Browns Ferry 3
2Q/2013 Plant Inspection Findings

Initiating Events

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Inadequate corrective actions to address programmatic procedure quality issue
The team identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Actions," due to BFNs failure to take corrective action to preclude repetition of a significant condition adverse to quality regarding procedure quality. Specifically, BFN self-identified corrective actions implemented to address inadequate procedures but did not identify and address a significant contributor to the inadequate procedures, resulting in several additional plant performance issues. The team identified multiple inadequate procedures across most BFN departments during the inspection document review and onsite inspection. BFN has conducted root causes, developed and implemented numerous corrective actions; however, procedural deficiencies continued to contribute to plant shutdowns, unplanned component unavailability, and rework activities. BFN documented the issue in PERs 680792 739429, and 740212.

This Finding was determined to be more than minor because it associated with the human performance attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit this likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the team determined that the Finding was of very low safety significance because it 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 (e.g. loss of condenser, loss of feedwater). The team determined that the Finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because BFN did not thoroughly evaluate the extent of condition associated with inadequate procedures such that the corrective actions resolved the issue and prevented repetition. [P.1(c)] (Section 5.3.2.2.2)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to establish qualified ultrasonic examination procedures
The team identified a NCV of 10 CFR 50, Appendix B, Criterion IX, Control of Special Processes for the licensee's failure to control non-destructive examination (NDE) activities by not having qualified NDE procedures required by applicable codes, standards, specifications, criteria, and other special requirements. Specifically, four Ultrasonic (UT) examination procedures did not contain any of the required American Society of Mechanical Engineers (ASME) Code Section XI, Appendix VIII essential variables or the explicit requirement to perform the UT examinations using applicable Performance Demonstrated Initiative (PDI) procedures. The licensee initiated prompt corrective actions to revise all UT implementing procedures to become qualified in accordance with ASME Code Section XI, Appendix VIII requirements and entered the issue into their corrective action program (PERs 730250 and 721446).

The Finding was more than minor, because it affected the Initiating Event cornerstone and if left uncorrected, could become a more significant safety concern. Absent NRC identification of this PD, the licensee could have continued performance of UT examinations on safety-related components using unqualified procedures. Performance of UT examination using unqualified procedures could lead to safety-related components with unacceptable service-induced flaws being returned to service without ASME code-specified evaluation or repair. The team determined the Finding was of very low significance because the Finding was not likely to result in exceeding the RCS leak rate for a small loss of coolant accident (LOCA) or cause total loss of function for a LOCA mitigating system. This Finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Operating Experience (OE) because the licensee did not implement and institutionalize OE pertaining to UT examination procedure issues through changes to station processes, procedures, and training programs to support plant safety. [P.2 (b)] (Section 6.1.6.2.1)

Inspection Report# : 2013011 *(pdf)*

Significance: G Sep 30, 2012
Identified By: Self-Revealing
Item Type: FIN Finding
Automatic reactor scram due to inadequate design review of relay setting
A self-revealing finding (FIN) was identified for the licensee's failure to provide an adequate design review of vendor calculations as required by TVA-NQA-PLN89-A, Nuclear Quality Assurance Plan which resulted in the 3A Unit Station Service Transformer (USST) differential current protection relay trip settings being incorrectly set. The licensee reset and adequately tested the function of the relay. The licensee has evaluated vendor-provided modifications for similar protective relays and plans to revise the design review process to provide increased licensee accountability and specificity of reviews for vendor designs. The licensee entered this issue into their corrective action program as problem evaluation report (PER) 555573.

This finding was determined to be more than minor because it was associated with the Design Control attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability. Specifically, the failure to provide an adequate design review of vendor calculations directly contributed to a reactor scram of Unit 3. The significance of the finding was evaluated using Phase 1 of the Significance Determination Process (SDP) in accordance with Inspection Manual Chapter 0609 Attachment 4 and Appendix A and was determined to be of very low safety significance (Green) because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions were not available. The cause of this finding was directly related to the cross-cutting aspect of Complete Documentation in the Resources component of the Human Performance area, because the licensee failed to ensure procedure NEDP-5, Design Document Reviews was consistent with TVA-NQA-PLN89-A, Nuclear Quality Assurance Plan [H.2.(c)]. (Section 4OA3.2)

