

Browns Ferry 3

Initiating Events

G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

G**Significance:** Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)**Significance:** SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity



Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of thier overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Seveity Leve III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective

actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

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Inspection Report# : [2001004\(pdf\)](#)

Last modified : April 01, 2002

Browns Ferry 3

Initiating Events

G**Significance:** Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)

Mitigating Systems

Significance: SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)G**Significance:** Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity



Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Severity Level III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2000003\(pdf\)](#)

Inspection Report# : [2001004\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of their overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

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implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Last modified : April 01, 2002

Browns Ferry 3

Initiating Events

G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

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Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

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Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

Significance: SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

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Inspection Report# : [2001003\(pdf\)](#)G**Significance:** Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

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Inspection Report# : [2001003\(pdf\)](#)



Significance: Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

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Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity



Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

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Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

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Inspection Report# : [2000003\(pdf\)](#)

Significance: SL-III Jun 24, 2000

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Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

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Inspection Report# : [2001004\(pdf\)](#)

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

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The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of their overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

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Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

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Inspection Report# : [2000007\(pdf\)](#)

Last modified : March 29, 2002

Browns Ferry 3

Initiating Events

G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

Significance: SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)G**Significance:** Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity



Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Severity Level III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2001004\(pdf\)](#)

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of their overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for

implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Last modified : March 28, 2002

Browns Ferry 3

Initiating Events

G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

G**Significance:** Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

G**Significance:** Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)**Significance:** SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)

Barrier Integrity

G**Significance:** Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Seveity Leve III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2001004\(pdf\)](#)

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of thier overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities.

On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.
Inspection Report# : [2001002\(pdf\)](#)

Last modified : March 28, 2002

Browns Ferry 3

Initiating Events

G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

G**Significance:** Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)**Significance:** SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)

Barrier Integrity

G

Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of thier overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Seveity Leve III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2001004\(pdf\)](#)

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on

January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Last modified : March 27, 2002

Browns Ferry 3

Initiating Events

G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

G**Significance:** Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)**Significance:** SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity



Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of thier overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Seveity Leve III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS

5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2001004\(pdf\)](#)

Inspection Report# : [2000003\(pdf\)](#)

Last modified : March 26, 2002

Browns Ferry 3

Initiating Events

G**Significance:** Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)G**Significance:** Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

Significance: SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)G**Significance:** Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)

G

Significance: Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity

G

Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of thier overall

condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Severity Level III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Severity Level III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2001004\(pdf\)](#)

Last modified : March 01, 2002

Browns Ferry 3

Initiating Events



Significance: Mar 22, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW SURVEILLANCE INSTRUCTION TO REPLACE HPCI STEAM LINE SPACE TEMPERATURE SWITCHES.

The licensee identified a non-cited violation of Technical Specification 5.4.1.a (Procedures) for failure to follow a surveillance instruction to replace HPCI steam line space temperature switches, instead the RCIC steam line space temperature switches were inadvertently replaced.

Inspection Report# : [2001005\(pdf\)](#)



Significance: Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)



Significance: Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)



Significance: Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

Significance: SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety

evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)



Significance: Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity



Significance: Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

G

Mar 01, 2002

Significance:

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN COMPLETE AND ACCURATE PERSONNEL DOSE RECORDS

The licensee identified a non-cited violation of 10 CFR 20.401, 10 CFR 20.2106 and 10 CFR 50.9, for failure to maintain accurate records of doses received by all individuals for whom monitoring was required. This finding was not processed under the Reactor Oversight Process and was characterized as a severity level IV violation consistent with Supplement VII of the Enforcement Policy because it involved the accuracy of required records.

Inspection Report# : [2001008\(pdf\)](#)

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of their overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)**Significance:** SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)**Significance:** N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Seveity Leve III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2001004\(pdf\)](#)

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Last modified : July 22, 2002

Browns Ferry 3

Initiating Events

Significance:  Mar 22, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW SURVEILLANCE INSTRUCTION TO REPLACE HPCI STEAM LINE SPACE TEMPERATURE SWITCHES.

The licensee identified a non-cited violation of Technical Specification 5.4.1.a (Procedures) for failure to follow a surveillance instruction to replace HPCI steam line space temperature switches, instead the RCIC steam line space temperature switches were inadvertently replaced.

Inspection Report# : [2001005\(pdf\)](#)

Significance:  Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)

Significance:  Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)

Significance:  Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action

statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.
Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

Significance:  Jun 22, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN ADEQUATE PROCEDURES FOR CONTROLLING SAFETY RELATED MAINTENANCE

The licensee identified a non-cited violation of Technical Specification 5.4.1.a, for failure to provide provisions in Work Order 01-009409-000 to ensure that the limit switch wires were clear before installing the cover on motor operated valve 3-MVOP-73-16. Consequentially, control wiring was pinched and parts of the valve were damaged during post-maintenance testing.

Inspection Report# : [2002002\(pdf\)](#)

Significance: SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)

 **Significance:** Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity

 **Significance:** Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

 **Significance:** Mar 01, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN COMPLETE AND ACCURATE PERSONNEL DOSE RECORDS

The licensee identified a non-cited violation of 10 CFR 20.401, 10 CFR 20.2106 and 10 CFR 50.9, for failure to maintain accurate records of doses received by all individuals for whom monitoring was required. This finding was not processed under the Reactor Oversight Process and was characterized as a severity level IV violation consistent with Supplement VII of the Enforcement Policy because it involved the accuracy of required records.

Inspection Report# : [2001008\(pdf\)](#)

Public Radiation Safety

Physical Protection

Significance:  Jun 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERABILITY OF CONTROL ROOM DOORS

The inspector identified a non-cited violation of Technical Specification 4.5.1.a, for failure to maintain the operability of vital area doors designed to restrict access to the Unit 2 control room as required by the Security Plan. Consequently, the resident inspector was able to gain access to the control room without authorization. This finding was of very low safety significance, because a person could not gain access to the control room undetected, the individual would have already been subjected to access controls to enter the protected area and although the physical barriers to the control room were, at times, not fully functional, the alarm was operable such that if an unauthorized individual entered the control room, the alarm would annunciate and security could respond promptly.

Inspection Report# : [2002002\(pdf\)](#)

Miscellaneous

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of thier overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Severity Level III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by

TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2000003\(pdf\)](#)

Inspection Report# : [2001004\(pdf\)](#)

Last modified : August 29, 2002

Browns Ferry 3

Initiating Events

Significance:  Mar 22, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW SURVEILLANCE INSTRUCTION TO REPLACE HPCI STEAM LINE SPACE TEMPERATURE SWITCHES.

The licensee identified a non-cited violation of Technical Specification 5.4.1.a (Procedures) for failure to follow a surveillance instruction to replace HPCI steam line space temperature switches, instead the RCIC steam line space temperature switches were inadvertently replaced.

Inspection Report# : [2001005\(pdf\)](#)

Significance:  Sep 23, 2000

Identified By: Self Disclosing

Item Type: FIN Finding

An Inadequate Procedure Results in a Unit 3 Automatic Reactor Scram

A Unit 3 automatic reactor scram, that was caused by a pressure perturbation on the variable leg of a non-safety-related reactor vessel level instrumentation, revealed an inadequate procedure, that did not contain sufficient detail to assure that the level instrument was returned to service without perturbing the reactor instrument sensing lines. The finding had very low safety significance because all mitigation systems remained operable and barrier integrity was not challenged.

Inspection Report# : [2000004\(pdf\)](#)

Significance:  Jun 24, 2000

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MEET CONTROL ROD TESTING TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification 3.9.4 was identified for operators' failure to comply with the action statement requiring insertion and disarming of a control rod with a malfunctioning "full in" position indicating light during control rod testing on Unit 3. The finding had very low safety significance because administrative controls were in place to prevent more than one control rod from being withdrawn at any given time during the test.

Inspection Report# : [2000003\(pdf\)](#)

Significance:  Jun 24, 2000

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET REACTOR MODE SWITCH TECHNICAL SPECIFICATION

A non-cited violation of Technical Specification (TS) 3.3.1.2 was identified for operators placing the Unit 3 reactor mode switch out of the shutdown position to perform reactor mode switch testing with less than the required number of operable source range monitors (SRMs). The finding had very low safety significance because the requirements of TS 3.10.2 (i.e., no core alterations and all control rods inserted) were maintained at all times during reactor mode switch testing. In addition, the required TS surveillance required for SRM operability was subsequently completed satisfactorily on the A, B, and D SRMs.

Inspection Report# : [2000003\(pdf\)](#)

Mitigating Systems

Significance:  Jun 22, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN ADEQUATE PROCEDURES FOR CONTROLLING SAFETY RELATED MAINTENANCE

The licensee identified a non-cited violation of Technical Specification 5.4.1.a, for failure to provide provisions in Work Order 01-009409-000 to ensure that the limit switch wires were clear before installing the cover on motor operated valve 3-MVOP-73-16. Consequentially, control wiring was pinched and parts of the valve were damaged during post-maintenance testing.

Inspection Report# : [2002002\(pdf\)](#)

Significance:  Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

ERROR IN ANALYSIS OF RHR SYSTEM RESULTS IN FAILURE TO MEET APPENDIX R, CRITERION III.L.2.B

The inspectors identified a non-cited violation for failure to meet 10 CFR 50, Appendix R, Criterion III.L.2.b requirements for alternative shutdown involving loss of the residual heat removal (RHR) function following certain postulated fires. The RHR function would have been lost due to inadvertent closure of the RHR pump minimum flow control valves due to fire damage to control cables, because the cables were not protected as required by 10 CFR 50, Appendix R. This finding was of very low safety significance because the initiating event was of relatively low frequency and that fire suppression systems and diverse systems for core heat removal remained available.

Inspection Report# : [2001003\(pdf\)](#)

Significance: SL-IV Sep 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MEET 10 CFR 50.59 REQUIREMENTS.

The inspectors identified a Severity Level IV non-cited violation for failure to meet 10 CFR 50.59 requirements, in that the safety evaluation conducted as required by 10 CFR 50.59 did not adequately provide the basis that a procedure change would not result in more than a minimal increase in the likelihood of occurrence of a malfunction of equipment important to safety previously evaluated in the Updated Final Safety Analysis Report. The finding's underlying technical issue was evaluated and determined to be of very low safety significance because in the worst case scenarios only a single train of equipment would malfunction because of, for example, a severe pipe failure, and the Technical Specifications would govern.

Inspection Report# : [2001003\(pdf\)](#)

Significance:  Mar 24, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE EVALUATION OF RHR SYSTEM FLOW RATE TEST RESULTS

A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI (Test Control) was identified for not properly evaluating quarterly residual heat removal (RHR) system flow rate test results on Units 2 and 3. Flow rate tests performed since the implementation of temporary alterations on July 27, 2000, which maintained the systems' minimum flow bypass valves in the open position during normal operations, were not properly evaluated to ensure that Technical Specification (TS) required system parameters would be satisfied with the systems in service. This finding

was considered to be of very low safety significance because subsequent evaluation of the test data showed that TS surveillance requirements were satisfied and no loss of safety function of the RHR system occurred.

Inspection Report# : [2000006\(pdf\)](#)

Barrier Integrity

Significance:  Dec 22, 2001

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO OBTAIN REQUIRED PERMITS TO BLOCK OPEN RESTRICTED DOORS

The inspectors identified a non-cited violation for failure to meet Technical Specification 5.4.1.a (Procedures). A barrier door for the control room pressure envelope was not maintained closed. The door was blocked open for over three hours, resulting in both trains of the control room emergency ventilation system being out-of-service in excess of the allowed TS outage time. The finding affected the integrity of the control room envelope, but was considered to be of very low safety significance because it represented a degradation of the radiological barrier function provided for the control room only.

Inspection Report# : [2001004\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 01, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN COMPLETE AND ACCURATE PERSONNEL DOSE RECORDS

The licensee identified a non-cited violation of 10 CFR 20.401, 10 CFR 20.2106 and 10 CFR 50.9, for failure to maintain accurate records of doses received by all individuals for whom monitoring was required. This finding was not processed under the Reactor Oversight Process and was characterized as a severity level IV violation consistent with Supplement VII of the Enforcement Policy because it involved the accuracy of required records.

Inspection Report# : [2001008\(pdf\)](#)

Public Radiation Safety

Physical Protection

Significance:  Jun 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERABILITY OF CONTROL ROOM DOORS

The inspector identified a non-cited violation of Technical Specification 4.5.1.a, for failure to maintain the operability of vital area doors designed to restrict access to the Unit 2 control room as required by the Security Plan. Consequently, the resident inspector was able to gain access to the control room without authorization. This finding was of very low safety significance, because a person could not gain access to the control room undetected, the individual would have already been subjected to access controls to enter the protected area and although the physical barriers to the control room were, at times, not fully functional, the alarm was operable such that if an unauthorized individual entered the control room, the alarm would annunciate and security could respond promptly.

Inspection Report# : [2002002\(pdf\)](#)

Miscellaneous

Significance: N/A Dec 21, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. Corrective actions were generally implemented in a timely manner and effective in correcting the equipment deficiencies. Audits and assessments were found to be thorough and self-critical. Findings and problems identified by the audits and assessments were consistent with the inspectors' observations. The use of problem evaluation reports (PERs) to identify lower threshold problems (level "D" PERs) and place them into the trending program was considered generally adequate to monitor problems before they resulted in a more significant one. However the inspectors found instances where low level personnel contamination events (PCEs) were not being reported via the corrective action program (i.e., level D PER) for trending. The inspection did not identify significant differences between the licensee's assessment of thier overall condition of the corrective action program and the NRC program assessment. A safety conscious work environment was evident.

Inspection Report# : [2001007\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Significance: N/A Jan 26, 2001

Identified By: NRC

Item Type: FIN Finding

IDENTIFICATION AND RESOLUTION OF PROBLEMS

The licensee was effective at identifying problems and placing them into the corrective action program. The licensee's effectiveness at problem identification was evident by the relatively few deficiencies identified by external organizations, including the NRC, that had not been previously identified by the licensee. The licensee appropriately evaluated individual problems based on risk significance when establishing schedules for implementing corrective actions. Corrective actions were generally implemented in a timely manner. Findings and problems identified by

licensee audits and assessments were consistent with the inspectors' observations. A safety conscious work environment was evident.

Inspection Report# : [2000007\(pdf\)](#)

Significance: SL-III Jun 24, 2000

Identified By: NRC

Item Type: VIO Violation

FAILURE TO IMPLEMENT MEASURING AND TEST EQUIPMENT PROCEDURES

An apparent violation of Technical Specification (TS) 5.4.1 was identified for apparent deliberate failure to implement measuring and test equipment (M&TE) control procedures which resulted in approximately 500 nonconformance evaluations either not being issued or completed for M&TE which had been identified as out-of-tolerance or otherwise meeting the criteria for evaluation. [A Seveity Leve III Violation was issued in a Notice of Violation enclosed in an NRC letter to the licensee, dated October 27, 2000, for the failure to adhere to the licensee's procedures as required by TS 5.4.1, related to out-of-tolerance M&TE.]

Inspection Report# : [2001004\(pdf\)](#)

Inspection Report# : [2000003\(pdf\)](#)

Significance: N/A Jun 24, 2000

Identified By: NRC

Item Type: FIN Finding

SUPPLEMENTAL INSPECTION TO ASSESS LICENSEE EVALUATION OF UNIT 3 HEAT REMOVAL SYSTEM UNAVAILABILITY PERFORMANCE INDICATOR

A supplemental inspection was conducted in accordance with Inspection Procedure 95001, Inspection for One or Two White Inputs in a Strategic Area. The purpose of the inspection was to assess the licensee's evaluation associated with a Unit 3 White PI [Safety System Unavailability for the Heat Removal System, Reactor Core Isolation Cooling (RCIC)]. On December 30, 1998, during a manual start of the Unit 3 RCIC to perform a TS surveillance, there was no turbine speed indication in the control room, although there was indication of pump flow and pressure. A broken connector was found on the wiring to the turbine speed sensor. The licensee considered the sensor cable connector failure to have been an isolated, random failure, with possible damage due to personnel working in the area with the connector disconnected and hanging loose (the connector was not as vulnerable when assembled). The licensee stated that it could not determine the exact cause of the failure because the internal parts of the connector could have been broken for an extended period and the connector still could perform its function, as long as the pins were making contact. Although Unit 2 was not inspected at the time of the identification on Unit 3, subsequent disassembly and inspection on January 14, 2000, not related to the Unit 3 failure, did not identify any degradation of the connector on the Unit 2 RCIC. The licensee's corrective actions were appropriate for the circumstances.

Inspection Report# : [2000003\(pdf\)](#)

Last modified : December 02, 2002

Browns Ferry 3

Initiating Events

Significance:  Mar 22, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO FOLLOW SURVEILLANCE INSTRUCTION TO REPLACE HPCI STEAM LINE SPACE TEMPERATURE SWITCHES.

The licensee identified a non-cited violation of Technical Specification 5.4.1.a (Procedures) for failure to follow a surveillance instruction to replace HPCI steam line space temperature switches, instead the RCIC steam line space temperature switches were inadvertently replaced.

Inspection Report# : [2001005\(pdf\)](#)

Mitigating Systems

Significance:  Jun 22, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN ADEQUATE PROCEDURES FOR CONTROLLING SAFETY RELATED MAINTENANCE

The licensee identified a non-cited violation of Technical Specification 5.4.1.a, for failure to provide provisions in Work Order 01-009409-000 to ensure that the limit switch wires were clear before installing the cover on motor operated valve 3-MVOP-73-16. Consequentially, control wiring was pinched and parts of the valve were damaged during post-maintenance testing.

Inspection Report# : [2002002\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 01, 2002

Identified By: Licensee

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN COMPLETE AND ACCURATE PERSONNEL DOSE RECORDS

The licensee identified a non-cited violation of 10 CFR 20.401, 10 CFR 20.2106 and 10 CFR 50.9, for failure to maintain accurate records of doses received by all individuals for whom monitoring was required. This finding was not processed under the Reactor Oversight Process and was characterized as a severity level IV violation consistent with Supplement VII of the Enforcement Policy because it involved the accuracy of required records.

Inspection Report# : [2001008\(pdf\)](#)

Public Radiation Safety

Physical Protection



Significance: Jun 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERABILITY OF CONTROL ROOM DOORS

The inspector identified a non-cited violation of Technical Specification 4.5.1.a, for failure to maintain the operability of vital area doors designed to restrict access to the Unit 2 control room as required by the Security Plan. Consequently, the resident inspector was able to gain access to the control room without authorization. This finding was of very low safety significance, because a person could not gain access to the control room undetected, the individual would have already been subjected to access controls to enter the protected area and although the physical barriers to the control room were, at times, not fully functional, the alarm was operable such that if an unauthorized individual entered the control room, the alarm would annunciate and security could respond promptly.

Inspection Report# : [2002002\(pdf\)](#)

Miscellaneous

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : March 25, 2003

Browns Ferry 3

1Q/2003 Plant Inspection Findings

Initiating Events

Mitigating Systems

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Significance:  Jun 22, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO MAINTAIN OPERABILITY OF CONTROL ROOM DOORS

The inspector identified a non-cited violation of Technical Specification 4.5.1.a, for failure to maintain the operability of vital area doors designed to restrict access to the Unit 2 control room as required by the Security Plan. Consequently, the resident inspector was able to gain access to the control room without authorization. This finding was of very low safety significance, because a person could not gain access to the control room undetected, the individual would have already been subjected to access controls to enter the protected area and although the physical barriers to the control room were, at times, not fully functional, the alarm was operable such that if an unauthorized individual entered the control room, the alarm would annunciate and security could respond promptly.

Inspection Report# : [2002002\(pdf\)](#)

Miscellaneous

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : May 30, 2003

Browns Ferry 3

2Q/2003 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Apr 05, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate work control process procedure and poor troubleshooting techniques resulted in the loss of the Unit 3 HPCI.

Green. An inadequate work control authorization process procedure and poor trouble shooting techniques resulted in the failure of Unit 3 High Pressure Coolant Injection System (HPCI). The procedure did not provide specific procedural direction for assessing all possible impacts of the proposed work activity on the associated plant system. A self-revealing non-cited violation of Technical Specification 5.4.1a was identified. This finding is greater than minor because the loss of the HPCI system had an actual impact on safety in that an important mitigating system was not available to respond to postulated events. The finding is of very low safety significance because all other mitigating systems were available to provide core cooling injection.

Inspection Report# : [2003002\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : September 04, 2003

Browns Ferry 3

3Q/2003 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Apr 05, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate work control process procedure and poor troubleshooting techniques resulted in the loss of the Unit 3 HPCI.

Green. An inadequate work control authorization process procedure and poor trouble shooting techniques resulted in the failure of Unit 3 High Pressure Coolant Injection System (HPCI). The procedure did not provide specific procedural direction for assessing all possible impacts of the proposed work activity on the associated plant system.

A self-revealing non-cited violation of Technical Specification 5.4.1a was identified. This finding is greater than minor because the loss of the HPCI system had an actual impact on safety in that an important mitigating system was not available to respond to postulated events. The finding is of very low safety significance because all other mitigating systems were available to provide core cooling injection.

Inspection Report# : [2003002\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : December 01, 2003

Browns Ferry 3

4Q/2003 Plant Inspection Findings

Initiating Events

Significance:  Oct 03, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Changes Made to the Fire Protection Program Regarding Compensatory Fire Watch Implementation Without NRC Approval

A Severity Level IV non-cited violation (NCV) of 10 CFR 50.48(a) and the Unit 2 and 3 Operating License Conditions was identified for a change to the approved fire protection program (FPP) which removed the requirement to implement fire watches for impaired fire protection systems and features. On October 23, 2002, the licensee inappropriately used the fire protection license change process to revise the FPP to permit the removal of fire suppression systems and/or fire rated barrier assemblies, necessary to satisfy the separation and suppression requirements of 10 CFR 50, Appendix R, Section III.G, from service without compensatory measures being implemented (i.e., fire watches being posted) in the affected plant area. The change could adversely affect the ability to achieve and maintain safe shutdown (SSD) in the event of a severe fire in the affected area.

This issue was not assessed in accordance with the SDP but instead was assessed in accordance with guidance in Sections IV.A.1 through IV.A.4 and Section IV.B of the NRC's Enforcement Policy. The issue was significant because the licensee's change process for the FPP allowed this degraded condition to be accepted without prior NRC approval. The inspectors concluded that this issue had a credible impact on safety because the licensee's failure to properly evaluate the removal of fire watch posting requirements could adversely affect or degrade the ability for achieving and maintaining SSD from the main control room, local shutdown stations, or alternate shutdown stations. However, the inspectors determined that this finding was of very low significance because, based on an assessment of the impacts of the identified fire protection features removed from service, the licensee's overall SSD capabilities in the affected fire areas and related FPP features (fire brigade) remained adequate to achieve and maintain SSD conditions. Therefore, this finding is characterized as Green.

Inspection Report# : [2003007\(pdf\)](#)

Mitigating Systems

Significance:  Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Control Rod Drive Pump 3A

Maintenance on Control Rod Drive pump 3A was conducted using an inadequate maintenance procedure. Work practices were inconsistent with the vendor manual. Pump seal clearances were improperly set and during the post maintenance test the pump seal rubbed sufficiently to cause sparking and damage of the new seal.

The inspectors identified a non-cited violation (NCV) (Self-Revealing) of 10 CFR Part 50, Appendix B, Section V,

Instructions, Procedures, and Drawings. The finding is greater than minor in that it affects the mitigating systems cornerstone objective and degrades the attribute of equipment availability and reliability. The finding is of very low safety significance based on the operation of the standby pump and all other mitigation systems were available during the activity.

Inspection Report# : [2003005\(pdf\)](#)

Significance:  Apr 05, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate work control process procedure and poor troubleshooting techniques resulted in the loss of the Unit 3 HPCI.

Green. An inadequate work control authorization process procedure and poor trouble shooting techniques resulted in the failure of Unit 3 High Pressure Coolant Injection System (HPCI). The procedure did not provide specific procedural direction for assessing all possible impacts of the proposed work activity on the associated plant system.

A self-revealing non-cited violation of Technical Specification 5.4.1a was identified. This finding is greater than minor because the loss of the HPCI system had an actual impact on safety in that an important mitigating system was not available to respond to postulated events. The finding is of very low safety significance because all other mitigating systems were available to provide core cooling injection.

Inspection Report# : [2003002\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Nov 21, 2003

Identified By: NRC

Item Type: FIN Finding

Browns Ferry PI&R Inspection Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. The licensee was effective at identifying problems at a low threshold to enter into the Corrective Action Program (CAP). In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, minor problems were identified related to thoroughness of CAP issue documentation and categorization of level D PERs for issues where higher categorization may have been more consistent with the licensee's CAP requirements. The licensee's CAP tracking program output reports were considered paper intensive and a contributor to inefficiencies identified in the area of issue documentation and ability to perform efficient CAP trending.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Although the licensee incorporated a wide variety of root cause techniques, non-uniform root cause report outputs resulted in a cumbersome process for personnel to ensure all contributing causes were being adequately considered for broader corrective actions or extent of condition reviews.

The licensee's periodic self-assessments and audits were effective in identifying deficiencies in the CAP and covered all areas of plant performance. Corrective actions for previous performance examples were being actively monitored within self-assessments and audits of the CAP. Several identified repetitive deficiencies with the CAP that resulted in the issuance of higher level CAP problem reports to address. Overall, the ability to perform self critical assessments was considered an effective program attribute, especially when addressing repetitive human factor performance issues where desired improvements were continuous in nature.

Site management was purposely active and involved in the CAP and focused appropriate attention on significant plant issues. At the Management Review Committee (MRC) meetings, management made frequent modification of Problem Evaluation Report (PER) priorities, PER descriptions, PER root cause determination techniques, and other items to ensure CAP expectations were being implemented.

Based on review of the licensee's Concern Resolution Program and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns.

Initial reviews of the CAP for Unit 1 concluded that the licensee had established adequate processes and measures for including Unit 1 into the CAP at Browns Ferry. Problem identification thresholds were sufficiently low and management was actively involved in implementation of the program in order to instill consistent expectations and improve program efficiencies. Trending of Unit 1 PERs was well established and recent data did not indicate any areas of concern with the current Unit 1 recovery activities.

Inspection Report# : [2003008\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : March 02, 2004

Browns Ferry 3

1Q/2004 Plant Inspection Findings

Initiating Events



Significance: Oct 03, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Changes Made to the Fire Protection Program Regarding Compensatory Fire Watch Implementation Without NRC Approval

A Severity Level IV non-cited violation (NCV) of 10 CFR 50.48(a) and the Unit 2 and 3 Operating License Conditions was identified for a change to the approved fire protection program (FPP) which removed the requirement to implement fire watches for impaired fire protection systems and features. On October 23, 2002, the licensee inappropriately used the fire protection license change process to revise the FPP to permit the removal of fire suppression systems and/or fire rated barrier assemblies, necessary to satisfy the separation and suppression requirements of 10 CFR 50, Appendix R, Section III.G, from service without compensatory measures being implemented (i.e., fire watches being posted) in the affected plant area. The change could adversely affect the ability to achieve and maintain safe shutdown (SSD) in the event of a severe fire in the affected area.

This issue was not assessed in accordance with the SDP but instead was assessed in accordance with guidance in Sections IV.A.1 through IV.A.4 and Section IV.B of the NRC's Enforcement Policy. The issue was significant because the licensee's change process for the FPP allowed this degraded condition to be accepted without prior NRC approval. The inspectors concluded that this issue had a credible impact on safety because the licensee's failure to properly evaluate the removal of fire watch posting requirements could adversely affect or degrade the ability for achieving and maintaining SSD from the main control room, local shutdown stations, or alternate shutdown stations. However, the inspectors determined that this finding was of very low significance because, based on an assessment of the impacts of the identified fire protection features removed from service, the licensee's overall SSD capabilities in the affected fire areas and related FPP features (fire brigade) remained adequate to achieve and maintain SSD conditions. Therefore, this finding is characterized as Green.

Inspection Report# : [2003007\(pdf\)](#)

Mitigating Systems



Significance: Dec 27, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Control Rod Drive Pump 3A

Maintenance on Control Rod Drive pump 3A was conducted using an inadequate maintenance procedure. Work practices were inconsistent with the vendor manual. Pump seal clearances were improperly set and during the post maintenance test the pump seal rubbed sufficiently to cause sparking and damage of the new seal.

The inspectors identified a non-cited violation (NCV) (Self-Revealing) of 10 CFR Part 50, Appendix B, Section V, Instructions, Procedures, and Drawings. The finding is greater than minor in that it affects the mitigating systems cornerstone objective and degrades the attribute of equipment availability and reliability. The finding is of very low safety significance based on the operation of the standby pump and all other mitigation systems were available during the activity.

Inspection Report# : [2003005\(pdf\)](#)



Significance: Apr 05, 2003

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate work control process procedure and poor troubleshooting techniques resulted in the loss of the Unit 3 HPCI.

Green. An inadequate work control authorization process procedure and poor trouble shooting techniques resulted in the failure of Unit 3 High Pressure Coolant Injection System (HPCI). The procedure did not provide specific procedural direction for assessing all possible impacts of the proposed work activity on the associated plant system.

A self-revealing non-cited violation of Technical Specification 5.4.1a was identified. This finding is greater than minor because the loss of the

HPCI system had an actual impact on safety in that an important mitigating system was not available to respond to postulated events. The finding is of very low safety significance because all other mitigating systems were available to provide core cooling injection.

Inspection Report# : [2003002\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety



Significance: Mar 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure That ARMs Are Periodically Calibrated.

The inspectors identified a Non-Cited Violation of 10 CFR 20.1501(b) for failure to ensure that instruments and equipment used for quantitative radiation measurements (e.g., area radiation monitors) were calibrated at an adequate periodicity for the radiation measured.

The inspectors determined that the licensee's failure to ensure that area radiation monitors were calibrated at an appropriate periodicity for the radiation measured was a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone and adversely affects the cornerstone objective attribute to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive material. The finding is of very low safety significance because there are other instrumentation and means to identify degraded operation involving a radioactive material release, and no known operational event occurred during this period.

Inspection Report# : [2004002\(pdf\)](#)

Public Radiation Safety

Physical Protection

Miscellaneous

Significance: N/A Nov 21, 2003

Identified By: NRC

Item Type: FIN Finding

Browns Ferry PI&R Inspection Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. The licensee was effective at identifying problems at a low threshold to enter into the Corrective Action Program (CAP). In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, minor problems were identified related to thoroughness of CAP issue documentation and categorization of level D PERs for issues where higher categorization may have been more consistent with the licensee's CAP requirements. The licensee's CAP tracking program output reports were considered paper intensive and a contributor to inefficiencies identified in the area of issue documentation and ability to perform efficient CAP trending.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Although the licensee incorporated a wide variety of root cause techniques, non-uniform root cause report outputs resulted in a cumbersome process for

personnel to ensure all contributing causes were being adequately considered for broader corrective actions or extent of condition reviews. The licensee's periodic self-assessments and audits were effective in identifying deficiencies in the CAP and covered all areas of plant performance. Corrective actions for previous performance examples were being actively monitored within self-assessments and audits of the CAP. Several identified repetitive deficiencies with the CAP that resulted in the issuance of higher level CAP problem reports to address. Overall, the ability to perform self critical assessments was considered an effective program attribute, especially when addressing repetitive human factor performance issues where desired improvements were continuous in nature.

Site management was purposely active and involved in the CAP and focused appropriate attention on significant plant issues. At the Management Review Committee (MRC) meetings, management made frequent modification of Problem Evaluation Report (PER) priorities, PER descriptions, PER root cause determination techniques, and other items to ensure CAP expectations were being implemented.

Based on review of the licensee's Concern Resolution Program and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns.

Initial reviews of the CAP for Unit 1 concluded that the licensee had established adequate processes and measures for including Unit 1 into the CAP at Browns Ferry. Problem identification thresholds were sufficiently low and management was actively involved in implementation of the program in order to instill consistent expectations and improve program efficiencies. Trending of Unit 1 PERs was well established and recent data did not indicate any areas of concern with the current Unit 1 recovery activities.

Inspection Report# : [2003008\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.


Inspection Report# : [2001002\(pdf\)](#)

Last modified : May 05, 2004

Browns Ferry 3

2Q/2004 Plant Inspection Findings

Initiating Events

Significance:  Oct 03, 2003
Identified By: NRC
Item Type: NCV NonCited Violation


Changes Made to the Fire Protection Program Regarding Compensatory Fire Watch Implementation Without NRC Approval

A Severity Level IV non-cited violation (NCV) of 10 CFR 50.48(a) and the Unit 2 and 3 Operating License Conditions was identified for a change to the approved fire protection program (FPP) which removed the requirement to implement fire watches for impaired fire protection systems and features. On October 23, 2002, the licensee inappropriately used the fire protection license change process to revise the FPP to permit the removal of fire suppression systems and/or fire rated barrier assemblies, necessary to satisfy the separation and suppression requirements of 10 CFR 50, Appendix R, Section III.G, from service without compensatory measures being implemented (i.e., fire watches being posted) in the affected plant area. The change could adversely affect the ability to achieve and maintain safe shutdown (SSD) in the event of a severe fire in the affected area.

This issue was not assessed in accordance with the SDP but instead was assessed in accordance with guidance in Sections IV.A.1 through IV.A.4 and Section IV.B of the NRC's Enforcement Policy. The issue was significant because the licensee's change process for the FPP allowed this degraded condition to be accepted without prior NRC approval. The inspectors concluded that this issue had a credible impact on safety because the licensee's failure to properly evaluate the removal of fire watch posting requirements could adversely affect or degrade the ability for achieving and maintaining SSD from the main control room, local shutdown stations, or alternate shutdown stations. However, the inspectors determined that this finding was of very low significance because, based on an assessment of the impacts of the identified fire protection features removed from service, the licensee's overall SSD capabilities in the affected fire areas and related FPP features (fire brigade) remained adequate to achieve and maintain SSD conditions. Therefore, this finding is characterized as Green.

Inspection Report# : [2003007\(pdf\)](#)

Mitigating Systems

Significance:  Dec 27, 2003
Identified By: NRC
Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Control Rod Drive Pump 3A

Maintenance on Control Rod Drive pump 3A was conducted using an inadequate maintenance procedure. Work practices were inconsistent with the vendor manual. Pump seal clearances were improperly set and during the post maintenance test the pump seal rubbed sufficiently to cause sparking and damage of the new seal.

The inspectors identified a non-cited violation (NCV) (Self-Revealing) of 10 CFR Part 50, Appendix B, Section V, Instructions, Procedures, and Drawings. The finding is greater than minor in that it affects the mitigating systems cornerstone objective and degrades the attribute of equipment availability and reliability. The finding is of very low safety significance based on the operation of the standby pump and all other mitigation systems were available during the activity.

Inspection Report# : [2003005\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 27, 2004
Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure That ARMs Are Periodically Calibrated.

The inspectors identified a Non-Cited Violation of 10 CFR 20.1501(b) for failure to ensure that instruments and equipment used for quantitative radiation measurements (e.g., area radiation monitors) were calibrated at an adequate periodicity for the radiation measured.

The inspectors determined that the licensee's failure to ensure that area radiation monitors were calibrated at an appropriate periodicity for the radiation measured was a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone and adversely affects the cornerstone objective attribute to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive material. The finding is of very low safety significance because there are other instrumentation and means to identify degraded operation involving a radioactive material release, and no known operational event occurred during this period.

Inspection Report# : [2004002\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Nov 21, 2003

Identified By: NRC

Item Type: FIN Finding

Browns Ferry PI&R Inspection Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. The licensee was effective at identifying problems at a low threshold to enter into the Corrective Action Program (CAP). In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, minor problems were identified related to thoroughness of CAP issue documentation and categorization of level D PERs for issues where higher categorization may have been more consistent with the licensee's CAP requirements. The licensee's CAP tracking program output reports were considered paper intensive and a contributor to inefficiencies identified in the area of issue documentation and ability to perform efficient CAP trending.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Although the licensee incorporated a wide variety of root cause techniques, non-uniform root cause report outputs resulted in a cumbersome process for personnel to ensure all contributing causes were being adequately considered for broader corrective actions or extent of condition reviews.

The licensee's periodic self-assessments and audits were effective in identifying deficiencies in the CAP and covered all areas of plant performance. Corrective actions for previous performance examples were being actively monitored within self-assessments and audits of the CAP. Several identified repetitive deficiencies with the CAP that resulted in the issuance of higher level CAP problem reports to address. Overall, the ability to perform self critical assessments was considered an effective program attribute, especially when addressing repetitive human factor performance issues where desired improvements were continuous in nature.

Site management was purposely active and involved in the CAP and focused appropriate attention on significant plant issues. At the Management Review Committee (MRC) meetings, management made frequent modification of Problem Evaluation Report (PER) priorities, PER descriptions, PER root cause determination techniques, and other items to ensure CAP expectations were being implemented.

Based on review of the licensee's Concern Resolution Program and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns.

Initial reviews of the CAP for Unit 1 concluded that the licensee had established adequate processes and measures for including Unit 1 into the CAP at Browns Ferry. Problem identification thresholds were sufficiently low and management was actively involved in implementation of the program in order to instill consistent expectations and improve program efficiencies. Trending of Unit 1 PERs was well established and recent data did not indicate any areas of concern with the current Unit 1 recovery activities.

Inspection Report# : [2003008\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : September 08, 2004

Browns Ferry 3

3Q/2004 Plant Inspection Findings

Initiating Events

Significance:  Oct 03, 2003
Identified By: NRC

Item Type: NCV NonCited Violation

Changes Made to the Fire Protection Program Regarding Compensatory Fire Watch Implementation Without NRC Approval

A Severity Level IV non-cited violation (NCV) of 10 CFR 50.48(a) and the Unit 2 and 3 Operating License Conditions was identified for a change to the approved fire protection program (FPP) which removed the requirement to implement fire watches for impaired fire protection systems and features. On October 23, 2002, the licensee inappropriately used the fire protection license change process to revise the FPP to permit the removal of fire suppression systems and/or fire rated barrier assemblies, necessary to satisfy the separation and suppression requirements of 10 CFR 50, Appendix R, Section III.G, from service without compensatory measures being implemented (i.e., fire watches being posted) in the affected plant area. The change could adversely affect the ability to achieve and maintain safe shutdown (SSD) in the event of a severe fire in the affected area.

This issue was not assessed in accordance with the SDP but instead was assessed in accordance with guidance in Sections IV.A.1 through IV.A.4 and Section IV.B of the NRC's Enforcement Policy. The issue was significant because the licensee's change process for the FPP allowed this degraded condition to be accepted without prior NRC approval. The inspectors concluded that this issue had a credible impact on safety because the licensee's failure to properly evaluate the removal of fire watch posting requirements could adversely affect or degrade the ability for achieving and maintaining SSD from the main control room, local shutdown stations, or alternate shutdown stations. However, the inspectors determined that this finding was of very low significance because, based on an assessment of the impacts of the identified fire protection features removed from service, the licensee's overall SSD capabilities in the affected fire areas and related FPP features (fire brigade) remained adequate to achieve and maintain SSD conditions. Therefore, this finding is characterized as Green.

Inspection Report# : [2003007\(pdf\)](#)

Mitigating Systems

Significance:  Dec 27, 2003
Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Control Rod Drive Pump 3A

Maintenance on Control Rod Drive pump 3A was conducted using an inadequate maintenance procedure. Work practices were inconsistent with the vendor manual. Pump seal clearances were improperly set and during the post maintenance test the pump seal rubbed sufficiently to cause sparking and damage of the new seal.


The inspectors identified a non-cited violation (NCV) (Self-Revealing) of 10 CFR Part 50, Appendix B, Section V, Instructions, Procedures, and Drawings. The finding is greater than minor in that it affects the mitigating systems cornerstone objective and degrades the attribute of equipment availability and reliability. The finding is of very low safety significance based on the operation of the standby pump and all other mitigation systems were available during the activity.

Inspection Report# : [2003005\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety


Significance:  Sep 25, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation

Failure to Implement Adequate Engineering Controls for Airborne Radioactive Material

A self-revealing NCV of 10 CFR 20.1701 was identified for failure to implement adequate engineering controls to limit airborne radioactivity stemming from decontamination activities for the 1C Reactor Water Cleanup (RWCU) Regenerative Heat Exchanger. Specifically, the High Efficiency Particulate Air (HEPA) filtration unit being used during the evolution did not have a HEPA filter cartridge. In addition, the HEPA filtration unit used during this evolution had been selected from the station's common pool of HEPA units. Consequently, this type of event could have occurred on Unit 2 or Unit 3 had the unit been selected for use on one of the other two units.

This finding is more than minor because it adversely affects the Occupational Radiation Safety cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive materials and the attribute of having adequate programs and processes for contamination control. The finding is of very low safety significance because the licensee's three-year rolling average for collective dose is less than 240 person-rem.

Inspection Report# : [2004004\(pdf\)](#)

Significance:  Mar 27, 2004
Identified By: NRC
Item Type: NCV NonCited Violation

Failure to Ensure That ARMs Are Periodically Calibrated.

The inspectors identified a Non-Cited Violation of 10 CFR 20.1501(b) for failure to ensure that instruments and equipment used for quantitative radiation measurements (e.g., area radiation monitors) were calibrated at an adequate periodicity for the radiation measured.

The inspectors determined that the licensee's failure to ensure that area radiation monitors were calibrated at an appropriate periodicity for the radiation measured was a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone and adversely affects the cornerstone objective attribute to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive material. The finding is of very low safety significance because there are other instrumentation and means to identify degraded operation involving a radioactive material release, and no known operational event occurred during this period.

Inspection Report# : [2004002\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Nov 21, 2003
Identified By: NRC
Item Type: FIN Finding

Browns Ferry PI&R Inspection Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. The licensee was effective at identifying problems at a low threshold to enter into the Corrective Action Program (CAP). In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, minor problems were identified related to thoroughness of CAP issue documentation and categorization of level D PERs for issues where higher categorization may have been more consistent with the licensee's CAP requirements. The licensee's CAP tracking program output reports were considered paper intensive and a contributor to inefficiencies identified in the area of issue documentation and ability to perform efficient CAP trending.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Although the

licensee incorporated a wide variety of root cause techniques, non-uniform root cause report outputs resulted in a cumbersome process for personnel to ensure all contributing causes were being adequately considered for broader corrective actions or extent of condition reviews. The licensee's periodic self-assessments and audits were effective in identifying deficiencies in the CAP and covered all areas of plant performance. Corrective actions for previous performance examples were being actively monitored within self-assessments and audits of the CAP. Several identified repetitive deficiencies with the CAP that resulted in the issuance of higher level CAP problem reports to address. Overall, the ability to perform self critical assessments was considered an effective program attribute, especially when addressing repetitive human factor performance issues where desired improvements were continuous in nature.

Site management was purposely active and involved in the CAP and focused appropriate attention on significant plant issues. At the Management Review Committee (MRC) meetings, management made frequent modification of Problem Evaluation Report (PER) priorities, PER descriptions, PER root cause determination techniques, and other items to ensure CAP expectations were being implemented.

Based on review of the licensee's Concern Resolution Program and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns.

Initial reviews of the CAP for Unit 1 concluded that the licensee had established adequate processes and measures for including Unit 1 into the CAP at Browns Ferry. Problem identification thresholds were sufficiently low and management was actively involved in implementation of the program in order to instill consistent expectations and improve program efficiencies. Trending of Unit 1 PERs was well established and recent data did not indicate any areas of concern with the current Unit 1 recovery activities.

Inspection Report# : [2003008\(pdf\)](#)

Significance: SL-II Jun 23, 2001

Identified By: NRC

Item Type: VIO Violation

EMPLOYEE PROTECTED ACTIVITY

On February 7, 2000, a Severity Level II violation with civil penalty was issued to the licensee. The violation was not site-specific and involved employment discrimination contrary to the requirements of 10 CFR 50.7, "Employee Protection," in that the licensee did not select a former employee to a competitive position in the corporate chemistry organization in 1996, due, at least in part, to his engagement in protected activities. On January 22, 2001, the licensee denied the violation and on May 4, an Order was issued sustaining the violation and imposing the civil penalty. On June 1, TVA requested an enforcement hearing on the Order.

Inspection Report# : [2001002\(pdf\)](#)

Last modified : December 29, 2004

Browns Ferry 3

4Q/2004 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2004
Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate Procedures and Poor Human Performance Resulted in a Drop of the Reactor Building Crane Trolley.

A self-revealing NCV was identified for the licensee's failure to comply with 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings. As a result of inadequate procedures and poor human performance, a Reactor Building crane trolley was dropped approximately four feet onto the refuel floor while being rigged.

This finding is greater than minor because it is associated with program and process attributes and affected the objective of the Reactor Safety/Initiating Event Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power operations. In addition, if left uncorrected, this finding would result in a more significant safety concern. This finding was determined to be a finding of very low safety significance because no initiating event or transient actually occurred, there was no permanent structural damage to the refuel floor, there was no functional degradation, and mitigating capability was not affected. The cause of the finding is related to the cross-cutting element of human performance.

Inspection Report# : [2004005\(pdf\)](#)

Mitigating Systems

Significance:  Dec 31, 2004
Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Demonstrate that the RMOV Board 1B Performance Was Effectively Controlled per 10 CFR 50.65 (a)(2).

The inspectors identified an NCV of 10 CFR 50.65 (Maintenance Rule) for failing to demonstrate that the performance of the Reactor Motor-Operated Valve (RMOV) Board 1B was being effectively controlled through the performance of appropriate preventive maintenance such that the system remained capable of performing its intended function. As a result, after it exceeded its Maintenance Rule a(2) performance criteria, the licensee had not established goals nor monitored the performance of the RMOV Board 1B per 10 CFR 50.65a(1).

This finding is more than minor because it affected the reliability objective of the Equipment Performance attribute under the Mitigating Systems Cornerstone. The finding is of very low safety significance because there was no design deficiency, the equipment affected by the board failure either failed in a safe manner or had its redundant equipment functional.

Inspection Report# : [2004005\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Sep 25, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Implement Adequate Engineering Controls for Airborne Radioactive Material

A self-revealing NCV of 10 CFR 20.1701 was identified for failure to implement adequate engineering controls to limit airborne radioactivity stemming from decontamination activities for the 1C Reactor Water Cleanup (RWCU) Regenerative Heat Exchanger. Specifically, the High Efficiency Particulate Air (HEPA) filtration unit being used during the evolution did not have a HEPA filter cartridge. In addition, the HEPA filtration unit used during this evolution had been selected from the station's common pool of HEPA units. Consequently, this type of event could have occurred on Unit 2 or Unit 3 had the unit been selected for use on one of the other two units.

This finding is more than minor because it adversely affects the Occupational Radiation Safety cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive materials and the attribute of having adequate programs and processes for contamination control. The finding is of very low safety significance because the licensee's three-year rolling average for collective dose is less than 240 person-rem.

Inspection Report# : [2004004\(pdf\)](#)

G

Significance: Mar 27, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Ensure That ARMs Are Periodically Calibrated.

The inspectors identified a Non-Cited Violation of 10 CFR 20.1501(b) for failure to ensure that instruments and equipment used for quantitative radiation measurements (e.g., area radiation monitors) were calibrated at an adequate periodicity for the radiation measured.

The inspectors determined that the licensee's failure to ensure that area radiation monitors were calibrated at an appropriate periodicity for the radiation measured was a performance deficiency. This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone and adversely affects the cornerstone objective attribute to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive material. The finding is of very low safety significance because there are other instrumentation and means to identify degraded operation involving a radioactive material release, and no known operational event occurred during this period.

Inspection Report# : [2004002\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Last modified : March 09, 2005

Browns Ferry 3

1Q/2005 Plant Inspection Findings

Initiating Events

G**Significance:** Mar 31, 2005

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Follow Clearance Tag Procedure Results in a Reactor Scram

Green. A self-revealing NCV was identified for the failure to comply with Unit 3 Technical Specification 5.4.1, Procedures, specifically SPP-10.2, Clearance Program. As a result of failing to correctly implement the procedure during switchyard tagging removal, a Unit 3 reactor scram occurred.

This finding is greater than minor because it affected the human performance attribute of the Initiating Events Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at-power operations. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because all plant systems operated as designed following the scram. This finding involved the cross-cutting aspect of Human Performance.

Inspection Report# : [2005002\(pdf\)](#)**G****Significance:** Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate Procedures and Poor Human Performance Resulted in a Drop of the Reactor Building Crane Trolley.

A self-revealing NCV was identified for the licensee's failure to comply with 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings. As a result of inadequate procedures and poor human performance, a Reactor Building crane trolley was dropped approximately four feet onto the refuel floor while being rigged.

This finding is greater than minor because it is associated with program and process attributes and affected the objective of the Reactor Safety/Initiating Event Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power operations. In addition, if left uncorrected, this finding would result in a more significant safety concern. This finding was determined to be a finding of very low safety significance because no initiating event or transient actually occurred, there was no permanent structural damage to the refuel floor, there was no functional degradation, and mitigating capability was not affected. The cause of the finding is related to the cross-cutting element of human performance.

Inspection Report# : [2004005\(pdf\)](#)

Mitigating Systems

G**Significance:** Mar 31, 2005

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Adequately Implement the Inservice Testing Program.

Green. A self-revealing NCV was identified for the Failure to Comply with Unit 3 TS 5.5.6, Inservice Testing Program, specifically 3-SI-3.2.3, Testing ASME Section XI Check Valves. As a result of failing to follow procedures, a common cause failure was not addressed, resulting in Unit 2 operating with multiple stuck open Service Water inlet check valves to Residual Heat Removal (RHR) Heat Exchangers for a period of time in excess of one year.

This finding is greater than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because the accident analysis did not specifically credit the closure function of these check valves. However, 10 CFR 50.55a required, in part, that both opening and closing functions be demonstrated even when the close function is not credited. The cause of this finding involved the cross-cutting aspect of Human Performance due to the failure to properly follow the written guidance of the surveillance instruction.

Inspection Report# : [2005002\(pdf\)](#)

Significance:  Dec 31, 2004
Identified By: NRC
Item Type: NCV NonCited Violation

Failure to Demonstrate that the RMOV Board 1B Performance Was Effectively Controlled per 10 CFR 50.65 (a)(2).

The inspectors identified an NCV of 10 CFR 50.65 (Maintenance Rule) for failing to demonstrate that the performance of the Reactor Motor-Operated Valve (RMOV) Board 1B was being effectively controlled through the performance of appropriate preventive maintenance such that the system remained capable of performing its intended function. As a result, after it exceeded its Maintenance Rule a(2) performance criteria, the licensee had not established goals nor monitored the performance of the RMOV Board 1B per 10 CFR 50.65a(1).


This finding is more than minor because it affected the reliability objective of the Equipment Performance attribute under the Mitigating Systems Cornerstone. The finding is of very low safety significance because there was no design deficiency, the equipment affected by the board failure either failed in a safe manner or had its redundant equipment functional.

Inspection Report# : [2004005\(pdf\)](#)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Sep 25, 2004
Identified By: Self Disclosing
Item Type: NCV NonCited Violation

Failure to Implement Adequate Engineering Controls for Airborne Radioactive Material

A self-revealing NCV of 10 CFR 20.1701 was identified for failure to implement adequate engineering controls to limit airborne radioactivity stemming from decontamination activities for the 1C Reactor Water Cleanup (RWCU) Regenerative Heat Exchanger. Specifically, the High Efficiency Particulate Air (HEPA) filtration unit being used during the evolution did not have a HEPA filter cartridge. In addition, the HEPA filtration unit used during this evolution had been selected from the station's common pool of HEPA units. Consequently, this type of event could have occurred on Unit 2 or Unit 3 had the unit been selected for use on one of the other two units.

This finding is more than minor because it adversely affects the Occupational Radiation Safety cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive materials and the attribute of having adequate programs and processes for contamination control. The finding is of very low safety significance because the licensee's three-year rolling average for collective dose is less than 240 person-rem.

Inspection Report# : [2004004\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Last modified : June 17, 2005

Browns Ferry 3

2Q/2005 Plant Inspection Findings

Initiating Events

G**Significance:** Mar 31, 2005

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Follow Clearance Tag Procedure Results in a Reactor Scram

Green. A self-revealing NCV was identified for the failure to comply with Unit 3 Technical Specification 5.4.1, Procedures, specifically SPP-10.2, Clearance Program. As a result of failing to correctly implement the procedure during switchyard tagging removal, a Unit 3 reactor scram occurred.

This finding is greater than minor because it affected the human performance attribute of the Initiating Events Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at-power operations. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because all plant systems operated as designed following the scram. This finding involved the cross-cutting aspect of Human Performance.

Inspection Report# : [2005002\(pdf\)](#)**G****Significance:** Dec 31, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Inadequate Procedures and Poor Human Performance Resulted in a Drop of the Reactor Building Crane Trolley.

A self-revealing NCV was identified for the licensee's failure to comply with 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings. As a result of inadequate procedures and poor human performance, a Reactor Building crane trolley was dropped approximately four feet onto the refuel floor while being rigged.

This finding is greater than minor because it is associated with program and process attributes and affected the objective of the Reactor Safety/Initiating Event Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power operations. In addition, if left uncorrected, this finding would result in a more significant safety concern. This finding was determined to be a finding of very low safety significance because no initiating event or transient actually occurred, there was no permanent structural damage to the refuel floor, there was no functional degradation, and mitigating capability was not affected. The cause of the finding is related to the cross-cutting element of human performance.

Inspection Report# : [2004005\(pdf\)](#)

Mitigating Systems

G**Significance:** Mar 31, 2005

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Adequately Implement the Inservice Testing Program.

Green. A self-revealing NCV was identified for the Failure to Comply with Unit 3 TS 5.5.6, Inservice Testing Program, specifically 3-SI-3.2.3, Testing ASME Section XI Check Valves. As a result of failing to follow procedures, a common cause failure was not addressed, resulting in Unit 2 operating with multiple stuck open Service Water inlet check valves to Residual Heat Removal (RHR) Heat Exchangers for a period of time in excess of one year.

This finding is greater than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because the accident analysis did not specifically credit the closure function of these check valves. However, 10 CFR 50.55a required, in part, that both opening and closing functions be demonstrated even when the close function is not credited. The cause of this finding involved the cross-cutting aspect of Human Performance due to the failure to properly follow the written guidance of the surveillance instruction.

Inspection Report# : [2005002\(pdf\)](#)

Significance:  Dec 31, 2004
Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Demonstrate that the RMOV Board 1B Performance Was Effectively Controlled per 10 CFR 50.65 (a)(2).

The inspectors identified an NCV of 10 CFR 50.65 (Maintenance Rule) for failing to demonstrate that the performance of the Reactor Motor-Operated Valve (RMOV) Board 1B was being effectively controlled through the performance of appropriate preventive maintenance such that the system remained capable of performing its intended function. As a result, after it exceeded its Maintenance Rule a(2) performance criteria, the licensee had not established goals nor monitored the performance of the RMOV Board 1B per 10 CFR 50.65a(1).

This finding is more than minor because it affected the reliability objective of the Equipment Performance attribute under the Mitigating Systems Cornerstone. The finding is of very low safety significance because there was no design deficiency, the equipment affected by the board failure either failed in a safe manner or had its redundant equipment functional.

Inspection Report# : [2004005\(pdf\)](#)

Barrier Integrity

Significance:  Jun 30, 2005
Identified By: NRC

Item Type: NCV NonCited Violation

Untimely and Ineffective Corrective Actions To Ensure RHR Keep Fill Containment Isolation Valves Fulfill Their Safety Function Per 10 CFR 50.65 (a)(1)

The inspectors identified a non-cited violation of 10CFR50.65(a)(1) in which the licensee has failed to implement timely and effective corrective actions to preclude multiple, repetitive failures of containment isolation valves in the Unit 2 and 3 Residual Heat Removal (RHR) Keep Fill System. These failures ultimately resulted in the failure of two containment isolation valves simultaneously for the same penetration, which created an open pathway from containment and a consequential loss of the maintenance rule safety function. Licensee monitoring and corrective actions per 10 CFR 50.65(a)(1) were ineffective at ensuring that containment isolation valves in the RHR Keep Fill System were capable of performing their intended safety function.

The finding is greater than minor because if left uncorrected it would become a more significant safety concern and because it affected the Containment Isolation SSC Reliability objective of the SSC and Barrier Performance attribute under the Barrier Integrity Cornerstone. The finding was assessed using the SDP, Manual Chapter 0609, Appendix H, Table 4.1. This assessment determined the finding to be of very low safety significance because, in the case of the most consequential containment isolation valve failures, the associated pathway was a small (i.e., 2-inch) line and would not have significantly contributed to Large Early Release Frequency (LERF). This finding had cross-cutting aspects associated with Problem Identification and Resolution.

Inspection Report# : [2005003\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2005
Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Two Examples of Failure to Comply with Radiation Work Permit Requirements

The inspectors reviewed two examples of a self-revealing, non-cited violation of TS 5.4.1 for the failure of workers to comply with radiation work permit (RWP) requirements. The first example occurred on March 22, 2004, when an operator entered a posted high radiation area on an RWP that did not allow entry into high radiation areas. The operator received a electronic dosimeter dose rate alarm. Radiation dose rates in the area were 600 mrem per hour on contact and 300 mrem per hour at 30 cm from the radiation source. The second example occurred on October 4, 2004, when a craft worker entered an area in the overhead, greater than 6 feet, of the Unit 1 reactor building 593-foot elevation without contacting radiation protection personnel as required by the RWP. The worker did not review the planned work with radiation protection personnel prior to entry and did not monitor electronic dosimetry prior to reaching the dose alarm setpoint. A survey of the overhead area indicated dose rates of 200 mrem per hour on contact, 60 mrem per hour at 30 cm, and 25 mrem per hour general area from overhead piping. The finding is greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of program and

process and it affected the associated cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had cross-cutting aspects associated with human performance when personnel failed to follow radiation work permit instructions.

Inspection Report# : [2005003\(pdf\)](#)

G

Significance: Nov 24, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Barricade, Conspicuously Post, and Control a High Radiation Area

The inspectors reviewed a self-revealing, non-cited violation of TS 5.7.1 resulting when operations personnel failed to inform radiation protection personnel of the operation of the waste backwash transfer pump which caused an increase in dose rates to high radiation area levels. Specifically, on November 24, 2004, a radwaste operator received an electronic dosimeter dose rate alarm when he entered the waste surge and collector pump room on the 546-foot elevation of the radwaste building. The operator entered an area with dose rates of 159 mrem per hour and received a dose of 5 mrem from the entry. A survey of the area showed contact dose rates with overhead piping were as high as 2500 mrem per hour, with general area dose rates of 300 mrem per hour.

The finding is greater than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of exposure control and it affected the associated cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. The cause of this finding had cross-cutting aspects associated with human performance.

Inspection Report# : [2005003\(pdf\)](#)

G

Significance: Sep 25, 2004

Identified By: Self Disclosing

Item Type: NCV NonCited Violation

Failure to Implement Adequate Engineering Controls for Airborne Radioactive Material

A self-revealing NCV of 10 CFR 20.1701 was identified for failure to implement adequate engineering controls to limit airborne radioactivity stemming from decontamination activities for the 1C Reactor Water Cleanup (RWCU) Regenerative Heat Exchanger. Specifically, the High Efficiency Particulate Air (HEPA) filtration unit being used during the evolution did not have a HEPA filter cartridge. In addition, the HEPA filtration unit used during this evolution had been selected from the station's common pool of HEPA units. Consequently, this type of event could have occurred on Unit 2 or Unit 3 had the unit been selected for use on one of the other two units.

This finding is more than minor because it adversely affects the Occupational Radiation Safety cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation from radioactive materials and the attribute of having adequate programs and processes for contamination control. The finding is of very low safety significance because the licensee's three-year rolling average for collective dose is less than 240 person-rem.

Inspection Report# : [2004004\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.


Miscellaneous

Last modified : August 24, 2005

Browns Ferry 3

3Q/2005 Plant Inspection Findings

Initiating Events


Significance:  Mar 31, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation

Failure to Follow Clearance Tag Procedure Results in a Reactor Scram

Green. A self-revealing NCV was identified for the failure to comply with Unit 3 Technical Specification 5.4.1, Procedures, specifically SPP-10.2, Clearance Program. As a result of failing to correctly implement the procedure during switchyard tagging removal, a Unit 3 reactor scram occurred.

This finding is greater than minor because it affected the human performance attribute of the Initiating Events Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at-power operations. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because all plant systems operated as designed following the scram. This finding involved the cross-cutting aspect of Human Performance.

Inspection Report# : [2005002\(pdf\)](#)

Significance:  Dec 31, 2004
Identified By: Self-Revealing
Item Type: NCV NonCited Violation


Inadequate Procedures and Poor Human Performance Resulted in a Drop of the Reactor Building Crane Trolley.

A self-revealing NCV was identified for the licensee's failure to comply with 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings. As a result of inadequate procedures and poor human performance, a Reactor Building crane trolley was dropped approximately four feet onto the refuel floor while being rigged.

This finding is greater than minor because it is associated with program and process attributes and affected the objective of the Reactor Safety/Initiating Event Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power operations. In addition, if left uncorrected, this finding would result in a more significant safety concern. This finding was determined to be a finding of very low safety significance because no initiating event or transient actually occurred, there was no permanent structural damage to the refuel floor, there was no functional degradation, and mitigating capability was not affected. The cause of the finding is related to the cross-cutting element of human performance.

Inspection Report# : [2004005\(pdf\)](#)

Mitigating Systems

Significance:  Mar 31, 2005
Identified By: Self-Revealing
Item Type: NCV NonCited Violation

Failure to Adequately Implement the Inservice Testing Program.

Green. A self-revealing NCV was identified for the Failure to Comply with Unit 3 TS 5.5.6, Inservice Testing Program, specifically 3-SI-3.2.3, Testing ASME Section XI Check Valves. As a result of failing to follow procedures, a common cause failure was not addressed, resulting in Unit 2 operating with multiple stuck open Service Water inlet check valves to Residual Heat Removal (RHR) Heat Exchangers for a period of time in excess of one year.

This finding is greater than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because the accident analysis did not specifically credit the closure function of these check valves. However, 10 CFR 50.55a required, in part, that both opening and closing functions be demonstrated even when the close function is not credited. The cause of this finding involved the cross-cutting aspect of Human Performance due to the failure to properly follow the written guidance of the surveillance instruction.

Inspection Report# : [2005002\(pdf\)](#)

Significance:  Dec 31, 2004
Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Demonstrate that the RMOV Board 1B Performance Was Effectively Controlled per 10 CFR 50.65 (a)(2).

The inspectors identified an NCV of 10 CFR 50.65 (Maintenance Rule) for failing to demonstrate that the performance of the Reactor Motor-Operated Valve (RMOV) Board 1B was being effectively controlled through the performance of appropriate preventive maintenance such that the system remained capable of performing its intended function. As a result, after it exceeded its Maintenance Rule a(2) performance criteria, the licensee had not established goals nor monitored the performance of the RMOV Board 1B per 10 CFR 50.65a(1).

This finding is more than minor because it affected the reliability objective of the Equipment Performance attribute under the Mitigating Systems Cornerstone. The finding is of very low safety significance because there was no design deficiency, the equipment affected by the board failure either failed in a safe manner or had its redundant equipment functional.

Inspection Report# : [2004005\(pdf\)](#)

Barrier Integrity

Significance:  Jun 30, 2005
Identified By: NRC

Item Type: NCV NonCited Violation

Untimely and Ineffective Corrective Actions To Ensure RHR Keep Fill Containment Isolation Valves Fulfill Their Safety Function Per 10 CFR 50.65 (a)(1)

The inspectors identified a non-cited violation of 10CFR50.65(a)(1) in which the licensee has failed to implement timely and effective corrective actions to preclude multiple, repetitive failures of containment isolation valves in the Unit 2 and 3 Residual Heat Removal (RHR) Keep Fill System. These failures ultimately resulted in the failure of two containment isolation valves simultaneously for the same penetration, which created an open pathway from containment and a consequential loss of the maintenance rule safety function. Licensee monitoring and corrective actions per 10 CFR 50.65(a)(1) were ineffective at ensuring that containment isolation valves in the RHR Keep Fill System were capable of performing their intended safety function.

The finding is greater than minor because if left uncorrected it would become a more significant safety concern and because it affected the Containment Isolation SSC Reliability objective of the SSC and Barrier Performance attribute under the Barrier Integrity Cornerstone. The finding was assessed using the SDP, Manual Chapter 0609, Appendix H, Table 4.1. This assessment determined the finding to be of very low safety significance because, in the case of the most consequential containment isolation valve failures, the associated pathway was a small (i.e., 2-inch) line and would not have significantly contributed to Large Early Release Frequency (LERF). This finding had cross-cutting aspects associated with Problem Identification and Resolution.

Inspection Report# : [2005003\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2005
Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Two Examples of Failure to Comply with Radiation Work Permit Requirements

The inspectors reviewed two examples of a self-revealing, non-cited violation of TS 5.4.1 for the failure of workers to comply with radiation work permit (RWP) requirements. The first example occurred on March 22, 2004, when an operator entered a posted high radiation area on an RWP that did not allow entry into high radiation areas. The operator received a electronic dosimeter dose rate alarm. Radiation dose rates in the area were 600 mrem per hour on contact and 300 mrem per hour at 30 cm from the radiation source. The second example occurred on October 4, 2004, when a craft worker entered an area in the overhead, greater than 6 feet, of the Unit 1 reactor building 593-foot elevation without contacting radiation protection personnel as required by the RWP. The worker did not review the planned work with radiation protection personnel prior to entry and did not monitor electronic dosimetry prior to reaching the dose alarm setpoint. A survey of the overhead area indicated dose rates of 200 mrem per hour on contact, 60 mrem per hour at 30 cm, and 25 mrem per hour general area from overhead piping. The finding is greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of program and

process and it affected the associated cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had cross-cutting aspects associated with human performance when personnel failed to follow radiation work permit instructions.

Inspection Report# : [2005003\(pdf\)](#)

G

Significance: Nov 24, 2004

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Barricade, Conspicuously Post, and Control a High Radiation Area

The inspectors reviewed a self-revealing, non-cited violation of TS 5.7.1 resulting when operations personnel failed to inform radiation protection personnel of the operation of the waste backwash transfer pump which caused an increase in dose rates to high radiation area levels. Specifically, on November 24, 2004, a radwaste operator received an electronic dosimeter dose rate alarm when he entered the waste surge and collector pump room on the 546-foot elevation of the radwaste building. The operator entered an area with dose rates of 159 mrem per hour and received a dose of 5 mrem from the entry. A survey of the area showed contact dose rates with overhead piping were as high as 2500 mrem per hour, with general area dose rates of 300 mrem per hour.

