Watts Bar 1
3Q/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: TBD Jun 30, 2016
Identified By: NRC
Item Type: AV Apparent 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: G 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: G 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: G 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: G 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 ºF
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 ºF 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 ºF. [H.12]

Inspection Report# : 2016001 *(pdf)*

Significance: G 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: G 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: G 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)*

Significance: G Dec 31, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Comply with Source Range Neutron Flux Channel Technical Specification Requiprements
A self-revealing Green non-cited violation (NCV) of Technical Specification (TS) 3.3.1, Table 3.3.1-1, Function 5, required action J.1 and TS 3.0.4.a, was identified because two source range neutron flux channels were inoperable with the reactor trip breakers (RTB) closed and the rod control system capable of rod withdrawal. Specifically, the licensee failed to recognize that both required channels of the source range trip function were bypassed and proceeded to withdraw control rods for testing as well as reactor startup.

The failure to maintain two operable source range neutron flux channels during plant startup as required by TS requirements was a performance deficiency. The performance deficiency was more than minor because it affected the configuration control attribute of the mitigating 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 source range level trip switches were left in bypass, outside of their required configuration, thereby removing a trip function that is required by TS during rod withdrawal. The inspectors determined the finding was of very low safety significance (Green) because the finding did not result in a mismanagement of reactivity by the operators.

This finding had a cross-cutting aspect in the area of Human Performance, avoid complacency, because the licensee failed to recognize and plan for the possibility of mistakes and latent issues or use appropriate error reduction tools [H.12]
Inspection Report# : 2015004 *(pdf)*

Significance: G Dec 31, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Identify a Condition Adverse to Quality for Unacceptable Preconditioning of the 1A-A Charging

Pump Discharge Check Valve
The NRC identified a Green NCV of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify a condition adverse to quality. Specifically, the licensee unacceptably preconditioned the 1A-A charging pump discharge check valve 1-CKV-62-525 and failed to identify this as a condition adverse to quality or take appropriate corrective action.

The licensee's failure to promptly identify a condition adverse to quality was a performance deficiency. Specifically, the licensee did not identify a condition adverse to quality associated with the unacceptable preconditioning of the 1A-A charging pump discharge check valve 1-CKV-62-525. The inspectors determined that the performance deficiency was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, unacceptable preconditioning could mask the actual as-found conditions and result in the loss of degradation trending information of component performance, as well as make it difficult to determine whether the valve would perform its intended safety function during an event. The inspectors determined the finding to be of very low safety significance (Green) because the finding did not result in the loss of operability of 1-CKV-62-525. This finding had a cross-cutting aspect in the area of Human Performance, work management, 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 licensee's work management process was not able to prevent the unacceptable preconditioning of the 1A-A discharge check valve even after it was identified as a possibility prior to the planned maintenance [H.5].
Inspection Report# : 2015004 *(pdf)*

Barrier Integrity

Significance: G 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)*

Significance: G Dec 31, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Failure to Perform ISI General Visual Examination of Containment Moisture Barrier Associated with Containment Liner Leak-chase Test Connection Threaded Pipe Plug
The inspectors identified a Green NCV of Title 10 of the10 CFR Part 50.55a, "Codes and Standards," involving the licensee's failure to properly apply Subsection IWE of American Society of Mechanical Engineers, Section XI, for conducting general visual examinations of the metal-to-metal pipe plugs of the leak-chase channel test connections, installed inside the access box, that provide a moisture barrier to the basemat containment liner seam welds. Following the inspectors' identification of this issue, the licensee initiated actions to conduct the required inservice inspection (ISI) general visual examinations. Inspection of the access boxes and leak-chase channels revealed the presence of standing water as well as general corrosion in both locations. The licensee took actions to remove the water and evaluate the condition of the applicable structure, system, and components to verify that containment integrity had been maintained, and would continue to be maintained through the expected life of the plant. The licensee updated the ISI plan such that the required inspections will be performed in the future. The inspectors determined that the licensee had taken adequate immediate corrective actions to address the deficiencies identified, and to ensure the leak-tight integrity of the containment. The issue was entered into the licensee's corrective action program (CAP) as Condition Report 1092415.

The failure to conduct a general visual examination of 100 percent of the moisture barriers intended to prevent intrusion of moisture against inaccessible areas of the containment liner at metal-to-metal interfaces, which are not seal welded, was a performance deficiency that was within the licensee's ability to foresee and correct. This finding was of more than minor significance because the failure to conduct required visual examinations and identify the degraded moisture barriers which allowed the intrusion of water into the liner leak-chase channel, if left uncorrected, would have resulted in more significant corrosion degradation of the containment liner or associated liner welds. The finding was associated with the design control attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, visual examinations of the containment metal liner provide assurance that the liner remains capable of performing its intended safety function. The inspectors used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," and determined that the finding was of low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of the reactor containment.
Inspection Report# : 2015004 *(pdf)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G Dec 31, 2015
Identified By: NRC
Item Type: NCV Non-Cited Violation
Core Barrel Lift Error Resulted in Unintended high Dose Rates
A self-revealing Green NCV of TS 5.7.1, "Procedures, Programs and Manuals," was identified when the unit one core barrel (CB) was raised above the height limit specified in licensee procedure1-MI-68.003, "Removal and Replacement

of the Unit 1 Reactor Vessel Lower Internals," Revision 0003. Specifically, step 6.11[20] states in part, "…slowly raise the lower internals package UNTIL the lower internals is at or above EL. 759'10" as indicated by the break of the laser indicator on the wall target." On October 5, 2015, while moving the CB from the storage stand to the reactor vessel, the CB was inadvertently lifted approximately three feet higher than the 759'10" elevation and required radiation protection (RP) intervention to stop the lift when dose rates in and around containment exceeded anticipated levels. The licensee entered this issue into the CAP as CR 1090220. Corrective actions included "stand-downs" with each crew to review expectations for critical steps, increased field oversight, and revision of the lift procedure to clarify the steps regarding use of the laser indicator.

This finding was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance, Program and Processes (procedures for monitoring and RP controls) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operation. The finding was evaluated using the Occupational Radiation Safety Significance Determination Process. The finding was not related to As Low As Reasonably Achievable planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. Therefore, the inspectors determined the finding to be of very low safety significance (Green). This finding involved the cross-cutting aspect of Human Performance, Work Management [H.5] because distractions at the work location contributed to the failure to recognize that the CB had been raised above the procedural limit.
Inspection Report# : 2015004 *(pdf)*

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

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