Inspection Report# : 2012004 *(pdf)*

Significance: G Sep 30, 2012
Identified By: Self-Revealing
Item Type: FIN Finding
Automatic reactor scram due to inadequate testing of current transformer
A self-revealing finding (FIN) was identified for the licensee's failure to adequately test a Unit 3 main turbine generator current transformer (CT) as required by TVA-NQA-PLN89-A, Nuclear Quality Assurance Plan which resulted in the improper wiring of the CT. The licensee switched the CT leads to correct the input to the main transformer relay, adequately tested all other new Unit 3 relays, implemented a transition plan to incorporate the protective relay group into the nuclear organization, and planned post startup monitoring for the Unit 1 and 2 digital differential protective relays. The licensee entered this issue into their corrective action program as PER 558183.

This finding was determined to be more than minor because it was associated with the Design Control attribute of the Initiating Events cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability. Specifically, the failure to adequately test a Unit 3 main turbine generator CT directly contributed to a reactor scram of Unit 3. The significance of the finding was evaluated using Phase 1 of the Significance Determination Process (SDP) in accordance with Inspection Manual Chapter 0609 Attachment 4 and was determined to be of very low safety significance (Green) because it did not contribute to both 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 cause of this finding was directly related to the cross-cutting aspect of Supervisory and Management Oversight in the Work Practices component of the Human Performance area, because the supervisors failed to ensure proper procedure quality, procedure usage, worker qualification, and proper work preparation associated with the protective relay group's work activities such that nuclear safety was supported [H.4.(c)]. (Section 4OA3.4)

Inspection Report# : 2012004 *(pdf)*

Mitigating Systems

Significance: G Jun 04, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to verify the capability of HPCI to achieve required flow and pressure within 30 seconds under accident conditions
The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the failure to ensure that post-maintenance and post-modification testing of the high pressure cooling injection (HPCI) pump adequately demonstrated that it could achieve design basis flow within 30 seconds from a cold, non-oil-primed, turbine quick start under design basis conditions. This was a performance deficiency. The test configuration was less limiting than the design basis accident configuration, and the licensee had not verified by calculation or testing that the acceptance criteria in the test was adequate to demonstrate the HPCI pump could perform its function under design basis conditions. The licensee performed an operability review and documented the results in the corrective action program as Problem Evaluation Report 690086.

The performance deficiency was determined to be more than minor because it affected the Design Control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of the HPCI pumps. Specifically, using procedure 3-SR-3.5.1.7, the licensee failed to demonstrate that the HPCI pump could achieve the required flow and discharge pressure under accident conditions as required by the design basis. Additional analysis was required to verify system operability. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because the finding was not a design deficiency resulting in the loss of functionality or operability. A cross-cutting aspect was not identified because this performance deficiency has existed since the original

design of the plant and was not indicative of current licensee performance.
(Section 1R21.2.1)
Inspection Report# : 2013007 *(pdf)*

Significance: G Jun 04, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to evaluate the effects of the fialure of non-class 1 load center transformer cooling fans on the class 1 4160-480V load center transformers and 480V shutdown boards
The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," involving the failure to evaluate the effects of a postulated failure of the load center transformer non-safety-related, non-Class 1E cooling fans, which includes the fan power wiring and fan control equipment, on the safety-related Class 1E shutdown board load center transformers and 480V shutdown boards. This was a performance deficiency. The licensee tested the fans and performed an operability evaluation as documented in Problem Evaluation Report 682254 to provide reasonable assurance that the safety-related transformers would not be damaged from postulated failures from the non-safety-related fans and be capable of operating when required for the design basis accident conditions.

