

## Browns Ferry 2 1Q/2015 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Failure to provide Adequate Acceptance Criteria for ECCS Venting Surveillance**

Green. An NRC identified non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified for the licensee's failure to maintain adequate procedure acceptance criteria and cautions to verify operability of the HPCI system in accordance with Technical Specification Surveillance procedure SR 3.5.1.1. As immediate corrective action the licensee performed a prompt operability determination to verify the system remained operable, and plans to make changes to the TS surveillance procedure using the corrective action program. This violation was entered into the licensee’s corrective action program as PER 989728.

The performance deficiency was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically the operability and availability of the HPCI system could be challenged by having procedural guidance which allows acceptable test results when the limiting void conditions may not be met. The finding was associated with the Mitigating Systems cornerstone. Using NRC Inspection Manual 0609, Appendix A, the finding screened as green because it did not represent an actual loss of function of at least a single train for greater than its technical specification allowed outage time, and did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program for greater than 24 hours. This finding has a crosscutting aspect in the area of Human Performance because the licensee did not challenge the unknown when, both, establishing the venting procedure acceptance criteria and when observing significant bubbles during the venting procedure. [H.11]. (1R04.2) Inspection Report# : [2015001](#) (*pdf*)

**Significance:**  Mar 31, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

#### **Failure to have Simulator Fidelity with D EDG Control Switch**

Green. A Self Revealing NCV of 10 CFR 55.46(c)(1), “Simulation Facilities,” was identified because the licensee failed to demonstrate simulator fidelity associated with D EDG control switch. The licensee’s immediate corrective actions were to replace the switch with one that matched the original design. This violation was entered into the licensee’s corrective action program as PER 990793.

The performance deficiency was more than minor because it adversely affected the mitigating systems cornerstone objective of Human Performance. Specifically, the simulator fidelity issue contributed to a Human Error (Pre-Event) resulting in the D EDG being inoperable for 8 days and 9 hours. In accordance with NRC Inspection Manual Chapter 0609, Appendix I, the finding was determined to be of very low safety significance (Green) using the simulator

fidelity flowpath (blocks 13 through 15). Specifically, Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process," block 15, established a Green finding because although the deficient simulator fidelity negatively affected operator performance, this did not occur during a reportable event. No cross-cutting aspect was assigned because the issue occurred greater than three years ago and is not indicative of current licensee performance. (1R11.1)

Inspection Report# : [2015001](#) (*pdf*)

**Significance:**  Mar 31, 2015

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

**Failure to Maintain an Operating Procedure Resulted in the D EDG Exceeding its Technical Specification Allowed Outage Time**

Green. A Self Revealing NCV of 10 CFR Part 50 Appendix B, Criterion V "Instructions, Procedures, and Drawings" was identified for the licensee's failure to maintain an adequate operating procedure for the D Emergency Diesel Generator (EDG) that resulted in inoperability that exceeded the allowed outage time. The licensee's immediate corrective actions were to restore the D EDG to operability and to replace the D EDG control switch 4 with one that matched the other seven EDGs. The violation was entered into the licensee's corrective action program as PER 990793.

The performance deficiency was more than minor because it adversely affected the mitigating systems cornerstone objective of equipment performance. This violation required a Phase II analysis because the 0612 Appendix A Mitigating Systems Exhibit question of whether the finding represented an actual loss of a single train's function for greater than its technical specification allowed outage time was answered "yes". The regional Senior Reactor Analyst performed a detailed risk analysis for the performance deficiency using the NRC's risk software, and the Unit 2 model. Assumptions included using a conservative screening value for the operator recovery, and the assumption that a common cause failure was not involved. The dominant risk sequences were the loss of offsite power, failures of suppression pool cooling, failure to recover power within 4 hours, and failure of alternate low pressure injection. The short period the EDG was unavailable, and the lack of a common cause resulted in a Green finding. The performance deficiency was assigned a crosscutting aspect of Resources because the licensee did not properly prioritize procedure upgrade resources to ensure that procedures for the D EDG were adequate (H.1). (1R15.1)

Inspection Report# : [2015001](#) (*pdf*)

**Significance:**  Dec 31, 2014

Identified By: NRC

Item Type: FIN Finding

**Failure to Perform Required Continued Monitoring of a Degraded Condition**

. The NRC identified a finding (FIN) associated with the licensee's failure to evaluate continued operation for an established and growing crack in the "A" Residual Heat Removal Service Water (RHRSW) pump room floor. The licensee failed to provide justification why continued monitoring was not required while the floor crack continued to degrade for over five weeks. This was a requirement per licensee procedure NEDP-22 Operability Determinations and Functional Evaluations, Section 3.2.2.G.4.a.(2).

