

Watts Bar 1 4Q/2016 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Inappropriate Procedure used for Work Order Scope Change Results in Loss of 1B-B Shutdown Board

A self-revealed non-cited violation (NCV) of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for the licensee's failure to use a procedure appropriate to the circumstances when work scope changed which contributed to the loss of the 1B-B shutdown board on May 17, 2016.

The failure to use a procedure appropriate to the circumstances, such as NPG-SPP-07.6, NPG Work Management Planning Procedure, Revision (Rev.) 14, for a work scope change associated with a design change work order on the 1B-B shutdown board on May 17, 2016, was a performance deficiency. The performance deficiency was more than minor because it affected the equipment performance attribute of the mitigating systems cornerstone objective because the loss of the 1B-B shutdown board caused the inoperability of the B train of the onsite electrical distribution system and also resulted in the inoperability of all B train structures, systems, or components (SSCs) powered from the 1B-B shutdown board. The inspectors performed an initial screening of the finding and determined that this finding was of very low safety significance (Green) because the finding did not represent an actual loss of function of a single train for greater than its technical specification (TS) allowed outage time. The finding had a cross-cutting aspect in the Work Management component of the Human Performance area because the licensee failed to implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, the process of planning and executing the work activities for Design Change Notice (DCN) 64063 failed to identify and manage the risk associated with system restoration due to either equipment failure or personnel error [H.5].

Inspection Report# : [2016003](#) (*pdf*)

Significance: G Aug 26, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure Adequate Unit 1 Emergency Diesel Generator Surveillance Instructions

The NRC identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to have adequate instructions and acceptance criteria in the emergency diesel generator surveillance instructions to ensure that the largest load rejection test bounds the power demand of the largest load. These issues were entered into the licensee's corrective action program as condition reports 1201749 and 1199001. The licensee confirmed current operability and determined that likely corrective actions will include revisions to the surveillance

instructions.

The performance deficiency was determined to be more than minor because it was associated with the Procedure Quality attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems to respond to initiating events to prevent undesirable consequences. Specifically, the licensee's SIs to implement TS SR 3.8.1.9 failed to ensure that the tested kW level of the rejected load bounded the largest predicted post-accident load. The team determined the finding to be of very low safety significance (Green) because the finding was not a design deficiency, did not represent a loss of system and/or function, and did not represent the loss of any trains of Technical Specification or Non-Technical Specification equipment. The team determined the finding was indicative of current licensee performance and assigned a cross-cutting aspect of Documentation in the area of Human Performance. [H.7]

Inspection Report# : [2016011](#) (*pdf*)

Significance:  Aug 26, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Adequately Evaluate Net Positive Suction Head to the Unit 1 AFW Pumps

The NRC identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to properly evaluate the available net positive suction head to the Unit 1 auxiliary feedwater pumps. These issues were entered into the licensee's corrective action program as condition reports 1196925 and 1201623. The licensee confirmed current operability and had determined that likely corrective actions will include revisions to the net positive suction head calculation.

The performance deficiency was determined to be more than minor because it was associated with the Design Control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of safety systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's inadequate evaluation of the available NPSH for the AFW pumps resulted in a significant margin reduction of approximately 74%. The team determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design of a mitigating SSC that maintained its operability. The team determined the finding was indicative of current licensee performance and assigned a cross-cutting aspect of Design Margin in the area of Human Performance. [H.6]

Inspection Report# : [2016011](#) (*pdf*)

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Translate Design Requirements into a Maintenance Procedure for the 1B-B Charging Pump Room Cooler

The inspectors identified an apparent violation of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion III, Design Control for the licensee's failure to specify nominal shaft size along with specific acceptance criteria for shaft tolerance measurements for the 1B-B centrifugal charging pump (CCP) room cooler fan shaft.

