Saint Lucie 2
4Q/2006 Plant Inspection Findings

Initiating Events

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: FIN Finding
Failure to Correct a Known Deficiency Associated With a Turbine Building Salt Water Cooling System Configuration Issue
A self-revealing finding was identified for failure to correct a known deficiency associated with a turbine building cooling water system piping connection with a history of leakage and leak repairs. Specifically, previous pipe repairs replaced aluminum bronze piping with carbon steel which was in contrast with system design documents which specified the pipe material as aluminum bronze or Monel 400 as shown in piping design drawing 2998-C-124. As a result, a dissimilar metal galvanic corrosion cell was created followed by severe corrosion and failure of a threaded connection, severe system leakage, and a rapid downpower of the reactor plant.

The finding is greater than minor in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Screening,” because the finding was associated with the equipment performance 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. The inspectors evaluated the finding using IMC 0609, Appendix A, “Determining the Significance of Reactor Inspection Findings for At-Power Situations.” The Initiating Events Cornerstone column of the work sheet was used to determine the transient initiator did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be unavailable. Consequently, the finding is considered to be of very low safety significance (Green). A contributing cause of the finding is related to the cross-cutting area of PI&R, specifically the component of Corrective Action Program in that the licensee did not thoroughly evaluate the piping leakage problem to ensure the resolutions addressed the cause of the leakage. (Section 4OA2)

Inspection Report# : 2006005 *(pdf)*

Significance: G Sep 30, 2006
Identified By: Self-Revealing
Item Type: FIN Finding
Personnel Error Caused Partial Loss of Feedwater and Manual Reactor Trip
A self-revealing finding was identified for failure of the licensee to use human performance tools as outlined in their Nuclear Administrative Procedure (NAP) 403, Conduct of Maintenance. Specifically, maintenance personnel did not perform adequate self checking to ensure they were at the right component before manipulating equipment which resulted in a loss of feedwater event and manual reactor trip.

This finding is greater than minor because it is associated with an increase in the likelihood of an initiating event. The finding involved the attribute of human performance and affected the initiating events objective of limiting the likelihood of those events that upset plant stability. Using Manual Chapter 0609, Appendix A, Attachment 1, “Significance Determination Process,” Phase 1 Worksheet, the finding was determined to have very low safety significance because although the finding contributed to a reactor trip, mitigation equipment and functions remained available. A contributing cause of the finding is related to the cross-cutting element of human performance, specifically relating to work practices where personnel did not use human error prevention techniques.
Inspection Report# : 2006004 *(pdf)*

Mitigating Systems

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Follow Procedure for Erection of Temporary Ladders and Structures On Or Around Safety Related Equipment
A Non-Cited Violation was identified for failing to implement administrative procedure ADM-27.11, Scaffold Control, on issues related to the erection of ladders and scaffold structures around safety related equipment. Specifically, over a short period of time (about a week) the inspectors identified four examples where either a structure or ladder was erected without an engineering evaluation being completed to ensure acceptability.

The finding is greater than minor because the failure to implement appropriate procedures to properly construct and seismically qualify scaffold in safety-related areas could become a more significant safety concern, if left uncorrected. The finding involved the attribute of equipment performance and affected the mitigating systems objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, Appendix A, Attachment 1, “Significance Determination Process,” Phase 1 Worksheet, the finding was determined to have very low safety significance because it only affected the mitigating systems cornerstone, and all subsequent engineering evaluations determined that there was no adverse effect to mitigating equipment. A contributing cause of the finding is related to the cross-cutting element of human performance, specifically work practices, in that personnel failed to follow procedures when erecting ladders and structures near safety-related components. (Section 1R17)

Inspection Report# : 2006004 *(pdf)*

Significance: G Mar 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Unit 1 and 2 Containment Building ECCS Sump Design Control
The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for failure of the licensee to evaluate the potential consequences of unfiltered debris migrating from the reactor cavity sump to the Emergency Core Cooling System (ECCS) sump via floor drain and equipment drain lines located within the containment sump area. The licensee took prompt corrective action and modified the Unit 1 containment sump and performed an engineering analysis for both Units 1 and 2 which concluded the amount of debris that will bypass the screen is inconsequentially small as the debris will have settled outside the zone of flow influence surrounding the ECCS pump suction lines and there was reasonable assurance that the amount of debris swept into the suction lines would not prevent the ECCS from performing its design functions.