The finding is greater than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of exposure control and it affected the associated cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve: (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. The cause of this finding had cross-cutting aspects associated with human performance.

Inspection Report# : [2005003\(pdf\)](#)

G

Significance: Feb 04, 2004

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Control a High Radiation Area with Dose Rates Greater than 1.0 Rem Per Hour

The inspectors reviewed a self-revealing, non-cited violation of Technical Specification (TS) 5.7.2 resulting from the licensee's failure to properly control a high radiation area with dose rates greater than 1.0 rem per hour at 30 centimeters (cm) from the source. Specifically, on February 5, 2004, an operator entered the waste backwash transfer pump room on the 546-foot elevation of the radwaste building and received a electronic dosimeter dose rate alarm. A survey of the area identified dose rates of 10,000 millirem (mrem) per hour on contact and 1500 mrem per hour at 30 cm on a section of pipe. The area was immediately controlled as a locked high radiation area.

The finding is greater than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of exposure control and it affected the associated cornerstone objective to ensure the adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve: (1) As Low As Reasonably Achievable (ALARA) planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose.

Inspection Report# : [2005003\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Last modified : November 30, 2005

Browns Ferry 3

4Q/2005 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: FIN Finding

Requalification Program Simulator Exam Grading Error Resulted In Unidentified Individual Failure

Green. The inspectors identified a finding for licensee grading errors which resulted in a failure to identify an individual performance issue that would have resulted in an operational test failure during a biennial operating test requalification examination.

The finding is more than minor because if left uncorrected, it would allow less-than-competent operators to continue licensed duties and it affected the human performance attribute of the Initiating Event Cornerstone. The inspectors evaluated the finding using MC 0609, Significance Determination Process, Appendix I. Using the Operator Requalification Human Performance SDP flow chart, the finding involved the licensee's grading of an exam, in which the licensee failed to identify an individual performance issue which would have resulted in an operational test failure. Per the SDP flowchart, this finding is of low safety significance because it is likely that a single operator's potential error would be prevented or mitigated by the rest of the crew. (Section 1R11)

Inspection Report# : [2005005\(pdf\)](#)

Significance:  Nov 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Three Examples of Inadequate Implementation of Corrective Actions

The inspectors identified a finding involving a non-cited violation (NCV), with three examples, of 10 CFR 50, Appendix B, Criterion XVI, for inadequate implementation of corrective actions for two previously identified NCVs. The previous NCVs were associated with rigging deficiencies that resulted in the drop of a Reactor Building crane trolley and with a human performance error that resulted in the loss of a 480-volt Shutdown Board and inadvertent start of emergency equipment.

The finding was more than minor because it is associated with the Procedure Quality attribute and objective of the Reactor Safety/Initiating Event Cornerstone. In addition, if left uncorrected, this finding would result in a more significant safety concern because the failure to implement the corrective actions for the NCVs would result in more significant safety concerns. This finding was determined to be of very low safety significance because no related examples of significant rigging deficiencies or loss of power to shutdown boards caused by relay calibrations have occurred as a result of the inadequate implementation of corrective actions. The cause for all three examples were determined to affect the PI&R crosscutting area.

Inspection Report# : [2005011\(pdf\)](#)

Significance:  Mar 31, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Follow Clearance Tag Procedure Results in a Reactor Scram

Green. A self-revealing NCV was identified for the failure to comply with Unit 3 Technical Specification 5.4.1, Procedures, specifically SPP-10.2, Clearance Program. As a result of failing to correctly implement the procedure during switchyard tagging removal, a Unit 3 reactor scram occurred.

This finding is greater than minor because it affected the human performance attribute of the Initiating Events Cornerstone to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at-power operations. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because all plant systems operated as designed following the scram. This finding involved the cross-cutting aspect of Human Performance.

Inspection Report# : [2005002\(pdf\)](#)

Mitigating Systems

Significance:  Mar 31, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Adequately Implement the Inservice Testing Program.

Green. A self-revealing NCV was identified for the Failure to Comply with Unit 3 TS 5.5.6, Inservice Testing Program, specifically 3-SI-3.2.3, Testing ASME Section XI Check Valves. As a result of failing to follow procedures, a common cause failure was not addressed, resulting in Unit 2 operating with multiple stuck open Service Water inlet check valves to Residual Heat Removal (RHR) Heat Exchangers for a period of time in excess of one year.

This finding is greater than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using the SDP and was determined to be a finding of very low safety significance because the accident analysis did not specifically credit the closure function of these check valves. However, 10 CFR 50.55a required, in part, that both opening and closing functions be demonstrated even when the close function is not credited. The cause of this finding involved the cross-cutting aspect of Human Performance due to the failure to properly follow the written guidance of the surveillance instruction.

Inspection Report# : [2005002\(pdf\)](#)

Barrier Integrity

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure in Response to Automatic Rod Blocks

Green. The inspectors identified a non-cited violation of Technical Specifications 5.4.1.a when reactor operators failed to adequately implement all required procedural steps of 3-ARP-9-5A for Rod Block Monitor High, and 3-OI-92C, Rod Block Monitor, on numerous occasions when automatic rod blocks occurred during continuous rod withdrawals for Unit 3 power ascension.

The finding is more than minor because, if left uncorrected, it would result in a more serious safety concern during an actual rod withdrawal error event, and it affected the human performance attribute for maintaining fuel clad functionality of the Barrier Integrity Cornerstone. However, this finding is of very low safety significance because the minimum critical power ratio safety limit was not violated or approached, and the associated control rods were withdrawn per the required sequence and not in error. The operators' failure to recognize and follow their annunciator response procedures was a cause of the finding and directly involved cross cutting aspects of Human Performance. (Section 1R14)

Inspection Report# : [2005005\(pdf\)](#)

Significance:  Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely and Ineffective Corrective Actions To Ensure RHR Keep Fill Containment Isolation Valves Fulfill Their Safety Function Per 10 CFR 50.65 (a)(1)

The inspectors identified a non-cited violation of 10CFR50.65(a)(1) in which the licensee has failed to implement timely and effective corrective actions to preclude multiple, repetitive failures of containment isolation valves in the Unit 2 and 3 Residual Heat Removal (RHR) Keep Fill System. These failures ultimately resulted in the failure of two containment isolation valves simultaneously for the same penetration, which created an open pathway from containment and a consequential loss of the maintenance rule safety function. Licensee monitoring and corrective actions per 10 CFR 50.65(a)(1) were ineffective at ensuring that containment isolation valves in the RHR Keep Fill System were capable of performing their intended safety function.

The finding is greater than minor because if left uncorrected it would become a more significant safety concern and because it affected the Containment Isolation SSC Reliability objective of the SSC and Barrier Performance attribute under the Barrier Integrity Cornerstone. The finding was assessed using the SDP, Manual Chapter 0609, Appendix H, Table 4.1. This assessment determined the finding to be of very low safety significance because, in the case of the most consequential containment isolation valve failures, the associated pathway was a small (i.e., 2-inch) line and would not have significantly contributed to Large Early Release Frequency (LERF). This finding had cross-cutting aspects associated with Problem Identification and Resolution.

Inspection Report# : [2005003\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Two Examples of Failure to Comply with Radiation Work Permit Requirements

The inspectors reviewed two examples of a self-revealing, non-cited violation of TS 5.4.1 for the failure of workers to comply with radiation work permit (RWP) requirements. The first example occurred on March 22, 2004, when an operator entered a posted high radiation area on an RWP that did not allow entry into high radiation areas. The operator received a electronic dosimeter dose rate alarm. Radiation dose rates in the area were 600 mrem per hour on contact and 300 mrem per hour at 30 cm from the radiation source. The second example occurred on October 4, 2004, when a craft worker entered an area in the overhead, greater than 6 feet, of the Unit 1 reactor building 593-foot elevation without contacting radiation protection personnel as required by the RWP. The worker did not review the planned work with radiation protection personnel prior to entry and did not monitor electronic dosimetry prior to reaching the dose alarm setpoint. A survey of the overhead area indicated dose rates of 200 mrem per hour on contact, 60 mrem per hour at 30 cm, and 25 mrem per hour general area from overhead piping. The finding is greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of program and process and it affected the associated cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had cross-cutting aspects associated with human performance when personnel failed to follow radiation work permit instructions.

Inspection Report# : [2005003\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Nov 18, 2005

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution (PI&R) Inspection - U2/3 Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. Site management was purposely active and involved in the Corrective Action Program (CAP) and focused appropriate attention on significant plant issues. The licensee was effective at identifying problems at a low threshold and entering them into the CAP. In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, several issues were identified related to ineffective implementation of corrective actions for previously identified NRC violations and other corrective action issues identified by the licensee.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Improvement was noted in management oversight to ensure all contributing causes were being adequately considered for broader corrective actions, extent of condition reviews, and enhanced trending.

Self-assessments, audits performed by the Nuclear Assurance (NA) organization, and Multi-site CAP Self-Assessments, were effective in identifying issues and entering them into the CAP. These audits and self-assessments were self-critical and identified substantive issues, numerous lower level problems, and areas that needed improvement. The audits and self-assessments reviewed appeared to be comprehensive and thorough. However, several identified repeat issues from previous self-assessments and audits in which prior corrective actions had proven ineffective. Although new Problem Evaluation Reports (PERs) were issued to address each specific repetitive problem, the licensee did not always clearly delineate the repeat nature of the PER and thereby lost an opportunity to bring additional attention to the problem or take action to determine why the previous corrective actions were ineffective.

Based on review of the licensee's Concerns Resolution Program (CRP) and discussions conducted with plant employees from various

departments, the inspectors did not identify any reluctance to report safety concerns. Increased program usage in conjunction with the increase in Unit 1 recovery activities was being adequately managed. Based on the samples reviewed, the depth of issue evaluations were adequate to address the identified concerns raised to the CRP. Oversight of contractor CRPs was being implemented in an appropriate manner.

Inspection Report# : [2005011](#)(pdf)

Last modified : March 03, 2006

Browns Ferry 3

1Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: FIN Finding

Requalification Program Simulator Exam Grading Error Resulted In Unidentified Individual Failure

Green. The inspectors identified a finding for licensee grading errors which resulted in a failure to identify an individual performance issue that would have resulted in an operational test failure during a biennial operating test requalification examination.

The finding is more than minor because if left uncorrected, it would allow less-than-competent operators to continue licensed duties and it affected the human performance attribute of the Initiating Event Cornerstone. The inspectors evaluated the finding using MC 0609, Significance Determination Process, Appendix I. Using the Operator Requalification Human Performance SDP flow chart, the finding involved the licensee's grading of an exam, in which the licensee failed to identify an individual performance issue which would have resulted in an operational test failure. Per the SDP flowchart, this finding is of low safety significance because it is likely that a single operator's potential error would be prevented or mitigated by the rest of the crew. (Section 1R11)

Inspection Report# : [2005005\(pdf\)](#)

Significance:  Nov 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Three Examples of Inadequate Implementation of Corrective Actions

The inspectors identified a finding involving a non-cited violation (NCV), with three examples, of 10 CFR 50, Appendix B, Criterion XVI, for inadequate implementation of corrective actions for two previously identified NCVs. The previous NCVs were associated with rigging deficiencies that resulted in the drop of a Reactor Building crane trolley and with a human performance error that resulted in the loss of a 480-volt Shutdown Board and inadvertent start of emergency equipment.

The finding was more than minor because it is associated with the Procedure Quality attribute and objective of the Reactor Safety/Initiating Event Cornerstone. In addition, if left uncorrected, this finding would result in a more significant safety concern because the failure to implement the corrective actions for the NCVs would result in more significant safety concerns. This finding was determined to be of very low safety significance because no related examples of significant rigging deficiencies or loss of power to shutdown boards caused by relay calibrations have occurred as a result of the inadequate implementation of corrective actions. The cause for all three examples were determined to affect the PI&R crosscutting area.

Inspection Report# : [2005011\(pdf\)](#)

Mitigating Systems

Barrier Integrity

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure in Response to Automatic Rod Blocks

Green. The inspectors identified a non-cited violation of Technical Specifications 5.4.1.a when reactor operators failed to adequately implement all required procedural steps of 3-ARP-9-5A for Rod Block Monitor High, and 3-OI-92C, Rod Block Monitor, on numerous occasions when automatic rod blocks occurred during continuous rod withdrawals for Unit 3 power ascension.

The finding is more than minor because, if left uncorrected, it would result in a more serious safety concern during an actual rod withdrawal

error event, and it affected the human performance attribute for maintaining fuel clad functionality of the Barrier Integrity Cornerstone. However, this finding is of very low safety significance because the minimum critical power ratio safety limit was not violated or approached, and the associated control rods were withdrawn per the required sequence and not in error. The operators' failure to recognize and follow their annunciator response procedures was a cause of the finding and directly involved cross cutting aspects of Human Performance. (Section 1R14) Inspection Report# : [2005005\(pdf\)](#)

G

Significance: Jun 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely and Ineffective Corrective Actions To Ensure RHR Keep Fill Containment Isolation Valves Fulfill Their Safety Function Per 10 CFR 50.65 (a)(1)

The inspectors identified a non-cited violation of 10CFR50.65(a)(1) in which the licensee has failed to implement timely and effective corrective actions to preclude multiple, repetitive failures of containment isolation valves in the Unit 2 and 3 Residual Heat Removal (RHR) Keep Fill System. These failures ultimately resulted in the failure of two containment isolation valves simultaneously for the same penetration, which created an open pathway from containment and a consequential loss of the maintenance rule safety function. Licensee monitoring and corrective actions per 10 CFR 50.65(a)(1) were ineffective at ensuring that containment isolation valves in the RHR Keep Fill System were capable of performing their intended safety function.

The finding is greater than minor because if left uncorrected it would become a more significant safety concern and because it affected the Containment Isolation SSC Reliability objective of the SSC and Barrier Performance attribute under the Barrier Integrity Cornerstone. The finding was assessed using the SDP, Manual Chapter 0609, Appendix H, Table 4.1. This assessment determined the finding to be of very low safety significance because, in the case of the most consequential containment isolation valve failures, the associated pathway was a small (i.e., 2-inch) line and would not have significantly contributed to Large Early Release Frequency (LERF). This finding had cross-cutting aspects associated with Problem Identification and Resolution.

Inspection Report# : [2005003\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

G

Significance: Jun 30, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Two Examples of Failure to Comply with Radiation Work Permit Requirements

The inspectors reviewed two examples of a self-revealing, non-cited violation of TS 5.4.1 for the failure of workers to comply with radiation work permit (RWP) requirements. The first example occurred on March 22, 2004, when an operator entered a posted high radiation area on an RWP that did not allow entry into high radiation areas. The operator received a electronic dosimeter dose rate alarm. Radiation dose rates in the area were 600 mrem per hour on contact and 300 mrem per hour at 30 cm from the radiation source. The second example occurred on October 4, 2004, when a craft worker entered an area in the overhead, greater than 6 feet, of the Unit 1 reactor building 593-foot elevation without contacting radiation protection personnel as required by the RWP. The worker did not review the planned work with radiation protection personnel prior to entry and did not monitor electronic dosimetry prior to reaching the dose alarm setpoint. A survey of the overhead area indicated dose rates of 200 mrem per hour on contact, 60 mrem per hour at 30 cm, and 25 mrem per hour general area from overhead piping. The finding is greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of program and process and it affected the associated cornerstone objective to ensure adequate protection of worker health and safety from exposure to radiation. Using the Occupational Radiation Safety Significance Determination Process, the finding was determined to be of very low safety significance because it did not involve (1) ALARA planning and controls, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an impaired ability to assess dose. In addition, this finding had cross-cutting aspects associated with human performance when personnel failed to follow radiation work permit instructions.

Inspection Report# : [2005003\(pdf\)](#)

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Nov 18, 2005

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution (PI&R) Inspection - U2/3 Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. Site management was purposely active and involved in the Corrective Action Program (CAP) and focused appropriate attention on significant plant issues. The licensee was effective at identifying problems at a low threshold and entering them into the CAP. In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, several issues were identified related to ineffective implementation of corrective actions for previously identified NRC violations and other corrective action issues identified by the licensee.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Improvement was noted in management oversight to ensure all contributing causes were being adequately considered for broader corrective actions, extent of condition reviews, and enhanced trending.

Self-assessments, audits performed by the Nuclear Assurance (NA) organization, and Multi-site CAP Self-Assessments, were effective in identifying issues and entering them into the CAP. These audits and self-assessments were self-critical and identified substantive issues, numerous lower level problems, and areas that needed improvement. The audits and self-assessments reviewed appeared to be comprehensive and thorough. However, several identified repeat issues from previous self-assessments and audits in which prior corrective actions had proven ineffective. Although new Problem Evaluation Reports (PERs) were issued to address each specific repetitive problem, the licensee did not always clearly delineate the repeat nature of the PER and thereby lost an opportunity to bring additional attention to the problem or take action to determine why the previous corrective actions were ineffective.

Based on review of the licensee's Concerns Resolution Program (CRP) and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns. Increased program usage in conjunction with the increase in Unit 1 recovery activities was being adequately managed. Based on the samples reviewed, the depth of issue evaluations were adequate to address the identified concerns raised to the CRP. Oversight of contractor CRPs was being implemented in an appropriate manner.

Inspection Report# : [2005011\(pdf\)](#)

Last modified : May 25, 2006

Browns Ferry 3 2Q/2006 Plant Inspection Findings

Initiating Events

**Significance:** Jun 30, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

Improper Return To Service of 500 KV Trinity Transmission Line Results in Unit 3 Reactor Scram

A Green self-revealing finding was identified for failure to correctly implement an offsite switching order by transmission system personnel that resulted in a Unit 3 reactor scram. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 91811.

This finding was greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions were not available.

Inspection Report# : [2006003\(pdf\)](#)**Significance:** Dec 31, 2005

Identified By: NRC

Item Type: FIN Finding

Requalification Program Simulator Exam Grading Error Resulted In Unidentified Individual Failure

Green. The inspectors identified a finding for licensee grading errors which resulted in a failure to identify an individual performance issue that would have resulted in an operational test failure during a biennial operating test requalification examination.

The finding is more than minor because if left uncorrected, it would allow less-than-competent operators to continue licensed duties and it affected the human performance attribute of the Initiating Event Cornerstone. The inspectors evaluated the finding using MC 0609, Significance Determination Process, Appendix I. Using the Operator Requalification Human Performance SDP flow chart, the finding involved the licensee's grading of an exam, in which the licensee failed to identify an individual performance issue which would have resulted in an operational test failure. Per the SDP flowchart, this finding is of low safety significance because it is likely that a single operator's potential error would be prevented or mitigated by the rest of the crew. (Section 1R11)

Inspection Report# : [2005005\(pdf\)](#)**Significance:** Nov 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Three Examples of Inadequate Implementation of Corrective Actions

The inspectors identified a finding involving a non-cited violation (NCV), with three examples, of 10 CFR 50, Appendix B, Criterion XVI, for inadequate implementation of corrective actions for two previously identified NCVs. The previous NCVs were associated with rigging deficiencies that resulted in the drop of a Reactor Building crane trolley and with a human performance error that resulted in the loss of a 480-volt Shutdown Board and inadvertent start of emergency equipment.

The finding was more than minor because it is associated with the Procedure Quality attribute and objective of the Reactor Safety/Initiating Event Cornerstone. In addition, if left uncorrected, this finding would result in a more significant safety concern because the failure to implement the corrective actions for the NCVs would result in more significant safety concerns. This finding was determined to be of very low safety significance because no related examples of significant rigging deficiencies or loss of power to shutdown boards caused by relay calibrations have occurred as a result of the inadequate implementation of corrective actions. The cause for all three examples were determined to affect the PI&R crosscutting area.

Inspection Report# : [2005011\(pdf\)](#)

Mitigating Systems

**Significance:** Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Required Fire Watches

A Green non-cited violation of TS 5.4.1.d, Fire Protection Program Implementation, was identified by the inspectors for the licensee's failure to implement compensatory measures (i.e., roving fire watches) as prescribed by the Browns Ferry Fire Protection Plan for disabled fire detection systems in multiple Fire Areas in the Control Building. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 102745.

This finding was more than minor since it was associated with the Protection Against External Factors attribute of the Reactor Safety 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. The finding was of very low safety significance because the capability of other principal defense-in-depth fire protection features were unaffected, such as the associated fire barriers, control of transient combustibles, manual fire suppression equipment, and the fire brigade. This finding has a crosscutting element in the area of human performance because the fire protection impairment permits and Fire Watch/Coverage sheets did not provide instructions for conducting compensatory measures (i.e., roving fire watches) in all the necessary fire areas.

Inspection Report# : [2006003\(pdf\)](#)

Barrier Integrity

 **Significance:** Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Maintenance To Ensure Performance Of Unit 3 Drywell Equipment Hatch 1A To Fulfill Its Maintenance Rule Function

A Green non-cited violation of 10 CFR 50.65(a)(2) was identified by the inspectors due to the licensee's failure to maintain effective control of the Unit 3 Drywell Equipment Hatch 1A leak tightness through their preventative maintenance program, and their failure to establish goals and monitor in accordance with 10 CFR 50.65(a)(1). This issue was documented in the licensee's corrective action program as Problem Evaluation Report 100822.

This finding was more than minor because it was associated with the System, Structure or Component and Barrier Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective of assuring a containment barrier for protecting the public from radionuclide releases caused by accidents or events. In addition, this finding was consistent with example 7.b of Inspection Manual Chapter 0612, Appendix E, for issues greater than minor. The finding was determined to be of very low safety significance because the subsequent leakage associated with the Drywell Equipment Hatch 1A did not significantly contribute to the Large Early Release Frequency. This finding has a cross-cutting element in the area of problem identification and resolution because the licensee failed to thoroughly evaluate the second consecutive local leak rate test failure of the Unit 3 Drywell Equipment Hatch 1A to ensure that the cause of the first failure was adequately corrected.

Inspection Report# : [2006003\(pdf\)](#)

 **Significance:** Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure in Response to Automatic Rod Blocks

Green. The inspectors identified a non-cited violation of Technical Specifications 5.4.1.a when reactor operators failed to adequately implement all required procedural steps of 3-ARP-9-5A for Rod Block Monitor High, and 3-OI-92C, Rod Block Monitor, on numerous occasions when automatic rod blocks occurred during continuous rod withdrawals for Unit 3 power ascension.

The finding is more than minor because, if left uncorrected, it would result in a more serious safety concern during an actual rod withdrawal error event, and it affected the human performance attribute for maintaining fuel clad functionality of the Barrier Integrity Cornerstone. However, this finding is of very low safety significance because the minimum critical power ratio safety limit was not violated or approached, and the associated control rods were withdrawn per the required sequence and not in error. The operators' failure to recognize and follow their annunciator response procedures was a cause of the finding and directly involved cross cutting aspects of Human Performance. (Section 1R14)

Inspection Report# : [2005005\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Nov 18, 2005

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution (PI&R) Inspection - U2/3 Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. Site management was purposely active and involved in the Corrective Action Program (CAP) and focused appropriate attention on significant plant issues. The licensee was effective at identifying problems at a low threshold and entering them into the CAP. In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, several issues were identified related to ineffective implementation of corrective actions for previously identified NRC violations and other corrective action issues identified by the licensee.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Improvement was noted in management oversight to ensure all contributing causes were being adequately considered for broader corrective actions, extent of condition reviews, and enhanced trending.

Self-assessments, audits performed by the Nuclear Assurance (NA) organization, and Multi-site CAP Self-Assessments, were effective in identifying issues and entering them into the CAP. These audits and self-assessments were self-critical and identified substantive issues, numerous lower level problems, and areas that needed improvement. The audits and self-assessments reviewed appeared to be comprehensive and thorough. However, several identified repeat issues from previous self-assessments and audits in which prior corrective actions had proven ineffective. Although new Problem Evaluation Reports (PERs) were issued to address each specific repetitive problem, the licensee did not always clearly delineate the repeat nature of the PER and thereby lost an opportunity to bring additional attention to the problem or take action to determine why the previous corrective actions were ineffective.

Based on review of the licensee's Concerns Resolution Program (CRP) and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns. Increased program usage in conjunction with the increase in Unit 1 recovery activities was being adequately managed. Based on the samples reviewed, the depth of issue evaluations were adequate to address the identified concerns raised to the CRP. Oversight of contractor CRPs was being implemented in an appropriate manner.

Inspection Report# : [2005011](#)(pdf)

Last modified : August 25, 2006

Browns Ferry 3

3Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

Improper Return To Service of 500 KV Trinity Transmission Line Results in Unit 3 Reactor Scram

A Green self-revealing finding was identified for failure to correctly implement an offsite switching order by transmission system personnel that resulted in a Unit 3 reactor scram. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 91811.

This finding was greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions were not available.

Inspection Report# : [2006003\(pdf\)](#)

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: FIN Finding

Requalification Program Simulator Exam Grading Error Resulted In Unidentified Individual Failure

Green. The inspectors identified a finding for licensee grading errors which resulted in a failure to identify an individual performance issue that would have resulted in an operational test failure during a biennial operating test requalification examination.

The finding is more than minor because if left uncorrected, it would allow less-than-competent operators to continue licensed duties and it affected the human performance attribute of the Initiating Event Cornerstone. The inspectors evaluated the finding using MC 0609, Significance Determination Process, Appendix I. Using the Operator Requalification Human Performance SDP flow chart, the finding involved the licensee's grading of an exam, in which the licensee failed to identify an individual performance issue which would have resulted in an operational test failure. Per the SDP flowchart, this finding is of low safety significance because it is likely that a single operator's potential error would be prevented or mitigated by the rest of the crew. (Section 1R11)

Inspection Report# : [2005005\(pdf\)](#)

Significance:  Nov 18, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Three Examples of Inadequate Implementation of Corrective Actions

The inspectors identified a finding involving a non-cited violation (NCV), with three examples, of 10 CFR 50, Appendix B, Criterion XVI, for inadequate implementation of corrective actions for two previously identified NCVs. The previous NCVs were associated with rigging deficiencies that resulted in the drop of a Reactor Building crane trolley and with a human performance error that resulted in the loss of a 480-volt Shutdown Board and inadvertent start of emergency equipment.

The finding was more than minor because it is associated with the Procedure Quality attribute and objective of the Reactor Safety/Initiating Event Cornerstone. In addition, if left uncorrected, this finding would result in a more significant safety

concern because the failure to implement the corrective actions for the NCVs would result in more significant safety concerns. This finding was determined to be of very low safety significance because no related examples of significant rigging deficiencies or loss of power to shutdown boards caused by relay calibrations have occurred as a result of the inadequate implementation of corrective actions. The cause for all three examples were determined to affect the PI&R crosscutting area.

Inspection Report# : [2005011\(pdf\)](#)

Mitigating Systems

Significance:  Sep 15, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Cellular Phone Communications Unreliable for Alternate Shutdown in FA16

The team identified a non-cited violation (NCV) of Unit 2 Operating License Condition 2.C.14 and Unit 3 Operating License Condition 2.C.7 for failure to have adequate communications to implement alternate shutdown for a fire in fire area (FA) 16 using procedure 2/3-SSI-16.

This issue is a performance deficiency because the cell phone system was unreliable and the F4 portable radio system was not credited for a fire in FA 16. The finding is greater than minor because it affected the ability of the licensee to maintain communications for a fire in FA 16 and is associated with the mitigating systems cornerstone and respective attribute of protection against external factors, i.e., fire in that degraded communications would impact the ability to achieve SSD following a fire. This finding was determined to be a finding of very low safety significance (Green) because it only affected the ability to reach and maintain cold shutdown conditions due to the availability of alternate communications measures (F4 radios) for a time period sufficient to achieve hot shutdown conditions.

Inspection Report# : [2006014\(pdf\)](#)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Required Fire Watches

A Green non-cited violation of TS 5.4.1.d, Fire Protection Program Implementation, was identified by the inspectors for the licensee's failure to implement compensatory measures (i.e., roving fire watches) as prescribed by the Browns Ferry Fire Protection Plan for disabled fire detection systems in multiple Fire Areas in the Control Building. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 102745.

This finding was more than minor since it was associated with the Protection Against External Factors attribute of the Reactor Safety 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. The finding was of very low safety significance because the capability of other principal defense-in-depth fire protection features were unaffected, such as the associated fire barriers, control of transient combustibles, manual fire suppression equipment, and the fire brigade. This finding has a crosscutting element in the area of human performance because the fire protection impairment permits and Fire Watch/Coverage sheets did not provide instructions for conducting compensatory measures (i.e., roving fire watches) in all the necessary fire areas.

Inspection Report# : [2006003\(pdf\)](#)

Barrier Integrity

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Maintenance To Ensure Performance Of Unit 3 Drywell Equipment Hatch 1A To Fulfill Its Maintenance Rule Function

A Green non-cited violation of 10 CFR 50.65(a)(2) was identified by the inspectors due to the licensee's failure to maintain effective control of the Unit 3 Drywell Equipment Hatch 1A leak tightness through their preventative maintenance program, and their failure to establish goals and monitor in accordance with 10 CFR 50.65(a)(1). This issue was documented in the licensee's corrective action program as Problem Evaluation Report 100822.

This finding was more than minor because it was associated with the System, Structure or Component and Barrier Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective of assuring a containment barrier for protecting the public from radionuclide releases caused by accidents or events. In addition, this finding was consistent with example 7.b of Inspection Manual Chapter 0612, Appendix E, for issues greater than minor. The finding was determined to be of very low safety significance because the subsequent leakage associated with the Drywell Equipment Hatch 1A did not significantly contribute to the Large Early Release Frequency. This finding has a cross-cutting element in the area of problem identification and resolution because the licensee failed to thoroughly evaluate the second consecutive local leak rate test failure of the Unit 3 Drywell Equipment Hatch 1A to ensure that the cause of the first failure was adequately corrected.

Inspection Report# : [2006003\(pdf\)](#)

Significance:  Dec 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Follow Procedure in Response to Automatic Rod Blocks

Green. The inspectors identified a non-cited violation of Technical Specifications 5.4.1.a when reactor operators failed to adequately implement all required procedural steps of 3-ARP-9-5A for Rod Block Monitor High, and 3-OI-92C, Rod Block Monitor, on numerous occasions when automatic rod blocks occurred during continuous rod withdrawals for Unit 3 power ascension.

The finding is more than minor because, if left uncorrected, it would result in a more serious safety concern during an actual rod withdrawal error event, and it affected the human performance attribute for maintaining fuel clad functionality of the Barrier Integrity Cornerstone. However, this finding is of very low safety significance because the minimum critical power ratio safety limit was not violated or approached, and the associated control rods were withdrawn per the required sequence and not in error. The operators' failure to recognize and follow their annunciator response procedures was a cause of the finding and directly involved cross cutting aspects of Human Performance. (Section 1R14)

Inspection Report# : [2005005\(pdf\)](#)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance: N/A Nov 18, 2005

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution (PI&R) Inspection - U2/3 Results

Overall, the licensee maintained an effective program for the identification and correction of conditions adverse to quality. Site management was purposely active and involved in the Corrective Action Program (CAP) and focused appropriate attention on significant plant issues. The licensee was effective at identifying problems at a low threshold and entering them into the CAP. In general, the licensee consistently prioritized issues in accordance with their CAP and routinely performed adequate evaluations that were technically accurate and of sufficient depth. However, several issues were identified related to ineffective implementation of corrective actions for previously identified NRC violations and other corrective action issues identified by the licensee.

Formal root cause evaluations for significant conditions adverse to quality were thorough and detailed. Corrective actions developed for lower level root and contributing causes were generally timely, effective, and commensurate with the safety-significance of the issue. Improvement was noted in management oversight to ensure all contributing causes were being adequately considered for broader corrective actions, extent of condition reviews, and enhanced trending.

Self-assessments, audits performed by the Nuclear Assurance (NA) organization, and Multi-site CAP Self-Assessments, were effective in identifying issues and entering them into the CAP. These audits and self-assessments were self-critical and identified substantive issues, numerous lower level problems, and areas that needed improvement. The audits and self-assessments reviewed appeared to be comprehensive and thorough. However, several identified repeat issues from previous self-assessments and audits in which prior corrective actions had proven ineffective. Although new Problem Evaluation Reports (PERs) were issued to address each specific repetitive problem, the licensee did not always clearly delineate the repeat nature of the PER and thereby lost an opportunity to bring additional attention to the problem or take action to determine why the previous corrective actions were ineffective.

Based on review of the licensee's Concerns Resolution Program (CRP) and discussions conducted with plant employees from various departments, the inspectors did not identify any reluctance to report safety concerns. Increased program usage in conjunction with the increase in Unit 1 recovery activities was being adequately managed. Based on the samples reviewed, the depth of issue evaluations were adequate to address the identified concerns raised to the CRP. Oversight of contractor CRPs was being implemented in an appropriate manner.

Inspection Report# : [2005011\(pdf\)](#)

Last modified : December 21, 2006

Browns Ferry 3

4Q/2006 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

Improper Return To Service of 500 KV Trinity Transmission Line Results in Unit 3 Reactor Scram

A Green self-revealing finding was identified for failure to correctly implement an offsite switching order by transmission system personnel that resulted in a Unit 3 reactor scram. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 91811.

This finding was greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions were not available.

Inspection Report# : [2006003 \(pdf\)](#)

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of Assured Cooling Water for Emergency Diesel Generators During SBO Conditions

The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, that affected Units 2 and 3. The licensee's calculations and procedures did not adequately implement the plant's licensing basis for Station Blackout (SBO), in that, they did not ensure the operating emergency diesel generators (EDGs) would have an adequate cooling water supply during a SBO with certain plant equipment configurations.

This finding is of greater than minor safety significance because it affected the objectives of the Mitigating Systems Cornerstone. It affected the availability and reliability of systems that mitigate initiating events to prevent undesirable consequences. The finding has very low safety significance due to the few very specific combinations of EDG failures that could lead to a loss of cooling water flow to all of the running EDGs. The licensee took prompt corrective action by revising procedures to add immediate operator actions to ensure adequate cooling water supply to the EDGs.

Inspection Report# : [2006005 \(pdf\)](#)

Significance:  Sep 15, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Cellular Phone Communications Unreliable for Alternate Shutdown in FA16

The team identified a non-cited violation (NCV) of Unit 2 Operating License Condition 2.C.14 and Unit 3 Operating License Condition 2.C.7 for failure to have adequate communications to implement alternate shutdown for a fire in fire area (FA) 16 using procedure 2/3-SSI-16.

This issue is a performance deficiency because the cell phone system was unreliable and the F4 portable radio system was not credited for a fire in FA 16. The finding is greater than minor because it affected the ability of the licensee to maintain

communications for a fire in FA 16 and is associated with the mitigating systems cornerstone and respective attribute of protection against external factors, i.e., fire in that degraded communications would impact the ability to achieve SSD following a fire. This finding was determined to be a finding of very low safety significance (Green) because it only affected the ability to reach and maintain cold shutdown conditions due to the availability of alternate communications measures (F4 radios) for a time period sufficient to achieve hot shutdown conditions.

Inspection Report# : [2006014](#) (*pdf*)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Required Fire Watches

A Green non-cited violation of TS 5.4.1.d, Fire Protection Program Implementation, was identified by the inspectors for the licensee's failure to implement compensatory measures (i.e., roving fire watches) as prescribed by the Browns Ferry Fire Protection Plan for disabled fire detection systems in multiple Fire Areas in the Control Building. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 102745.

This finding was more than minor since it was associated with the Protection Against External Factors attribute of the Reactor Safety 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. The finding was of very low safety significance because the capability of other principal defense-in-depth fire protection features were unaffected, such as the associated fire barriers, control of transient combustibles, manual fire suppression equipment, and the fire brigade. This finding has a crosscutting element in the area of human performance because the fire protection impairment permits and Fire Watch/Coverage sheets did not provide instructions for conducting compensatory measures (i.e., roving fire watches) in all the necessary fire areas.

Inspection Report# : [2006003](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Maintenance To Ensure Performance Of Unit 3 Drywell Equipment Hatch 1A To Fulfill Its Maintenance Rule Function

A Green non-cited violation of 10 CFR 50.65(a)(2) was identified by the inspectors due to the licensee's failure to maintain effective control of the Unit 3 Drywell Equipment Hatch 1A leak tightness through their preventative maintenance program, and their failure to establish goals and monitor in accordance with 10 CFR 50.65(a)(1). This issue was documented in the licensee's corrective action program as Problem Evaluation Report 100822.

This finding was more than minor because it was associated with the System, Structure or Component and Barrier Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective of assuring a containment barrier for protecting the public from radionuclide releases caused by accidents or events. In addition, this finding was consistent with example 7.b of Inspection Manual Chapter 0612, Appendix E, for issues greater than minor. The finding was determined to be of very low safety significance because the subsequent leakage associated with the Drywell Equipment Hatch 1A did not significantly contribute to the Large Early Release Frequency. This finding has a cross-cutting element in the area of problem identification and resolution because the licensee failed to thoroughly evaluate the second consecutive local leak rate test failure of the Unit 3 Drywell Equipment Hatch 1A to ensure that the cause of the first failure was adequately corrected.

Inspection Report# : [2006003](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Last modified : March 01, 2007

Browns Ferry 3

1Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2006

Identified By: Self-Revealing

Item Type: FIN Finding

Improper Return To Service of 500 KV Trinity Transmission Line Results in Unit 3 Reactor Scram

A Green self-revealing finding was identified for failure to correctly implement an offsite switching order by transmission system personnel that resulted in a Unit 3 reactor scram. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 91811.

This finding was greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance because it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions were not available.

Inspection Report# : [2006003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of Assured Cooling Water for Emergency Diesel Generators During SBO Conditions

The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, that affected Units 2 and 3. The licensee's calculations and procedures did not adequately implement the plant's licensing basis for Station Blackout (SBO), in that, they did not ensure the operating emergency diesel generators (EDGs) would have an adequate cooling water supply during a SBO with certain plant equipment configurations.

This finding is of greater than minor safety significance because it affected the objectives of the Mitigating Systems Cornerstone. It affected the availability and reliability of systems that mitigate initiating events to prevent undesirable consequences. The finding has very low safety significance due to the few very specific combinations of EDG failures that could lead to a loss of cooling water flow to all of the running EDGs. The licensee took prompt corrective action by revising procedures to add immediate operator actions to ensure adequate cooling water supply to the EDGs.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Sep 15, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Cellular Phone Communications Unreliable for Alternate Shutdown in FA16

The team identified a non-cited violation (NCV) of Unit 2 Operating License Condition 2.C.14 and Unit 3 Operating License Condition 2.C.7 for failure to have adequate communications to implement alternate shutdown for a fire in fire area (FA) 16 using procedure 2/3-SSI-16.

This issue is a performance deficiency because the cell phone system was unreliable and the F4 portable radio system was not credited for a fire in FA 16. The finding is greater than minor because it affected the ability of the licensee to maintain communications for a fire in FA 16 and is associated with the mitigating systems cornerstone and respective attribute of

protection against external factors, i.e., fire in that degraded communications would impact the ability to achieve SSD following a fire. This finding was determined to be a finding of very low safety significance (Green) because it only affected the ability to reach and maintain cold shutdown conditions due to the availability of alternate communications measures (F4 radios) for a time period sufficient to achieve hot shutdown conditions.

Inspection Report# : [2006014](#) (*pdf*)

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Required Fire Watches

A Green non-cited violation of TS 5.4.1.d, Fire Protection Program Implementation, was identified by the inspectors for the licensee's failure to implement compensatory measures (i.e., roving fire watches) as prescribed by the Browns Ferry Fire Protection Plan for disabled fire detection systems in multiple Fire Areas in the Control Building. This issue was documented in the licensee's corrective action program as Problem Evaluation Report 102745.

This finding was more than minor since it was associated with the Protection Against External Factors attribute of the Reactor Safety 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. The finding was of very low safety significance because the capability of other principal defense-in-depth fire protection features were unaffected, such as the associated fire barriers, control of transient combustibles, manual fire suppression equipment, and the fire brigade. This finding has a crosscutting element in the area of human performance because the fire protection impairment permits and Fire Watch/Coverage sheets did not provide instructions for conducting compensatory measures (i.e., roving fire watches) in all the necessary fire areas.

Inspection Report# : [2006003](#) (*pdf*)

Barrier Integrity

Significance:  Jun 30, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Ineffective Maintenance To Ensure Performance Of Unit 3 Drywell Equipment Hatch 1A To Fulfill Its Maintenance Rule Function

A Green non-cited violation of 10 CFR 50.65(a)(2) was identified by the inspectors due to the licensee's failure to maintain effective control of the Unit 3 Drywell Equipment Hatch 1A leak tightness through their preventative maintenance program, and their failure to establish goals and monitor in accordance with 10 CFR 50.65(a)(1). This issue was documented in the licensee's corrective action program as Problem Evaluation Report 100822.

This finding was more than minor because it was associated with the System, Structure or Component and Barrier Performance attribute of the Barrier Integrity Cornerstone, and adversely affected the cornerstone objective of assuring a containment barrier for protecting the public from radionuclide releases caused by accidents or events. In addition, this finding was consistent with example 7.b of Inspection Manual Chapter 0612, Appendix E, for issues greater than minor. The finding was determined to be of very low safety significance because the subsequent leakage associated with the Drywell Equipment Hatch 1A did not significantly contribute to the Large Early Release Frequency. This finding has a cross-cutting element in the area of problem identification and resolution because the licensee failed to thoroughly evaluate the second consecutive local leak rate test failure of the Unit 3 Drywell Equipment Hatch 1A to ensure that the cause of the first failure was adequately corrected.

Inspection Report# : [2006003](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Properly Prepare a Radioactive Materials Package for Shipment

A Green self-revealing non-cited violation of 10 CFR 71.5 was identified for failure to properly package radiological material such that, under conditions normally incident to transportation, the radiation levels at the external surface of the package would not exceed applicable Department of Transportation (DOT) limits. When the two shipments arrived at a processing facility on April 21, 2005, the radiation dose rates measured on portions of the external surface of the packages were as high as 300 mrem/hr, which was in excess of the 200 mrem/hr limit specified by the regulation. The licensee established additional supervisory review and approval prior to shipping packages approaching DOT limits. This finding was entered into the licensee's corrective action program as PER 81364.

This finding is more than minor because it is associated with the Plant Facilities/ Equipment and Instrument attribute of the Public Radiation Safety cornerstone and adversely affected the cornerstone objective, in that, the improper transportation packaging resulted in a shipping container with external dose levels exceeding regulatory requirements. Using the Public Radiation Significance Determination Process, the finding was determined to be of very low safety significance because the areas on the packages with elevated radiation levels were inaccessible to the public and the radiation levels were less than two times the DOT limit.

Inspection Report# : [2007002](#) (*pdf*)

Physical Protection

[Physical Protection](#) information not publicly available.

Miscellaneous

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Work Hours for I&C Mechanics Exceeded Overtime Limits Without Prior Authorization

The inspectors identified a Green non-cited violation of Technical Specification 5.2.2.d due to inadequate management oversight and awareness of the administrative requirements for controlling overtime which resulted in multiple instances of Instrumentation and Control personnel exceeding overtime limits without prior authorization and documentation. Management immediately changed work schedules to comply with the Technical Specification requirements and entered the issue into their corrective action program as PER 119016.

This finding was greater than minor because if left uncorrected it could become a more significant safety concern due to excessive fatigue by key maintenance personnel performing safety-related activities. An NRC management review determined that the finding was of very low safety significance because no specific performance deficiencies were identified for the individuals during the time they exceeded the established overtime limits

Inspection Report# : [2007002](#) (*pdf*)

Last modified : June 01, 2007

Browns Ferry 3

2Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Work Instructions For Isolating Condensate Demineralizer System Causes a Unit 3 Reactor Scram (Section 4OA3.5)

Green. A Green self-revealing finding was identified for use of an inadequate work order instructions during an online modification of the Unit 3 Condensate Demineralizer System control logic that caused an inadvertent isolation of condensate flow which directly resulted in a reactor scram. Condensate Demineralizer System operating procedures were subsequently revised to clarify manual operation of system controllers. This finding was entered into the licensee's corrective action program as PER 119490.

This finding is greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance 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 aspect of "complete and accurate work packages" in the area of Human Performance (Resources component) because the necessary work order instructions for ensuring the condensate demineralizer system controllers remained in manual were inaccurate and/or incomplete. (Section 4OA3.5)

Inspection Report# : [2007003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of Assured Cooling Water for Emergency Diesel Generators During SBO Conditions

The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, that affected Units 2 and 3. The licensee's calculations and procedures did not adequately implement the plant's licensing basis for Station Blackout (SBO), in that, they did not ensure the operating emergency diesel generators (EDGs) would have an adequate cooling water supply during a SBO with certain plant equipment configurations.

This finding is of greater than minor safety significance because it affected the objectives of the Mitigating Systems Cornerstone. It affected the availability and reliability of systems that mitigate initiating events to prevent undesirable consequences. The finding has very low safety significance due to the few very specific combinations of EDG failures that could lead to a loss of cooling water flow to all of the running EDGs. The licensee took prompt corrective action by revising procedures to add immediate operator actions to ensure adequate cooling water supply to the EDGs.

Inspection Report# : [2006005](#) (*pdf*)

Significance:  Sep 15, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Cellular Phone Communications Unreliable for Alternate Shutdown in FA16

The team identified a non-cited violation (NCV) of Unit 2 Operating License Condition 2.C.14 and Unit 3 Operating License Condition 2.C.7 for failure to have adequate communications to implement alternate shutdown for a fire in fire area (FA) 16 using procedure 2/3-SSI-16.

This issue is a performance deficiency because the cell phone system was unreliable and the F4 portable radio system was not credited for a fire in FA 16. The finding is greater than minor because it affected the ability of the licensee to maintain communications for a fire in FA 16 and is associated with the mitigating systems cornerstone and respective attribute of protection against external factors, i.e., fire in that degraded communications would impact the ability to achieve SSD following a fire. This finding was determined to be a finding of very low safety significance (Green) because it only affected the ability to reach and maintain cold shutdown conditions due to the availability of alternate communications measures (F4 radios) for a time period sufficient to achieve hot shutdown conditions.

Inspection Report# : [2006014](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Properly Prepare a Radioactive Materials Package for Shipment

A Green self-revealing non-cited violation of 10 CFR 71.5 was identified for failure to properly package radiological material such that, under conditions normally incident to transportation, the radiation levels at the external surface of the package would not exceed applicable Department of Transportation (DOT) limits. When the two shipments arrived at a processing facility on April 21, 2005, the radiation dose rates measured on portions of the external surface of the packages were as high as 300 mrem/hr, which was in excess of the 200 mrem/hr limit specified by the regulation. The licensee established additional supervisory review and approval prior to shipping packages approaching DOT limits. This finding was entered into the licensee's corrective action program as PER 81364.

This finding is more than minor because it is associated with the Plant Facilities/ Equipment and Instrument attribute of the Public Radiation Safety cornerstone and adversely affected the cornerstone objective, in that, the improper transportation packaging resulted in a shipping container with external dose levels exceeding regulatory requirements. Using the Public Radiation Significance Determination Process, the finding was determined to be of very low safety significance because the areas on the packages with elevated radiation levels were inaccessible to the public and the radiation levels were less than two times the DOT limit.

Inspection Report# : [2007002](#) (*pdf*)

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.

Miscellaneous

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Work Hours for I&C Mechanics Exceeded Overtime Limits Without Prior Authorization

The inspectors identified a Green non-cited violation of Technical Specification 5.2.2.d due to inadequate management oversight and awareness of the administrative requirements for controlling overtime which resulted in multiple instances of Instrumentation and Control personnel exceeding overtime limits without prior authorization and documentation. Management immediately changed work schedules to comply with the Technical Specification requirements and entered the issue into their corrective action program as PER 119016.

This finding was greater than minor because if left uncorrected it could become a more significant safety concern due to excessive fatigue by key maintenance personnel performing safety-related activities. An NRC management review determined that the finding was of very low safety significance because no specific performance deficiencies were identified for the individuals during the time they exceeded the established overtime limits

Inspection Report# : [2007002](#) (*pdf*)

Last modified : August 24, 2007

Browns Ferry 3

3Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Work Instructions For Isolating Condensate Demineralizer System Causes a Unit 3 Reactor Scram (Section 4OA3.5)

Green. A Green self-revealing finding was identified for use of an inadequate work order instructions during an online modification of the Unit 3 Condensate Demineralizer System control logic that caused an inadvertent isolation of condensate flow which directly resulted in a reactor scram. Condensate Demineralizer System operating procedures were subsequently revised to clarify manual operation of system controllers. This finding was entered into the licensee's corrective action program as PER 119490.

This finding is greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance 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 aspect of "complete and accurate work packages" in the area of Human Performance (Resources component) because the necessary work order instructions for ensuring the condensate demineralizer system controllers remained in manual were inaccurate and/or incomplete. (Section 4OA3.5)

Inspection Report# : [2007003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2006

Identified By: NRC

Item Type: NCV NonCited Violation

Lack of Assured Cooling Water for Emergency Diesel Generators During SBO Conditions

The inspectors identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, that affected Units 2 and 3. The licensee's calculations and procedures did not adequately implement the plant's licensing basis for Station Blackout (SBO), in that, they did not ensure the operating emergency diesel generators (EDGs) would have an adequate cooling water supply during a SBO with certain plant equipment configurations.

This finding is of greater than minor safety significance because it affected the objectives of the Mitigating Systems Cornerstone. It affected the availability and reliability of systems that mitigate initiating events to prevent undesirable consequences. The finding has very low safety significance due to the few very specific combinations of EDG failures that could lead to a loss of cooling water flow to all of the running EDGs. The licensee took prompt corrective action by revising procedures to add immediate operator actions to ensure adequate cooling water supply to the EDGs.

Inspection Report# : [2006005](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Properly Prepare a Radioactive Materials Package for Shipment

A Green self-revealing non-cited violation of 10 CFR 71.5 was identified for failure to properly package radiological material such that, under conditions normally incident to transportation, the radiation levels at the external surface of the package would not exceed applicable Department of Transportation (DOT) limits. When the two shipments arrived at a processing facility on April 21, 2005, the radiation dose rates measured on portions of the external surface of the packages were as high as 300 mrem/hr, which was in excess of the 200 mrem/hr limit specified by the regulation. The licensee established additional supervisory review and approval prior to shipping packages approaching DOT limits. This finding was entered into the licensee's corrective action program as PER 81364.

This finding is more than minor because it is associated with the Plant Facilities/ Equipment and Instrument attribute of the Public Radiation Safety cornerstone and adversely affected the cornerstone objective, in that, the improper transportation packaging resulted in a shipping container with external dose levels exceeding regulatory requirements. Using the Public Radiation Significance Determination Process, the finding was determined to be of very low safety significance because the areas on the packages with elevated radiation levels were inaccessible to the public and the radiation levels were less than two times the DOT limit.

Inspection Report# : [2007002](#) (*pdf*)

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.

Miscellaneous

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Work Hours for I&C Mechanics Exceeded Overtime Limits Without Prior Authorization

The inspectors identified a Green non-cited violation of Technical Specification 5.2.2.d due to inadequate management oversight and awareness of the administrative requirements for controlling overtime which resulted in multiple instances of Instrumentation and Control personnel exceeding overtime limits without prior authorization and documentation. Management immediately changed work schedules to comply with the Technical Specification requirements and entered the issue into their corrective action program as PER 119016.

This finding was greater than minor because if left uncorrected it could become a more significant safety concern due to excessive fatigue by key maintenance personnel performing safety-related activities. An NRC management review determined that the finding was of very low safety significance because no specific performance deficiencies were identified for the individuals during the time they exceeded the established overtime limits

Inspection Report# : [2007002](#) (*pdf*)

Last modified : December 07, 2007

Browns Ferry 3

4Q/2007 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Work Instructions For Isolating Condensate Demineralizer System Causes a Unit 3 Reactor Scram (Section 40A3.5)

Green. A Green self-revealing finding was identified for use of an inadequate work order instructions during an online modification of the Unit 3 Condensate Demineralizer System control logic that caused an inadvertent isolation of condensate flow which directly resulted in a reactor scram. Condensate Demineralizer System operating procedures were subsequently revised to clarify manual operation of system controllers. This finding was entered into the licensee's corrective action program as PER 119490.

This finding is greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance 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 aspect of "complete and accurate work packages" in the area of Human Performance (Resources component) because the necessary work order instructions for ensuring the condensate demineralizer system controllers remained in manual were inaccurate and/or incomplete. (Section 40A3.5)

Inspection Report# : [2007003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform ASME Inspections of Safety-Related Piping.

The inspectors identified a Green non-cited violation of 10 CFR 50.55a(g)4 Codes and Standards. Specifically, the licensee failed to perform required code inspections of accessible portions of safety-related piping. The licensee entered this issue into their corrective action program.

This finding is more than minor because if left uncorrected it would become a more significant safety concern. The failure to perform required inspections of safetyrelated piping could have allowed undetected through-wall flaws to remain in-service. These undetected flaws could grow in size until leakage from the piping degrades system operation, or if sufficient general corrosion occurs, a gross rupture or collapse of the piping could occur. The finding is of very low safety significance because the finding did not represent a loss of safety function. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the operating experience aspect of the corrective action component [P.2(b)].

[Section 1R21.4]

Inspection Report# : [2007007](#) (*pdf*)

Significance:  Dec 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Corrective Actions for Cable Submersion Were Not Effective.

The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, the licensee failed to correct a cable submergence issue which resulted in the failure of a safety-related cable.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because the finding was not a design or qualification deficiency, and did not represent a loss of safety function because the redundant train was available. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the licensee thoroughly evaluates problems aspect of the corrective action component [P.1(c)].

Inspection Report# : [2007007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Mar 31, 2007

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Properly Prepare a Radioactive Materials Package for Shipment

A Green self-revealing non-cited violation of 10 CFR 71.5 was identified for failure to properly package radiological material such that, under conditions normally incident to transportation, the radiation levels at the external surface of the package would not exceed applicable Department of Transportation (DOT) limits. When the two shipments arrived at a processing facility on April 21, 2005, the radiation dose rates measured on portions of the external surface of the packages were as high as 300 mrem/hr, which was in excess of the 200 mrem/hr limit specified by the regulation. The licensee established additional supervisory review and approval prior to shipping packages approaching DOT limits. This finding was entered into the licensee's corrective action program as PER 81364.

This finding is more than minor because it is associated with the Plant Facilities/ Equipment and Instrument attribute of the Public Radiation Safety cornerstone and adversely affected the cornerstone objective, in that, the improper transportation packaging resulted in a shipping container with external dose levels exceeding regulatory requirements. Using the Public Radiation Significance Determination Process, the finding was determined to be of very low safety significance because the areas on the packages with elevated radiation levels were inaccessible to the public and the radiation levels were less than two times the DOT limit.

Inspection Report# : [2007002](#) (*pdf*)

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.

Miscellaneous

Significance: N/A Aug 24, 2007

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution

The licensee was effective in identifying problems at a low threshold and entering them into the CAP. Issues were typically properly characterized and evaluations such as root causes were sufficiently thorough and detailed. Strong management oversight of the CAP was evident. Initial prioritization of issues and corrective actions appeared to be appropriate to risk and program guidance; however, numerous delays in completion of corrective actions had led to increased backlogs in closure of Problem Evaluation Reports (PERs). Recent management attention had resulted in the backlogs beginning to decrease at the time of this inspection. In addition, the inspectors concluded that the licensee had been slow to effect significant improvement in equipment reliability based on the number of equipment problems and timeliness of corrective actions. Also, some repeat problems, such as, adequacy of corrective action implementation were noted; however, these problems were improved from previous inspections.

The licensee was effective in evaluating internal and external industry operating experience items for applicability and taking appropriate action.

Based on review of the licensee's Concerns Resolution Program (CRP), discussions conducted with plant employees from various departments, and review of many PERs, the inspectors did not identify any reluctance to report safety concerns. The inspectors concluded that licensee management routinely emphasized the need for all employees to identify and report problems using the appropriate methods established within the administrative programs.

Inspection Report# : [2007008](#) (*pdf*)

Significance:  Mar 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Work Hours for I&C Mechanics Exceeded Overtime Limits Without Prior Authorization

The inspectors identified a Green non-cited violation of Technical Specification 5.2.2.d due to inadequate management oversight and awareness of the administrative requirements for controlling overtime which resulted in multiple instances of Instrumentation and Control personnel exceeding overtime limits without prior authorization and documentation. Management immediately changed work schedules to comply with the Technical Specification requirements and entered the issue into their corrective action program as PER 119016.

This finding was greater than minor because if left uncorrected it could become a more significant safety concern due to excessive fatigue by key maintenance personnel performing safety-related activities. An NRC management review determined that the finding was of very low safety significance because no specific performance deficiencies were identified for the individuals during the time they exceeded the established overtime limits

Inspection Report# : [2007002](#) (*pdf*)

Last modified : February 04, 2008

Browns Ferry 3

1Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2007

Identified By: Self-Revealing

Item Type: FIN Finding

Inadequate Work Instructions For Isolating Condensate Demineralizer System Causes a Unit 3 Reactor Scram (Section 40A3.5)

Green. A Green self-revealing finding was identified for use of an inadequate work order instructions during an online modification of the Unit 3 Condensate Demineralizer System control logic that caused an inadvertent isolation of condensate flow which directly resulted in a reactor scram. Condensate Demineralizer System operating procedures were subsequently revised to clarify manual operation of system controllers. This finding was entered into the licensee's corrective action program as PER 119490.

This finding is greater than minor because it is associated with the Initiating Event Cornerstone attributes of Human Performance and 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 at-power operations. The finding was determined to be of very low safety significance 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 aspect of "complete and accurate work packages" in the area of Human Performance (Resources component) because the necessary work order instructions for ensuring the condensate demineralizer system controllers remained in manual were inaccurate and/or incomplete. (Section 40A3.5)

Inspection Report# : [2007003](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions To Ensure Sufficient Alternate Shutdown Cooling Flow During Appendix R Events

The inspectors identified a Green noncited violation of Unit 2 License Condition 2.C (14), and Unit 3 License Condition 2.C (7), Fire Protection Report, Appendix R Safe Shutdown Program, for failing to establish the required compensatory measures to provide equivalent safe shutdown capability in lieu of the incorrect operating pressure band specified by the Safe Shutdown Instructions for Alternate Shutdown Cooling. A Priority 1 Operator Work Around was initiated and the station's Safe Shutdown Instructions were subsequently revised to incorporate the correct pressure band. This finding was entered into the licensee's corrective action program as Problem Evaluation Reports 109829 and 133483.

This finding was considered more than minor because if left uncorrected it could result in a more significant safety concern regarding the operator's ability to safely shutdown the plant and maintain adequate shutdown cooling during an Appendix R fire. This finding is also associated with the Protection Against External Factors attribute of the Reactor Safety/ Mitigating Systems cornerstone. According to IMC 0609, Appendix F, Fire Protection SDP, Phase 1 this finding was determined to be of very low safety significance because the assigned Degradation Rating was considered to be Low since Alternate Shutdown Cooling flow was minimally impacted even with an inaccurate operating pressure band due to the inherent plant design. The cause of this finding was directly related to the aspect of appropriate and timely corrective action in the cross-cutting area of Problem Identification and Resolution (Corrective Action component) because the licensee did not take appropriate corrective actions to address a safety issue by failing

to incorporate the required interim actions into an Operator Work Around (P.1(d)).

Inspection Report# : [2007005](#) (*pdf*)

Significance:  Dec 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform ASME Inspections of Safety-Related Piping.

The inspectors identified a Green non-cited violation of 10 CFR 50.55a(g)4 Codes and Standards. Specifically, the licensee failed to perform required code inspections of accessible portions of safety-related piping. The licensee entered this issue into their corrective action program.

This finding is more than minor because if left uncorrected it would become a more significant safety concern. The failure to perform required inspections of safetyrelated piping could have allowed undetected through-wall flaws to remain in-service. These undetected flaws could grow in size until leakage from the piping degrades system operation, or if sufficient general corrosion occurs, a gross rupture or collapse of the piping could occur. The finding is of very low safety significance because the finding did not represent a loss of safety function. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the operating experience aspect of the corrective action component [P.2(b)].

[Section 1R21.4]

Inspection Report# : [2007007](#) (*pdf*)

Significance:  Dec 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Corrective Actions for Cable Submersion Were Not Effective.

The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, the licensee failed to correct a cable submergence issue which resulted in the failure of a safety-related cable.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because the finding was not a design or qualification deficiency, and did not represent a loss of safety function because the redundant train was available. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the licensee thoroughly evaluates problems aspect of the corrective action component [P.1(c)].

Inspection Report# : [2007007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Significance: N/A Aug 24, 2007

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution

The licensee was effective in identifying problems at a low threshold and entering them into the CAP. Issues were typically properly characterized and evaluations such as root causes were sufficiently thorough and detailed. Strong management oversight of the CAP was evident. Initial prioritization of issues and corrective actions appeared to be appropriate to risk and program guidance; however, numerous delays in completion of corrective actions had led to increased backlogs in closure of Problem Evaluation Reports (PERs). Recent management attention had resulted in the backlogs beginning to decrease at the time of this inspection. In

addition, the inspectors concluded that the licensee had been slow to effect significant improvement in equipment reliability based on the number of equipment problems and timeliness of corrective actions. Also, some repeat problems, such as, adequacy of corrective action implementation were noted; however, these problems were improved from previous inspections.

The licensee was effective in evaluating internal and external industry operating experience items for applicability and taking appropriate action.

Based on review of the licensee's Concerns Resolution Program (CRP), discussions conducted with plant employees from various departments, and review of many PERs, the inspectors did not identify any reluctance to report safety concerns. The inspectors concluded that licensee management routinely emphasized the need for all employees to identify and report problems using the appropriate methods established within the administrative programs.

Inspection Report# : [2007008](#) (*pdf*)

Last modified : June 05, 2008

Browns Ferry 3

2Q/2008 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Deficiencies in Degraded Flood Protection Doors

The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to identify and correct deficiencies in watertight doors that protect the safety-related Residual Heat Removal Service Water pumps and Emergency Equipment Cooling Water pumps from external flooding. The licensee issued work orders to correct the conditions and entered the issue into their corrective action program as Problem Evaluation Reports 133891 and 134346.

This finding was more than minor because it affects the External Factors (Flood Hazard) attribute of the Mitigating Systems Cornerstone. It impacted the cornerstone objective of ensuring the availability, reliability, and operability of safety-related pumps to perform their intended safety function during a design basis flooding event. A Significance Determination Process Phase 3 analysis determined that the finding was of very low safety significance because of the low likelihood of the design basis flood. The finding was directly related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance. Mechanics were not complying with quarterly work orders and maintenance procedure to assure functionality of the watertight doors (H.4 (b)).

Inspection Report#: [2008003](#) (*pdf*)

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions To Ensure Sufficient Alternate Shutdown Cooling Flow During Appendix R Events

The inspectors identified a Green noncited violation of Unit 2 License Condition 2.C (14), and Unit 3 License Condition 2.C (7), Fire Protection Report, Appendix R Safe Shutdown Program, for failing to establish the required compensatory measures to provide equivalent safe shutdown capability in lieu of the incorrect operating pressure band specified by the Safe Shutdown Instructions for Alternate Shutdown Cooling. A Priority 1 Operator Work Around was initiated and the station's Safe Shutdown Instructions were subsequently revised to incorporate the correct pressure band. This finding was entered into the licensee's corrective action program as Problem Evaluation Reports 109829 and 133483.

This finding was considered more than minor because if left uncorrected it could result in a more significant safety concern regarding the operator's ability to safely shutdown the plant and maintain adequate shutdown cooling during an Appendix R fire. This finding is also associated with the Protection Against External Factors attribute of the Reactor Safety/ Mitigating Systems cornerstone. According to IMC 0609, Appendix F, Fire Protection SDP, Phase 1 this finding was determined to be of very low safety significance because the assigned Degradation Rating was considered to be Low since Alternate Shutdown Cooling flow was minimally impacted even with an inaccurate operating pressure band due to the inherent plant design. The cause of this finding was directly related to the aspect of appropriate and timely corrective action in the cross-cutting area of Problem Identification and Resolution (Corrective Action component) because the licensee did not take appropriate corrective actions to address a safety issue by failing to incorporate the required interim actions into an Operator Work Around (P.1(d)).

Significance:  Dec 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform ASME Inspections of Safety-Related Piping.

The inspectors identified a Green non-cited violation of 10 CFR 50.55a(g)4 Codes and Standards. Specifically, the licensee failed to perform required code inspections of accessible portions of safety-related piping. The licensee entered this issue into their corrective action program.

This finding is more than minor because if left uncorrected it would become a more significant safety concern. The failure to perform required inspections of safetyrelated piping could have allowed undetected through-wall flaws to remain in-service. These undetected flaws could grow in size until leakage from the piping degrades system operation, or if sufficient general corrosion occurs, a gross rupture or collapse of the piping could occur. The finding is of very low safety significance because the finding did not represent a loss of safety function. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the operating experience aspect of the corrective action component [P.2(b)].

[Section 1R21.4]

Inspection Report# : [2007007](#) (pdf)

Significance:  Dec 14, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Corrective Actions for Cable Submersion Were Not Effective.

The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, the licensee failed to correct a cable submergence issue which resulted in the failure of a safety-related cable.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because the finding was not a design or qualification deficiency, and did not represent a loss of safety function because the redundant train was available. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the licensee thoroughly evaluates problems aspect of the corrective action component [P.1(c)].

Inspection Report# : [2007007](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Secure Stored Radioactive Material from Unauthorized Removal

A Green, self-revealing non-cited violation of 10 CFR 20.1801 was identified for the licensee's failure to secure stored radioactive material from unauthorized removal. On August 14, 2007, a shipment of "clean" scrap metal from Browns Ferry alarmed the truck monitor at a vendor recycling facility. Using a hand-held survey instrument, the vendor identified the contaminated item to be a small (4 ounces) metal can containing pipe threading compound. Subsequently, upon arrival at the site, licensee personnel retrieved the item and performed radiation surveys as necessary. The finding was entered into the licensee's corrective action program as Problem Evaluation Report 128870.

This finding was more than minor because it was associated with the Public Radiation Safety cornerstone attribute of program and process and it affected the associated cornerstone objective because the failure to secure stored radioactive material from removal did not ensure the adequate protection of public health and safety from exposure to radiation. The finding was evaluated using the Public Radiation Safety Significance Determination Process and was determined to be of very low safety significance because the failure to secure radioactive material from removal was a finding in the radioactive material control program that did not result in a public exposure exceeding 5 mrem. The cause of this finding was related to the evaluation of identified problems cross-cutting aspect in the corrective action component of the Problem Identification and Resolution cross-cutting area because evaluations performed by the licensee subsequent to previous radioactive material control events had failed to thoroughly evaluate and identify the weaknesses in the radioactive material control program (P.1(c)).

