



Home > Nuclear Reactors > Operating Reactors > Reactor Oversight Process > Plant Summaries > Wolf Creek > Quarterly Plant Inspection Findings

Wolf Creek – Quarterly Plant Inspection Findings

4Q/2017 – Plant Inspection Findings

On this page:

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness
- Occupational Radiation Safety
- Public Radiation Safety
- Security

Initiating Events

Mitigating Systems

Significance: G Nov 20, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Evaluation of Spurious Valve Operation

The team identified a non-cited violation of License Condition 2.C.(5) for failure to implement and maintain in effect all provisions of the approved fire protection program. Specifically, the licensee failed to adequately evaluate the potential impacts on post-fire safe shutdown of two motor operated valves spuriously closing due to fire damage.

The failure to adequately evaluate the impact of pressure operated relief valve block valves spuriously closing on post-fire safe shutdown was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Because the finding affected the ability to reach and maintain safe shutdown conditions in case of a fire that led to control room evacuation and because the Phase 2 methodology of Inspection Manual Chapter 0609, Appendix F, was not appropriate for this finding, a senior reactor analyst performed a Phase 3 evaluation to determine the risk significance. The analyst determined this finding was of very low risk significance (Green). There is no cross-cutting aspect associated with this finding since the performance deficiency is not reflective of present performance (i.e., the performance deficiency occurred more than 3 years ago).

Inspection Report# : 2017008 (*pdf*)

Significance:  Nov 20, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Provide Adequate Emergency Lighting

The team identified a non-cited violation of License Condition 2.C.(5) for failure to provide emergency lighting along alternate routes plant operators are allowed to take during implementation of the procedure for control room evacuation due to fire.

The failure to provide 8-hour emergency lights along alternate routes used by operators during control room evacuation due to fire is a performance deficiency. 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 the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated this finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, because it affected the ability to reach and maintain safe shutdown conditions in case of a fire. The team assigned the finding to the post-fire safe shutdown category since it impacted the alternate shutdown element. The issue screened to Green because the reactor would be able to achieve and maintain hot shutdown because the operators are required to carry flashlights. Specifically, the team had reasonable assurance that the operators would be able to complete the evacuation procedure using handheld flashlights to access safe shutdown equipment. The finding is assigned a cross-cutting aspect in the area of human performance, associated with training, because the operators are not being trained on the access and egress routes that are provided with 8-hour emergency lights during implementation of the control room evacuation procedure due to fire to ensure the time critical actions can be met.

Inspection Report# : 2017008 (*pdf*)

Significance:  Nov 07, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure the Design Basis was Adequately Represented in the Technical Specification Bases

The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, for the licensee's failure to establish adequate measures to ensure that the design bases are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee did not ensure the auxiliary feedwater system design basis was adequately represented in the Technical Specification Bases; as a result, the Technical Specification Bases and other station procedures allowed for one train of essential service water supply to the turbine-driven auxiliary feedwater pump to be removed from service without recognition that auxiliary feedwater operability was impacted. Immediate corrective actions included entering Condition Reports 113304 and 116852 into the corrective action program and incorporating a note on operations turnover documents to temporarily postpone applicable portions of the operations quarterly tasks. The licensee also completed a past operability review, and created actions to develop a license amendment request to add a specific Technical Specification condition and submit for NRC approval.

The failure to ensure the auxiliary feedwater system design basis was adequately represented in the Technical Specification Bases was a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the design control 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 (i.e., core damage). The inspectors evaluated the finding using Exhibit 2, "Mitigating Systems Screening Questions," of Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," and determined this finding was of very low safety significance (Green). The inspectors determined that the finding has a problem identification and resolution cross-cutting aspect in the area of evaluation because the organization did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. This issue is indicative of current performance because the evaluation of Condition Report 111808 in May 2017 was a reasonable opportunity for the licensee to identify that the Technical Specification Bases was inadequate [P.2]. (Section 1R15)

Inspection Report# : 2017003 (*pdf*)

Significance: G Nov 07, 2017

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Verify Equipment or Systems are Capable of Performing Their Intended Design Function Following Maintenance

The inspectors reviewed a Green, self-revealed non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to ensure that maintenance that can affect the performance of safety-related equipment was properly pre-planned and performed in accordance with written procedures, documented, instructions, or drawings appropriate to the circumstances. Specifically, the licensee failed to verify that the wiring in the transformer 7 primary differential protective relay was landed on the correct termination point, and as a result, the station experienced an unplanned loss of normal offsite power to bus NB01, the train A Class 1E electrical bus. The licensee took the immediate corrective actions of working with Westar to ensure the protective relay wiring termination issue for transformer 7 was identified and corrected, and that transformer 7 was returned to service. The licensee also updated procedure AP 21C-001 to include additional detail and steps that require work instructions for post maintenance testing of current transformer wiring to ensure independent verification of wiring terminations. The licensee entered the issue into the corrective action program as Condition Reports 109467 and 116849.