This finding was more than minor because, if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, without sufficient monitoring, the crack had the potential to propagate until the pumps in the RHRSW pump room became inoperable in a PMF event without the licensee's knowledge. This finding is associated with the mitigating systems cornerstone. The finding was screened using Inspection Manual Chapter (IMC) 0609 Appendix A, Exhibit 2, issued June 19, 2012 and was determined to be green because the functions provided by the floor were maintained. The licensee's immediate corrective action was to commence bi-weekly monitoring of the crack until repairs could be made. The cause of this finding was directly related to the cross cutting aspect of the

Evaluation attribute of the Problem Identification and Resolution area because the licensee action to address the cause and extent of condition of the crack did not address the safety aspect of crack propagation. [P.2]

Inspection Report# : [2014005](#) (*pdf*)

**Significance:**  Sep 30, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to maintain Fire Doors in their Rated Configuration (Section 1R05)**

The NRC identified a Green non-cited violation (NCV) of Browns Ferry Operating License Conditions 2.C for the licensee's failure to maintain fire doors in their rated configuration required by the Fire Protection Report. Specifically, the licensee failed to ensure that fire doors 497, 501, and 506, for Units 1, 2, and 3 respectively, were latched closed as required for the doors to meet their designed fire rating. The licensee entered this issue in the CAP as PER 921571 and initiated corrective actions to replace the degraded fire doors.

The inspectors determined that the licensee's failure to maintain fire doors 501, 506 and 497 in their rated configuration as required by the Browns Ferry Nuclear Plant Fire Protection Report was a performance deficiency. The finding was more than minor because it was associated with the protection against external factors (fires) attribute of the mitigating systems cornerstone and affected the objective to maintain the reliability and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failure to ensure fire doors were closed and latched could have resulted in the door opening during a fire, thereby allowing a fire to affect additional equipment important to safety in the exposed fire zone. The finding was screened in accordance with IMC 0609, Appendix F, "Fire Protection Significance Determination Process (SDP)," issued September 20, 2013. The inspectors conducted a Phase I SDP screening utilizing Figure F.1 in Appendix F. Per the Phase I screening criteria, the finding was assigned the category of "Fire Confinement." The inspectors assigned a "Moderate Degradation Rating" to the fire barrier door in accordance with Attachment 2 of Appendix F, because the latching mechanism for the door was non-functional. In accordance with Appendix F, "Supplemental Screening for Fire Confinement Findings," task 1.4.2, this finding screened as very low safety significance (Green) because there was a fully functional automatic suppression system on either side of the fire barrier. The cause of this finding was directly related to the aspect of trending in the problem identification and resolution cross-cutting area. Specifically, over the past several years the licensee documented multiple examples of fire doors failing to consistently latch, in the CAP. The licensee failed to analyze this information in the aggregate to identify and correct the issue (P.4). (Section 1R05)

Inspection Report# : [2014004](#) (*pdf*)

**Significance:**  Sep 30, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

**TRM Allowances for Electric Board Room Air Conditioning Units conflicting with Technical Specifications (Section 1R15.1)**

The NRC identified a Severity Level IV (SL-IV) NCV of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," and an associated Green NCV of Technical Specification (TS) 3.8.7 "Distribution System – Operating" for the licensee's failure to obtain a license amendment prior to implementing changes to the Technical Requirements Manual (TRM) that affected TS 3.8.7 for Units 1, 2, and 3. Specifically, the addition of TRM 3.7.6, Electric Board Room (EBR) Air Conditioning (AC) system resulted in a violation of T.S. 3.8.7 Distribution- Operating for the C and D 4kV shutdown boards (supported by the Unit 2 EBR AC system) being inoperable in mode 1 for longer than the allowed outage time and the action statement not complied with. The licensee's immediate corrective action was to issue administrative guidance to operators for the determination of operability of the 4kV shutdown boards with the Electric Board Room air conditioning system inoperable and initiate actions to submit a TS amendment request as documented in PER 846040.

