

Saint Lucie 1

1Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadequate MSIV Modification Installation and Test

A self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control was identified for the licensee's failure to specify adequate modification installation and testing criteria to ensure the Unit 1 modified main steam isolation valves (MSIVs) were installed in accordance with design requirements. Corrective actions completed included restoring both MSIVs to design requirements, revising MSIV maintenance procedures, verifying the acceptability of all post-modification requirements associated with engineering changes provided by the MSIV contractor, and providing training of this event to maintenance and engineering personal.

The performance deficiency was considered to be more than minor because it impacted the initiating events cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions and affected the cornerstone attribute of design control. Specifically the performance deficiency resulted in the inadvertent shutting of one MSIV and a plant trip. The performance deficiency also caused an increased probability of a loss of condenser heat sink due to a common cause failure of both MSIVs. The inspectors reviewed the finding in accordance with Inspection Manual Chapter 0609, Significance Determination Process, Attachment 4 and Appendix A and determined that the finding required a detailed risk evaluation by an NRC senior reactor analyst due to the increased probability of having a reactor trip with a loss of condenser heat sink. Using the NRC SPAR model, the analyst assumed a one year exposure period with no recovery credit. A loss of condenser heat sink was assumed with a probability of 1.0 though this would overestimate the risk significance because there was some probability the 1A MSIV would remain open during an event. The dominant sequence was a loss of condenser heat sink event where auxiliary feedwater and once-through steam generator cooling both fail. The risk was mitigated by the low probability of a common cause failure of both safety-related DC batteries. The analysis determined that the increase in risk due to the performance deficiency was a delta-core damage frequency (CDF) less than 1E-6/year, i.e., a Green finding of very low safety significance. Because the licensee failed to implement modification installation and test instructions that were adequate to ensure that the MSIVs could fully open, the finding was associated with the cross-cutting aspect of complete and accurate procedures in the resources component of the human performance area [H.2(c)].

Inspection Report# : [2013003](#) (*pdf*)

Mitigating Systems

Significance: G Feb 07, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Seismic Restraining Procedures on Ladders Located Near Safety-Related Equipment

A green NRC identified non-cited violation (NCV) of Technical Specification 6.8.1, Procedures and Programs, 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. The licensee's failure to comply with procedures to seismically restrain ladders was a performance deficiency. Specifically, the licensee's procedures for seismic restraint of ladders: MA-AA-100- 1008, Station Housekeeping and Material Control; QI-13-PSL, Housekeeping and Cleanliness Controls Methods St. Lucie Plant; ADM-04.02, Industrial Safety Program; and ADM-27.11, Scaffold Control, were not implemented as written with regard to ladders that were installed near safety-related equipment. The inspectors identified three examples of ladders not seismically restrained in accordance with the licensee's procedures. Immediate corrective actions included completing a site-wide walkdown of the safety-related systems to identify and bring into procedural compliance any ladders that were not seismically restrained. This issue is documented in the licensee's corrective action program as Action Request (AR) 1935979 and 1933112.

The performance deficiency was determined to be more than minor because if left uncorrected the failure to comply with station procedures to ensure adequate restraining of seismically controlled ladders could lead to a more significant safety concern. Specifically, seismically unrestrained ladders could impact safety-related equipment during a design basis seismic event. Using Manual Chapter 0609.04, Significance Determination Process Initial Characterization of Findings Table 2 dated June 19, 2012, the finding was determined to affect the Mitigating Systems Cornerstone. The inspectors evaluated the risk of this finding using Manual Chapter 0609 Appendix A, Significance Determination Process for Findings At-Power, Exhibit 2- Mitigating Systems Screening questions. The inspectors determined that the finding was of very low safety significance because it did not represent an actual loss of safety function. The finding involved the cross-cutting area Problem Identification and Resolution, in the component of Resolution. Specifically licensee failed to take effective corrective actions to address issues in a timely manner commensurate with their safety significance (P3). (Section 40A2.a(3)(ii))

Inspection Report# : [2014007](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Implement Appropriate Corrective Actions for AFW System Corrosion

The inspectors identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action. Specifically, the licensee failed to identify localized corrosion on the discharge piping for the 1C auxiliary feedwater pump that exceeded the licensee's acceptance criteria for minimum pipe wall thickness. The licensee entered the issue into the corrective action program (CAP) as action request (AR) 1913575. Corrective actions included replacing the degraded sections of pipe and conducting analyses to verify past operability of the degraded piping.

