

Saint Lucie 2

1Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate Procedure for Main Steam Isolation Valve Testing

A self-revealing non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified when safety related surveillance test procedure 2-OSP-08.01, "Main Steam Isolation Valves Periodic Test," was implemented as written in Mode 2 causing the main feed water isolation valves (MFIVs) to close resulting in a momentary loss of feed water to the steam generators. The surveillance procedure did not provide adequate initial conditions or special precautions to prevent plant conditions that would result in a loss of feed water to the steam generators. The issue was entered into the corrective action program (CAP) as condition report (CR) 2009-29332.

The finding was more than minor because it was similar to example 4.b in IMC 0612, Appendix E, in that it challenged steam generator water level control due to closure of the MFIVs and resulted in a feed flow transient. The finding was associated with the procedure quality attribute of the Initiating Events cornerstone and adversely affected the associated cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding was evaluated in accordance with IMC 0609, Attachment 4, and determined to be of very low safety significance per the Significance Determination Process (SDP) Phase 1 Screening because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions would not be available, and did not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of human performance because the licensee did not provide complete, accurate and up-to date procedures to plant personnel (H.2.c). (Section 40A2.2)

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

Significance:  Feb 26, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Procedure When Placing Shutdown Cooling In-service

A self-revealing NCV of Technical Specification (TS) 6.8.1.a and Regulatory Guide (RG) 1.33 was identified for the licensee failing to implement a written procedure for general plant operations. The normal operating procedure 2-NOP-03.05, "Shutdown Cooling," was not implemented as written when drain valve V7207 was mistakenly closed by a non-licensed building operator when it was required to be open when placing the 'A' shutdown cooling train in service. Specifically, the closing of valve V7207 removed a required drain path for known valve seat leakage past containment spray boundary valve 2-MV-07-03 which resulted in unplanned adjacent intersystem leakage into the containment spray system from the reactor coolant system. This issue was entered in the licensee's corrective action program as CR 2009-15198.

The finding was more than minor because it affected the Configuration Control attribute of the Initiating Events cornerstone and the valve misposition could be reasonably viewed as a precursor to a significant event. 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. A contributing cause of the finding is related to the cross-cutting area of Human Performance, with a work practices component. Specifically, the operator failed to implement expected human error prevention techniques such as procedure place keeping and self-checking to ensure the valve was positioned properly. [H.4(a)]. (Section

Inspection Report# : [2010501](#) (pdf)

Significance:  Feb 26, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Have a Fully Qualified and Active Licensed Operator at the Control Boards During Reactivity Manipulations

A self-revealing Non-Cited Violation (NCV) of 10 CFR 50.54(i), Conditions of Licenses, for failure to have a fully qualified and active licensed operator at the control boards during reactivity manipulations. On June 7, 2008, the Shift Manager (SM) of record allowed an inactive licensed Senior Reactor Operator (SRO) to manipulate the controls that directly affected a reactor's power level / reactivity. The SM understood that the available licensed SRO was in an inactive status and decided that the inactive licensed SRO would conduct reactivity manipulations under the direct observation of an active reactor operator while the Unit Supervisor directed these activities. Since the inactive licensed SRO had not performed the functions of an SRO for a minimum of seven 8-hour shifts or five 12-hour shifts per calendar quarter, as required by 10 CFR 55.53(e), he was ineligible to perform or direct licensed activities. The issue was documented in the licensee's corrective action program as CRs 2008-19417 and 19830.

The finding was more than minor because it affected the Human Performance attribute of the Initiating Events cornerstone and allowing the inactive SRO to be involved in power changes/reactivity manipulations without having an active license could be reasonably viewed as a precursor to a significant event. Additionally, if left uncorrected, this deficiency has the potential to lead to a more significant safety concern. The finding was evaluated using the NRC Manual Chapter 0609, ASignificance Determination Process, @ Appendix M, and was determined to be of very low safety significance because the finding did not involve any negative events as a result of SM being in an inactive status. No cross-cutting aspect associated with this finding was identified. (Section 40A5.3)

Inspection Report# : [2010501](#) (pdf)

Significance:  Dec 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Safety-Related Maintenance Procedure to Properly Align the 2B2 Reactor Coolant Pump/Motor Shaft Coupling Assemblies

