

# Browns Ferry 3

## 1Q/2012 Plant Inspection Findings

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### Initiating Events

**Significance:** **G** Sep 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Unit 3 loss of shutdown cooling during primary containment isolation system relay replacement**

A self-revealing non-cited violation of Technical Specifications 5.4.1.a was identified for the licensee's failure to establish adequate work order instructions for maintenance activities on CR120A relays associated with the Unit 3 Primary Containment Isolation System (PCIS). Consequently, on May 12, 2011, while performing maintenance on a CR120A relay, electricians inadvertently initiated a PCIS Group 2 actuation which resulted in a loss of Unit 3 shutdown cooling (SDC). The licensee immediately restored the affected relay wiring and reestablished Unit 3 SDC. Additional, corrective actions to revise CR120A relay maintenance procedures were in progress. This issue was entered into the licensee's corrective action program as problem evaluation report (PER) 368764.

The finding was determined to be greater than minor because it was associated with the Initiating Events Cornerstone attribute of Procedure Quality, and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. Specifically, the work package to replace the Unit 3 PCIS relays did not include specific work precautions or instructions to require that jumpers be installed to prevent an inadvertent Group 2 PCIS actuation. According to Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP), Appendix G, Shutdown Operations, Table 1, Losses of Control, the finding was determined to be of very low safety significance because the change in temperature during the inadvertent loss of SDC did not exceed 20 percent of the temperature margin to boil. In addition, Checklist 8 of Appendix G, Attachment 1, Shutdown Operations, confirmed adequate mitigation capability remained available for all of the shutdown safety functions to be considered of very low safety significance. 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 provide adequate work package details concerning the replacement of PCIS relays which resulted in the loss of SDC [H.2.(c)]. (Section 40A3.6)

Inspection Report# : [2011004](#) (*pdf*)

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### Mitigating Systems

**Significance:** **G** Jun 30, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to take corrective actions to preclude a repetitive functional failure of an EDG due to excessive heat exchanger fouling**

A self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to take prompt corrective actions to preclude repetition of a significant condition adverse to quality (SCAQ) that resulted in the loss of a emergency diesel generator (EDG) safety function due to excessive heat exchanger fouling. On August 4, 2010 the licensee identified a SCAQ due to excessive fouling of the Unit 1/2 D EDG heat exchangers which resulted in a functional failure of the D EDG. Prompt corrective actions were not taken to preclude repetition because on June 5, 2011, excessive fouling was identified on the 3D EDG heat exchangers which resulted in a functional failure of the 3D EDG. Corrective actions taken by the licensee included cleaning and returning the 3D EDG heat exchangers to an operable status, and increasing monitoring of emergency equipment cooling water (EECW) cooling flow to all the EDG heat exchangers from weekly to every two days. The licensee

entered this issue into their corrective action program as problem evaluation report (PER) 381569.

This finding was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance, 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). Specifically, the excessive fouling of the 3D EDG heat exchanger was a functional failure and resulted in unplanned unavailability of the 3D EDG. In accordance with Inspection Manual Chapter (IMC) 0609 Attachment 4, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not represent an actual loss of safety function of a single train for more than its technical specification allowed outage time of seven days, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. The cause of this finding was directly related to the cross-cutting aspect of Maintaining Long Term Plant Safety (Equipment Issues) in the Resources component of the Human Performance area because of the licensee's failure to minimize the duration of a long-standing degraded equipment issue related to relic clam shells in the EECW system which resulted in a repetitive functional failure of an EDG due to excessive heat exchanger fouling. [H.2.(a)]. (Section 1R07)  
Inspection Report# : [2011003](#) (*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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## **Physical Protection**

Although the NRC is actively overseeing the Security cornerstone, the Commission has decided that certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## **Miscellaneous**

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