The performance deficiency was more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, unmitigated corrosion of the AFW piping could result in through-wall leaks, affect structural integrity of the piping, and ultimately result in inoperability of the system. Using Table 2 of Manual Chapter 0609.04, Significance Determination Process (SDP) Initial Characterization of Findings dated June 19, 2012; the inspectors concluded the finding affected the mitigating systems cornerstone. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 2, dated June 19, 2012. The finding was determined to be of very low safety significance (Green) since the AFW system remained operable and was able to perform its function. The inspectors determined the cause of this finding was associated with a cross cutting aspect of minimizing longstanding equipment issues in the resources component of the human performance area. Specifically, the licensee had not provided adequate resources to address longstanding Unit 1 AFW system corrosion issues [H.2(a)].

Inspection Report# : [2013005](#) (*pdf*)

Significance: G Oct 09, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to Meet Training Program Standards on Job Performance Measures for the Annual Licensed Operator Requalification Operating Examination

The inspectors identified a finding associated with the licensee's failure to meet training program standards in the development of job performance measures (JPMs) for the licensed operator requalification annual operating tests. The inspectors identified five JPMs, which were administered as part of the 2013 annual operating examination, that were incorrectly designated as alternate path JPMs. Inspectors further identified that one of these JPMs only contained one critical step. A minimum of two critical steps are required by the licensee's program standard. Overall, five JPMs, out of a total sample size of 15 (33%), were determined to be inadequate. As part of their immediate corrective actions, the facility licensee entered the issue into the corrective action program as AR-01900809.

This performance deficiency (PD) was more than minor because it was associated with the Human Performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the PD adversely affected the quality of operating tests for licensed operators, such that during the administration of the annual operating examination, operators were potentially not correctly evaluated. This impacted the licensee's ability to evaluate and ensure operator performance to assess and maintain the availability, reliability, and capability of mitigating systems. In accordance with Inspection Manual Chapter (IMC) 0609 Appendix I, the Licensed Operator Requalification Significance Determination Process, this finding was determined to be of very low safety significance (Green) because less than 40 percent of the reviewed JPMs were found to be inadequate. The cause of the finding was directly related to the cross-cutting aspect of personnel training and qualifications in the resources component of the cross-cutting area of Human Performance, in that, the licensee failed to ensure the quality of the operating tests used to evaluate the knowledge, skills, abilities, and training provided to operators to assure nuclear safety. [H.2(b)]

Inspection Report# : [2013008](#) (*pdf*)

Significance: G Sep 30, 2013

Identified By: Self-Revealing

Item Type: FIN Finding

Partial loss of offsite power due to non-segregated bus failure

A self-revealing finding was identified for the licensee's failure to establish adequate preventive maintenance (PM) activities for both units' startup transformers (SUTs) 6.9kV non-segregated bus runs in accordance with site PM program requirements. As a result, external corrosion of the 2B SUT 6.9kV non-segregated bus run duct was allowed to degrade until a duct vent screen collapsed onto the energized bus causing a partial loss of offsite power to both units. This issue was placed in the licensee's corrective action program as action request 1809273. Corrective actions included: repair of the corroded non-segregated bus duct vent associated with this event, updating the preventative maintenance program to address periodic maintenance of non-segregated bus duct vents, and completing inspections and repairs, as necessary, of both units' outdoor bus duct vents for bus runs to the SUTs and auxiliary transformers.

The performance deficiency was considered to be more than minor because it was associated with the equipment reliability attribute of the initiating events cornerstone and adversely 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. Specifically, since 2003 when PM activities were established for SUTs (including 4.16kV non-segregated bus runs), the licensee failed to establish those same activities for both units' SUT 6.9kV non-segregated bus runs. As a result, external corrosion of the 2B SUT 6.9kV non-segregated bus duct was allowed to degrade until a duct vent screen collapsed onto the energized bus causing a partial loss of offsite power to both units. The inspectors reviewed the finding in accordance with Inspection Manual Chapter 0609, "Significance Determination Process,"

Attachment 4, Appendix A and Appendix G. Appendix A, The Significance Determination Process (SDP) for Findings At-Power, was used for both units because Unit 1 was operating and the failure could have reasonably occurred with Unit 2 operating prior to the fall 2012 outage. Appendix G, Shutdown Operations Significance Determination Process, was used for the time Unit 2 was in the 2012 outage. Appendix G required a detailed risk evaluation because the finding increased the likelihood of a loss of offsite power. A Senior Reactor Analyst subsequently performed an analysis of the risk impacts to both units while at-power and while the unit was shut down. The analyst determined that the risk significance of the issue was very low (i.e., Green). The dominant accident sequence was a Loss of Offsite Power during a shutdown condition, specifically when the RCS is vented such that: 1) the steam generators cannot sustain core heat removal, and 2) a sufficient vent path exists for feed and bleed. The remaining mitigation of such an accident was comprised of the Unit 2 EDGs and recovery of power from the opposite unit. The inspectors concluded that this finding did not have a cross-cutting aspect as this was not representative of present licensee performance.