Inspection Report# : [2008003](#) (*pdf*)

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.

Miscellaneous

Significance: N/A Aug 24, 2007

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution

The licensee was effective in identifying problems at a low threshold and entering them into the CAP. Issues were typically properly characterized and evaluations such as root causes were sufficiently thorough and detailed. Strong management oversight of the CAP was evident. Initial prioritization of issues and corrective actions appeared to be appropriate to risk and program guidance; however, numerous delays in completion of corrective actions had led to increased backlogs in closure of Problem Evaluation Reports (PERs). Recent management attention had resulted in the backlogs beginning to decrease at the time of this inspection. In

addition, the inspectors concluded that the licensee had been slow to effect significant improvement in equipment reliability based on the number of equipment problems and timeliness of corrective actions. Also, some repeat problems, such as, adequacy of corrective action implementation were noted; however, these problems were improved from previous inspections.

The licensee was effective in evaluating internal and external industry operating experience items for applicability and taking appropriate action.

Based on review of the licensee's Concerns Resolution Program (CRP), discussions conducted with plant employees from various departments, and review of many PERs, the inspectors did not identify any reluctance to report safety concerns. The inspectors concluded that licensee management routinely emphasized the need for all employees to identify and report problems using the appropriate

methods established within the administrative programs.

Inspection Report# : [2007008](#) (*pdf*)

Last modified : August 29, 2008

Browns Ferry 3

3Q/2008 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Jun 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Deficiencies in Degraded Flood Protection Doors

The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee's failure to identify and correct deficiencies in watertight doors that protect the safety-related Residual Heat Removal Service Water pumps and Emergency Equipment Cooling Water pumps from external flooding. The licensee issued work orders to correct the conditions and entered the issue into their corrective action program as Problem Evaluation Reports 133891 and 134346.

This finding was more than minor because it affects the External Factors (Flood Hazard) attribute of the Mitigating Systems Cornerstone. It impacted the cornerstone objective of ensuring the availability, reliability, and operability of safety-related pumps to perform their intended safety function during a design basis flooding event. A Significance Determination Process Phase 3 analysis determined that the finding was of very low safety significance because of the low likelihood of the design basis flood. The finding was directly related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance. Mechanics were not complying with quarterly work orders and maintenance procedure to assure functionality of the watertight doors (H.4(b)).

Inspection Report# : [2008003](#) (*pdf*)

Significance:  Dec 31, 2007

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Corrective Actions To Ensure Sufficient Alternate Shutdown Cooling Flow During Appendix R Events

The inspectors identified a Green noncited violation of Unit 2 License Condition 2.C (14), and Unit 3 License Condition 2.C (7), Fire Protection Report, Appendix R Safe Shutdown Program, for failing to establish the required compensatory measures to provide equivalent safe shutdown capability in lieu of the incorrect operating pressure band specified by the Safe Shutdown Instructions for Alternate Shutdown Cooling. A Priority 1 Operator Work Around was initiated and the station's Safe Shutdown Instructions were subsequently revised to incorporate the correct pressure band. This finding was entered into the licensee's corrective action program as Problem Evaluation Reports 109829 and 133483.

This finding was considered more than minor because if left uncorrected it could result in a more significant safety concern regarding the operator's ability to safely shutdown the plant and maintain adequate shutdown cooling during an Appendix R fire. This finding is also associated with the Protection Against External Factors attribute of the Reactor Safety/ Mitigating Systems cornerstone. According to IMC 0609, Appendix F, Fire Protection SDP, Phase 1 this finding was determined to be of very low safety significance because the assigned Degradation Rating was considered to be Low since Alternate Shutdown Cooling flow was minimally impacted even with an inaccurate operating pressure band due to the inherent plant design. The cause of this finding was directly related to the aspect of appropriate and timely corrective action in the cross-cutting area of Problem Identification and Resolution (Corrective Action component) because the licensee did not take appropriate corrective actions to address a safety issue by failing to incorporate the required interim actions into an Operator Work Around (P.1(d)).

Inspection Report# : [2007005](#) (*pdf*)

Significance:  Dec 14, 2007

Identified By: NRC


Item Type: NCV NonCited Violation

Failure to Perform ASME Inspections of Safety-Related Piping.

The inspectors identified a Green non-cited violation of 10 CFR 50.55a(g)4 Codes and Standards. Specifically, the licensee failed to perform required code inspections of accessible portions of safety-related piping. The licensee entered this issue into their corrective action program.

This finding is more than minor because if left uncorrected it would become a more significant safety concern. The failure to perform

required inspections of safetyrelated piping could have allowed undetected through-wall flaws to remain in-service. These undetected flaws could grow in size until leakage from the piping degrades system operation, or if sufficient general corrosion occurs, a gross rupture or collapse of the piping could occur. The finding is of very low safety significance because the finding did not represent a loss of safety function. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the operating experience aspect of the corrective action component [P.2(b)].
[Section 1R21.4]
Inspection Report# : [2007007](#) (*pdf*)

Significance:  Dec 14, 2007
Identified By: NRC
Item Type: NCV NonCited Violation

Corrective Actions for Cable Submersion Were Not Effective.
The inspectors identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action. Specifically, the licensee failed to correct a cable submergence issue which resulted in the failure of a safety-related cable.


This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance because the finding was not a design or qualification deficiency, and did not represent a loss of safety function because the redundant train was available. The cause of the finding is related to the cross-cutting element of problem identification and resolution under the licensee thoroughly evaluates problems aspect of the corrective action component [P.1(c)].
Inspection Report# : [2007007](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2008
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Secure Stored Radioactive Material from Unauthorized Removal
A Green, self-revealing non-cited violation of 10 CFR 20.1801 was identified for the licensee’s failure to secure stored radioactive material from unauthorized removal. On August 14, 2007, a shipment of “clean” scrap metal from Browns Ferry alarmed the truck monitor at a vendor recycling facility. Using a hand-held survey instrument, the vendor identified the contaminated item to be a small (4 ounces) metal can containing pipe threading compound. Subsequently, upon arrival at the site, licensee personnel retrieved the item and performed radiation surveys as necessary. The finding was entered into the licensee’s corrective action program as Problem Evaluation Report 128870.

This finding was more than minor because it was associated with the Public Radiation Safety cornerstone attribute of program and process and it affected the associated cornerstone objective because the failure to secure stored radioactive material from removal did not ensure the adequate protection of public health and safety from exposure to radiation. The finding was evaluated using the Public Radiation Safety Significance Determination Process and was determined to be of very low safety significance because the failure to secure radioactive material from removal was a finding in the radioactive material control program that did not result in a public exposure exceeding 5 mrem. The cause of this finding was related to the evaluation of identified problems cross-cutting aspect in the corrective action component of the Problem Identification and Resolution cross-cutting area because evaluations performed by the licensee subsequent to previous radioactive material control events had failed to thoroughly evaluate and identify the weaknesses in the radioactive material control program (P.1(c)).

Inspection Report# : [2008003](#) (*pdf*)

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.

Miscellaneous

Last modified : November 26, 2008

Browns Ferry 3

4Q/2008 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Requalification Examination Integrity

The inspectors identified a non-cited violation of 10 CFR 55.49 for engaging in an activity that compromised, or would have compromised but for detection by the inspectors, the integrity of examinations required by 10 CFR 55.59 that were administered in 2007 and that were planned to be administered in 2008. The examination compromise would have affected the equitable and consistent administration of the operational portion of the requalification annual examination. The inspectors identified that three job performance measures (JPM) sets administered in 2007 contained an unacceptable number of JPMs that had previously been administered during that same examination cycle. The inspectors also identified that the JPMs scheduled to be performed in the last three weeks of the 2008 requalification examination had all been previously administered in the first three weeks of the 2008 requalification examination. When notified of the examination schedule overlap issue, the licensee changed the examination schedule to prevent the overlap issue in 2008 and entered the problem into their corrective action program as problem evaluation report 158635.

This finding is more than minor because if left uncorrected, it could become a more significant safety concern, in that, licensed operators would not be adequately tested to ensure an acceptable knowledge level for performing licensed duties. Using the Licensed Operator Requalification Significance Determination Process, this finding was determined to be of very low safety significance (Green) because the performance deficiency was immediately corrected upon discovery. The cause of the finding was that the licensee did not comply with requirements of TRN-11.10, Annual Requalification Examination Development and Implementation. The finding was related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance (H.4(b)).

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Oct 24, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify an Adverse Trend for Vibration-induced, Failed or Degraded Unit 2 and 3 RHR Hx SW Outlet FCVs

An NRC-identified, Green, non-cited violation of 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program," was identified for the licensee's failure, between April 2000 and January 2008, to carry out the Nuclear Quality Assurance Plan policy in that trend analysis performed on adverse conditions did not result in trend results which identified vibration-induced, failed or degraded residual heat removal (RHR) heat exchanger (Hx) service water (SW) outlet flow control valves (FCVs) as an adverse trend that needed increased management attention. Between April 2000 and January 2008, there were 17 instances of failed or degraded Unit 2 and 3 RHR Hx SW outlet FCVs due to vibration-induced damage entered into the licensee's corrective action program (CAP). This issue has been identified in the licensee's CAP as Problem Evaluation report 159606. Corrective actions associated with the vibration-induced damage included actions to replace Units 2 and 3 RHR Hx SW outlet FCVs with the same valves used on Unit 1 and to reconfigure all three units with a smaller bypass valve around the RHR Hx SW outlet FCVs.

This finding was more than minor because it affected the Mitigating System cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences and the cornerstone’s attribute of equipment performance. Using the Significance Determination Process, the finding was determined to be of very low safety significance due to the RHR Hx SW outlet FCV occurrences, in which the RHR Hx SW outlet FCVs would not perform their safety function, did not represent an actual loss of a safety function of a single RHR SW train for greater than its Technical Specification allowed outage time. The cause of this finding was directly related to the Trend Performance in the CAP cross-cutting aspect of the Problem Identification and Resolution cross-cutting area, in that, the licensee failed to properly assess information in their CAP to identify the common cause problem of vibration-induced degraded and inoperable RHR Hx SW outlet FCVs.(P.1(b)).

Inspection Report# : [2008007](#) (pdf)

Significance:  Jun 30, 2008
Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Deficiencies in Degraded Flood Protection Doors

The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee’s failure to identify and correct deficiencies in watertight doors that protect the safety-related Residual Heat Removal Service Water pumps and Emergency Equipment Cooling Water pumps from external flooding. The licensee issued work orders to correct the conditions and entered the issue into their corrective action program as Problem Evaluation Reports 133891 and 134346.

This finding was more than minor because it affects the External Factors (Flood Hazard) attribute of the Mitigating Systems Cornerstone. It impacted the cornerstone objective of ensuring the availability, reliability, and operability of safety-related pumps to perform their intended safety function during a design basis flooding event. A Significance Determination Process Phase 3 analysis determined that the finding was of very low safety significance because of the low likelihood of the design basis flood. The finding was directly related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance. Mechanics were not complying with quarterly work orders and maintenance procedure to assure functionality of the watertight doors (H.4 (b)).

Inspection Report# : [2008003](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2008
Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Secure Stored Radioactive Material from Unauthorized Removal

A Green, self-revealing non-cited violation of 10 CFR 20.1801 was identified for the licensee's failure to secure stored radioactive material from unauthorized removal. On August 14, 2007, a shipment of "clean" scrap metal from Browns Ferry alarmed the truck monitor at a vendor recycling facility. Using a hand-held survey instrument, the vendor identified the contaminated item to be a small (4 ounces) metal can containing pipe threading compound. Subsequently, upon arrival at the site, licensee personnel retrieved the item and performed radiation surveys as necessary. The finding was entered into the licensee's corrective action program as Problem Evaluation Report 128870.

This finding was more than minor because it was associated with the Public Radiation Safety cornerstone attribute of program and process and it affected the associated cornerstone objective because the failure to secure stored radioactive material from removal did not ensure the adequate protection of public health and safety from exposure to radiation. The finding was evaluated using the Public Radiation Safety Significance Determination Process and was determined to be of very low safety significance because the failure to secure radioactive material from removal was a finding in the radioactive material control program that did not result in a public exposure exceeding 5 mrem. The cause of this finding was related to the evaluation of identified problems cross-cutting aspect in the corrective action component of the Problem Identification and Resolution cross-cutting area because evaluations performed by the licensee subsequent to previous radioactive material control events had failed to thoroughly evaluate and identify the weaknesses in the radioactive material control program (P.1(c)).

Inspection Report# : [2008003](#) (*pdf*)

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.

Miscellaneous

Significance: N/A Oct 24, 2008

Identified By: NRC

Item Type: FIN Finding

Problem identification Assessment results

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee was adequate at identifying problems and entering them into the corrective action program (CAP) for resolution. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for any deficiency noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team of issues not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team also identified examples where corrective actions were not effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work, and plant operations. However, the team found examples where operating experience

was not adequately addressed.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that the only corrective action to prevent recurrence for one of the common causes may not be sufficient to prevent recurrence. However, there were several other corrective actions credited from other PERs already implemented to address this common cause which the team considered to be appropriate. Additionally, a root cause evaluation team has been chartered to determine if any other corrective actions should be taken.

Inspection Report# : [2008007](#) (*pdf*)

Last modified : April 07, 2009

Browns Ferry 3

1Q/2009 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Requalification Examination Integrity

The inspectors identified a non-cited violation of 10 CFR 55.49 for engaging in an activity that compromised, or would have compromised but for detection by the inspectors, the integrity of examinations required by 10 CFR 55.59 that were administered in 2007 and that were planned to be administered in 2008. The examination compromise would have affected the equitable and consistent administration of the operational portion of the requalification annual examination. The inspectors identified that three job performance measures (JPM) sets administered in 2007 contained an unacceptable number of JPMs that had previously been administered during that same examination cycle. The inspectors also identified that the JPMs scheduled to be performed in the last three weeks of the 2008 requalification examination had all been previously administered in the first three weeks of the 2008 requalification examination. When notified of the examination schedule overlap issue, the licensee changed the examination schedule to prevent the overlap issue in 2008 and entered the problem into their corrective action program as problem evaluation report 158635.

This finding is more than minor because if left uncorrected, it could become a more significant safety concern, in that, licensed operators would not be adequately tested to ensure an acceptable knowledge level for performing licensed duties. Using the Licensed Operator Requalification Significance Determination Process, this finding was determined to be of very low safety significance (Green) because the performance deficiency was immediately corrected upon discovery. The cause of the finding was that the licensee did not comply with requirements of TRN-11.10, Annual Requalification Examination Development and Implementation. The finding was related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance (H.4(b)).

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Oct 24, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify an Adverse Trend for Vibration-induced, Failed or Degraded Unit 2 and 3 RHR Hx SW Outlet FCVs

An NRC-identified, Green, non-cited violation of 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program," was identified for the licensee's failure, between April 2000 and January 2008, to carry out the Nuclear Quality Assurance Plan policy in that trend analysis performed on adverse conditions did not result in trend results which identified vibration-induced, failed or degraded residual heat removal (RHR) heat exchanger (Hx) service water (SW) outlet flow control valves (FCVs) as an adverse trend that needed increased management attention. Between April 2000 and January 2008, there were 17 instances of failed or degraded Unit 2 and 3 RHR Hx SW outlet FCVs due to vibration-induced damage entered into the licensee's corrective action program (CAP). This issue has been identified in the licensee's CAP as Problem Evaluation report 159606. Corrective actions associated with the vibration-induced damage included actions to replace Units 2 and 3 RHR Hx SW outlet FCVs with the same valves used on Unit 1 and to reconfigure all three units with a smaller bypass valve around the RHR Hx SW outlet FCVs.

This finding was more than minor because it affected the Mitigating System cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences and the cornerstone’s attribute of equipment performance. Using the Significance Determination Process, the finding was determined to be of very low safety significance due to the RHR Hx SW outlet FCV occurrences, in which the RHR Hx SW outlet FCVs would not perform their safety function, did not represent an actual loss of a safety function of a single RHR SW train for greater than its Technical Specification allowed outage time. The cause of this finding was directly related to the Trend Performance in the CAP cross-cutting aspect of the Problem Identification and Resolution cross-cutting area, in that, the licensee failed to properly assess information in their CAP to identify the common cause problem of vibration-induced degraded and inoperable RHR Hx SW outlet FCVs.(P.1(b)).

Inspection Report# : [2008007](#) (pdf)

Significance:  Jun 30, 2008
Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify and Correct Deficiencies in Degraded Flood Protection Doors

The NRC identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for the licensee’s failure to identify and correct deficiencies in watertight doors that protect the safety-related Residual Heat Removal Service Water pumps and Emergency Equipment Cooling Water pumps from external flooding. The licensee issued work orders to correct the conditions and entered the issue into their corrective action program as Problem Evaluation Reports 133891 and 134346.

This finding was more than minor because it affects the External Factors (Flood Hazard) attribute of the Mitigating Systems Cornerstone. It impacted the cornerstone objective of ensuring the availability, reliability, and operability of safety-related pumps to perform their intended safety function during a design basis flooding event. A Significance Determination Process Phase 3 analysis determined that the finding was of very low safety significance because of the low likelihood of the design basis flood. The finding was directly related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance. Mechanics were not complying with quarterly work orders and maintenance procedure to assure functionality of the watertight doors (H.4 (b)).

Inspection Report# : [2008003](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2008
Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Secure Stored Radioactive Material from Unauthorized Removal

A Green, self-revealing non-cited violation of 10 CFR 20.1801 was identified for the licensee's failure to secure stored radioactive material from unauthorized removal. On August 14, 2007, a shipment of "clean" scrap metal from Browns Ferry alarmed the truck monitor at a vendor recycling facility. Using a hand-held survey instrument, the vendor identified the contaminated item to be a small (4 ounces) metal can containing pipe threading compound. Subsequently, upon arrival at the site, licensee personnel retrieved the item and performed radiation surveys as necessary. The finding was entered into the licensee's corrective action program as Problem Evaluation Report 128870.

This finding was more than minor because it was associated with the Public Radiation Safety cornerstone attribute of program and process and it affected the associated cornerstone objective because the failure to secure stored radioactive material from removal did not ensure the adequate protection of public health and safety from exposure to radiation. The finding was evaluated using the Public Radiation Safety Significance Determination Process and was determined to be of very low safety significance because the failure to secure radioactive material from removal was a finding in the radioactive material control program that did not result in a public exposure exceeding 5 mrem. The cause of this finding was related to the evaluation of identified problems cross-cutting aspect in the corrective action component of the Problem Identification and Resolution cross-cutting area because evaluations performed by the licensee subsequent to previous radioactive material control events had failed to thoroughly evaluate and identify the weaknesses in the radioactive material control program (P.1(c)).

Inspection Report# : [2008003](#) (*pdf*)

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.

Miscellaneous

Significance: N/A Oct 24, 2008

Identified By: NRC

Item Type: FIN Finding

Problem identification Assessment results

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee was adequate at identifying problems and entering them into the corrective action program (CAP) for resolution. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for any deficiency noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team of issues not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team also identified examples where corrective actions were not effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work, and plant operations. However, the team found examples where operating experience

was not adequately addressed.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that the only corrective action to prevent recurrence for one of the common causes may not be sufficient to prevent recurrence. However, there were several other corrective actions credited from other PERs already implemented to address this common cause which the team considered to be appropriate. Additionally, a root cause evaluation team has been chartered to determine if any other corrective actions should be taken.

Inspection Report# : [2008007](#) (*pdf*)

Last modified : May 28, 2009

Browns Ferry 3

2Q/2009 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Requalification Examination Integrity

The inspectors identified a non-cited violation of 10 CFR 55.49 for engaging in an activity that compromised, or would have compromised but for detection by the inspectors, the integrity of examinations required by 10 CFR 55.59 that were administered in 2007 and that were planned to be administered in 2008. The examination compromise would have affected the equitable and consistent administration of the operational portion of the requalification annual examination. The inspectors identified that three job performance measures (JPM) sets administered in 2007 contained an unacceptable number of JPMs that had previously been administered during that same examination cycle. The inspectors also identified that the JPMs scheduled to be performed in the last three weeks of the 2008 requalification examination had all been previously administered in the first three weeks of the 2008 requalification examination. When notified of the examination schedule overlap issue, the licensee changed the examination schedule to prevent the overlap issue in 2008 and entered the problem into their corrective action program as problem evaluation report 158635.

This finding is more than minor because if left uncorrected, it could become a more significant safety concern, in that, licensed operators would not be adequately tested to ensure an acceptable knowledge level for performing licensed duties. Using the Licensed Operator Requalification Significance Determination Process, this finding was determined to be of very low safety significance (Green) because the performance deficiency was immediately corrected upon discovery. The cause of the finding was that the licensee did not comply with requirements of TRN-11.10, Annual Requalification Examination Development and Implementation. The finding was related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance (H.4(b)).

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Oct 24, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify an Adverse Trend for Vibration-induced, Failed or Degraded Unit 2 and 3 RHR Hx SW Outlet FCVs

An NRC-identified, Green, non-cited violation of 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program," was identified for the licensee's failure, between April 2000 and January 2008, to carry out the Nuclear Quality Assurance Plan policy in that trend analysis performed on adverse conditions did not result in trend results which identified vibration-induced, failed or degraded residual heat removal (RHR) heat exchanger (Hx) service water (SW) outlet flow control valves (FCVs) as an adverse trend that needed increased management attention. Between April 2000 and January 2008, there were 17 instances of failed or degraded Unit 2 and 3 RHR Hx SW outlet FCVs due to vibration-induced damage entered into the licensee's corrective action program (CAP). This issue has been identified in the licensee's CAP as Problem Evaluation report 159606. Corrective actions associated with the vibration-induced damage included actions to replace Units 2 and 3 RHR Hx SW outlet FCVs with the same valves used on Unit 1 and to reconfigure all three units with a smaller bypass valve around the RHR Hx SW outlet FCVs.

This finding was more than minor because it affected the Mitigating System cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences and the cornerstone’s attribute of equipment performance. Using the Significance Determination Process, the finding was determined to be of very low safety significance due to the RHR Hx SW outlet FCV occurrences, in which the RHR Hx SW outlet FCVs would not perform their safety function, did not represent an actual loss of a safety function of a single RHR SW train for greater than its Technical Specification allowed outage time. The cause of this finding was directly related to the Trend Performance in the CAP cross-cutting aspect of the Problem Identification and Resolution cross-cutting area, in that, the licensee failed to properly assess information in their CAP to identify the common cause problem of vibration-induced degraded and inoperable RHR Hx SW outlet FCVs.(P.1(b)).

Inspection Report# : [2008007](#) (pdf)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to comply with the requirements of an RWP by entering a posted high radiation area

A Green self-revealing non-cited violation (NCV) of TS 5.4.1, Procedures, was identified for a radiation worker who failed to follow the requirements of RWP 09270081 as required by procedure RCI 9.1, Radiation Work Permits, Rev. 57. The licensee has entered this issue into the Corrective Action Program as Problem Evaluation Report 171375. This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Program and Process (Exposure Control) 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 SDP and determined to be of very low safety significance (Green) because it was not related to ALARA planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. The cause of this finding was directly related to the cross-cutting aspect of Work Practices in the area of Human Performance, because the radiation worker failed to use self-checking prior to passing through the swing gate into the posted high radiation area (H.4.a). (Section 2OS1)

Inspection Report# : [2009003](#) (pdf)

Public Radiation Safety

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.

Miscellaneous

Significance: N/A Oct 24, 2008

Identified By: NRC

Item Type: FIN Finding

Problem identification Assessment results

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee was adequate at identifying problems and entering them into the corrective action program (CAP) for resolution. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for any deficiency noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team of issues not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team also identified examples where corrective actions were not effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work, and plant operations. However, the team found examples where operating experience was not adequately addressed.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that the only corrective action to prevent recurrence for one of the common causes may not be sufficient to prevent recurrence. However, there were several other corrective actions credited from other PERs already implemented to address this common cause which the team considered to be appropriate. Additionally, a root cause evaluation team has been chartered to determine if any other corrective actions should be taken.

Inspection Report# : [2008007](#) (*pdf*)

Last modified : August 31, 2009

Browns Ferry 3

3Q/2009 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Maintain Requalification Examination Integrity

The inspectors identified a non-cited violation of 10 CFR 55.49 for engaging in an activity that compromised, or would have compromised but for detection by the inspectors, the integrity of examinations required by 10 CFR 55.59 that were administered in 2007 and that were planned to be administered in 2008. The examination compromise would have affected the equitable and consistent administration of the operational portion of the requalification annual examination. The inspectors identified that three job performance measures (JPM) sets administered in 2007 contained an unacceptable number of JPMs that had previously been administered during that same examination cycle. The inspectors also identified that the JPMs scheduled to be performed in the last three weeks of the 2008 requalification examination had all been previously administered in the first three weeks of the 2008 requalification examination. When notified of the examination schedule overlap issue, the licensee changed the examination schedule to prevent the overlap issue in 2008 and entered the problem into their corrective action program as problem evaluation report 158635.

This finding is more than minor because if left uncorrected, it could become a more significant safety concern, in that, licensed operators would not be adequately tested to ensure an acceptable knowledge level for performing licensed duties. Using the Licensed Operator Requalification Significance Determination Process, this finding was determined to be of very low safety significance (Green) because the performance deficiency was immediately corrected upon discovery. The cause of the finding was that the licensee did not comply with requirements of TRN-11.10, Annual Requalification Examination Development and Implementation. The finding was related to the cross-cutting aspect of procedural compliance of the work control component of the cross-cutting area of Human Performance (H.4(b)).

Inspection Report# : [2008005](#) (*pdf*)

Significance:  Oct 24, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Identify an Adverse Trend for Vibration-induced, Failed or Degraded Unit 2 and 3 RHR Hx SW Outlet FCVs

An NRC-identified, Green, non-cited violation of 10 CFR 50, Appendix B, Criterion II, "Quality Assurance Program," was identified for the licensee's failure, between April 2000 and January 2008, to carry out the Nuclear Quality Assurance Plan policy in that trend analysis performed on adverse conditions did not result in trend results which identified vibration-induced, failed or degraded residual heat removal (RHR) heat exchanger (Hx) service water (SW) outlet flow control valves (FCVs) as an adverse trend that needed increased management attention. Between April 2000 and January 2008, there were 17 instances of failed or degraded Unit 2 and 3 RHR Hx SW outlet FCVs due to vibration-induced damage entered into the licensee's corrective action program (CAP). This issue has been identified in the licensee's CAP as Problem Evaluation report 159606. Corrective actions associated with the vibration-induced damage included actions to replace Units 2 and 3 RHR Hx SW outlet FCVs with the same valves used on Unit 1 and to reconfigure all three units with a smaller bypass valve around the RHR Hx SW outlet FCVs.

This finding was more than minor because it affected the Mitigating System cornerstone objective of ensuring the reliability of systems that respond to initiating events to prevent undesirable consequences and the cornerstone's attribute of equipment performance. Using the Significance Determination Process, the finding was determined to be of very low safety significance due to the RHR Hx SW outlet FCV occurrences, in which the RHR Hx SW outlet FCVs would not perform their safety function, did not represent an actual loss of a safety function of a single RHR SW train for greater than its Technical Specification allowed outage time. The cause of this finding was directly related to the Trend Performance in the CAP cross-cutting aspect of the Problem Identification and Resolution cross-cutting area, in that, the licensee failed to properly assess information in their CAP to identify the common cause problem of vibration-induced degraded and inoperable RHR Hx SW outlet FCVs.(P.1(b)).

Inspection Report# : [2008007](#) (pdf)

Barrier Integrity

Significance:  Jul 17, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Standby Gas Treatment Subsystem 'A' Inoperable Beyond the Technical Specification Allowed Outage Time (Section 40A2.a)

• Green. A Green, self-revealing, non-cited violation (NCV) of Technical Specification (TS) limiting condition for operation (LCO) 3.6.4.3, "Standby Gas Treatment (SGT) System", was identified for the licensee's failure to comply with the LCO required actions for one inoperable SGT subsystem due to an inadequate investigation to ensure the system's operability, on November 30, 2008, following a loss of power to one of the three relative humidity heaters. This issue was entered into the corrective action program as Problem Evaluation Report 174597. The cause of the failure of the heater was a failed relay. The relay was replaced and the system was restored to service on June 20, 2009.

The finding is similar to example 2a in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," in that the example performance deficiency is not minor if Technical Specification limits were exceeded. In accordance with IMC 0612, Appendix B, "Issue Screening," the finding is greater than minor significance because it was associated with the Barrier Integrity cornerstone attribute of Human Performance and adversely affected the cornerstone objective of maintaining the radiological barrier functionality of Standby Gas Trains. Although the licensee ultimately was able to demonstrate that the SGT system could perform its safety function without the charcoal beds and associated heaters, compliance with SGT TS was a prerequisite to providing reasonable assurance that the SGT can protect the public from radionuclide releases caused by accidents or events. 10 CFR 50.36 defines TS limiting conditions for operation as the lowest functional capability or performance levels of equipment required for safe operation of the facility. The SGT TS LCO requirement was not met and therefore the cornerstone objective for functionality as described in the TSs, was not maintained.

In accordance with IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding is determined to be of very low risk significance because the finding only represented a degradation of the radiological barrier function provided by the SGT system. Because this finding is of very low safety significance and has been entered in licensee's corrective action program, the violation is being treated as a non-cited violation. The cause of this finding was directly related to the cross-cutting aspect of thorough evaluation of identified problems in the problem identification and resolution area, because the licensee failed to properly classify, prioritize and evaluate the operability of the SGT system when the heater loss of power annunciator was received [P.1(c)]. (Section 40A2.a)

Inspection Report# : [2009006](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to comply with the requirements of an RWP by entering a posted high radiation area

A Green self-revealing non-cited violation (NCV) of TS 5.4.1, Procedures, was identified for a radiation worker who failed to follow the requirements of RWP 09270081 as required by procedure RCI 9.1, Radiation Work Permits, Rev. 57. The licensee has entered this issue into the Corrective Action Program as Problem Evaluation Report 171375.

This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Program and Process (Exposure Control) 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 SDP and determined to be of very low safety significance (Green) because it was not related to ALARA planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. The cause of this finding was directly related to the cross-cutting aspect of Work Practices in the area of Human Performance, because the radiation worker failed to use self-checking prior to passing through the swing gate into the posted high radiation area (H.4.a). (Section 2OS1)

Inspection Report# : [2009003](#) (*pdf*)

Public Radiation Safety

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.

Miscellaneous

Significance: N/A Jul 17, 2009

Identified By: NRC

Item Type: FIN Finding

Browns Ferry PI&R Summary

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for deficiencies noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team which were not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, conducted adequate formal root cause evaluations for significant problems, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team identified some examples where corrective actions were not fully effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. However, the team noted that a significant number of deficiencies were identified through self assessments of the CAP, which was indicative of a program that, while improved, has yet to reach the licensee's own desired level of effectiveness. Specifically, a large number of PERs associated with corrective maintenance work orders were not written even though generation of such PERs was explicitly required by corrective action program procedures.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that some corrective actions to prevent recurrence associated with the substantive cross-cutting issue problem evaluation report (PER) were improperly implemented and ineffective. Specifically, the corrective action implemented to initiate PERs for all Corrective Maintenance Work Orders (CMWO) was ineffective in that several hundred CMWOs did not have PERs initiated.

Inspection Report# : [2009006](#) (pdf)

Significance: N/A Oct 24, 2008

Identified By: NRC

Item Type: FIN Finding

Problem identification Assessment results

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee was adequate at identifying problems and entering them into the corrective action program (CAP) for resolution. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for any deficiency noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team of issues not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, formal root cause evaluations for significant problems were adequate, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team also identified examples where corrective actions were not effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. Operating experience usage was found to be generally acceptable and integrated into the licensee's processes for performing and managing work, and plant operations. However, the team found examples where operating experience was not adequately addressed.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that the only corrective action to prevent recurrence for one of the common causes may not be sufficient to prevent recurrence. However, there were several other corrective actions credited from other PERs already implemented to address this common cause which the team considered to be appropriate. Additionally, a root cause evaluation team has been chartered to determine if any other corrective actions should be taken.

Inspection Report# : [2008007](#) (pdf)

Last modified : December 10, 2009

Browns Ferry 3

4Q/2009 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Deficiencies with Emergency Lighting Units

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program, as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires that measures be established to ensure that conditions adverse to fire protection, such as failures and deficiencies, are promptly identified and corrected. The licensee had not established measures to identify and correct an excessive number of Appendix R emergency lighting unit failures. Specifically, emergency lighting unit failures were not being entered in the corrective action program as problem evaluation reports in order to evaluate and resolve why many of the emergency lighting failures occurred prior to reaching their 6-year replacement date. Additionally, the Fire Protection Report surveillance requirement to replace the Appendix R emergency lighting unit batteries and lamp heads every six years was not being adequately implemented, in that licensee data revealed that several installed emergency lighting units were beyond their 6-year replacement date. The licensee entered this finding into their corrective action program and initiated corrective actions to address these issues.

The licensee's failure to meet the Fire Protection Report requirements to establish measures to identify and correct a condition adverse to fire protection (excessive Appendix R emergency lighting unit failures); and, to implement the Appendix R emergency lighting system replacement program, is a performance deficiency. The finding is more than minor because it is associated with the reactor safety, mitigating systems cornerstone attribute of protection against external factors (i.e., fire). The excessive emergency lighting unit failures affected the objective of ensuring the reliability and capability of operator manual actions during response to initiating events. The team determined that this finding was of very low safety significance (Green) because the operators had a high likelihood of completing the tasks using flashlights. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities to support long-term equipment reliability, and their maintenance scheduling was more reactive than preventive (H.3(b))

Inspection Report# : [2009009](#) (*pdf*)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish Adequate Compensatory measures for an Out-of-Service Hose Station

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires the licensee to establish adequate compensatory measures for degraded or inoperable fire protection equipment. The licensee failed to establish adequate compensatory measures for an out-of-service hose station, in that the staged additional lengths of hose connected to the closest in-service hose station, established as a compensatory measure, did not provide equal or better protection than the out-of-service hose

station that it was replacing. The licensee entered this finding into their corrective action program and took immediate action to review all existing fire protection impairment permits for similar problems. The licensee removed the compensatory measure and restored the out-of-service hose station to service.

The licensee's failure to provide compensatory measures of equal or better protection for an out-of-service hose station is a performance deficiency because it did not meet the requirements of the approved fire protection program. The finding was more than minor because it affected the protection against external factors attribute of the mitigating systems cornerstone, in that it impacted manual fire suppression (i.e., fire brigade) capability; and, affected the cornerstone objective of ensuring the availability of systems that respond to initiating events. Since Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," does not provide guidance for assigning a degradation rating to manual fire suppression, this determination was made using qualitative methods which received NRC management review as provided for in Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." This finding was determined to be of very low safety significance (Green) because it represented a low degradation of the manual fire suppression function. Although the fire protection impairment permit had been implemented for an out-of-service hose station, the hose station was still functional at the time this issue was identified, because the water supply to the hose station had not been physically isolated. However, the team concluded the fire brigade would have experienced delays in initiating manual fire suppression for a fire in a fire area covered by the impairment. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities, consistent with nuclear safety, to ensure that adequate compensatory actions were established for an out-of-service hose station (H.3 (a)).

Inspection Report# : [2009009](#) (*pdf*)

Significance: TBD Oct 09, 2009

Identified By: NRC

Item Type: AV Apparent Violation

Failure to Protect Cables of Systems Necessary to Achieve and/or Maintain Post-Fire Safe Shutdown Conditions for Fire Areas Subject to the Requirements of 10 CFR Part 50, Appendix R, Section 111.G.2.

The team identified an apparent violation of Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Appendix R, Section 111.G.2, for the licensee's failure to ensure one of the redundant trains of cables and equipment required for safe shutdown and located in the same fire area was free of fire damage. Specifically, cables associated with equipment required for safe shutdown had not been protected by one of the methods specified in 10 CFR Part 50, Appendix R, Section 111.G.2 (i.e., use of spatial separation, passive barriers, and fire detection and an automatic fire suppression system). This apparent violation applies to Browns Ferry Units 1, 2, and 3, and resulted from review and closure of two unresolved items which were opened in previous inspections. The licensee entered this apparent violation into their corrective action program and posted additional compensatory measures while long term corrective actions are being implemented.

Failure to protect one train of cables and equipment necessary to achieve post-fire safe shutdown from fire damage, as required by 10 CFR Part 50, Appendix R, Section 111.G.2, is a performance deficiency. This finding is more than minor because it is associated with the reactor safety mitigating system cornerstone attribute of protection against external events (i.e., fire). Failure to protect safe shutdown cables and equipment from fire damage affects the reactor safety mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed a significance determination process Phase 1 screening. Given the likely impact of the risk contribution arising from the assessment of multiple fire areas, Region II senior reactor analysts performed a Phase 3 significance determination, which resulted in a preliminary risk of Greater Than Green. The team determined that this apparent violation did not present an immediate safety concern because the licensee implemented compensatory measures while long-term corrective actions are being implemented. The compensatory measures included operator manual actions to mitigate or prevent damage to equipment necessary for safe shutdown in the event of a fire. The licensee also implemented fire watches as additional compensatory measures to mitigate the safety hazard. Subsequent to the onsite inspection, the licensee evaluated the most critical operator manual actions, and revised selected safe shutdown instructions to include steps for independent confirmation of operator manual actions in order to improve the likelihood of success of these steps, and thus reduce the risk associated with this apparent violation. The cause of this finding has a cross-cutting aspect in the Corrective Action Program component of the Problem identification and Resolution area, in that the licensee did not take appropriate corrective actions to address the issue in a timely manner, commensurate with the safety significance (P.1.(d)).

Significance: TBD Oct 09, 2009

Identified By: NRC

Item Type: AV Apparent Violation

Failure to Meet the Requirements of 10 CFR Part 50, Appendix R, Section 111.G.1 for 20 Fire Areas

The team identified an apparent violation of Title 10 of the Code of Federal Regulations (10 CFR), Part 50, Appendix R, Section 111.G.1, for the licensee's failure to ensure that one train of cables and equipment necessary to achieve and maintain hot shutdown conditions was free of fire damage in 20 fire areas. In addition, these cables had not been protected by one of the methods specified in Appendix R, Section 111.G.2 (i.e., use of spatial separation, passive barriers, and fire detection and an automatic suppression system). This apparent violation applies to Browns Ferry Units 1, 2, and 3, and resulted from review and closure of two unresolved items which were opened in previous inspections. The licensee entered this finding into their corrective action program and posted additional compensatory measures while long term corrective actions are being completed.

Failure to meet the requirements of 10 CFR Part 50, Appendix R, Section 111.G.1 is a performance deficiency. It is more than minor because it is associated with the reactor safety mitigating system cornerstone attribute of protection against external events (i.e., fire). Failure to ensure that one train of safe shutdown cables and equipment was free of fire damage affects the reactor safety mitigating systems cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. This finding was evaluated in accordance with NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process." The team performed a significance determination process Phase 1 screening. Given the likely impact of the risk contribution arising from the assessment of multiple fire areas, Region II senior reactor analysts performed a Phase 3 significance determination, which resulted in a preliminary risk of Greater Than Green. The team determined that this apparent violation did not present an immediate safety concern because the licensee implemented compensatory measures while long-term corrective actions are being implemented. The compensatory measures included operator manual actions to mitigate or prevent damage to equipment necessary for safe shutdown in the event of a fire. The licensee also implemented fire watches as additional compensatory measures to mitigate the safety hazard. Subsequent to the onsite inspection, the licensee evaluated the most critical operator manual actions, and revised selected safe shutdown instructions to include steps for independent confirmation of operator manual actions in order to improve the likelihood of success of these steps, and thus reduce the risk associated with this apparent violation. The cause of this finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution area, in that the licensee did not identify and thoroughly evaluate the problem, and the resolution did not address causes and extent of condition (P.1 (c)).

Inspection Report# : [2009009](#) (pdf)

Significance: TBD Oct 09, 2009

Identified By: NRC

Item Type: AV Apparent Violation

Inadequate Safe Shutdown Instruction Entry Conditions for Appendix R Fire Events

The team identified an apparent violation of Technical Specification 5.4.1.a., in that, the licensee's revision to the safe shutdown instruction entry conditions in December 2008 resulted in inadequate procedural guidance. Specifically, the revision to Procedure 0-SSI-001, "Safe Shutdown Instructions," added an entry condition based on the operator's ability to restore and maintain reactor water level above +2 inches on the narrow range scale, utilizing available equipment. This revision could have delayed or prevented entry into the safe shutdown instructions if reactor water level stayed at or above +2 inches on the narrow range scale. Furthermore, this entry condition was not consistent with the initial plant conditions assumed in the fire protection program safe shutdown analysis. The licensee entered this finding into the corrective action program and revised the entry conditions for the safe shutdown instructions on February 27, 2009, to eliminate the +2-inch reactor vessel water level entry condition.

Failure to meet Technical Specification requirements due to inadequate procedural guidance is a performance deficiency. This finding is more than minor because it is associated with the procedure quality attribute of the mitigating systems cornerstone and the inadequate procedure affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. Given the number of fire areas involved, a significance determination process Phase 2 analysis was not performed. A regional senior reactor analyst determined that there were significant obstacles to quantifying the risk of this finding because the methods and tools are not adequate to determine the significance of this finding within the established timeliness goal of 90 days. Therefore, the

safety significance of this finding was determined using the guidance and qualitative techniques contained in NRC Inspection Manual Chapter 0609, Appendix M, “Significance Determination Process Using Qualitative Criteria.” The preliminary significance of this finding was determined to be Greater Than Green, which was reviewed and approved by NRC management. The team determined that this finding did not present an immediate safety concern because the immediate safety hazard no longer existed after the licensee revised the safe shutdown instruction in February 2009. The cause of this finding had a cross-cutting aspect in the Decision Making component of the Human Performance area, in that it was related to the licensee not using conservative assumptions in decision making and not conducting reviews to verify the validity of underlying assumptions and identifying possible unintended consequences (H.1(b)).
Inspection Report# : [2009009](#) (*pdf*)

Barrier Integrity

Significance:  Jul 17, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Standby Gas Treatment Subsystem ‘A’ Inoperable Beyond the Technical Specification Allowed Outage Time (Section 40A2.a)

• Green. A Green, self-revealing, non-cited violation (NCV) of Technical Specification (TS) limiting condition for operation (LCO) 3.6.4.3, “Standby Gas Treatment (SGT) System”, was identified for the licensee’s failure to comply with the LCO required actions for one inoperable SGT subsystem due to an inadequate investigation to ensure the system’s operability, on November 30, 2008, following a loss of power to one of the three relative humidity heaters. This issue was entered into the corrective action program as Problem Evaluation Report 174597. The cause of the failure of the heater was a failed relay. The relay was replaced and the system was restored to service on June 20, 2009.

The finding is similar to example 2a in Inspection Manual Chapter (IMC) 0612, Appendix E, “Examples of Minor Issues,” in that the example performance deficiency is not minor if Technical Specification limits were exceeded. In accordance with IMC 0612, Appendix B, “Issue Screening,” the finding is greater than minor significance because it was associated with the Barrier Integrity cornerstone attribute of Human Performance and adversely affected the cornerstone objective of maintaining the radiological barrier functionality of Standby Gas Trains. Although the licensee ultimately was able to demonstrate that the SGT system could perform its safety function without the charcoal beds and associated heaters, compliance with SGT TS was a prerequisite to providing reasonable assurance that the SGT can protect the public from radionuclide releases caused by accidents or events. 10 CFR 50.36 defines TS limiting conditions for operation as the lowest functional capability or performance levels of equipment required for safe operation of the facility. The SGT TS LCO requirement was not met and therefore the cornerstone objective for functionality as described in the TSs, was not maintained.

In accordance with IMC 0609, Attachment 4, “Phase 1 - Initial Screening and Characterization of Findings,” the finding is determined to be of very low risk significance because the finding only represented a degradation of the radiological barrier function provided by the SGT system. Because this finding is of very low safety significance and has been entered in licensee’s corrective action program, the violation is being treated as a non-cited violation. The cause of this finding was directly related to the cross-cutting aspect of thorough evaluation of identified problems in the problem identification and resolution area, because the licensee failed to properly classify, prioritize and evaluate the operability of the SGT system when the heater loss of power annunciator was received [P.1(c)]. (Section 40A2.a)

Inspection Report# : [2009006](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to comply with the requirements of an RWP by entering a posted high radiation area

A Green self-revealing non-cited violation (NCV) of TS 5.4.1, Procedures, was identified for a radiation worker who failed to follow the requirements of RWP 09270081 as required by procedure RCI 9.1, Radiation Work Permits, Rev. 57. The licensee has entered this issue into the Corrective Action Program as Problem Evaluation Report 171375.

This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Program and Process (Exposure Control) 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 SDP and determined to be of very low safety significance (Green) because it was not related to ALARA planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. The cause of this finding was directly related to the cross-cutting aspect of Work Practices in the area of Human Performance, because the radiation worker failed to use self-checking prior to passing through the swing gate into the posted high radiation area (H.4.a). (Section 2OS1)

Inspection Report# : [2009003](#) (*pdf*)

Public Radiation Safety

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.

Miscellaneous

Significance: N/A Jul 17, 2009

Identified By: NRC

Item Type: FIN Finding

Browns Ferry PI&R Summary

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for deficiencies noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team which were not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, conducted adequate formal root cause evaluations for significant problems, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team identified some examples where corrective actions were not fully effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for

improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. However, the team noted that a significant number of deficiencies were identified through self assessments of the CAP, which was indicative of a program that, while improved, has yet to reach the licensee's own desired level of effectiveness. Specifically, a large number of PERs associated with corrective maintenance work orders were not written even though generation of such PERs was explicitly required by corrective action program procedures.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that some corrective actions to prevent recurrence associated with the substantive cross-cutting issue problem evaluation report (PER) were improperly implemented and ineffective. Specifically, the corrective action implemented to initiate PERs for all Corrective Maintenance Work Orders (CMWO) was ineffective in that several hundred CMWOs did not have PERs initiated.

Inspection Report# : [2009006](#) (*pdf*)

Last modified : March 01, 2010

Browns Ferry 3

1Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Operators failed to correctly monitor and assess RPV beltline temperatures during RPV hydrostatic/in-service leak test

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to follow surveillance procedure 3-SR-3.4.9.1(2), Reactor Vessel Shell Temperature and Reactor Coolant Pressure Monitoring during In-service Hydrostatic Leak Testing, to ensure all required Unit 3 temperatures were being monitored and verified to meet TS 3.4.9, RCS Pressure and Temperature Limits. Unit 3 reactor operators selected a wrong reactor pressure vessel (RPV) metal temperature to monitor, and the operator and Unit Supervisor (US) failed to recognize that the incorrect RPV temperature being monitored was outside the TS 3.4.9 limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as problem evaluation report (PER) 222844.

This finding was determined to be of greater than minor significance because it was associated with the Initiating Events Cornerstone attribute of Human Performance, and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. More specifically, the lack of reactor operator attention, and US oversight, during the RPV in-service leak test, resulted in operator errors that adversely affected the operators' ability to monitor and verify RPV metal temperatures were within TS Figure 3.4.9-2 limits to preclude a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 609.04, Phase 1 - Initial Screening and Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Human Performance and Error Prevention in the Work Practices component of the Human Performance area, because human performance errors by the control room operators resulted in selecting the wrong RPV metal temperature to monitor and not recognizing this temperature exceeded TS limits [H.4.(a)]. (Section 1R20.1.2)

Inspection Report# : [2010002](#) (*pdf*)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate surveillance procedure to ensure all relevant RPV metal temperatures were monitored during RPV hydrostatic/in-service leak testing

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to establish an adequate surveillance procedure to ensure all relevant reactor pressure vessel (RPV) metal temperatures of all four RPV regions were being monitored during the Unit 3 RPV in-service leak test pursuant with TS Surveillance Requirement (SR) 3.4.9.1, RCS Pressure and Temperature Limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as PERs 223539 and 224778.

This finding was determined to be of greater than minor significance 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. More specifically, the procedure used by operators to monitor RCS and RPV temperatures, during the RPV in-service leak test, lacked sufficient details to ensure all relevant RPV temperatures would be monitored to meet TS SR 3.4.9.1 which could increase the likelihood of a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 0609, Phase I - Initial Screening and

Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Complete and Accurate Procedures in the Resources component of the Human Performance area because the applicable surveillance procedure lacked sufficient details and guidance to ensure all relevant RPV metal temperatures would be monitored pursuant to TS SR 3.4.9.1 [H.2.(c)]. (Section 1R20.1.3)

Inspection Report# : [2010002](#) (pdf)

Mitigating Systems

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to effectively maintain performance of the A3 EECW pump as required by 10 CFR

The inspectors identified a noncited violation of 10 CFR 50.65(a)(2) for failure to demonstrate that the performance of the A3 Emergency Equipment Cooling Water (EECW) pump was effectively controlled by preventive maintenance (PM) such that the pump remained capable of performing its intended function. Also due to inadequate evaluations performed after the A3 EECW pump exceeded its Maintenance Rule a(2) performance criteria, goal setting and monitoring were not established as required by paragraph a(1) of the Maintenance Rule. The licensee subsequently declared the EECW system in (a)(1) status and was in the process of developing the required goals and monitoring plan. This issue was entered into the licensee's corrective action program as problem evaluation report 223404.

The finding was determined to be of greater than minor significance because it was associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective of ensuring availability and reliability of systems designed to respond to initiating events to prevent undesirable consequences. More specifically, the licensee failed to demonstrate effective control of EECW system availability through appropriate PM. According to NRC Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately evaluate the causes of the A3 EECW pump unavailability and thereby failed to correctly determine the impact on the 10 CFR 50.65(a)(2) unavailability performance criteria [P.1 (c)]. (Section 1R12)

Inspection Report# : [2010002](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely corrective actions to restore compliance of EECW pump in-service testing with ASME OM code requirements

The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for failure to promptly recognize, and then correct in a timely manner, non-conforming conditions involving the in-service testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM) of Nuclear Power Plants for the Equipment Cooling Water (EECW) system identified in June 2009. These nonconforming conditions involved the use of flow instrumentation without the proper accuracy, and failure to use the pre-service pump curve when establishing additional IST baseline reference values. The licensee revised the timeliness of their corrective action plans and decided to track this issue as a nonconforming condition. This issue was entered into the licensee's corrective action program as PER 225844.

The finding was determined to be of greater than minor significance because if left uncorrected it could become a more significant safety concern. In-service testing of the EECW system in conformance with the ASME OM Code

provides assurance that degraded pump performance would be promptly detected and corrected. Failing to recognize and resolve these and other IST program deficiencies could lead to untimely detection of EECW pump degradation. According to Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Appropriate and Timely Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to take appropriate corrective actions to restore full compliance with the ASME OM Code requirements in a timely manner [P.1(d)]. (Section 40A2.2)

Inspection Report# : [2010002](#) (*pdf*)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Deficiencies with Emergency Lighting Units

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program, as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires that measures be established to ensure that conditions adverse to fire protection, such as failures and deficiencies, are promptly identified and corrected. The licensee had not established measures to identify and correct an excessive number of Appendix R emergency lighting unit failures. Specifically, emergency lighting unit failures were not being entered in the corrective action program as problem evaluation reports in order to evaluate and resolve why many of the emergency lighting failures occurred prior to reaching their 6-year replacement date. Additionally, the Fire Protection Report surveillance requirement to replace the Appendix R emergency lighting unit batteries and lamp heads every six years was not being adequately implemented, in that licensee data revealed that several installed emergency lighting units were beyond their 6-year replacement date. The licensee entered this finding into their corrective action program and initiated corrective actions to address these issues.

The licensee's failure to meet the Fire Protection Report requirements to establish measures to identify and correct a condition adverse to fire protection (excessive Appendix R emergency lighting unit failures); and, to implement the Appendix R emergency lighting system replacement program, is a performance deficiency. The finding is more than minor because it is associated with the reactor safety, mitigating systems cornerstone attribute of protection against external factors (i.e., fire). The excessive emergency lighting unit failures affected the objective of ensuring the reliability and capability of operator manual actions during response to initiating events. The team determined that this finding was of very low safety significance (Green) because the operators had a high likelihood of completing the tasks using flashlights. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities to support long-term equipment reliability, and their maintenance scheduling was more reactive than preventive (H.3(b))

Inspection Report# : [2009009](#) (*pdf*)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish Adequate Compensatory measures for an Out-of-Service Hose Station

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires the licensee to establish adequate compensatory measures for degraded or inoperable fire protection equipment. The licensee failed to establish adequate compensatory measures for an out-of-service hose station, in that the staged additional lengths of hose connected to the closest in-service hose station, established as a compensatory measure, did not provide equal or better protection than the out-of-service hose station that it was replacing. The licensee entered this finding into their corrective action program and took immediate

action to review all existing fire protection impairment permits for similar problems. The licensee removed the compensatory measure and restored the out-of-service hose station to service.

The licensee's failure to provide compensatory measures of equal or better protection for an out-of-service hose station is a performance deficiency because it did not meet the requirements of the approved fire protection program. The finding was more than minor because it affected the protection against external factors attribute of the mitigating systems cornerstone, in that it impacted manual fire suppression (i.e., fire brigade) capability; and, affected the cornerstone objective of ensuring the availability of systems that respond to initiating events. Since Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," does not provide guidance for assigning a degradation rating to manual fire suppression, this determination was made using qualitative methods which received NRC management review as provided for in Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." This finding was determined to be of very low safety significance (Green) because it represented a low degradation of the manual fire suppression function. Although the fire protection impairment permit had been implemented for an out-of-service hose station, the hose station was still functional at the time this issue was identified, because the water supply to the hose station had not been physically isolated. However, the team concluded the fire brigade would have experienced delays in initiating manual fire suppression for a fire in a fire area covered by the impairment. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities, consistent with nuclear safety, to ensure that adequate compensatory actions were established for an out-of-service hose station (H.3 (a)).

Inspection Report# : [2009009](#) (*pdf*)

Significance: Y Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Failure to Ensure One Train of Cables of Systems Necessary to Achieve and/or Maintain Post-Fire safe Shutdown is Free of Fire Damage in Accordance With 10 CFR Part 50, Appendix R, Section III.G.

Title 10 of the Code of Federal Regulations (10 CFR), Part 50.48(b)(1) requires that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of 10 CFR Part 50, Appendix R, Sections III.G, III.J, and III.O.

Section III.G requires fire protection of safe shutdown capability.

Section III.G.1 requires fire protection features shall be provided for structures, systems, and components important to safe shutdown. These features shall be capable of limiting fire damage, such that one train of systems necessary for achieving and maintaining hot shutdown conditions is free of fire damage.

Section III.G.2 requires, in part, that where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

- a. separation of cables and equipment by a fire barrier having a 3-hour rating; or
- b. separation of cables and equipment by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. Fire detection and automatic fire suppression shall be installed in the fire area; or
- c. enclosure of cables and equipment of one redundant train in a fire barrier having a 1-hour fire rating. Fire detection and automatic suppression shall be installed in the fire area.

Contrary to the above, since the restart of each unit (Unit 2-1991, Unit 3-1995, Unit 1-2007) and as of January 20, 2010, the date of the inspection report, the licensee had not met nor has met, as of the date of this NOV, the requirements of 10 CFR Part 50, Appendix R, Section III.G, in that:

(i) fire protection features capable of limiting fire damage were not provided for structures, systems, and components important for safe shutdown. Specifically, the Tennessee Valley Authority (licensee) failed to provide fire protection features capable of limiting the fire damage such that one train of systems necessary to achieve and maintain hot shutdown conditions was free from fire damage in Fire Area 8 along with 19 other fire areas designated in the Browns Ferry Fire Protection Report, as required by 10 CFR Part 50, Appendix R, Section III.G.1.

(ii) where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area, the licensee did not ensure that one of the redundant trains was free of fire damage by providing one of the following means: (a) a 3-hour rated fire barrier; (b) 20 feet of spatial separation (free of intervening combustibles and fire hazards) with detection and suppression installed in the fire area; or (c) a 1-hour rated fire barrier with detection and suppression installed in the fire area. Specifically, cables associated with the RHRSW Pump A1, RHR Pump 1A, and LPCI injection valve 1-FCV-74-53 in Fire Area 1/Fire Zone 1-4 are some of

the many examples in which the licensee failed to ensure that one train of cables of redundant systems or equipment necessary to achieve and maintain hot shutdown conditions, located in the same fire area, outside of primary containment was free of fire damage by one of the means described in 10 CFR Part 50, Appendix R, Section III.G.2.

Inspection Report# : [2009009](#) (pdf)

Inspection Report# : [2010007](#) (pdf)

Significance: **W** Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Inadequate Safe Shutdown Instruction Entry Conditions for Appendix R Fire Events

The team identified an apparent violation of Technical Specification 5.4.1.a., in that, the licensee's revision to the safe shutdown instruction entry conditions in December 2008 resulted in inadequate procedural guidance. Specifically, the revision to Procedure 0-SSI-001, "Safe Shutdown Instructions," added an entry condition based on the operator's ability to restore and maintain reactor water level above +2 inches on the narrow range scale, utilizing available equipment. This revision could have delayed or prevented entry into the safe shutdown instructions if reactor water level stayed at or above +2 inches on the narrow range scale. Furthermore, this entry condition was not consistent with the initial plant conditions assumed in the fire protection program safe shutdown analysis. The licensee entered this finding into the corrective action program and revised the entry conditions for the safe shutdown instructions on February 27, 2009, to eliminate the +2-inch reactor vessel water level entry condition.

Failure to meet Technical Specification requirements due to inadequate procedural guidance is a performance deficiency. This finding is more than minor because it is associated with the procedure quality attribute of the mitigating systems cornerstone and the inadequate procedure affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. Given the number of fire areas involved, a significance determination process Phase 2 analysis was not performed. A regional senior reactor analyst determined that there were significant obstacles to quantifying the risk of this finding because the methods and tools are not adequate to determine the significance of this finding within the established timeliness goal of 90 days. Therefore, the safety significance of this finding was determined using the guidance and qualitative techniques contained in NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The preliminary significance of this finding was determined to be Greater Than Green, which was reviewed and approved by NRC management. The team determined that this finding did not present an immediate safety concern because the immediate safety hazard no longer existed after the licensee revised the safe shutdown instruction in February 2009. The cause of this finding had a cross-cutting aspect in the Decision Making component of the Human Performance area, in that it was related to the licensee not using conservative assumptions in decision making and not conducting reviews to verify the validity of underlying assumptions and identifying possible unintended consequences (H.1(b)).

Inspection Report# : [2009009](#) (pdf)

Inspection Report# : [2010007](#) (pdf)

Barrier Integrity

Significance: **G** Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

New fuel receipt inspection and refueling operations supervised by non-qualified senior reactor operators

The inspectors identified a noncited violation of Technical Specifications 5.4.1.a for the failure to comply with operating procedures for Unit 3 new fuel receipt inspection and refueling operations that required the Fuel Handling Supervisor (FHS) to be trained and certified. During Unit 3 new fuel receipt inspections and refueling operations unqualified senior reactor operators (SRO) were allowed to supervise fuel handling activities. The unqualified SROs were subsequently re-qualified or not allowed to supervise fuel handling activities until qualified. This issue was entered into the licensee's corrective action program as problem evaluation reports 220410 and 220791.

This finding was determined to be of greater than minor significance because it was associated with the Barrier

Integrity Cornerstone attribute of Human Performance, 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. Specifically, the use of unqualified FHS(s) to supervise new fuel receipt inspection and core refueling operations would reduce the level of assurance that fuel handling activities were accomplished safely and error free to prevent inadvertent fuel damage. The finding was evaluated and determined to be of very low safety significance using Inspection Manual Chapter 0609, Appendix G, Shutdown Operations Significance Determination Process, Attachment 1, Phase 1 Operational Checklists, Checklist 7, because it did not involve any human performance errors that resulted in fuel assembly damage, inappropriate core alteration, loss of reactor coolant and/or spent fuel pool inventory, or reduction of any safe shutdown mitigation capability. The cause of this finding was directly related to the cross-cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area because neither the night shift FHS or relief FHS(s) complied with the operating procedure requirements that all personnel supervising new fuel receipt inspections and/or refueling operations must be qualified [(H.4(b)]. (Section 1R20.1.1)

Inspection Report# : [2010002](#) (pdf)

Significance:  Jul 17, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Standby Gas Treatment Subsystem 'A' Inoperable Beyond the Technical Specification Allowed Outage Time (Section 40A2.a)

• Green. A Green, self-revealing, non-cited violation (NCV) of Technical Specification (TS) limiting condition for operation (LCO) 3.6.4.3, "Standby Gas Treatment (SGT) System", was identified for the licensee's failure to comply with the LCO required actions for one inoperable SGT subsystem due to an inadequate investigation to ensure the system's operability, on November 30, 2008, following a loss of power to one of the three relative humidity heaters. This issue was entered into the corrective action program as Problem Evaluation Report 174597. The cause of the failure of the heater was a failed relay. The relay was replaced and the system was restored to service on June 20, 2009.

The finding is similar to example 2a in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," in that the example performance deficiency is not minor if Technical Specification limits were exceeded. In accordance with IMC 0612, Appendix B, "Issue Screening," the finding is greater than minor significance because it was associated with the Barrier Integrity cornerstone attribute of Human Performance and adversely affected the cornerstone objective of maintaining the radiological barrier functionality of Standby Gas Trains. Although the licensee ultimately was able to demonstrate that the SGT system could perform its safety function without the charcoal beds and associated heaters, compliance with SGT TS was a prerequisite to providing reasonable assurance that the SGT can protect the public from radionuclide releases caused by accidents or events. 10 CFR 50.36 defines TS limiting conditions for operation as the lowest functional capability or performance levels of equipment required for safe operation of the facility. The SGT TS LCO requirement was not met and therefore the cornerstone objective for functionality as described in the TSs, was not maintained.

In accordance with IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding is determined to be of very low risk significance because the finding only represented a degradation of the radiological barrier function provided by the SGT system. Because this finding is of very low safety significance and has been entered in licensee's corrective action program, the violation is being treated as a non-cited violation. The cause of this finding was directly related to the cross-cutting aspect of thorough evaluation of identified problems in the problem identification and resolution area, because the licensee failed to properly classify, prioritize and evaluate the operability of the SGT system when the heater loss of power annunciator was received [P.1(c)]. (Section 40A2.a)

Inspection Report# : [2009006](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Significance:  Jun 30, 2009

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to comply with the requirements of an RWP by entering a posted high radiation area

A Green self-revealing non-cited violation (NCV) of TS 5.4.1, Procedures, was identified for a radiation worker who failed to follow the requirements of RWP 09270081 as required by procedure RCI 9.1, Radiation Work Permits, Rev. 57. The licensee has entered this issue into the Corrective Action Program as Problem Evaluation Report 171375.

This finding is greater than minor because it is associated with the Occupational Radiation Safety Cornerstone attribute of Program and Process (Exposure Control) 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 SDP and determined to be of very low safety significance (Green) because it was not related to ALARA planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. The cause of this finding was directly related to the cross-cutting aspect of Work Practices in the area of Human Performance, because the radiation worker failed to use self-checking prior to passing through the swing gate into the posted high radiation area (H.4.a). (Section 2OS1)

Inspection Report# : [2009003](#) (*pdf*)

Public Radiation Safety

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.

Miscellaneous

Significance: N/A Jul 17, 2009

Identified By: NRC

Item Type: FIN Finding

Browns Ferry PI&R Summary

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for deficiencies noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team which were not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, conducted adequate formal root cause evaluations for significant problems, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team identified some examples where corrective actions were not fully effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for

improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. However, the team noted that a significant number of deficiencies were identified through self assessments of the CAP, which was indicative of a program that, while improved, has yet to reach the licensee's own desired level of effectiveness. Specifically, a large number of PERs associated with corrective maintenance work orders were not written even though generation of such PERs was explicitly required by corrective action program procedures.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that some corrective actions to prevent recurrence associated with the substantive cross-cutting issue problem evaluation report (PER) were improperly implemented and ineffective. Specifically, the corrective action implemented to initiate PERs for all Corrective Maintenance Work Orders (CMWO) was ineffective in that several hundred CMWOs did not have PERs initiated.

Inspection Report# : [2009006](#) (*pdf*)

Last modified : May 26, 2010

Browns Ferry 3

2Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Operators failed to correctly monitor and assess RPV beltline temperatures during RPV hydrostatic/in-service leak test

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to follow surveillance procedure 3-SR-3.4.9.1(2), Reactor Vessel Shell Temperature and Reactor Coolant Pressure Monitoring during In-service Hydrostatic Leak Testing, to ensure all required Unit 3 temperatures were being monitored and verified to meet TS 3.4.9, RCS Pressure and Temperature Limits. Unit 3 reactor operators selected a wrong reactor pressure vessel (RPV) metal temperature to monitor, and the operator and Unit Supervisor (US) failed to recognize that the incorrect RPV temperature being monitored was outside the TS 3.4.9 limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as problem evaluation report (PER) 222844.

This finding was determined to be of greater than minor significance because it was associated with the Initiating Events Cornerstone attribute of Human Performance, and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. More specifically, the lack of reactor operator attention, and US oversight, during the RPV in-service leak test, resulted in operator errors that adversely affected the operators' ability to monitor and verify RPV metal temperatures were within TS Figure 3.4.9-2 limits to preclude a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 609.04, Phase 1 - Initial Screening and Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Human Performance and Error Prevention in the Work Practices component of the Human Performance area, because human performance errors by the control room operators resulted in selecting the wrong RPV metal temperature to monitor and not recognizing this temperature exceeded TS limits [H.4.(a)]. (Section 1R20.1.2)

Inspection Report# : [2010002](#) (*pdf*)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate surveillance procedure to ensure all relevant RPV metal temperatures were monitored during RPV hydrostatic/in-service leak testing

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to establish an adequate surveillance procedure to ensure all relevant reactor pressure vessel (RPV) metal temperatures of all four RPV regions were being monitored during the Unit 3 RPV in-service leak test pursuant with TS Surveillance Requirement (SR) 3.4.9.1, RCS Pressure and Temperature Limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as PERs 223539 and 224778.

