

# Saint Lucie 1

## 1Q/2010 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Untimely Corrective Actions for 2A1 EDG Immersion Heaters**

The inspectors identified a Non-Cited Violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify and correct a condition adverse to quality for degraded wiring in the 2A1 EDG immersion heater power circuitry that resulted in low lube oil temperatures and required Operations to run the diesel several times over the course of a few days to ensure operability. The issue was entered into the CAP as CR 2010-3332.

The finding was more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of the 2A EDG to respond to initiating events to prevent undesirable consequences. SDP Phase 1 Screening indicated that the finding was of very low safety significance because it was not a design deficiency, nor did it result in an actual loss of system or single train function, nor did it screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the problem identification and resolution area of the corrective action program component because the licensee did not perform a thorough evaluation of problems such that the resolutions address causes and extent of conditions (P1.c) (Section 1R15)

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

**Significance:**  Mar 19, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to promptly correct a condition adverse to quality associated with degraded intake cooling water pump discharge check valves.**

The NRC identified a Green Non-cited Violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to promptly correct a condition adverse to quality that being degraded check valves on the intake cooling water system affecting both units. The failure to implement corrective actions after identifying that the valves were degraded in an inspection in 2005 resulted in a reduction in system reliability and a burden to plant operators. The issue was documented in the corrective action program as CR 2010-7380, and the license intends to replace the check valves at the next availability.

The finding was more than minor because it is associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone in that it adversely affected the reliability of the intake cooling system to respond to initiating events to prevent undesirable consequences. The finding was screened using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and was determined to have a very low safety significance (Green) because the system remained operable and capable of meeting its design function with no loss of safety function of any train of intake cooling water. The cross-cutting aspect of H.3(b) was applicable because the licensee did not plan work activities to support long term equipment reliability to limit operator workarounds and reliance on manual actions. (4OA2)

Inspection Report# : [2010006](#) (pdf)

**Significance:**  Feb 26, 2010

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# : [2010501](#) (pdf)

**Significance:**  Dec 03, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Meet the ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 Requirements for the Overpressure Protection for the CCW Surge Tank .**

The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for failure to translate the design basis as specified in the license application into specifications, drawings, procedures, and instructions. The licensee did not ensure that the component cooling water (CCW) surge tank design included adequate overpressure protection for all procedurally allowed configurations as required by the applicable ASME Boiler and Pressure Vessel Code, Section VIII, Division 1. The code requires that no intervening stop valves be between the vessel and its protective device or devices or between the protective devices and the point of discharge. The team concluded that stop valve V6466 was an intervening stop valve for the CCW surge tank vent path to the chemical drain tank (CDT). The issue was entered in the licensee's corrective action program as condition report (CR) 2009-23473. Immediate licensee corrective actions included verification that the valve was in its open position and the implementation of administrative controls to maintain the valve open.

This finding is associated with the Mitigating Systems Cornerstone attribute of Design Control, i.e. initial design, was determined to be more than minor because it impacted the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined that if left uncorrected, this design deficiency had the potential to impact the operability of safety-related systems and, thus, become a more significant safety concern in that a closed intervening valve had the potential for overpressurizing the CCW surge tank. The team assessed this finding for significance in accordance with NRC Manual Chapter 0609, Appendix A, Attachment 1, Significance Determination Process (SDP) for Reactor Inspection Findings for At-Power Situations, and determined that it was of very low safety significance (Green), in that no actual loss of safety system function was identified. The team reviewed the finding for cross-cutting aspects and concluded that this finding did not have an associated cross-cutting aspect because the design of the CCW surge tank relief was established in an original plant design, and therefore, was not representative of current licensee performance. [Section

Inspection Report# : [2009006](#) (pdf)

**Significance:** G Dec 03, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Maintain the Safety-Related 125V DC System Design Basis Information Consistent with the Plant Configuration**

The inspectors identified a finding involving a violation of 10 CFR 50, Appendix B, Criterion III, Design Control, for the licensee's failure to maintain the safety-related 125V DC system design basis information consistent with the plant configuration. Specifically, a revision to the Unit 1, safety-related 125V DC system analysis incorporated incorrect design input specifications. The issue was entered in the licensee's corrective action program as CR 2009-24517. Licensee corrective actions included incorporating the correct design input and specifications by revising the calculations.

