Columbia Generating Station
4Q/2016 Plant Inspection Findings

Initiating Events

Significance: G Sep 30, 2016
Identified By: Self-Revealing
Item Type: FIN Finding
Ineffective System Performance Monitoring Program For Plant Service Water Piping Fouling
The inspectors reviewed a self-revealing finding for the licensee's failure to follow plant procedure SYS-4-31, "System and Equipment Performance Monitoring and Trending Program," revision 11, that ensures system and component performance to permit early detection and predict equipment problems, and confirm the effectiveness of predictive, preventive, proactive, and corrective maintenance. The actions taken for piping supplied by plant service water were not effective in managing corrosion control. Specifically, the loss of the 2C condensate booster pump was due to a system performance monitoring program that did not permit early detection and predict fouling of internal surfaces of piping that cooled the lube oil coolers. Consequently, on August 5, 2016, the licensee reduced reactor power to approximately 60 percent power due to an inability to control lube oil temperature on the 2C condensate booster pump oil coolers which are cooled by plant service water. The licensee entered this issue into their corrective action program as Action Request 353210.

The failure to follow plant procedure SYS-4-31, "System and Equipment Performance Monitoring and Trending Program," that ensures that a system performance monitoring program will permit early detection of equipment problems, predict equipment problems, and help confirm the effectiveness of predictive, preventive, proactive, and corrective maintenance was a performance deficiency. Specifically, the loss of the 2C condensate booster pump was due to ineffective corrective actions and a system performance monitoring program that did not permit early detection related to fouling of internal surfaces of piping that supplied cooling water to the lube oil coolers. The performance deficiency was more than minor because it affected the equipment performance attribute of the Initiating Event Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the inability to adequately cool the lube oil coolers for the condensate booster pump 2C upset plant stability by causing an unplanned plant transient. The inspector performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 1, "Initiating Events Screening Questions." The inspectors determined that the finding was of very low safety significance because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. Specifically, the licensee maintained other feed and condensate pumps for mitigation since they were powered from diverse sources.

This finding had a cross-cutting aspect in the area of human performance, challenge the unknown, in that the licensee failed to challenge uncertain conditions. Specifically, since 1999 and as recent as 2012, despite a plant service water corrosion control program, piping supplied by plant service water has continued to corrode internally and challenge loads supported by plant service water.

Inspection Report# : 2016003 *(pdf)*

Significance: G Jun 30, 2016
Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation
Loss of RCC Cooling Requiring a Reactor Scram
The inspectors reviewed a self-revealed, non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to follow procedure OI-41, "Operations Work Control Expectations," Revision 59. Specifically, the licensee incorrectly marked steps of procedure OSP-FPC/IST-Q701, "Fuel Pool Cooling System Operability Surveillance," Revision 34, as not applicable and therefore did not provide mechanical isolation between the non-safety reactor closed loop cooling system and the safety-related standby service water system. As a result, on March 28, 2016, the reactor closed loop cooling system was momentarily depressurized into the service water system and required a manual reactor scram due to a loss of reactor closed loop cooling for non-safety systems. The licensee entered this issue into their corrective action program as Action Request 346945.

The failure to follow procedure OI-41, "Operations Work Control Expectations," Revision 59, was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it adversely affected the configuration control attribute of the Initiating Events Cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, Attachment 04, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 1, "Initiating Events Screening Questions," dated June 19, 2012, the inspectors determined the finding was of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The finding had a cross-cutting aspect in the area of human performance associated with avoiding complacency because the licensee failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes including implementing appropriate error reduction tools. Specifically, licensed operators failed to recognize the possible latent issues and inherent risk of marking large portions of a procedure as "not applicable." [H.12]
Inspection Report# : 2016002 *(pdf)*

Mitigating Systems

Significance: G Jun 24, 2016
Identified By: NRC
Item Type: NCV Non-Cited Violation
Programmatic Concern Pertaining to Columbia Generating Stations Procedures
The team identified a Green, non-cited violation of Technical Specification 5.4, Procedures, Section 5.4.1, which states, in part, "Written procedures shall be established, implemented, and maintained covering the following activities: a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978."

Regulatory Guide 1.33, Revision 2, Appendix A, Section 1, Administrative Procedures, Subsection d, specifies Procedure Adherence and Temporary Change Method. This requirement includes plant Procedure SWP-PRO-01, "Procedure and Work Instruction Use and Adherence," Revision 27; Procedure SWP-PRO-02, "Preparation, Review, Approval and Distribution of Procedures," Revision 42; and Procedure SWP-PRO-03, "Writers Manual," Revision 21, which identify the requirements governing procedural requirements utilized at Columbia Generating Station. Specifically, from June 6 through June 23, 2016, multiple examples of procedural compliance were identified with the station procedures. These examples include failure to follow procedures, inadequate procedures, not correctly translating design requirements into procedures, validation of procedures, and the distribution of procedures. In response to this issue, the licensee reviewed each individual concern and confirmed that there were no operability concerns. The licensee has also placed each identified concern into their corrective action program and will address

each issue. This finding was entered into the licensee's corrective action program as Action Request (AR) 00351364.

The team determined that the licensee's failure to follow guidance procedures for implementation, adherence, accuracy, verification, and distribution of station procedures, was a performance deficiency. This finding was more than minor because it was associated with the procedures 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. Specifically, failing to have accurate procedures, and to comply with these procedures, was a significant programmatic deficiency that could adversely affect the reliability and capability of systems used to prevent undesirable consequences. In accordance with Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, Exhibit 2, "Mitigating Systems Screening Questions," the issue screened as having very low safety significance (Green) because it was a design or qualification deficiency that did not represent a loss of operability or functionality; did not represent an actual loss of safety function of the system or train; did not result in the loss of one or more trains of non-technical specification equipment; and did not screen as potentially risk-significant due to seismic, flooding, or severe weather. The team determined that this finding had a cross-cutting aspect in the area of human performance, resources, where the licensee will ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, the licensee had not ensured that site procedures were adequate to support plant activities (H.1).
Inspection Report# : 2016007 *(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.

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.

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 : February 01, 2017