The performance deficiency was determined to be more than minor because the finding affected the Design Control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of the load center transformers TS1A and TS1B and the 480V shutdown boards 1A and 1B respectively. Specifically, the licensee had not evaluated the effects of the failure of non-safety-related transformer cooling fans, on both the safetyrelated load center transformer and 480V shutdown board and resulted in a reasonable doubt of operability. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because the finding was not a design deficiency resulting in the loss of functionality or operability. A cross-cutting aspect was not identified because this performance deficiency has existed since November 2004; therefore, not indicative of current licensee performance. (Section 1R21.2.10)
Inspection Report# : 2013007 *(pdf)*

Significance: G Jun 04, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to use worst case 4160 VAC bus voltage in desgin calculations
The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to perform analyses demonstrating that the degraded voltage relay (DVR) set points specified in technical specifications (TS) would ensure adequate voltage to safety-related equipment. This was a performance deficiency. The licensee entered this issue into their corrective action program as PERs 676678 and 696876. As immediate
corrective actions, the licensee performed a sensitivity study to verify that the voltage at the DVR set points specified

in TS could provide adequate starting voltage to a sample of limiting safety-related equipment. The performance deficiency was determined to be more than minor because it affected the Design Control attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of the 4160 volts alternating current buses. Specifically, the finding challenged the assurance that safety-related loads had adequate motor starting voltage during required degraded voltage scenarios. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because the finding was not a design deficiency resulting in the loss of functionality or operability. A cross-cutting aspect was not identified because this performance deficiency has existed since 1993 and was not indicative of current licensee performance. (Section 1R21.2.16)
Inspection Report# : 2013007 *(pdf)*

Significance: G Jun 04, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to adequately identify, evaluate, and correct the EECW strainers degraded/non-conforming condition
The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and take corrective actions to address a non-conforming condition adverse to quality related to three faulted strainers in the safety related Emergency Equipment Cooling Water system. This was a performance deficiency. The licensee initiated Problem Evaluation Report 677627 to perform a new operability evaluation since the operability evaluation in Problem Evaluation Report 208636 was found to be inadequate. The licensee concluded that there were no current operability issues. The performance deficiency was determined to be more than minor because it affected the Equipment Performance attribute of the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and capability of the core spray system to respond to initiating events, in that, if left uncorrected could result in the plant not being able to sustain short-term heat removal under specific conditions. The team used Inspection Manual Chapter 0609, "Significance Determination Process," Attachment 4, "Initial Characterization of Findings," and Appendix A, "The Significance Determination Process for Findings At-Power," and determined that the finding was of very low safety significance (Green) because the finding was not a design deficiency resulting in the loss of functionality or operability. The team evaluated the finding for cross-cutting aspects and determined the finding was associated with the corrective action program component of the problem identification and resolution area, because the licensee did not perform a thorough evaluation of identified problems such that the resolutions addressed the underlying causes and extent of condition. [P.1(c)] (Section 1R21.4)
Inspection Report# : 2013007 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to perform evaluation of non-conforming material during commercial grade dedication of safety-related bearings
The team identified a Green non-cited violation (NCV) of 10 CFR 50 Appendix B, Criterion III, Design Control in that the licensee did not adequately evaluate a commercial grade dedication (CGD) of bearings prior to installing the bearings in a safety-related low pressure coolant injection (LPCI) motor generator (MG) set. Specifically, BFN did not perform an acceptance evaluation of non-conforming materials as required by Section 3.2.6 of NPG-SPP-04.2, Material Receipt and Inspection, Rev. 2. The licensee subsequently initiated prompt corrective actions that included an evaluation of acceptance of the installed bearings, a LPCI operability determination, an extent-of-condition review, and entered the issue in their corrective action program (PER 729646).

The Finding was more than minor because it was 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. Additionally the Finding was similar to Example 5.c in Appendix E of IMC 0612. The Finding was of very low significance because the finding was a design qualification deficiency and the affected structure system component (SSC) (3EN LPCI MG set) maintained its operability. This Finding had a cross-cutting aspect in the area of Human Performance, Decision Making because the licensee did not use conservative assumptions when making the decision to accept non-conforming commercial grade bearings for safety-related use, such that nuclear safety was supported. [H.1 (b)] (Section 5.1.3.2.1)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to follow procedure during implementation of plant modifications to the residual heat removal and core spray systems
The team identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures, and Drawings for the licensee's failure to maintain effective configuration control as required by Procedure NPG-SPP-09.3, Rev. 13, "Plant Modifications and Engineering Change Control." Specifically, the licensee partially implemented permanent plant modifications to the Residual Heat Removal (RHR) and Core Spray (CS) systems under Design Change Notices (DCN) 69466 and 69467 and left these DCNs in partially implemented status beyond two refueling outages without approval of the Vice President of Engineering. This created the potential for a loss of configuration control of the CS and RHR systems. The licensee entered this issue of concern in their corrective action program as SR 739929 and PER 740729 that included actions to evaluate completion or cancellation of the remaining portions of the DCNs.

