAP as CR 2008-32722.

The finding is more than minor because it is associated with the equipment performance attribute of the mitigating systems cornerstone. The finding was determined to have very low safety significance because it did not result in an actual loss of safety system function. This finding was related to the coordination of work activities attribute of the human performance cross-cutting area in the aspect of work control (IMC 0305 aspect H.3.b).

Inspection Report# : [2009002](#) (*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

Last modified : December 10, 2009