This finding was determined to be of greater than minor significance 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. More specifically, the procedure used by operators to monitor RCS and RPV temperatures, during the RPV in-service leak test, lacked sufficient details to ensure all relevant RPV temperatures would be monitored to meet TS SR 3.4.9.1 which could increase the likelihood of a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 0609, Phase I - Initial Screening and

Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Complete and Accurate Procedures in the Resources component of the Human Performance area because the applicable surveillance procedure lacked sufficient details and guidance to ensure all relevant RPV metal temperatures would be monitored pursuant to TS SR 3.4.9.1 [H.2.(c)]. (Section 1R20.1.3)

Inspection Report# : [2010002](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inappropriate Use of Waivers to Exceed 10 CFR 26 Work Hour Limitations

The inspectors identified a noncited violation of 10 CFR 26.207(a) for improper execution of the waiver process for authorizing waivers of the “72 hours in any seven day period” work hour limitation required by 10 CFR 26.205(d), for contractors performing risk significant maintenance activities during the Unit 3 refueling outage. These issues associated with the use of work hour control waivers were entered into licensee’s corrective action program as problem evaluation reports 161418, 162360, and 162638. As part of their interim corrective actions, the licensee prohibited all future use of waivers without express approval of executive management.

This finding was determined to be more than minor because it was similar to examples 9.a and 9.b. of Inspection Manual Chapter (IMC) 612, Appendix E, Examples of Minor Issues. The significance of the finding was screened by regional management according to IMC 609, Appendix M, Significance Determination Process Using Qualitative Criteria. The finding was determined to be of very low safety significance (Green) based on no observed human performance errors due to worker fatigue which caused a consequential event or adversely affected any risk-significant structures, systems, or components. The cause of this finding was directly related to the cross-cutting aspect of procedural compliance in the Work Practices component of the Human Performance area because the licensee failed to comply with the administrative program requirements for processing waivers of the 10 CFR 26 work hour limitations [H.4(b)].

Inspection Report# : [2010003](#) (pdf)

Significance:  Jun 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Unit 3 RCIC System Inoperable Beyond the Technical Specifications Allowed Outage Time

A self-revealing non-cited violation of Unit 3 Technical Specifications (TS) Limiting Condition for Operation 3.5.3, Reactor Core Isolation Cooling (RCIC) System, was identified for the licensee’s failure to comply with the TS required actions for an inoperable RCIC system. The RCIC system was inoperable due to missing critical parts in the electronic governor regulator (i.e., EG-R) hydraulic actuator for a period of greater than 14 days, during the time when TS 3.5.3 was applicable between March 14, 2006 and September 12, 2009, without the licensee taking the required TS actions. This issue was entered into the corrective action program as problem evaluation reports 200183 and 224614. The EGR was subsequently replaced and the RCIC system restored to an operable condition, following testing.

This finding was determined to be of greater than minor significance because it was associated with the Equipment Performance 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. Specifically, the RCIC EG-R was missing internal parts that were important for maintaining stable and reliable RCIC flow during reactor pressure vessel (RPV) injection. According to IMC 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance (Green) because the finding did not lead to an actual loss of safety function of the system, nor did it 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem

Identification and Resolution area, because the licensee did not adequately evaluate the operability of the RCIC system with large flow oscillations of plus/minus 300 gallons per minute during RPV injection [P.1(c)].

Inspection Report# : [2010003](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to effectively maintain performance of the A3 EECW pump as required by 10 CFR

The inspectors identified a noncited violation of 10 CFR 50.65(a)(2) for failure to demonstrate that the performance of the A3 Emergency Equipment Cooling Water (EECW) pump was effectively controlled by preventive maintenance (PM) such that the pump remained capable of performing its intended function. Also due to inadequate evaluations performed after the A3 EECW pump exceeded its Maintenance Rule a(2) performance criteria, goal setting and monitoring were not established as required by paragraph a(1) of the Maintenance Rule. The licensee subsequently declared the EECW system in (a)(1) status and was in the process of developing the required goals and monitoring plan. This issue was entered into the licensee's corrective action program as problem evaluation report 223404.

The finding was determined to be of greater than minor significance because it was associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective of ensuring availability and reliability of systems designed to respond to initiating events to prevent undesirable consequences. More specifically, the licensee failed to demonstrate effective control of EECW system availability through appropriate PM. According to NRC Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately evaluate the causes of the A3 EECW pump unavailability and thereby failed to correctly determine the impact on the 10 CFR 50.65(a)(2) unavailability performance criteria [P.1 (c)]. (Section 1R12)

Inspection Report# : [2010002](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely corrective actions to restore compliance of EECW pump in-service testing with ASME OM code requirements

The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for failure to promptly recognize, and then correct in a timely manner, non-conforming conditions involving the in-service testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM) of Nuclear Power Plants for the Equipment Cooling Water (EECW) system identified in June 2009. These nonconforming conditions involved the use of flow instrumentation without the proper accuracy, and failure to use the pre-service pump curve when establishing additional IST baseline reference values. The licensee revised the timeliness of their corrective action plans and decided to track this issue as a nonconforming condition. This issue was entered into the licensee's corrective action program as PER 225844.

The finding was determined to be of greater than minor significance because if left uncorrected it could become a more significant safety concern. In-service testing of the EECW system in conformance with the ASME OM Code provides assurance that degraded pump performance would be promptly detected and corrected. Failing to recognize and resolve these and other IST program deficiencies could lead to untimely detection of EECW pump degradation. According to Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Appropriate and Timely Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to take appropriate corrective actions to restore full compliance with the ASME OM Code

requirements in a timely manner [P.1(d)]. (Section 40A2.2)

Inspection Report# : [2010002](#) (pdf)

Significance:  Dec 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Violation of Technical Specification 5.4.1 for Failure to Develop Adequate Procedures to Ensure Tornado Depressurization Protection of the Emergency Diesel Generators

The inspectors identified a Green non-cited violation (NCV) of TS 5.4.1 for the failure to have an adequate procedure that would ensure tornado depressurization protection of the emergency diesel generators (EDGs). Abnormal Operating Instruction, 0-AOI-100-7, "Severe Weather," did not provide guidance on how to provide pressure equalization of the EDG building for mitigating atmospheric depressurization associated with tornado conditions that could impact the EDG building ventilation system. The design of the EDG ventilation system intake and exhaust dampers requires the dampers to be manually opened prior to a tornado depressurization event to ensure the EDG building and ventilation system remain intact and operable during and after a tornado. This finding was entered into the licensee's corrective action program as problem evaluation report (PER) 206919. As an immediate corrective action, the licensee added steps to procedure 0-AOI-100-7 to station an operator in the EDG building to perform required manual actions in the event of a tornado warning in the area.

This finding is more than minor because it affects the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and operability of the EDGs to perform the intended safety function during a design basis event and the cornerstone attribute of Procedure Quality, i.e. Operating (Post Event) Procedures (AOPs). The inspectors assessed the finding using a Phase I Significance Determination Process (SDP) screening which determined a Phase III SDP evaluation was required due to the fact that the finding involved the loss or degradation of equipment specifically designed to mitigate a severe weather initiating event (e.g., tornado doors). The loss of this equipment by itself, during the external initiating event it was intended to mitigate, would degrade two or more trains of a multi-train safety system. A Phase III SDP evaluation was performed in accordance with NRC Inspection Manual Chapter 0609 Appendix A by a regional Senior Reactor Analyst using the NRC Standardized Plant Analysis 3

The inspectors determined that the use of operating experience (OE) information was a significant cause of this performance deficiency. Regulatory Information Summary 2006-03, "Post Tornado Operability of Ventilation and Air Conditioning Systems" as well as an internal licensee OE had raised a similar concern. The licensee was unaware of the vulnerability of the EDG ventilation system to tornado depressurization events until it was brought to their attention by the inspectors. The licensee's failure to use available OE is directly related to the OE component of the cross-cutting area of Problem Identification and Resolution and the aspect of implementing OE through changes to procedures (P.2.(b)).

Inspection Report# : [2009008](#) (pdf)

Significance:  Dec 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Violation of 10CFR50, Appendix B, Criterion V for Inadequate Procedure for Emergency Equipment Cooling Water System Flow Balancing

The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to provide adequate guidance in existing procedures utilized for flow balancing of the emergency equipment cooling water (EECW) system. The EECW system provided the heat sink for station safety-related heat loads including cooling for the residual heat removal (RHR) and core spray (CS) room coolers. The installed strainers on the EECW system are capable of filtering debris greater than 1/8 inch (.125 inches), potentially allowing debris less than 1/8 inch to pass through and clog downstream throttle valves. A clog in the throttle valves would prevent adequate flow from reaching safety-related heat exchangers unless procedural guidance or limitations prevented throttling valves to disk-to-seat clearances of less than 1/8 inch. The existing EECW flow balance procedure was inadequate in that it made no provision in the acceptance criteria to limit or evaluate minimum throttle valve seat/disc clearance, and the subsequent potential for increased flow obstruction, resulting from system

flow balancing. This finding was entered into the licensee's corrective action program as problem evaluation reports (PERs) 208374 and 208636. Planned corrective actions included a revision to EECW flow balancing procedures. The inspectors verified and discussed with the licensee existing indications that are available to alert the operator of potential clogging.

This finding is more than minor because it affects the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and operability of the RHR and CS pump room coolers to perform the intended safety function during a design basis event and the cornerstone attribute of Procedure Quality, i.e. Maintenance and Testing (Pre-event) Procedures. The team assessed this finding using the Significance Determination Process (SDP) and determined that the finding was of very low safety significance (Green) because the inspectors found no documented history of an actual loss of safety system function. This finding was reviewed for cross-cutting aspects and none were identified.

Inspection Report# : [2009008](#) (pdf)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Deficiencies with Emergency Lighting Units

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program, as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires that measures be established to ensure that conditions adverse to fire protection, such as failures and deficiencies, are promptly identified and corrected. The licensee had not established measures to identify and correct an excessive number of Appendix R emergency lighting unit failures. Specifically, emergency lighting unit failures were not being entered in the corrective action program as problem evaluation reports in order to evaluate and resolve why many of the emergency lighting failures occurred prior to reaching their 6-year replacement date. Additionally, the Fire Protection Report surveillance requirement to replace the Appendix R emergency lighting unit batteries and lamp heads every six years was not being adequately implemented, in that licensee data revealed that several installed emergency lighting units were beyond their 6-year replacement date. The licensee entered this finding into their corrective action program and initiated corrective actions to address these issues.

The licensee's failure to meet the Fire Protection Report requirements to establish measures to identify and correct a condition adverse to fire protection (excessive Appendix R emergency lighting unit failures); and, to implement the Appendix R emergency lighting system replacement program, is a performance deficiency. The finding is more than minor because it is associated with the reactor safety, mitigating systems cornerstone attribute of protection against external factors (i.e., fire). The excessive emergency lighting unit failures affected the objective of ensuring the reliability and capability of operator manual actions during response to initiating events. The team determined that this finding was of very low safety significance (Green) because the operators had a high likelihood of completing the tasks using flashlights. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities to support long-term equipment reliability, and their maintenance scheduling was more reactive than preventive (H.3(b))

Inspection Report# : [2009009](#) (pdf)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish Adequate Compensatory measures for an Out-of-Service Hose Station

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires the licensee to establish adequate compensatory measures for degraded or inoperable fire protection equipment. The licensee failed to establish adequate compensatory measures for

an out-of-service hose station, in that the staged additional lengths of hose connected to the closest in-service hose station, established as a compensatory measure, did not provide equal or better protection than the out-of-service hose station that it was replacing. The licensee entered this finding into their corrective action program and took immediate action to review all existing fire protection impairment permits for similar problems. The licensee removed the compensatory measure and restored the out-of-service hose station to service.

The licensee's failure to provide compensatory measures of equal or better protection for an out-of-service hose station is a performance deficiency because it did not meet the requirements of the approved fire protection program. The finding was more than minor because it affected the protection against external factors attribute of the mitigating systems cornerstone, in that it impacted manual fire suppression (i.e., fire brigade) capability; and, affected the cornerstone objective of ensuring the availability of systems that respond to initiating events. Since Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," does not provide guidance for assigning a degradation rating to manual fire suppression, this determination was made using qualitative methods which received NRC management review as provided for in Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." This finding was determined to be of very low safety significance (Green) because it represented a low degradation of the manual fire suppression function. Although the fire protection impairment permit had been implemented for an out-of-service hose station, the hose station was still functional at the time this issue was identified, because the water supply to the hose station had not been physically isolated. However, the team concluded the fire brigade would have experienced delays in initiating manual fire suppression for a fire in a fire area covered by the impairment. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities, consistent with nuclear safety, to ensure that adequate compensatory actions were established for an out-of-service hose station (H.3 (a)).
Inspection Report# : [2009009](#) (pdf)

Significance: Y Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Failure to Ensure One Train of Cables of Systems Necessary to Achieve and/or Maintain Post-Fire safe Shutdown is Free of Fire Damage in Accordance With 10 CFR Part 50, Appendix R, Section III.G.

Title 10 of the Code of Federal Regulations (10 CFR), Part 50.48(b)(1) requires that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of 10 CFR Part 50, Appendix R, Sections III.G, III.J, and III.O.

Section III.G requires fire protection of safe shutdown capability.

Section III.G.1 requires fire protection features shall be provided for structures, systems, and components important to safe shutdown. These features shall be capable of limiting fire damage, such that one train of systems necessary for achieving and maintaining hot shutdown conditions is free of fire damage.

Section III.G.2 requires, in part, that where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

- a. separation of cables and equipment by a fire barrier having a 3-hour rating; or
- b. separation of cables and equipment by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. Fire detection and automatic fire suppression shall be installed in the fire area; or
- c. enclosure of cables and equipment of one redundant train in a fire barrier having a 1-hour fire rating. Fire detection and automatic suppression shall be installed in the fire area.

Contrary to the above, since the restart of each unit (Unit 2-1991, Unit 3-1995, Unit 1-2007) and as of January 20, 2010, the date of the inspection report, the licensee had not met nor has met, as of the date of this NOV, the requirements of 10 CFR Part 50, Appendix R, Section III.G, in that:


(i) fire protection features capable of limiting fire damage were not provided for structures, systems, and components important for safe shutdown. Specifically, the Tennessee Valley Authority (licensee) failed to provide fire protection features capable of limiting the fire damage such that one train of systems necessary to achieve and maintain hot shutdown conditions was free from fire damage in Fire Area 8 along with 19 other fire areas designated in the Browns Ferry Fire Protection Report, as required by 10 CFR Part 50, Appendix R, Section III.G.1.

(ii) where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area, the licensee did not ensure that one of the redundant trains was free of fire damage by providing one of the following means: (a) a 3-hour rated fire barrier; (b) 20 feet of spatial separation (free

of intervening combustibles and fire hazards) with detection and suppression installed in the fire area; or (c) a 1-hour rated fire barrier with detection and suppression installed in the fire area. Specifically, cables associated with the RHRSW Pump A1, RHR Pump 1A, and LPCI injection valve 1-FCV-74-53 in Fire Area 1/Fire Zone 1-4 are some of the many examples in which the licensee failed to ensure that one train of cables of redundant systems or equipment necessary to achieve and maintain hot shutdown conditions, located in the same fire area, outside of primary containment was free of fire damage by one of the means described in 10 CFR Part 50, Appendix R, Section III.G.2.

Inspection Report# : [2010007](#) (pdf)

Inspection Report# : [2009009](#) (pdf)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Inadequate Safe Shutdown Instruction Entry Conditions for Appendix R Fire Events

The team identified an apparent violation of Technical Specification 5.4.1.a., in that, the licensee's revision to the safe shutdown instruction entry conditions in December 2008 resulted in inadequate procedural guidance. Specifically, the revision to Procedure 0-SSI-001, "Safe Shutdown Instructions," added an entry condition based on the operator's ability to restore and maintain reactor water level above +2 inches on the narrow range scale, utilizing available equipment. This revision could have delayed or prevented entry into the safe shutdown instructions if reactor water level stayed at or above +2 inches on the narrow range scale. Furthermore, this entry condition was not consistent with the initial plant conditions assumed in the fire protection program safe shutdown analysis. The licensee entered this finding into the corrective action program and revised the entry conditions for the safe shutdown instructions on February 27, 2009, to eliminate the +2-inch reactor vessel water level entry condition.

Failure to meet Technical Specification requirements due to inadequate procedural guidance is a performance deficiency. This finding is more than minor because it is associated with the procedure quality attribute of the mitigating systems cornerstone and the inadequate procedure affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. Given the number of fire areas involved, a significance determination process Phase 2 analysis was not performed. A regional senior reactor analyst determined that there were significant obstacles to quantifying the risk of this finding because the methods and tools are not adequate to determine the significance of this finding within the established timeliness goal of 90 days. Therefore, the safety significance of this finding was determined using the guidance and qualitative techniques contained in NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The preliminary significance of this finding was determined to be Greater Than Green, which was reviewed and approved by NRC management. The team determined that this finding did not present an immediate safety concern because the immediate safety hazard no longer existed after the licensee revised the safe shutdown instruction in February 2009. The cause of this finding had a cross-cutting aspect in the Decision Making component of the Human Performance area, in that it was related to the licensee not using conservative assumptions in decision making and not conducting reviews to verify the validity of underlying assumptions and identifying possible unintended consequences (H.1(b)).

Inspection Report# : [2009009](#) (pdf)

Inspection Report# : [2010007](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

New fuel receipt inspection and refueling operations supervised by non-qualified senior reactor operators

The inspectors identified a noncited violation of Technical Specifications 5.4.1.a for the failure to comply with operating procedures for Unit 3 new fuel receipt inspection and refueling operations that required the Fuel Handling Supervisor (FHS) to be trained and certified. During Unit 3 new fuel receipt inspections and refueling operations unqualified senior reactor operators (SRO) were allowed to supervise fuel handling activities. The unqualified SROs were subsequently re-qualified or not allowed to supervise fuel handling activities until qualified. This issue was

entered into the licensee's corrective action program as problem evaluation reports 220410 and 220791.

This finding was determined to be of greater than minor significance because it was associated with the Barrier Integrity Cornerstone attribute of Human Performance, 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. Specifically, the use of unqualified FHS(s) to supervise new fuel receipt inspection and core refueling operations would reduce the level of assurance that fuel handling activities were accomplished safely and error free to prevent inadvertent fuel damage. The finding was evaluated and determined to be of very low safety significance using Inspection Manual Chapter 0609, Appendix G, Shutdown Operations Significance Determination Process, Attachment 1, Phase 1 Operational Checklists, Checklist 7, because it did not involve any human performance errors that resulted in fuel assembly damage, inappropriate core alteration, loss of reactor coolant and/or spent fuel pool inventory, or reduction of any safe shutdown mitigation capability. The cause of this finding was directly related to the cross-cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area because neither the night shift FHS or relief FHS(s) complied with the operating procedure requirements that all personnel supervising new fuel receipt inspections and/or refueling operations must be qualified [(H.4(b)). (Section 1R20.1.1)]

Inspection Report# : [2010002](#) (pdf)

Significance:  Jul 17, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Standby Gas Treatment Subsystem 'A' Inoperable Beyond the Technical Specification Allowed Outage Time (Section 40A2.a)

• Green. A Green, self-revealing, non-cited violation (NCV) of Technical Specification (TS) limiting condition for operation (LCO) 3.6.4.3, "Standby Gas Treatment (SGT) System", was identified for the licensee's failure to comply with the LCO required actions for one inoperable SGT subsystem due to an inadequate investigation to ensure the system's operability, on November 30, 2008, following a loss of power to one of the three relative humidity heaters. This issue was entered into the corrective action program as Problem Evaluation Report 174597. The cause of the failure of the heater was a failed relay. The relay was replaced and the system was restored to service on June 20, 2009.

The finding is similar to example 2a in Inspection Manual Chapter (IMC) 0612, Appendix E, "Examples of Minor Issues," in that the example performance deficiency is not minor if Technical Specification limits were exceeded. In accordance with IMC 0612, Appendix B, "Issue Screening," the finding is greater than minor significance because it was associated with the Barrier Integrity cornerstone attribute of Human Performance and adversely affected the cornerstone objective of maintaining the radiological barrier functionality of Standby Gas Trains. Although the licensee ultimately was able to demonstrate that the SGT system could perform its safety function without the charcoal beds and associated heaters, compliance with SGT TS was a prerequisite to providing reasonable assurance that the SGT can protect the public from radionuclide releases caused by accidents or events. 10 CFR 50.36 defines TS limiting conditions for operation as the lowest functional capability or performance levels of equipment required for safe operation of the facility. The SGT TS LCO requirement was not met and therefore the cornerstone objective for functionality as described in the TSs, was not maintained.

In accordance with IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding is determined to be of very low risk significance because the finding only represented a degradation of the radiological barrier function provided by the SGT system. Because this finding is of very low safety significance and has been entered in licensee's corrective action program, the violation is being treated as a non-cited violation. The cause of this finding was directly related to the cross-cutting aspect of thorough evaluation of identified problems in the problem identification and resolution area, because the licensee failed to properly classify, prioritize and evaluate the operability of the SGT system when the heater loss of power annunciator was received [P.1(c)]. (Section 40A2.a)

Inspection Report# : [2009006](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Significance: SL-IV Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00

A Severity Level IV, non-cited violation of 10 CFR 50.9, Completeness and Accuracy of Information, was identified by the inspectors regarding the licensee submittal of Licensee Evaluation Report (LER) 0500296/2009-003-00, Reactor Core Isolation Cooling System Inoperable Longer than Allowed by Technical Specifications, which was determined to not be accurate or complete in all material aspects. Specifically, the LER inaccurately reported the duration in which the system was inoperable, inaccurately reported the availability of redundant systems while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as required by 10 CFR 50.73.

Inspection Report# : [2010003](#) (*pdf*)

Significance: N/A Jul 17, 2009

Identified By: NRC

Item Type: FIN Finding

Browns Ferry PI&R Summary

The team concluded that, in general, problems were identified, evaluated, prioritized, and corrected. The licensee maintained a reasonable threshold for identifying problems as evidenced by the large number of Problem Evaluation Reports (PERs) entered annually into the CAP, management expectation that all personnel are encouraged to initiate a PER for deficiencies noted, and CAP procedures requiring all personnel initiate PERs to document Significant Conditions Adverse to Quality (SCAQs), Conditions Adverse to Quality (CAQs), and potential items for improvement. However, some deficiencies were identified by the inspection team which were not previously entered into the CAP. Generally, the licensee prioritized and evaluated issues, conducted adequate formal root cause evaluations for significant problems, and corrective actions specified for problems were acceptable. Overall, corrective actions developed and implemented for issues were generally effective. However, the team identified some examples where corrective actions were not fully effective.

The team determined that overall, audits and self-assessments were adequate in identifying deficiencies and areas for improvement in the CAP, and generally, appropriate corrective actions were developed to address these issues. However, the team noted that a significant number of deficiencies were identified through self assessments of the CAP, which was indicative of a program that, while improved, has yet to reach the licensee's own desired level of effectiveness. Specifically, a large number of PERs associated with corrective maintenance work orders were not

written even though generation of such PERs was explicitly required by corrective action program procedures.

Based on discussions and interviews conducted with plant employees from various departments, the inspectors did not identify any reluctance by workers to report safety concerns, or utilize the corrective action program.

The team determined that corrective actions implemented, and planned to be implemented, to address the substantive cross-cutting issue in problem identification and resolution identified by the NRC in its annual assessment letter dated March 3, 2008, were appropriate. The team noted that some corrective actions to prevent recurrence associated with the substantive cross-cutting issue problem evaluation report (PER) were improperly implemented and ineffective. Specifically, the corrective action implemented to initiate PERs for all Corrective Maintenance Work Orders (CMWO) was ineffective in that several hundred CMWOs did not have PERs initiated.

Inspection Report# : [2009006](#) (*pdf*)

Last modified : September 02, 2010

Browns Ferry 3

3Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately test molded case circuit breakers

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for failure to establish a preventive maintenance (PM) test program for safety-related molded case circuit breakers (MCCBs) to demonstrate these breakers would perform satisfactorily upon demand. Since initial startup of all three units, the inspectors found that the licensee had not included 612 critical MCCBs, many of them safety-related, in their PM program which resulted in the MCCBs receiving no planned maintenance or testing. The licensee entered this issue into the corrective action program as problem evaluation report (PER) 209095. The licensee's corrective actions included: identifying all critical MCCBs that required preventive maintenance, developing test procedures for these MCCBs, performing testing for all affected MCCBs, and conducting an extent-of-condition review of all safety-related components potentially excluded from the PM program.

This finding was determined to be of greater than minor significance because it was associated with the Protection Against External Factors attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events, such as fire, that challenge critical safety functions during shutdown as well as power operations. Specifically, the lack of a PM program for safety-related MCCBs resulted in no periodic planned maintenance or testing being performed since original installation, which in most cases was over thirty years. Based on operating experience, this could result in a breaker being slow to trip or sticking in the "on" position after an over-current condition. In accordance with IMC 0609, Significance Determination Process (SDP), Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to require a Phase 3 analysis since the finding represented an increase in the likelihood of a fire caused by an electrical fault at the MCCB compartment with the breaker not opening. A regional Senior Reactor Analyst conducted a Phase 3 SDP analysis, which concluded that the finding was of very low safety significance (Green).

The cause of this finding was directly related to the cross cutting aspect of Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately implement corrective actions to resolve the deficiencies previously identified by PER 131875 regarding certain Westinghouse MCCBs that were not in the PM program [P.1(d)]. (Section 4OA5.4)

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: FIN Finding

Failure to Implement the Provisions of Preventative Maintenance (PM) Program Which Contributed to a Manual Reactor Scram

Green: The inspectors identified a finding for the licensee's failure to implement the applicable provisions of the Tennessee Valley Authority (TVA) Preventative Maintenance (PM) Program to replace the coil in the solenoid valve controlling the opening of the Unit 3 Condensate Demineralizer bypass valve on the specified PM frequency. Failure of this coil was identified as a contributing cause in Root Cause Analysis for PER 200203, "Unit 3 Manual Scram Due to Lowering Reactor Water Level." This finding was entered into the licensee's corrective action program as PER 245390.

The inspectors determined that the licensee's failure to implement the TVA PM program was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Initiating Events cornerstone attribute of Equipment Performance, and adversely affected the cornerstone objective to

limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power operations, since failure to implement the provisions of the PM program increased the likelihood of a component failure which contributed to a plant transient. Specifically the failure of the solenoid coil contributed to a reactor trip. The inspectors determined that the finding was of very low safety significance 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 inspectors determined that this finding directly involved the cross-cutting area of Human Performance, component of Work Practices and aspect of Procedural Compliance because licensee personnel failed to follow the guidance contained in the Preventive Maintenance program resulting in a plant transient. [H.4.b] (Section 4OA2.a.3.2)

Inspection Report# : [2010006](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Operators failed to correctly monitor and assess RPV beltline temperatures during RPV hydrostatic/in-service leak test

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to follow surveillance procedure 3-SR-3.4.9.1(2), Reactor Vessel Shell Temperature and Reactor Coolant Pressure Monitoring during In-service Hydrostatic Leak Testing, to ensure all required Unit 3 temperatures were being monitored and verified to meet TS 3.4.9, RCS Pressure and Temperature Limits. Unit 3 reactor operators selected a wrong reactor pressure vessel (RPV) metal temperature to monitor, and the operator and Unit Supervisor (US) failed to recognize that the incorrect RPV temperature being monitored was outside the TS 3.4.9 limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as problem evaluation report (PER) 222844.

This finding was determined to be of greater than minor significance because it was associated with the Initiating Events Cornerstone attribute of Human Performance, and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. More specifically, the lack of reactor operator attention, and US oversight, during the RPV in-service leak test, resulted in operator errors that adversely affected the operators' ability to monitor and verify RPV metal temperatures were within TS Figure 3.4.9-2 limits to preclude a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 609.04, Phase 1 - Initial Screening and Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Human Performance and Error Prevention in the Work Practices component of the Human Performance area, because human performance errors by the control room operators resulted in selecting the wrong RPV metal temperature to monitor and not recognizing this temperature exceeded TS limits [H.4.(a)]. (Section 1R20.1.2)

Inspection Report# : [2010002](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate surveillance procedure to ensure all relevant RPV metal temperatures were monitored during RPV hydrostatic/in-service leak testing

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to establish an adequate surveillance procedure to ensure all relevant reactor pressure vessel (RPV) metal temperatures of all four RPV regions were being monitored during the Unit 3 RPV in-service leak test pursuant with TS Surveillance Requirement (SR) 3.4.9.1, RCS Pressure and Temperature Limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as PERs 223539 and 224778.

This finding was determined to be of greater than minor significance 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. More specifically, the procedure used by operators to monitor RCS and RPV temperatures, during the RPV in-service leak

test, lacked sufficient details to ensure all relevant RPV temperatures would be monitored to meet TS SR 3.4.9.1 which could increase the likelihood of a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 0609, Phase I - Initial Screening and Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Complete and Accurate Procedures in the Resources component of the Human Performance area because the applicable surveillance procedure lacked sufficient details and guidance to ensure all relevant RPV metal temperatures would be monitored pursuant to TS SR 3.4.9.1 [H.2.(c)]. (Section 1R20.1.3)

Inspection Report# : [2010002](#) (pdf)

Mitigating Systems

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform functional evaluations for gas identified during venting

An NRC-identified Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified for the licensee’s failure to perform functional evaluations in accordance with procedure NEDP-22, Functional Evaluations, when gas was identified in the High Pressure Coolant Injection (HPCI) System during the Technical Specification required surveillance. The licensee has subsequently performed functional evaluations of the occurrences and entered the issue into their corrective action program as problem evaluation report (PER) 223067.

This finding was considered more than minor because it adversely affected the Mitigating Systems Cornerstone objective of ensuring the availability and reliability of safety systems, and is related to the attribute of Procedure Quality (i.e.- Maintenance and Testing Procedures). Specifically, the failure to perform a functional evaluation or provide adequate justification for not performing one upon identification of gas during venting of the system could affect the operability, availability, and reliability of the HPCI system or could result in missing an opportunity to identify the source of voiding to preclude future inoperability. This deficiency also paralleled Inspection Manual Chapter 0612, Appendix E, Example 4.a, as the licensee routinely did not perform the required functional evaluations. The team assessed this finding using Inspection Manual Chapter 0609, Significance Determination Process, and determined that the finding was of very low safety significance (Green) because subsequent functional evaluations showed that the gas voids did not impact the operability of the HPCI system.

The cause of this finding was directly related to the cross cutting aspect of Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, in that the licensee failed to thoroughly evaluate gas voids such that the resolution addressed causes and extent of conditions, as necessary, and included the failure to thoroughly evaluate for operability and reportability conditions adverse to quality. [P.1(c)] (Section 40A5)

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Siemens Horizontal Vacuum Circuit Breakers Circuit Breakers (Section 40A2.a.3.6)

Green: The inspectors identified a non-cited violation of Technical Specification (TS) 5.4.1 for the licensee’s failure to have adequate preventative maintenance procedures for Siemens Horizontal Vacuum Circuit Breakers. Plant procedure EPI-0-000-BKR015, 4KV Wyle/Siemens Horizontal Vacuum Circuit Breaker (Type-3AF) and Compartment Maintenance, Revision 28, did not provide specific guidance for checking the tightness of the closing spring charging motor mounting bolts. As a result, on June 15, 2010 while the 3C RHR pump was in service for

suppression pool cooling, the charging motor in the pump breaker cubicle became detached from its mount. The charging spring failed to recharge and the pump would not have restarted if needed following a trip of the circuit breaker. The licensee reattached the charging motor and restored the 3C RHR pump to service. The licensee also revised procedure EPI-0-000-BKR015 to include instructions for ensuring the charging motor was securely fastened to the circuit breaker. This finding was entered into the licensee's corrective action program as PER 234443.

The inspectors determined that the failure to have an adequate maintenance procedure for circuit breaker maintenance was a performance deficiency. This performance deficiency was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Procedure Quality and adversely affected the cornerstone objective in that the PM procedure for the breaker did not assure the 3C RHR pump could perform its intended safety functions. The inspectors determined that the finding was of very low safety significance because it did not result in inoperability of a safety function for greater than the allowed technical specification outage time and was not potentially risk-significant due to external events. The inspectors determined that this finding directly involved the crosscutting area of Human Performance, component of Resources and aspect of Complete Documentation because the licensee did not maintain adequate plant procedures for equipment maintenance. Specifically, procedure EPI-0-000-BKR015, Revision 28 did not contain guidance for checking the charging motor bolt tightness resulting in the 3C RHR pump charging motor becoming detached and adversely affecting train operability. [H.2(c)] (Section 4OA2.a.3.6)

Inspection Report# : [2010006](#) (pdf)

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inappropriate Use of Waivers to Exceed 10 CFR 26 Work Hour Limitations

The inspectors identified a noncited violation of 10 CFR 26.207(a) for improper execution of the waiver process for authorizing waivers of the "72 hours in any seven day period" work hour limitation required by 10 CFR 26.205(d), for contractors performing risk significant maintenance activities during the Unit 3 refueling outage. These issues associated with the use of work hour control waivers were entered into licensee's corrective action program as problem evaluation reports 161418, 162360, and 162638. As part of their interim corrective actions, the licensee prohibited all future use of waivers without express approval of executive management.

This finding was determined to be more than minor because it was similar to examples 9.a and 9.b. of Inspection Manual Chapter (IMC) 612, Appendix E, Examples of Minor Issues. The significance of the finding was screened by regional management according to IMC 609, Appendix M, Significance Determination Process Using Qualitative Criteria. The finding was determined to be of very low safety significance (Green) based on no observed human performance errors due to worker fatigue which caused a consequential event or adversely affected any risk-significant structures, systems, or components. The cause of this finding was directly related to the cross-cutting aspect of procedural compliance in the Work Practices component of the Human Performance area because the licensee failed to comply with the administrative program requirements for processing waivers of the 10 CFR 26 work hour limitations [H.4(b)].

Inspection Report# : [2010003](#) (pdf)

Significance:  Jun 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Unit 3 RCIC System Inoperable Beyond the Technical Specifications Allowed Outage Time

A self-revealing non-cited violation of Unit 3 Technical Specifications (TS) Limiting Condition for Operation 3.5.3, Reactor Core Isolation Cooling (RCIC) System, was identified for the licensee's failure to comply with the TS required actions for an inoperable RCIC system. The RCIC system was inoperable due to missing critical parts in the electronic governor regulator (i.e., EG-R) hydraulic actuator for a period of greater than 14 days, during the time when TS 3.5.3 was applicable between March 14, 2006 and September 12, 2009, without the licensee taking the required TS actions. This issue was entered into the corrective action program as problem evaluation reports 200183 and 224614. The EGR was subsequently replaced and the RCIC system restored to an operable condition, following testing.

This finding was determined to be of greater than minor significance because it was associated with the Equipment

Performance 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. Specifically, the RCIC EG-R was missing internal parts that were important for maintaining stable and reliable RCIC flow during reactor pressure vessel (RPV) injection. According to IMC 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance (Green) because the finding did not lead to an actual loss of safety function of the system, nor did it 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately evaluate the operability of the RCIC system with large flow oscillations of plus/minus 300 gallons per minute during RPV injection [P.1(c)].

Inspection Report# : [2010003](#) (*pdf*)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to effectively maintain performance of the A3 EECW pump as required by 10 CFR

The inspectors identified a noncited violation of 10 CFR 50.65(a)(2) for failure to demonstrate that the performance of the A3 Emergency Equipment Cooling Water (EECW) pump was effectively controlled by preventive maintenance (PM) such that the pump remained capable of performing its intended function. Also due to inadequate evaluations performed after the A3 EECW pump exceeded its Maintenance Rule a(2) performance criteria, goal setting and monitoring were not established as required by paragraph a(1) of the Maintenance Rule. The licensee subsequently declared the EECW system in (a)(1) status and was in the process of developing the required goals and monitoring plan. This issue was entered into the licensee's corrective action program as problem evaluation report 223404.

The finding was determined to be of greater than minor significance because it was associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective of ensuring availability and reliability of systems designed to respond to initiating events to prevent undesirable consequences. More specifically, the licensee failed to demonstrate effective control of EECW system availability through appropriate PM. According to NRC Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately evaluate the causes of the A3 EECW pump unavailability and thereby failed to correctly determine the impact on the 10 CFR 50.65(a)(2) unavailability performance criteria [P.1(c)]. (Section 1R12)

Inspection Report# : [2010002](#) (*pdf*)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely corrective actions to restore compliance of EECW pump in-service testing with ASME OM code requirements

The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for failure to promptly recognize, and then correct in a timely manner, non-conforming conditions involving the in-service testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM) of Nuclear Power Plants for the Equipment Cooling Water (EECW) system identified in June 2009. These nonconforming conditions involved the use of flow instrumentation without the proper accuracy, and failure to use the pre-service pump curve when establishing additional IST baseline reference values. The licensee revised the timeliness of their corrective action plans and decided to track this issue as a nonconforming condition. This issue was entered into the licensee's corrective action program as PER 225844.

The finding was determined to be of greater than minor significance because if left uncorrected it could become a more significant safety concern. In-service testing of the EECW system in conformance with the ASME OM Code

provides assurance that degraded pump performance would be promptly detected and corrected. Failing to recognize and resolve these and other IST program deficiencies could lead to untimely detection of EECW pump degradation. According to Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Appropriate and Timely Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to take appropriate corrective actions to restore full compliance with the ASME OM Code requirements in a timely manner [P.1(d)]. (Section 40A2.2)

Inspection Report# : [2010002](#) (pdf)

Significance:  Dec 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Violation of Technical Specification 5.4.1 for Failure to Develop Adequate Procedures to Ensure Tornado Depressurization Protection of the Emergency Diesel Generators

The inspectors identified a Green non-cited violation (NCV) of TS 5.4.1 for the failure to have an adequate procedure that would ensure tornado depressurization protection of the emergency diesel generators (EDGs). Abnormal Operating Instruction, 0-AOI-100-7, "Severe Weather," did not provide guidance on how to provide pressure equalization of the EDG building for mitigating atmospheric depressurization associated with tornado conditions that could impact the EDG building ventilation system. The design of the EDG ventilation system intake and exhaust dampers requires the dampers to be manually opened prior to a tornado depressurization event to ensure the EDG building and ventilation system remain intact and operable during and after a tornado. This finding was entered into the licensee's corrective action program as problem evaluation report (PER) 206919. As an immediate corrective action, the licensee added steps to procedure 0-AOI-100-7 to station an operator in the EDG building to perform required manual actions in the event of a tornado warning in the area.

This finding is more than minor because it affects the Mitigating Systems Cornerstone objective of ensuring the availability, reliability, and operability of the EDGs to perform the intended safety function during a design basis event and the cornerstone attribute of Procedure Quality, i.e. Operating (Post Event) Procedures (AOPs). The inspectors assessed the finding using a Phase I Significance Determination Process (SDP) screening which determined a Phase III SDP evaluation was required due to the fact that the finding involved the loss or degradation of equipment specifically designed to mitigate a severe weather initiating event (e.g., tornado doors). The loss of this equipment by itself, during the external initiating event it was intended to mitigate, would degrade two or more trains of a multi-train safety system. A Phase III SDP evaluation was performed in accordance with NRC Inspection Manual Chapter 0609 Appendix A by a regional Senior Reactor Analyst using the NRC Standardized Plant Analysis 3

The inspectors determined that the use of operating experience (OE) information was a significant cause of this performance deficiency. Regulatory Information Summary 2006-03, "Post Tornado Operability of Ventilation and Air Conditioning Systems" as well as an internal licensee OE had raised a similar concern. The licensee was unaware of the vulnerability of the EDG ventilation system to tornado depressurization events until it was brought to their attention by the inspectors. The licensee's failure to use available OE is directly related to the OE component of the cross-cutting area of Problem Identification and Resolution and the aspect of implementing OE through changes to procedures (P.2.(b)).

Inspection Report# : [2009008](#) (pdf)

Significance:  Dec 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Violation of 10CFR50, Appendix B, Criterion V for Inadequate Procedure for Emergency Equipment Cooling Water System Flow Balancing

The inspectors identified a Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the failure to provide adequate guidance in existing procedures utilized for flow

balancing of the emergency equipment cooling water (EECW) system. The EECW system provided the heat sink for station safety-related heat loads including cooling for the residual heat removal (RHR) and core spray (CS) room coolers. The installed strainers on the EECW system are capable of filtering debris greater than 1/8 inch (.125 inches), potentially allowing debris less than 1/8 inch to pass through and clog downstream throttle valves. A clog in the throttle valves would prevent adequate flow from reaching safety-related heat exchangers unless procedural guidance or limitations prevented throttling valves to disk-to-seat clearances of less than 1/8 inch. The existing EECW flow balance procedure was inadequate in that it made no provision in the acceptance criteria to limit or evaluate minimum throttle valve seat/disc clearance, and the subsequent potential for increased flow obstruction, resulting from system flow balancing. This finding was entered into the licensee's corrective action program as problem evaluation reports (PERs) 208374 and 208636. Planned corrective actions included a revision to EECW flow balancing procedures. The inspectors verified and discussed with the licensee existing indications that are available to alert the operator of potential clogging.

This finding is more than minor because it affects the Mitigating Systems cornerstone objective of ensuring the availability, reliability, and operability of the RHR and CS pump room coolers to perform the intended safety function during a design basis event and the cornerstone attribute of Procedure Quality, i.e. Maintenance and Testing (Pre-event) Procedures. The team assessed this finding using the Significance Determination Process (SDP) and determined that the finding was of very low safety significance (Green) because the inspectors found no documented history of an actual loss of safety system function. This finding was reviewed for cross-cutting aspects and none were identified.

Inspection Report# : [2009008](#) (pdf)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Deficiencies with Emergency Lighting Units

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C (13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program, as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires that measures be established to ensure that conditions adverse to fire protection, such as failures and deficiencies, are promptly identified and corrected. The licensee had not established measures to identify and correct an excessive number of Appendix R emergency lighting unit failures. Specifically, emergency lighting unit failures were not being entered in the corrective action program as problem evaluation reports in order to evaluate and resolve why many of the emergency lighting failures occurred prior to reaching their 6-year replacement date. Additionally, the Fire Protection Report surveillance requirement to replace the Appendix R emergency lighting unit batteries and lamp heads every six years was not being adequately implemented, in that licensee data revealed that several installed emergency lighting units were beyond their 6-year replacement date. The licensee entered this finding into their corrective action program and initiated corrective actions to address these issues.

The licensee's failure to meet the Fire Protection Report requirements to establish measures to identify and correct a condition adverse to fire protection (excessive Appendix R emergency lighting unit failures); and, to implement the Appendix R emergency lighting system replacement program, is a performance deficiency. The finding is more than minor because it is associated with the reactor safety, mitigating systems cornerstone attribute of protection against external factors (i.e., fire). The excessive emergency lighting unit failures affected the objective of ensuring the reliability and capability of operator manual actions during response to initiating events. The team determined that this finding was of very low safety significance (Green) because the operators had a high likelihood of completing the tasks using flashlights. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities to support long-term equipment reliability, and their maintenance scheduling was more reactive than preventive (H.3 (b))

Inspection Report# : [2009009](#) (pdf)

Significance:  Oct 09, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish Adequate Compensatory measures for an Out-of-Service Hose Station

The team identified a Green non-cited violation of Browns Ferry Units 1, 2, and 3 Operating License Conditions 2.C(13), 2.C(14), and 2.C(7), respectively, for the licensee's failure to maintain in effect all provisions of the NRC-approved fire protection program as described in the Final Safety Analysis Report. The Fire Protection Report (referenced in the Final Safety Analysis Report) requires the licensee to establish adequate compensatory measures for degraded or inoperable fire protection equipment. The licensee failed to establish adequate compensatory measures for an out-of-service hose station, in that the staged additional lengths of hose connected to the closest in-service hose station, established as a compensatory measure, did not provide equal or better protection than the out-of-service hose station that it was replacing. The licensee entered this finding into their corrective action program and took immediate action to review all existing fire protection impairment permits for similar problems. The licensee removed the compensatory measure and restored the out-of-service hose station to service.

The licensee's failure to provide compensatory measures of equal or better protection for an out-of-service hose station is a performance deficiency because it did not meet the requirements of the approved fire protection program. The finding was more than minor because it affected the protection against external factors attribute of the mitigating systems cornerstone, in that it impacted manual fire suppression (i.e., fire brigade) capability; and, affected the cornerstone objective of ensuring the availability of systems that respond to initiating events. Since Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," does not provide guidance for assigning a degradation rating to manual fire suppression, this determination was made using qualitative methods which received NRC management review as provided for in Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." This finding was determined to be of very low safety significance (Green) because it represented a low degradation of the manual fire suppression function. Although the fire protection impairment permit had been implemented for an out-of-service hose station, the hose station was still functional at the time this issue was identified, because the water supply to the hose station had not been physically isolated. However, the team concluded the fire brigade would have experienced delays in initiating manual fire suppression for a fire in a fire area covered by the impairment. The cause of this finding has a cross-cutting aspect in the Work Control component of the Human Performance area, in that it was directly related to the licensee not planning and coordinating work activities, consistent with nuclear safety, to ensure that adequate compensatory actions were established for an out-of-service hose station (H.3 (a)).

Inspection Report# : [2009009](#) (*pdf*)

Significance: Y Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Failure to Ensure One Train of Cables of Syatems Necessary to Achieve and/or Maintain Post-Fire safe Shutdown is Free of Fire Damage in Accordance With 10 CFR Part 50, Appendix R, Section III.G.

Title 10 of the Code of Federal Regulations (10 CFR), Part 50.48(b)(1) requires that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of 10 CFR Part 50, Appendix R, Sections III.G, III.J, and III.O.

Section III.G requires fire protection of safe shutdown capability.

Section III.G.1 requires fire protection features shall be provided for structures, systems, and components important to safe shutdown. These features shall be capable of limiting fire damage, such that one train of systems necessary for achieving and maintaining hot shutdown conditions is free of fire damage.

Section III.G.2 requires, in part, that where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

- a. separation of cables and equipment by a fire barrier having a 3-hour rating; or
- b. separation of cables and equipment by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. Fire detection and automatic fire suppression shall be installed in the fire area; or
- c. enclosure of cables and equipment of one redundant train in a fire barrier having a 1-hour fire rating. Fire detection and automatic suppression shall be installed in the fire area.

Contrary to the above, since the restart of each unit (Unit 2-1991, Unit 3-1995, Unit 1-2007) and as of January 20, 2010, the date of the inspection report, the licensee had not met nor has met, as of the date of this NOV, the requirements of 10 CFR Part 50, Appendix R, Section III.G, in that:

- (i) fire protection features capable of limiting fire damage were not provided for structures, systems, and components important for safe shutdown. Specifically, the Tennessee Valley Authority (licensee) failed to provide fire protection features capable of limiting the fire damage such that one train of systems necessary to achieve and maintain hot shutdown conditions was free from fire damage in Fire Area 8 along with 19 other fire areas designated in the Browns Ferry Fire Protection Report, as required by 10 CFR Part 50, Appendix R, Section III.G.1.
- (ii) where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area, the licensee did not ensure that one of the redundant trains was free of fire damage by providing one of the following means: (a) a 3-hour rated fire barrier; (b) 20 feet of spatial separation (free of intervening combustibles and fire hazards) with detection and suppression installed in the fire area; or (c) a 1-hour rated fire barrier with detection and suppression installed in the fire area. Specifically, cables associated with the RHRSW Pump A1, RHR Pump 1A, and LPCI injection valve 1-FCV-74-53 in Fire Area 1/Fire Zone 1-4 are some of the many examples in which the licensee failed to ensure that one train of cables of redundant systems or equipment necessary to achieve and maintain hot shutdown conditions, located in the same fire area, outside of primary containment was free of fire damage by one of the means described in 10 CFR Part 50, Appendix R, Section III.G.2.

Inspection Report# : [2010007](#) (pdf)

Inspection Report# : [2009009](#) (pdf)

Significance: **W** Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Inadequate Safe Shutdown Instruction Entry Conditions for Appendix R Fire Events

The team identified an apparent violation of Technical Specification 5.4.1.a., in that, the licensee's revision to the safe shutdown instruction entry conditions in December 2008 resulted in inadequate procedural guidance. Specifically, the revision to Procedure 0-SSI-001, "Safe Shutdown Instructions," added an entry condition based on the operator's ability to restore and maintain reactor water level above +2 inches on the narrow range scale, utilizing available equipment. This revision could have delayed or prevented entry into the safe shutdown instructions if reactor water level stayed at or above +2 inches on the narrow range scale. Furthermore, this entry condition was not consistent with the initial plant conditions assumed in the fire protection program safe shutdown analysis. The licensee entered this finding into the corrective action program and revised the entry conditions for the safe shutdown instructions on February 27, 2009, to eliminate the +2-inch reactor vessel water level entry condition.

Failure to meet Technical Specification requirements due to inadequate procedural guidance is a performance deficiency. This finding is more than minor because it is associated with the procedure quality attribute of the mitigating systems cornerstone and the inadequate procedure affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. Given the number of fire areas involved, a significance determination process Phase 2 analysis was not performed. A regional senior reactor analyst determined that there were significant obstacles to quantifying the risk of this finding because the methods and tools are not adequate to determine the significance of this finding within the established timeliness goal of 90 days. Therefore, the safety significance of this finding was determined using the guidance and qualitative techniques contained in NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The preliminary significance of this finding was determined to be Greater Than Green, which was reviewed and approved by NRC management. The team determined that this finding did not present an immediate safety concern because the immediate safety hazard no longer existed after the licensee revised the safe shutdown instruction in February 2009. The cause of this finding had a cross-cutting aspect in the Decision Making component of the Human Performance area, in that it was related to the licensee not using conservative assumptions in decision making and not conducting reviews to verify the validity of underlying assumptions and identifying possible unintended consequences (H.1(b)).

Inspection Report# : [2009009](#) (pdf)

Inspection Report# : [2010007](#) (pdf)

Barrier Integrity

Significance: **G** Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

New fuel receipt inspection and refueling operations supervised by non-qualified senior reactor operators

The inspectors identified a noncited violation of Technical Specifications 5.4.1.a for the failure to comply with operating procedures for Unit 3 new fuel receipt inspection and refueling operations that required the Fuel Handling Supervisor (FHS) to be trained and certified. During Unit 3 new fuel receipt inspections and refueling operations unqualified senior reactor operators (SRO) were allowed to supervise fuel handling activities. The unqualified SROs were subsequently re-qualified or not allowed to supervise fuel handling activities until qualified. This issue was entered into the licensee's corrective action program as problem evaluation reports 220410 and 220791.

This finding was determined to be of greater than minor significance because it was associated with the Barrier Integrity Cornerstone attribute of Human Performance, 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. Specifically, the use of unqualified FHS(s) to supervise new fuel receipt inspection and core refueling operations would reduce the level of assurance that fuel handling activities were accomplished safely and error free to prevent inadvertent fuel damage. The finding was evaluated and determined to be of very low safety significance using Inspection Manual Chapter 0609, Appendix G, Shutdown Operations Significance Determination Process, Attachment 1, Phase 1 Operational Checklists, Checklist 7, because it did not involve any human performance errors that resulted in fuel assembly damage, inappropriate core alteration, loss of reactor coolant and/or spent fuel pool inventory, or reduction of any safe shutdown mitigation capability. The cause of this finding was directly related to the cross-cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area because neither the night shift FHS or relief FHS(s) complied with the operating procedure requirements that all personnel supervising new fuel receipt inspections and/or refueling operations must be qualified [(H.4(b)]. (Section 1R20.1.1)

Inspection Report# : [2010002](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Significance: SL-IV Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00

A Severity Level IV, non-cited violation of 10 CFR 50.9, Completeness and Accuracy of Information, was identified by the inspectors regarding the licensee submittal of Licensee Evaluation Report (LER) 0500296/2009-003-00, Reactor Core Isolation Cooling System Inoperable Longer than Allowed by Technical Specifications, which was determined to not be accurate or complete in all material aspects. Specifically, the LER inaccurately reported the duration in which the system was inoperable, inaccurately reported the availability of redundant systems while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as required by 10 CFR 50.73.

Inspection Report# : [2010003](#) (*pdf*)

Last modified : November 29, 2010

Browns Ferry 3

4Q/2010 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately test molded case circuit breakers

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for failure to establish a preventive maintenance (PM) test program for safety-related molded case circuit breakers (MCCBs) to demonstrate these breakers would perform satisfactorily upon demand. Since initial startup of all three units, the inspectors found that the licensee had not included 612 critical MCCBs, many of them safety-related, in their PM program which resulted in the MCCBs receiving no planned maintenance or testing. The licensee entered this issue into the corrective action program as problem evaluation report (PER) 209095. The licensee's corrective actions included: identifying all critical MCCBs that required preventive maintenance, developing test procedures for these MCCBs, performing testing for all affected MCCBs, and conducting an extent-of-condition review of all safety-related components potentially excluded from the PM program.

This finding was determined to be of greater than minor significance because it was associated with the Protection Against External Factors attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events, such as fire, that challenge critical safety functions during shutdown as well as power operations. Specifically, the lack of a PM program for safety-related MCCBs resulted in no periodic planned maintenance or testing being performed since original installation, which in most cases was over thirty years. Based on operating experience, this could result in a breaker being slow to trip or sticking in the "on" position after an over-current condition. In accordance with IMC 0609, Significance Determination Process (SDP), Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to require a Phase 3 analysis since the finding represented an increase in the likelihood of a fire caused by an electrical fault at the MCCB compartment with the breaker not opening. A regional Senior Reactor Analyst conducted a Phase 3 SDP analysis, which concluded that the finding was of very low safety significance (Green).

The cause of this finding was directly related to the cross cutting aspect of Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately implement corrective actions to resolve the deficiencies previously identified by PER 131875 regarding certain Westinghouse MCCBs that were not in the PM program [P.1(d)]. (Section 4OA5.4)

Inspection Report# : [2010004](#) (*pdf*)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: FIN Finding

Failure to Implement the Provisions of Preventative Maintenance (PM) Program Which Contributed to a Manual Reactor Scram

Green: The inspectors identified a finding for the licensee's failure to implement the applicable provisions of the Tennessee Valley Authority (TVA) Preventative Maintenance (PM) Program to replace the coil in the solenoid valve controlling the opening of the Unit 3 Condensate Demineralizer bypass valve on the specified PM frequency. Failure of this coil was identified as a contributing cause in Root Cause Analysis for PER 200203, "Unit 3 Manual Scram Due to Lowering Reactor Water Level." This finding was entered into the licensee's corrective action program as PER 245390.

The inspectors determined that the licensee's failure to implement the TVA PM program was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Initiating Events cornerstone attribute of Equipment Performance, and adversely affected the cornerstone objective to

limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power operations, since failure to implement the provisions of the PM program increased the likelihood of a component failure which contributed to a plant transient. Specifically the failure of the solenoid coil contributed to a reactor trip. The inspectors determined that the finding was of very low safety significance 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 inspectors determined that this finding directly involved the cross-cutting area of Human Performance, component of Work Practices and aspect of Procedural Compliance because licensee personnel failed to follow the guidance contained in the Preventive Maintenance program resulting in a plant transient. [H.4.b] (Section 4OA2.a.3.2)

Inspection Report# : [2010006](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Operators failed to correctly monitor and assess RPV beltline temperatures during RPV hydrostatic/in-service leak test

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to follow surveillance procedure 3-SR-3.4.9.1(2), Reactor Vessel Shell Temperature and Reactor Coolant Pressure Monitoring during In-service Hydrostatic Leak Testing, to ensure all required Unit 3 temperatures were being monitored and verified to meet TS 3.4.9, RCS Pressure and Temperature Limits. Unit 3 reactor operators selected a wrong reactor pressure vessel (RPV) metal temperature to monitor, and the operator and Unit Supervisor (US) failed to recognize that the incorrect RPV temperature being monitored was outside the TS 3.4.9 limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as problem evaluation report (PER) 222844.

This finding was determined to be of greater than minor significance because it was associated with the Initiating Events Cornerstone attribute of Human Performance, and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown. More specifically, the lack of reactor operator attention, and US oversight, during the RPV in-service leak test, resulted in operator errors that adversely affected the operators' ability to monitor and verify RPV metal temperatures were within TS Figure 3.4.9-2 limits to preclude a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 609.04, Phase 1 - Initial Screening and Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Human Performance and Error Prevention in the Work Practices component of the Human Performance area, because human performance errors by the control room operators resulted in selecting the wrong RPV metal temperature to monitor and not recognizing this temperature exceeded TS limits [H.4.(a)]. (Section 1R20.1.2)

Inspection Report# : [2010002](#) (pdf)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate surveillance procedure to ensure all relevant RPV metal temperatures were monitored during RPV hydrostatic/in-service leak testing

The inspectors identified a noncited violation of Technical Specifications (TS) 5.4.1.a for failure to establish an adequate surveillance procedure to ensure all relevant reactor pressure vessel (RPV) metal temperatures of all four RPV regions were being monitored during the Unit 3 RPV in-service leak test pursuant with TS Surveillance Requirement (SR) 3.4.9.1, RCS Pressure and Temperature Limits. The licensee subsequently verified all required RPV temperatures were within TS 3.4.9 limits. This issue was entered into the licensee's corrective action program as PERs 223539 and 224778.

This finding was determined to be of greater than minor significance 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. More specifically, the procedure used by operators to monitor RCS and RPV temperatures, during the RPV in-service leak

test, lacked sufficient details to ensure all relevant RPV temperatures would be monitored to meet TS SR 3.4.9.1 which could increase the likelihood of a low temperature overpressure event. The finding was determined to be of very low safety significance according to Inspection Manual Chapter 0609, Phase I - Initial Screening and Characterization of Findings, because it did not actually exceed the TS limit or adversely affect any mitigating systems. The cause of this finding was directly related to the cross-cutting aspect of Complete and Accurate Procedures in the Resources component of the Human Performance area because the applicable surveillance procedure lacked sufficient details and guidance to ensure all relevant RPV metal temperatures would be monitored pursuant to TS SR 3.4.9.1 [H.2.(c)]. (Section 1R20.1.3)

Inspection Report# : [2010002](#) (pdf)

Mitigating Systems

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform functional evaluations for gas identified during venting

An NRC-identified Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified for the licensee’s failure to perform functional evaluations in accordance with procedure NEDP-22, Functional Evaluations, when gas was identified in the High Pressure Coolant Injection (HPCI) System during the Technical Specification required surveillance. The licensee has subsequently performed functional evaluations of the occurrences and entered the issue into their corrective action program as problem evaluation report (PER) 223067.

This finding was considered more than minor because it adversely affected the Mitigating Systems Cornerstone objective of ensuring the availability and reliability of safety systems, and is related to the attribute of Procedure Quality (i.e.- Maintenance and Testing Procedures). Specifically, the failure to perform a functional evaluation or provide adequate justification for not performing one upon identification of gas during venting of the system could affect the operability, availability, and reliability of the HPCI system or could result in missing an opportunity to identify the source of voiding to preclude future inoperability. This deficiency also paralleled Inspection Manual Chapter 0612, Appendix E, Example 4.a, as the licensee routinely did not perform the required functional evaluations. The team assessed this finding using Inspection Manual Chapter 0609, Significance Determination Process, and determined that the finding was of very low safety significance (Green) because subsequent functional evaluations showed that the gas voids did not impact the operability of the HPCI system.

The cause of this finding was directly related to the cross cutting aspect of Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, in that the licensee failed to thoroughly evaluate gas voids such that the resolution addressed causes and extent of conditions, as necessary, and included the failure to thoroughly evaluate for operability and reportability conditions adverse to quality. [P.1(c)] (Section 40A5)

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Siemens Horizontal Vacuum Circuit Breakers Circuit Breakers (Section 40A2.a.3.6)

Green: The inspectors identified a non-cited violation of Technical Specification (TS) 5.4.1 for the licensee’s failure to have adequate preventative maintenance procedures for Siemens Horizontal Vacuum Circuit Breakers. Plant procedure EPI-0-000-BKR015, 4KV Wyle/Siemens Horizontal Vacuum Circuit Breaker (Type-3AF) and Compartment Maintenance, Revision 28, did not provide specific guidance for checking the tightness of the closing spring charging motor mounting bolts. As a result, on June 15, 2010 while the 3C RHR pump was in service for

suppression pool cooling, the charging motor in the pump breaker cubicle became detached from its mount. The charging spring failed to recharge and the pump would not have restarted if needed following a trip of the circuit breaker. The licensee reattached the charging motor and restored the 3C RHR pump to service. The licensee also revised procedure EPI-0-000-BKR015 to include instructions for ensuring the charging motor was securely fastened to the circuit breaker. This finding was entered into the licensee's corrective action program as PER 234443.

The inspectors determined that the failure to have an adequate maintenance procedure for circuit breaker maintenance was a performance deficiency. This performance deficiency was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Procedure Quality and adversely affected the cornerstone objective in that the PM procedure for the breaker did not assure the 3C RHR pump could perform its intended safety functions. The inspectors determined that the finding was of very low safety significance because it did not result in inoperability of a safety function for greater than the allowed technical specification outage time and was not potentially risk-significant due to external events. The inspectors determined that this finding directly involved the crosscutting area of Human Performance, component of Resources and aspect of Complete Documentation because the licensee did not maintain adequate plant procedures for equipment maintenance. Specifically, procedure EPI-0-000-BKR015, Revision 28 did not contain guidance for checking the charging motor bolt tightness resulting in the 3C RHR pump charging motor becoming detached and adversely affecting train operability. [H.2(c)] (Section 4OA2.a.3.6)
Inspection Report# : [2010006](#) (*pdf*)

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inappropriate Use of Waivers to Exceed 10 CFR 26 Work Hour Limitations

The inspectors identified a noncited violation of 10 CFR 26.207(a) for improper execution of the waiver process for authorizing waivers of the "72 hours in any seven day period" work hour limitation required by 10 CFR 26.205(d), for contractors performing risk significant maintenance activities during the Unit 3 refueling outage. These issues associated with the use of work hour control waivers were entered into licensee's corrective action program as problem evaluation reports 161418, 162360, and 162638. As part of their interim corrective actions, the licensee prohibited all future use of waivers without express approval of executive management.

This finding was determined to be more than minor because it was similar to examples 9.a and 9.b. of Inspection Manual Chapter (IMC) 612, Appendix E, Examples of Minor Issues. The significance of the finding was screened by regional management according to IMC 609, Appendix M, Significance Determination Process Using Qualitative Criteria. The finding was determined to be of very low safety significance (Green) based on no observed human performance errors due to worker fatigue which caused a consequential event or adversely affected any risk-significant structures, systems, or components. The cause of this finding was directly related to the cross-cutting aspect of procedural compliance in the Work Practices component of the Human Performance area because the licensee failed to comply with the administrative program requirements for processing waivers of the 10 CFR 26 work hour limitations [H.4(b)].

Inspection Report# : [2010003](#) (*pdf*)

Significance:  Jun 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Unit 3 RCIC System Inoperable Beyond the Technical Specifications Allowed Outage Time

A self-revealing non-cited violation of Unit 3 Technical Specifications (TS) Limiting Condition for Operation 3.5.3, Reactor Core Isolation Cooling (RCIC) System, was identified for the licensee's failure to comply with the TS required actions for an inoperable RCIC system. The RCIC system was inoperable due to missing critical parts in the electronic governor regulator (i.e., EG-R) hydraulic actuator for a period of greater than 14 days, during the time when TS 3.5.3 was applicable between March 14, 2006 and September 12, 2009, without the licensee taking the required TS actions. This issue was entered into the corrective action program as problem evaluation reports 200183 and 224614. The EGR was subsequently replaced and the RCIC system restored to an operable condition, following testing.

This finding was determined to be of greater than minor significance because it was associated with the Equipment

Performance 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. Specifically, the RCIC EG-R was missing internal parts that were important for maintaining stable and reliable RCIC flow during reactor pressure vessel (RPV) injection. According to IMC 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance (Green) because the finding did not lead to an actual loss of safety function of the system, nor did it 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately evaluate the operability of the RCIC system with large flow oscillations of plus/minus 300 gallons per minute during RPV injection [P.1(c)].

Inspection Report# : [2010003](#) (*pdf*)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to effectively maintain performance of the A3 EECW pump as required by 10 CFR

The inspectors identified a noncited violation of 10 CFR 50.65(a)(2) for failure to demonstrate that the performance of the A3 Emergency Equipment Cooling Water (EECW) pump was effectively controlled by preventive maintenance (PM) such that the pump remained capable of performing its intended function. Also due to inadequate evaluations performed after the A3 EECW pump exceeded its Maintenance Rule a(2) performance criteria, goal setting and monitoring were not established as required by paragraph a(1) of the Maintenance Rule. The licensee subsequently declared the EECW system in (a)(1) status and was in the process of developing the required goals and monitoring plan. This issue was entered into the licensee's corrective action program as problem evaluation report 223404.

The finding was determined to be of greater than minor significance because it was associated with the Equipment Performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective of ensuring availability and reliability of systems designed to respond to initiating events to prevent undesirable consequences. More specifically, the licensee failed to demonstrate effective control of EECW system availability through appropriate PM. According to NRC Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately evaluate the causes of the A3 EECW pump unavailability and thereby failed to correctly determine the impact on the 10 CFR 50.65(a)(2) unavailability performance criteria [P.1(c)]. (Section 1R12)

Inspection Report# : [2010002](#) (*pdf*)

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Untimely corrective actions to restore compliance of EECW pump in-service testing with ASME OM code requirements

The inspectors identified a noncited violation of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, for failure to promptly recognize, and then correct in a timely manner, non-conforming conditions involving the in-service testing (IST) requirements of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance (OM) of Nuclear Power Plants for the Equipment Cooling Water (EECW) system identified in June 2009. These nonconforming conditions involved the use of flow instrumentation without the proper accuracy, and failure to use the pre-service pump curve when establishing additional IST baseline reference values. The licensee revised the timeliness of their corrective action plans and decided to track this issue as a nonconforming condition. This issue was entered into the licensee's corrective action program as PER 225844.

The finding was determined to be of greater than minor significance because if left uncorrected it could become a more significant safety concern. In-service testing of the EECW system in conformance with the ASME OM Code

provides assurance that degraded pump performance would be promptly detected and corrected. Failing to recognize and resolve these and other IST program deficiencies could lead to untimely detection of EECW pump degradation. According to Inspection Manual Chapter 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance because it did not lead to an actual loss of a system safety function 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 Appropriate and Timely Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to take appropriate corrective actions to restore full compliance with the ASME OM Code requirements in a timely manner [P.1(d)]. (Section 4OA2.2)

Inspection Report# : [2010002](#) (*pdf*)

Significance: **Y** Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Failure to Ensure One Train of Cables of Systems Necessary to Achieve and/or Maintain Post-Fire safe Shutdown is Free of Fire Damage in Accordance With 10 CFR Part 50, Appendix R, Section III.G.