The team determined the Finding was more than minor because it was 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 finding was of very low significance because it was not a design or qualification deficiency, and it did not result in an actual loss of one or more trains of the RHR or CS systems and/or their function. The finding had a cross-cutting aspect in the area of Human Performance, Work Control because the licensee did not appropriately coordinate work activities by incorporating actions to address the impact of partially implemented DCNs on the plant. [H.3 (b)] (Section 5.1.3.2.2)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Two BFN assistant unit operators closed and danger tagged the A1 RHRSW pump manual discharge valve instead of the required A2 RHRSW pump discharge valve
The team identified a Green, self-revealing non-cited violation (NCV) of Technical Specification (TS) 5.4.1, "Procedures." The team determined that BFN's clearance and tagging application related to the planned A2 residual heat removal service water (RHRSW) pump maintenance was not properly applied and verified as required by TVA Corporate Procedures NPG-SPP-10.2, Rev. 5, "Clearance Procedure to Safely Control Energy," and NPG-SPP-10.3, Rev.1, "Verification Program." Two BFN assistant unit operators (AUOs) closed and danger tagged the A1 RHRSW pump manual discharge valve instead of the required A2 RHRSW pump discharge valve on May, 6, 2013. Upon starting the A1 RHRSW pump, control room alarms provided the operators indication of a system problem, and in the course of responding to the alarm, the operators noted the danger tag. The tags were removed and the pump was

declared inoperable to fill and vent the system prior to returning it to an operable status. This issue was entered in to the corrective action program as PER 722859. The performance deficiencies were reasonably within BFNs ability to foresee and correct.

This Finding was more than minor because it was associated with the human performance attribute which occurred when the AUOs closed and tagged the wrong RHRSW pump discharge valve. The AUOs errors adversely affected the Mitigating System cornerstone objective of ensuring the availability, reliability, and capability of the RHRSW and RHR systems that respond to initiating events to prevent undesirable consequences. The team determined that this Finding was of very low safety significance (Green) because it did not represent an actual loss of safety function or safety systems out of service for greater than the TS allowed outage time. The team determined that this Finding had a cross-cutting aspect in the area of Human Performance, Work Practices, because BFN AUOs did not use self-checking and peer checking human error prevention techniques to prevent the inadvertent closure and danger tagging of the A1 RHRSW pump manual discharge valve instead of the required A2 RHRSW pump valve during the application of a tagging clearance.
[H.4(a)] (Section 5.2.2.2.1)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Maintenance personnel not following clearance procedure violation
The team identified a Green non-cited violation (NCV) of Technical Specification (TS) 5.4.1, “Procedures.” The team determined that the maintenance Primary Authorized Employee (PAE) did not verify that all blocking points were danger tagged to ensure worker personal safety and equipment protection for the A2 RHRSW pump planned maintenance. The PAE’s decision to only verify two of nine clearance components was a violation of TVA Corporate Procedure NPG-SPP-10.2, Rev. 5, “Clearance Procedure to Safely Control Energy". The maintenance PAE did not ensure that the A2 RHRSW pump was isolated from an unexpected release of energy that could have resulted in personnel injury or pump damage. The PAE did not verify or recognize that the A2 RHRSW pump manual discharge valve was full open and not danger tagged closed on May, 6, 2013. This performance deficiency was reasonably within BFNs ability to foresee and correct.

This Finding was more than minor because, if left uncorrected the BFN Maintenance Supervisor’s failure to follow the clearance and tagging procedure requirement to verify all danger tag blocking points, he only verified two of nine danger tags, for the A 2 RHRSW planned pump the performance deficiency would have the potential to lead to a more significant safety concern, such as more severe plant transients, engineered safeguard system malfunctions, and a higher probability of personnel injury. The team determined that this Finding was of very low safety significance (Green) because it did not represent an actual loss of safety function or safety systems out of service for greater than the TS allowed outage time. The team identified a cross-cutting aspect in the Work Practices component of the Human Performance area. Specifically, the licensee ensures supervisory and management oversight of work activities such that nuclear safety is supported. [H.2(c)]. (Section 5.2.2.2.2)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to adequately implement procedure 3-SR-3.3.8.2.1(B)
The team identified a non-cited violation of Technical Specification (TS) 5.4.1, which requires written procedures be