The licensee's failure to verify that the primary and secondary differential relay circuitry is capable of performing its intended design function following maintenance was a performance deficiency. The performance deficiency was more than minor because it affected the design control attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors evaluated the finding using Exhibit 3, "Mitigating Systems Screening Questions," of Inspection Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase I Initial Screening and Characterization of Finding," and Appendix G, "Shutdown Operations Significance Determination Process." The inspectors determined the finding was of very low safety significance (Green). The inspectors determined that the finding has a human performance cross-cutting aspect in the area of resources because leaders did not ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. This issue is indicative of current performance because the issue occurred in the last three years [H.1]. (Section 4OA3)

Inspection Report# : 2017003 (*pdf*)

Significance:  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Declare Train A Component Cooling Water Inoperable

The inspectors identified a Green non-cited violation of Technical Specification Limiting Condition for Operation 3.7.7 for the licensee's failure to place the unit in MODE 3 within 78 hours with the train A component cooling water system inoperable. Specifically, the essential service water emergency make-up to component cooling water train A valve was not declared inoperable when it was out of service, and as a result, train A component cooling water was out of service for longer than its Technical Specification allowed outage time. The licensee's planned actions include revising Technical Specification Bases 3.7.7 and training operators on the proposed Technical Specification Bases revisions, and the licensee issued an "Essential Reading" document for operators to review. The licensee entered the issue into the corrective action program as Condition Report 111808.

The failure to declare train A component cooling water inoperable is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the human performance 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 (i.e., core damage). The inspectors evaluated the finding using Exhibit 2, "Mitigating Systems Screening Questions," of Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," and determined the finding was of very low safety significance (Green). The inspectors determined that the finding has a human performance cross-cutting aspect in the area of challenge the unknown because individuals did not stop when faced with uncertain conditions, and risks were not evaluated and managed before proceeding. This issue is indicative of current performance because the creation and implementation of the subject clearance order occurred in the last three years.

Inspection Report# : 2017002 (*pdf*)

Significance:  May 12, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Provide Adequate Work Instructions for Preventive Maintenance

The inspectors reviewed a Green, self-revealed non-cited violation (NCV) of Technical Specification 5.4.1.a and Regulatory Guide 1.33 for the licensee's failure to provide adequate work instructions for preventive maintenance on safety-related equipment. Specifically, work instructions to inspect and clean the condensate drain lines on the class 1E air conditioner air handling units lacked guidance for adequately cleaning the drain line. This caused the unit to become non-functional. The licensee took the immediate corrective action to clear the clogged condensate drain line on SGK05B, and entered the issue in the corrective action program as Condition Report 106416.

The failure to provide adequate work instructions for preventive maintenance on safety-related equipment is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the procedure quality 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 (i.e., core damage). In accordance with NRC Inspection Manual Chapter 0609,

Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined this finding screened to Green. The inspectors determined that the finding has a problem identification and resolution cross-cutting aspect of resolution because the organization did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. This issue is indicative of current performance because neither the preventive maintenance change process was substantively changed nor were human performance errors associated with the preventive maintenance change corrected, and the same resolution inadequacies that resulted in the inadequate preventive maintenance instructions would be expected to occur.

Inspection Report# : 2017001 (*pdf*)

Significance: G Dec 31, 2015

Identified By: NRC

Item Type: VIO Violation

Inadequate Measures to Assure SGK05A Issues Were Promptly Corrected

The inspectors identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's inadequate measures to assure that corrective action was taken to preclude repetition of a significant condition adverse to quality. Specifically, measures to correct train A Class 1E electrical equipment air conditioning system (SGK05A) issues following two trips of the unit on October 18, 2013, failed to preclude repetition, which resulted in the SGK05A unit tripping twice on May 15, 2015; the train A safety-related batteries, inverters, and alternating and direct current buses being declared inoperable due to the loss of area cooling; two separate Technical Specification 3.0.3 entries; and separate technical specification required reactor power reductions to 93 and 94.7 percent. The licensee's immediate corrective actions included troubleshooting to determine the direct cause of the compressor trips, stationing a dedicated operator following the second trip on May 15, 2015, and subsequently implementing Temporary Modification 15-013-GK-00, which restored compliance. Actions to prevent recurrence following the May 15, 2015, SGK05A trips, documented in apparent cause evaluation 96392, included conducting a seminar with station managers to review lessons learned from the event, completing a change package to replace the SGK05A compressor that has been the source of residual contamination that has led to numerous trips of the unit, and tracking of the timely replacement of the SGK05A compressor with a due date of December 15, 2016. Wolf Creek entered this issue into its corrective action program as Condition Reports 96392 and 96397.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, the train A safety-related batteries, inverters, and alternating and direct current buses became inoperable and their capability to respond to initiating events to prevent undesirable consequences was impacted as a result of the SGK05A unit tripping. In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 3 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects a mitigating structure, system, and component. The performance deficiency does not affect the design or qualification of a mitigating structure, system, and component, and the structure, system, and component did not maintain its functionality. Additionally, the finding does not represent a loss of system and/or function, the finding does not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time or two separate safety systems out-of-service for greater than their technical specification allowed outage time, and the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. Therefore, the inspectors determined that this finding is of very low safety significance (Green). In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross cutting aspect in the area of human performance, resources, because the licensee did not

ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety. Specifically, senior managers did not ensure successful completion of the replacement of the SGK05A compressor in Refueling Outage 20, which was a missed opportunity that resulted in the SGK05A unit tripping twice on May 15, 2015, as a result of the same direct cause [H.1].

Inspection Report# : 2015004 (*pdf*)

Inspection Report# : 2016009 (*pdf*)

Barrier Integrity

Significance: G Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure Safety-Related Valves were Adequately Protected from Internal Flooding Hazards

The inspectors identified a Green non-cited violation of 10 Code of Federal Regulations Part 50, Appendix B, Criterion III, Design Control, for the licensee's failure to establish adequate measures to ensure that safety-related components remained capable of performing their functions. Specifically, the licensee did not have adequate preventive maintenance or testing tasks established to provide reasonable assurance that floor drains would not become clogged and impact the ability of train A safety-related components to perform their expected functions. As a result, a containment isolation valve was not adequately protected. The station's immediate corrective actions included entering the condition into the corrective action program, declaring the subject valves inoperable, and cleaning the debris from the clogged floor drains. The licensee created Work Order 17-429068-000 to evaluate and establish new preventive maintenance tasks for floor drains, and the licensee is continuing with, but had not yet completed, the remainder of the floor drain inspections for other safety-related areas.

The failure to establish adequate measures to ensure that floor drains in safety-related areas remained free of debris and safety-related components remained capable of performing their function is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the structure, system, and component and barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. The inspectors evaluated the finding using Exhibit 3, "Barrier Integrity Screening Questions," of Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," and determined this finding was of very low safety significance (Green). The inspectors determined that the finding has a problem identification and resolution cross-cutting aspect in the area of identification because individuals did not identify issues completely, accurately, and in a timely manner in accordance with the program. Condition Report 90879, documented in January 2015, was an opportunity for the licensee to identify the inadequacy of the floor drain preventive maintenance and testing strategy and reflects current performance.

Inspection Report# : 2017002 (*pdf*)

Emergency Preparedness

Significance: G Jul 12, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain Effectiveness of the Emergency Plan upon Loss of Containment High Radiation Monitoring

Green. The inspectors identified a Green, non-cited violation of 10 CFR 50.54(q)(2) which requires that a holder of a nuclear power plant operating license follow and maintain the effectiveness of an emergency plan that meets the requirements in Appendix E of this part and the risk significant planning standards of 10 CFR 50.47(b). Specifically, from March 7, 2017, to July 12, 2017, Wolf Creek Generating Station's response to the loss of containment high

radiation monitors failed to restore capability to classify emergency action levels during a loss-of-coolant accident or main-steam-line-break accident. In response to this issue, the licensee provided additional radiation survey monitoring measures and correlations to monitor radiation in the containment building. This finding was entered into the licensee's corrective action program as Condition Report CR 114274.

The inspectors determined that the failure to maintain the effectiveness of the emergency action levels by providing adequate preplanned methods and compensatory measures for the loss of the containment high range radiation monitors, in accordance with 50.54 (q)(2), was a performance deficiency. This finding was determined to be more than minor because it was associated with emergency response organization performance attribute of the Emergency Preparedness cornerstone and adversely affected the cornerstone objective. Specifically, the failure to maintain the effectiveness using appropriate compensatory measures adversely affected the objective of ensuring the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. The finding was evaluated in accordance with Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," dated September 22, 2015, because the finding was a failure to comply with risk significant planning standard 10 CFR 50.47(b)(4), "Emergency Classification System." The finding was compared to the finding examples in Section 5.4 of Inspection Manual Chapter 0609, Appendix B. The finding was determined to be of very low safety significance (Green) because emergency action levels were rendered ineffective such that any Site Area Emergency would not be declared for a particular off-normal event; however, because of other emergency action levels, an appropriate declaration could be made in a degraded manner. This finding had a cross-cutting aspect in the area of human performance associated with conservative bias because the licensee failed to use decision making-practices that emphasized prudent choices over those that are simply allowable. [H.14]

Inspection Report# : 2017007 (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

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Miscellaneous

Current data as of : February 01, 2018

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