The performance deficiency was more than minor because it adversely affected the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent

undesirable consequences. Specifically, the performance deficiency resulted in the licensee not declaring Unit 1 and 2 4kV shutdown boards inoperable and taking actions required by TS 3.8.7 action statement 'E' on multiple occasions. The finding was screened using IMC 0609 Appendix A Exhibit 2, dated June 19, 2012, and was determined to be of very low safety significance (Green) because the finding did not represent an actual loss of function of one or more non-Tech Spec Trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for >24 hrs. The violation was determined to be a Severity Level IV violation using the Enforcement Policy example 6.1.d.2, because it resulted in a condition having a very low safety significance. No cross cutting aspect was assigned in association with the ROP finding because the change to the TRM was performed greater than three years ago and did not reflect current licensee performance. (Section 1R15.1)

Inspection Report# : [2014004](#) (pdf)

**Significance:** G Sep 30, 2014

Identified By: NRC

Item Type: NCV Non-Cited Violation

#### **Inadequate NPSH Calculations for Standby Liquid Control Pumps (Section 1R15.2)**

The NRC identified a Green non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to maintain adequate control measures for verifying or checking the adequacy of design of the Standby Liquid Control (SLC) system. Specifically, the licensee's calculations and system testing were both inadequate to demonstrate that the SLC system could meet design requirements under all required operating conditions. The licensee entered this in their CAP as PER 920418 and initiated corrective actions to perform a modification to the SLC system and update design calculations.

The inspectors determined that the licensee's failure to maintain adequate control measures for verifying or checking the adequacy of design of the SLC system as required by 10 CFR 50, Appendix B, Criterion III, "Design Control," was a performance deficiency (PD). Specifically, the licensee's calculations and system testing were both inadequate to demonstrate that the SLC system could meet design requirements under all required operating conditions. The PD was more than minor because it affected the Mitigating Systems Cornerstone attribute of Design Control, and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, there was not an adequate method for ensuring the capability of the design of the SLC system following a design basis accident. The inspectors screened this finding in accordance with IMC 0609, Appendix A, "Significance Determination Process", "Exhibit 2-Mitigating Systems Screening Questions," dated June 19, 2012, and determined the finding was of very low safety significance (Green) because the design deficiency did not result in a loss of operability or functionality. The inspectors determined that no cross cutting aspect was applicable because this finding was not indicative of current licensee performance and occurred more than three years ago. (Section 1R15.2)

Inspection Report# : [2014004](#) (pdf)

**Significance:** G Jun 30, 2014

Identified By: NRC

Item Type: FIN Finding

#### **RHRSW pump power cables submerged in water**

An NRC-identified finding was identified for the licensee's failure to adhere to TVA General Specification 40 (G-40) for Installation, Modification, and Maintenance of Electrical Systems, section 3.5.7, which required standing water in Handholes be kept below any safety related cables. Hand hole numbers 15 and 26 were discovered to have had standing water above several of the Residual Heat Removal (RHR) service water (safety related) power cables from January to May 2014.

The licensee's failure to adhere to TVA General Specification 40 (G-40) for Installation, Modification, and Maintenance of Electrical Systems, section 3.5.7, which required standing water in hand holes be kept below any safety related cables was a performance deficiency. Specifically, the licensee allowed hand hole numbers 15 and 26 to

have standing water above several of the RHR service water (safety related) power cables. The performance deficiency was more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern including cable degradation and increased likelihood of cable failure. This issue screened as having very low safety significance, Green, using IMC 0609 Appendix A, Exhibit 2, Mitigating Systems Screening Questions issued on June 19, 2012, because it affected the design or qualification of a mitigating SSC but the mitigating SSC maintained its operability. The finding had a cross cutting aspect of Problem Identification and Resolution: Resolution because the licensee failed to ensure that corrective actions addressed the cause of the power cable wetting and failure in 2007. (P.3) (Section 1R06.2)

Inspection Report# : [2014003](#) (*pdf*)

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## Barrier Integrity

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## Emergency Preparedness

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## Occupational Radiation Safety

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## Public Radiation Safety

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## 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 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

**Failure to Reflect Changes to Facility and Procedures in Final Safety Analysis Report Periodic Revisions**  
Severity Level IV. An NRC identified non-cited violation (NCV) of 10 CFR 50.71(e)(4) was identified for the

licensee's failure to reflect all changes made in the facility or procedures as described in the Final Safety Analysis Report (FSAR) up to a maximum of six months prior to the date of filing the periodic updates to the FSAR with the NRC. The licensee's immediate corrective action was to enter this issue into their CAP as PER 1008424 to update areas in the FSAR identified by the NRC.

The inspectors determined that traditional enforcement per NRC Enforcement Policy was applicable since this finding reflects an impact on the regulatory process in the form of timely and accurate reports to the NRC. Section 6.1.d.3 of the enforcement policy states, in part, that a failure to update the FSAR as required by 10 CFR 50.71(e) in cases where the information is not used to make an unacceptable change to the facility or procedures is a SL IV violation. The inspectors did not identify any occurrence where the lack of timely updates to the UFSAR resulted in an unacceptable change to the facility or procedures. Crosscutting aspects are not assigned for traditional enforcement violations. (Section 1R18)

Inspection Report# : [2015001](#) (*pdf*)

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