established, implemented, and maintained covering activities referenced in NRC Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978, including surveillance tests. Specifically, a performance deficiency occurred, when the licensee failed to implement the procedure, which required that approved measuring and test equipment be used to measure the underfrequency relay settings during the performance of the Reactor Protection System circuit protector calibration surveillance procedure. Prompt corrective actions included determination that the equipment remained operable and entry of this issue into their corrective action program as problem evaluation report 731144.

The performance deficiency was determined to be more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern, because it could have affected the operability of the relays. The team used Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, for mitigating systems, and Inspection Manual Chapter 0609, Appendix. A, "The Significance Determination Process for Findings at Power," issued June 19, 2012, and determined the Finding to be of very low safety significance (Green) because the Finding did not result in the loss of functionality or operability of a structure, system, or component. The team identified a crosscutting aspect in the work practices component of the Human Performance area, because the licensee did not define and effectively communicate expectations regarding procedural compliance and personnel did not follow procedures [H.4(b)]. (Section 5.2.2.2.4)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to manage emergent risk condition during A1 and A2 RHRSW inoperability
The team identified a self-revealing, Green non-cited violation (NCV) of 10 CFR 50.65 (a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," due to BFN's failure to adequately manage the impact of an emergent risk condition related to the A1 residual heat removal service water (RHRSW) quarterly surveillance test. BFN recognized the online maintenance risk condition however, failed to implement appropriate risk management actions (RMAs) in accordance with Procedure BFN-ODM-4.18, "Protected Equipment." The 'A' and 'B' emergency diesel generators were required to be protected. BFN entered this issue into their corrective action program (CAP) as SR 730356. Specifically, on May 6, 2013, with the A2 RHRSW pump inoperable for planned maintenance, the A1 RHRSW pump was declared inoperable during the A1 RHRSW pump quarterly test due to a tagging error that resulted in Assistant Unit Operators closing and danger tagging the A1 pump manual discharge valve instead of the required A2 pump discharge valve. Upon starting the A1 RHRSW pump, control room alarms provided the operators indication of a system problem, and in the course of responding to the alarm, the operators noted the danger tag. The tags were removed and the pump was declared inoperable to fill and vent the system prior to returning it to an operable status. This issue was entered in to the corrective action program as PER 722859 and 731570.

The team determined that BFN's failure to adequately manage the impact of an emergent risk condition related to the A1 residual heat removal service water (RHRSW) quarterly surveillance test was a performance deficiency that was reasonably within BFNs ability to foresee and correct. The performance deficiency was determined to be more than minor and a Finding because, if the deficiency was left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, the failure to take adequate RMAs could have led to unplanned inoperability of redundant TS or risk significant mitigating systems being relied upon to respond to initiating events to prevent undesirable consequences. The performance deficiency was also determined to be more than minor since it is similar to more than minor Example 7.e of Inspection Manual Chapter (IMC) 0612, Appendix E "Examples of Minor Issues." The Finding was evaluated in accordance with Appendix K, Maintenance Risk Assessment and Risk Management Significance Determination Process, of IMC 0609, "Significance Determination Process," and was determined to be of very low safety significance (Green). This Finding has a cross-cutting aspect in the area of Human Performance, Work Control, because BFN failed to implement immediate RMAs and communicate to the station personnel the

change in plant risk condition and protected equipment requirements that may affect work activities. [H.3.(b)]. (Section 5.2.2.2.5)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Requirements for concurrent verification, independent verification and peer checks
The team identified a Green, non-cited violation (NCV) of Technical Specification (TS) 5.4.1, “Procedures.” The team determined that BFN’s Requirements for Concurrent Verification, Independent Verification, and Peer Checks were not consistently applied to plant procedures, instructions, and work documents as required by TVA Corporate Procedure NPG-SPP-10.3, Rev.1, “Verification Program," and regulatory requirement ANSI N18.7-1976/ANS-3.2, “Administrative Controls and Quality Assurance for Operational Phase Nuclear Power Plants.” BFN documented the issue in SRs 722559, 726755, and PERs 707531, 722859, and 727405.

