Saint Lucie 2
1Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Mar 06, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Establish Appropriate Procedural Limitations to Prevent Exceeding Non-LOCA Event Analysis Assumptions for Steam Generator Blowdown Flow Rate
Green.
An NRC-identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, was identified for the licensee's failure to assure that design basis assumptions for steam generator blowdown (SGBD) flow rate were translated into procedural guidance. Specifically, procedures 1-NOP-23.02 and 1-AOP-09.03 for Unit 1, and 2-NOP-23.02 and 2-AOP-09.03 for Unit 2, allowed SGBD flow rates significantly in excess of the assumed values in non-loss of coolant accident (LOCA) event analyses. The licensee entered the issue into their corrective action program as action requests (ARs) 2030177, 2031217, and 2031218. The licensee's immediate corrective actions included performing a functionality assessment of the SGBD systems for both units, which included; re-performing the event analyses, issuing an operations department night order to temporarily provide operators appropriate direction for limiting the SGBD system flow, and plans to update the analyses of record, plant procedures, and the UFSAR with new system limitations.
The performance deficiency was determined to be more than minor because it affected the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring reliability, availability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee did not ensure the capability of the secondary side heat removal systems to respond to design basis non-LOCA events because analysis assumptions were not translated into procedural limitations for the SGBD system. The inspectors determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality.
The inspectors determined that the issue was indicative of present licensee performance because the analyses were performed in 2013. The finding was associated with the cross-cutting aspect of design margins, in the area of human performance, because the organization did not operate and maintain equipment within design margins. [H.6] (Section 1R17)
Inspection Report# : 2015007 *(pdf)*

Significance: G Jan 16, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Procedural Non Compliances Relating to Temporarily Installed Ladders Located Near Safety-related SSCs
The NRC identified a Green, non-cited violation of Technical Specification (TS) 6.8.1, Procedures and Programs, for the licensee's failure to establish, implement, and maintain written procedures covering activities referenced in NRC Regulatory Guide 1.33, Revision 2, dated February 1978. Specifically, the licensee failed to track, inspect and evaluate the placement of temporarily installed ladders (TILs) that were touching or placed near safety-related Structures, Systems, and Components (SSCs) with the potential to interact with the SSCs during a design basis seismic event. Corrective actions completed included removing TILs that were no longer being used and entering the remaining ladders into the corrective action program (CAP) for tracking and inspection, and reviewing whether any ladder required an engineering evaluation.
The licensee's repeated failure to track, inspect, or complete an engineering evaluation on TILs located near safety-related SSCs as required by licensee procedures ADM-27-21 and MA-AA-100-1008 was a performance deficiency. The performance deficiency was more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Specifically, routinely not tracking, inspecting or completing engineering evaluations of TILs that are touching or located near safety-related SSC could allow ladders to be installed, which interact with safety-related equipment resulting in equipment rendered inoperable during a design basis seismic event. The finding screened as green because the finding did not represent an actual loss of function of at least a single Train for > its TS Allowed Outage Time OR two separate safety systems out-of-service for > its TS Allowed Outage Time. The finding involved the crosscutting area of Problem Identification and Resolution, in the aspect of Identification, in that non-compliances associated with TILs had been long-term issues, which the licensee had failed to identify and enter into the CAP. As a result, the ladder issues remained unnoticed and unaddressed in the CAP until identified by the inspectors [P.1]
Inspection Report# : 2015001 *(pdf)*

Significance: G Jun 30, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to design the emergency diesel generators to operate under worst case environmental conditions
An NRC-identified non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, Design Control, was identified. The licensee's failure to translate design control measures to ensure operation of Unit 2 emergency diesel generators (EDGs) under worst-case environmental conditions was a performance deficiency. Specifically, since initial licensed operation in 1983, the licensee failed to ensure the Unit 2 EDGs were designed and built to operate under worst case high wind conditions. As a result, sustained high winds from specific directions could have impacted EDG radiator performance resulting in the unavailability of both Unit 2 EDGs. Corrective actions included modification of the EDG building to allow EDG operation under all postulated high wind conditions.