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Monitor SSCs under 10 CFR 50.65(a)(1)

The inspectors identified a Green non-cited violation associated with the licensee's failure to follow the requirements of 10 CFR 50.65(a)(2), Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants. Corrective actions included the assignment of a fulltime maintenance rule coordinator to ensure the appropriate priority was assigned to maintenance rule activities, which included weekly meetings of the maintenance rule expert panel to allow evaluation of equipment failures.

The performance deficiency was more than minor because it involved degraded system performance which, if left uncorrected, could become a more significant safety concern. Specifically, not addressing equipment issues under the maintenance rule could impact the reliability and unavailability of those systems, structures, and components important to safety. Using Manual Chapter 0609.04, Significance Determination Process Initial Characterization of Findings, the finding was determined to affect the Mitigating Systems Cornerstone and screened as Green because none of the logic questions under the cornerstone applied. Because the licensee had failed to utilize the corrective action program to associate and trend maintenance rule implementation issues in the aggregate to identify programmatic and common cause problems, the finding was associated with a cross-cutting aspect in the corrective action program component of the problem identification and resolution area [P.1(b)].

Inspection Report# : [2013003](#) (*pdf*)

Significance:  May 13, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Demonstrate Feasibility of All OMAs Used as Compensatory Measures

A Green NRC-identified non-cited violation of St. Lucie Unit 1 and Unit 2 operating license conditions 3.E was identified for the licensee's failure to comply with the requirements of the St. Lucie Fire Protection Program for verifying the feasibility of unapproved operator manual actions (OMAs). Specifically, the licensee's process for determining OMA feasibility did not include performing in-plant walkdowns to verify the feasibility of all the unapproved OMAs that were entered in the corrective action program (CAP) in 2006 and designated as alternate compensatory measures during the transition to National Fire Protection Association (NFPA) Standard 805. The licensee entered this issue in their CAP as Action Request (AR) 01860866 and performed in-plant walkdowns to verify feasibility of the OMAs which had not been previously field verified.

Failure to comply with the requirements of the St. Lucie Fire Protection Program for verifying the feasibility of unapproved OMAs designated as compensatory measures is a performance deficiency. This finding was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of protection against external events (i.e. fire), and it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The licensee's process for determining OMA feasibility could have resulted in non-feasible OMA compensatory measures not being identified which had the potential to adversely affect SSD in the event of a fire. The finding was screened in accordance with NRC Inspection Manual Chapter (IMC) 0609, "Significance Determination Process (SDP)," Attachment 4, "Initial Characterization of Findings," which determined that an IMC 0609 Appendix F, "Fire Protection Significance Determination Process," review was required as the finding affected fire protection safe shutdown. The inspectors evaluated this finding using the guidance in IMC 0609, Appendix F, Attachment 2, "Degradation Rating Guidance," and assigned a low degradation rating to this finding because the licensee verified that the OMAs were feasible through in-plant walkdowns. Therefore, this finding was determined to be of very low safety significance (Green). The cause of this finding was determined to have a cross-cutting aspect in the Corrective Action Program (CAP) component of the Problem Identification and Resolution area in that the licensee did not thoroughly evaluate the problem such that the resolution addressed extent of condition [P.1(c)].

Inspection Report# : [2013007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Dec 31, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Use Only NIOSH Certified Respiratory Protection Equipment

A self-revealing Green non-cited violation (NCV) of 10 CFR Part 20.1703(a) was identified for the use of respiratory protection equipment that had not been certified as safe by the National Institute for Occupational Safety and Health (NIOSH). The licensee's use of respiratory protection equipment in a radiologically controlled area that had not been tested and certified by NIOSH or that had not obtained prior authorization from the NRC to use respiratory equipment not certified by NIOSH was a performance deficiency. The licensee discontinued use of the respiratory protection equipment and the issue was entered into the licensee's corrective action program under action request (AR) 1719479.

The finding was more than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of "Equipment and Instrumentation" and adversely affected the cornerstone objective of protecting worker health and safety from exposure to radiation. When using non-NIOSH approved respirators in a radiologically controlled area, the potential existed to put workers in a situation that may be more hazardous than the radiological dangers that the respirator is meant to protect against (e.g. loss of air flow). The finding was determined to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning,

there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised. A cross cutting aspect was not assigned because the performance characteristic was corrected and eliminated before the inspectors identified the issue and is therefore not reflective of present licensee performance. Inspection Report# : [2013005](#) (*pdf*)

Public Radiation Safety

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

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