This finding was more than minor because, if BFN site verification procedure requirement issues and adherence are left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, such as more severe plant transients, or engineered safeguard system actuations or malfunctions. Additionally, this issue is similar to Example 4.b in IMC 0612, Appendix E, “Examples of Minor Issues,” in that the recent inadequate use of human performance error prevention tools (self-checking, peer checking, and missing IVs and CVs in the Procedure NPG-SPP-10.3, Appendix “A,” list of 35 BFN systems that are required to have verifications for procedures, instructions, and work documents) have resulted in a reactor scrams, unplanned safety and risk significant system inoperability and unavailability, or other transients. The Finding was determined to be of very low safety significance (Green) in accordance with Inspection Manual Chapter (IMC) 0609, Attachment 4, “Phase 1 – Initial Screening and Characterization of Findings,” and IMC 0609, Appendix A, “The Significant Determination Process (SDP) for Findings At-Power,” because it did not represent an actual loss of safety function or safety systems out of service for greater than the TS allowed outage time. The team identified a cross-cutting aspect in the Resources component of the Human Performance area, because the licensee did not ensure that procedures were available and adequate to assure nuclear safety. Specifically, accurate and up-to-date procedures, work packages, and correct labeling of components. [H.2(c)]. (Section 5.3.2.2.1)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to translate the design into procedure 3-SR-3.3.8.2.1(B)
The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” for the licensee’s failure to translate seismic uncertainties into acceptance criteria and measuring and test equipment accuracy requirements into the Reactor Protection System circuit protector calibration surveillance procedure. This was determined to be a performance deficiency. Prompt corrective actions included determination that the equipment remained operable and entry of this issue into their corrective action program as problem evaluation report 723605 and 730495.

The performance deficiency was determined to be more than minor because if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern because it could have affected the operability of the relays. The team used Inspection Manual Chapter 0609, Attachment 4, “Initial Characterization of Findings,” issued June 19, 2012, for mitigating systems, and Inspection Manual Chapter 0609, Appendix. A, “The Significance

Determination Process for Findings at Power," issued June 19, 2012, and determined the Finding to be of very low safety significance (Green) because the Finding did not result in the loss of functionality or operability of a structure, system, or component. The team did not identify a cross-cutting aspect because this performance deficiency has existed since 2006 and is not indicative of current licensee performance. (Section 5.3.2.2.4)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to implement an adequate test program for RHRSWS and EECS
The team identified a non-cited violation of 10CFR50, Appendix B, Criterion XI, Test Control, because the licensee did not establish a test program for Residual Heat Removal Service Water (RHRSW) and Emergency Equipment Cooling Water (EECW) pumps such that the test adequately demonstrated the pumps would perform satisfactorily in service. Specifically, BFN did not perform RHRSW/EECW pump performance testing such that it adequately accounted for river water temperature impact on the pump lift, which affected pump flow and vibration performance. The test program did not account for changes to pump lift caused by river water temperature changes; as a result the test program did not adequately monitor pump and system performance and degradation. The licensee completed a prompt operability determination verifying that the pumps remained operable and documented the issue in PERs 730497 and 741036.
The Finding was more than minor because at affected the Mitigating System Cornerstone and if left uncorrected, could become a more significant safety concern. The team determined the Finding was of very low safety significance because it was not a design or qualification deficiency, and it did not result in an actual loss of one or more trains of the RHRSW or EECW systems and/or their function. The Finding had a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program, because the licensee did not to thoroughly evaluate the changes in RHRSW and EECW pump performance such that the resolution addressed the causes and extent-of-condition. [P.1(c)] (Section 5.4.3.2.1)

Inspection Report# : 2013011 *(pdf)*

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Deficient design control for RHR service water freeze protection
The team identified a green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, Design Control, involving the failure to maintain adequate design control measures associated with the residual heat remove service water (RHRSW) system freeze protection. Specifically, the team identified that freeze protection was not installed on two RHRSW pump air relief valves (ARV) to maintain operability of the RHRSW system during extended periods of cold weather. BFN entered the issue into their corrective action program under SRs 731375, 727908, and 732519 and PER 732519 and concluded that an immediate operability concern was not present due to the current warm weather conditions and recent satisfactory pump testing. Additionally, BFN performed a detailed inspection of ARVs on all 12 RHRSW pumps, and identified deficiencies on ARVs for eight pumps and entered each item into the CAP.

