

Saint Lucie 1

3Q/2012 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to implement procedure EN-AA-205, Design Change Packages

A self-revealing, non-cited violation (NCV) of Technical Specification (TS) 6.8.1, was identified which requires written procedures be established, implemented, and maintained covering activities referenced in NRC Regulatory Guide 1.33, Revision 2, dated February 1978, including safety-related activities carried out during operation of the reactor plant. The licensee's safety-related design control procedure EN-AA-205, "Design Change Packages," was not implemented as written when a plant modification was performed on the reactor regulating system and steam bypass control system that affected a safety-related maintenance procedure that was not revised to reflect the design change. The licensee entered this violation in their corrective action program as action request 1786565.

The licensee's failure to fully implement procedure EN-AA-205, "Design Change Packages," was a performance deficiency. The finding was determined to be more than minor because if left uncorrected, the deficiency could lead to a more significant safety concern. The inspectors evaluated the risk of this finding under the initiating events cornerstone using IMC 0609, "Significance Determination Process," Appendix G, "Shutdown Operations Significance Determination Process." The inspectors determined that the finding was of very low safety significance because it did not require a quantitative assessment as determined in Checklist 1. The finding involved a cross-cutting aspect of complete and accurate procedures in the resources component of the human performance area [H.2.(c)]. Specifically, the licensee failed to ensure that an adequate maintenance procedure was up to date to prevent an unexpected reactor plant temperature transient. (Section 4OA2.4)

Inspection Report# : [2012004](#) (*pdf*)

Significance: G Apr 20, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to perform preventive maintenance on the 1B condensate pump discharge check valve

An NRC identified finding was identified for the licensee's failure to perform a preventive maintenance (PM) activity within its prescribed frequency on the 1B condensate pump discharge check valve. Consequently, the valve failed after a reactor trip and caused complications. No violations of NRC requirements were identified because the condensate pump discharge valve is non-safety related. The licensee entered this issue in the corrective action program as condition report 1755189. Corrective actions included revising the preventive maintenance procedure to initiate a condition report and require plant management approval prior to rescheduling a late PM.

The finding was more than minor because it affected the equipment reliability attribute of the Initiating Events cornerstone and affected the 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. Using NRC manual Chapter 0609.04, Significant Determination Process – Phase 1 screening, the finding was determined to be of very low safety significance (Green) because it was a transient initiator, but did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The finding involved the cross-cutting

area of Human Performance with a work control aspect. Specifically, the licensee did not plan work activities to support long-term equipment reliability, and maintenance scheduling was more reactive than preventive. [H.3(b)] (Section 40A2.a(3)(i))

Inspection Report# : [2012007](#) (*pdf*)

Significance:  Apr 20, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to implement timely corrective actions resulted in a plant trip

A self-revealing finding was identified for the licensee's failure to implement timely corrective actions. Specifically, after the overheating and failure of a Circulating Water Pump (CWP) motor resulted in an unplanned reactor down power, the licensee failed to implement timely corrective actions to monitor and trend motor stator temperatures using the installed RTDs. Consequently, a second CWP motor failed due to overheating that resulted in a reactor trip. No violations of NRC requirements were identified because the performance deficiency involved non-safely related equipment. The licensee entered this issue in the corrective action program as condition report 1697977. Corrective actions included immediately taking the motor stator RTD temperatures on both Units and using that data to monitor the CWP motors thermal performance for degradation.

The finding was more than minor because it affected the equipment reliability attribute of the Initiating Events Cornerstone and affected the 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. Using NRC manual Chapter 0609.04, SDP – Phase 1 screening, the finding was determined to be of very low safety significance (Green) because it was a transient initiator, but did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The finding involved the cross-cutting area of Problem Identification and Resolution with a corrective action program aspect. Specifically, the licensee did not take appropriate corrective actions to address safety issues and adverse trends in a timely manner, commensurate with their safety significance and complexity. [P.1(d)] (Section 40A2.a(3)(iii))

Inspection Report# : [2012007](#) (*pdf*)

Significance:  Apr 20, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to Implement Vendor Described Preventive Maintenance on the Circulating Water Pump Motors

A self-revealing finding was identified for the licensee's failure to implement vendor recommended preventive maintenance requirements to monitor and trend motor stator temperatures using the installed resistance temperature detector (RTDs) for the 1A2 Circulating Water Pump (CWP) motor. As a result of not trending 1A2 CWP motor performance, the pump was allowed to run to failure causing an unplanned reactor power transient. No violation of NRC regulatory requirements occurred. The inspectors determined that the finding did not represent a noncompliance because the performance deficiency involved non-safety related equipment. The licensee entered this issue in the corrective action program as condition report 1758355. Corrective actions included revising the circulating pump motor preventive maintenance procedure to include periodic monitoring and trending circulating water pump motor thermal performance using the installed stator Resistance Temperature Detectors (RTDs).

