

# Saint Lucie 1

## 4Q/2014 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:** G Sep 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to Establish a Reasonable Maintenance Effectiveness Demonstration for the ECCS Floor Drain Valve System**

An NRC-identified non-cited violation (NCV) of 10 CFR 50.65(a)(2), “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” resulted from the licensee’s failure to establish a technically justifiable and reasonable maintenance effectiveness demonstration for the emergency core cooling system (ECCS) floor drain valve system. Corrective actions included a revision to the maintenance rule (MR) system function and the reliability performance criteria, the completion of a 3-year extent of condition review to identify all missed functional failures, entering the valve actuators into the licensee’s air-operated valve program, and monitoring the performance of the Unit 1 ECCS floor drain valve system as required by 10 CFR 50.65(a)(1). This issue was entered into the licensee’s corrective action program as action request 1936612.

The performance deficiency was more than minor because it involved degraded system performance which, if left uncorrected, could become a more significant safety concern. The inspectors evaluated the significance of the finding under the mitigating systems cornerstone using Table 2 of Attachment 4 (dated June 19, 2012) and Exhibit 2 of Appendix A (dated June 19, 2012) to Inspection Manual Chapter 0609, “Significance Determination Process,” (dated June 2, 2011). The inspectors determined the finding was of very low safety significance (i.e., Green) because the exhibit criteria did not screen the finding to a detailed risk assessment. The inspectors concluded the finding was associated with the cross-cutting aspect of trending (P.4) in the problem identification and resolution area because the licensee had failed to utilize the corrective action program to associate and identify an adverse trend related to repeated system failures in the aggregate to identify common cause and programmatic issues.

Inspection Report# : [2014004](#) (*pdf*)

**Significance:** W Sep 24, 2014

Identified By: NRC

Item Type: VIO Violation

#### **Failure to Implement Measures to Ensure the Watertight Integrity of the Unit 1 Reactor Auxiliary Building**

Self-revealing apparent violations (AV) of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” and Criterion XVI, “Corrective Action,” were identified for the failure to install internal flood barriers in conduits that penetrated the Unit 1 reactor auxiliary building (RAB) exterior wall at elevations below the design flood height; and the failure to identify those missing flood barriers during flooding walkdowns performed in response to the NRC’s “Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident,” dated March 12, 2012. The licensee’s failure to implement measures to ensure the watertight integrity of the Unit 1 RAB below the design basis flood elevation was a performance deficiency. The licensee installed internal

flood barriers in the conduits and entered the issues into the corrective action program as action request (AR) 1941159 and AR 1943185.

The performance deficiency was more than minor because it was associated with the protection against external factors attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events. Specifically, the failure to maintain the watertight integrity of the Unit 1 RAB resulted in a condition where a design basis external flood event would challenge the operability of safety-related equipment. The inspectors screened the finding using Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4 and Appendix A (June 19, 2012). The inspectors determined the finding was associated with the mitigating systems cornerstone and required a detailed risk evaluation because the performance deficiency affected more than one train of systems used to support the risk significant functions associated with external flood protection. Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," (April 12, 2012) was used to assess the significance. The analyst performed a bounding quantification of the risk then identified various qualitative factors that could affect the final values, either increasing or decreasing the preliminary significance determination. The dominant risk scenario was a postulated event where the plant is operating at power when a significant rainfall event occurs, a reactor trip occurs, the performance deficiency causes emergency core cooling system (ECCS) tunnel flooding, and the floor drain valves in the RAB that isolate the ECCS rooms during a flooding event fail to close allowing water to flow unobstructed and submerge all of the ECCS pumps. After 24 hours, the plant would not achieve a 'safe and stable' condition and core damage would normally be assumed because all reactor coolant system (RCS) injection capability was lost, unless some recovery action was successful. The analyst calculated a factor to apply which would represent the likelihood that the licensee could recover some RCS makeup capability after several days before core uncover. The calculated overall risk ranged from 3E-6/year to 1E-5/year and the preliminary risk significance of the finding was determined to be low to moderate safety significance (i.e. White) when other qualitative factors were considered. The inspectors concluded that the finding was associated with the design margin aspect (H.6) of the human performance area because the licensee did not maintain external flood protection design margin by ensuring that penetrations in the Unit 1 RAB were waterproofed below the design basis flood elevation. (Section 40A3.1)

First Update)

The final significance of the finding was determined to be of low to moderate safety significance (White). The finding resulted in a violation of Criterion III, Design Control, and Criterion XVI, Corrective Action, of Appendix B to 10 CFR 50.

(IR# 05000335/2014010, 05000389/2014010 dated November 19, 2014)

(Second Update)

The NRC performed a supplemental inspection in accordance with IP 95001 to assess the adequacy of the licensee's evaluation, extent of condition/cause review and associated corrective actions. The inspectors determined that the licensee performed an adequate evaluation of the specific performance issue and that comprehensive corrective actions were completed to address each of the specific causes.

(IR# 05000335/2014011, 05000389/2014011 dated December 27, 2014)

Inspection Report# : [2014009](#) (pdf)

Inspection Report# : [2014010](#) (pdf)

Inspection Report# : [2014011](#) (pdf)

**Significance:**  Jun 30, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to follow the nuclear design control procedure for auxiliary feedwater valves**

. A self-revealing, 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 failed to comply with Quality Instruction ENG-QI 1.0, Nuclear Engineering Design Control, when an unauthorized modification was implemented during maintenance on two auxiliary feedwater (AFW) valves. Consequently, the unauthorized modification was the direct cause of the failure of one of the valve stems. Corrective actions included the proper installation of new stems in the valves.

The licensee's failure to comply with Quality Instruction ENG-QI 1.0, Nuclear Engineering Design Control, and modifying the AFW valve and plug assembly by drilling and pinning at a different location than what was specified on the maintenance assembly procedure was a performance deficiency. The performance deficiency was determined to have more than minor significance because if left uncorrected, the failure to comply with the engineering design control procedure to ensure adequate assembly of AFW valves could lead to a more significant safety concern. Specifically, failure of an AFW pump discharge valve could result in an inadequate steam generator heat sink during a design basis accident. Using Manual Chapter 0609.04, Significance Determination Process (SDP) Initial Characterization of Findings, Table 2, dated June 19, 2012, the finding was determined to affect the Mitigating Systems Cornerstone. The finding occurred while the Unit was at power. Manual Chapter 0609 Appendix A, Significance Determination Process for Findings At-Power, Exhibit 2 - Mitigating Systems Screening Questions dated, June 19, 2012, was used to further evaluate this finding. The finding screened as Green because none of the logic questions under the cornerstone applied. The finding involved the cross-cutting area of Human Performance, in the aspect of Conservative Bias (H.14), in that, the licensee did not make a conservative decision to stop work when the maintenance procedure did not address installation of a used valve stem. Instead the licensee chose to move forward with the maintenance because the procedure did not specifically prohibit installation of a used stem. (Section 40A2.4)

Inspection Report# : [2014003](#) (pdf)

**Significance:**  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 4OA2.a(3)(ii))  
Inspection Report# : [2014007](#) (*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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## **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.

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## **Miscellaneous**

Last modified : February 26, 2015