The performance deficiency was more than minor because it affected the design control attribute of the mitigating system cornerstone, and affected the cornerstone objective of ensuring availability, reliability, and capability of systems that respond to initiating events. Specifically, the performance deficiency could have resulted in the inoperability of both Unit 2 EDGs during sustained high wind conditions. Using Table 2 of Inspection Manual Chapter (IMC) 0609.04, "Significance Determination Process Initial Characterization of Findings" dated June 19, 2012; the inspectors concluded the finding affected the mitigating system 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 require a detailed risk evaluation by an NRC senior reactor analyst since the finding represented a loss of function. The regional senior reactor analyst performed a Phase 3 SDP analysis for the finding. The EDG impact would only occur in response to a Loss of Offsite Power (LOOP). The analysis considered the impact of the finding on an independent LOOP, by calculating the likelihood that the site wind conditions, absent a Hurricane, would occur at the same time as an independent LOOP event. In addition, the coincident or dependent LOOP was considered, by assuming the hurricane winds would impact the EDGs and would occur with a hurricane induced LOOP. Wind data was taken from National Weather Service records at Palm Beach International airport, which is the closest station to have both wind speed and direction historical records to determine the likelihood for non-hurricane high winds. Hurricane frequency data was taken for the Landfalling Hurricane Probability Project for St Lucie County. The Conditional Core Damage Probability was determined through the use of the NRC's plant risk models. EDG recovery, because the winds would not be likely sustained (both speed and direction) for greater than 6 hours, and the ability to crosstie Unit 2 emergency power to Unit 1 were major factors in the outcome. The screening analysis resulted in a combined risk which, even with conservative assumptions, was low enough for the finding to be characterized as Green. A cross-cutting aspect was not assigned to the finding since the finding does not represent current licensee performance. The condition existed since original construction of the plant. (Section 4OA3.1)
Inspection Report# : 2014003 *(pdf)*

Significance: G Mar 17, 2014
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Follow Work Instructions During Installation of Unit 2 Vent Valve V3811
A self-revealing, non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," resulted from the licensee's failure to implement work order instructions to install Unit 2 safety-related vent valve V3811 in accordance with dimensions specified by the engineering design. The failure to implement the work order instructions was a performance deficiency that resulted in inoperability of the emergency core cooling system (ECCS) Class 1 pressure boundary due to a through-wall crack and self-revealing leak. The licensee entered the issue into the corrective action program (CAP) as action request (AR) 01980340 and completed corrective actions to repair the leak and install V3811 with the correct dimensions.

The performance deficiency was more than minor because it adversely impacted the operability of safety-related equipment that mitigates the consequences of a loss of coolant accident, and therefore, was associated with the equipment reliability attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors screened the finding under the mitigating systems cornerstone using Attachment 4 (June 19, 2012) and Appendix A (June 19, 2012) of Inspection Manual Chapter 0609, "Significance Determination Process" (June 2, 2011). The inspectors determined the finding required a detailed risk evaluation because the finding was associated with a loss of high pressure safety injection (HPSI) system function and evaluated the condition using the significance determination process (SDP) module in the St. Lucie Unit 2 Standardized Plant Analysis Risk (SPAR) model. The change in core damage frequency (CDF) was greater than the 1E-7 threshold and the issue was reviewed by a regional senior reactor analyst (SRA) to confirm the result and verify that external events contribution would not cause the results to increase above 1E-6. The SRA used the same St. Lucie Unit 2 SPAR model, and made the following adjustments: set the exposure time to 51 days (half of the entire period that Unit 2 was in an operating condition),

the safety injection tank (SIT) discharge check valve and the reactor coolant system (RCS) check valve were failed in the SPAR model (i.e., set to a value of 1.0), and common cause failure events were not increased since an extent of cause evaluation did not identify additional examples of the performance deficiency. The SRA confirmed the inspectors' conclusion that the issue was of very low risk significance (Green). The analyst determined that there was

additional margin to the green-white threshold because: 1) the analysis assumed that the injection flows from the SIT and the high pressure injection system on one of four paths were completely failed when there would likely have been some injection flow under postulated break conditions, 2) the potential break size was limited to only a portion of the possible spectrum of small break loss of coolant accident (SBLOCA) sizes due to the physical size of the pipe, and 3) this issue was an isolated example, unlike other recent RCS leaks that have occurred in the industry which were of a repetitive and long-standing nature. The inspectors concluded the finding was associated with the cross-cutting aspect of procedural adherence (H.8) in the human performance area because maintenance personnel did not adhere to work order instructions concerning the dimensions of the vent valve assembly.

Inspection Report# : 2014005 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

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

Last modified : June 16, 2015