The finding was more than minor because it affected the equipment reliability attribute of the Initiating Events cornerstone and affected the 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. Using NRC Manual Chapter 0609.04, SDP – Phase 1 screening, the finding was determined to be of very low safety significance (Green) because it was a

transient initiator, but did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The finding did not have a cross-cutting aspect because the performance deficiency was not indicative of current plant performance. (Section 40A2.b(3)(ii))
 Inspection Report# : [2012007](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to follow the design control procedure when removing Unit 1 EDG electrical cabinet seismic bolting

A Green, NRC identified, non-cited violation (NCV) of Technical Specification (TS) 6.8.1, was identified which requires that written procedures be established, implemented, and maintained covering activities referenced in NRC Regulatory Guide 1.33, Revision 2, dated February 1978, including safety related activities carried out during operation of the reactor plant. The licensee's quality instruction procedure QI-3-PSL-1, Design Control, was not complied with as written when several bolts were removed from 1A and 1B emergency diesel generator (EDG) electrical cabinet doors without any modification evaluation and analysis. The licensee entered this in their corrective action program as condition report 1763000.

The licensee's failure to comply with QI-3-PSL-1, Design Control, on both Unit 1 EDGs is a performance deficiency. The performance deficiency affects the Mitigating Systems Cornerstone and was determined to be more than minor significance because if left uncorrected, the deficiency could lead to a more significant safety concern. The inspectors evaluated the risk of this finding using IMC 0609, Significance Determination Process, Attachment 4, Phase 1 - Initial Screening and Characterization of Findings. The inspectors determined that the finding was of very low safety significance because it did not result in an actual loss of operability or functionality to the EDG System. The finding involved the cross-cutting area of human performance, in the component of work practices and the aspect of procedural compliance (H.4.b), in that, the licensee failed to ensure that personnel followed procedure requirements to prevent plant modifications without adequate evaluation and analysis. (Section 40A2.2)

Inspection Report# : [2012003](#) (pdf)

Significance:  Apr 20, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to implement vendor technical manual recommendations to inspect EDG immersion heaters

A self revealing potentially greater than Green AV of Technical Specification 6.8.1.a was identified for failure to establish adequate maintenance procedures associated with the emergency diesel generator (EDG) system. Specifically, station personnel failed to establish preventative maintenance inspections of diesel immersion heaters in accordance with vendor manual recommendations. As a result, the Unit 1 1A EDG was immediately rendered inoperable for 43.5 hours due to a failed immersion heater that resulted in a leak of the 1A2 EDG jacket water system. The licensee replaced the heater with an onsite spare. The finding was considered more than minor because it impacted the Reactor Safety Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences and affected the cornerstone attribute of equipment performance. The issue was placed in the licensee's corrective action program as condition report 1751214.

The cause of this finding was related to the Work Control component of the Human Performance cross-cutting area due to the failure to plan work activities to ensure long term equipment availability. Specifically, maintenance scheduling was more reactive than preventative. [H.3(b)] (Section 40A2.b(3)(i))

A self-revealing non-cited violation (NCV) of Technical Specification 6.8.1.a was identified for failure to establish adequate maintenance procedures associated with the EDG system. Specifically, station personnel failed to establish preventative maintenance inspections of diesel immersion heaters in accordance with vendor manual recommendations. As a result, the Unit 1 1A EDG was immediately rendered inoperable for 43.5 hours due to a failed immersion heater that resulted in a leak of the 1A2 EDG jacket water system.

The failure to conduct inspections of the EDG jacket water immersion heaters in accordance with vendor manual recommendations is a performance deficiency. The finding was considered to be more than minor because it impacted the reactor safety Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Specifically, the failed immersion heater resulted in a loss of jacket water that caused the 1A EDG to trip during a routine surveillance run. The inspectors performed a Phase 1 evaluation per Inspection Manual Chapter (MC) 0609, Attachment 4 and determined that the finding represented an actual loss of safety function for a single train of equipment, potentially for greater-than its technical specification allowed outage time. Consequently a Phase 2 analysis was performed by the inspectors in accordance with MC 0609, Appendix A, which indicated the risk significance of the performance deficiency was potentially $> 1E-6$ (White). A Senior Reactor Analyst subsequently performed a Phase 3 analysis of the risk impact both while at-power and while the unit was shutdown. The analyst determined that the risk significance of the issue was very low (Green). The primary cause of the performance deficiency, as determined by the inspectors, was failure to implement vendor recommendations to periodically inspect the immersion heaters. The inspectors determined that the cause of this finding was related to the Work Control component of the Human Performance cross-cutting area due to the failure to plan work activities to ensure the long term equipment availability [H.3(b)]. (Section 40A5.2)

Inspection Report# : [2012003](#) (*pdf*)

Inspection Report# : [2012007](#) (*pdf*)

Significance:  Dec 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Operability Determination Procedure for Evaluation of Past Operability

The inspectors identified a NCV of Technical Specification (TS) 6.8.1 and Regulatory Guide (RG) 1.33 for the licensee failing to implement a written procedure for operability determinations. Safety related procedure EN-AA-203-1001, "Operability Determinations and Functionality Assessments," was not fully implemented as written on multiple occasions when the 1A and 2A auxiliary feed water pump discharge pressure gauges used for periodic in-service surveillance testing were found out of calibration during periodic maintenance. Specifically, during the performance of maintenance procedure 1400064P, "Installed Plant Instrumentation Calibration," pressure gauge PI-09-7A was found out of calibration, required adjustment, and a condition report written for evaluation in the licensee's corrective action program. The inspector determined a performance deficiency existed when on three separate occasions from 2009 thru 2011, the senior reactor operator concluded incorrectly that the out of calibration gauge conditions did not affect past operability and therefore no engineering evaluation was performed as required by procedure EN-AA-203-1001.