Title 10 of the Code of Federal Regulations (10 CFR), Part 50.48(b)(1) requires that all nuclear power plants licensed to operate prior to January 1, 1979, must satisfy the applicable requirements of 10 CFR Part 50, Appendix R, Sections III.G, III.J, and III.O.

Section III.G requires fire protection of safe shutdown capability.

Section III.G.1 requires fire protection features shall be provided for structures, systems, and components important to safe shutdown. These features shall be capable of limiting fire damage, such that one train of systems necessary for achieving and maintaining hot shutdown conditions is free of fire damage.

Section III.G.2 requires, in part, that where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area outside of primary containment, one of the following means of ensuring that one of the redundant trains is free of fire damage shall be provided:

- a. separation of cables and equipment by a fire barrier having a 3-hour rating; or
- b. separation of cables and equipment by a horizontal distance of more than 20 feet with no intervening combustibles or fire hazards. Fire detection and automatic fire suppression shall be installed in the fire area; or
- c. enclosure of cables and equipment of one redundant train in a fire barrier having a 1-hour fire rating. Fire detection and automatic suppression shall be installed in the fire area.

Contrary to the above, since the restart of each unit (Unit 2-1991, Unit 3-1995, Unit 1-2007) and as of January 20, 2010, the date of the inspection report, the licensee had not met nor has met, as of the date of this NOV, the requirements of 10 CFR Part 50, Appendix R, Section III.G, in that:

(i) fire protection features capable of limiting fire damage were not provided for structures, systems, and components important for safe shutdown. Specifically, the Tennessee Valley Authority (licensee) failed to provide fire protection features capable of limiting the fire damage such that one train of systems necessary to achieve and maintain hot shutdown conditions was free from fire damage in Fire Area 8 along with 19 other fire areas designated in the Browns Ferry Fire Protection Report, as required by 10 CFR Part 50, Appendix R, Section III.G.1.

(ii) where cables and equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located in the same fire area, the licensee did not ensure that one of the redundant trains was free of fire damage by providing one of the following means: (a) a 3-hour rated fire barrier; (b) 20 feet of spatial separation (free of intervening combustibles and fire hazards) with detection and suppression installed in the fire area; or (c) a 1-hour rated fire barrier with detection and suppression installed in the fire area. Specifically, cables associated with the RHRSW Pump A1, RHR Pump 1A, and LPCI injection valve 1-FCV-74-53 in Fire Area 1/Fire Zone 1-4 are some of the many examples in which the licensee failed to ensure that one train of cables of redundant systems or equipment necessary to achieve and maintain hot shutdown conditions, located in the same fire area, outside of primary containment was free of fire damage by one of the means described in 10 CFR Part 50, Appendix R, Section III.G.2.

Inspection Report# : [2010007](#) (*pdf*)

Inspection Report# : [2009009](#) (*pdf*)

Significance: **W** Oct 09, 2009

Identified By: NRC

Item Type: VIO Violation

Inadequate Safe Shutdown Instruction Entry Conditions for Appendix R Fire Events

The team identified an apparent violation of Technical Specification 5.4.1.a., in that, the licensee's revision to the safe shutdown instruction entry conditions in December 2008 resulted in inadequate procedural guidance. Specifically, the revision to Procedure 0-SSI-001, "Safe Shutdown Instructions," added an entry condition based on the operator's ability to restore and maintain reactor water level above +2 inches on the narrow range scale, utilizing available equipment. This revision could have delayed or prevented entry into the safe shutdown instructions if reactor water level stayed at or above +2 inches on the narrow range scale. Furthermore, this entry condition was not consistent with the initial plant conditions assumed in the fire protection program safe shutdown analysis. The licensee entered this finding into the corrective action program and revised the entry conditions for the safe shutdown instructions on February 27, 2009, to eliminate the +2-inch reactor vessel water level entry condition.

Failure to meet Technical Specification requirements due to inadequate procedural guidance is a performance deficiency. This finding is more than minor because it is associated with the procedure quality attribute of the mitigating systems cornerstone and the inadequate procedure affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. Given the number of fire areas involved, a significance determination process Phase 2 analysis was not performed. A regional senior reactor analyst determined that there were significant obstacles to quantifying the risk of this finding because the methods and tools are not adequate to determine the significance of this finding within the established timeliness goal of 90 days. Therefore, the safety significance of this finding was determined using the guidance and qualitative techniques contained in NRC Inspection Manual Chapter 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria." The preliminary significance of this finding was determined to be Greater Than Green, which was reviewed and approved by NRC management. The team determined that this finding did not present an immediate safety concern because the immediate safety hazard no longer existed after the licensee revised the safe shutdown instruction in February 2009. The cause of this finding had a cross-cutting aspect in the Decision Making component of the Human Performance area, in that it was related to the licensee not using conservative assumptions in decision making and not conducting reviews to verify the validity of underlying assumptions and identifying possible unintended consequences (H.1(b)).

Inspection Report# : [2009009](#) (pdf)

Inspection Report# : [2010007](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

New fuel receipt inspection and refueling operations supervised by non-qualified senior reactor operators

The inspectors identified a noncited violation of Technical Specifications 5.4.1.a for the failure to comply with operating procedures for Unit 3 new fuel receipt inspection and refueling operations that required the Fuel Handling Supervisor (FHS) to be trained and certified. During Unit 3 new fuel receipt inspections and refueling operations unqualified senior reactor operators (SRO) were allowed to supervise fuel handling activities. The unqualified SROs were subsequently re-qualified or not allowed to supervise fuel handling activities until qualified. This issue was entered into the licensee's corrective action program as problem evaluation reports 220410 and 220791.

This finding was determined to be of greater than minor significance because it was associated with the Barrier Integrity Cornerstone attribute of Human Performance, 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. Specifically, the use of unqualified FHS(s) to supervise new fuel receipt inspection and core refueling operations would reduce the level of assurance that fuel handling activities were accomplished safely and error free to prevent inadvertent fuel damage. The finding was evaluated and determined to be of very low safety significance using Inspection Manual Chapter 0609, Appendix G, Shutdown Operations Significance Determination Process, Attachment 1, Phase 1 Operational Checklists, Checklist 7, because it did not involve any human performance errors that resulted in fuel assembly damage, inappropriate core alteration, loss of reactor coolant and/or spent fuel pool inventory, or reduction of any safe shutdown mitigation capability. The cause of this finding was directly related to the cross-cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area

because neither the night shift FHS or relief FHS(s) complied with the operating procedure requirements that all personnel supervising new fuel receipt inspections and/or refueling operations must be qualified [(H.4(b)). (Section 1R20.1.1)

Inspection Report# : [2010002](#) (pdf)

Emergency Preparedness

Significance: TBD Dec 31, 2010

Identified By: Self-Revealing

Item Type: VIO Violation

Repeated failure to provide complete and accurate information in LER 05000296/2009-003-02

The original LER 50-296/2009-003-00 dated May 24, 2010, and applicable PERs 200183,119628 and 246527, including cause determination and corrective action plans, were reviewed by the inspectors and documented in Section 4OA3.2 of NRC inspection report (IR) 05000296/2010003. As a result of this prior review, two violations of NRC requirements were identified: NCV 05000296/2010003-02, Unit 3 RCIC System Inoperable beyond the Technical Specifications Allowed Outage Time; and NCV 05000296/2010003-03, Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00. The NCV 05000296/2010003-03 was the result of the review of the original LER, when the inspectors determined that, contrary to 10 CFR 50.9, LER 0500296/2009-003-00 was not accurate or complete in all material aspects for which the licensee initiated PER 246527. Specifically, the LER inaccurately reported the duration of system inoperability, inaccurately reported the availability of HPCI while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as required by 10 CFR 50.73(b)(5).

As part of the PER 246527 corrective actions, the licensee issued a revised LER 0500296/2009-003-01 on July 15, 2010. The principal intent of this LER revision was to establish the date that began the period of RCIC inoperability as March 22, 2006, and to notify the NRC that additional time was needed to complete a determination of any concurrent HPCI system inoperability. The licensee revised their commitment to supplement the LER to September 30, 2010. Subsequently, the licensee issued their second revised LER 0500296/2009-003-02 on August 31, 2010. This LER was revised by the licensee to correct and update the LER narrative with an expanded timeline and results from their efforts to retrieve high speed computer data regarding actual RCIC pump performance. This second revision was also intended to address and correct any missing or inaccurate information identified by the inspectors in the original LER. This revised LER included changes to the Abstract, Description of Event, Cause of the Event, Analysis of the Event, and Corrective Actions.

The second revision of the LER did specifically report a more accurate duration of system inoperability, including when the nonconforming turbine electric governor-remote (EG-R) had been installed; a discussion of concurrent HPCI unavailability while RCIC was inoperable; and a discussion of the previous event on February 9, 2007 that occurred on the same unit with the same cause. The inspectors reviewed the revisions 1 and 2 of the LERs, and verified the root causes and previously identified corrective actions for the RCIC flow instabilities were not substantially different, except for the additional clarifying information provided.

Inspection Report# : [2010005](#) (pdf)

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Significance: SL-IV Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00

A Severity Level IV, non-cited violation of 10 CFR 50.9, Completeness and Accuracy of Information, was identified by the inspectors regarding the licensee submittal of Licensee Evaluation Report (LER) 0500296/2009-003-00, Reactor Core Isolation Cooling System Inoperable Longer than Allowed by Technical Specifications, which was determined to not be accurate or complete in all material aspects. Specifically, the LER inaccurately reported the duration in which the system was inoperable, inaccurately reported the availability of redundant systems while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as required by 10 CFR 50.73.

Inspection Report# : [2010003](#) (*pdf*)

Last modified : March 03, 2011

Browns Ferry 3

1Q/2011 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate corrective actions to address Unit 3 CR120A PCIS relays taht exceeded their recommended service life

An NRC identified non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, was identified for the licensee's failure to correct a condition adverse to quality related to Unit 3 primary containment isolation system (PCIS) logic relays exceeding their in-service life expectancy. Specifically, the licensee failed to replace numerous Unit 3 PCIS CR120A relays prior to exceeding their vendor's recommended service lifetime. The licensee has entered this issue into their corrective action program as problem evaluation report (PER) 348160.

This finding was determined to be more than minor because it was associated with the Equipment Performance attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the frequency of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, a relay failure could cause a reactor scram, engineered safeguards (ESF) actuation, and/or Group 1, 2, 3, or 6, primary containment isolation. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to implement adequate corrective actions as part of PER 220336 to replace or extend the service life of the Unit 3 PCIS CR120A relays prior to exceeding their recommended service lifetime [P.1(d)]. (Section 4OA2.2)

Inspection Report# : [2011002](#) (*pdf*)

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: FIN Finding

Failure to identify adverse trend resulted in reactor scram

A self-revealing finding (FIN) was identified for the licensee's failure to adequately evaluate and take the required actions established by site standards to address an adverse system performance trend that had degraded below acceptable levels associated with the main generator exciter air coolers. Specifically, the licensee failed to identify that main generator exciter air cooler differential temperatures exceeded the licensee-defined limit of 10F, and did not initiate a PER as required by the licensee's procedural guidance, Nuclear Engineering Department Procedure (NEDP) -20, Conduct of the Engineering Organization, Section 3.1, System Performance Monitoring. Subsequent licensee corrective actions included installing vents on the exciter air coolers to minimize air binding, establishing a process and frequency for venting the exciter air coolers, and increasing engineering supervisory oversight of the system monitoring process. The licensee captured this issue in the corrective action program as PER 301505.

This finding is greater than minor because it is associated with the Human Performance 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 finding resulted in a Unit 3 manual reactor scram due to elevated main turbine bearing vibrations caused by excessive main generator exciter air cooler differential temperatures. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Corrective Action Program Implementation in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to identify the adverse trend of excessive differential temperatures between the exciter air coolers in a timely manner and enter it into the corrective action program. [P.1(a)]. (Section 4OA3.2)

Inspection Report# : [2011002](#) (pdf)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately test molded case circuit breakers

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for failure to establish a preventive maintenance (PM) test program for safety-related molded case circuit breakers (MCCBs) to demonstrate these breakers would perform satisfactorily upon demand. Since initial startup of all three units, the inspectors found that the licensee had not included 612 critical MCCBs, many of them safety-related, in their PM program which resulted in the MCCBs receiving no planned maintenance or testing. The licensee entered this issue into the corrective action program as problem evaluation report (PER) 209095. The licensee's corrective actions included: identifying all critical MCCBs that required preventive maintenance, developing test procedures for these MCCBs, performing testing for all affected MCCBs, and conducting an extent-of-condition review of all safety-related components potentially excluded from the PM program.

This finding was determined to be of greater than minor significance because it was associated with the Protection Against External Factors attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events, such as fire, that challenge critical safety functions during shutdown as well as power operations. Specifically, the lack of a PM program for safety-related MCCBs resulted in no periodic planned maintenance or testing being performed since original installation, which in most cases was over thirty years. Based on operating experience, this could result in a breaker being slow to trip or sticking in the "on" position after an over-current condition. In accordance with IMC 0609, Significance Determination Process (SDP), Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to require a Phase 3 analysis since the finding represented an increase in the likelihood of a fire caused by an electrical fault at the MCCB compartment with the breaker not opening. A regional Senior Reactor Analyst conducted a Phase 3 SDP analysis, which concluded that the finding was of very low safety significance (Green).

The cause of this finding was directly related to the cross cutting aspect of Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately implement corrective actions to resolve the deficiencies previously identified by PER 131875 regarding certain Westinghouse MCCBs that were not in the PM program [P.1(d)]. (Section 4OA5.4)

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: FIN Finding

Failure to Implement the Provisions of Preventative Maintenance (PM) Program Which Contributed to a Manual Reactor Scram

Green: The inspectors identified a finding for the licensee's failure to implement the applicable provisions of the Tennessee Valley Authority (TVA) Preventative Maintenance (PM) Program to replace the coil in the solenoid valve controlling the opening of the Unit 3 Condensate Demineralizer bypass valve on the specified PM frequency. Failure of this coil was identified as a contributing cause in Root Cause Analysis for PER 200203, "Unit 3 Manual Scram Due to Lowering Reactor Water Level." This finding was entered into the licensee's corrective action program as PER 245390.

The inspectors determined that the licensee's failure to implement the TVA PM program was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Initiating Events cornerstone attribute of Equipment Performance, and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power

operations, since failure to implement the provisions of the PM program increased the likelihood of a component failure which contributed to a plant transient. Specifically the failure of the solenoid coil contributed to a reactor trip. The inspectors determined that the finding was of very low safety significance 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 inspectors determined that this finding directly involved the cross-cutting area of Human Performance, component of Work Practices and aspect of Procedural Compliance because licensee personnel failed to follow the guidance contained in the Preventive Maintenance program resulting in a plant transient. [H.4.b] (Section 40A2.a.3.2)
Inspection Report# : [2010006](#) (pdf)

Mitigating Systems

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform functional evaluations for gas identified during venting

An NRC-identified Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified for the licensee’s failure to perform functional evaluations in accordance with procedure NEDP-22, Functional Evaluations, when gas was identified in the High Pressure Coolant Injection (HPCI) System during the Technical Specification required surveillance. The licensee has subsequently performed functional evaluations of the occurrences and entered the issue into their corrective action program as problem evaluation report (PER) 223067.

This finding was considered more than minor because it adversely affected the Mitigating Systems Cornerstone objective of ensuring the availability and reliability of safety systems, and is related to the attribute of Procedure Quality (i.e.- Maintenance and Testing Procedures). Specifically, the failure to perform a functional evaluation or provide adequate justification for not performing one upon identification of gas during venting of the system could affect the operability, availability, and reliability of the HPCI system or could result in missing an opportunity to identify the source of voiding to preclude future inoperability. This deficiency also paralleled Inspection Manual Chapter 0612, Appendix E, Example 4.a, as the licensee routinely did not perform the required functional evaluations. The team assessed this finding using Inspection Manual Chapter 0609, Significance Determination Process, and determined that the finding was of very low safety significance (Green) because subsequent functional evaluations showed that the gas voids did not impact the operability of the HPCI system.

The cause of this finding was directly related to the cross cutting aspect of Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, in that the licensee failed to thoroughly evaluate gas voids such that the resolution addressed causes and extent of conditions, as necessary, and included the failure to thoroughly evaluate for operability and reportability conditions adverse to quality. [P.1(c)] (Section 40A5)

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Siemens Horizontal Vacuum Circuit Breakers Circuit Breakers (Section 40A2.a.3.6)

Green: The inspectors identified a non-cited violation of Technical Specification (TS) 5.4.1 for the licensee’s failure to have adequate preventative maintenance procedures for Siemens Horizontal Vacuum Circuit Breakers. Plant procedure EPI-0-000-BKR015, 4KV Wyle/Siemens Horizontal Vacuum Circuit Breaker (Type-3AF) and Compartment Maintenance, Revision 28, did not provide specific guidance for checking the tightness of the closing spring charging motor mounting bolts. As a result, on June 15, 2010 while the 3C RHR pump was in service for suppression pool cooling, the charging motor in the pump breaker cubicle became detached from its mount. The

charging spring failed to recharge and the pump would not have restarted if needed following a trip of the circuit breaker. The licensee reattached the charging motor and restored the 3C RHR pump to service. The licensee also revised procedure EPI-0-000-BKR015 to include instructions for ensuring the charging motor was securely fastened to the circuit breaker. This finding was entered into the licensee's corrective action program as PER 234443.

The inspectors determined that the failure to have an adequate maintenance procedure for circuit breaker maintenance was a performance deficiency. This performance deficiency was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Procedure Quality and adversely affected the cornerstone objective in that the PM procedure for the breaker did not assure the 3C RHR pump could perform its intended safety functions. The inspectors determined that the finding was of very low safety significance because it did not result in inoperability of a safety function for greater than the allowed technical specification outage time and was not potentially risk-significant due to external events. The inspectors determined that this finding directly involved the crosscutting area of Human Performance, component of Resources and aspect of Complete Documentation because the licensee did not maintain adequate plant procedures for equipment maintenance. Specifically, procedure EPI-0-000-BKR015, Revision 28 did not contain guidance for checking the charging motor bolt tightness resulting in the 3C RHR pump charging motor becoming detached and adversely affecting train operability. [H.2(c)] (Section 4OA2.a.3.6)

Inspection Report# : [2010006](#) (pdf)

Significance:  Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inappropriate Use of Waivers to Exceed 10 CFR 26 Work Hour Limitations

The inspectors identified a noncited violation of 10 CFR 26.207(a) for improper execution of the waiver process for authorizing waivers of the "72 hours in any seven day period" work hour limitation required by 10 CFR 26.205(d), for contractors performing risk significant maintenance activities during the Unit 3 refueling outage. These issues associated with the use of work hour control waivers were entered into licensee's corrective action program as problem evaluation reports 161418, 162360, and 162638. As part of their interim corrective actions, the licensee prohibited all future use of waivers without express approval of executive management.

This finding was determined to be more than minor because it was similar to examples 9.a and 9.b. of Inspection Manual Chapter (IMC) 612, Appendix E, Examples of Minor Issues. The significance of the finding was screened by regional management according to IMC 609, Appendix M, Significance Determination Process Using Qualitative Criteria. The finding was determined to be of very low safety significance (Green) based on no observed human performance errors due to worker fatigue which caused a consequential event or adversely affected any risk-significant structures, systems, or components. The cause of this finding was directly related to the cross-cutting aspect of procedural compliance in the Work Practices component of the Human Performance area because the licensee failed to comply with the administrative program requirements for processing waivers of the 10 CFR 26 work hour limitations [H.4(b)].

Inspection Report# : [2010003](#) (pdf)

Significance:  Jun 30, 2010

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Unit 3 RCIC System Inoperable Beyond the Technical Specifications Allowed Outage Time

A self-revealing non-cited violation of Unit 3 Technical Specifications (TS) Limiting Condition for Operation 3.5.3, Reactor Core Isolation Cooling (RCIC) System, was identified for the licensee's failure to comply with the TS required actions for an inoperable RCIC system. The RCIC system was inoperable due to missing critical parts in the electronic governor regulator (i.e., EG-R) hydraulic actuator for a period of greater than 14 days, during the time when TS 3.5.3 was applicable between March 14, 2006 and September 12, 2009, without the licensee taking the required TS actions. This issue was entered into the corrective action program as problem evaluation reports 200183 and 224614. The EGR was subsequently replaced and the RCIC system restored to an operable condition, following testing.

This finding was determined to be of greater than minor significance because it was associated with the Equipment Performance 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. Specifically, the RCIC EG-R was missing internal parts that were important for maintaining stable and reliable RCIC flow during reactor pressure vessel (RPV) injection. According to IMC 0609.04, Phase I - Initial Screening and Characterization of Findings, this finding was determined to be of very low safety significance (Green) because the finding did not lead to an actual loss of safety function of the system, nor did it 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 Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately evaluate the operability of the RCIC system with large flow oscillations of plus/minus 300 gallons per minute during RPV injection [P.1(c)].
Inspection Report# : [2010003](#) (*pdf*)

Barrier Integrity

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate TS 5.5.2 program for primary coolant leaks outside containment

An NRC identified non-cited violation of Technical Specifications (TS) 5.5.2, Primary Coolant Sources Outside Containment was identified for the licensee's failure to establish, implement, and maintain an adequate program for minimizing primary coolant leaks from systems (i.e., Core Spray, Residual Heat Removal, High Pressure Coolant Injection, and Reactor Core Isolation Cooling) outside containment, that could contain highly radioactive fluids during a serious transient or accident, to levels as low as practicable. The licensee's corrective actions included identification, evaluation, and prioritization of all known primary coolant leaks outside containment; and development of a new program in accordance with 0-TI-578, Minimizing Primary Coolant Sources Outside Containment. This finding was entered into the licensee's corrective action program as problem evaluation report (PER) 317464.

This finding was determined to be more than minor because if left uncorrected it could have led to a more significant safety concern. Specifically, the licensee's failure to effectively minimize and monitor primary coolant leakage outside containment could have resulted in increased main control room exposure and/or offsite dose during an accident due to excessive radioactive fission product releases into secondary containment. The finding was determined to be of very low safety significance (Green) according to IMC 0609, Appendix H, Containment Integrity Significance Determination Process, Section 6.0, Type B Findings, because the primary coolant leak rate into secondary containment was a small fraction of the leakage assumed in the design basis accident (DBA) safety analyses. The cause of this finding was directly related to the cross-cutting aspect Complete and Accurate Procedures in the Resources component of the Human Performance area because the licensee's existing procedures were inadequate and incomplete for addressing the program requirements of TS 5.5.2 [H.2.(c)]. (Section 40A2.5)

Inspection Report# : [2011002](#) (*pdf*)

Emergency Preparedness

Significance: TBD Dec 31, 2010

Identified By: Self-Revealing

Item Type: VIO Violation

Repeated failure to provide complete and accurate information in LER 05000296/2009-003-02

The original LER 50-296/2009-003-00 dated May 24, 2010, and applicable PERs 200183, 119628 and 246527, including cause determination and corrective action plans, were reviewed by the inspectors and documented in Section 40A3.2 of NRC inspection report (IR) 05000296/2010003. As a result of this prior review, two violations of NRC requirements were identified: NCV 05000296/2010003-02, Unit 3 RCIC System Inoperable beyond the Technical Specifications Allowed Outage Time; and NCV 05000296/2010003-03, Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00. The NCV 05000296/2010003-03 was the result of the review of

the original LER, when the inspectors determined that, contrary to 10 CFR 50.9, LER 0500296/2009-003-00 was not accurate or complete in all material aspects for which the licensee initiated PER 246527. Specifically, the LER inaccurately reported the duration of system inoperability, inaccurately reported the availability of HPCI while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as required by 10 CFR 50.73(b)(5).

As part of the PER 246527 corrective actions, the licensee issued a revised LER 0500296/2009-003-01 on July 15, 2010. The principal intent of this LER revision was to establish the date that began the period of RCIC inoperability as March 22, 2006, and to notify the NRC that additional time was needed to complete a determination of any concurrent HPCI system inoperability. The licensee revised their commitment to supplement the LER to September 30, 2010. Subsequently, the licensee issued their second revised LER 0500296/2009-003-02 on August 31, 2010. This LER was revised by the licensee to correct and update the LER narrative with an expanded timeline and results from their efforts to retrieve high speed computer data regarding actual RCIC pump performance. This second revision was also intended to address and correct any missing or inaccurate information identified by the inspectors in the original LER. This revised LER included changes to the Abstract, Description of Event, Cause of the Event, Analysis of the Event, and Corrective Actions.

The second revision of the LER did specifically report a more accurate duration of system inoperability, including when the nonconforming turbine electric governor-remote (EG-R) had been installed; a discussion of concurrent HPCI unavailability while RCIC was inoperable; and a discussion of the previous event on February 9, 2007 that occurred on the same unit with the same cause. The inspectors reviewed the revisions 1 and 2 of the LERs, and verified the root causes and previously identified corrective actions for the RCIC flow instabilities were not substantially different, except for the additional clarifying information provided.

Inspection Report# : [2010005](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Significance: SL-IV Jun 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00

A Severity Level IV, non-cited violation of 10 CFR 50.9, Completeness and Accuracy of Information, was identified by the inspectors regarding the licensee submittal of Licensee Evaluation Report (LER) 0500296/2009-003-00, Reactor Core Isolation Cooling System Inoperable Longer than Allowed by Technical Specifications, which was determined to not be accurate or complete in all material aspects. Specifically, the LER inaccurately reported the duration in which the system was inoperable, inaccurately reported the availability of redundant systems while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as

required by 10 CFR 50.73.

Inspection Report# : [2010003](#) (*pdf*)

Last modified : June 07, 2011

Browns Ferry 3

2Q/2011 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate corrective actions to address Unit 3 CR120A PCIS relays taht exceeded their recommended service life

An NRC identified non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, was identified for the licensee's failure to correct a condition adverse to quality related to Unit 3 primary containment isolation system (PCIS) logic relays exceeding their in-service life expectancy. Specifically, the licensee failed to replace numerous Unit 3 PCIS CR120A relays prior to exceeding their vendor's recommended service lifetime. The licensee has entered this issue into their corrective action program as problem evaluation report (PER) 348160.

This finding was determined to be more than minor because it was associated with the Equipment Performance attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the frequency of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, a relay failure could cause a reactor scram, engineered safeguards (ESF) actuation, and/or Group 1, 2, 3, or 6, primary containment isolation. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to implement adequate corrective actions as part of PER 220336 to replace or extend the service life of the Unit 3 PCIS CR120A relays prior to exceeding their recommended service lifetime [P.1(d)]. (Section 4OA2.2)

Inspection Report# : [2011002](#) (*pdf*)

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: FIN Finding

Failure to identify adverse trend resulted in reactor scram

A self-revealing finding (FIN) was identified for the licensee's failure to adequately evaluate and take the required actions established by site standards to address an adverse system performance trend that had degraded below acceptable levels associated with the main generator exciter air coolers. Specifically, the licensee failed to identify that main generator exciter air cooler differential temperatures exceeded the licensee-defined limit of 10F, and did not initiate a PER as required by the licensee's procedural guidance, Nuclear Engineering Department Procedure (NEDP) -20, Conduct of the Engineering Organization, Section 3.1, System Performance Monitoring. Subsequent licensee corrective actions included installing vents on the exciter air coolers to minimize air binding, establishing a process and frequency for venting the exciter air coolers, and increasing engineering supervisory oversight of the system monitoring process. The licensee captured this issue in the corrective action program as PER 301505.

This finding is greater than minor because it is associated with the Human Performance 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 finding resulted in a Unit 3 manual reactor scram due to elevated main turbine bearing vibrations caused by excessive main generator exciter air cooler differential temperatures. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Corrective Action Program Implementation in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to identify the adverse trend of excessive differential temperatures between the exciter air coolers in a timely manner and enter it into the corrective action program. [P.1(a)]. (Section 4OA3.2)

Inspection Report# : [2011002](#) (pdf)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately test molded case circuit breakers

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for failure to establish a preventive maintenance (PM) test program for safety-related molded case circuit breakers (MCCBs) to demonstrate these breakers would perform satisfactorily upon demand. Since initial startup of all three units, the inspectors found that the licensee had not included 612 critical MCCBs, many of them safety-related, in their PM program which resulted in the MCCBs receiving no planned maintenance or testing. The licensee entered this issue into the corrective action program as problem evaluation report (PER) 209095. The licensee's corrective actions included: identifying all critical MCCBs that required preventive maintenance, developing test procedures for these MCCBs, performing testing for all affected MCCBs, and conducting an extent-of-condition review of all safety-related components potentially excluded from the PM program.

This finding was determined to be of greater than minor significance because it was associated with the Protection Against External Factors attribute of the Initiating Events Cornerstone and adversely affected the cornerstone objective to limit the likelihood of those events, such as fire, that challenge critical safety functions during shutdown as well as power operations. Specifically, the lack of a PM program for safety-related MCCBs resulted in no periodic planned maintenance or testing being performed since original installation, which in most cases was over thirty years. Based on operating experience, this could result in a breaker being slow to trip or sticking in the "on" position after an over-current condition. In accordance with IMC 0609, Significance Determination Process (SDP), Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to require a Phase 3 analysis since the finding represented an increase in the likelihood of a fire caused by an electrical fault at the MCCB compartment with the breaker not opening. A regional Senior Reactor Analyst conducted a Phase 3 SDP analysis, which concluded that the finding was of very low safety significance (Green).

The cause of this finding was directly related to the cross cutting aspect of Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee did not adequately implement corrective actions to resolve the deficiencies previously identified by PER 131875 regarding certain Westinghouse MCCBs that were not in the PM program [P.1(d)]. (Section 4OA5.4)

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: FIN Finding

Failure to Implement the Provisions of Preventative Maintenance (PM) Program Which Contributed to a Manual Reactor Scram

Green: The inspectors identified a finding for the licensee's failure to implement the applicable provisions of the Tennessee Valley Authority (TVA) Preventative Maintenance (PM) Program to replace the coil in the solenoid valve controlling the opening of the Unit 3 Condensate Demineralizer bypass valve on the specified PM frequency. Failure of this coil was identified as a contributing cause in Root Cause Analysis for PER 200203, "Unit 3 Manual Scram Due to Lowering Reactor Water Level." This finding was entered into the licensee's corrective action program as PER 245390.

The inspectors determined that the licensee's failure to implement the TVA PM program was a performance deficiency. The performance deficiency was determined to be more than minor because it was associated with the Initiating Events cornerstone attribute of Equipment Performance, and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during at power

operations, since failure to implement the provisions of the PM program increased the likelihood of a component failure which contributed to a plant transient. Specifically the failure of the solenoid coil contributed to a reactor trip. The inspectors determined that the finding was of very low safety significance 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 inspectors determined that this finding directly involved the cross-cutting area of Human Performance, component of Work Practices and aspect of Procedural Compliance because licensee personnel failed to follow the guidance contained in the Preventive Maintenance program resulting in a plant transient. [H.4.b] (Section 40A2.a.3.2)
Inspection Report# : [2010006](#) (*pdf*)

Mitigating Systems

Significance:  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*)

Significance:  Sep 30, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform functional evaluations for gas identified during venting

An NRC-identified Green non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified for the licensee's failure to perform functional evaluations in accordance with procedure NEDP-22, Functional Evaluations, when gas was identified in the High Pressure Coolant Injection (HPCI) System during the Technical Specification required surveillance. The licensee has subsequently performed functional evaluations of the occurrences and entered the issue into their corrective action program as problem evaluation report (PER) 223067.

This finding was considered more than minor because it adversely affected the Mitigating Systems Cornerstone objective of ensuring the availability and reliability of safety systems, and is related to the attribute of Procedure Quality (i.e.- Maintenance and Testing Procedures). Specifically, the failure to perform a functional evaluation or provide adequate justification for not performing one upon identification of gas during venting of the system could affect the operability, availability, and reliability of the HPCI system or could result in missing an opportunity to identify the source of voiding to preclude future inoperability. This deficiency also paralleled Inspection Manual Chapter 0612, Appendix E, Example 4.a, as the licensee routinely did not perform the required functional evaluations. The team assessed this finding using Inspection Manual Chapter 0609, Significance Determination Process, and determined that the finding was of very low safety significance (Green) because subsequent functional evaluations showed that the gas voids did not impact the operability of the HPCI system.

The cause of this finding was directly related to the cross cutting aspect of Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area, in that the licensee failed to thoroughly evaluate gas voids such that the resolution addressed causes and extent of conditions, as necessary, and included the failure to thoroughly evaluate for operability and reportability conditions adverse to quality. [P.1(c)] (Section 40A5)

Inspection Report# : [2010004](#) (pdf)

Significance:  Sep 24, 2010

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Maintenance Procedure for Siemens Horizontal Vacuum Circuit Breakers Circuit Breakers (Section 40A2.a.3.6)

Green: The inspectors identified a non-cited violation of Technical Specification (TS) 5.4.1 for the licensee's failure to have adequate preventative maintenance procedures for Siemens Horizontal Vacuum Circuit Breakers. Plant procedure EPI-0-000-BKR015, 4KV Wyle/Siemens Horizontal Vacuum Circuit Breaker (Type-3AF) and Compartment Maintenance, Revision 28, did not provide specific guidance for checking the tightness of the closing spring charging motor mounting bolts. As a result, on June 15, 2010 while the 3C RHR pump was in service for suppression pool cooling, the charging motor in the pump breaker cubicle became detached from its mount. The charging spring failed to recharge and the pump would not have restarted if needed following a trip of the circuit breaker. The licensee reattached the charging motor and restored the 3C RHR pump to service. The licensee also revised procedure EPI-0-000-BKR015 to include instructions for ensuring the charging motor was securely fastened to the circuit breaker. This finding was entered into the licensee's corrective action program as PER 234443.

The inspectors determined that the failure to have an adequate maintenance procedure for circuit breaker maintenance was a performance deficiency. This performance deficiency was more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Procedure Quality and adversely affected the cornerstone objective in that the PM procedure for the breaker did not assure the 3C RHR pump could perform its intended safety functions. The inspectors determined that the finding was of very low safety significance because it did not result in inoperability of a safety function for greater than the allowed technical specification outage time and was not potentially risk-significant due to external events. The inspectors determined that this finding directly involved the crosscutting area of Human Performance, component of Resources and aspect of Complete Documentation because the licensee did not maintain adequate plant procedures for equipment maintenance. Specifically, procedure EPI-0-000-BKR015, Revision 28 did not contain guidance for checking the charging motor bolt tightness resulting in the 3C RHR pump charging motor becoming detached and adversely affecting train operability. [H.2(c)] (Section 40A2.a.3.6)

Inspection Report# : [2010006](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate TS 5.5.2 program for primary coolant leaks outside containment

An NRC identified non-cited violation of Technical Specifications (TS) 5.5.2, Primary Coolant Sources Outside Containment was identified for the licensee's failure to establish, implement, and maintain an adequate program for minimizing primary coolant leaks from systems (i.e., Core Spray, Residual Heat Removal, High Pressure Coolant Injection, and Reactor Core Isolation Cooling) outside containment, that could contain highly radioactive fluids during a serious transient or accident, to levels as low as practicable. The licensee's corrective actions included identification, evaluation, and prioritization of all known primary coolant leaks outside containment; and development of a new program in accordance with 0-TI-578, Minimizing Primary Coolant Sources Outside Containment. This finding was entered into the licensee's corrective action program as problem evaluation report (PER) 317464.

This finding was determined to be more than minor because if left uncorrected it could have led to a more significant safety concern. Specifically, the licensee's failure to effectively minimize and monitor primary coolant leakage outside containment could have resulted in increased main control room exposure and/or offsite dose during an accident due to excessive radioactive fission product releases into secondary containment. The finding was determined to be of very low safety significance (Green) according to IMC 0609, Appendix H, Containment Integrity Significance Determination Process, Section 6.0, Type B Findings, because the primary coolant leak rate into secondary containment was a small fraction of the leakage assumed in the design basis accident (DBA) safety analyses. The cause of this finding was directly related to the cross-cutting aspect Complete and Accurate Procedures in the Resources component of the Human Performance area because the licensee's existing procedures were inadequate and incomplete for addressing the program requirements of TS 5.5.2 [H.2.(c)]. (Section 4OA2.5)

Inspection Report# : [2011002](#) (*pdf*)

Emergency Preparedness

Significance: TBD Dec 31, 2010

Identified By: Self-Revealing

Item Type: VIO Violation

Repeated failure to provide complete and accurate information in LER 05000296/2009-003-02

The original LER 50-296/2009-003-00 dated May 24, 2010, and applicable PERs 200183,119628 and 246527, including cause determination and corrective action plans, were reviewed by the inspectors and documented in Section 4OA3.2 of NRC inspection report (IR) 05000296/2010003. As a result of this prior review, two violations of NRC requirements were identified: NCV 05000296/2010003-02, Unit 3 RCIC System Inoperable beyond the Technical Specifications Allowed Outage Time; and NCV 05000296/2010003-03, Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00. The NCV 05000296/2010003-03 was the result of the review of the original LER, when the inspectors determined that, contrary to 10 CFR 50.9, LER 0500296/2009-003-00 was not accurate or complete in all material aspects for which the licensee initiated PER 246527. Specifically, the LER inaccurately reported the duration of system inoperability, inaccurately reported the availability of HPCI while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as required by 10 CFR 50.73(b)(5).

As part of the PER 246527 corrective actions, the licensee issued a revised LER 0500296/2009-003-01 on July 15, 2010. The principal intent of this LER revision was to establish the date that began the period of RCIC inoperability as March 22, 2006, and to notify the NRC that additional time was needed to complete a determination of any concurrent HPCI system inoperability. The licensee revised their commitment to supplement the LER to September 30, 2010. Subsequently, the licensee issued their second revised LER 0500296/2009-003-02 on August 31, 2010. This LER was revised by the licensee to correct and update the LER narrative with an expanded timeline and results from their efforts to retrieve high speed computer data regarding actual RCIC pump performance. This second revision was also intended to address and correct any missing or inaccurate information identified by the inspectors in the original LER. This revised LER included changes to the Abstract, Description of Event, Cause of the Event, Analysis of the Event, and Corrective Actions.

The second revision of the LER did specifically report a more accurate duration of system inoperability, including

when the nonconforming turbine electric governor-remote (EG-R) had been installed; a discussion of concurrent HPCI unavailability while RCIC was inoperable; and a discussion of the previous event on February 9, 2007 that occurred on the same unit with the same cause. The inspectors reviewed the revisions 1 and 2 of the LERs, and verified the root causes and previously identified corrective actions for the RCIC flow instabilities were not substantially different, except for the additional clarifying information provided.
Inspection Report# : [2010005](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Last modified : October 14, 2011

Browns Ferry 3

3Q/2011 Plant Inspection Findings

Initiating Events

Significance:  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 4OA3.6)

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

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate corrective actions to address Unit 3 CR120A PCIS relays taht exceeded their recommended service life

An NRC identified non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, was identified for the licensee's failure to correct a condition adverse to quality related to Unit 3 primary containment isolation system (PCIS) logic relays exceeding their in-service life expectancy. Specifically, the licensee failed to replace numerous Unit 3 PCIS CR120A relays prior to exceeding their vendor's recommended service lifetime. The licensee has entered this issue into their corrective action program as problem evaluation report (PER) 348160.

This finding was determined to be more than minor because it was associated with the Equipment Performance attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the frequency of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, a relay failure could cause a reactor scram, engineered safeguards (ESF) actuation, and/or Group 1, 2, 3, or 6, primary containment isolation. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to implement adequate corrective actions as part of PER 220336 to replace or extend the service life of the Unit 3 PCIS CR120A relays prior to exceeding their recommended service lifetime [P.1(d)]. (Section 4OA2.2)

Inspection Report# : [2011002](#) (pdf)

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: FIN Finding

Failure to identify adverse trend resulted in reactor scram

A self-revealing finding (FIN) was identified for the licensee's failure to adequately evaluate and take the required actions established by site standards to address an adverse system performance trend that had degraded below acceptable levels associated with the main generator exciter air coolers. Specifically, the licensee failed to identify that main generator exciter air cooler differential temperatures exceeded the licensee-defined limit of 10F, and did not initiate a PER as required by the licensee's procedural guidance, Nuclear Engineering Department Procedure (NEDP) -20, Conduct of the Engineering Organization, Section 3.1, System Performance Monitoring. Subsequent licensee corrective actions included installing vents on the exciter air coolers to minimize air binding, establishing a process and frequency for venting the exciter air coolers, and increasing engineering supervisory oversight of the system monitoring process. The licensee captured this issue in the corrective action program as PER 301505.

This finding is greater than minor because it is associated with the Human Performance 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 finding resulted in a Unit 3 manual reactor scram due to elevated main turbine bearing vibrations caused by excessive main generator exciter air cooler differential temperatures. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Corrective Action Program Implementation in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to identify the adverse trend of excessive differential temperatures between the exciter air coolers in a timely manner and enter it into the corrective action program. [P.1(a)]. (Section 4OA3.2)

Inspection Report# : [2011002](#) (pdf)

Mitigating Systems

Significance:  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)

Barrier Integrity

Significance:  Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation

Inadequate TS 5.5.2 program for primary coolant leaks outside containment

An NRC identified non-cited violation of Technical Specifications (TS) 5.5.2, Primary Coolant Sources Outside Containment was identified for the licensee's failure to establish, implement, and maintain an adequate program for minimizing primary coolant leaks from systems (i.e., Core Spray, Residual Heat Removal, High Pressure Coolant Injection, and Reactor Core Isolation Cooling) outside containment, that could contain highly radioactive fluids during a serious transient or accident, to levels as low as practicable. The licensee's corrective actions included identification, evaluation, and prioritization of all known primary coolant leaks outside containment; and development of a new program in accordance with 0-TI-578, Minimizing Primary Coolant Sources Outside Containment. This finding was entered into the licensee's corrective action program as problem evaluation report (PER) 317464.

This finding was determined to be more than minor because if left uncorrected it could have led to a more significant safety concern. Specifically, the licensee's failure to effectively minimize and monitor primary coolant leakage outside containment could have resulted in increased main control room exposure and/or offsite dose during an accident due to excessive radioactive fission product releases into secondary containment. The finding was determined to be of very low safety significance (Green) according to IMC 0609, Appendix H, Containment Integrity Significance Determination Process, Section 6.0, Type B Findings, because the primary coolant leak rate into secondary containment was a small fraction of the leakage assumed in the design basis accident (DBA) safety analyses. The cause of this finding was directly related to the cross-cutting aspect Complete and Accurate Procedures in the Resources component of the Human Performance area because the licensee's existing procedures were inadequate and incomplete for addressing the program requirements of TS 5.5.2 [H.2.(c)]. (Section 4OA2.5)

Inspection Report# : [2011002](#) (pdf)

Emergency Preparedness

Significance: TBD Dec 31, 2010
Identified By: Self-Revealing
Item Type: VIO Violation

Repeated failure to provide complete and accurate information in LER 05000296/2009-003-02

The original LER 50-296/2009-003-00 dated May 24, 2010, and applicable PERs 200183, 119628 and 246527, including cause determination and corrective action plans, were reviewed by the inspectors and documented in

Section 40A3.2 of NRC inspection report (IR) 05000296/2010003. As a result of this prior review, two violations of NRC requirements were identified: NCV 05000296/2010003-02, Unit 3 RCIC System Inoperable beyond the Technical Specifications Allowed Outage Time; and NCV 05000296/2010003-03, Failure to Provide Complete and Accurate Information in LER 0500296/2009-003-00. The NCV 05000296/2010003-03 was the result of the review of the original LER, when the inspectors determined that, contrary to 10 CFR 50.9, LER 0500296/2009-003-00 was not accurate or complete in all material aspects for which the licensee initiated PER 246527. Specifically, the LER inaccurately reported the duration of system inoperability, inaccurately reported the availability of HPCI while the RCIC was inoperable, and did not report a previous event that occurred on the same unit with the same cause as required by 10 CFR 50.73(b)(5).

As part of the PER 246527 corrective actions, the licensee issued a revised LER 0500296/2009-003-01 on July 15, 2010. The principal intent of this LER revision was to establish the date that began the period of RCIC inoperability as March 22, 2006, and to notify the NRC that additional time was needed to complete a determination of any concurrent HPCI system inoperability. The licensee revised their commitment to supplement the LER to September 30, 2010. Subsequently, the licensee issued their second revised LER 0500296/2009-003-02 on August 31, 2010. This LER was revised by the licensee to correct and update the LER narrative with an expanded timeline and results from their efforts to retrieve high speed computer data regarding actual RCIC pump performance. This second revision was also intended to address and correct any missing or inaccurate information identified by the inspectors in the original LER. This revised LER included changes to the Abstract, Description of Event, Cause of the Event, Analysis of the Event, and Corrective Actions.

The second revision of the LER did specifically report a more accurate duration of system inoperability, including when the nonconforming turbine electric governor-remote (EG-R) had been installed; a discussion of concurrent HPCI unavailability while RCIC was inoperable; and a discussion of the previous event on February 9, 2007 that occurred on the same unit with the same cause. The inspectors reviewed the revisions 1 and 2 of the LERs, and verified the root causes and previously identified corrective actions for the RCIC flow instabilities were not substantially different, except for the additional clarifying information provided.

Inspection Report# : [2010005](#) (*pdf*)

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

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Last modified : January 04, 2012

Browns Ferry 3

4Q/2011 Plant Inspection Findings

Initiating Events

Significance:  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 4OA3.6)

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

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate corrective actions to address Unit 3 CR120A PCIS relays taht exceeded their recommended service life

An NRC identified non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, was identified for the licensee's failure to correct a condition adverse to quality related to Unit 3 primary containment isolation system (PCIS) logic relays exceeding their in-service life expectancy. Specifically, the licensee failed to replace numerous Unit 3 PCIS CR120A relays prior to exceeding their vendor's recommended service lifetime. The licensee has entered this issue into their corrective action program as problem evaluation report (PER) 348160.

This finding was determined to be more than minor because it was associated with the Equipment Performance attribute of the Initiating Events Cornerstone and affected the cornerstone objective to limit the frequency of those events that upset plant stability and challenge critical safety functions during power operations. Specifically, a relay failure could cause a reactor scram, engineered safeguards (ESF) actuation, and/or Group 1, 2, 3, or 6, primary containment isolation. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Appropriate Corrective Actions in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to implement adequate corrective actions as part of PER 220336 to replace or extend the service life of the Unit 3 PCIS CR120A relays prior to exceeding their recommended service lifetime [P.1(d)]. (Section 4OA2.2)

Inspection Report# : [2011002](#) (pdf)

Significance:  Mar 31, 2011

Identified By: NRC

Item Type: FIN Finding

Failure to identify adverse trend resulted in reactor scram

A self-revealing finding (FIN) was identified for the licensee's failure to adequately evaluate and take the required actions established by site standards to address an adverse system performance trend that had degraded below acceptable levels associated with the main generator exciter air coolers. Specifically, the licensee failed to identify that main generator exciter air cooler differential temperatures exceeded the licensee-defined limit of 10F, and did not initiate a PER as required by the licensee's procedural guidance, Nuclear Engineering Department Procedure (NEDP) -20, Conduct of the Engineering Organization, Section 3.1, System Performance Monitoring. Subsequent licensee corrective actions included installing vents on the exciter air coolers to minimize air binding, establishing a process and frequency for venting the exciter air coolers, and increasing engineering supervisory oversight of the system monitoring process. The licensee captured this issue in the corrective action program as PER 301505.

This finding is greater than minor because it is associated with the Human Performance 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 finding resulted in a Unit 3 manual reactor scram due to elevated main turbine bearing vibrations caused by excessive main generator exciter air cooler differential temperatures. The significance of the finding was evaluated using Phase 1 of the significance determination process in accordance with the Inspection Manual Chapter (IMC) 0609 Attachment 4, 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 Corrective Action Program Implementation in the Corrective Action Program component of the Problem Identification and Resolution area, because the licensee failed to identify the adverse trend of excessive differential temperatures between the exciter air coolers in a timely manner and enter it into the corrective action program. [P.1(a)]. (Section 4OA3.2)

Inspection Report# : [2011002](#) (pdf)

Mitigating Systems

Significance:  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*)

Barrier Integrity

Significance:  Mar 31, 2011
Identified By: NRC
Item Type: NCV NonCited Violation

Inadequate TS 5.5.2 program for primary coolant leaks outside containment

An NRC identified non-cited violation of Technical Specifications (TS) 5.5.2, Primary Coolant Sources Outside Containment was identified for the licensee's failure to establish, implement, and maintain an adequate program for minimizing primary coolant leaks from systems (i.e., Core Spray, Residual Heat Removal, High Pressure Coolant Injection, and Reactor Core Isolation Cooling) outside containment, that could contain highly radioactive fluids during a serious transient or accident, to levels as low as practicable. The licensee's corrective actions included identification, evaluation, and prioritization of all known primary coolant leaks outside containment; and development of a new program in accordance with 0-TI-578, Minimizing Primary Coolant Sources Outside Containment. This finding was entered into the licensee's corrective action program as problem evaluation report (PER) 317464.

This finding was determined to be more than minor because if left uncorrected it could have led to a more significant safety concern. Specifically, the licensee's failure to effectively minimize and monitor primary coolant leakage outside containment could have resulted in increased main control room exposure and/or offsite dose during an accident due to excessive radioactive fission product releases into secondary containment. The finding was determined to be of very low safety significance (Green) according to IMC 0609, Appendix H, Containment Integrity Significance Determination Process, Section 6.0, Type B Findings, because the primary coolant leak rate into secondary containment was a small fraction of the leakage assumed in the design basis accident (DBA) safety analyses. The cause of this finding was directly related to the cross-cutting aspect Complete and Accurate Procedures in the Resources component of the Human Performance area because the licensee's existing procedures were inadequate and incomplete for addressing the program requirements of TS 5.5.2 [H.2.(c)]. (Section 4OA2.5)

Inspection Report# : [2011002](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Last modified : March 02, 2012

Browns Ferry 3

1Q/2012 Plant Inspection Findings

Initiating Events

Significance:  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 4OA3.6)

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

Mitigating Systems

Significance:  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*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Last modified : May 29, 2012

Browns Ferry 3

2Q/2012 Plant Inspection Findings


Initiating Events

Significance:  Jun 30, 2012
Identified By: Self-Revealing
Item Type: FIN Finding

Failure to establish preventive maintenance for Unit 2 and 3 main control room annunciator power supplies
A self-revealing finding (FIN) was identified for the licensee's failure to perform preventive maintenance on the Unit 3 Main Control Room (MCR) annunciator power supplies. As a result, a power supply failed which led to a fire in annunciator panel 3-X-55-5A in the Unit 3 control room. The licensee initiated actions to extinguish the fire, replace the two affected power supplies and develop a preventive maintenance program to replace the power supplies every ten years. Additional corrective actions to replace all power supplies that have been installed for more than four years are pending. This was captured in the licensee's corrective action program as problem event report (PER) 496592.

The performance deficiency was determined to be more than minor because it was considered sufficiently similar to example 4.f of Inspection Manual Chapter (IMC) 0612, Appendix E, for an issue that resulted in a fire hazard in a safety-related area of the plant. The finding was associated with the Initiating Events Cornerstone and required a phase 3 analysis in accordance with IMC 0609 because the finding increased the likelihood of, and actually caused, a fire in the Unit 3 control room. The phase 3 analysis determined that without an impact to additional plant equipment, or a major impact on human action failure rates, the finding was determined to be Green. The cause of this finding was related to the cross cutting aspect of Problem Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee should have recognized the electrolytic capacitors were installed beyond their recommended service life and scheduled replacement prior to their failure [P.1(a)]. (Section 4OA3.6)

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Mar 31, 2012
Identified By: NRC
Item Type: NCV NonCited Violation

Failure to immediately report a plant fire
The NRC identified a non-cited violation of Technical Specification 5.4.1.d, Fire Protection Program implementation associated with the licensee's failure to report a fire in the Unit 1 Turbine Building to the main control room (MCR). Specifically, the failure to report a plant fire resulted in a failure of the MCR operators to implement Emergency Plan Implementing Procedure EPIP-17, Fire Emergency Response. Following the event, plant staff performed additional inspections of plant areas and either removed electrical extension cords or ensured each cord had a required GFCI and was not overloaded. Expectations for plant employees discovering and responding to fires were reinforced by plant management. The licensee entered this event into their corrective action program as PER 527090.

The performance deficiency was determined to be more than minor because if left uncorrected, the failure to notify the MCR of plant fire events would have the potential to lead to a more significant safety concern. Specifically, emergency response procedures for plant fires would not be entered and implemented and the Fire Brigade response would be delayed. The significance of this finding was evaluated in accordance with the IMC 0609, Appendix F, Attachment 1, Part 1, Fire Protection SDP Phase 1 Worksheet. The inspectors concluded that the significance of this finding was Green due to a low degradation rating for this fire event because it was a small electrical fire with no combustible material within the vicinity of the fire. The cause of this finding was directly related to the cross cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area, because the licensee failed to recognize the requirement to immediately report a fire and enter the appropriate fire emergency response procedures [H.4(b)]. (Section 4OA3.4)

G

Significance: Dec 31, 2011

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to control temporary equipment resulted in a fire

A self-revealing non-cited violation of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures and Drawings was identified for the licensee's failure to install and maintain adequate control of temporary lighting in the intake cable tunnel as required by the Tennessee Valley Authority (TVA) Safety Manual and NPG-SPP-09.17, Temporary Equipment Control. Consequently, a temporary light string was left improperly installed, without ground fault circuit interrupt (GFCI) device(s), for over two years until it faulted electrically and caused a fire in the intake cable tunnel on October 12, 2011. The fire brigade extinguished the fire in approximately 10 minutes and removed the temporary light string from the cable tunnel. The licensee entered this event into their corrective action program as PER 445331.

The finding was determined to be more than minor because it was considered sufficiently similar to example 4.f of Inspection Manual Chapter (IMC) 0612, Appendix E, for an issue of concern that resulted in a fire hazard in a safety-related area of the plant. The finding was associated with the Initiating Events Cornerstone and characterized according to IMC 0609, Significance Determination Process (SDP), Attachment 04, Phase 1 - Initial Screening and Characterization of Findings. The results of this analysis required an evaluation in accordance with IMC 0609, Appendix F, Attachment 01, Part 1, Fire Protection SDP Phase 1 Worksheet. For the SDP Phase 1 evaluation a high degradation rating was assigned for this fire event with a duration factor greater than 30 days. When compared against the SDP Phase 1 screening criteria, this resulted in a SDP Phase 2 evaluation. The inspectors concluded that this finding screened to Green in the Appendix F Phase 2 analysis using Appendix F Attachment 01, Part 2, Fire Protection SDP Phase 2 Worksheet. Specifically, it was determined that the fire could not reach the temperature threshold for fire-induced cable failure and would not spread to other combustible materials in the area. The cause of this finding was directly related to the cross cutting aspect of Long-Standing Equipment Issues in the Resources component of the Human Performance area, because the deficiencies with the permanently installed lighting system in the intake cable necessitated the use of the temporary light stringer for more than two years [H.2(a)]. (Section 4OA3.4)

G

Significance: 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 4OA3.6)

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

Mitigating Systems

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain flood barrier results in inoperable safety related pumps

An NRC-identified non-cited violation (NCV) of the Technical Specifications 5.4.1.a was identified for the licensee's failure to maintain an Emergency Equipment Cooling Water (EECW) pump flood barrier in accordance with written procedures which resulted in the inoperability of two other safety related pumps. The licensee immediately restored the flood protection configuration of the C Residual Heat Removal Service Water (RHRSW) pump room by properly re-installing the flood protection cover and permanently stenciled the aluminum plate with the required procedure for installation. The licensee entered this issue into their corrective action program as PER 532050.

The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of RHRSW pumps to perform their intended safety function during a design basis flooding event. Specifically, the improper re-installation of an external flood protection cover resulted in the inoperability of two Residual Heat Removal Service Water (RHRSW) pumps. The significance of this finding was evaluated in accordance with the IMC 0609 Attachment 4, Phase 1- Initial Screening and Characterization of Findings, which required a Phase 3 analysis because the finding involved the degradation of equipment designed to mitigate a flooding event and it was risk significant due to external initiating event core damage sequences. The finding was determined to be Green because of the short exposure time, and the low likelihood of the flood. The cause of this finding was directly related to the cross cutting aspect of Supervisory Oversight in the Work Practices component of the Human Performance area, because of the foreman's assumption that workers knew to restore the flood protection cover to meet procedural requirements without a formal pre-job brief [H.4(c)]. (Section 1R15)

Inspection Report# : [2012003](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to follow NRC commitment management procedure

The inspectors identified a Green finding (FIN) for the licensee's failure to follow procedure NPG-SPP-03.3, Rev.001, "NRC Commitment Management." Specifically, the procedure states, in part, that each responsible organization ensures commitment implementation/completion occurs as scheduled. Contrary to this requirement, the licensee's commitment to verify the accuracy and adequacy of completed Inspection Procedure (IP) 95002 corrective actions had not been performed adequately. The licensee entered this issue into the corrective action program as PERs 510126 and 510161.

The performance deficiency (PD) associated with this finding was the failure of licensee personnel to follow procedures regarding managing NRC commitments. The finding is greater than minor because, if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, the failure to assess the adequacy of corrective actions can lead to problems not being properly corrected. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance (Green) because the finding did not result in a loss of system safety function, an actual loss of safety

function of a single train for greater than its Technical Specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross cutting aspect in the area of Human Performance because the licensee did not ensure supervisory and management oversight of work activities associated with the commitments made to the NRC, which resulted in the commitments not be tracked or monitored to ensure completion. [H.4(c)] (Section 40A2.a(3))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish adequate compensatory measures for non-conforming fire barriers

The inspectors identified a Green NCV of Browns Ferry Operating License Conditions 2.C(13), 2.C(14) and 2.C(7), for Units 1, 2, and 3, respectively, for the licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, in accordance with the approved fire protection program (FPP). Specifically, the licensee failed to establish continuous fire watches for non-conforming fire barriers in the Intake Pumping Station (IPS), after discovering that the barriers were not credited in the site's approved FPP. The licensee initiated PER 509589 to document this condition and enter it into the corrective action program. The licensee also established a continuous fire watch, in accordance with the FPR.

The licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, as required by their approved fire protection program, is a PD. The finding is more than minor because it is associated with the Reactor Safety Mitigating Systems cornerstone attribute of protection against external factors (i.e., fire) and it affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events. Using the guidance of IMC 0609, Appendix F, "Fire Protection Significance Determination Process," inspectors determined that the PD represented a finding of very low safety significance (Green). Inspectors determined that the cause of this finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution (PI&R) area, in that it was directly related to the licensee not thoroughly evaluating problems, such that the problem was properly classified and evaluated for operability [P.1(c)] (Section 40A2.a(3))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement appropriate safe shutdown instructions

The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, for the licensee's failure to assure conditions adverse to quality associated with the establishment and implementation of four new Safe Shutdown Instructions (SSI) were promptly identified and corrected. Specifically, the inspectors identified instances where previously identified issues with SSIs were either not entered into the corrective action program, corrective actions were not implemented, or the corrective actions were ineffective in addressing the identified issue. The licensee entered this finding into the corrective action program (PER 505551) and adequate procedural guidance was restored following licensee procedure revisions, training and demonstration to inspectors that operators had acquired an adequate level of proficiency to implement the new SSIs.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events, such as fire, to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. This finding was directly related to the cross-cutting aspect of Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not thoroughly evaluate identified problems such that the resolutions addresses the causes and extent of conditions of the issues. [P.1(c)] (Section 40A2.e(2))

Inspection Report# : [2012007](#) (pdf)

G

Significance: May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to identify and correct appropriate safe shutdown instructions

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish procedures appropriate to the circumstances for combating plant fires.

Specifically, four new Safe Shutdown Instruction (SSI) were established which contained multiple procedural deficiencies. The licensee entered this finding into the corrective action program (PER 507721) and adequate Safe Shutdown Instructions were restored following procedure revisions.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. The team determined the cause of this finding was directly related to the cross-cutting aspect of Work Coordination in the Work Control component of the Human Performance area because the licensee did not adequately incorporate actions to address the impact of the work on different job activities and the need for work groups to maintain interfaces with offsite organizations, and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. This contributed to the failure to identify deficiencies with the new SSI procedures prior to procedure implementation. [H.3.(b)] (Section 4OA2.e(2))

Inspection Report# : [2012007](#) (pdf)

Significance: TBD May 14, 2012

Identified By: NRC

Item Type: AV Apparent Violation

Failure to properly implement the requirements of the plant modifications and engineering change control procedure

The inspectors identified an apparent violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to adequately implement requirements contained in procedure NPG-SPP-09.3 "Plant Modifications and Engineering Change Control". Specifically, the licensee failed to adequately identify and perform required training for implementation of four new Safe Shutdown Instructions (SSI) in support of a Design Change Notice (DCN) implementation. The licensee entered this finding into the corrective action program (PER 507721) and adequate procedural guidance was restored following licensee procedure revisions, training and demonstration to inspectors that operators had acquired an adequate level of proficiency to implement the new SSI methodology.

This finding is more than minor because it is associated with the protection against external events attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective to prevent undesirable consequences from initiating events, such as fire. Because the finding could not be screened as very low safety significance (Green), nor its safety significance determined prior to issuing the inspection report, it is being characterized as "To Be Determined (TBD)." The finding does not present an immediate safety concern because the licensee has subsequently performed procedure revisions, training and demonstrated to inspectors that operators have acquired an adequate level of proficiency to implement the new SSI methodology to mitigate plant events should they occur.

The team determined the cause of this finding was directly related to the cross-cutting aspect of Work Coordination in the Work Control component of the Human Performance area because the licensee did not adequately incorporate actions to address the impact of the work on different job activities, and the need for work groups to maintain interfaces with offsite organizations, and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. This contributed to the failure to conduct a training needs analysis (TNA) for the new SSI procedures and perform adequate operator training

prior to procedure implementation. [H.3.(b)] (Section 40A2.e(2))

Inspection Report# : [2012007](#) (pdf)

G

Significance: Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately implement impaired fire barrier and detector controls

The NRC identified a non-cited violation of Technical Specification 5.4.1.d, Fire Protection Program, for the licensee's failure to adequately implement Limiting Conditions For Operation in accordance with Fire Protection Report Volume 1, Fire Protection Plan. Specifically, the licensee failed to adequately implement impaired fire barrier and detector controls which resulted in the failure to establish a continuous fire watch for an impaired fire barrier having smoke detection identified as unavailable to protect either side of the inoperable barrier. The licensee subsequently returned the impaired fire door and smoke detection to service. The licensee entered this event into their corrective action program as PERs 529543 and 527311.

The finding was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, inadequate implementation of the licensee's FPIP and LCO processes resulted in the licensee missing a LCO entry condition and not establishing a continuous fire watch for an impaired fire door. The significance of this finding was evaluated in accordance with the IMC 0609 Appendix F, Attachment 01, Part 1, Fire Protection SDP Phase 1 Worksheet. The finding was determined to be of very low safety significance (Green) because the condition represented a low degradation of fire prevention and administrative controls. Specifically, a smoke detection system on one side of the impaired fire door was discovered functional. The cause of this finding was directly related to the cross cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area, because licensee expectations were ineffectively communicated and fire protection procedures inadequately implemented to maintain a site understanding of fire barrier and detector configuration [H.4(b)]. (Section 1RO5)

Inspection Report# : [2012002](#) (pdf)

G

Significance: Dec 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Degraded electrolytic capacitor test results not entered into corrective action program

The team identified a finding of very low safety significance (Green) and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for the failure to promptly identify and correct a condition adverse to quality related to the electrolytic capacitors on the battery charger for main battery number 3. Specifically, the licensee failed to identify and correct results from ripple tests conducted on August 8, 2010, that showed degradation until questioned by the team on November 20, 2011. When the capacitors were retested in December 2011, similar results were obtained and the battery charger was determined to be degraded and was removed from service. The licensee entered this finding into their Corrective Action Program, removed the affected battery charger from service, initiated actions to expedite replacement of the electrolytic capacitors, and improved the capacitor testing procedure.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failing to identify the test results that indicated the electrolytic capacitors were degraded and take corrective actions could have resulted in the failure of the battery chargers to perform their safety function and respond to initiating events. The safety significance of the finding was characterized using Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP), Appendix A, and determined to be of very low safety significance because the finding was not a design deficiency confirmed not to result in a loss of safety function of a system or a train. The cause of this finding was directly related to the cross-cutting aspect of maintenance in the Resources

component of the Human Performance area, because the licensee did not ensure that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety. Specifically, the licensee did not have complete, accurate, up-to-date procedures and work orders for periodic testing and replacement of the electrolytic capacitors in the battery chargers. [H.2(c)] (4OA4.02.02.b)

Inspection Report# : [2011012](#) (pdf)

Significance:  Oct 03, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement requirements of the inservice testing program

The inspectors identified a NCV of very low safety significance for the licensee's failure to implement a procedure required by Technical Specification (TS) 5.5.6, Inservice Testing Program. Specifically, inspectors determined that TVA did not adequately implement 0-TI-362, "Inservice Testing of Pumps and Valves.", which required that a Service Request (SR) be documented in the CAP when pumps are found to be in the Alert Range during inservice testing.

The inspectors determined that the failure to implement procedure 0-TI-362 constituted a performance deficiency. This performance deficiency was determined to be more than minor in accordance with IMC 0612 Appendix B, "Issue Screening" because if left uncorrected, the failure to enter degraded conditions in the CAP has the potential to lead to a more serious safety concern. The inspectors screened this finding in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and determined the finding was of very low safety significance (Green). The cause of this finding was directly related to the cross-cutting area of problem identification and resolution, the component of the corrective action program and the aspect of issue identification; because the licensee failed to implement the corrective action program. [P.1(a)] (Section 4OA4.2.d(1))

Inspection Report# : [2011011](#) (pdf)

Significance:  Oct 03, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to reestablish motor operated valve design basis capability after performing modifications to the valves

The inspectors identified a finding of very low safety significance and associated non-cited violation of 10 CFR Part 50.55a(b)(3)(ii), for the licensee's failure to adequately reestablish the design basis capability of multiple Motor Operated Valves (MOVs) after internal modifications were performed to the valves.