The failure to correctly translate design requirements into procedures as required by 10 CFR Part 50, Appendix B, Criterion III was a performance deficiency. The performance deficiency was more than minor because it affected the

equipment performance attribute of the mitigating system cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The inspectors determined that this finding required a detailed risk analysis since it represented an actual loss of function of a single train for greater than its TS-allowed outage time. The finding does not present an immediate safety concern because the licensee has verified current operability. Because the safety characterization of this finding is not yet finalized, it is being documented with a significance of to be determined (TBD). The inspectors determined that the finding had a cross-cutting aspect of design margin in the area of Human Performance because the licensee failed to carefully guard margins through a systematic and rigorous process. Specifically, the translation of shaft diameter from design documents into 0-MI-0.16 lacked rigor and allowed an undersized shaft to go undetected, leading to cooler failure. [H.6]

Inspection Report# : [2016002](#) (*pdf*)

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure that a Train of Source Range Detection was Available to Monitor Neutron Population During a Fire Event

The NRC identified a Green NCV of Operating License Condition 2.F for the licensee's failure to ensure that a train of source range detection was available to monitor neutron population during the initial stages of a fire event on Unit 1. This issue was entered into the licensee's corrective action program as CR 1098240.

The licensee's failure to ensure a train of source range detection was free from fire damage 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.

Specifically, the licensee failed to maintain the capability to monitor neutron population during the early stage of a fire event. In accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process," the finding was determined to be of very low safety significance (Green) because the reactor would have been able to reach and maintain a stable plant condition. No cross-cutting aspect was identified for this issue.

Inspection Report# : [2016002](#) (*pdf*)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Use a Procedure Appropriate to the Circumstances for the Auxiliary Control Air System Train A

A self-revealing non-cited violation (NCV) of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion V, Procedures was identified for the licensee's failure to use a procedure appropriate to the circumstances for work associated with the A-A auxiliary control air system (ACAS) compressor. Specifically, the licensee used a section of procedure 0-SOI-32.02, Auxiliary Air System, Revision 2, that placed the air compressor in "OFF" when it was intended to place it in "A-Auto". The licensee restored the compressor to "A-Auto" and entered this issue into their corrective action program as condition report (CR) 1131261.

The performance deficiency was more than minor because it affected the equipment performance attribute of the mitigating system cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating

events to prevent undesirable consequences (i.e., core damage). Specifically, the ACAS train A was nonfunctional for approximately 19.5 hours on January 29, 2016 and as a supported system, the auxiliary feedwater system was inoperable during this time. The inspectors determined that this finding was of very low safety significance (Green) because the finding did not represent an actual loss of function of a single train for greater than its TS allowed outage time. The finding has a cross cutting aspect in the Work Management component of the Human Performance area because the licensee failed to implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority. Specifically, the planning and execution of work on the A-A ACAS compressor on January 29, 2016 lacked sufficient rigor to ensure the activity was performed as intended. [H.5]

Inspection Report# : [2016001](#) (pdf)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Immediate Determination of Operability for the Auxiliary Control Air System Train A

The NRC identified an NCV of 10 CFR 50, Appendix B, Criterion V, Procedures, for the licensee's failure to follow TVA procedure OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking, Revision 21.

Specifically, the licensee failed to base an immediate determination of operability (IDO) for the auxiliary control air system on information sufficient to conclude that a reasonable expectation of operability/functionality existed. The licensee subsequently implemented compensatory measures and entered this issue into their corrective action program as CR 1129322.

The performance deficiency was more than minor because it affected the equipment performance attribute of the mitigating system cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, reasonable assurance of operability/functionality did not exist for the A train of auxiliary control air from January 13, 2016, until January 14, 2016, and it therefore should have been declared inoperable/nonfunctional. The inspectors determined that this finding was of very low safety significance (Green) because the finding did not represent an actual loss of function of a single train for greater than its TS allowed outage time. This finding had a cross-cutting aspect in the area of Human Performance, conservative bias, because the licensee failed to make the conservative decisions. Specifically, the licensee reinstalled a degraded valve in the auxiliary control air system without fully understanding the failure mechanism or its impact on system operability/functionality.