The finding was more than minor because if the performance deficiency is not corrected then it could lead to a more significant safety concern. Using the NRC Manual Chapter 0609, ASignificance Determination Process,@ Table 4A, "Characterization Worksheet," the finding does not represent an actual loss of safety function or screen as potentially risk significant due to seismic, flooding, or severe weather. A contributing cause of the finding is related to the cross-cutting area of Problem Identification and Resolution, with a corrective action program aspect. Specifically, the

operator failed to thoroughly evaluate the condition for past operability of the affected auxiliary feed water pump.

Inspection Report# : [2011005](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform examinations of reactor pressure vessel supports

A Green, NRC identified, non-cited violation (NCV) of Code of Federal Regulation (CFR) 10 CFR Part 50.55a, Codes and Standards, involving the licensee's failure to include the reactor pressure vessel supports in the scope of the licensee's inservice inspection (ISI) program. 10 CFR 50.55a requires that licensees develop an ISI program and update that program every 10 years in accordance with the approved edition of American Society of Mechanical Engineers (ASME) Section XI in effect 12 months prior to the beginning of the 10 year interval. The inspectors identified that the nuclear Class 1 reactor pressure vessel supports were not included in the scope of the St Lucie Unit 1 ISI Program for the fourth interval. The Licensee's ISI program was prepared in accordance with the 2001 Edition of the ASME Section XI Code, with addenda through 2003, as modified by 10 CFR 50.55a. As required by Article IWF 1000, Table 2500-1, Examination Category Item Number F1.40, the reactor pressure vessel (RPV) supports are required to be periodically VT-3 visually examined. Also as required by Subsection IWB of Section XI, Table IWB-2500-1, Examination Category B-K, Item No. B10.10, the support integral attachment weld is to be periodically subjected to a surface examination. This issue was entered into the licensee's corrective action program as AR 01716657.

The failure to include the RPV supports in the scope of the ISI program and the failure to conduct the required examinations is a performance deficiency. The performance deficiency was determined to be more than minor significance because failure to conduct the required examinations, if left uncorrected, could have resulted in the potential to allow degradation of the reactor vessel support structure to continue undetected. If left unchecked, any support degradation could have resulted in more significant degradation of the reactor support components and integral attachment welds with subsequent degradation of the primary system pressure boundary. The finding was associated with the design control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, examinations of the RPV supports provide assurance that the structural boundary of the reactor coolant system (RCS) remains capable of performing its intended safety function. The inspectors used IMC 0609, Significance Determination Process, Attachment 0609.04, Phase 1 – Initial Screening and Characterization of Findings, and determined that the finding was of low safety significance (Green) because it did not represent an actual failure of the RPV supports.

The inspectors identified a cross-cutting aspect in the Human Performance Decision Making cross cutting area, H.1 (b). Specifically, the licensee failed to apply conservative assumptions in decision making and conduct effective reviews of safety significant decisions to verify the validity of assumptions used. (Section 1R08)

Inspection Report# : [2012003](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Sep 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to ship radioactive material in accordance with DOT regulations

A self-revealing, Green non-cited violation (NCV) of 10 CFR 71.5 was identified for the licensee's failure to ship radioactive material in accordance with Department of Transportation (DOT) requirements as specified in 49 CFR Parts 171-180. Specifically, upon receipt at its destination, a radioactive shipment classified as an "excepted package for limited quantities" was found to have external surface package dose rates exceeding the limit of 0.5 millirem per hour (mrem/h) as specified in 49 CFR 173.421(a)(2). The package recipient identified a maximum dose rate of 3.95 mrem/h on the exterior surface of the package and notified the licensee of the discrepancy. The licensee entered the event into their corrective action program as Action Request (AR)-01628106.

The performance deficiency was more than minor because it was associated with the "Program & Process Procedures" attribute (DOT package limits) of the Public Radiation Safety Cornerstone. The inspectors determined the cornerstone's objective was adversely affected based on the fact that shipment of radioactive material in excess of DOT limits in the public domain is contrary to NRC and DOT regulations. Assurance that the public will not receive unnecessary dose is decreased if packages are not prepared so that dose rates in accessible areas remain below regulatory limits during transit. The finding is of very low safety significance (Green) because there was little to no risk to members of the public.

This finding involved the cross-cutting area of Human Performance with the aspect of conservative decision-making, in that the licensee assumptions failed to ensure that equipment packaged for shipment would not exceed DOT limits during transport. [H.1(b)] (Section 2RS8)

Inspection Report# : [2012004](#) (*pdf*)

Security

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

Miscellaneous

Last modified : November 30, 2012