The finding was more than minor because it affected the mitigating system cornerstone attribute of "Design Control." Specifically, the licensee did not account for the unfiltered debris flow from the reactor cavity sump following a Loss of Coolant Accident (LOCA) and Recirculation Actuation Signal (RAS) in its initial design. This finding was of very low safety significance and screened out using the SDP Phase 1 worksheet because the licensee's evaluation determined that the unfiltered flow from the reactor cavity sump would not prevent the ECCS from performing its design function. A contributing cause of the finding is related to the cross-cutting element of problem identification, specifically identification, in that the licensee had multiple opportunities to identify this issue during previous inspections and maintenance. (Section 1R15.1)

Inspection Report# : 2006002 *(pdf)*

Significance: G Mar 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation

Failure to Take Adequate Corrective Actions for EDG Air Start Motor Failures
The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for failure to take timely and effective corrective actions to prevent recurrence of Emergency Diesel Generator (EDG) air start motor failures. On January 31, 2006, while performing periodic maintenance on the 2B EDG, four of eight air start motors were found seized and unable to rotate. Disassembly of the failed air start motors revealed an excessive amount of internal rust and corrosion. The corrosion was responsible for binding the motors and indicated that the starting air supplied to the motors had a high moisture content. A nearly identical failure occurred on the 2A EDG in May of 2004, when four of eight air start motors did not rotate when tested. The only corrective action taken as a result of this failure was to replace the motors, and no analysis or apparent cause was performed.

The finding was more than minor because if left uncorrected, could become a more significant safety concern by affecting additional air start motors and challenging performance of the EDG. The finding is also associated with the equipment performance attribute of the mitigating systems cornerstone. However, the finding was determined to be of very low safety significance in accordance with NRC Inspection Manual Chapter 0609, Appendix A, Attachment 1, SDP Phase 1 screening worksheet because it did not represent an actual loss of the EDG system safety function. A contributing cause of the finding was related to the corrective action aspect of the problem identification and resolution cross-cutting area. (Section 4OA2.2)

Inspection Report# : 2006002 *(pdf)*

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance: G Dec 31, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Calculate Accurate Airborne Effluent Doses to Members of the Public
The inspectors identified a NCV of 10 CFR 20.1302(b) for failure to perform accurate calculations of airborne effluent releases to demonstrate that the maximally exposed individual did not exceed the annual dose limit. Specifically, during the period of March 17, 2004 to October 4, 2006, the flow rate of the Unit 2 Fuel Handling Building (U2 FHB) exhaust fans exceeded that used to calculate the effluent release rate, resulting in a non-conservative dose calculation assessment for members of the public. This finding was entered into the licensee's corrective action program.

This finding is greater than minor because it is associated with the Public Radiation Safety Cornerstone attribute of Program and Process and affected the cornerstone objective of assuring adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The finding was evaluated using the Public Radiation Safety SDP and was determined to be of very low safety significance (Green) because it did not prevent the licensee from assessing doses, and offsite doses from gaseous effluents during the time period in question did not exceed Appendix I to 10 CFR Part 50 criteria. This finding has a cross-cutting aspect in the area of human performance because the procedure used to calculate the effluent activity released did not contain accurate and up-to-date information regarding the U2 FHB ventilation flow rates, resulting in inaccurate calculation of effluent releases. (Section 2PS1)

Inspection Report# : 2006005 *(pdf)*

Physical Protection

Physical Protection information not publicly available.

Miscellaneous

Significance: N/A Jan 14, 2005
Identified By: NRC
Item Type: FIN Finding
Special Inspection's Findings and Observations Related with Breaker Failures
• After two safety-related 4160 volt circuit breakers failed to close, the licensee developed and performed sufficient tests to verify the ability of the remaining safety-related 4160 volt circuit breakers to operate.

• While the initial operability tests ensured that a breaker would cycle once, the licensee did not take into consideration breakers that must operate multiple times in performing various design functions. As a result, for any breaker cycled after passing an initial voltage verification test, but before operability was confirmed by a smooth operation check of the spring charging motor limit switch bracket, the licensee did not have reasonable assurance that the breaker would perform its safety function until a second successful voltage verification test was completed.

• The licensee's root cause evaluation was sufficient to identify the cause of the breaker failures associated with the 1A and 1C Component Cooling Water Pump Breakers. However, it did not examine the following potential programmatic or organizational causes of the breaker failures: inadequate receipt inspection for the 1A Component Cooling Water Pump Breaker evidenced by the failure to identify the bent limit switch bracket; failure to refurbish the 1C Component Cooling Water Pump Breaker within the time frame identified in the maintenance program, or to identify the technical basis for extending the refurbishment cycle by 25%; and failure of the preventive maintenance procedure to identify the degraded performance of the 1C Component Cooling Water Pump Breaker.

• The licensee did not fully implement industry related operating experience in two areas; post-refurbishment receipt inspection of the Westinghouse DHP 4160 volt breakers and effects of hardened grease on 4160 volt breaker operation.
Inspection Report# : 2004011 *(pdf)*

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