Inspection Report# : [2016001](#) (pdf)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Adequately Implement the Administration of Site Technical Procedures for TDAFW Pump Governor Calibration

The NRC identified an NCV of TS 5.7.1.1.a, Procedures, for the licensee's inadequate implementation of procedure NPG-SPP-01.2, Administration of Site Technical Procedures, Revision 8. Specifically, the licensee determined applicable acceptance criteria steps in technical procedures were not applicable (N/A) in lieu of performing a procedure change. This resulted in challenging the operability of safety-related plant equipment. The licensee entered this issue into their corrective action program as CR 1125256.

The performance deficiency was more than minor because, if left uncorrected, it could lead to a more significant safety concern with the use of N/A and implementation of site technical procedures. Specifically, if further adjustments outside of the acceptance criteria or additional acceptance criteria were not met, it could have resulted in the turbine-driven auxiliary feedwater pump becoming inoperable. The inspectors determined this finding to be of

very low safety significance (Green) because it was a deficiency affecting the design or qualification of equipment and operability was maintained. The finding had a cross-cutting aspect of Procedure Adherence, as described in the Human Performance cross-cutting area because the licensee failed to comply with NPG-SPP-01.2. [H.8]

Inspection Report# : [2016001](#) (*pdf*)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Place the RHR System in ECCS-Standby Mode Prior to Exceeding an RCS Temperature of 212 °F

The NRC identified an NCV of TS 5.7.1.1.a, Procedures, for the licensee's failure to place the residual heat removal (RHR) system into ECCS-Standby Mode prior to the reactor coolant system (RCS) temperature exceeding 212 °F as required by procedure 1-GO-1, Unit Startup from Cold Shutdown to Hot Standby, Revision 4. The licensee entered this issue into their corrective action program as CR 1127691.

The performance deficiency was determined to be more than minor because, if left uncorrected, a failure to align a safety system under the proper plant conditions could lead to that system being inoperable or degraded. The inspectors determined that this finding was of very low safety significance (Green) because the system temperatures never rose high enough to allow the RHR pump suction header to form steam voids. The performance deficiency had a cross-cutting aspect of Avoid Complacency in the area of Human Performance because licensee personnel were complacent and failed to question the long held idea that the particular step just needed to be started prior to exceeding an RCS temperature of 212 °F. [H.12]

Inspection Report# : [2016001](#) (*pdf*)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Use Approved Procedures to Place RHR Letdown In Service

The NRC identified an NCV of TS 5.7.1.1.a, Procedures, for the licensee's failure to use any approved procedures to place RHR Letdown in service. The licensee entered this issue into their corrective action program as CR 1127691.

The performance deficiency was determined to be more than minor because if left uncorrected a failure to use procedures to place systems or portions of systems in service could result in equipment being operated incorrectly and that system could then become inoperable or degraded. The inspectors determined that this finding was of very low safety significance (Green) because the way that the system was placed in service did not cause any safety-related components to become inoperable nor did it represent an actual loss of function of one or more non-TS trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The performance deficiency had a cross-cutting aspect of safety conscious work environment (SCWE) policy in the area of Safety Conscious Work Environment because the licensee organization failed to effectively implement a policy that supports individuals' rights and responsibilities to raise safety concerns, and does not tolerate harassment, intimidation, retaliation, or discrimination for doing so [S.1]

Inspection Report# : [2016001](#) (*pdf*)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Track Applicable Technical Specification Action Statement for Charging Pump Inoperability

The NRC identified an NCV of TS 5.7.1.1.a, Procedures, for the licensee's failure to implement OPDP-8, Operability Determinations and LCO tracking. Specifically, the licensee failed to track the applicability of action statement 'B' of TS LCO 3.5.3, ECCS- Shutdown, during planned testing. The licensee entered this issue into their corrective action program as CR 1134949.