The NRC inspectors determined that the methodology described in the TVA documentation for justifying the design-basis capability of MOVs and the specific justification prepared by TVA to reestablish the design basis capability of MOVs after undergoing internal modifications did not satisfy 10 CFR 50.55a(b)(3)(ii), and was a performance deficiency. Further, this was determined to be a programmatic issue because there were at least 12 examples of other modified MOVs where the licensee implemented its methodology that did not provide an adequate justification for the design basis capability of those MOVs that would satisfy 10 CFR 50.55a(b)(3)(ii). The NRC staff determined the finding to be more than minor because the program deficiency, if left uncorrected, could become a more significant safety concern. Specifically, by establishing a design basis MOV valve factor that TVA considered to be conservative using data from two tested valves obtained from the JOG MOV Performance Verification program without demonstrating its applicability to the Browns Ferry valves, BFN personnel might not realize that the established valve factor is the minimum value that must be used to set up MOV actuator operating parameters. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone. The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the Mitigating Systems Cornerstone. The finding screened as having very low safety significance (Green) because the finding was a design or qualification deficiency confirmed not to result in a loss of operability at this time. This finding had a cross-cutting aspect in the area of human performance, decision making, because the licensee failed to use conservative assumptions in decision making. Specifically, the licensee made

modifications to multiple safety related MOVs and then reestablished their design basis capability using methods that were inconsistent with industry and NRC guidance. [H.1(b)] (Section 4OA4.3.l(1))

Inspection Report# : [2011011](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to ensure ECCS design calculation does not exceed maximum clad temperature

The NRC identified a Green non-cited violation of 10CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, for the licensee's failure to ensure that the ECCS was satisfactorily designed such that the maximum fuel element cladding temperature specified in 10 CFR 50.46(b)(1) would not be exceeded. On May 29, 2011, operating limitations were implemented to account for the error in calculations. This violation has been entered into the licensee's CAP as PER 372764.

This performance deficiency was considered greater than minor because it was associated with the Design Control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents. The inspectors determined the finding to not be greater than green based on the remaining barriers to fission product release were unaffected. The cause of this finding was directly related to the cross-cutting aspect of Issue Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to completely, accurately, and in a timely manner identify the errors with the ECCS evaluation model [P.1.(a)]. (4OA5.3)

Inspection Report# : [2012002](#) (pdf)

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Repeated failure to report ECCS analyses methodology change or errors

The NRC identified a Green non-cited violation of 10CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, for the licensee's failure to ensure that the ECCS was satisfactorily designed such that the maximum fuel element cladding temperature specified in 10 CFR 50.46(b)(1) would not be exceeded. On May 29, 2011, operating limitations were implemented to account for the error in calculations. This violation has been entered into the licensee's CAP as PER 372764.

This performance deficiency was considered greater than minor because it was associated with the Design Control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents. The inspectors determined the finding to not be greater than green based on the remaining barriers to fission product release were unaffected. The cause of this finding was directly related to the cross-cutting aspect of Issue Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to completely, accurately, and in a timely manner identify the errors with the ECCS evaluation model [P.1.(a)]. (4OA5.3)

Inspection Report# : [2012002](#) (pdf)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to properly prepare a DOT type A package for transport

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to implement DOT type A package closure requirements

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not

involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

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

Significance: N/A Dec 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to report a valve motor operator manufacturing defect pursuant to 10 CFR 21.21 in a timely manner

Inspection Report# : [2011005](#) (*pdf*)

Significance: N/A Oct 03, 2011

Identified By: NRC

Item Type: VIO Violation

Inaccurate Information Provided Regarding Scoping of Motor Operated Valves in the Generic Letter 89-10 Program

Inspection Report# : [2012010](#) (*pdf*)

Inspection Report# : [2011011](#) (*pdf*)

Last modified : September 12, 2012

Browns Ferry 3

3Q/2012 Plant Inspection Findings

Initiating Events

Significance:  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:  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)

Significance:  Jun 30, 2012
 Identified By: Self-Revealing
 Item Type: FIN Finding

Failure to establish preventive maintenance for Unit 2 and 3 main control room annunciator power supplies
 A self-revealing finding (FIN) was identified for the licensee's failure to perform preventive maintenance on the Unit 3 Main Control Room (MCR) annunciator power supplies. As a result, a power supply failed which led to a fire in annunciator panel 3-X-55-5A in the Unit 3 control room. The licensee initiated actions to extinguish the fire, replace the two affected power supplies and develop a preventive maintenance program to replace the power supplies every ten years. Additional corrective actions to replace all power supplies that have been installed for more than four years are pending. This was captured in the licensee's corrective action program as problem event report (PER) 496592.

The performance deficiency was determined to be more than minor because it was considered sufficiently similar to example 4.f of Inspection Manual Chapter (IMC) 0612, Appendix E, for an issue that resulted in a fire hazard in a safety-related area of the plant. The finding was associated with the Initiating Events Cornerstone and required a phase 3 analysis in accordance with IMC 0609 because the finding increased the likelihood of, and actually caused, a fire in the Unit 3 control room. The phase 3 analysis determined that without an impact to additional plant equipment, or a major impact on human action failure rates, the finding was determined to be Green. The cause of this finding was related to the cross cutting aspect of Problem Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee should have recognized the electrolytic capacitors were installed beyond their recommended service life and scheduled replacement prior to their failure [P.1(a)]. (Section 4OA3.6)

Inspection Report# : [2012003](#) (pdf)


Significance:  Mar 31, 2012
 Identified By: NRC
 Item Type: NCV NonCited Violation

Failure to immediately report a plant fire
 The NRC identified a non-cited violation of Technical Specification 5.4.1.d, Fire Protection Program implementation associated with the licensee's failure to report a fire in the Unit 1 Turbine Building to the main control room (MCR). Specifically, the failure to report a plant fire resulted in a failure of the MCR operators to implement Emergency Plan Implementing Procedure EPIP-17, Fire Emergency Response. Following the event, plant staff performed additional inspections of plant areas and either removed electrical extension cords or ensured each cord had a required GFCI and was not overloaded. Expectations for plant employees discovering and responding to fires were reinforced by plant management. The licensee entered this event into their corrective action program as PER 527090.

The performance deficiency was determined to be more than minor because if left uncorrected, the failure to notify the MCR of plant fire events would have the potential to lead to a more significant safety concern. Specifically, emergency response procedures for plant fires would not be entered and implemented and the Fire Brigade response

would be delayed. The significance of this finding was evaluated in accordance with the IMC 0609, Appendix F, Attachment 1, Part 1, Fire Protection SDP Phase 1 Worksheet. The inspectors concluded that the significance of this finding was Green due to a low degradation rating for this fire event because it was a small electrical fire with no combustible material within the vicinity of the fire. The cause of this finding was directly related to the cross cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area, because the licensee failed to recognize the requirement to immediately report a fire and enter the appropriate fire emergency response procedures [H.4(b)]. (Section 4OA3.4)

Inspection Report# : [2012002](#) (pdf)

Significance:  Dec 31, 2011
 Identified By: Self-Revealing
 Item Type: NCV NonCited Violation


Failure to control temporary equipment resulted in a fire

A self-revealing non-cited violation of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures and Drawings was identified for the licensee’s failure to install and maintain adequate control of temporary lighting in the intake cable tunnel as required by the Tennessee Valley Authority (TVA) Safety Manual and NPG-SPP-09.17, Temporary Equipment Control. Consequently, a temporary light string was left improperly installed, without ground fault circuit interrupt (GFCI) device(s), for over two years until it faulted electrically and caused a fire in the intake cable tunnel on October 12, 2011. The fire brigade extinguished the fire in approximately 10 minutes and removed the temporary light string from the cable tunnel. The licensee entered this event into their corrective action program as PER 445331.

The finding was determined to be more than minor because it was considered sufficiently similar to example 4.f of Inspection Manual Chapter (IMC) 0612, Appendix E, for an issue of concern that resulted in a fire hazard in a safety-related area of the plant. The finding was associated with the Initiating Events Cornerstone and characterized according to IMC 0609, Significance Determination Process (SDP), Attachment 04, Phase 1 - Initial Screening and Characterization of Findings. The results of this analysis required an evaluation in accordance with IMC 0609, Appendix F, Attachment 01, Part 1, Fire Protection SDP Phase 1 Worksheet. For the SDP Phase 1 evaluation a high degradation rating was assigned for this fire event with a duration factor greater than 30 days. When compared against the SDP Phase 1 screening criteria, this resulted in a SDP Phase 2 evaluation. The inspectors concluded that this finding screened to Green in the Appendix F Phase 2 analysis using Appendix F Attachment 01, Part 2, Fire Protection SDP Phase 2 Worksheet. Specifically, it was determined that the fire could not reach the temperature threshold for fire-induced cable failure and would not spread to other combustible materials in the area. The cause of this finding was directly related to the cross cutting aspect of Long-Standing Equipment Issues in the Resources component of the Human Performance area, because the deficiencies with the permanently installed lighting system in the intake cable necessitated the use of the temporary light stringer for more than two years [H.2(a)]. (Section 4OA3.4)

Inspection Report# : [2011005](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2012
 Identified By: NRC
 Item Type: NCV NonCited Violation
Failure to maintain flood barrier results in inoperable safety related pumps

An NRC-identified non-cited violation (NCV) of the Technical Specifications 5.4.1.a was identified for the licensee's failure to maintain an Emergency Equipment Cooling Water (EECW) pump flood barrier in accordance with written procedures which resulted in the inoperability of two other safety related pumps. The licensee immediately restored the flood protection configuration of the C Residual Heat Removal Service Water (RHRSW) pump room by properly re-installing the flood protection cover and permanently stenciled the aluminum plate with the required procedure for installation. The licensee entered this issue into their corrective action program as PER 532050.

The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of RHRSW pumps to perform their intended safety function during a design basis flooding event. Specifically, the improper re-installation of an external flood protection cover resulted in the inoperability of two Residual Heat Removal Service Water (RHRSW) pumps. The significance of this finding was evaluated in accordance with the IMC 0609 Attachment 4, Phase 1- Initial Screening and Characterization of Findings, which required a Phase 3 analysis because the finding involved the degradation of equipment designed to mitigate a flooding event and it was risk significant due to external initiating event core damage sequences. The finding was determined to be Green because of the short exposure time, and the low likelihood of the flood. The cause of this finding was directly related to the cross cutting aspect of Supervisory Oversight in the Work Practices component of the Human Performance area, because of the foreman's assumption that workers knew to restore the flood protection cover to meet procedural requirements without a formal pre-job brief [H.4(c)]. (Section 1R15)

Inspection Report# : [2012003](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to follow NRC commitment management procedure

The inspectors identified a Green finding (FIN) for the licensee's failure to follow procedure NPG-SPP-03.3, Rev.001, "NRC Commitment Management." Specifically, the procedure states, in part, that each responsible organization ensures commitment implementation/completion occurs as scheduled. Contrary to this requirement, the licensee's commitment to verify the accuracy and adequacy of completed Inspection Procedure (IP) 95002 corrective actions had not been performed adequately. The licensee entered this issue into the corrective action program as PERs 510126 and 510161.

The performance deficiency (PD) associated with this finding was the failure of licensee personnel to follow procedures regarding managing NRC commitments. The finding is greater than minor because, if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, the failure to assess the adequacy of corrective actions can lead to problems not being properly corrected. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance (Green) because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross cutting aspect in the area of Human Performance because the licensee did not ensure supervisory and management oversight of work activities associated with the commitments made to the NRC, which resulted in the commitments not be tracked or monitored to ensure completion. [H.4(c)] (Section 4OA2.a(3))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish adequate compensatory measures for non-conforming fire barriers

The inspectors identified a Green NCV of Browns Ferry Operating License Conditions 2.C(13), 2.C(14) and 2.C(7), for Units 1, 2, and 3, respectively, for the licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, in accordance with the approved fire protection program (FPP). Specifically, the licensee failed to establish continuous fire watches for non-conforming fire barriers in the Intake Pumping Station (IPS), after discovering that the barriers were not credited in the site's approved FPP. The licensee initiated PER 509589 to document this condition and enter it into the corrective action program. The licensee also established a continuous fire watch, in accordance with the FPR.

The licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, as required by their approved fire protection program, is a PD. The finding is more than minor because it is associated with the Reactor Safety Mitigating Systems cornerstone attribute of protection against external factors (i.e., fire) and it affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events. Using the guidance of IMC 0609, Appendix F, "Fire Protection Significance Determination Process," inspectors determined that the PD represented a finding of very low safety significance (Green). Inspectors determined that the cause of this finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution (PI&R) area, in that it was directly related to the licensee not thoroughly evaluating problems, such that the problem was properly classified and evaluated for operability [P.1(c)] (Section 4OA2.a(3))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement appropriate safe shutdown instructions

The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, for the licensee's failure to assure conditions adverse to quality associated with the establishment and implementation of four new Safe Shutdown Instructions (SSI) were promptly identified and corrected. Specifically, the inspectors identified instances where previously identified issues with SSIs were either not entered into the corrective action program, corrective actions were not implemented, or the corrective actions were ineffective in addressing the identified issue. The licensee entered this finding into the corrective action program (PER 505551) and adequate procedural guidance was restored following licensee procedure revisions, training and demonstration to inspectors that operators had acquired an adequate level of proficiency to implement the new SSIs.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events, such as fire, to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. This finding was directly related to the cross-cutting aspect of Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not thoroughly evaluate identified problems such that the resolutions addresses the causes and extent of conditions of the issues. [P.1.(c)] (Section 4OA2.e(2))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to identify and correct appropriate safe shutdown instructions

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish procedures appropriate to the circumstances for combating plant fires. Specifically, four new Safe Shutdown Instruction (SSI) were established which contained multiple procedural deficiencies. The licensee entered this finding into the corrective action program (PER 507721) and adequate Safe Shutdown Instructions were restored following procedure revisions.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. The team determined the cause of this finding was directly related to the cross-cutting aspect of Work Coordination in the Work Control component of the Human Performance area because the licensee did not adequately incorporate actions to address the impact of the work on different job activities and the need for work groups to maintain interfaces with offsite organizations, and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. This contributed to the failure to identify deficiencies with the new SSI procedures prior to procedure implementation. [H.3.(b)] (Section 40A2.e(2))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to properly implement the requirements of the plant modifications and engineering change control procedure

During an NRC inspection completed on March 1, 2012, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures. NPG-SPP-09.3, "Plant Modifications and Engineering Change Control," and form NPG-SPP-09.3-13, Modification Training Notification, requires an evaluation of training needs to be completed for the implementation of procedures developed in response to design changes. Procedures 0-SSI-25-1,-2,-3, and -26, "Safe Shutdown Instructions", were developed in support of Design Change Notice (DCN) 69957, which installed a new three-hour fire barrier in the Intake Tunnel Structure, per NPG-SPP-09.3. DCN 69957 was designated as an activity that affected quality.

Contrary to the above, the licensee failed to adequately accomplish the requirements contained in procedure NPG-SPP-09.3 "Plant Modifications and Engineering Change Control" during the implementation of DCN 69957. Specifically, on September 13, 2011, the licensee implemented Procedures 0-SSI-25-1,-2,-3, and -26, "Safe Shutdown Instructions," in support of DCN 69957 without adequately performing an evaluation of training needs. As a result, the systems approach to training was not properly implemented and the procedures could not be satisfactorily performed by plant operators and staff.

Inspection Report# : [2012007](#) (pdf)

Inspection Report# : [2012013](#) (pdf)

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately implement impaired fire barrier and detector controls

The NRC identified a non-cited violation of Technical Specification 5.4.1.d, Fire Protection Program, for the licensee's failure to adequately implement Limiting Conditions For Operation in accordance with Fire Protection Report Volume 1, Fire Protection Plan. Specifically, the licensee failed to adequately implement impaired fire barrier and detector controls which resulted in the failure to establish a continuous fire watch for an impaired fire barrier having smoke detection identified as unavailable to protect either side of the inoperable barrier. The licensee subsequently returned the impaired fire door and smoke detection to service. The licensee entered this event into their corrective action program as PERs 529543 and 527311.

The finding was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, inadequate implementation of the licensee's FPIP and LCO processes resulted in the licensee missing a LCO entry condition and not establishing a continuous fire watch for an impaired fire door. The significance of this finding was evaluated in accordance with the IMC 0609 Appendix F, Attachment 01, Part 1, Fire Protection SDP Phase 1 Worksheet. The finding was determined to be of very low safety significance (Green) because the condition represented a low degradation of fire prevention and administrative controls. Specifically, a smoke detection system on one side of the impaired fire door was discovered functional. The cause of this finding was directly related to the cross cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area, because licensee expectations were ineffectively communicated and fire protection procedures inadequately implemented to maintain a site understanding of fire barrier and detector configuration [H.4(b)]. (Section 1RO5) Inspection Report# : [2012002](#) (*pdf*)

Significance:  Dec 30, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Degraded electrolytic capacitor test results not entered into corrective action program

The team identified a finding of very low safety significance (Green) and associated Non-Cited Violation of 10 CFR Part 50, Appendix B, Criterion XVI, Corrective Action, for the failure to promptly identify and correct a condition adverse to quality related to the electrolytic capacitors on the battery charger for main battery number 3. Specifically, the licensee failed to identify and correct results from ripple tests conducted on August 8, 2010, that showed degradation until questioned by the team on

November 20, 2011. When the capacitors were retested in December 2011, similar results were obtained and the battery charger was determined to be degraded and was removed from service. The licensee entered this finding into their Corrective Action Program, removed the affected battery charger from service, initiated actions to expedite replacement of the electrolytic capacitors, and improved the capacitor testing procedure.

The performance deficiency was determined to be more than minor because it was associated with the Mitigating Systems Cornerstone attribute of Equipment Performance, and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, failing to identify the test results that indicated the electrolytic capacitors were degraded and take corrective actions could have resulted in the failure of the battery chargers to perform their safety function and respond

to initiating events. The safety significance of the finding was characterized using Inspection Manual Chapter (IMC) 0609, Significance Determination Process (SDP), Appendix A, and determined to be of very low safety significance because the finding was not a design deficiency confirmed not to result in a loss of safety function of a system or a train. The cause of this finding was directly related to the cross-cutting aspect of maintenance in the Resources component of the Human Performance area, because the licensee did not ensure that personnel, equipment, procedures, and other resources are available and adequate to assure nuclear safety. Specifically, the licensee did not have complete, accurate, up-to-date procedures and work orders for periodic testing and replacement of the

electrolytic capacitors in the battery chargers. [H.2(c)] (4OA4.02.02.b)

Inspection Report# : [2011012](#) (pdf)

Significance:  Oct 03, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement requirements of the inservice testing program

The inspectors identified a NCV of very low safety significance for the licensee's failure to implement a procedure required by Technical Specification (TS) 5.5.6, Inservice Testing Program. Specifically, inspectors determined that TVA did not adequately implement 0-TI-362, "Inservice Testing of Pumps and Valves.", which required that a Service Request (SR) be documented in the CAP when pumps are found to be in the Alert Range during inservice testing.

The inspectors determined that the failure to implement procedure 0-TI-362 constituted a performance deficiency. This performance deficiency was determined to be more than minor in accordance with IMC 0612 Appendix B, "Issue Screening" because if left uncorrected, the failure to enter degraded conditions in the CAP has the potential to lead to a more serious safety concern. The inspectors screened this finding in accordance with Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and determined the finding was of very low safety significance (Green). The cause of this finding was directly related to the cross-cutting area of problem identification and resolution, the component of the corrective action program and the aspect of issue identification; because the licensee failed to implement the corrective action program. [P.1(a)] (Section 4OA4.2.d(1))

Inspection Report# : [2011011](#) (pdf)

Significance:  Oct 03, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to reestablish motor operated valve design basis capability after performing modifications to the valves

The inspectors identified a finding of very low safety significance and associated non-cited violation of 10 CFR Part 50.55a(b)(3)(ii), for the licensee's failure to adequately reestablish the design basis capability of multiple Motor Operated Valves (MOVs) after internal modifications were performed to the valves.

The NRC inspectors determined that the methodology described in the TVA documentation for justifying the design-basis capability of MOVs and the specific justification prepared by TVA to reestablish the design basis capability of MOVs after undergoing internal modifications did not satisfy 10 CFR 50.55a(b)(3)(ii), and was a performance deficiency. Further, this was determined to be a programmatic issue because there were at least 12 examples of other modified MOVs where the licensee implemented its methodology that did not provide an adequate justification for the design basis capability of those MOVs that would satisfy 10 CFR 50.55a(b)(3)(ii). The NRC staff determined the finding to be more than minor because the program deficiency, if left uncorrected, could become a more significant safety concern. Specifically, by establishing a design basis MOV valve factor that TVA considered to be conservative using data from two tested valves obtained from the JOG MOV Performance Verification program without demonstrating its applicability to the Browns Ferry valves, BFN personnel might not realize that the established valve factor is the minimum value that must be used to set up MOV actuator operating parameters. The inspectors concluded this finding was associated with the Mitigating Systems Cornerstone. The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the Mitigating Systems Cornerstone. The finding screened as having very low safety significance (Green) because the finding was a design or qualification deficiency confirmed not to result in a loss of

operability at this time. This finding had a cross-cutting aspect in the area of human performance, decision making, because the licensee failed to use conservative assumptions in decision making. Specifically, the licensee made modifications to multiple safety related MOVs and then reestablished their design basis capability using methods that were inconsistent with industry and NRC guidance. [H.1(b)] (Section 4OA4.3.l(1))

Inspection Report# : [2011011](#) (*pdf*)

Barrier Integrity

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to ensure ECCS design calculation does not exceed maximum clad temperature

The NRC identified a Green non-cited violation of 10CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, for the licensee's failure to ensure that the ECCS was satisfactorily designed such that the maximum fuel element cladding temperature specified in 10 CFR 50.46(b)(1) would not be exceeded. On May 29, 2011, operating limitations were implemented to account for the error in calculations. This violation has been entered into the licensee's CAP as PER 372764.

This performance deficiency was considered greater than minor because it was associated with the Design Control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents. The inspectors determined the finding to not be greater than green based on the remaining barriers to fission product release were unaffected. The cause of this finding was directly related to the cross-cutting aspect of Issue Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to completely, accurately, and in a timely manner identify the errors with the ECCS evaluation model [P.1.(a)]. (4OA5.3)

Inspection Report# : [2012002](#) (*pdf*)

Emergency Preparedness

Significance:  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 40A2.4)

Inspection Report# : [2012004](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to properly prepare a DOT type A package for transport

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to implement DOT type A package closure requirements

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

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

Significance: N/A Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Repeated failure to report ECCS analyses methodology change or errors

The NRC identified a SL-IV NCV of 10 CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, for the licensee's failure to report a significant error discovered in their application of the ECCS model that affected the peak cladding temperature calculation.

Inspection Report# : [2012002](#) (*pdf*)

Significance: N/A Dec 31, 2011

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to report a valve motor operator manufacturing defect pursuant to 10 CFR 21.21 in a timely manner

Inspection Report# : [2011005](#) (*pdf*)

Significance: N/A Oct 03, 2011

Identified By: NRC

Item Type: VIO Violation

Inaccurate Information Provided Regarding Scoping of Motor Operated Valves in the Generic Letter 89-10 Program

Inspection Report# : [2012010](#) (*pdf*)

Inspection Report# : [2011011](#) (*pdf*)

Last modified : November 30, 2012

Browns Ferry 3 4Q/2012 Plant Inspection Findings

Initiating Events

Significance:  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:  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)

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to establish preventive maintenance for Unit 2 and 3 main control room annunciator power supplies

A self-revealing finding (FIN) was identified for the licensee's failure to perform preventive maintenance on the Unit 3 Main Control Room (MCR) annunciator power supplies. As a result, a power supply failed which led to a fire in annunciator panel 3-X-55-5A in the Unit 3 control room. The licensee initiated actions to extinguish the fire, replace the two affected power supplies and develop a preventive maintenance program to replace the power supplies every ten years. Additional corrective actions to replace all power supplies that have been installed for more than four years are pending. This was captured in the licensee's corrective action program as problem event report (PER) 496592.

The performance deficiency was determined to be more than minor because it was considered sufficiently similar to example 4.f of Inspection Manual Chapter (IMC) 0612, Appendix E, for an issue that resulted in a fire hazard in a safety-related area of the plant. The finding was associated with the Initiating Events Cornerstone and required a phase 3 analysis in accordance with IMC 0609 because the finding increased the likelihood of, and actually caused, a fire in the Unit 3 control room. The phase 3 analysis determined that without an impact to additional plant equipment, or a major impact on human action failure rates, the finding was determined to be Green. The cause of this finding was related to the cross cutting aspect of Problem Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee should have recognized the electrolytic capacitors were installed beyond their recommended service life and scheduled replacement prior to their failure [P.1(a)]. (Section 4OA3.6)

Inspection Report# : [2012003](#) (pdf)

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to immediately report a plant fire

The NRC identified a non-cited violation of Technical Specification 5.4.1.d, Fire Protection Program implementation associated with the licensee's failure to report a fire in the Unit 1 Turbine Building to the main control room (MCR). Specifically, the failure to report a plant fire resulted in a failure of the MCR operators to implement Emergency Plan Implementing Procedure EPIP-17, Fire Emergency Response. Following the event, plant staff performed additional inspections of plant areas and either removed electrical extension cords or ensured each cord had a required GFCI and was not overloaded. Expectations for plant employees discovering and responding to fires were reinforced by plant management. The licensee entered this event into their corrective action program as PER 527090.

The performance deficiency was determined to be more than minor because if left uncorrected, the failure to notify the MCR of plant fire events would have the potential to lead to a more significant safety concern. Specifically, emergency response procedures for plant fires would not be entered and implemented and the Fire Brigade response would be delayed. The significance of this finding was evaluated in accordance with the IMC 0609, Appendix F, Attachment 1, Part 1, Fire Protection SDP Phase 1 Worksheet. The inspectors concluded that the significance of this finding was Green due to a low degradation rating for this fire event because it was a small electrical fire with no combustible material within the vicinity of the fire. The cause of this finding was directly related to the cross cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area, because the licensee failed to recognize the requirement to immediately report a fire and enter the appropriate fire emergency response procedures [H.4(b)]. (Section 4OA3.4)

Inspection Report# : [2012002](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain flood barrier results in inoperable safety related pumps

An NRC-identified non-cited violation (NCV) of the Technical Specifications 5.4.1.a was identified for the licensee's failure to maintain an Emergency Equipment Cooling Water (EECW) pump flood barrier in accordance with written procedures which resulted in the inoperability of two other safety related pumps. The licensee immediately restored the flood protection configuration of the C Residual Heat Removal Service Water (RHRSW) pump room by properly re-installing the flood protection cover and permanently stenciled the aluminum plate with the required procedure for installation. The licensee entered this issue into their corrective action program as PER 532050.

The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of RHRSW pumps to perform their intended safety function during a design basis flooding event. Specifically, the improper re-installation of an external flood protection cover resulted in the inoperability of two Residual Heat Removal Service Water (RHRSW) pumps. The significance of this finding was evaluated in accordance with the IMC 0609 Attachment 4, Phase 1- Initial Screening and Characterization of Findings, which required a Phase 3 analysis because the finding involved the degradation of equipment designed to mitigate a flooding event and it was risk significant due to external initiating event core damage sequences. The finding was determined to be Green because of the short exposure time, and the low likelihood of the flood. The cause of this finding was directly related to the cross cutting aspect of Supervisory Oversight in the Work Practices component of the Human Performance area, because of the foreman's assumption that workers knew to restore the flood protection cover to meet procedural requirements without a formal pre-job brief [H.4(c)]. (Section 1R15)

Inspection Report# : [2012003](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to follow NRC commitment management procedure

The inspectors identified a Green finding (FIN) for the licensee's failure to follow procedure NPG-SPP-03.3, Rev.001, "NRC Commitment Management." Specifically, the procedure states, in part, that each responsible organization ensures commitment implementation/completion occurs as scheduled. Contrary to this requirement, the licensee's commitment to verify the accuracy and adequacy of completed Inspection Procedure (IP) 95002 corrective actions had not been performed adequately. The licensee entered this issue into the corrective action program as PERs 510126 and 510161.

The performance deficiency (PD) associated with this finding was the failure of licensee personnel to follow procedures regarding managing NRC commitments. The finding is greater than minor because, if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, the failure to assess the adequacy of corrective actions can lead to problems not being properly corrected. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance (Green) because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross cutting aspect in the area of Human Performance because the licensee did not ensure supervisory and management oversight of work activities associated with the commitments made to the NRC, which resulted in the commitments not be tracked or monitored to ensure completion. [H.4(c)] (Section 4OA2.a(3))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish adequate compensatory measures for non-conforming fire barriers

The inspectors identified a Green NCV of Browns Ferry Operating License Conditions 2.C(13), 2.C(14) and 2.C(7), for Units 1, 2, and 3, respectively, for the licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, in accordance with the approved fire protection program (FPP). Specifically, the licensee failed to establish continuous fire watches for non-conforming fire barriers in the Intake Pumping Station (IPS), after discovering that the barriers were not credited in the site's approved FPP. The licensee initiated PER 509589 to document this condition and enter it into the corrective action program. The licensee also established a continuous fire watch, in accordance with the FPR.

The licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, as required by their approved fire protection program, is a PD. The finding is more than minor because it is associated with the Reactor Safety Mitigating Systems cornerstone attribute of protection against external factors (i.e., fire) and it affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events. Using the guidance of IMC 0609, Appendix F, "Fire Protection Significance Determination Process," inspectors determined that the PD represented a finding of very low safety significance (Green). Inspectors determined that the cause of this finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution (PI&R) area, in that it was directly related to the licensee not thoroughly evaluating problems, such that the problem was properly classified and evaluated for operability [P.1(c)] (Section 4OA2.a(3))

Inspection Report# : [2012007](#) (*pdf*)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement appropriate safe shutdown instructions

The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, for the licensee's failure to assure conditions adverse to quality associated with the establishment and implementation of four new Safe Shutdown Instructions (SSI) were promptly identified and corrected. Specifically, the inspectors identified instances where previously identified issues with SSIs were either not entered into the corrective action program, corrective actions were not implemented, or the corrective actions were ineffective in addressing the identified issue. The licensee entered this finding into the corrective action program (PER 505551) and adequate procedural guidance was restored following licensee procedure revisions, training and demonstration to inspectors that operators had acquired an adequate level of proficiency to implement the new SSIs.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events, such as fire, to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. This finding was directly related to the cross-cutting aspect of Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not thoroughly evaluate identified problems such that the resolutions addresses the causes and extent of conditions of the issues. [P.1(c)] (Section 4OA2.e(2))

Inspection Report# : [2012007](#) (*pdf*)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to identify and correct appropriate safe shutdown instructions

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings,"

for the licensee's failure to establish procedures appropriate to the circumstances for combating plant fires. Specifically, four new Safe Shutdown Instruction (SSI) were established which contained multiple procedural deficiencies. The licensee entered this finding into the corrective action program (PER 507721) and adequate Safe Shutdown Instructions were restored following procedure revisions.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. The team determined the cause of this finding was directly related to the cross-cutting aspect of Work Coordination in the Work Control component of the Human Performance area because the licensee did not adequately incorporate actions to address the impact of the work on different job activities and the need for work groups to maintain interfaces with offsite organizations, and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. This contributed to the failure to identify deficiencies with the new SSI procedures prior to procedure implementation. [H.3.(b)] (Section 40A2.e(2))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to properly implement the requirements of the plant modifications and engineering change control procedure

During an NRC inspection completed on March 1, 2012, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures. NPG-SPP-09.3, "Plant Modifications and Engineering Change Control," and form NPG-SPP-09.3-13, Modification Training Notification, requires an evaluation of training needs to be completed for the implementation of procedures developed in response to design changes. Procedures 0-SSI-25-1,-2,-3, and -26, "Safe Shutdown Instructions", were developed in support of Design Change Notice (DCN) 69957, which installed a new three-hour fire barrier in the Intake Tunnel Structure, per NPG-SPP-09.3. DCN 69957 was designated as an activity that affected quality.

Contrary to the above, the licensee failed to adequately accomplish the requirements contained in procedure NPG-SPP-09.3 "Plant Modifications and Engineering Change Control" during the implementation of DCN 69957.

Specifically, on September 13, 2011, the licensee implemented Procedures 0-SSI-25-1,-2,-3, and -26, "Safe Shutdown Instructions," in support of DCN 69957 without adequately performing an evaluation of training needs. As a result, the systems approach to training was not properly implemented and the procedures could not be satisfactorily performed by plant operators and staff.

Inspection Report# : [2012007](#) (pdf)

Inspection Report# : [2012013](#) (pdf)

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to adequately implement impaired fire barrier and detector controls

The NRC identified a non-cited violation of Technical Specification 5.4.1.d, Fire Protection Program, for the licensee's failure to adequately implement Limiting Conditions For Operation in accordance with Fire Protection Report Volume 1, Fire Protection Plan. Specifically, the licensee failed to adequately implement impaired fire barrier and detector controls which resulted in the failure to establish a continuous fire watch for an impaired fire barrier having smoke detection identified as unavailable to protect either side of the inoperable barrier. The licensee subsequently returned the impaired fire door and smoke detection to service. The licensee entered this event into their corrective action program as PERs 529543 and 527311.

The finding was determined to be more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, inadequate implementation of the licensee's FPIP and LCO processes resulted in the licensee missing a LCO entry condition and not establishing a continuous fire watch for an impaired fire door. The significance of this finding was evaluated in accordance with the IMC 0609 Appendix F, Attachment 01, Part 1, Fire Protection SDP Phase 1 Worksheet. The finding was determined to be of very low safety significance (Green) because the condition represented a low degradation of fire prevention and administrative controls. Specifically, a smoke detection system on one side of the impaired fire door was discovered functional. The cause of this finding was directly related to the cross cutting aspect of Procedural Compliance in the Work Practices component of the Human Performance area, because licensee expectations were ineffectively communicated and fire protection procedures inadequately implemented to maintain a site understanding of fire barrier and detector configuration [H.4(b)]. (Section 1RO5)
Inspection Report# : [2012002](#) (*pdf*)

Barrier Integrity

Significance:  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to ensure ECCS design calculation does not exceed maximum clad temperature

The NRC identified a Green non-cited violation of 10CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, for the licensee's failure to ensure that the ECCS was satisfactorily designed such that the maximum fuel element cladding temperature specified in 10 CFR 50.46(b)(1) would not be exceeded. On May 29, 2011, operating limitations were implemented to account for the error in calculations. This violation has been entered into the licensee's CAP as PER 372764.

This performance deficiency was considered greater than minor because it was associated with the Design Control attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective of providing reasonable assurance that the physical design barriers protect the public from radionuclide releases caused by accidents. The inspectors determined the finding to not be greater than green based on the remaining barriers to fission product release were unaffected. The cause of this finding was directly related to the cross-cutting aspect of Issue Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee failed to completely, accurately, and in a timely manner identify the errors with the ECCS evaluation model [P.1.(a)]. (4OA5.3)

Inspection Report# : [2012002](#) (*pdf*)

Emergency Preparedness

Significance:  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 40A2.4)

Inspection Report# : [2012004](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to properly prepare a DOT type A package for transport

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to implement DOT type A package closure requirements

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

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

Significance: N/A Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Repeated failure to report ECCS analyses methodology change or errors

The NRC identified a SL-IV NCV of 10 CFR 50.46, Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors, for the licensee's failure to report a significant error discovered in their application of the ECCS model that affected the peak cladding temperature calculation.

Inspection Report# : [2012002](#) (*pdf*)

Last modified : February 28, 2013

Browns Ferry 3 1Q/2013 Plant Inspection Findings

Initiating Events

Significance:  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:  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)

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: FIN Finding

Failure to establish preventive maintenance for Unit 2 and 3 main control room annunciator power supplies

A self-revealing finding (FIN) was identified for the licensee's failure to perform preventive maintenance on the Unit 3 Main Control Room (MCR) annunciator power supplies. As a result, a power supply failed which led to a fire in annunciator panel 3-X-55-5A in the Unit 3 control room. The licensee initiated actions to extinguish the fire, replace the two affected power supplies and develop a preventive maintenance program to replace the power supplies every ten years. Additional corrective actions to replace all power supplies that have been installed for more than four years are pending. This was captured in the licensee's corrective action program as problem event report (PER) 496592.

The performance deficiency was determined to be more than minor because it was considered sufficiently similar to example 4.f of Inspection Manual Chapter (IMC) 0612, Appendix E, for an issue that resulted in a fire hazard in a safety-related area of the plant. The finding was associated with the Initiating Events Cornerstone and required a phase 3 analysis in accordance with IMC 0609 because the finding increased the likelihood of, and actually caused, a fire in the Unit 3 control room. The phase 3 analysis determined that without an impact to additional plant equipment, or a major impact on human action failure rates, the finding was determined to be Green. The cause of this finding was related to the cross cutting aspect of Problem Identification in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee should have recognized the electrolytic capacitors were installed beyond their recommended service life and scheduled replacement prior to their failure [P.1(a)]. (Section 4OA3.6)

Inspection Report# : [2012003](#) (pdf)

Mitigating Systems

Significance:  Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain flood barrier results in inoperable safety related pumps

An NRC-identified non-cited violation (NCV) of the Technical Specifications 5.4.1.a was identified for the licensee's failure to maintain an Emergency Equipment Cooling Water (EECW) pump flood barrier in accordance with written procedures which resulted in the inoperability of two other safety related pumps. The licensee immediately restored the flood protection configuration of the C Residual Heat Removal Service Water (RHRSW) pump room by properly re-installing the flood protection cover and permanently stenciled the aluminum plate with the required procedure for installation. The licensee entered this issue into their corrective action program as PER 532050.

The finding was more than minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Events, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of RHRSW pumps to perform their intended safety function during a design basis flooding event. Specifically, the improper re-installation of an external flood protection cover resulted in the inoperability of two Residual Heat Removal Service Water (RHRSW) pumps. The significance of this finding was evaluated in accordance with the IMC 0609 Attachment 4, Phase 1- Initial Screening and Characterization of Findings, which required a Phase 3 analysis because the finding involved the degradation of equipment designed to mitigate a flooding event and it was risk significant due to external initiating event core damage sequences. The finding was determined to be Green because of the short exposure time, and the low likelihood of the flood. The cause of this finding was directly related to the cross cutting aspect of Supervisory Oversight in the Work Practices component of the Human Performance area, because of the foreman's assumption that workers knew to restore the flood protection cover to meet procedural requirements without a formal pre-job brief [H.4(c)]. (Section 1R15)

Inspection Report# : [2012003](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: FIN Finding

Failure to follow NRC commitment management procedure

The inspectors identified a Green finding (FIN) for the licensee's failure to follow procedure NPG-SPP-03.3, Rev.001, "NRC Commitment Management." Specifically, the procedure states, in part, that each responsible organization ensures commitment implementation/completion occurs as scheduled. Contrary to this requirement, the licensee's commitment to verify the accuracy and adequacy of completed Inspection Procedure (IP) 95002 corrective actions had not been performed adequately. The licensee entered this issue into the corrective action program as PERs 510126 and 510161.

The performance deficiency (PD) associated with this finding was the failure of licensee personnel to follow procedures regarding managing NRC commitments. The finding is greater than minor because, if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, the failure to assess the adequacy of corrective actions can lead to problems not being properly corrected. Using Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the finding was determined to have a very low safety significance (Green) because the finding did not result in a loss of system safety function, an actual loss of safety function of a single train for greater than its Technical Specification allowed outage time, or screen as potentially risk significant due to a seismic, flooding, or severe weather initiating event. This finding has a cross cutting aspect in the area of Human Performance because the licensee did not ensure supervisory and management oversight of work activities associated with the commitments made to the NRC, which resulted in the commitments not be tracked or monitored to ensure completion. [H.4(c)] (Section 4OA2.a(3))

Inspection Report# : [2012007](#) (pdf)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to establish adequate compensatory measures for non-conforming fire barriers

The inspectors identified a Green NCV of Browns Ferry Operating License Conditions 2.C(13), 2.C(14) and 2.C(7), for Units 1, 2, and 3, respectively, for the licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, in accordance with the approved fire protection

program (FPP). Specifically, the licensee failed to establish continuous fire watches for non-conforming fire barriers in the Intake Pumping Station (IPS), after discovering that the barriers were not credited in the site's approved FPP. The licensee initiated PER 509589 to document this condition and enter it into the corrective action program. The licensee also established a continuous fire watch, in accordance with the FPR.

The licensee's failure to establish adequate compensatory measures for non-conforming fire barriers, as required by their approved fire protection program, is a PD. The finding is more than minor because it is associated with the Reactor Safety Mitigating Systems cornerstone attribute of protection against external factors (i.e., fire) and it affects the cornerstone objective of ensuring the reliability and capability of systems that respond to initiating events. Using the guidance of IMC 0609, Appendix F, "Fire Protection Significance Determination Process," inspectors determined that the PD represented a finding of very low safety significance (Green). Inspectors determined that the cause of this finding has a cross-cutting aspect in the Corrective Action Program component of the Problem Identification and Resolution (PI&R) area, in that it was directly related to the licensee not thoroughly evaluating problems, such that the problem was properly classified and evaluated for operability [P.1(c)] (Section 4OA2.a(3))

Inspection Report# : [2012007](#) (*pdf*)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement appropriate safe shutdown instructions

The inspectors identified a Green non-cited violation of 10 CFR 50 Appendix B, Criteria XVI, Corrective Action, for the licensee's failure to assure conditions adverse to quality associated with the establishment and implementation of four new Safe Shutdown Instructions (SSI) were promptly identified and corrected. Specifically, the inspectors identified instances where previously identified issues with SSIs were either not entered into the corrective action program, corrective actions were not implemented, or the corrective actions were ineffective in addressing the identified issue. The licensee entered this finding into the corrective action program (PER 505551) and adequate procedural guidance was restored following licensee procedure revisions, training and demonstration to inspectors that operators had acquired an adequate level of proficiency to implement the new SSIs.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events, such as fire, to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. This finding was directly related to the cross-cutting aspect of Thorough Evaluation of Identified Problems in the Corrective Action Program component of the Problem Identification and Resolution area because the licensee did not thoroughly evaluate identified problems such that the resolutions addresses the causes and extent of conditions of the issues. [P.1.(c)] (Section 4OA2.e(2))

Inspection Report# : [2012007](#) (*pdf*)

Significance:  May 14, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to identify and correct appropriate safe shutdown instructions

The inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to establish procedures appropriate to the circumstances for combating plant fires. Specifically, four new Safe Shutdown Instruction (SSI) were established which contained multiple procedural deficiencies. The licensee entered this finding into the corrective action program (PER 507721) and adequate Safe

Shutdown Instructions were restored following procedure revisions.

This finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and it affected the cornerstone objective of protection against external events such as fire to prevent undesirable consequences. The finding was assigned a Low degradation rating and screened as very low safety significance (Green) in step 1.3.1 of IMC 0609 Appendix F, attachment 1, Application of Fire Protection SDP Phase 1 Worksheet. The team determined the cause of this finding was directly related to the cross-cutting aspect of Work Coordination in the Work Control component of the Human Performance area because the licensee did not adequately incorporate actions to address the impact of the work on different job activities and the need for work groups to maintain interfaces with offsite organizations, and communicate, coordinate, and cooperate with each other during activities in which interdepartmental coordination is necessary to assure plant and human performance. This contributed to the failure to identify deficiencies with the new SSI procedures prior to procedure implementation. [H.3.(b)] (Section 4OA2.e(2))

Inspection Report# : [2012007](#) (*pdf*)

Significance: **W** May 14, 2012

Identified By: NRC

Item Type: VIO Violation

Failure to properly implement the requirements of the plant modifications and engineering change control procedure

During an NRC inspection completed on March 1, 2012, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by documented procedures of a type appropriate to the circumstances and shall be accomplished in accordance with these procedures. NPG-SPP-09.3, "Plant Modifications and Engineering Change Control," and form NPG-SPP-09.3-13, Modification Training Notification, requires an evaluation of training needs to be completed for the implementation of procedures developed in response to design changes. Procedures 0-SSI-25-1,-2,-3, and -26, "Safe Shutdown Instructions", were developed in support of Design Change Notice (DCN) 69957, which installed a new three-hour fire barrier in the Intake Tunnel Structure, per NPG-SPP-09.3. DCN 69957 was designated as an activity that affected quality.

Contrary to the above, the licensee failed to adequately accomplish the requirements contained in procedure NPG-SPP-09.3 "Plant Modifications and Engineering Change Control" during the implementation of DCN 69957.

Specifically, on September 13, 2011, the licensee implemented Procedures 0-SSI-25-1,-2,-3, and -26, "Safe Shutdown Instructions," in support of DCN 69957 without adequately performing an evaluation of training needs. As a result, the systems approach to training was not properly implemented and the procedures could not be satisfactorily performed by plant operators and staff.

Inspection Report# : [2012007](#) (*pdf*)

Inspection Report# : [2012013](#) (*pdf*)

Barrier Integrity

Emergency Preparedness

Significance:  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 40A2.4)

Inspection Report# : [2012004](#) (*pdf*)

Occupational Radiation Safety

Public Radiation Safety

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to properly prepare a DOT type A package for transport

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the

cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

Significance:  Jun 30, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to implement DOT type A package closure requirements

A self-revealing non-cited violation (NCV) of 10 CFR 71.5, Transportation of Licensed Material, was identified by inspectors for the licensee's failure to comply with Department of Transportation (DOT) regulations during shipment of radioactive materials. Specifically, the licensee failed to ensure proper packaging of two DOT 7A Type A packages as required by Department of Transportation (DOT) regulations in 49 CFR 173.475, Quality Control Requirements Prior To Each Shipment Of Class 7 (Radioactive) Materials. This issue has been entered into the licensee's corrective action program as SR 570902.

The finding was more than minor because it is associated with the Public Radiation Safety Cornerstone, Plant Facilities/Equipment and Instrumentation attribute, involving transportation packaging and adversely affected the cornerstone objective, to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. Specifically, the failure to correctly secure the package contents to prevent movement could have resulted in damage or failure of the container during transportation. The finding was determined to be of very low safety significance (Green) because it did not involve radiation limits being exceeded, a package breach, a certificate of compliance issue, a low-level burial ground non-conformance, or a failure to make emergency notifications. 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 because the licensee did not effectively incorporate package design specifications into their transportation program to ensure that all internal restraining devices are correctly installed to secure the CRDM in place to prevent damage to the transport package. (H.2(c)) (Section 2RS8)

Inspection Report# : [2012003](#) (*pdf*)

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 : June 04, 2013

Browns Ferry 3 2Q/2013 Plant Inspection Findings

Initiating Events

Significance:  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:  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:  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:  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 program 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:  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:  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:  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:  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:  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:  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:  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:  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:  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:  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 BFN's 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:  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:  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:  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 it 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 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:  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:  May 24, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control a modification to the seismically mounted control room ceiling light 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:  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

Browns Ferry 3 3Q/2013 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to properly screen and classify corrective action program, problem evaluation reports

The NRC identified a Green finding for the licensee's failure to properly screen and classify corrective action program (CAP) problem evaluation reports (PER's) in accordance with NPG-SPP-03.1.4, Corrective Action Program Screening and Oversight. Specifically, the licensee failed to screen service requests (SR's) that had a high potential for resulting in a reactor scram as 'A' level PER's. The licensee entered the issue into the corrective action program as PER 687732.

This finding was determined to be more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding was associated with the Initiating Events cornerstone and using IMC 0609, Appendix A, At-Power Significance Determination Process screening questions for transient initiators, the finding screened as Green because the finding 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. The cause of this finding was directly related to the cross-cutting aspect of thoroughly evaluating problems such that the resolutions address causes and extent of condition in the corrective action program component of Problem Identification and Resolution. [P.1.c] (Section 4OA3.2)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  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 BFN's 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:  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)

Mitigating Systems

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to enter Technical Specification for residual heat removal service water maintenance

The NRC identified a non-cited violation (NCV) of Technical Specifications (TS) 5.4.1.a, Procedures, for the licensee's failure to follow OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking. Specifically, the licensee failed to enter a seven day action statement C.1 of Technical Specification 3.7.1, Residual Heat Removal Service Water (RHRSW) system and Ultimate Heat Sink when planned maintenance rendered two RHRSW pumps inoperable. The licensee entered this issue into their corrective action program as Problem Event Report (PER) 751300.

This finding was determined to be more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding affected the Mitigating Systems cornerstone and using IMC 0609.04, Initial Characterization of Findings and IMC 0609 Appendix A, Exhibit 2 Mitigating Systems screening questions, the finding screened as very low safety significance (Green). The finding did not represent an actual loss of function of 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 equipment for greater than 24 hours because the licensee restored the C1 and C2 RHRSW pumps on July 5, 2013. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure that expectations for procedural compliance were properly communicated and that personnel followed procedures. [H.4.b]. (Section 1R13)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to clean the safety related pump pit once per two cycles

An NRC identified finding (FIN) was identified for the licensee's exceeding the maximum allowed periodicity for inspecting and cleaning the Residual Heat Removal Service Water (RHRSW) pump pit per Raw Water Corrosion Program procedure (NPG-SPP 9.7.3).

This finding was determined to be more than minor because, if left uncorrected, the failure to maintain the intake pump pit cleaning would have had the potential to lead to a more significant safety concern in that, it could lead to fouling of safety related coolers, challenging the heat exchanger heat removal function. The finding is associated with the Mitigating Systems cornerstone. Using IMC 0609 Appendix A, Exhibit 2, the finding screened as green because the finding did not represent an actual loss of function of 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 equipment for greater than 24 hours. The cause of this finding was associated with the human performance area, resources component, cross cutting aspect of maintaining long term plant safety by maintenance of design margins and minimizing preventative maintenance deferrals due to the licensee not allocating resources to clean the intake pump pits. [H.2.(a)]. (Section 1R15)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  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:  Jun 04, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to evaluate the effects of the failure 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 safety-related 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:  Jun 04, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to use worst case 4160 VAC bus voltage in design 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:  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:  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:  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:  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:  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 A2 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:  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:  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 BFN's 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:  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:  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:  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 it 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 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:  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)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement preventive maintenance program

A self-revealing Apparent Violation (AV) of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for the licensee's failure to establish an adequate preventive maintenance program as required by procedure NPG-SPP-06.2, Preventive Maintenance. Specifically, the Residual Heat Removal Service Water Pump D1 Cross-Tie to Emergency Equipment Cooling Water Valve (0-FCV-067-0048), was not maintained in a manner that ensured it would perform its design function. The failed valve was replaced on January 16, 2013, with a new valve with a stainless steel disk. Further corrective actions were planned to develop adequate preventive maintenance activities for this valve. The licensee entered this issue into their corrective action program as PER 671314.

This finding was determined to be more than minor because it was associated with the Protection Against External Events (fires) attribute of the Mitigating Systems cornerstone objective and adversely affected the cornerstone objective to ensure availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the 0-FCV-067-0048 valve failed and could not perform its isolation function credited in the safe shutdown analysis. Because the finding could not be screened as very low safety significance (Green), nor its safety significance determined prior to issuing the inspection report, it is being characterized as "To Be Determined (TBD)." The cause of this finding was directly related to the cross-cutting aspect of Appropriately Coordinating Work Activities in the Work Control component of the Human Performance area, because maintenance activities for 0-FCV-067-0048 were more reactive than preventive. [H.3(b)], (Section 1R15)

Inspection Report# : [2013003](#) (pdf)

Inspection Report# : [2013002](#) (pdf)

Barrier Integrity

Significance:  May 24, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control a modification to the seismically mounted control room ceiling light 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

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 : December 03, 2013

Browns Ferry 3

4Q/2013 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to properly screen and classify corrective action program, problem evaluation reports

The NRC identified a Green finding for the licensee's failure to properly screen and classify corrective action program (CAP) problem evaluation reports (PER's) in accordance with NPG-SPP-03.1.4, Corrective Action Program Screening and Oversight. Specifically, the licensee failed to screen service requests (SR's) that had a high potential for resulting in a reactor scram as 'A' level PER's. The licensee entered the issue into the corrective action program as PER 687732.

This finding was determined to be more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding was associated with the Initiating Events cornerstone and using IMC 0609, Appendix A, At-Power Significance Determination Process screening questions for transient initiators, the finding screened as Green because the finding 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. The cause of this finding was directly related to the cross-cutting aspect of thoroughly evaluating problems such that the resolutions address causes and extent of condition in the corrective action program component of Problem Identification and Resolution. [P.1.c] (Section 4OA3.2)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  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 BFN's 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:  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)

Mitigating Systems

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate compensatory actions to minimize the effects of impaired fire protection equipment on fire safe shutdown

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Unit Nos. 1, 2, and 3 Technical Specification 5.4.1.d for the failure to establish procedural guidance to implement compensatory measures for the high pressure fire protection (HPFP) system in support of the Fire Protection Report (FPR) and Safe Shutdown Instructions (SSI). The licensee entered this condition in their corrective action program (CAP) as problem evaluation report (PER) 812090 and issued an operations' Standing Order which supplemented existing fire watch

patrol compensatory measures in Fire Area (FA) 25-1. The licensee's failure to establish appropriate compensatory measures supporting the FPR and the SSI to ensure an adequate water supply remained available when the diesel driven fire pump was taken out of service was a performance deficiency. The performance deficiency was more-than-minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and that it adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process", dated June 2, 2011, Attachment 4 "Initial Characterization of Findings". This screening determined that an IMC 0609, Appendix F "Fire Protection Significance Determination Process" was required because it affected fixed fire protection systems. Attachment 1, Step 1.4.2, "Fixed Fire Protection Systems" screened the finding to very low safety significance (Green) since the impact of a fire in FA 25-1 is limited to no more than one train/division important to safety and that the reactor would be able to reach and maintain safe shutdown condition. The inspectors determined that no cross cutting aspect was applicable to this performance deficiency this finding because the operability requirements and compensatory actions in effect had been developed in the past (1988) and were not indicative of current licensee performance.. (Section R10.10)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate evaluation of combustible material control fire protection program change

The inspectors identified a Severity Level IV, non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Renewed Facility Operating License Conditions 2.C.(13), (14), and (7) for Units 1, 2, and 3, respectively, and an associated finding of very low safety significance (Green) for the failure to perform an evaluation of the impact of a change to the Fire Protection Report on the fire protection license conditions, as directed by the licensee's procedure, FPDP-3, Management of the Fire Protection Report, Revision 3. The failure to adequately evaluate the impact of the change, which permitted the use of fire retardant treated wood materials as transient fire loads in safety related plant areas without further approval, resulted in the implementation of a change to the Fire Protection Program (FPP) that could have adversely affected the ability to achieve and maintain safe shutdown. The licensee also failed to submit the FPP change to the NRC for review and approval prior to implementation which impacted the ability of the NRC to perform its regulatory oversight function. The licensee entered the issue into their corrective action program (CAP) as problem evaluation report PER 812091 and issued an operations' Fire Protection Section Instruction Letter to require all wood products to be evaluated when left unattended in any plant fire area. The inspectors determined that this finding was more than minor because if left uncorrected, could become a more significant safety concern. Specifically, if the licensee does not limit transient fire loads (including fire retardant treated wood) to below the capability of suppression systems or fire barrier ratings for a specific fire area as evaluated by the station's fire hazard analysis, a fire could spread to other fire areas and affect the ability to achieve and maintain safe shutdown in the event of a fire. The finding was evaluated using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, Appendix F, "Fire Protection Significance determination Process," issued September 20, 2013, and the inspectors determined the finding was of very low safety significance (Green) because the reactor would have been able to reach and maintain safe shutdown conditions under actual fire loading conditions. The SDP, however, does not specifically consider the regulatory process impact. Thus, although not related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding. The traditional enforcement violation was evaluated using the NRC Enforcement Policy, dated January 28, 2013, revised July 9, 2013, and the inspectors determined the violation was SL-IV per Section 6.1.d.2 of the Enforcement Policy, because the associated finding was evaluated by the SDP as having very low safety significance (i.e., Green). The inspectors determined failure to obtain prior NRC approval for fire protection program changes was similar to violations of 10 CFR 50.59 for enforcement purposes. No cross-cutting aspect was assigned to this finding because the cause of the finding was not indicative of present licensee

performance, since the change to the Fire Protection Report occurred in 2003. (Section 1R05.11)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to meet the requirements of large fire and explosion mitigation strategies

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3, Renewed Operating License Conditions 2.C(4)(b)(7), 2.C(6)(b)(7) and 2.C(10)(b)(7) respectively, for the licensee's failure to meet the requirements of the license condition for large fires or explosion mitigation strategies as discussed in Enclosure 2.

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to enter Technical Specification for residual heat removal service water maintenance

The NRC identified a non-cited violation (NCV) of Technical Specifications (TS) 5.4.1.a, Procedures, for the licensee's failure to follow OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking. Specifically, the licensee failed to enter a seven day action statement C.1 of Technical Specification 3.7.1, Residual Heat Removal Service Water (RHRSW) system and Ultimate Heat Sink when planned maintenance rendered two RHRSW pumps inoperable. The licensee entered this issue into their corrective action program as Problem Event Report (PER) 751300.

This finding was determined to be more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding affected the Mitigating Systems cornerstone and using IMC 0609.04, Initial Characterization of Findings and IMC 0609 Appendix A, Exhibit 2 Mitigating Systems screening questions, the finding screened as very low safety significance (Green). The finding did not represent an actual loss of function of 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 equipment for greater than 24 hours because the licensee restored the C1 and C2 RHRSW pumps on July 5, 2013. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure that expectations for procedural compliance were properly communicated and that personnel followed procedures. [H.4.b]. (Section 1R13)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to clean the safety related pump pit once per two cycles

An NRC identified finding (FIN) was identified for the licensee's exceeding the maximum allowed periodicity for inspecting and cleaning the Residual Heat Removal Service Water (RHRSW) pump pit per Raw Water Corrosion Program procedure (NPG-SPP 9.7.3).

This finding was determined to be more than minor because, if left uncorrected, the failure to maintain the intake pump pit cleaning would have had the potential to lead to a more significant safety concern in that, it could lead to fouling of safety related coolers. challenging the heat exchanger heat removal function. The finding is associated with

the Mitigating Systems cornerstone. Using IMC 0609 Appendix A, Exhibit 2, the finding screened as green because the finding did not represent an actual loss of function of 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 equipment for greater than 24 hours. The cause of this finding was associated with the human performance area, resources component, cross cutting aspect of maintaining long term plant safety by maintenance of design margins and minimizing preventative maintenance deferrals due to the licensee not allocating resources to clean the intake pump pits. [H.2.(a)]. (Section 1R15)

Inspection Report# : [2013004](#) (pdf)

Significance:  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:  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 safety-related 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:  Jun 04, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to use worst case 4160 VAC bus voltage in design 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:  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:  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:  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:  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:  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:  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:  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:  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:  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:  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 it 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 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:  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)

Significance:  Mar 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to implement preventive maintenance program

A self-revealing Apparent Violation (AV) of 10 CFR 50 Appendix B, Criterion V, Instructions, Procedures, and Drawings, was identified for the licensee's failure to establish an adequate preventive maintenance program as required by procedure NPG-SPP-06.2, Preventive Maintenance. Specifically, the Residual Heat Removal Service Water Pump D1 Cross-Tie to Emergency Equipment Cooling Water Valve (0-FCV-067-0048), was not maintained in a manner that ensured it would perform its design function. The failed valve was replaced on January 16, 2013, with a new valve with a stainless steel disk. Further corrective actions were planned to develop adequate preventive maintenance activities for this valve. The licensee entered this issue into their corrective action program as PER 671314.

This finding was determined to be more than minor because it was associated with the Protection Against External Events (fires) attribute of the Mitigating Systems cornerstone objective and adversely affected the cornerstone objective to ensure availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the 0-FCV-067-0048 valve failed and could not perform its isolation function credited in the safe shutdown analysis. Because the finding could not be screened as very low safety significance (Green), nor its safety significance determined prior to issuing the inspection report, it is being characterized as "To Be Determined (TBD)." The cause of this finding was directly related to the cross-cutting aspect of Appropriately Coordinating Work Activities in the Work Control component of the Human Performance area, because maintenance activities for 0-FCV-067-0048 were more reactive than preventive. [H.3(b)], (Section 1R15)

Inspection Report# : [2013002](#) (pdf)

Inspection Report# : [2013003](#) (pdf)

Barrier Integrity

Significance:  May 24, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control a modification to the seismically mounted control room ceiling light 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

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 : February 24, 2014

Browns Ferry 3 1Q/2014 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to document service water freeze protection deficiencies

The NRC identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Procedures, for the licensee's failure to implement 0-GOI-200-1, Freeze Protection Inspection. Specifically, the licensee failed to enter freeze protection discrepancies into the corrective action program as part of the Freeze Protection Discrepancy List per 0-GOI-200-1 for the residual heat removal service water (RHRSW) and emergency equipment cooling water (EECW) systems. As a corrective action, the licensee entered the required deficiencies onto the Freeze Protection Discrepancy List. The licensee has entered this issue into their corrective action program as problem evaluation reports 800190 and 821426.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that the intake room piping would continue to be exposed to freezing temperatures without adequate freeze protection which could affect RHRSW and EECW systems' ability to perform their safety functions. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. The cause of this finding has a cross-cutting aspect in the Work Practices component of the Human Performance area, because the licensee failed to define and effectively communicate expectations regarding procedural compliance and that personnel follow procedures. [H.4(b)] (Section 1R01)

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to properly screen and classify corrective action program, problem evaluation reports

The NRC identified a Green finding for the licensee's failure to properly screen and classify corrective action program (CAP) problem evaluation reports (PER's) in accordance with NPG-SPP-03.1.4, Corrective Action Program Screening and Oversight. Specifically, the licensee failed to screen service requests (SR's) that had a high potential for resulting in a reactor scram as 'A' level PER's. The licensee entered the issue into the corrective action program as PER 687732.

This finding was determined to be more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding was associated with the Initiating Events cornerstone and using IMC 0609, Appendix A, At-Power Significance Determination Process screening questions for transient initiators, the finding screened as Green because the finding 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. The cause of this finding was directly related to the cross-cutting aspect of thoroughly evaluating problems such that the

resolutions address causes and extent of condition in the corrective action program component of Problem Identification and Resolution. [P.1.c] (Section 4OA3.2)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  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:  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*)

Mitigating Systems

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control transient combustible in designated high risk areas

An NRC-identified non-cited violation (NCV) of the T.S. 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to control transient combustible materials in designated high risk areas in Unit 1 and Unit 3. The licensee's corrective action was to remove the combustible materials. The licensee entered this issue into their corrective action program as PER 845630 and 846184.

The performance deficiency was determined to be more than minor, because it was associated with the Protection Against External Factors attribute (Fires) 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. Specifically, leaving unanalyzed transient combustibles in proximity to safety related equipment could affect the equipment's ability to perform its safety function during a credible fire scenario. The finding was characterized according to IMC 0609, Significance Determination Process (SDP), Appendix F, Attachment 1, Fire Protection SDP Phase 1 Worksheet dated September 24, 2013. This issue screened as low safety significance (Green), per Attachment 1 question 1.3 because it did not affect the ability of the reactor to reach and maintain safe shutdown. The cause of this finding was directly related to the Human Performance cross cutting aspect of Change Management. Plant leaders did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the impact of the new procedures for transient combustible controls did not apply change management controls such as site wide communication and training to make workers aware of the new requirements. [H.3] (Section 4OA2)

Inspection Report# : [2014002](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain emergency diesel room floor drains

The NRC-identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, for the licensee's failure to establish measures to ensure the EDG floor drains maintained the capability of performing their intended function as described their design basis. The licensee's immediate corrective action was to clean all the drains in all the EDG rooms. The licensee has entered this issue into their corrective action program as problem evaluation report 765575.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that, the EDG room floor drains could become sufficiently clogged such that internal flooding would cause the affected EDG to be unable to perform its safety function. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because TVA did not identify floor drain issues completely, accurately, and in a timely manner commensurate with their safety significance. [P.1 (a)] (Section 4OA2.3)

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate compensatory actions to minimize the effects of impaired fire protection equipment on fire safe shutdown

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Unit Nos. 1, 2, and 3 Technical Specification 5.4.1.d for the failure to establish procedural guidance to implement compensatory measures for the high pressure fire protection (HPFP) system in support of the Fire Protection Report (FPR) and Safe Shutdown Instructions (SSI). The licensee entered this condition in their corrective action program (CAP) as problem evaluation report (PER) 812090 and issued an operations' Standing Order which supplemented existing fire watch patrol compensatory measures in Fire Area (FA) 25-1. The licensee's failure to establish appropriate compensatory measures supporting the FPR and the SSI to ensure an adequate water supply remained available when the diesel driven fire pump was taken out of service was a performance deficiency. The performance deficiency was more-than-minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and that it adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process", dated June 2, 2011, Attachment 4 "Initial Characterization of Findings". This screening determined that an IMC 0609, Appendix F "Fire Protection Significance Determination Process" was required because it affected fixed fire protection systems. Attachment 1, Step 1.4.2, "Fixed Fire Protection Systems" screened the finding to very low safety significance (Green) since the impact of a fire in FA 25-1 is limited to no more than one train/division important to safety and that the reactor would be able to reach and maintain safe shutdown condition. The inspectors determined that no cross cutting aspect was applicable to this performance deficiency this finding because the operability requirements and compensatory actions in effect had been developed in the past (1988) and were not indicative of current licensee performance.. (Section R10.10)

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate evaluation of combustible material control fire protection program change

The inspectors identified a Severity Level IV, non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Renewed Facility Operating License Conditions 2.C.(13), (14), and (7) for Units 1, 2, and 3, respectively, and an associated finding of very low safety significance (Green) for the failure to perform an evaluation of the impact of a change to the Fire Protection Report on the fire protection license conditions, as directed by the licensee's procedure, FPDP-3, Management of the Fire Protection Report, Revision 3. The failure to adequately evaluate the impact of the change, which permitted the use of fire retardant treated wood materials as transient fire loads in safety related plant

areas without further approval, resulted in the implementation of a change to the Fire Protection Program (FPP) that could have adversely affected the ability to achieve and maintain safe shutdown. The licensee also failed to submit the FPP change to the NRC for review and approval prior to implementation which impacted the ability of the NRC to perform its regulatory oversight function. The licensee entered the issue into their corrective action program (CAP) as problem evaluation report PER 812091 and issued an operations' Fire Protection Section Instruction Letter to require all wood products to be evaluated when left unattended in any plant fire area. The inspectors determined that this finding was more than minor because if left uncorrected, could become a more significant safety concern. Specifically, if the licensee does not limit transient fire loads (including fire retardant treated wood) to below the capability of suppression systems or fire barrier ratings for a specific fire area as evaluated by the station's fire hazard analysis, a fire could spread to other fire areas and affect the ability to achieve and maintain safe shutdown in the event of a fire. The finding was evaluated using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, Appendix F, "Fire Protection Significance determination Process," issued September 20, 2013, and the inspectors determined the finding was of very low safety significance (Green) because the reactor would have been able to reach and maintain safe shutdown conditions under actual fire loading conditions. The SDP, however, does not specifically consider the regulatory process impact. Thus, although not related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding. The traditional enforcement violation was evaluated using the NRC Enforcement Policy, dated January 28, 2013, revised July 9, 2013, and the inspectors determined the violation was SL-IV per Section 6.1.d.2 of the Enforcement Policy, because the associated finding was evaluated by the SDP as having very low safety significance (i.e., Green). The inspectors determined failure to obtain prior NRC approval for fire protection program changes was similar to violations of 10 CFR 50.59 for enforcement purposes. No cross-cutting aspect was assigned to this finding because the cause of the finding was not indicative of present licensee performance, since the change to the Fire Protection Report occurred in 2003. (Section 1R05.11)

Inspection Report# : [2013010](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to meet the requirements of large fire and explosion mitigation strategies

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3, Renewed Operating License Conditions 2.C(4)(b)(7), 2.C(6)(b)(7) and 2.C(10)(b)(7) respectively, for the licensee's failure to meet the requirements of the license condition for large fires or explosion mitigation strategies as discussed in Enclosure 2.