The finding was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Design Control. It impacted the cornerstone objective because if left uncorrected, it had the potential to lead to a more significant safety concern in that future design activity or operability assessments would assume the lower voltage (100V DC vs. actual 105V DC) value acceptable for assuring the adequacy of voltage to the safety-related inverters. The team assessed this finding for significance in accordance with NRC Manual Chapter 0609, using the Phase I SDP worksheet for mitigating systems and determined that the finding was of very low safety significance (Green) since it was a design deficiency determined not to have resulted in a loss of safety function. This finding has a cross-cutting aspect in the area of human performance because the licensee failed to ensure that procedures (specifically ENG-QI 1.5) were available and adequate to assure nuclear safety (specifically, complete, accurate and up-to-date design documentation): H.2(c). [Section 1R21.2.20]

Inspection Report# : [2009006](#) (pdf)

**Significance:** Y Dec 03, 2009

Identified By: NRC

Item Type: VIO Violation

**Failure to Identify and Correct a Condition Adverse to Quality**

The team identified an AV of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to implement adequate corrective actions associated with the CCW air intrusion event that occurred in October, 2008. The corrective actions were inadequate in that the licensee failed to identify and correct the cause of air intrusion. The issue was entered in the licensee's corrective action program as CR 2009-25209 to address the ineffective corrective actions for the air intrusion event. Licensee corrective actions included isolating the CCW system from the containment IA compressors.

The finding was determined to be more than minor because it affected the availability, reliability and capability of a safety system to perform its intended safety function. Specifically, without knowing the leak path from the containment IA compressors to the CCW system, the licensee could not ensure that adequate cooling would be available or maintained to essential equipment used to mitigate design bases accidents. The finding was assessed for significance in accordance with NRC Manual Chapter 0609, using the Phase I and Phase II SDP worksheets for mitigating systems. It was determined that a Phase III analysis was required since this finding represented a loss of safety system function for multiple trains which was not addressed by the Phase II pre-solved tables/worksheets. Based on the Phase III SDP, the finding was preliminarily determined to be greater than Green. This finding was determined to have a cross-cutting aspect in the area of Human Performance, Decision Making, specifically H.1(a). IR # 05000335, 389/2009006 dated January 19, 2009.

The Regulatory Conference was held on February 19, 2010. After considering the information developed during the inspection and information provided by FPL during and after the conference, the NRC has concluded that the finding involving the failure to identify and correct the source of the air in-leakage into the CCW system is characterized as Yellow, i.e., a finding of substantial significance with regard to safety, which will require additional NRC inspections.

The NRC also determined that the Unit 1 CCW system met the design requirements at the time of licensing and at the time of the October 2008 air intrusion event. Therefore, this issue does not represent a performance deficiency, and accordingly, a violation of 10 CFR 50, Appendix B, Criterion III did not occur. Accordingly, Apparent Violation 05000335, 389/2009006-05, "Failure to Translate Design Basis Specifications to Prevent Single Failure of CCW" is considered closed and deleted from the record. IR 05000335, 389/2010007 dated April 19, 2010.

Inspection Report# : [2009006](#) (pdf)

**Significance:** G 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:** G 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:** **G** 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*)

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## **Barrier Integrity**

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## **Emergency Preparedness**

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **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.

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## **Miscellaneous**

**Significance:** N/A Mar 19, 2010

Identified By: NRC

Item Type: FIN Finding

**PI&R**

The team concluded that, in general, problems were properly identified, evaluated, prioritized, and corrected. The threshold for initiating condition reports (CRs) was appropriately low, as evidenced by the types of problems identified and the number of CRs entered annually into the Corrective Action Program (CAP). Employees were encouraged by management to initiate CRs. However, several examples of problems related to CAP administration were identified by the team, including minor equipment issues that had not been identified by the licensee and entered into the corrective action program, a few minor examples of corrective actions closed where the specified action had not been completed, and some minor problems with sustainability of corrective actions to prevent recurrence (CAPRs). When identified, the licensee entered these issues into the CAP. In the weeks prior to the inspection, a licensee self-assessment team found similar minor issues with CAP administration and had entered these items into the CAP. Corrective actions were planned but not fully implemented in the licensee identified cases, and an assessment of the sustainability of the corrective actions could not be accomplished.

The team found problems with deferral of preventive maintenance on risk significant equipment, including the intake cooling water check valves. The team found examples of deferral of critical preventive maintenance activities that were not based on engineering evaluation, but rather scheduling concerns or management discretion. However, there was no evidence that failures had occurred because of deferred maintenance. The licensee had identified deferred maintenance as a problem in 2009 and had undertaken comprehensive evaluation and actions to remedy the problem. These activities were in progress and the timetable to correct deficient conditions was appropriate.

The team determined that, overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and in most cases, appropriate corrective actions were developed to address the issues identified. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work and plant operations.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors determined that personnel felt free to raise safety concerns to management and use the CAP to resolve those concerns. However, internal surveys of work and safety culture issues identified a declining trend in worker satisfaction in 2008, and actions have been initiated to improve the work and safety culture environments throughout the corporation.

Inspection Report# : [2010006](#) (*pdf*)

Last modified : May 26, 2010