The licensee's failure to track applicable TS LCOs, as required by Section 3.5.1 of OPDP-8 was a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, it would have had the potential to lead to a more significant safety concern in that, the failure to track an applicable TS action statement could lead to plant operations outside of TS analyzed conditions. The inspectors determined that this finding was of very low safety significance (Green) because the finding did not represent an actual loss of function of a single train for greater than its TS allowed outage time nor did it represent an actual loss of function of one or more non-TS equipment for greater than 24 hours. The performance deficiency had a cross-cutting aspect of Challenge the Unknown in the area of Human Performance because licensee personnel did not appropriately stop, question, and evaluate the risks before proceeding when the 1A-A CCP oil cooler low flow alarm came in during flow testing. [H.11]

Inspection Report# : [2016001](#) (*pdf*)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain Adequate Surveillance Procedure for Emergency Core Cooling System Venting

The inspectors identified an apparent violation of TS 5.7.1.1.a, Procedures, for the licensee's failure to maintain procedure 1-SI-63-10.1-A, "ECCS Discharge Pipes Venting – Train A Inside Containment," Revisions 11-16, in accordance with the requirements of Regulatory Guide 1.33. Specifically, the procedure did not have provisions for quantifying accumulated gases during venting which allowed emergency core cooling system (ECCS) piping to be vented without being evaluated for potential adverse impacts on system operability. The licensee implemented manual ultrasonic testing (UT) of gas accumulation and entered this issue into their corrective action program as CR 1136359.

The performance deficiency was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, if left uncorrected, the potential existed for an unacceptable void affecting ECCS operability to develop prior to the next scheduled surveillance. The inspectors determined the finding could not be screened to GREEN and may require a detailed risk evaluation following a determination of whether the finding represents a loss of system and/or function. Because the safety characterization of this finding is not yet finalized, it is being documented with a significance of To Be Determined (TBD). The inspectors determined that the finding had a cross-cutting aspect of Change Management in the area of Human Performance because the licensee failed to use a systematic process to implement changes to the ECCS venting procedure to ensure that Generic Letter 2008-01 commitments would continue to be met. [H.3]

Inspection Report# : [2016001](#) (*pdf*)

Inspection Report# : [2016002](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Satisfy TS LCO 3.6.3

The NRC identified a Green NCV of TS for the failure to recognize and take the required actions in TS 3.6.3 for inoperable containment penetration flow paths. Specifically, the required actions of TS 3.6.3 applied on November 21, 2015, and were not taken until January 30, 2016.

The failure to take required actions associated with TS 3.6.3 for an inoperable containment penetration was a performance deficiency. The performance deficiency was more than minor because the ERCW supply and discharge containment penetrations for the 1D upper containment cooler were inoperable for longer than the TS allowed outage time. Because the 1D upper containment cooler ERCW containment penetrations were inoperable and resulted in the failure to satisfy TS LCO 3.6.3, reasonable assurance of the integrity of the containment design barrier was adversely affected. The inspectors determined the finding was of low safety significance (Green) because the upper containment cooler ERCW penetrations are small lines (<1-2 inches in diameter) and IMC 0609, Appendix H "Containment Integrity Significance Determination Process" dated May 6, 2004, Table 4.1 states that "small lines (<1-2 inches in diameter) would not generally contribute to LERF." This finding had a cross-cutting aspect in the area of Human Performance, Conservative Bias, because the licensee failed to make the prudent choice to fully evaluate the unsuccessful surveillance test on November 15, 2015, and instead simply documented the issue in the corrective action program (CAP) and deferred the solution, resulting in the TS violation six days later. [H.14]

Inspection Report# : [2016002](#) (*pdf*)

Emergency Preparedness

Significance:  Dec 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Maintain Minimum On-Shift Emergency Response Staffing Levels

The NRC identified a non-cited violation of 10 Code of Federal Regulations (CFR) 50.47(b)(2) for the licensee's failure to maintain the effectiveness of its emergency plan, when on more than one occasion, the number of control room operators fell below minimum staffing, as required by Appendix C of NP-REP Tennessee Valley Authority (TVA) Nuclear Power Radiological Emergency Plan (E-Plan). The licensee's corrective actions included entering the issue into their corrective action program as CR 1233650.