Inspection Report# : [2013010](#) (pdf)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to enter Technical Specification for residual heat removal service water maintenance

The NRC identified a non-cited violation (NCV) of Technical Specifications (TS) 5.4.1.a, Procedures, for the licensee's failure to follow OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking. Specifically, the licensee failed to enter a seven day action statement C.1 of Technical Specification 3.7.1, Residual Heat Removal Service Water (RHRSW) system and Ultimate Heat Sink when planned maintenance rendered two RHRSW pumps inoperable. The licensee entered this issue into their corrective action program as Problem Event Report (PER) 751300.

This finding was determined to be more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding affected the Mitigating Systems

cornerstone and using IMC 0609.04, Initial Characterization of Findings and IMC 0609 Appendix A, Exhibit 2 Mitigating Systems screening questions, the finding screened as very low safety significance (Green). The finding did not represent an actual loss of function of 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 equipment for greater than 24 hours because the licensee restored the C1 and C2 RHRSW pumps on July 5, 2013. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure that expectations for procedural compliance were properly communicated and that personnel followed procedures. [H.4.b]. (Section 1R13)

Inspection Report# : [2013004](#) (pdf)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to clean the safety related pump pit once per two cycles

An NRC identified finding (FIN) was identified for the licensee's exceeding the maximum allowed periodicity for inspecting and cleaning the Residual Heat Removal Service Water (RHRSW) pump pit per Raw Water Corrosion Program procedure (NPG-SPP 9.7.3).

This finding was determined to be more than minor because, if left uncorrected, the failure to maintain the intake pump pit cleaning would have had the potential to lead to a more significant safety concern in that, it could lead to fouling of safety related coolers, challenging the heat exchanger heat removal function. The finding is associated with the Mitigating Systems cornerstone. Using IMC 0609 Appendix A, Exhibit 2, the finding screened as green because the finding did not represent an actual loss of function of 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 equipment for greater than 24 hours. The cause of this finding was associated with the human performance area, resources component, cross cutting aspect of maintaining long term plant safety by maintenance of design margins and minimizing preventative maintenance deferrals due to the licensee not allocating resources to clean the intake pump pits. [H.2.(a)]. (Section 1R15)

Inspection Report# : [2013004](#) (pdf)

Significance:  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:  Jun 04, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to evaluate the effects of the failure 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 safety-related 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:  Jun 04, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to use worst case 4160 VAC bus voltage in design 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:  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:  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:  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:  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:  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:  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:  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 BFN's 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:  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:  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:  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 it 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 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:  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:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform MSIV as-found leakage test under suitable conditions

An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XI, “Test Control,” was identified for the licensee’s failure to establish adequate written procedures for the test program to determine MSIV as-found leakage that met the requirements of 10 CFR 50, Criterion XI, Test Control. Specifically, Browns Ferry test procedure 3-SR-3.6.1.3.10 did not specify what suitable testing conditions were required to be established prior to testing. Additionally, the practice of allowing multiple valve strokes prior to testing was contrary to the procedure prerequisite of no allowed preliminary adjustments and constituted unacceptable preconditioning of the tested valves. The licensee’s corrective action was to perform “as-left” leakage measurements under different conditions and enter the issue into the corrective action program as PER 847688.

The finding was more than minor because it adversely affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to determine as-found leakage reduced the ability of the licensee to provide reasonable assurance that the MSIVs would be able to perform their isolation function. The inspectors evaluated the finding using IMC 0609, Appendix A, the Significance Determination Process (SDP) for at-power findings, Exhibit 3 – Barrier Integrity Screening Questions, dated June 19, 2012, and determined the finding was of very low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of reactor containment and did not involve an actual reduction in the function of the hydrogen igniters in the reactor containment. This finding has a cross-cutting aspect in the area of Human Performance, Documentation, because Browns Ferry’s MSIV testing procedures were not complete in that they did not specify all required initial conditions and allowed preconditioning

the valves. [H.7] (Section 1R15)

Inspection Report# : [2014002](#) (pdf)

Significance:  May 24, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control a modification to the seismically mounted control room ceiling light 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: TBD Dec 31, 2013

Identified By: NRC

Item Type: VIO Violation

Failure to maintain emergency response staffing levels

The NRC identified an apparent violation of 10 CFR 50.54(q), Emergency Plans, for the licensee’s failure to maintain plant staffing levels in accordance with NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan. Specifically, the licensee’s process for maintaining minimum emergency response shift staffing failed to adequately maintain staffing of the Shift Technical Advisor (STA) and Incident Commander to ensure initial accident response in all key functional areas. The licensee has entered this issue into their corrective action program as PERs 790092 and 801057.

The inspectors determined the performance deficiency was more than minor because it was associated with the ERO readiness attribute of the emergency preparedness cornerstone and adversely impacted the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public

in the event of a radiological emergency. Specifically, the failure to maintain required emergency response staffing levels reduced the licensee's capabilities to respond to an emergency. The inspectors assessed the finding in accordance with Appendix B, Emergency Preparedness Significance Determination Process and determined that this finding represented a Loss of Planning Standard Function and has preliminarily been determined to be a finding of White significance. Because the significance of this finding is not yet finalized, it is being characterized as "To Be Determined (TBD)," pending a final significance determination. The cause of the finding was determined to be associated with the cross-cutting aspect of thorough evaluation of problems in the corrective action component of the problem identification and resolution area because the licensee failed to ensure that issues potentially affecting nuclear safety were thoroughly evaluated. [P.1(c)] (Section 1R11.2.b(1))

Inspection Report# : [2014002](#) (pdf)

Inspection Report# : [2013005](#) (pdf)

Significance: TBD Dec 31, 2013

Identified By: NRC

Item Type: AV Apparent Violation

Inaccurate information provided concerning onsite emergency response organization staffing requirements

The NRC identified two examples of an Apparent Violation of 10 CFR 50.9, "Completeness and accuracy of information," for the licensee's apparent failure to provide complete and accurate information associated with emergency response on-shift staffing requirements. Specifically, on two occasions the licensee apparently provided inaccurate information to the NRC concerning onsite emergency response organization minimum staffing requirements. The licensee augmented on-shift staffing levels on October 30, 2013. These issues were entered into the Browns Ferry corrective action program as PERs 790109, 790092, and 801057.

These apparent violations had the potential to impede or impact the regulatory process, and therefore subject to traditional enforcement as described in the NRC Enforcement Policy, dated July 9, 2013. Because these apparent violations involved the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect was not assigned to this violation. (Section 1R11.2.b(2))

Inspection Report# : [2013005](#) (pdf)

Significance: TBD Dec 31, 2013

Identified By: NRC

Item Type: AV Apparent Violation

Inappropriate amendment of license conditions

The NRC identified an apparent violation (AV) of 10 CFR 50.90, Application for Amendment of License, Construction Permit, or Early Site Permit for the licensee's apparent failure to submit an application requesting an amendment to their operating license concerning on-shift staffing levels. The licensee augmented on-shift staffing levels on October 30, 2013. The issue was entered into the Browns Ferry corrective action program as PERs 790109 and 801057.

This apparent violation had the potential to impede or impact the regulatory process, and therefore was subject to traditional enforcement as described in the NRC Enforcement Policy, dated July 9, 2013. Because this apparent violation involved the traditional enforcement process with no underlying technical violation that would be considered more than minor in accordance with IMC 0612, a cross-cutting aspect was not assigned to this violation. (Section 1R11.2.b(3))

Inspection Report# : [2013005](#) (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 : May 30, 2014

Browns Ferry 3 2Q/2014 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to document service water freeze protection deficiencies

The NRC identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Procedures, for the licensee's failure to implement 0-GOI-200-1, Freeze Protection Inspection. Specifically, the licensee failed to enter freeze protection discrepancies into the corrective action program as part of the Freeze Protection Discrepancy List per 0-GOI-200-1 for the residual heat removal service water (RHRSW) and emergency equipment cooling water (EECW) systems. As a corrective action, the licensee entered the required deficiencies onto the Freeze Protection Discrepancy List. The licensee has entered this issue into their corrective action program as problem evaluation reports 800190 and 821426.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that the intake room piping would continue to be exposed to freezing temperatures without adequate freeze protection which could affect RHRSW and EECW systems' ability to perform their safety functions. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. The cause of this finding has a cross-cutting aspect in the Work Practices component of the Human Performance area, because the licensee failed to define and effectively communicate expectations regarding procedural compliance and that personnel follow procedures. [H.4(b)] (Section 1R01)

Inspection Report# : [2013005](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to properly screen and classify corrective action program, problem evaluation reports

The NRC identified a Green finding for the licensee's failure to properly screen and classify corrective action program (CAP) problem evaluation reports (PER's) in accordance with NPG-SPP-03.1.4, Corrective Action Program Screening and Oversight. Specifically, the licensee failed to screen service requests (SR's) that had a high potential for resulting in a reactor scram as 'A' level PER's. The licensee entered the issue into the corrective action program as PER 687732.

This finding was determined to be more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding was associated with the Initiating Events cornerstone and using IMC 0609, Appendix A, At-Power Significance Determination Process screening questions for transient initiators, the finding screened as Green because the finding 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. The cause of this finding was directly related to the cross-cutting aspect of thoroughly evaluating problems such that the

resolutions address causes and extent of condition in the corrective action program component of Problem Identification and Resolution. [P.1.c] (Section 4OA3.2)

Inspection Report# : [2013004](#) (*pdf*)

Mitigating Systems

Significance:  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*)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control transient combustible in designated high risk areas

An NRC-identified non-cited violation (NCV) of the T.S. 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to control transient combustible materials in designated high risk areas in Unit 1 and Unit 3. The licensee's corrective action was to remove the combustible materials. The licensee entered this issue into their corrective action program as PER 845630 and 846184.

The performance deficiency was determined to be more than minor, because it was associated with the Protection Against External Factors attribute (Fires) 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. Specifically, leaving unanalyzed transient combustibles in proximity to safety related equipment could affect the equipment's ability to perform its safety function during a credible fire scenario. The finding was characterized according to IMC 0609, Significance Determination Process (SDP), Appendix F,

Attachment 1, Fire Protection SDP Phase 1 Worksheet dated September 24, 2013. This issue screened as low safety significance (Green), per Attachment 1 question 1.3 because it did not affect the ability of the reactor to reach and maintain safe shutdown. The cause of this finding was directly related to the Human Performance cross cutting aspect of Change Management. Plant leaders did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the impact of the new procedures for transient combustible controls did not apply change management controls such as site wide communication and training to make workers aware of the new requirements. [H.3] (Section 40A2)

Inspection Report# : [2014002](#) (pdf)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain emergency diesel room floor drains

The NRC-identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, for the licensee's failure to establish measures to ensure the EDG floor drains maintained the capability of performing their intended function as described their design basis. The licensee's immediate corrective action was to clean all the drains in all the EDG rooms. The licensee has entered this issue into their corrective action program as problem evaluation report 765575.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that, the EDG room floor drains could become sufficiently clogged such that internal flooding would cause the affected EDG to be unable to perform its safety function. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because TVA did not identify floor drain issues completely, accurately, and in a timely manner commensurate with their safety significance. [P.1 (a)] (Section 40A2.3)

Inspection Report# : [2013005](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate compensatory actions to minimize the effects of impaired fire protection equipment on fire safe shutdown

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Unit Nos. 1, 2, and 3 Technical Specification 5.4.1.d for the failure to establish procedural guidance to implement compensatory measures for the high pressure fire protection (HPFP) system in support of the Fire Protection Report (FPR) and Safe Shutdown Instructions (SSI). The licensee entered this condition in their corrective action program (CAP) as problem evaluation report (PER) 812090 and issued an operations' Standing Order which supplemented existing fire watch patrol compensatory measures in Fire Area (FA) 25-1. The licensee's failure to establish appropriate compensatory measures supporting the FPR and the SSI to ensure an adequate water supply remained available when the diesel driven fire pump was taken out of service was a performance deficiency. The performance deficiency was more-than-minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and that it adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process", dated June 2, 2011,

Attachment 4 “Initial Characterization of Findings”. This screening determined that an IMC 0609, Appendix F “Fire Protection Significance Determination Process” was required because it affected fixed fire protection systems. Attachment 1, Step 1.4.2, “Fixed Fire Protection Systems” screened the finding to very low safety significance (Green) since the impact of a fire in FA 25-1 is limited to no more than one train/division important to safety and that the reactor would be able to reach and maintain safe shutdown condition. The inspectors determined that no cross cutting aspect was applicable to this performance deficiency this finding because the operability requirements and compensatory actions in effect had been developed in the past (1988) and were not indicative of current licensee performance.. (Section R10.10)
Inspection Report# : [2013010](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate evaluation of combustible material control fire protection program change

The inspectors identified a Severity Level IV, non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Renewed Facility Operating License Conditions 2.C.(13), (14), and (7) for Units 1, 2, and 3, respectively, and an associated finding of very low safety significance (Green) for the failure to perform an evaluation of the impact of a change to the Fire Protection Report on the fire protection license conditions, as directed by the licensee’s procedure, FPD-3, Management of the Fire Protection Report, Revision 3. The failure to adequately evaluate the impact of the change, which permitted the use of fire retardant treated wood materials as transient fire loads in safety related plant areas without further approval, resulted in the implementation of a change to the Fire Protection Program (FPP) that could have adversely affected the ability to achieve and maintain safe shutdown. The licensee also failed to submit the FPP change to the NRC for review and approval prior to implementation which impacted the ability of the NRC to perform its regulatory oversight function. The licensee entered the issue into their corrective action program (CAP) as problem evaluation report PER 812091 and issued an operations’ Fire Protection Section Instruction Letter to require all wood products to be evaluated when left unattended in any plant fire area. The inspectors determined that this finding was more than minor because if left uncorrected, could become a more significant safety concern. Specifically, if the licensee does not limit transient fire loads (including fire retardant treated wood) to below the capability of suppression systems or fire barrier ratings for a specific fire area as evaluated by the station’s fire hazard analysis, a fire could spread to other fire areas and affect the ability to achieve and maintain safe shutdown in the event of a fire. The finding was evaluated using IMC 0609, Attachment 4, “Initial Characterization of Findings,” issued June 19, 2012, for Mitigating Systems, and IMC 0609, Appendix F, “Fire Protection Significance determination Process,” issued September 20, 2013, and the inspectors determined the finding was of very low safety significance (Green) because the reactor would have been able to reach and maintain safe shutdown conditions under actual fire loading conditions. The SDP, however, does not specifically consider the regulatory process impact. Thus, although not related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding. The traditional enforcement violation was evaluated using the NRC Enforcement Policy, dated January 28, 2013, revised July 9, 2013, and the inspectors determined the violation was SL-IV per Section 6.1.d.2 of the Enforcement Policy, because the associated finding was evaluated by the SDP as having very low safety significance (i.e., Green). The inspectors determined failure to obtain prior NRC approval for fire protection program changes was similar to violations of 10 CFR 50.59 for enforcement purposes. No cross-cutting aspect was assigned to this finding because the cause of the finding was not indicative of present licensee performance, since the change to the Fire Protection Report occurred in 2003. (Section 1R05.11)
Inspection Report# : [2013010](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to meet the requirements of large fire and explosion mitigation strategies

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3, Renewed Operating License Conditions 2.C(4)(b)(7), 2.C(6)(b)(7) and 2.C(10)(b)(7) respectively, for the licensee's failure to meet the requirements of the license condition for large fires or explosion mitigation strategies as discussed in Enclosure 2.

Inspection Report# : [2013010](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to enter Technical Specification for residual heat removal service water maintenance

The NRC identified a non-cited violation (NCV) of Technical Specifications (TS) 5.4.1.a, Procedures, for the licensee's failure to follow OPDP-8, Operability Determination Process and Limiting Conditions for Operation Tracking. Specifically, the licensee failed to enter a seven day action statement C.1 of Technical Specification 3.7.1, Residual Heat Removal Service Water (RHRSW) system and Ultimate Heat Sink when planned maintenance rendered two RHRSW pumps inoperable. The licensee entered this issue into their corrective action program as Problem Event Report (PER) 751300.

This finding was determined to be more than minor because if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern. The finding affected the Mitigating Systems cornerstone and using IMC 0609.04, Initial Characterization of Findings and IMC 0609 Appendix A, Exhibit 2 Mitigating Systems screening questions, the finding screened as very low safety significance (Green). The finding did not represent an actual loss of function of 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 equipment for greater than 24 hours because the licensee restored the C1 and C2 RHRSW pumps on July 5, 2013. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to ensure that expectations for procedural compliance were properly communicated and that personnel followed procedures. [H.4.b]. (Section 1R13)

Inspection Report# : [2013004](#) (*pdf*)

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: FIN Finding

Failure to clean the safety related pump pit once per two cycles

An NRC identified finding (FIN) was identified for the licensee's exceeding the maximum allowed periodicity for inspecting and cleaning the Residual Heat Removal Service Water (RHRSW) pump pit per Raw Water Corrosion Program procedure (NPG-SPP 9.7.3).

This finding was determined to be more than minor because, if left uncorrected, the failure to maintain the intake pump pit cleaning would have had the potential to lead to a more significant safety concern in that, it could lead to fouling of safety related coolers, challenging the heat exchanger heat removal function. The finding is associated with the Mitigating Systems cornerstone. Using IMC 0609 Appendix A, Exhibit 2, the finding screened as green because the finding did not represent an actual loss of function of 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 equipment for greater than 24 hours. The cause of this finding was associated with the human performance area, resources component, cross cutting aspect of maintaining long term plant safety by maintenance of design margins and minimizing preventative maintenance deferrals due to the licensee not allocating resources to clean the intake pump pits. [H.2.(a)]. (Section 1R15)

Inspection Report# : [2013004](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation


Failure to perform MSIV as-found leakage test under suitable conditions

An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XI, “Test Control,” was identified for the licensee’s failure to establish adequate written procedures for the test program to determine MSIV as-found leakage that met the requirements of 10 CFR 50, Criterion XI, Test Control. Specifically, Browns Ferry test procedure 3-SR-3.6.1.3.10 did not specify what suitable testing conditions were required to be established prior to testing. Additionally, the practice of allowing multiple valve strokes prior to testing was contrary to the procedure prerequisite of no allowed preliminary adjustments and constituted unacceptable preconditioning of the tested valves. The licensee’s corrective action was to perform “as-left” leakage measurements under different conditions and enter the issue into the corrective action program as PER 847688.

The finding was more than minor because it adversely affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to determine as-found leakage reduced the ability of the licensee to provide reasonable assurance that the MSIVs would be able to perform their isolation function. The inspectors evaluated the finding using IMC 0609, Appendix A, the Significance Determination Process (SDP) for at-power findings, Exhibit 3 – Barrier Integrity Screening Questions, dated June 19, 2012, and determined the finding was of very low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of reactor containment and did not involve an actual reduction in the function of the hydrogen igniters in the reactor containment. This finding has a cross-cutting aspect in the area of Human Performance, Documentation, because Browns Ferry’s MSIV testing procedures were not complete in that they did not specify all required initial conditions and allowed preconditioning the valves. [H.7] (Section 1R15)

Inspection Report# : [2014002](#) (pdf)

Emergency Preparedness

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: VIO Violation

Failure to maintain emergency response staffing levels

The NRC identified an apparent violation of 10 CFR 50.54(q), Emergency Plans, for the licensee’s failure to maintain plant staffing levels in accordance with NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan. Specifically, the licensee’s process for maintaining minimum emergency response shift staffing failed to adequately maintain staffing of the Shift Technical Advisor (STA) and Incident Commander to ensure initial accident response in all key functional areas. The licensee has entered this issue into their corrective action program as PERs 790092 and 801057.

The inspectors determined the performance deficiency was more than minor because it was associated with the ERO readiness attribute of the emergency preparedness cornerstone and adversely impacted the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the failure to maintain required emergency response staffing levels reduced the licensee's capabilities to respond to an emergency. The inspectors assessed the finding in accordance with Appendix B, Emergency Preparedness Significance Determination Process and determined that this finding represented a Loss of Planning Standard Function and has preliminarily been determined to be a finding of White significance. Because the significance of this finding is not yet finalized, it is being characterized as "To Be Determined (TBD)," pending a final significance determination. The cause of the finding was determined to be associated with the cross-cutting aspect of thorough evaluation of problems in the corrective action component of the problem identification and resolution area because the licensee failed to ensure that issues potentially affecting nuclear safety were thoroughly evaluated. [P.1(c)] (Section 1R11.2.b(1))

Inspection Report# : [2014002](#) (*pdf*)

Inspection Report# : [2013005](#) (*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 : August 29, 2014

Browns Ferry 3 3Q/2014 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to document service water freeze protection deficiencies

The NRC identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion V, Procedures, for the licensee's failure to implement 0-GOI-200-1, Freeze Protection Inspection. Specifically, the licensee failed to enter freeze protection discrepancies into the corrective action program as part of the Freeze Protection Discrepancy List per 0-GOI-200-1 for the residual heat removal service water (RHRSW) and emergency equipment cooling water (EECW) systems. As a corrective action, the licensee entered the required deficiencies onto the Freeze Protection Discrepancy List. The licensee has entered this issue into their corrective action program as problem evaluation reports 800190 and 821426.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that the intake room piping would continue to be exposed to freezing temperatures without adequate freeze protection which could affect RHRSW and EECW systems' ability to perform their safety functions. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. The cause of this finding has a cross-cutting aspect in the Work Practices component of the Human Performance area, because the licensee failed to define and effectively communicate expectations regarding procedural compliance and that personnel follow procedures. [H.4(b)] (Section 1R01)

Inspection Report# : [2013005](#) (*pdf*)

Mitigating Systems

Significance:  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*)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control transient combustible in designated high risk areas

An NRC-identified non-cited violation (NCV) of the T.S. 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to control transient combustible materials in designated high risk areas in Unit 1 and Unit 3. The licensee's corrective action was to remove the combustible materials. The licensee entered this issue into their corrective action program as PER 845630 and 846184.

The performance deficiency was determined to be more than minor, because it was associated with the Protection Against External Factors attribute (Fires) 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. Specifically, leaving unanalyzed transient combustibles in proximity to safety related equipment could affect the equipment's ability to perform its safety function during a credible fire scenario. The finding was characterized according to IMC 0609, Significance Determination Process (SDP), Appendix F, Attachment 1, Fire Protection SDP Phase 1 Worksheet dated September 24, 2013. This issue screened as low safety significance (Green), per Attachment 1 question 1.3 because it did not affect the ability of the reactor to reach and maintain safe shutdown. The cause of this finding was directly related to the Human Performance cross cutting aspect of Change Management. Plant leaders did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the impact of the new procedures for transient combustible controls did not apply change management controls such as site wide communication and training to make workers aware of the new requirements. [H.3] (Section 40A2)

Inspection Report# : [2014002](#) (*pdf*)

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to maintain emergency diesel room floor drains

The NRC-identified a non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion III, Design Control, for the licensee's failure to establish measures to ensure the EDG floor drains maintained the capability of performing their intended function as described their design basis. The licensee's immediate corrective action was to clean all the drains in all the EDG rooms. The licensee has entered this issue into their corrective action program as problem evaluation report 765575.

The finding was more than minor because, if left uncorrected, the performance deficiency would have the potential to lead to a more significant safety concern, in that, the EDG room floor drains could become sufficiently clogged such

that internal flooding would cause the affected EDG to be unable to perform its safety function. The inspectors performed a Phase 1 screening in accordance with IMC 0609, Significance Determination Process, Appendix A, Exhibit 1, Initiating Event screening question E, and determined the finding was of very low safety significance (Green) because it did not impact the frequency of an internal flooding event. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Corrective Action Program Component, because TVA did not identify floor drain issues completely, accurately, and in a timely manner commensurate with their safety significance. [P.1 (a)] (Section 40A2.3)

Inspection Report# : [2013005](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate compensatory actions to minimize the effects of impaired fire protection equipment on fire safe shutdown

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Unit Nos. 1, 2, and 3 Technical Specification 5.4.1.d for the failure to establish procedural guidance to implement compensatory measures for the high pressure fire protection (HPFP) system in support of the Fire Protection Report (FPR) and Safe Shutdown Instructions (SSI). The licensee entered this condition in their corrective action program (CAP) as problem evaluation report (PER) 812090 and issued an operations' Standing Order which supplemented existing fire watch patrol compensatory measures in Fire Area (FA) 25-1. The licensee's failure to establish appropriate compensatory measures supporting the FPR and the SSI to ensure an adequate water supply remained available when the diesel driven fire pump was taken out of service was a performance deficiency. The performance deficiency was more-than-minor because it was associated with the protection against external events (fire) attribute of the Mitigating Systems Cornerstone and that it adversely affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was screened in accordance with NRC IMC 0609, "Significance Determination Process", dated June 2, 2011, Attachment 4 "Initial Characterization of Findings". This screening determined that an IMC 0609, Appendix F "Fire Protection Significance Determination Process" was required because it affected fixed fire protection systems. Attachment 1, Step 1.4.2, "Fixed Fire Protection Systems" screened the finding to very low safety significance (Green) since the impact of a fire in FA 25-1 is limited to no more than one train/division important to safety and that the reactor would be able to reach and maintain safe shutdown condition. The inspectors determined that no cross cutting aspect was applicable to this performance deficiency this finding because the operability requirements and compensatory actions in effect had been developed in the past (1988) and were not indicative of current licensee performance.. (Section R10.10)

Inspection Report# : [2013010](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate evaluation of combustible material control fire protection program change

The inspectors identified a Severity Level IV, non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Renewed Facility Operating License Conditions 2.C.(13), (14), and (7) for Units 1, 2, and 3, respectively, and an associated finding of very low safety significance (Green) for the failure to perform an evaluation of the impact of a change to the Fire Protection Report on the fire protection license conditions, as directed by the licensee's procedure, FPD-3, Management of the Fire Protection Report, Revision 3. The failure to adequately evaluate the impact of the change, which permitted the use of fire retardant treated wood materials as transient fire loads in safety related plant areas without further approval, resulted in the implementation of a change to the Fire Protection Program (FPP) that could have adversely affected the ability to achieve and maintain safe shutdown. The licensee also failed to submit the

FPP change to the NRC for review and approval prior to implementation which impacted the ability of the NRC to perform its regulatory oversight function. The licensee entered the issue into their corrective action program (CAP) as problem evaluation report PER 812091 and issued an operations' Fire Protection Section Instruction Letter to require all wood products to be evaluated when left unattended in any plant fire area. The inspectors determined that this finding was more than minor because if left uncorrected, could become a more significant safety concern. Specifically, if the licensee does not limit transient fire loads (including fire retardant treated wood) to below the capability of suppression systems or fire barrier ratings for a specific fire area as evaluated by the station's fire hazard analysis, a fire could spread to other fire areas and affect the ability to achieve and maintain safe shutdown in the event of a fire. The finding was evaluated using IMC 0609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, Appendix F, "Fire Protection Significance determination Process," issued September 20, 2013, and the inspectors determined the finding was of very low safety significance (Green) because the reactor would have been able to reach and maintain safe shutdown conditions under actual fire loading conditions. The SDP, however, does not specifically consider the regulatory process impact. Thus, although not related to a common regulatory concern, it is necessary to address the violation and finding using different processes to correctly reflect both the regulatory importance of the violation and the safety significance of the associated finding. The traditional enforcement violation was evaluated using the NRC Enforcement Policy, dated January 28, 2013, revised July 9, 2013, and the inspectors determined the violation was SL-IV per Section 6.1.d.2 of the Enforcement Policy, because the associated finding was evaluated by the SDP as having very low safety significance (i.e., Green). The inspectors determined failure to obtain prior NRC approval for fire protection program changes was similar to violations of 10 CFR 50.59 for enforcement purposes. No cross-cutting aspect was assigned to this finding because the cause of the finding was not indicative of present licensee performance, since the change to the Fire Protection Report occurred in 2003. (Section 1R05.11)

Inspection Report# : [2013010](#) (pdf)

Significance:  Nov 08, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to meet the requirements of large fire and explosion mitigation strategies

The inspectors identified a Green non-cited violation (NCV) of Browns Ferry Nuclear Plant (BFN) Units 1, 2 and 3, Renewed Operating License Conditions 2.C(4)(b)(7), 2.C(6)(b)(7) and 2.C(10)(b)(7) respectively, for the licensee's failure to meet the requirements of the license condition for large fires or explosion mitigation strategies as discussed in Enclosure 2.

Inspection Report# : [2013010](#) (pdf)

Barrier Integrity

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform MSIV as-found leakage test under suitable conditions

An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XI, "Test Control," was identified for the licensee's failure to establish adequate written procedures for the test program to determine MSIV as-found leakage that met the requirements of 10 CFR 50, Criterion XI, Test Control. Specifically, Browns Ferry test procedure 3-SR-3.6.1.3.10 did not specify what suitable testing conditions were required to be established prior to testing. Additionally, the practice of allowing multiple valve strokes prior to testing was contrary to the procedure prerequisite of no allowed preliminary adjustments and constituted unacceptable preconditioning of the tested valves.

The licensee's corrective action was to perform "as-left" leakage measurements under different conditions and enter the issue into the corrective action program as PER 847688.

The finding was more than minor because it adversely affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to determine as-found leakage reduced the ability of the licensee to provide reasonable assurance that the MSIVs would be able to perform their isolation function. The inspectors evaluated the finding using IMC 0609, Appendix A, the Significance Determination Process (SDP) for at-power findings, Exhibit 3 – Barrier Integrity Screening Questions, dated June 19, 2012, and determined the finding was of very low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of reactor containment and did not involve an actual reduction in the function of the hydrogen igniters in the reactor containment. This finding has a cross-cutting aspect in the area of Human Performance, Documentation, because Browns Ferry's MSIV testing procedures were not complete in that they did not specify all required initial conditions and allowed preconditioning the valves. [H.7] (Section 1R15)

Inspection Report# : [2014002](#) (*pdf*)

Emergency Preparedness

Significance: **W** Dec 31, 2013

Identified By: NRC

Item Type: VIO Violation

Failure to maintain emergency response staffing levels

The NRC identified an apparent violation of 10 CFR 50.54(q), Emergency Plans, for the licensee's failure to maintain plant staffing levels in accordance with NP-REP, Tennessee Valley Authority Nuclear Power Radiological Emergency Plan. Specifically, the licensee's process for maintaining minimum emergency response shift staffing failed to adequately maintain staffing of the Shift Technical Advisor (STA) and Incident Commander to ensure initial accident response in all key functional areas. The licensee has entered this issue into their corrective action program as PERs 790092 and 801057.

The inspectors determined the performance deficiency was more than minor because it was associated with the ERO readiness attribute of the emergency preparedness cornerstone and adversely impacted the cornerstone objective of ensuring that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the failure to maintain required emergency response staffing levels reduced the licensee's capabilities to respond to an emergency. The inspectors assessed the finding in accordance with Appendix B, Emergency Preparedness Significance Determination Process and determined that this finding represented a Loss of Planning Standard Function and has preliminarily been determined to be a finding of White significance. Because the significance of this finding is not yet finalized, it is being characterized as "To Be Determined (TBD)," pending a final significance determination. The cause of the finding was determined to be associated with the cross-cutting aspect of thorough evaluation of problems in the corrective action component of the problem identification and resolution area because the licensee failed to ensure that issues potentially affecting nuclear safety were thoroughly evaluated. [P.1(c)] (Section 1R11.2.b(1))

Inspection Report# : [2013005](#) (*pdf*)

Inspection Report# : [2014002](#) (*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 : November 26, 2014

Browns Ferry 3 4Q/2014 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Sep 30, 2014

Identified By: NRC

Item Type: NCV NonCited 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 NonCited 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:  Sep 30, 2014

Identified By: NRC

Item Type: NCV NonCited 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:  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*)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to control transient combustible in designated high risk areas

An NRC-identified non-cited violation (NCV) of the T.S. 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to control transient combustible materials in designated high risk areas in Unit 1 and Unit 3. The licensee's corrective action was to remove the combustible materials. The licensee entered this issue into their corrective action program as PER 845630 and 846184.

The performance deficiency was determined to be more than minor, because it was associated with the Protection Against External Factors attribute (Fires) 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. Specifically, leaving unanalyzed transient combustibles in proximity to safety related equipment could affect the equipment's ability to perform its safety function during a credible fire scenario. The finding was characterized according to IMC 0609, Significance Determination Process (SDP), Appendix F, Attachment 1, Fire Protection SDP Phase 1 Worksheet dated September 24, 2013. This issue screened as low safety significance (Green), per Attachment 1 question 1.3 because it did not affect the ability of the reactor to reach and maintain safe shutdown. The cause of this finding was directly related to the Human Performance cross cutting aspect of Change Management. Plant leaders did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, the impact of the new procedures for transient combustible controls did not apply change management controls such as site wide communication and training to make workers aware of the new requirements. [H.3] (Section 4OA2)

Inspection Report# : [2014002](#) (*pdf*)

Barrier Integrity

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to perform MSIV as-found leakage test under suitable conditions

An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XI, “Test Control,” was identified for the licensee’s failure to establish adequate written procedures for the test program to determine MSIV as-found leakage that met the requirements of 10 CFR 50, Criterion XI, Test Control. Specifically, Browns Ferry test procedure 3-SR-3.6.1.3.10 did not specify what suitable testing conditions were required to be established prior to testing. Additionally, the practice of allowing multiple valve strokes prior to testing was contrary to the procedure prerequisite of no allowed preliminary adjustments and constituted unacceptable preconditioning of the tested valves. The licensee’s corrective action was to perform “as-left” leakage measurements under different conditions and enter the issue into the corrective action program as PER 847688.

The finding was more than minor because it adversely affected the Barrier Integrity cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to determine as-found leakage reduced the ability of the licensee to provide reasonable assurance that the MSIVs would be able to perform their isolation function. The inspectors evaluated the finding using IMC 0609, Appendix A, the Significance Determination Process (SDP) for at-power findings, Exhibit 3 – Barrier Integrity Screening Questions, dated June 19, 2012, and determined the finding was of very low safety significance (Green) because it did not represent an actual open pathway in the physical integrity of reactor containment and did not involve an actual reduction in the function of the hydrogen igniters in the reactor containment. This finding has a cross-cutting aspect in the area of Human Performance, Documentation, because Browns Ferry’s MSIV testing procedures were not complete in that they did not specify all required initial conditions and allowed preconditioning the valves. [H.7] (Section 1R15)

Inspection Report# : [2014002](#) (*pdf*)

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

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may be viewed.

Miscellaneous

Last modified : February 26, 2015

Browns Ferry 3

1Q/2015 Plant Inspection Findings

Initiating Events

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:  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:  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:  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*)

Barrier Integrity

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Satisfy TS LCO 3.6.1.3

Green. An NRC identified NCV of Technical Specification Limiting Condition of Operation (TS LCO) 3.6.1.3 was identified for the licensee's failure to satisfy the TS LCO. Specifically, the licensee failed to satisfy the LCO in two instances because two traversing incore probe (TIP) primary containment isolation valves (PCIVs) were inoperable for a duration that exceeded the Technical Specification (TS) Completion Time before the condition was corrected and discovered. Because the valves were operable upon discovery, no immediate corrective action was necessary. The violation was entered into the licensee's corrective action program as PER 1008300.

The performance deficiency was more than minor because it was associated with the SSC & Barrier Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the physical design barrier of containment protects the public from radionuclide releases caused by accidents or events. Because PCIVs 3-FCV-94-504 and 3-FCV-94-505 were inoperable and resulted in the failure to satisfy TS LCO 3.6.1.3, reasonable assurance of the integrity of the containment design barrier was adversely affected. The inspectors determined the finding was Green because the TIP lines are a part of a closed system which would not generally contribute to Large Early Release Frequency (LERF). The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area of Identification [P.1], because individuals did not completely, accurately, and in a timely manner identify that the malfunction of the TIP drive mechanisms impacted PCIV operability. (Section 1R15.2)

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

Emergency Preparedness

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

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*)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Report Condition Prohibited by Technical Specifications

Severity Level IV. An NRC identified non-cited violation (NCV) of 10 CFR 50.73(a)(2)(i)(B) was identified for the licensee's failure to report, within 60 days of discovery, a condition which was prohibited by the plant's Technical Specifications (TS). Specifically, the licensee failed to notify the NRC that in two instances a traversing incore probe

(TIP) primary containment isolation valve (PCIV) was inoperable for a duration that exceeded the Technical Specification (TS) Completion Time. As an immediate corrective action, the licensee entered the issue into its CAP as PER 1008300 and plans to submit an LER.

The licensee's failure to provide a written event report is a traditional enforcement violation because it impacts the NRC's ability to carry out its regulatory function. The traditional enforcement violation was determined to be Severity Level IV because it matched example 6.9.d.9 of the NRC Enforcement Policy. Because the violation is a traditional enforcement violation, no cross-cutting aspect was assigned. (Section 4OA2)

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

Last modified : June 16, 2015

Browns Ferry 3 2Q/2015 Plant Inspection Findings

Initiating Events

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:  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:  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)

Barrier Integrity

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Satisfy TS LCO 3.6.1.3

Green. An NRC identified NCV of Technical Specification Limiting Condition of Operation (TS LCO) 3.6.1.3 was identified for the licensee's failure to satisfy the TS LCO. Specifically, the licensee failed to satisfy the LCO in two instances because two traversing incore probe (TIP) primary containment isolation valves (PCIVs) were inoperable for a duration that exceeded the Technical Specification (TS) Completion Time before the condition was corrected and discovered. Because the valves were operable upon discovery, no immediate corrective action was necessary. The violation was entered into the licensee's corrective action program as PER 1008300.

The performance deficiency was more than minor because it was associated with the SSC & Barrier Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the physical design barrier of containment protects the public from radionuclide releases caused by accidents or events. Because PCIVs 3-FCV-94-504 and 3-FCV-94-505 were inoperable and resulted in the failure to satisfy TS LCO 3.6.1.3, reasonable assurance of the integrity of the containment design barrier was adversely affected. The inspectors determined the finding was Green because the TIP lines are a part of a closed system which would not generally contribute to Large Early Release Frequency (LERF). The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area of Identification [P.1], because individuals did not completely, accurately, and in a timely manner identify that the malfunction of the TIP drive mechanisms impacted PCIV operability. (Section 1R15.2)

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

Emergency Preparedness

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

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*)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Report Condition Prohibited by Technical Specifications

Severity Level IV. An NRC identified non-cited violation (NCV) of 10 CFR 50.73(a)(2)(i)(B) was identified for the licensee's failure to report, within 60 days of discovery, a condition which was prohibited by the plant's Technical Specifications (TS). Specifically, the licensee failed to notify the NRC that in two instances a traversing incore probe (TIP) primary containment isolation valve (PCIV) was inoperable for a duration that exceeded the Technical Specification (TS) Completion Time. As an immediate corrective action, the licensee entered the issue into its CAP as PER 1008300 and plans to submit an LER.

The licensee's failure to provide a written event report is a traditional enforcement violation because it impacts the NRC's ability to carry out its regulatory function. The traditional enforcement violation was determined to be Severity Level IV because it matched example 6.9.d.9 of the NRC Enforcement Policy. Because the violation is a traditional enforcement violation, no cross-cutting aspect was assigned. (Section 4OA2)

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

Last modified : August 07, 2015

Browns Ferry 3

3Q/2015 Plant Inspection Findings

Initiating Events

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:  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*)

Barrier Integrity

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Satisfy TS LCO 3.6.1.3

Green. An NRC identified NCV of Technical Specification Limiting Condition of Operation (TS LCO) 3.6.1.3 was identified for the licensee's failure to satisfy the TS LCO. Specifically, the licensee failed to satisfy the LCO in two instances because two traversing incore probe (TIP) primary containment isolation valves (PCIVs) were inoperable for a duration that exceeded the Technical Specification (TS) Completion Time before the condition was corrected and discovered. Because the valves were operable upon discovery, no immediate corrective action was necessary. The violation was entered into the licensee's corrective action program as PER 1008300.

The performance deficiency was more than minor because it was associated with the SSC & Barrier Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the physical design barrier of containment protects the public from radionuclide releases caused by accidents or events. Because PCIVs 3-FCV-94-504 and 3-FCV-94-505 were inoperable and resulted in the failure to satisfy TS LCO 3.6.1.3, reasonable assurance of the integrity of the containment design barrier was adversely affected. The inspectors determined the finding was Green because the TIP lines are a part of a closed system which would not generally contribute to Large Early Release Frequency (LERF). The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area of Identification [P.1], because individuals did not completely, accurately, and in a timely manner identify that the malfunction of the TIP drive mechanisms impacted PCIV operability. (Section 1R15.2)

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

Emergency Preparedness

Occupational Radiation Safety

Public Radiation Safety

Security

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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*)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Report Condition Prohibited by Technical Specifications

Severity Level IV. An NRC identified non-cited violation (NCV) of 10 CFR 50.73(a)(2)(i)(B) was identified for the licensee's failure to report, within 60 days of discovery, a condition which was prohibited by the plant's Technical Specifications (TS). Specifically, the licensee failed to notify the NRC that in two instances a traversing incore probe (TIP) primary containment isolation valve (PCIV) was inoperable for a duration that exceeded the Technical Specification (TS) Completion Time. As an immediate corrective action, the licensee entered the issue into its CAP as PER 1008300 and plans to submit an LER.

The licensee's failure to provide a written event report is a traditional enforcement violation because it impacts the NRC's ability to carry out its regulatory function. The traditional enforcement violation was determined to be Severity Level IV because it matched example 6.9.d.9 of the NRC Enforcement Policy. Because the violation is a traditional enforcement violation, no cross-cutting aspect was assigned. (Section 4OA2)

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

Last modified : December 15, 2015

Browns Ferry 3 4Q/2015 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to develop a PM schedule that specified inspection of the EDG neutral grounding resistor

A NRC-identified non-cited violation (NCV) of Technical Specifications (TS)

5.4.1 was identified for the failure to develop a preventive maintenance (PM) schedule that specified inspection of the Emergency Diesel Generators (EDG) neutral grounding resistor as recommended by Regulatory Guide (RG) 1.33, 9.b. Specifically, procedures failed to provide proper guidance to maintain the grounding resistor in accordance with design basis as described in the UFSAR and electrical calculations. Upon identification of the issue, the licensee performed a visual inspection of the resistor and determined that it was functional based on no signs of physical degradation or damage. The licensee entered this issue into the corrective action program (CAP) as CR1114779 to evaluate and implement appropriate corrective actions.

This performance deficiency was more than minor because if left uncorrected it could result in a more significant safety concern. Specifically, lack of inspections of the secondary grounding resistor could allow for an undetected condition which would cause transient voltages capable of damaging safety related equipment. The finding was screened for significance using the Mitigating Systems cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated June 19, 2012, and was determined to be of very low safety significance (Green) using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding affected the design or qualification of a Mitigating SSC, and the SSC maintained its operability as documented in CR 1114779. No cross-cutting was assigned because it is not indicative of current licensee performance.

Inspection Report# : [2015007](#) (*pdf*)

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Identify a Condition Adverse to Quality Associated with HPCI Turbine Exhaust System

Green. An NRC identified NCV of 10 CFR Part 50, Appendix B, Criterion XVI was identified for the licensee's failure to establish measures to promptly identify a condition adverse to quality involving the malfunction of the High Pressure Coolant Injection (HPCI) turbine exhaust system. Upon discovery of the malfunction, the licensee took

action to determine that HPCI remained operable despite the degraded and nonconforming condition. The licensee is developing corrective actions to resolve the degraded and nonconforming condition. The licensee entered the violation into the licensee's corrective action program as CR 1098320.

The performance deficiency was more-than-minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the performance deficiency resulted in the HPCI system being operated with an unidentified degraded/non-conforming condition which degraded the system capability and challenged system operability. The inspectors determined the finding was Green because the finding was a deficiency affecting the qualification of HPCI, but based on the licensee's evaluations, operability was maintained. The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area of Evaluation [P.2], because the licensee did not thoroughly evaluate an abnormal system condition to ensure that resolutions addressed causes commensurate with their safety significance.

Inspection Report# : [2015003](#) (*pdf*)

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*)

Barrier Integrity

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Specify Adequate Instrument Ranges for MSIV Leakage Testing

A NRC identified NCV of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XI, "Test Control," was identified for the failure to specify adequate test instrumentation for performing MSIV leak rate testing. Specifically, the licensee test procedure allowed the use of high range test instruments to measure low leakage rates while performing the combined leak rate testing on the Unit 1 B Main Steam Line. This resulted in instrument uncertainties large enough to impact the validity of the test results. The licensee immediately entered this issue into their corrective action program as CR 1117381. The licensee performed an evaluation and determined that the latest test results provided reasonable assurance of operability.

This performance deficiency was more than minor because if left uncorrected had the potential to lead to a more significant safety concern by masking the failure to meet test acceptance criteria. The finding was screened for significance using the Barrier Integrity cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated 7/1/2012, and IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated 7/1/2012, and was determined to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment. This finding was assigned a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not initiate a corrective action to identify the cause of the negative leak rate results obtained during the recent performance of the test procedure (P.1).

Inspection Report# : [2015007](#) (pdf)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Satisfy TS LCO 3.6.1.3

Green. An NRC identified NCV of Technical Specification Limiting Condition of Operation (TS LCO) 3.6.1.3 was identified for the licensee's failure to satisfy the TS LCO. Specifically, the licensee failed to satisfy the LCO in two instances because two traversing incore probe (TIP) primary containment isolation valves (PCIVs) were inoperable for a duration that exceeded the Technical Specification (TS) Completion Time before the condition was corrected and discovered. Because the valves were operable upon discovery, no immediate corrective action was necessary. The violation was entered into the licensee's corrective action program as PER 1008300.

The performance deficiency was more than minor because it was associated with the SSC & Barrier Performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that the physical design barrier of containment protects the public from radionuclide releases caused by accidents or events. Because PCIVs 3-FCV-94-504 and 3-FCV-94-505 were inoperable and resulted in the failure to satisfy TS LCO 3.6.1.3, reasonable assurance of the integrity of the containment design barrier was adversely affected. The inspectors determined the finding was Green because the TIP lines are a part of a closed system which would not generally contribute to Large Early Release Frequency (LERF). The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area of Identification [P.1], because individuals did not completely, accurately, and in a timely manner identify that the malfunction of the TIP drive mechanisms impacted PCIV operability. (Section 1R15.2)

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

Emergency Preparedness

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

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*)

Significance:  Mar 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Report Condition Prohibited by Technical Specifications

Severity Level IV. An NRC identified non-cited violation (NCV) of 10 CFR 50.73(a)(2)(i)(B) was identified for the licensee's failure to report, within 60 days of discovery, a condition which was prohibited by the plant's Technical Specifications (TS). Specifically, the licensee failed to notify the NRC that in two instances a traversing incore probe (TIP) primary containment isolation valve (PCIV) was inoperable for a duration that exceeded the Technical Specification (TS) Completion Time. As an immediate corrective action, the licensee entered the issue into its CAP as PER 1008300 and plans to submit an LER.

The licensee's failure to provide a written event report is a traditional enforcement violation because it impacts the NRC's ability to carry out its regulatory function. The traditional enforcement violation was determined to be Severity Level IV because it matched example 6.9.d.9 of the NRC Enforcement Policy. Because the violation is a traditional enforcement violation, no cross-cutting aspect was assigned. (Section 4OA2)

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

Last modified : March 01, 2016

Browns Ferry 3

1Q/2016 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify Applicable Technical Specification Action Statement for a PCIV

. An NRC identified non-cited violation (NCV) of Technical Specification (TS) 5.4.1, Procedures, for the licensee's failure to implement OPDP-8, Operability Determinations and LCO Tracking. Specifically, the licensee failed to track the applicability of condition 'A' of TS LCO 3.6.1.3 upon discovery of the equipment failure related to the Residual Heat Removal (RHR) Shutdown Cooling (SDC) inboard suction valve as described in LER 05000296/2014-003-00. As an immediate corrective action, the licensee entered the violation into the corrective action program as CR 1115172.

The performance deficiency was more-than-minor because, if left uncorrected, would have the potential to lead to a more significant safety concern. Specifically, this failure was indicative of a programmatic weakness with the licensee's evaluation of certain logic circuit failures which can result in misapplication of the allowances of TS LCO 3.0.6 and inappropriate TS LCO entries. The inspectors determined that this type of error was likely to recur which could lead to worse errors if uncorrected. The inspectors determined the finding was Green because the error did not result in an actual open pathway in the physical integrity of reactor containment, containment isolation system or heat removal components. The inspectors determined that the finding had a cross-cutting aspect of Training in the area of Human Performance because the finding was indicative of a knowledge gap among the operations department (H.9)

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

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Properly Assess and Manage Risk During Planned Maintenance Activities

A self-revealing non-cited violation (NCV) of 10 CFR Part 50.65(a)(4) was identified for the licensee's failure to properly assess and manage the risk associated with performing maintenance on the Standby Gas Treatment (SBGT) system piping . Specifically, the licensee failed to evaluate the effects of excavation activities associated with the SBGT piping repairs on the condensing coils of the Control Bay (CB) chillers which resulted in the fouling of the condensing coils of the 'A' CB chiller. The licensee's immediate corrective action was to clean the 'A' CB chiller condensing coils and restore it to an operable status. The issue was entered into the licensee's corrective action program (CAP) as CR 1056829.

The performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability,

reliability, and capability of systems that respond to events and prevent undesirable consequences. Specifically, with the 'B' CB chiller out of service for maintenance, the 'A' CB chiller lost the ability to perform its safety function due to excessive dirt buildup caused, in part, by the nearby excavation activities. The inspectors characterized the finding using IMC 0609, Appendix A, Significance Determination Process, Exhibit 2, Mitigating Systems. The finding was screened to Green because although the 'A' CB chiller was inoperable, the performance deficiency did not cause the loss of system function, and the inoperability did not exceed the 24 hours. The finding does not represent an immediate safety concern because the licensee had cleaned the 'A' CB chiller condensing coils and restored the system's safety function. A cross cutting aspect of Teamwork was assigned due to the licensee's Engineering, Maintenance, Work Control, and Operations staffs' failure to adequately coordinate or communicate prior to commencing the 'B' CB chiller maintenance. (H.4)

Inspection Report# : [2015004](#) (pdf)

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to develop a PM schedule that specified inspection of the EDG neutral grounding resistor

A NRC-identified non-cited violation (NCV) of Technical Specifications (TS)

5.4.1 was identified for the failure to develop a preventive maintenance (PM) schedule that specified inspection of the Emergency Diesel Generators (EDG) neutral grounding resistor as recommended by Regulatory Guide (RG) 1.33, 9.b. Specifically, procedures failed to provide proper guidance to maintain the grounding resistor in accordance with design basis as described in the UFSAR and electrical calculations. Upon identification of the issue, the licensee performed a visual inspection of the resistor and determined that it was functional based on no signs of physical degradation or damage. The licensee entered this issue into the corrective action program (CAP) as CR1114779 to evaluate and implement appropriate corrective actions.

This performance deficiency was more than minor because if left uncorrected it could result in a more significant safety concern. Specifically, lack of inspections of the secondary grounding resistor could allow for an undetected condition which would cause transient voltages capable of damaging safety related equipment. The finding was screened for significance using the Mitigating Systems cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated June 19, 2012, and was determined to be of very low safety significance (Green) using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding affected the design or qualification of a Mitigating SSC, and the SSC maintained its operability as documented in CR 1114779. No cross-cutting was assigned because it is not indicative of current licensee performance.

Inspection Report# : [2015007](#) (pdf)

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Identify a Condition Adverse to Quality Associated with HPCI Turbine Exhaust System

Green. An NRC identified NCV of 10 CFR Part 50, Appendix B, Criterion XVI was identified for the licensee's failure to establish measures to promptly identify a condition adverse to quality involving the malfunction of the High Pressure Coolant Injection (HPCI) turbine exhaust system. Upon discovery of the malfunction, the licensee took action to determine that HPCI remained operable despite the degraded and

nonconforming condition. The licensee is developing corrective actions to resolve the degraded and nonconforming condition. The licensee entered the violation into the licensee's corrective action program as CR 1098320.

The performance deficiency was more-than-minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the performance deficiency resulted in the HPCI system being operated with an unidentified degraded/non-conforming condition which degraded the system capability and challenged system operability. The inspectors determined the finding was Green because the finding was a deficiency affecting the qualification of HPCI, but based on the licensee's evaluations, operability was maintained. The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area of Evaluation [P.2], because the licensee did not thoroughly evaluate an abnormal system condition to ensure that resolutions addressed causes commensurate with their safety significance.

Inspection Report# : [2015003](#) (*pdf*)

Barrier Integrity

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Specify Adequate Instrument Ranges for MSIV Leakage Testing

A NRC identified NCV of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XI, "Test Control," was identified for the failure to specify adequate test instrumentation for performing MSIV leak rate testing. Specifically, the licensee test procedure allowed the use of high range test instruments to measure low leakage rates while performing the combined leak rate testing on the Unit 1 B Main Steam Line. This resulted in instrument uncertainties large enough to impact the validity of the test results. The licensee immediately entered this issue into their corrective action program as CR 1117381. The licensee performed an evaluation and determined that the latest test results provided reasonable assurance of operability.

This performance deficiency was more than minor because if left uncorrected had the potential to lead to a more significant safety concern by masking the failure to meet test acceptance criteria. The finding was screened for significance using the Barrier Integrity cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated 7/1/2012, and IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated 7/1/2012, and was determined to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment.

This finding was assigned a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not initiate a corrective action to identify the cause of the negative leak rate results obtained during the recent performance of the test procedure (P.1).

Inspection Report# : [2015007](#) (*pdf*)

Emergency Preparedness

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to adequately maintain emergency plan implementing procedures

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR), Part 50.54(q)(2), for the licensee's failure to maintain the effectiveness of its emergency plan by ensuring procedures for use by the emergency response organization are maintained and up-to-date as required by 10 CFR 50.47(b)(16). Corrective actions already taken were implementation of a revision (49) to EPIP-5, effective January 7, 2016, essentially replacing Section 3.6 and references to appropriate Appendices, and a broader scope EOC to review all site EPIPs to ensure no other inadvertent omissions were made.

The inspectors determined that the performance deficiency was more than minor because it was associated with the procedure quality attribute of the Emergency Preparedness (EP) cornerstone, adversely affected the associated cornerstone objective, and may have been used had an emergency been declared. The finding was evaluated using the EP significance determination process and was identified as having very low safety significance (Green) because it was a failure to comply with NRC requirements and was not a loss of the planning standard function. The finding was associated with a cross-cutting aspect in the Evaluation component of the Problem Identification and Resolution area because the licensee failed to thoroughly evaluate a similar issue at one of its other sites to ensure extent of conditions commensurate with their safety significance are thoroughly resolved. [P.2]

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

Occupational Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

A self-revealing, Non-cited Violation (NCV) of Technical Specification (TS) 5.7.1, was identified for a worker who entered a High Radiation Area (HRA) without proper authorization. Specifically, the worker entered a posted HRA located outside the Radwaste Ventilation Equipment Room without receiving a HRA briefing, and subsequently received a dose rate alarm. This issue was entered into the licensee's corrective action program as Condition Report (CR) 1072342, and the licensee took immediate corrective actions including surveys of the area, and restricting the worker's access to the Radiologically Controlled Area.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and Radiation Protection (RP) Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Procedural

Adherence [H.8] because the event was a direct result of the worker's failure to adhere to requirements for HRA access.

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unposted High Radiation Areas

A self-revealing, NCV of 10 CFR 20.1902(b), with two examples, was identified for the failure to post multiple HRAs. Specifically, areas within the Unit 2 (U2) Control Rod Drive Rebuild Room and U2 Reactor Water Cleanup Holding Pump Room contained dose rates exceeding 100 mrem/hr at 30 cm and remained unposted for several months during 2015. These issues were entered into the licensee's corrective action program as CR 1017294, CR 1023385, and CR 1119944, and the licensee took immediate corrective actions to correctly post the areas, performed surveys to evaluate the extent of condition, and performed an Apparent Cause Evaluation.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and RP Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Documentation [H.7] because the unposted high radiation areas were a direct result of the failure to identify documented radiological conditions that required additional posting and control.

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

Public Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include the Correct Proper Shipping Name on Radioactive Material Shipping Papers

The inspectors identified a NCV of 10 CFR 71.5 for the failure to include the correct Proper Shipping Name (PSN) on radioactive material shipping papers in accordance with the requirements of Department of Transportation (DOT) regulation 49 CFR 172.202. This resulted in multiple Low Specific Activity (LSA) shipments containing quantities exceeding an A2 value being shipped as "UN2915, Radioactive Material, Type A Package". The licensee documented this issue in CR 1145617 and took immediate corrective actions including updating the software used to perform shipping activities and additional training of personnel.

The performance deficiency was greater than minor because it was associated with the Public Radiation Safety Cornerstone, Program & Process attribute (transportation program), and adversely affected the associated cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The inspectors determined the finding to be of very low safety significance (Green) because the issue involved transportation, but there were no radiation

limits exceeded, and there was no package breach. In addition, it did not involve a Certificate of Compliance or low-level burial problem, nor was there a failure to make notifications or provide emergency response information. The finding has a cross-cutting aspect in the area of Human Performance, Training [H.9], because the DOT requirements pertaining to LSA shipments were not well understood.

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

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 : July 11, 2016

Browns Ferry 3 2Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: FIN Finding

Failure to Provide Adequate Maintenance Results in Loss of Core Flow While Shutdown

A self-revealing, finding associated with the licensee's failure to provide adequate work instructions for performing maintenance on the discharge valves for 3A and 3B Recirculation Pump motors. This resulted in three consecutive pump trips and a complete loss of RCS core flow when time to boil was less than three hours. Upon discovery that a drawing error had resulted in an incorrect limit switch setting, a work order was created and performed to return the design feature to the proper settings. This resulted in correcting the pump start feature. The licensee initiated CRs 1151665 and 1151935 to address the inadequate post maintenance work instructions.

The failure to provide adequate work instructions for maintenance on the Unit 3 recirculation pump discharge valve motors which included appropriate testing as described in NPG – SPP 06.9.3 Post Modification testing, was a performance deficiency. The performance deficiency was more than minor because it affected the equipment performance attribute of the Initiating Systems Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown operations. The inspector performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix G, Attachment 3, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings" and determined that the finding was of very low safety significance. This finding had a cross-cutting aspect in the area of human performance because Browns Ferry work planners did not ensure that design documentation was correct and that work packages provided the proper tests to ensure the Variable Frequency Drives (VFD) / Recirculation pump trip logic was properly coordinated with the discharge valve MOV limit switches [H.7].

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

Mitigating Systems

Significance:  Apr 15, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include Required Gasket Replacement in Limit Switch Surveillance Procedure

An NRC-identified non-cited violation (NCV) of Title 10, Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to include vendor requirements for maintaining the environmental qualification of the main steam isolation valve (MSIV) limit switches in maintenance procedures. Specifically, not maintaining the MSIV limit switches in their qualified condition impacts their reliability. The licensee entered this issue into the corrective action program as CR 1160702. The licensee evaluated the impact of the

incorrect guidance, and determined that all three units were affected, and that the MSIV limit switches remained operable, although they were in an unqualified condition. The licensee plans to correct the affected procedures.

This performance deficiency was more than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance 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, not maintaining the MSIV limit switches in their qualified condition impacted their reliability. The team used IMC 0609, Att. 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, App. A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. The team determined that no cross-cutting aspect was applicable because the finding was not indicative of current licensee performance.

Inspection Report# : [2016010](#) (*pdf*)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify Applicable Technical Specification Action Statement for a PCIV

. An NRC identified non-cited violation (NCV) of Technical Specification (TS) 5.4.1, Procedures, for the licensee's failure to implement OPDP-8, Operability Determinations and LCO Tracking. Specifically, the licensee failed to track the applicability of condition 'A' of TS LCO 3.6.1.3 upon discovery of the equipment failure related to the Residual Heat Removal (RHR) Shutdown Cooling (SDC) inboard suction valve as described in LER 05000296/2014-003-00. As an immediate corrective action, the licensee entered the violation into the corrective action program as CR 1115172.

The performance deficiency was more-than-minor because, if left uncorrected, would have the potential to lead to a more significant safety concern. Specifically, this failure was indicative of a programmatic weakness with the licensee's evaluation of certain logic circuit failures which can result in misapplication of the allowances of TS LCO 3.0.6 and inappropriate TS LCO entries. The inspectors determined that this type of error was likely to recur which could lead to worse errors if uncorrected. The inspectors determined the finding was Green because the error did not result in an actual open pathway in the physical integrity of reactor containment, containment isolation system or heat removal components. The inspectors determined that the finding had a cross-cutting aspect of Training in the area of Human Performance because the finding was indicative of a knowledge gap among the operations department (H.9)

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

Significance:  Feb 25, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Identify Conditions Adverse to Quality Associated with RHRSW Room Flood Barriers

An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to promptly identify conditions adverse to quality associated with deficient flood barrier penetrations in the 'B' Residual Heat Removal Service Water (RHRSW) compartment. As an immediate corrective action, the licensee evaluated the deficiencies and determined that the equipment in the room would remain

operable during a design basis flood. The violation was entered into the licensee's corrective action program as CR 1119892.

The performance deficiency was more-than-minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the capability of the flood protection function of the 'B' RHRSW compartment was adversely affected due to the presence of degraded penetrations. The finding was screened using IMC 0609 Appendix A, Exhibit 4, "External Events Screening Questions," dated June 19, 2012. The finding screened as very low safety significance (Green) because the finding would not cause a plant trip, initiating event, degrade two or more trains of a multi-train system or function, and it would not degrade one or more trains of a system that supports a risk significant system or function. Additionally, the finding did not involve the total loss of any safety function. The inspectors determined that the finding had a cross-cutting aspect in the Human Performance area of Conservative Bias (H.14) because personnel characterized the potential deficiencies as "not unacceptable" rather than establishing that final acceptability was still in question which required timely resolution.

Inspection Report# : [2016007](#) (pdf)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Properly Assess and Manage Risk During Planned Maintenance Activities

A self-revealing non-cited violation (NCV) of 10 CFR Part 50.65(a)(4) was identified for the licensee's failure to properly assess and manage the risk associated with performing maintenance on the Standby Gas Treatment (SBGT) system piping. Specifically, the licensee failed to evaluate the effects of excavation activities associated with the SBGT piping repairs on the condensing coils of the Control Bay (CB) chillers which resulted in the fouling of the condensing coils of the 'A' CB chiller. The licensee's immediate corrective action was to clean the 'A' CB chiller condensing coils and restore it to an operable status. The issue was entered into the licensee's corrective action program (CAP) as CR 1056829.

The performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to events and prevent undesirable consequences. Specifically, with the 'B' CB chiller out of service for maintenance, the 'A' CB chiller lost the ability to perform its safety function due to excessive dirt buildup caused, in part, by the nearby excavation activities. The inspectors characterized the finding using IMC 0609, Appendix A, Significance Determination Process, Exhibit 2, Mitigating Systems. The finding was screened to Green because although the 'A' CB chiller was inoperable, the performance deficiency did not cause the loss of system function, and the inoperability did not exceed the 24 hours. The finding does not represent an immediate safety concern because the licensee had cleaned the 'A' CB chiller condensing coils and restored the system's safety function. A cross cutting aspect of Teamwork was assigned due to the licensee's Engineering, Maintenance, Work Control, and Operations staffs' failure to adequately coordinate or communicate prior to commencing the 'B' CB chiller maintenance. (H.4)

Inspection Report# : [2015004](#) (pdf)

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to develop a PM schedule that specified inspection of the EDG neutral grounding resistor

A NRC-identified non-cited violation (NCV) of Technical Specifications (TS)

5.4.1 was identified for the failure to develop a preventive maintenance (PM) schedule that specified inspection of the Emergency Diesel Generators (EDG) neutral grounding resistor as recommended by Regulatory Guide (RG) 1.33, 9.b. Specifically, procedures failed to provide proper guidance to maintain the grounding resistor in accordance with design basis as described in the UFSAR and electrical calculations. Upon identification of the issue, the licensee performed a visual inspection of the resistor and determined that it was functional based on no signs of physical degradation or damage. The licensee entered this issue into the corrective action program (CAP) as CR1114779 to evaluate and implement appropriate corrective actions.

This performance deficiency was more than minor because if left uncorrected it could result in a more significant safety concern. Specifically, lack of inspections of the secondary grounding resistor could allow for an undetected condition which would cause transient voltages capable of damaging safety related equipment. The finding was screened for significance using the Mitigating Systems cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated June 19, 2012, and was determined to be of very low safety significance (Green) using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding affected the design or qualification of a Mitigating SSC, and the SSC maintained its operability as documented in CR 1114779. No cross-cutting was assigned because it is not indicative of current licensee performance.

Inspection Report# : [2015007](#) (pdf)

Significance:  Sep 30, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Identify a Condition Adverse to Quality Associated with HPCI Turbine Exhaust System

Green. An NRC identified NCV of 10 CFR Part 50, Appendix B, Criterion XVI was identified for the licensee's failure to establish measures to promptly identify a condition adverse to quality involving the malfunction of the High Pressure Coolant Injection (HPCI) turbine exhaust system. Upon discovery of the malfunction, the licensee took action to determine that HPCI remained operable despite the degraded and nonconforming condition. The licensee is developing corrective actions to resolve the degraded and nonconforming condition. The licensee entered the violation into the licensee's corrective action program as CR 1098320.

The performance deficiency was more-than-minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the performance deficiency resulted in the HPCI system being operated with an unidentified degraded/non-conforming condition which degraded the system capability and challenged system operability. The inspectors determined the finding was Green because the finding was a deficiency affecting the qualification of HPCI, but based on the licensee's evaluations, operability was maintained. The inspectors determined that the finding had a cross-cutting aspect in the Problem Identification and Resolution area of Evaluation [P.2], because the licensee did not thoroughly evaluate an abnormal system condition to ensure that resolutions addressed causes commensurate with their safety significance.