An inspector identified non-cited violation of Technical Specification 6.8.1.a and Regulatory Guide 1.33 was identified for an inadequate safety-related maintenance procedure. Specifically, the inspectors identified that during reassembly of Reactor Coolant Pump (RCP) 2B2 in July 2009 mechanical maintenance procedure MMP-01.17, "Reactor Coolant Pump Model N-9000 Seal Removal and Installation," Revision 10, instructed the licensee to utilize a method of checking the RCP coupling alignment that was not in accordance with Byron Jackson Technical Manual 741-N-0001/4, Revision 23. The procedure instructed the maintenance workers to measure the shaft coupling flange face gap clearance rather than measuring the concentricity/runout of the coupling flanges as required in the subject vendor technical manual. This resulted in the RCP running with increased vibrations and ultimately requiring a plant shutdown to perform repairs. This issue was entered into the Corrective Action Program (CAP) as Condition Reports 2009-28512 and 2009-22728

This finding is more than minor because it is associated with procedure quality attribute and affected the objective of the Reactor Safety/Initiating Event Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the subject RCP maintenance procedure did not require the measurement of coupling run-out whenever the coupling is disassembled in accordance with the vendor technical manual requirements which resulted in an unplanned plant shutdown. The finding was determined to be of very low safety significance since it did not contribute to both the likelihood of a reactor trip and that mitigation equipment or functions would not be available. 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 maintenance procedure instructions were not complete or accurate to ensure proper RCP coupling alignment. (IMC 0305 aspect H.2.c). (Section 40A2.2)

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

Significance:  Jun 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Procedure When Placing Shutdown Cooling In-service

A self-revealing NCV of Technical Specification (TS) 6.8.1.a and Regulatory Guide (RG) 1.33 was identified for the licensee failing to implement a written procedure for general plant operations. The normal operating procedure 2-NOP-03.05, "Shutdown Cooling," was not implemented as written when drain valve V7207 was mistakenly closed by a non-licensed building operator when it was required to be open when placing the 'A' shutdown cooling train in service. Specifically, the closing of valve V7207 removed a required drain path for known valve seat leakage past containment spray boundary valve 2-MV-07-03 which resulted in unplanned adjacent intersystem leakage into the containment spray system from the reactor coolant system. This issue was entered in the licensee's corrective action program as CR 2009-15198.

The finding was more than minor because it affected the Configuration Control attribute of the Initiating Events cornerstone and the valve misposition could be reasonably viewed as a precursor to a significant event. 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. A contributing cause of the finding is related to the cross-cutting area of Human Performance, with a work practices component. Specifically, the operator failed to implement expected human error prevention techniques such as procedure place keeping and self-checking to ensure the valve was positioned properly, [H.4(a).)]. (Section 4OA2.2)

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

Significance:  Jun 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Have a Fully Qualified and Active Licensed Operator at the Control Boards During Reactivity Manipulations

A self-revealing Non-Cited Violation (NCV) of 10 CFR 50.54(i), Conditions of Licenses, for failure to have a fully qualified and active licensed operator at the control boards during reactivity manipulations. On June 7, 2008, the Shift Manager (SM) of record allowed an inactive licensed Senior Reactor Operator (SRO) to manipulate the controls that directly affected a reactor's power level / reactivity. The SM understood that the available licensed SRO was in an inactive status and decided that the inactive licensed SRO would conduct reactivity manipulations under the direct observation of an active reactor operator while the Unit Supervisor directed these activities. Since the inactive licensed SRO had not performed the functions of an SRO for a minimum of seven 8-hour shifts or five 12-hour shifts per calendar quarter, as required by 10 CFR 55.53(e), he was ineligible to perform or direct licensed activities. The issue was documented in the licensee's corrective action program as CRs 2008-19417 and 19830.

The finding was more than minor because it affected the Human Performance attribute of the Initiating Events cornerstone and allowing the inactive SRO to be involved in power changes/reactivity manipulations without having an active license could be reasonably viewed as a precursor to a significant event. Additionally, if left uncorrected, this deficiency has the potential to lead to a more significant safety concern. The finding was evaluated using the NRC Manual Chapter 0609, ASignificance Determination Process, @ Appendix M, and was determined to be of very low safety significance because the finding did not involve any negative events as a result of SM being in an inactive status. No cross-cutting aspect associated with this finding was identified. (Section 4OA5.3)

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

Mitigating Systems

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 1R21.2.2]

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

Significance:  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: 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*)

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 : May 26, 2010