The performance deficiency was more than minor because it was associated with the emergency response organization readiness attribute of the Emergency Preparedness cornerstone and adversely impacted the cornerstone objective of ensuring that 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 inspectors assessed the finding in accordance with Inspection Manual Chapter 0609, Appendix B, Emergency Preparedness Significance Determination Process, and using Table 5.2-1 – Significance Examples for 50.47(b)(2), determined that this finding represented an example of a staffing process that would permit a shift to go below E-Plan minimum staffing requirements. The inspectors determined that the licensee's process, on more than one occasion, failed to ensure that on-shift staffing met E-Plan minimum staffing requirements between March 20 and May 6, 2016. The cause of the finding was determined to be associated with the cross-cutting

aspect of thorough evaluation of problems in the corrective action component of the problem identification and resolution area because the organization failed to periodically analyze information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues
Inspection Report# : [2016501](#) (*pdf*)

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.

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Miscellaneous

Significance:  Mar 25, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform 50.59 Screenings For Procedures

The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," at Watts Bar Unit 1 for the licensee's failure to perform 10 CFR 50.59 screening reviews for new technical procedures and changes to technical procedures, as directed by procedure NPG-SPP-

01.2.1, “Interim Administration of Site Technical Programs and Procedures for Watts Bar 1 and 2,” Rev. 2. The licensee entered this issue into their corrective action program as condition report 1145320 and performed the procedurally directed screening reviews which determined that no 50.59 Evaluations were required.

The licensee’s failure to perform 10 CFR 50.59 screening reviews for new technical procedures and changes to technical procedures as directed by procedure NPG-SPP-01.2.1 was determined to be a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. The finding was determined to be of very low safety significance (Green) because the finding was not a design deficiency, did not represent a loss of system and/or function, and did not represent the loss of any trains of Technical Specification or Non-Technical Specification equipment. The finding was assigned a cross-cutting aspect of Change Management in the Human Performance area because the licensee failed to use a systematic process for evaluating and implementing change so that nuclear safety remained the overriding priority [H.3].

NOTE

For the Watts Bar Unit 2 Docket, this finding was issued as a SL IV NCV.

Inspection Report# : [2016008](#) (*pdf*)

Significance:  Mar 25, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform Verification and Validation for Abnormal Operating Instructions

The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” at Watts Bar Unit 1 for the licensee’s failure to perform verification and validation for abnormal operating instructions as directed by technical instruction 0-TI-12.11, “Emergency Operating Instruction (EOI).” The licensee entered this issue into their corrective action program as condition reports 1151954 and 1153507, and performed the procedurally directed verifications and validations which determined that all of the abnormal operating instructions in question were adequate.

The licensee’s failure to perform verification and validation for abnormal operating instructions as directed by technical instruction 0-TI-12.11 was determined to be a performance deficiency. The performance deficiency was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. The finding was determined to be of very low safety significance (Green) because the finding was not a design deficiency, did not represent a loss of system and/or function, and did not represent the loss of any trains of Technical Specification or Non-Technical Specification equipment. The finding was assigned a cross-cutting aspect of Change Management in the Human Performance area because the licensee failed to use a systematic process for evaluating and implementing change so that nuclear safety remained the overriding priority [H.3].

NOTE

For the Watts Bar Unit 2 Docket, this finding was issued as a SL IV NCV.

Inspection Report# : [2016008](#) (*pdf*)

Last modified : February 01, 2017