Saint Lucie 1
2Q/2010 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Inadequate Operations Procedure Results in Loss of 1B 125 v DC Bus
A self-revealing NCV of Technical Specification 6.8.1 was identified for an inadequate operating procedure which resulted in the loss of the 1B Direct Current (DC) vital electrical bus and unplanned entry into Technical Specification Action 3.9.8.2.a. for losing operability of one train of shutdown cooling. Subsequently, the Unit 1 daily shutdown risk assessment changed from a low risk to a high risk condition for electric power availability.

The failure to provide adequate procedural guidance for operating the 125 volt (v) DC vital bus is a performance deficiency. This finding was considered more than minor because it was associated with the Procedure Quality attribute of the Initiating Events cornerstone and adversely affected the objective of limiting the likelihood of a loss of the 125 v DC bus and a loss of shutdown cooling (SDC) event. If left uncorrected, the condition has the potential to become a more significant safety concern such as a loss of SDC while the reactor coolant system is open and the time to boil could be less than 2 hours. This finding was also determined to potentially have greater significance per IMC 06909, Appendix G, Attachment 1, Check List 3 due the increase in the likelihood that a loss of SDC will occur and the licensee's ability to cope with a loss of off-site power was degraded. The phase 1 screening resulted in a need to perform a phase 2 and phase 3 evaluation due to the finding resulting in the loss of mitigating function, specifically the ability to perform decay heat removal. The finding occurred while the plant was shutdown and required entry into IMC-0609 Appendix G. A phase 2 analysis was performed by a regional project engineer and was sent to the regional SRA for review. In accordance with the guidance of NRC Inspection Manual Chapter 0609 Appendix G, the analysis was given to headquarters analysts to perform a detailed phase 3. The significance determination process phase 3 risk evaluation resulted in a risk increase for the finding <1E-6 for core damage frequency (CDF) and <1E-7 for large early release frequency (LERF). The initiators evaluated were loss of inventory (LOI), loss of offsite power (LOOP), and loss of residual heat removal (LORHR). The dominant sequences involved the LOOP initiator, failure of the DC B train resulting in the failure of RHR B, and the failure of the A train to provide a means to perform feed and bleed given the loss of RHR A. The analysis assumed the DC B train was non-recoverable. Due to the short time to boil, gravity feed was not credited. The finding was characterized as of very low safety significance (Green). This characterization was due to the very short exposure time and that the deficiency was evaluated as a condition assessment rather that as an event assessment. This finding was related to the complete procedures aspect of the Resources component in the Human Performance crosscutting area (IMC 0305 aspect H.2.c).

Inspection Report# : 2010003 *(pdf)*

Significance: G Jun 30, 2010
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Untimely Corrective Actions to Resolve Seat Leakage of Containment Spray Valves 2-MV-07-3/4
The inspectors identified a 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 seat leakage past containment spray isolation valves 2-MV-07-3 and 2-MV-07-4 resulting in long standing Reactor Coolant System (RCS) inventory perturbations while in reduced inventory operations and a long term operator workaround.

The finding was more than minor in accordance with Inspection Manual Chapter (IMC) 0612, Power Reactor Inspection Reports, Appendix B, "Issue Screening." Specifically, if left uncorrected the condition has the potential to become a more significant safety concern such as a loss of shutdown cooling while in mid-loop operations when the time to boil could be 15 minutes or less. Using the NRC Manual Chapter 0609, ASignificance Determination

Process,@ Appendix G, “Shutdown Operations Significance Determination Process,” Checklist 3, the finding was determined to be of very low safety significance because Core Heat Removal, Inventory Control, Power Availability, Containment Control, and Reactivity Guidelines were all met. This finding was related to the appropriate and timely corrective actions aspect of the corrective action program (CAP) component in the problem identification and resolution crosscutting area (IMC 0305 Aspect P.1.d). (Section 4OA5.1)

Inspection Report# : 2010003 *(pdf)*

Mitigating Systems

Significance: G 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: G 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 1R21.2.2]

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 Ill 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)*

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

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 : September 02, 2010