The team determined that failure to maintain adequate design control measures associated with the RHRSW system freeze protection was a performance deficiency. This Finding was more than minor because it adversely affected the design control attribute of the Mitigating Systems cornerstone and the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process for Findings At-Power," the team determined that the Finding was of very low safety significance (Green) because it was a deficiency affecting the

design or qualification of a mitigating system, structure or component (SSC), where the SSC maintained its operability. The Finding had a cross-cutting aspect in the area of problem identification and resolution, corrective action program problem identification, because BFN did not maintain a low threshold for issue identification such that this issue was identified and resolved during numerous previous focused inspections of the RHRSW system configuration. [P.1(a)] (Section 6.1.4.2.1)

Inspection Report# : 2013011 *(pdf)*

Barrier Integrity

Significance: G May 24, 2013
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to control a modification to the seismically mounted control room ceiling ligh diffusers
The team identified a Green, NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to control deviations from the as built control room envelope design for seismically mounted ceiling light diffusers in accordance with instructions that assure quality standards are controlled. Specifically, contrary to the procedure the licensee unsecured three seismically mounted control room ceiling light diffusers and slid them over the top of other light diffusers creating a seismic missile hazard that could have impacted control room ventilation damper actuators. Once the licensee understood that unfastening the ceiling light diffusers and sliding them over top of other diffusers was creating unanalyzed modifications, the licensee removed the ceiling diffusers from the overhead and placed them in a seismically safe condition. In addition, the licensee clarified the procedure step to have the ceiling light diffusers removed completely. The licensee entered this issue into their CAP as PER 730443. The failure to control a planned modification of the seismically mounted control room ceiling light diffusers was a performance deficiency (PD).

The PD was more than minor because it is associated with the design control attribute of the barrier integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609.04, "Phase 1-Initial Screening and Characterization of Findings," the team determined that the Finding had very low safety significance (Green) because the Finding only represents a degradation of the radiological barrier function for the control room. This Finding has a cross-cutting aspect in the area of human performance because the licensee did not define and effectively communicate expectations regarding procedural compliance and personnel follow procedures. (H.4.(b) (Section 5.2.4.2.1)

Inspection Report# : 2013011 *(pdf)*

Emergency Preparedness

Significance: G Sep 30, 2012
Identified By: NRC
Item Type: NCV NonCited Violation
Loss of seismic monitoring capability
The inspectors identified a non-cited violation (NCV) of 10 CFR 50.54(q)(2) for the licensee's failure to follow and

maintain an emergency plan that meets the requirements of emergency planning standard 10 CFR 50.47(b)(4). Specifically, due to a plant modification, the licensee failed to maintain configuration control of seismic instrumentation necessary for the declaration of emergency events from August 17 to August 31, 2012. Completion of installation of the power and instrumentation logic signal to the control room annunciators on August 31, 2012, restored compliance with the emergency plan requirements. The licensee entered this issue into their corrective action program as PER 610625.

This finding was determined to be more than minor because it was associated with the Emergency Response Organization (ERO) Performance Attribute of the Emergency Preparedness Cornerstone and affected the cornerstone 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. Specifically, one Alert and one Notification of Unusual Event Emergency Action Level (EAL) initiating condition would have been rendered ineffective such that a seismic event may not have been appropriately declared. The significance of this finding was evaluated in accordance with the IMC 0609, Appendix B, “Emergency Preparedness Significance Determination Process,” and was determined to be of very low safety significance because an ineffective or degraded EAL scheme that affects Alert declarations was categorized as a Green violation. The cause of this finding was directly related to the cross cutting aspect of Documents, Procedures and Component Labeling in the Resources component of the Human Performance area. Specifically, a lack of complete, accurate and up-to-date design documentation resulted in a loss of configuration control and degradation of information necessary to classify a seismic event. [H.2(c)], (Section 4OA2.4)

Inspection Report# : 2012004 *(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.

Miscellaneous

Last modified : September 03, 2013