Inspection Report# : [2015003](#) (pdf)

Barrier Integrity

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Specify Adequate Instrument Ranges for MSIV Leakage Testing

A NRC identified NCV of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XI, "Test Control," was identified for the failure to specify adequate test instrumentation for performing MSIV leak rate testing. Specifically, the licensee test procedure allowed the use of high range test instruments to measure low leakage rates while performing the combined leak rate testing on the Unit 1 B Main Steam Line. This resulted in instrument uncertainties large enough to impact the validity of the test results. The licensee immediately entered this issue into their corrective action program as CR 1117381. The licensee performed an evaluation and determined that the latest test results provided reasonable assurance of operability.

This performance deficiency was more than minor because if left uncorrected had the potential to lead to a more significant safety concern by masking the failure to meet test acceptance criteria. The finding was screened for significance using the Barrier Integrity cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated 7/1/2012, and IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated 7/1/2012, and was determined to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment. This finding was assigned a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not initiate a corrective action to identify the cause of the negative leak rate results obtained during the recent performance of the test procedure (P.1).

Inspection Report# : [2015007](#) (*pdf*)

Emergency Preparedness

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Declare Notification of Unusual Event

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR) Part 50.54 (q)(2), when the licensee failed to declare a Notification of Unusual Event (NOUE) within 15 minutes of entry conditions being met. Specifically, on April 6, 2016, at 3:05 pm, Browns Ferry Unit 3 main control room (MCR) operators received a high-high radiation alarm on the main steam lines (MSL) that met Emergency Action Level (EAL) 1.4-U for declaring a NOUE.

The failure to declare a NOUE when an EAL entry criteria had been met was considered a performance deficiency. This finding is more than minor because it was associated with the Emergency Preparedness cornerstone attribute of

Emergency Response Organization Performance, and adversely affected the cornerstone objective of ensuring that a licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, on April 6, 2016, personnel did not declare a NOUE within 15 minutes of initial indications that EAL 1.4-U had been exceeded. The performance deficiency is associated with the Emergency Classification Planning Standard, which is considered a Risk Significant planning Standard (RSPS). The failure to declare a NOUE when directed by the EAL Matrix is considered a lost or degraded RSPS in accordance with Section 4 of Inspection Manual Chapter (IMC) 0609, Appendix B. Section 4.3.e of IMC 0609, Appendix B, provides the significance determination for a "Failure to Implement," and the performance deficiency was determined to be of very low safety significance (Green). The finding was associated with a cross-cutting aspect in the Procedure Adherence component of the Human Performance area because individuals did not follow processes, procedures and work instructions that would have led them to declare in a timely manner [H.8].

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to adequately maintain emergency plan implementing procedures

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR), Part 50.54(q)(2), for the licensee's failure to maintain the effectiveness of its emergency plan by ensuring procedures for use by the emergency response organization are maintained and up-to-date as required by 10 CFR 50.47(b)(16). Corrective actions already taken were implementation of a revision (49) to EPIP-5, effective January 7, 2016, essentially replacing Section 3.6 and references to appropriate Appendices, and a broader scope EOC to review all site EIPs to ensure no other inadvertent omissions were made.

The inspectors determined that the performance deficiency was more than minor because it was associated with the procedure quality attribute of the Emergency Preparedness (EP) cornerstone, adversely affected the associated cornerstone objective, and may have been used had an emergency been declared. The finding was evaluated using the EP significance determination process and was identified as having very low safety significance (Green) because it was a failure to comply with NRC requirements and was not a loss of the planning standard function. The finding was associated with a cross-cutting aspect in the Evaluation component of the Problem Identification and Resolution area because the licensee failed to thoroughly evaluate a similar issue at one of its other sites to ensure extent of conditions commensurate with their safety significance are thoroughly resolved. [P.2]

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

Occupational Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

A self-revealing, Non-cited Violation (NCV) of Technical Specification (TS) 5.7.1, was identified for a worker who entered a High Radiation Area (HRA) without proper authorization. Specifically, the worker entered a posted HRA located outside the Radwaste Ventilation Equipment Room without receiving a HRA briefing, and subsequently received a dose rate alarm. This issue was entered into the licensee's corrective action program as Condition Report

(CR) 1072342, and the licensee took immediate corrective actions including surveys of the area, and restricting the worker's access to the Radiologically Controlled Area.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and Radiation Protection (RP) Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Procedural Adherence [H.8] because the event was a direct result of the worker's failure to adhere to requirements for HRA access.

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unposted High Radiation Areas

A self-revealing, NCV of 10 CFR 20.1902(b), with two examples, was identified for the failure to post multiple HRAs. Specifically, areas within the Unit 2 (U2) Control Rod Drive Rebuild Room and U2 Reactor Water Cleanup Holding Pump Room contained dose rates exceeding 100 mrem/hr at 30 cm and remained unposted for several months during 2015. These issues were entered into the licensee's corrective action program as CR 1017294, CR 1023385, and CR 1119944, and the licensee took immediate corrective actions to correctly post the areas, performed surveys to evaluate the extent of condition, and performed an Apparent Cause Evaluation.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and RP Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Documentation [H.7] because the unposted high radiation areas were a direct result of the failure to identify documented radiological conditions that required additional posting and control.

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

Public Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include the Correct Proper Shipping Name on Radioactive Material Shipping Papers

The inspectors identified a NCV of 10 CFR 71.5 for the failure to include the correct Proper Shipping Name (PSN) on radioactive material shipping papers in accordance with the requirements of Department of Transportation (DOT)

regulation 49 CFR 172.202. This resulted in multiple Low Specific Activity (LSA) shipments containing quantities exceeding an A2 value being shipped as “UN2915, Radioactive Material, Type A Package”. The licensee documented this issue in CR 1145617 and took immediate corrective actions including updating the software used to perform shipping activities and additional training of personnel.

The performance deficiency was greater than minor because it was associated with the Public Radiation Safety Cornerstone, Program & Process attribute (transportation program), and adversely affected the associated cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The inspectors determined the finding to be of very low safety significance (Green) because the issue involved transportation, but there were no radiation limits exceeded, and there was no package breach. In addition, it did not involve a Certificate of Compliance or low-level burial problem, nor was there a failure to make notifications or provide emergency response information. The finding has a cross-cutting aspect in the area of Human Performance, Training [H.9], because the DOT requirements pertaining to LSA shipments were not well understood.

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

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 : August 29, 2016

Browns Ferry 3 3Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: FIN Finding

Failure to Provide Adequate Maintenance Results in Loss of Core Flow While Shutdown

A self-revealing, finding associated with the licensee's failure to provide adequate work instructions for performing maintenance on the discharge valves for 3A and 3B Recirculation Pump motors. This resulted in three consecutive pump trips and a complete loss of RCS core flow when time to boil was less than three hours. Upon discovery that a drawing error had resulted in an incorrect limit switch setting, a work order was created and performed to return the design feature to the proper settings. This resulted in correcting the pump start feature. The licensee initiated CRs 1151665 and 1151935 to address the inadequate post maintenance work instructions.

The failure to provide adequate work instructions for maintenance on the Unit 3 recirculation pump discharge valve motors which included appropriate testing as described in NPG – SPP 06.9.3 Post Modification testing, was a performance deficiency. The performance deficiency was more than minor because it affected the equipment performance attribute of the Initiating Systems Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown operations. The inspector performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix G, Attachment 3, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings" and determined that the finding was of very low safety significance. This finding had a cross-cutting aspect in the area of human performance because Browns Ferry work planners did not ensure that design documentation was correct and that work packages provided the proper tests to ensure the Variable Frequency Drives (VFD) / Recirculation pump trip logic was properly coordinated with the discharge valve MOV limit switches [H.7].

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

Mitigating Systems

Significance:  Apr 15, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include Required Gasket Replacement in Limit Switch Surveillance Procedure

An NRC-identified non-cited violation (NCV) of Title 10, Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to include vendor requirements for maintaining the environmental qualification of the main steam isolation valve (MSIV) limit switches in maintenance procedures. Specifically, not maintaining the MSIV limit switches in their qualified condition impacts their reliability. The licensee entered this issue into the corrective action program as CR 1160702. The licensee evaluated the impact of the

incorrect guidance, and determined that all three units were affected, and that the MSIV limit switches remained operable, although they were in an unqualified condition. The licensee plans to correct the affected procedures.

This performance deficiency was more than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance 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, not maintaining the MSIV limit switches in their qualified condition impacted their reliability. The team used IMC 0609, Att. 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, App. A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. The team determined that no cross-cutting aspect was applicable because the finding was not indicative of current licensee performance.

Inspection Report# : [2016010](#) (pdf)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify Applicable Technical Specification Action Statement for a PCIV

. An NRC identified non-cited violation (NCV) of Technical Specification (TS) 5.4.1, Procedures, for the licensee's failure to implement OPDP-8, Operability Determinations and LCO Tracking. Specifically, the licensee failed to track the applicability of condition 'A' of TS LCO 3.6.1.3 upon discovery of the equipment failure related to the Residual Heat Removal (RHR) Shutdown Cooling (SDC) inboard suction valve as described in LER 05000296/2014-003-00. As an immediate corrective action, the licensee entered the violation into the corrective action program as CR 1115172.

The performance deficiency was more-than-minor because, if left uncorrected, would have the potential to lead to a more significant safety concern. Specifically, this failure was indicative of a programmatic weakness with the licensee's evaluation of certain logic circuit failures which can result in misapplication of the allowances of TS LCO 3.0.6 and inappropriate TS LCO entries. The inspectors determined that this type of error was likely to recur which could lead to worse errors if uncorrected. The inspectors determined the finding was Green because the error did not result in an actual open pathway in the physical integrity of reactor containment, containment isolation system or heat removal components. The inspectors determined that the finding had a cross-cutting aspect of Training in the area of Human Performance because the finding was indicative of a knowledge gap among the operations department (H.9)

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

Significance:  Feb 25, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Identify Conditions Adverse to Quality Associated with RHRSW Room Flood Barriers

An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to promptly identify conditions adverse to quality associated with deficient flood barrier penetrations in the 'B' Residual Heat Removal Service Water (RHRSW) compartment. As an immediate corrective action, the licensee evaluated the deficiencies and determined that the equipment in the room would remain

operable during a design basis flood. The violation was entered into the licensee's corrective action program as CR 1119892.

The performance deficiency was more-than-minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the capability of the flood protection function of the 'B' RHRSW compartment was adversely affected due to the presence of degraded penetrations. The finding was screened using IMC 0609 Appendix A, Exhibit 4, "External Events Screening Questions," dated June 19, 2012. The finding screened as very low safety significance (Green) because the finding would not cause a plant trip, initiating event, degrade two or more trains of a multi-train system or function, and it would not degrade one or more trains of a system that supports a risk significant system or function. Additionally, the finding did not involve the total loss of any safety function. The inspectors determined that the finding had a cross-cutting aspect in the Human Performance area of Conservative Bias (H.14) because personnel characterized the potential deficiencies as "not unacceptable" rather than establishing that final acceptability was still in question which required timely resolution.

Inspection Report# : [2016007](#) (pdf)

Significance:  Dec 31, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Properly Assess and Manage Risk During Planned Maintenance Activities

A self-revealing non-cited violation (NCV) of 10 CFR Part 50.65(a)(4) was identified for the licensee's failure to properly assess and manage the risk associated with performing maintenance on the Standby Gas Treatment (SBGT) system piping. Specifically, the licensee failed to evaluate the effects of excavation activities associated with the SBGT piping repairs on the condensing coils of the Control Bay (CB) chillers which resulted in the fouling of the condensing coils of the 'A' CB chiller. The licensee's immediate corrective action was to clean the 'A' CB chiller condensing coils and restore it to an operable status. The issue was entered into the licensee's corrective action program (CAP) as CR 1056829.

The performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the mitigating systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to events and prevent undesirable consequences. Specifically, with the 'B' CB chiller out of service for maintenance, the 'A' CB chiller lost the ability to perform its safety function due to excessive dirt buildup caused, in part, by the nearby excavation activities. The inspectors characterized the finding using IMC 0609, Appendix A, Significance Determination Process, Exhibit 2, Mitigating Systems. The finding was screened to Green because although the 'A' CB chiller was inoperable, the performance deficiency did not cause the loss of system function, and the inoperability did not exceed the 24 hours. The finding does not represent an immediate safety concern because the licensee had cleaned the 'A' CB chiller condensing coils and restored the system's safety function. A cross cutting aspect of Teamwork was assigned due to the licensee's Engineering, Maintenance, Work Control, and Operations staffs' failure to adequately coordinate or communicate prior to commencing the 'B' CB chiller maintenance. (H.4)

Inspection Report# : [2015004](#) (pdf)

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to develop a PM schedule that specified inspection of the EDG neutral grounding resistor

A NRC-identified non-cited violation (NCV) of Technical Specifications (TS)

5.4.1 was identified for the failure to develop a preventive maintenance (PM) schedule that specified inspection of the Emergency Diesel Generators (EDG) neutral grounding resistor as recommended by Regulatory Guide (RG) 1.33, 9.b. Specifically, procedures failed to provide proper guidance to maintain the grounding resistor in accordance with design basis as described in the UFSAR and electrical calculations. Upon identification of the issue, the licensee performed a visual inspection of the resistor and determined that it was functional based on no signs of physical degradation or damage. The licensee entered this issue into the corrective action program (CAP) as CR1114779 to evaluate and implement appropriate corrective actions.

This performance deficiency was more than minor because if left uncorrected it could result in a more significant safety concern. Specifically, lack of inspections of the secondary grounding resistor could allow for an undetected condition which would cause transient voltages capable of damaging safety related equipment. The finding was screened for significance using the Mitigating Systems cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated June 19, 2012, and was determined to be of very low safety significance (Green) using IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated June 19, 2012, because the finding affected the design or qualification of a Mitigating SSC, and the SSC maintained its operability as documented in CR 1114779. No cross-cutting was assigned because it is not indicative of current licensee performance.

Inspection Report# : [2015007](#) (pdf)

Barrier Integrity

Significance:  Dec 18, 2015

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Specify Adequate Instrument Ranges for MSIV Leakage Testing

A NRC identified NCV of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion XI, "Test Control," was identified for the failure to specify adequate test instrumentation for performing MSIV leak rate testing. Specifically, the licensee test procedure allowed the use of high range test instruments to measure low leakage rates while performing the combined leak rate testing on the Unit 1 B Main Steam Line. This resulted in instrument uncertainties large enough to impact the validity of the test results. The licensee immediately entered this issue into their corrective action program as CR 1117381. The licensee performed an evaluation and determined that the latest test results provided reasonable assurance of operability.

This performance deficiency was more than minor because if left uncorrected had the potential to lead to a more significant safety concern by masking the failure to meet test acceptance criteria. The finding was screened for significance using the Barrier Integrity cornerstone column of IMC 0609, Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," dated 7/1/2012, and IMC 0609 Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," dated 7/1/2012, and was determined to be of very low safety significance (Green) because the finding did not represent an actual open pathway in the physical integrity of reactor containment.

This finding was assigned a cross-cutting aspect in the area of Problem Identification and Resolution because the licensee did not initiate a corrective action to identify the cause of the negative leak rate results obtained during the recent performance of the test procedure (P.1).

Inspection Report# : [2015007](#) (*pdf*)

Emergency Preparedness

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Declare Notification of Unusual Event

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR) Part 50.54 (q)(2), when the licensee failed to declare a Notification of Unusual Event (NOUE) within 15 minutes of entry conditions being met. Specifically, on April 6, 2016, at 3:05 pm, Browns Ferry Unit 3 main control room (MCR) operators received a high-high radiation alarm on the main steam lines (MSL) that met Emergency Action Level (EAL) 1.4-U for declaring a NOUE.

The failure to declare a NOUE when an EAL entry criteria had been met was considered a performance deficiency. This finding is more than minor because it was associated with the Emergency Preparedness cornerstone attribute of Emergency Response Organization Performance, and adversely affected the cornerstone objective of ensuring that a licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, on April 6, 2016, personnel did not declare a NOUE within 15 minutes of initial indications that EAL 1.4-U had been exceeded. The performance deficiency is associated with the Emergency Classification Planning Standard, which is considered a Risk Significant planning Standard (RSPS). The failure to declare a NOUE when directed by the EAL Matrix is considered a lost or degraded RSPS in accordance with Section 4 of Inspection Manual Chapter (IMC) 0609, Appendix B. Section 4.3.e of IMC 0609, Appendix B, provides the significance determination for a "Failure to Implement," and the performance deficiency was determined to be of very low safety significance (Green). The finding was associated with a cross-cutting aspect in the Procedure Adherence component of the Human Performance area because individuals did not follow processes, procedures and work instructions that would have led them to declare in a timely manner [H.8].

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to adequately maintain emergency plan implementing procedures

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR), Part 50.54(q)(2), for the licensee's failure to maintain the effectiveness of its emergency plan by ensuring procedures for use by the emergency response organization are maintained and up-to-date as required by 10 CFR 50.47(b)(16). Corrective actions already taken were implementation of a revision (49) to EPIP-5, effective January 7, 2016, essentially replacing Section 3.6 and references to appropriate Appendices, and a broader scope EOC to review all site EIPs to ensure no other inadvertent omissions were made.

The inspectors determined that the performance deficiency was more than minor because it was associated with the

procedure quality attribute of the Emergency Preparedness (EP) cornerstone, adversely affected the associated cornerstone objective, and may have been used had an emergency been declared. The finding was evaluated using the EP significance determination process and was identified as having very low safety significance (Green) because it was a failure to comply with NRC requirements and was not a loss of the planning standard function. The finding was associated with a cross-cutting aspect in the Evaluation component of the Problem Identification and Resolution area because the licensee failed to thoroughly evaluate a similar issue at one of its other sites to ensure extent of conditions commensurate with their safety significance are thoroughly resolved. [P.2]

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

Occupational Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

A self-revealing, Non-cited Violation (NCV) of Technical Specification (TS) 5.7.1, was identified for a worker who entered a High Radiation Area (HRA) without proper authorization. Specifically, the worker entered a posted HRA located outside the Radwaste Ventilation Equipment Room without receiving a HRA briefing, and subsequently received a dose rate alarm. This issue was entered into the licensee's corrective action program as Condition Report (CR) 1072342, and the licensee took immediate corrective actions including surveys of the area, and restricting the worker's access to the Radiologically Controlled Area.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and Radiation Protection (RP) Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Procedural Adherence [H.8] because the event was a direct result of the worker's failure to adhere to requirements for HRA access.

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unposted High Radiation Areas

A self-revealing, NCV of 10 CFR 20.1902(b), with two examples, was identified for the failure to post multiple HRAs. Specifically, areas within the Unit 2 (U2) Control Rod Drive Rebuild Room and U2 Reactor Water Cleanup Holding Pump Room contained dose rates exceeding 100 mrem/hr at 30 cm and remained unposted for several months during 2015. These issues were entered into the licensee's corrective action program as CR 1017294, CR 1023385, and CR 1119944, and the licensee took immediate corrective actions to correctly post the areas, performed surveys to evaluate the extent of condition, and performed an Apparent Cause Evaluation.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and RP Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Documentation [H.7] because the unposted high radiation areas were a direct result of the failure to identify documented radiological conditions that required additional posting and control.

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

Public Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include the Correct Proper Shipping Name on Radioactive Material Shipping Papers

The inspectors identified a NCV of 10 CFR 71.5 for the failure to include the correct Proper Shipping Name (PSN) on radioactive material shipping papers in accordance with the requirements of Department of Transportation (DOT) regulation 49 CFR 172.202. This resulted in multiple Low Specific Activity (LSA) shipments containing quantities exceeding an A2 value being shipped as “UN2915, Radioactive Material, Type A Package”. The licensee documented this issue in CR 1145617 and took immediate corrective actions including updating the software used to perform shipping activities and additional training of personnel.

The performance deficiency was greater than minor because it was associated with the Public Radiation Safety Cornerstone, Program & Process attribute (transportation program), and adversely affected the associated cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The inspectors determined the finding to be of very low safety significance (Green) because the issue involved transportation, but there were no radiation limits exceeded, and there was no package breach. In addition, it did not involve a Certificate of Compliance or low-level burial problem, nor was there a failure to make notifications or provide emergency response information. The finding has a cross-cutting aspect in the area of Human Performance, Training [H.9], because the DOT requirements pertaining to LSA shipments were not well understood.

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

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.

Security

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Security

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Miscellaneous

Last modified : December 08, 2016

Browns Ferry 3 4Q/2016 Plant Inspection Findings

Initiating Events

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Maintain the High Pressure Fire Protection System Piping

A self-revealing Non-cited Violation (NCV) of Technical Specification (TS) 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to maintain the integrity of the high pressure fire protection piping. The licensee's immediate corrective action was to isolate the leak and entered this issue into their corrective action program as CR 1102016.

This performance deficiency was more than minor because it adversely affected the Initiating Events cornerstone objective of protection against external factors such as fire. Specifically, the high pressure fire protection system piping was unable to maintain the required pressure during a system demand. This finding was evaluated in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process, dated September 20, 2013. The inspectors determined the finding was Green because the finding did not affect the reactor's ability to reach and maintain the fuel in a safe and stable condition. The inspectors assigned a cross cutting aspect of Operating Experience because there was a similar occurrence of a fire protection piping break at Browns Ferry caused by heavy construction vehicle traffic in 2014 (P.5).

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

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: FIN Finding

Failure to Provide Adequate Maintenance Results in Loss of Core Flow While Shutdown

A self-revealing, finding associated with the licensee's failure to provide adequate work instructions for performing maintenance on the discharge valves for 3A and 3B Recirculation Pump motors. This resulted in three consecutive pump trips and a complete loss of RCS core flow when time to boil was less than three hours. Upon discovery that a drawing error had resulted in an incorrect limit switch setting, a work order was created and performed to return the design feature to the proper settings. This resulted in correcting the pump start feature. The licensee initiated CRs 1151665 and 1151935 to address the inadequate post maintenance work instructions.

The failure to provide adequate work instructions for maintenance on the Unit 3 recirculation pump discharge valve motors which included appropriate testing as described in NPG – SPP 06.9.3 Post Modification testing, was a performance deficiency. The performance deficiency was more than minor because it affected the equipment performance attribute of the Initiating Systems Cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown operations. The inspector performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix G, Attachment 3, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings" and determined that the finding was of very low safety significance. This finding had a cross-cutting aspect in the area of human performance because Browns Ferry work planners did not ensure that design documentation was correct and that work packages provided the proper tests to ensure the Variable Frequency Drives (VFD) / Recirculation pump trip logic was properly coordinated with the discharge valve MOV limit switches [H.7].

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

Mitigating Systems

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure Adequate Piping Clearances After MOV Modification

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 ensure sufficient clearance was available following a replacement of the Core Spray minimum flow valve actuator motors. Modifications personnel failed to identify that the resulting clearances were less than permitted by TVA procedure MAI-4.10 "Piping Clearance Instruction" and that they required an engineering evaluation. As an immediate corrective action, the licensee cut away portions of floor grating to establish an acceptable amount of clearance for the valves. The violation was entered into the licensee's corrective action program as CRs 1161330 and 1169591. The performance deficiency 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). Specifically, the inadequate clearance resulted in an analysis showing that ASME code allowable design stresses would be exceeded under accident conditions. Exceeding design stresses created a reasonable doubt on the operability and reliability of loop 2 of the Core Spray system for Units 2 and 3. This finding was evaluated in accordance with NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012. The inspectors determined the finding was Green because the finding was a deficiency affecting the qualification of the Core Spray loop. Operability was maintained because an engineering evaluation demonstrated, through the use of alternative analytical methods, that the piping stress criteria in Appendix F of Section III of the ASME Boiler and Pressure Vessel Code was satisfied and that the stresses in the valve would not cause distortions of a magnitude that would prevent operation of the valve. The inspectors did not assign a cross-cutting aspect because the performance deficiency was not reflective of present licensee performance since it occurred more than three years ago.

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

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Alternate Depressurization Valve Inoperable Longer than the Allowed Outage Time

A self-revealing NCV of TS 3.5.1, Emergency Core Cooling Systems, Condition E in that an inoperable Automatic Depressurization System (ADS) valve function existed longer than the allowed technical specification time. The licensee implemented corrective actions by declaring the affected component inoperable per technical specifications, identified preventative maintenance procedures as the cause, repaired the breaker stabs to restore the circuit, and re-performed the surveillance to establish operability. This issue was entered into the licensee's corrective action program as CR 1161991.

The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of equipment performance. Specifically, one of the TS required ADS valves opening capability was not fully qualified. Using NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012, the inspectors determined the finding was of very low safety significance (Green) because the finding did not represent a loss of system safety function as the other five Main Steam Relief Valve (MSRV) ADS functions were

still available. The inspectors assigned a cross cutting aspect of Identification since the licensee had not taken sufficient post maintenance actions to verify function of the alternate breaker for the ADS valve 3-PCV-001-0022. (P.1)

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

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Main Steam Relief Valves Inoperable Longer than Allowed Outage Time

A self-revealing NCV of TS 3.4.3, Safety Relief Valves was identified for two required MSRVs being inoperable longer than the allowed outage time and follow on action completion time. The licensee's immediate corrective action was to replace all Unit 3 MSRV pilot valves prior to the completion of the refueling outage. This issue was entered into the licensee's corrective action program as CR 1157981. The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of equipment performance. Specifically, two required MSRVs were not able to lift within their required pressure band. This performance deficiency was screened using NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012. This performance deficiency screens to Green because although the system was inoperable for greater than its allowed outage time and follow on action completion time, the system maintained its safety function. The inspectors assigned a cross cutting aspect of Resolution since the licensee has not taken sufficient corrective actions to address the continued out of tolerance lift results caused by corrosion bonding of the MSRV pilot valve seats. (P.3)

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

Significance:  Aug 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify and Evaluate All Targets Within the Zone of Influence of Ignition Sources

The NRC identified a violation of 10 CFR 50.48(c) for the licensee's failure to address in the Fire Probabilistic Risk Assessment (Fire PRA) the risk contribution associated with all potentially risk significant fire scenarios for a given fire compartment/fire area. The licensee did not identify and evaluate all targets that were within the zone of influence (ZOI) of ignition sources for selected fire scenarios that could potentially contribute to the risk for the fire scenarios. The licensee entered the issue in the corrective action program (CAP) as Condition Reports (CRs) 1195603 and 1197392. The affected area was already covered by an hourly roving fire watch as a compensatory measure.

The licensee's failure to address the risk contribution associated with all potentially risksignificant fire scenarios, as required by section 2.4.3.2 of NFPA 805, was a performance deficiency. For each example, the performance deficiency was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to analyze the full risk impact of the selected fire scenarios, and the missed targets in the ZOI for the selected fire scenarios had the potential to impact the ability to achieve safe and stable conditions. Using IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," the finding was screened as Green in step 1.6.1 "Screen by Licensee PRA-Based Safety Evaluation." There was no cross cutting aspect assigned to this finding because it was not indicative of current licensee performance since the original ignition source and target walkdowns were performed more than 3 years ago.

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

Significance:  Aug 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Adequately Identify and Evaluate All Circuit Failures for NSCA Credited Equipment

The NRC identified a violation of 10 CFR 50.48(c) for the licensee's failure to properly identify circuits required for the nuclear safety function. Specifically, the licensee's Nuclear Safety Capability Assessment (NSCA) failed to identify that fire-induced failure of cables associated with the undervoltage trip function of the 4KV Shutdown Board could cause the shutdown board to not shed loads upon an undervoltage condition. This could lead to overloading the emergency diesel generator (EDG) credited for powering the shutdown board. This item was entered into the CAP as CR 1199002. The affected area was already covered by an hourly roving fire watch as a compensatory measure. Additionally, the licensee submitted EN 52150 to the NRC, documenting this as an unanalyzed condition.

The licensee's failure to identify circuits required for the nuclear safety function, as required by Section 2.4.2.2.1 of NFPA 805 was a PD. The PD was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's failure to analyze the effects of fire damage on the 4kV shutdown bus undervoltage circuitry could result in overloading the emergency diesel generator (EDG) credited for powering the shutdown board. Using the guidance of IMC 0609, App. F, the finding was screened as Green because the risk increase associated with the finding was an increase of core damage frequency of $<1E-6$ /year. There was no cross cutting aspect assigned to this finding because it was not indicative of current licensee performance since the original ignition source and target walkdowns were performed more than 3 years ago.

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

Significance:  Apr 15, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include Required Gasket Replacement in Limit Switch Surveillance Procedure

An NRC-identified non-cited violation (NCV) of Title 10, Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to include vendor requirements for maintaining the environmental qualification of the main steam isolation valve (MSIV) limit switches in maintenance procedures. Specifically, not maintaining the MSIV limit switches in their qualified condition impacts their reliability. The licensee entered this issue into the corrective action program as CR 1160702. The licensee evaluated the impact of the incorrect guidance, and determined that all three units were affected, and that the MSIV limit switches remained operable, although they were in an unqualified condition. The licensee plans to correct the affected procedures.

This performance deficiency was more than minor because it was associated with the mitigating systems cornerstone attribute of equipment performance 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, not maintaining the MSIV limit switches in their qualified condition impacted

their reliability. The team used IMC 0609, Att. 4, "Initial Characterization of Findings," issued June 19, 2012, for Mitigating Systems, and IMC 0609, App. A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined the finding to be of very low safety significance (Green) because the finding was a deficiency affecting the design of a mitigating structure, system, or component (SSC), and the SSC maintained its operability or functionality. The team determined that no cross-cutting aspect was applicable because the finding was not indicative of current licensee performance.

Inspection Report# : [2016010](#) (pdf)

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify Applicable Technical Specification Action Statement for a PCIV

. An NRC identified non-cited violation (NCV) of Technical Specification (TS) 5.4.1, Procedures, for the licensee's failure to implement OPDP-8, Operability Determinations and LCO Tracking. Specifically, the licensee failed to track the applicability of condition 'A' of TS LCO 3.6.1.3 upon discovery of the equipment failure related to the Residual Heat Removal (RHR) Shutdown Cooling (SDC) inboard suction valve as described in LER 05000296/2014-003-00. As an immediate corrective action, the licensee entered the violation into the corrective action program as CR 1115172.

The performance deficiency was more-than-minor because, if left uncorrected, would have the potential to lead to a more significant safety concern. Specifically, this failure was indicative of a programmatic weakness with the licensee's evaluation of certain logic circuit failures which can result in misapplication of the allowances of TS LCO 3.0.6 and inappropriate TS LCO entries. The inspectors determined that this type of error was likely to recur which could lead to worse errors if uncorrected. The inspectors determined the finding was Green because the error did not result in an actual open pathway in the physical integrity of reactor containment, containment isolation system or heat removal components. The inspectors determined that the finding had a cross-cutting aspect of Training in the area of Human Performance because the finding was indicative of a knowledge gap among the operations department (H.9)

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

Significance:  Feb 25, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Promptly Identify Conditions Adverse to Quality Associated with RHRSW Room Flood Barriers

An NRC identified non-cited violation (NCV) of 10 CFR 50, Appendix B, Criterion XVI, Corrective Action, was identified for the licensee's failure to promptly identify conditions adverse to quality associated with deficient flood barrier penetrations in the 'B' Residual Heat Removal Service Water (RHRSW) compartment. As an immediate corrective action, the licensee evaluated the deficiencies and determined that the equipment in the room would remain operable during a design basis flood. The violation was entered into the licensee's corrective action program as CR 1119892.

The performance deficiency was more-than-minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, the capability of the flood protection function of the 'B' RHRSW compartment was adversely affected due to the presence of degraded penetrations. The finding was screened using IMC 0609 Appendix A, Exhibit 4,

“External Events Screening Questions,” dated June 19, 2012. The finding screened as very low safety significance (Green) because the finding would not cause a plant trip, initiating event, degrade two or more trains of a multi-train system or function, and it would not degrade one or more trains of a system that supports a risk significant system or function. Additionally, the finding did not involve the total loss of any safety function. The inspectors determined that the finding had a cross-cutting aspect in the Human Performance area of Conservative Bias (H.14) because personnel characterized the potential deficiencies as “not unacceptable” rather than establishing that final acceptability was still in question which required timely resolution. Inspection Report# : [2016007](#) (pdf)

Barrier Integrity

Emergency Preparedness

Significance:  Jun 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Declare Notification of Unusual Event

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR) Part 50.54 (q)(2), when the licensee failed to declare a Notification of Unusual Event (NOUE) within 15 minutes of entry conditions being met. Specifically, on April 6, 2016, at 3:05 pm, Browns Ferry Unit 3 main control room (MCR) operators received a high-high radiation alarm on the main steam lines (MSL) that met Emergency Action Level (EAL) 1.4-U for declaring a NOUE.

The failure to declare a NOUE when an EAL entry criteria had been met was considered a performance deficiency. This finding is more than minor because it was associated with the Emergency Preparedness cornerstone attribute of Emergency Response Organization Performance, and adversely affected the cornerstone objective of ensuring that a licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, on April 6, 2016, personnel did not declare a NOUE within 15 minutes of initial indications that EAL 1.4-U had been exceeded. The performance deficiency is associated with the Emergency Classification Planning Standard, which is considered a Risk Significant planning Standard (RSPS). The failure to declare a NOUE when directed by the EAL Matrix is considered a lost or degraded RSPS in accordance with Section 4 of Inspection Manual Chapter (IMC) 0609, Appendix B. Section 4.3.e of IMC 0609, Appendix B, provides the significance determination for a “Failure to Implement,” and the performance deficiency was determined to be of very low safety significance (Green). The finding was associated with a cross-cutting aspect in the Procedure Adherence component of the Human Performance area because individuals did not follow processes, procedures and work instructions that would have led them to declare in a timely manner [H.8].

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to adequately maintain emergency plan implementing procedures

The inspectors identified a non-cited violation (NCV) of Title 10 of the Code of Federal Regulations (CFR), Part 50.54(q)(2), for the licensee's failure to maintain the effectiveness of its emergency plan by ensuring procedures for use by the emergency response organization are maintained and up-to-date as required by 10 CFR 50.47(b)(16). Corrective actions already taken were implementation of a revision (49) to EPIP-5, effective January 7, 2016, essentially replacing Section 3.6 and references to appropriate Appendices, and a broader scope EOC to review all site EPIPs to ensure no other inadvertent omissions were made.

The inspectors determined that the performance deficiency was more than minor because it was associated with the procedure quality attribute of the Emergency Preparedness (EP) cornerstone, adversely affected the associated cornerstone objective, and may have been used had an emergency been declared. The finding was evaluated using the EP significance determination process and was identified as having very low safety significance (Green) because it was a failure to comply with NRC requirements and was not a loss of the planning standard function. The finding was associated with a cross-cutting aspect in the Evaluation component of the Problem Identification and Resolution area because the licensee failed to thoroughly evaluate a similar issue at one of its other sites to ensure extent of conditions commensurate with their safety significance are thoroughly resolved. [P.2]

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

Occupational Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

A self-revealing, Non-cited Violation (NCV) of Technical Specification (TS) 5.7.1, was identified for a worker who entered a High Radiation Area (HRA) without proper authorization. Specifically, the worker entered a posted HRA located outside the Radwaste Ventilation Equipment Room without receiving a HRA briefing, and subsequently received a dose rate alarm. This issue was entered into the licensee's corrective action program as Condition Report (CR) 1072342, and the licensee took immediate corrective actions including surveys of the area, and restricting the worker's access to the Radiologically Controlled Area.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and Radiation Protection (RP) Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Procedural Adherence [H.8] because the event was a direct result of the worker's failure to adhere to requirements for HRA access.

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

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unposted High Radiation Areas

A self-revealing, NCV of 10 CFR 20.1902(b), with two examples, was identified for the failure to post multiple HRAs. Specifically, areas within the Unit 2 (U2) Control Rod Drive Rebuild Room and U2 Reactor Water Cleanup Holding Pump Room contained dose rates exceeding 100 mrem/hr at 30 cm and remained unposted for several months during 2015. These issues were entered into the licensee's corrective action program as CR 1017294, CR 1023385, and CR 1119944, and the licensee took immediate corrective actions to correctly post the areas, performed surveys to evaluate the extent of condition, and performed an Apparent Cause Evaluation.

The performance deficiency was greater than minor because it was associated with the Occupational Radiation Safety cornerstone attribute of Program and Process (Monitoring and RP Controls) and adversely affects 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 inspectors determined the finding to be of very low safety significance (Green) because it was not related to As Low As Reasonably Achievable (ALARA) planning, nor did it involve an overexposure or substantial potential for overexposure, and the ability to assess dose was not compromised. This finding involved the cross-cutting aspect of Human Performance, Documentation [H.7] because the unposted high radiation areas were a direct result of the failure to identify documented radiological conditions that required additional posting and control.

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

Public Radiation Safety

Significance:  Mar 31, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Include the Correct Proper Shipping Name on Radioactive Material Shipping Papers

The inspectors identified a NCV of 10 CFR 71.5 for the failure to include the correct Proper Shipping Name (PSN) on radioactive material shipping papers in accordance with the requirements of Department of Transportation (DOT) regulation 49 CFR 172.202. This resulted in multiple Low Specific Activity (LSA) shipments containing quantities exceeding an A2 value being shipped as "UN2915, Radioactive Material, Type A Package". The licensee documented this issue in CR 1145617 and took immediate corrective actions including updating the software used to perform shipping activities and additional training of personnel.

The performance deficiency was greater than minor because it was associated with the Public Radiation Safety Cornerstone, Program & Process attribute (transportation program), and adversely affected the associated cornerstone objective to ensure adequate protection of public health and safety from exposure to radioactive materials released into the public domain as a result of routine civilian nuclear reactor operation. The inspectors determined the finding to be of very low safety significance (Green) because the issue involved transportation, but there were no radiation limits exceeded, and there was no package breach. In addition, it did not involve a Certificate of Compliance or low-level burial problem, nor was there a failure to make notifications or provide emergency response information. The finding has a cross-cutting aspect in the area of Human Performance, Training [H.9], because the DOT requirements pertaining to LSA shipments were not well understood.

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

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

Last modified : February 01, 2017



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Browns Ferry 3 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness
- Occupational Radiation Safety
- Public Radiation Safety
- Security

Initiating Events

Significance: G Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Maintain the High Pressure Fire Protection System Piping

A self-revealing Non-cited Violation (NCV) of Technical Specification (TS) 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to maintain the integrity of the high pressure fire protection piping. The licensee's immediate corrective action was to isolate the leak and entered this issue into their corrective action program as CR 1102016.

This performance deficiency was more than minor because it adversely affected the Initiating Events cornerstone objective of protection against external factors such as fire. Specifically, the high pressure fire protection system piping was unable to maintain the required pressure during a system demand. This finding was evaluated in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process, dated September 20, 2013. The inspectors determined the finding was Green because the finding did not affect the reactor's ability to reach and maintain the fuel in a safe and stable condition. The inspectors assigned a cross cutting aspect of Operating Experience because there was a similar occurrence of a fire protection piping break at Browns Ferry caused by heavy construction vehicle traffic in 2014 (P.5).

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

Mitigating Systems

Significance: G Oct 17, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Prompt Determination of Operability for the HPCI System

An NRC identified NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" was

identified for the licensee's failure to accomplish the Prompt Determination of Operability (PDO) for CR 1039036 in accordance with the requirements of NEDP-22, "Operability Determinations and Functional Evaluations," Sections 3.2.2.E, 3.2.2.G, and Attachment 2. As an immediate corrective action, the licensee revised the PDO to include an evaluation that supported a reasonable expectation of operability. The licensee entered the violation into the corrective action program as CR 1219620. The performance deficiency was more-than-minor because it was associated with the Human Performance 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). Specifically, after considering the inadequacies of the PDO, additional and significant evaluation was required to maintain reasonable assurance of the HPCI system operability. The inspectors determined the finding was Green because it was a deficiency affecting the qualification of HPCI, but it maintained its operability. The inspectors determined that the finding had a cross-cutting aspect of Evaluation in the Problem Identification and Resolution area [P.2], because the organization did not thoroughly investigate this issue commensurate with its potential safety significance.

Inspection Report# : 2016004 (*pdf*)

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure Adequate Piping Clearances After MOV Modification

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 ensure sufficient clearance was available following a replacement of the Core Spray minimum flow valve actuator motors. Modifications personnel failed to identify that the resulting clearances were less than permitted by TVA procedure MAI-4.10 "Piping Clearance Instruction" and that they required an engineering evaluation. As an immediate corrective action, the licensee cut away portions of floor grating to establish an acceptable amount of clearance for the valves. The violation was entered into the licensee's corrective action program as CRs 1161330 and 1169591. The performance deficiency 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). Specifically, the inadequate clearance resulted in an analysis showing that ASME code allowable design stresses would be exceeded under accident conditions. Exceeding design stresses created a reasonable doubt on the operability and reliability of loop 2 of the Core Spray system for Units 2 and 3. This finding was evaluated in accordance with NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012. The inspectors determined the finding was Green because the finding was a deficiency affecting the qualification of the Core Spray loop. Operability was maintained because an engineering evaluation demonstrated, through the use of alternative analytical methods, that the piping stress criteria in Appendix F of Section III of the ASME Boiler and Pressure Vessel Code was satisfied and that the stresses in the valve would not cause distortions of a magnitude that would prevent operation of the valve. The inspectors did not assign a cross-cutting aspect because the performance deficiency was not reflective of present licensee performance since it occurred more than three years ago.

Inspection Report# : 2016003 (*pdf*)

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Alternate Depressurization Valve Inoperable Longer than the Allowed Outage Time

A self-revealing NCV of TS 3.5.1, Emergency Core Cooling Systems, Condition E in that an inoperable Automatic Depressurization System (ADS) valve function existed longer than the allowed technical specification time. The

licensee implemented corrective actions by declaring the affected component inoperable per technical specifications, identified preventative maintenance procedures as the cause, repaired the breaker stabs to restore the circuit, and re-performed the surveillance to establish operability. This issue was entered into the licensee's corrective action program as CR 1161991.

The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of equipment performance. Specifically, one of the TS required ADS valves opening capability was not fully qualified. Using NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012, the inspectors determined the finding was of very low safety significance (Green) because the finding did not represent a loss of system safety function as the other five Main Steam Relief Valve (MSRV) ADS functions were still available. The inspectors assigned a cross cutting aspect of Identification since the licensee had not taken sufficient post maintenance actions to verify function of the alternate breaker for the ADS valve 3-PCV-001-0022. (P.1)

Inspection Report# : 2016003 (*pdf*)

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Main Steam Relief Valves Inoperable Longer than Allowed Outage Time

A self-revealing NCV of TS 3.4.3, Safety Relief Valves was identified for two required MSRVs being inoperable longer than the allowed outage time and follow on action completion time. The licensee's immediate corrective action was to replace all Unit 3 MSRV pilot valves prior to the completion of the refueling outage. This issue was entered into the licensee's corrective action program as CR 1157981. The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of equipment performance. Specifically, two required MSRVs were not able to lift within their required pressure band. This performance deficiency was screened using NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012. This performance deficiency screens to Green because although the system was inoperable for greater than its allowed outage time and follow on action completion time, the system maintained its safety function. The inspectors assigned a cross cutting aspect of Resolution since the licensee has not taken sufficient corrective actions to address the continued out of tolerance lift results caused by corrosion bonding of the MSRV pilot valve seats. (P.3)

Inspection Report# : 2016003 (*pdf*)

Significance:  Aug 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify and Evaluate All Targets Within the Zone of Influence of Ignition Sources

The NRC identified a violation of 10 CFR 50.48(c) for the licensee's failure to address in the Fire Probabilistic Risk Assessment (Fire PRA) the risk contribution associated with all potentially risk significant fire scenarios for a given fire compartment/fire area. The licensee did not identify and evaluate all targets that were within the zone of influence (ZOI) of ignition sources for selected fire scenarios that could potentially contribute to the risk for the fire scenarios. The licensee entered the issue in the corrective action program (CAP) as Condition Reports (CRs) 1195603 and 1197392. The affected area was already covered by an hourly roving fire watch as a compensatory measure.

The licensee's failure to address the risk contribution associated with all potentially risk significant fire scenarios, as required by section 2.4.3.2 of NFPA 805, was a performance deficiency. For each example, the performance deficiency was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that

respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to analyze the full risk impact of the selected fire scenarios, and the missed targets in the ZOI for the selected fire scenarios had the potential to impact the ability to achieve safe and stable conditions. Using IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," the finding was screened as Green in step 1.6.1 "Screen by Licensee PRA-Based Safety Evaluation." There was no cross cutting aspect assigned to this finding because it was not indicative of current licensee performance since the original ignition source and target walkdowns were performed more than 3 years ago.

Inspection Report# : 2016011 (*pdf*)

Significance:  Aug 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Adequately Identify and Evaluate All Circuit Failures for NSCA Credited Equipment

The NRC identified a violation of 10 CFR 50.48(c) for the licensee's failure to properly identify circuits required for the nuclear safety function. Specifically, the licensee's Nuclear Safety Capability Assessment (NSCA) failed to identify that fire-induced failure of cables associated with the undervoltage trip function of the 4KV Shutdown Board could cause the shutdown board to not shed loads upon an undervoltage condition. This could lead to overloading the emergency diesel generator (EDG) credited for powering the shutdown board. This item was entered into the CAP as CR 1199002. The affected area was already covered by an hourly roving fire watch as a compensatory measure. Additionally, the licensee submitted EN 52150 to the NRC, documenting this as an unanalyzed condition.

The licensee's failure to identify circuits required for the nuclear safety function, as required by Section 2.4.2.2.1 of NFPA 805 was a PD. The PD was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's failure to analyze the effects of fire damage on the 4kV shutdown bus undervoltage circuitry could result in overloading the emergency diesel generator (EDG) credited for powering the shutdown board. Using the guidance of IMC 0609, App. F, the finding was screened as Green because the risk increase associated with the finding was an increase of core damage frequency of $<1\text{E}-6/\text{year}$. There was no cross cutting aspect assigned to this finding because it was not indicative of current licensee performance since the original ignition source and target walkdowns were performed more than 3 years ago.

Inspection Report# : 2016011 (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

. A self-revealing non-cited violation (NCV) of TS 5.7.1 was identified for a worker who entered a High Radiation

Area (HRA) (Unit 1 reactor building steam tunnel) without proper authorization. This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their Corrective Action Program (CAP) as Condition Report (CR) 1219539, and took immediate corrective actions including restricting Radiologically Controlled Area (RCA) access for the individuals involved and performing confirmatory surveys of the area. This finding involved the cross-cutting aspect of Human Performance, Teamwork, [H.4], because a significant contributor to this event was poor communication between different work groups (workers entering the reactor building steam tunnel and RP personnel at the control)

Inspection Report# : 2017001 ([pdf](#))

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform Airborne Radioactivity Surveys

An inspector-identified non-cited violation (NCV) of TS 5.4.1 was identified for the licensee's failure to obtain an air sample while performing work in an area with smearable contamination levels greater than 50,000 disintegrations per minute (DPM) per 100cm². This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their CAP (CR 1219539) and, since the work created airborne radioactivity in the area, performed in-vivo monitoring on the affected workers to assess doses from the intake of radioactive material. This finding involved the cross-cutting aspect of Human Performance, Avoid Complacency, [H.12], because, considering the contamination levels present, RP staff underestimated the risk for potential airborne radioactive material in the area

Inspection Report# : 2017001 ([pdf](#))

Public Radiation Safety Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : August 03, 2017

Page Last Reviewed/Updated Wednesday, August 10, 2016



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Browns Ferry 3 – Quarterly Plant Inspection Findings

2Q/2017 – Plant Inspection Findings

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- Security

Initiating Events

Significance: G Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Failure to Maintain the High Pressure Fire Protection System Piping

A self-revealing Non-cited Violation (NCV) of Technical Specification (TS) 5.4.1.d, Fire Protection Program Implementation, was identified for the licensee's failure to maintain the integrity of the high pressure fire protection piping. The licensee's immediate corrective action was to isolate the leak and entered this issue into their corrective action program as CR 1102016.

This performance deficiency was more than minor because it adversely affected the Initiating Events cornerstone objective of protection against external factors such as fire. Specifically, the high pressure fire protection system piping was unable to maintain the required pressure during a system demand. This finding was evaluated in accordance with NRC IMC 0609, Appendix F, Fire Protection Significance Determination Process, dated September 20, 2013. The inspectors determined the finding was Green because the finding did not affect the reactor's ability to reach and maintain the fuel in a safe and stable condition. The inspectors assigned a cross cutting aspect of Operating Experience because there was a similar occurrence of a fire protection piping break at Browns Ferry caused by heavy construction vehicle traffic in 2014 (P.5).

Inspection Report# : 2016003 (*pdf*)

Mitigating Systems

Significance: G Oct 17, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Prompt Determination of Operability for the HPCI System

An NRC identified NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" was

identified for the licensee's failure to accomplish the Prompt Determination of Operability (PDO) for CR 1039036 in accordance with the requirements of NEDP-22, "Operability Determinations and Functional Evaluations," Sections 3.2.2.E, 3.2.2.G, and Attachment 2. As an immediate corrective action, the licensee revised the PDO to include an evaluation that supported a reasonable expectation of operability. The licensee entered the violation into the corrective action program as CR 1219620. The performance deficiency was more-than-minor because it was associated with the Human Performance 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). Specifically, after considering the inadequacies of the PDO, additional and significant evaluation was required to maintain reasonable assurance of the HPCI system operability. The inspectors determined the finding was Green because it was a deficiency affecting the qualification of HPCI, but it maintained its operability. The inspectors determined that the finding had a cross-cutting aspect of Evaluation in the Problem Identification and Resolution area [P.2], because the organization did not thoroughly investigate this issue commensurate with its potential safety significance.

Inspection Report# : 2016004 (*pdf*)

Significance:  Sep 30, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Ensure Adequate Piping Clearances After MOV Modification

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 ensure sufficient clearance was available following a replacement of the Core Spray minimum flow valve actuator motors. Modifications personnel failed to identify that the resulting clearances were less than permitted by TVA procedure MAI-4.10 "Piping Clearance Instruction" and that they required an engineering evaluation. As an immediate corrective action, the licensee cut away portions of floor grating to establish an acceptable amount of clearance for the valves. The violation was entered into the licensee's corrective action program as CRs 1161330 and 1169591. The performance deficiency 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). Specifically, the inadequate clearance resulted in an analysis showing that ASME code allowable design stresses would be exceeded under accident conditions. Exceeding design stresses created a reasonable doubt on the operability and reliability of loop 2 of the Core Spray system for Units 2 and 3. This finding was evaluated in accordance with NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012. The inspectors determined the finding was Green because the finding was a deficiency affecting the qualification of the Core Spray loop. Operability was maintained because an engineering evaluation demonstrated, through the use of alternative analytical methods, that the piping stress criteria in Appendix F of Section III of the ASME Boiler and Pressure Vessel Code was satisfied and that the stresses in the valve would not cause distortions of a magnitude that would prevent operation of the valve. The inspectors did not assign a cross-cutting aspect because the performance deficiency was not reflective of present licensee performance since it occurred more than three years ago.

Inspection Report# : 2016003 (*pdf*)

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Alternate Depressurization Valve Inoperable Longer than the Allowed Outage Time

A self-revealing NCV of TS 3.5.1, Emergency Core Cooling Systems, Condition E in that an inoperable Automatic Depressurization System (ADS) valve function existed longer than the allowed technical specification time. The

licensee implemented corrective actions by declaring the affected component inoperable per technical specifications, identified preventative maintenance procedures as the cause, repaired the breaker stabs to restore the circuit, and re-performed the surveillance to establish operability. This issue was entered into the licensee's corrective action program as CR 1161991.

The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of equipment performance. Specifically, one of the TS required ADS valves opening capability was not fully qualified. Using NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012, the inspectors determined the finding was of very low safety significance (Green) because the finding did not represent a loss of system safety function as the other five Main Steam Relief Valve (MSRV) ADS functions were still available. The inspectors assigned a cross cutting aspect of Identification since the licensee had not taken sufficient post maintenance actions to verify function of the alternate breaker for the ADS valve 3-PCV-001-0022. (P.1)

Inspection Report# : 2016003 (*pdf*)

Significance:  Sep 30, 2016

Identified By: Self-Revealing

Item Type: NCV Non-Cited Violation

Main Steam Relief Valves Inoperable Longer than Allowed Outage Time

A self-revealing NCV of TS 3.4.3, Safety Relief Valves was identified for two required MSRVs being inoperable longer than the allowed outage time and follow on action completion time. The licensee's immediate corrective action was to replace all Unit 3 MSRV pilot valves prior to the completion of the refueling outage. This issue was entered into the licensee's corrective action program as CR 1157981. The performance deficiency was more than minor because it adversely affected the Mitigating Systems cornerstone attribute of equipment performance. Specifically, two required MSRVs were not able to lift within their required pressure band. This performance deficiency was screened using NRC IMC 0609, Appendix A, Exhibit 2, Mitigating Systems Screening Questions, dated June 19, 2012. This performance deficiency screens to Green because although the system was inoperable for greater than its allowed outage time and follow on action completion time, the system maintained its safety function. The inspectors assigned a cross cutting aspect of Resolution since the licensee has not taken sufficient corrective actions to address the continued out of tolerance lift results caused by corrosion bonding of the MSRV pilot valve seats. (P.3)

Inspection Report# : 2016003 (*pdf*)

Significance:  Aug 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Identify and Evaluate All Targets Within the Zone of Influence of Ignition Sources

The NRC identified a violation of 10 CFR 50.48(c) for the licensee's failure to address in the Fire Probabilistic Risk Assessment (Fire PRA) the risk contribution associated with all potentially risk significant fire scenarios for a given fire compartment/fire area. The licensee did not identify and evaluate all targets that were within the zone of influence (ZOI) of ignition sources for selected fire scenarios that could potentially contribute to the risk for the fire scenarios. The licensee entered the issue in the corrective action program (CAP) as Condition Reports (CRs) 1195603 and 1197392. The affected area was already covered by an hourly roving fire watch as a compensatory measure.

The licensee's failure to address the risk contribution associated with all potentially risk significant fire scenarios, as required by section 2.4.3.2 of NFPA 805, was a performance deficiency. For each example, the performance deficiency was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that

respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to analyze the full risk impact of the selected fire scenarios, and the missed targets in the ZOI for the selected fire scenarios had the potential to impact the ability to achieve safe and stable conditions. Using IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," the finding was screened as Green in step 1.6.1 "Screen by Licensee PRA-Based Safety Evaluation." There was no cross cutting aspect assigned to this finding because it was not indicative of current licensee performance since the original ignition source and target walkdowns were performed more than 3 years ago.

Inspection Report# : 2016011 (*pdf*)

Significance:  Aug 12, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Adequately Identify and Evaluate All Circuit Failures for NSCA Credited Equipment

The NRC identified a violation of 10 CFR 50.48(c) for the licensee's failure to properly identify circuits required for the nuclear safety function. Specifically, the licensee's Nuclear Safety Capability Assessment (NSCA) failed to identify that fire-induced failure of cables associated with the undervoltage trip function of the 4KV Shutdown Board could cause the shutdown board to not shed loads upon an undervoltage condition. This could lead to overloading the emergency diesel generator (EDG) credited for powering the shutdown board. This item was entered into the CAP as CR 1199002. The affected area was already covered by an hourly roving fire watch as a compensatory measure. Additionally, the licensee submitted EN 52150 to the NRC, documenting this as an unanalyzed condition.

The licensee's failure to identify circuits required for the nuclear safety function, as required by Section 2.4.2.2.1 of NFPA 805 was a PD. The PD was determined to be more than minor because it was associated with the reactor safety mitigating systems cornerstone attribute of protection against external factors (i.e., fire) and it adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee's failure to analyze the effects of fire damage on the 4kV shutdown bus undervoltage circuitry could result in overloading the emergency diesel generator (EDG) credited for powering the shutdown board. Using the guidance of IMC 0609, App. F, the finding was screened as Green because the risk increase associated with the finding was an increase of core damage frequency of $<1\text{E}-6/\text{year}$. There was no cross cutting aspect assigned to this finding because it was not indicative of current licensee performance since the original ignition source and target walkdowns were performed more than 3 years ago.

Inspection Report# : 2016011 (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

. A self-revealing non-cited violation (NCV) of TS 5.7.1 was identified for a worker who entered a High Radiation

Area (HRA) (Unit 1 reactor building steam tunnel) without proper authorization. This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their Corrective Action Program (CAP) as Condition Report (CR) 1219539, and took immediate corrective actions including restricting Radiologically Controlled Area (RCA) access for the individuals involved and performing confirmatory surveys of the area. This finding involved the cross-cutting aspect of Human Performance, Teamwork, [H.4], because a significant contributor to this event was poor communication between different work groups (workers entering the reactor building steam tunnel and RP personnel at the control)

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform Airborne Radioactivity Surveys

An inspector-identified non-cited violation (NCV) of TS 5.4.1 was identified for the licensee's failure to obtain an air sample while performing work in an area with smearable contamination levels greater than 50,000 disintegrations per minute (DPM) per 100cm². This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their CAP (CR 1219539) and, since the work created airborne radioactivity in the area, performed in-vivo monitoring on the affected workers to assess doses from the intake of radioactive material. This finding involved the cross-cutting aspect of Human Performance, Avoid Complacency, [H.12], because, considering the contamination levels present, RP staff underestimated the risk for potential airborne radioactive material in the area

Inspection Report# : 2017001 (*pdf*)

Public Radiation Safety Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : September 05, 2017

Page Last Reviewed/Updated Wednesday, June 07, 2017



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Browns Ferry 3 – Quarterly Plant Inspection Findings

3Q/2017 – Plant Inspection Findings

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Initiating Events

Mitigating Systems

Significance: G Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Fire Risk Evaluation for Postulated Fires Affecting EECW Strainers

An NRC-identified non-cited violation of 10 CFR 50.48(c) and NFPA 805, Section 2.4.2.4 was identified for the licensee's failure to perform an adequate engineering analysis to determine the effects of fire on the ability to achieve the nuclear safety performance criteria. Specifically, the licensee's fire risk evaluation (FRE) of the effects of fire on the Emergency Equipment Cooling Water (EECW) strainers did not have an adequate basis. As an immediate corrective action, the licensee performed plant-specific analyses to determine the effects of fire on the functionality of EECW strainers and EECW system. The violation was entered into the licensee's corrective action program as CR 1263434.

The performance deficiency was determined to be more-than-minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely impacted the cornerstone objective in that failure to adequately

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analyze the effects of fire damaged cables for the EECW strainers and backwash valves impacted the objective of ensuring the reliability of the EECW system during a fire. This finding was determined to be Green because the finding did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event. The inspectors determined that the finding had a cross-cutting aspect of Avoid Complacency (H.12) within the cross-cutting area of Human Performance because the licensee did not recognize that historical assumptions about long-term strainer functionality could contain mistakes and latent issues during development of the nuclear safety capability analysis.

Inspection Report# : 2017002 (*pdf*)

Significance:  Jun 30, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Assure EECW Design Basis Capability

An NRC-identified non-cited violation of 10 CFR Part 50, Appendix B, Criterion III was identified for the licensee's failure to correctly translate the design basis of the EECW system into technical instruction 0-TI-579(EECW). The effects of instrument uncertainty and diesel frequency variations were not considered when establishing the minimum allowed inservice test low alert pump flow limits. As an immediate corrective action, the licensee evaluated the operability of the EECW pump and initiated corrective action to make changes to the test criteria and/or the system design analysis. The violation was entered into the licensee's corrective action program as CR 1288208.

The performance deficiency was more-than-minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective in that there was a reasonable doubt on the operability of the B3 EECW pump since portions of the adjusted pump curve would be below the minimum pump curve established in the design basis calculation. Additionally, there was a significant reduction in available margin for the pump under design basis conditions. The finding was determined to be Green because the finding was a deficiency affecting the design of a mitigating system, but the pump maintained its operability. The inspectors determined that the finding had a cross-cutting aspect of Human Performance (H.6) within the cross-cutting area of Design Margins because engineers did not demonstrate the characteristic of ensuring that design margins were guarded and changed only through a systematic and rigorous process.

Inspection Report# : 2017002 (*pdf*)

Significance:  Oct 17, 2016

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Prompt Determination of Operability for the HPCI System

An NRC identified NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings" was identified for the licensee's failure to accomplish the Prompt Determination of Operability (PDO) for CR 1039036 in accordance with the requirements of NEDP-22, "Operability Determinations and Functional Evaluations," Sections 3.2.2.E, 3.2.2.G, and Attachment 2. As an immediate corrective action, the licensee revised the PDO to include an evaluation that supported a reasonable expectation of operability. The licensee entered the violation into the corrective action program as CR 1219620. The performance deficiency was more-than-minor because it was associated with the Human Performance 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). Specifically, after considering the inadequacies of the PDO, additional and significant evaluation was required to maintain reasonable assurance of the HPCI system operability. The inspectors determined the finding was Green because it was a deficiency affecting the qualification of HPCI, but it maintained its operability. The inspectors determined that the finding had a cross-cutting aspect of Evaluation in the Problem Identification and Resolution area [P.2], because the organization did not thoroughly investigate this issue commensurate with its potential safety significance.

Inspection Report# : 2016004 (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

. A self-revealing non-cited violation (NCV) of TS 5.7.1 was identified for a worker who entered a High Radiation Area (HRA) (Unit 1 reactor building steam tunnel) without proper authorization. This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their Corrective Action Program (CAP) as Condition Report (CR) 1219539, and took immediate corrective actions including restricting Radiologically Controlled Area (RCA) access for the individuals involved and performing confirmatory surveys of the area. This finding involved the cross-cutting aspect of Human Performance, Teamwork, [H.4], because a significant contributor to this event was poor communication between different work groups (workers entering the reactor building steam tunnel and RP personnel at the control)

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform Airborne Radioactivity Surveys

An inspector-identified non-cited violation (NCV) of TS 5.4.1 was identified for the licensee's failure to obtain an air sample while performing work in an area with smearable contamination levels greater than 50,000 disintegrations per minute (DPM) per 100cm². This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their CAP (CR 1219539) and, since the work created airborne radioactivity in the area, performed in-vivo monitoring on the affected workers to assess doses from the intake of radioactive material. This finding involved the cross-cutting aspect of Human Performance, Avoid Complacency, [H.12], because, considering the contamination levels present, RP staff underestimated the risk for potential airborne radioactive material in the area

Inspection Report# : 2017001 (*pdf*)

**Public Radiation Safety
Security**

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : November 29, 2017

Page Last Reviewed/Updated Monday, November 06, 2017



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Browns Ferry 3 – Quarterly Plant Inspection Findings

4Q/2017 – Plant Inspection Findings

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- Security

Initiating Events

Mitigating Systems

Significance: G Jul 26, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Inadequate Fire Risk Evaluation for Postulated Fires Affecting EECW Strainers

An NRC-identified non-cited violation of 10 CFR 50.48(c) and NFPA 805, Section 2.4.2.4 was identified for the licensee's failure to perform an adequate engineering analysis to determine the effects of fire on the ability to achieve the nuclear safety performance criteria. Specifically, the licensee's fire risk evaluation (FRE) of the effects of fire on the Emergency Equipment Cooling Water (EECW) strainers did not have an adequate basis. As an immediate corrective action, the licensee performed plant-specific analyses to determine the effects of fire on the functionality of EECW strainers and EECW system. The violation was entered into the licensee's corrective action program as CR 1263434.

The performance deficiency was determined to be more-than-minor because it was associated with the protection against external factors attribute of the Mitigating Systems cornerstone and adversely impacted the cornerstone objective in that failure to adequately

3

analyze the effects of fire damaged cables for the EECW strainers and backwash valves impacted the objective of ensuring the reliability of the EECW system during a fire. This finding was determined to be Green because the finding did not affect the ability to reach and maintain a stable plant condition within the first 24 hours of a fire event. The inspectors determined that the finding had a cross-cutting aspect of Avoid Complacency (H.12) within the cross-cutting

area of Human Performance because the licensee did not recognize that historical assumptions about long-term strainer functionality could contain mistakes and latent issues during development of the nuclear safety capability analysis.

Inspection Report# : 2017002 (*pdf*)

Significance:  Jul 26, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Assure EECW Design Basis Capability

An NRC-identified non-cited violation of 10 CFR Part 50, Appendix B, Criterion III was identified for the licensee's failure to correctly translate the design basis of the EECW system into technical instruction 0-TI-579(EECW). The effects of instrument uncertainty and diesel frequency variations were not considered when establishing the minimum allowed inservice test low alert pump flow limits. As an immediate corrective action, the licensee evaluated the operability of the EECW pump and initiated corrective action to make changes to the test criteria and/or the system design analysis. The violation was entered into the licensee's corrective action program as CR 1288208.

The performance deficiency was more-than-minor because it was associated with the Design Control attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective in that there was a reasonable doubt on the operability of the B3 EECW pump since portions of the adjusted pump curve would be below the minimum pump curve established in the design basis calculation. Additionally, there was a significant reduction in available margin for the pump under design basis conditions. The finding was determined to be Green because the finding was a deficiency affecting the design of a mitigating system, but the pump maintained its operability. The inspectors determined that the finding had a cross-cutting aspect of Human Performance (H.6) within the cross-cutting area of Design Margins because engineers did not demonstrate the characteristic of ensuring that design margins were guarded and changed only through a systematic and rigorous process.

Inspection Report# : 2017002 (*pdf*)

Barrier Integrity

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Unauthorized Entry into a High Radiation Area

. A self-revealing non-cited violation (NCV) of TS 5.7.1 was identified for a worker who entered a High Radiation Area (HRA) (Unit 1 reactor building steam tunnel) without proper authorization. This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their Corrective Action Program (CAP) as Condition Report (CR) 1219539, and took immediate corrective actions including restricting Radiologically Controlled Area (RCA) access for the individuals involved and performing confirmatory surveys of the area. This finding involved the cross-cutting aspect of Human Performance, Teamwork, [H.4], because a significant contributor to this event was poor communication between different work groups (workers entering the reactor building steam tunnel and RP personnel at the control)

Inspection Report# : 2017001 (*pdf*)

Significance:  Mar 31, 2017

Identified By: NRC

Item Type: NCV Non-Cited Violation

Failure to Perform Airborne Radioactivity Surveys

An inspector-identified non-cited violation (NCV) of TS 5.4.1 was identified for the licensee's failure to obtain an air sample while performing work in an area with smearable contamination levels greater than 50,000 disintegrations per minute (DPM) per 100cm². This performance deficiency was determined to be greater than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of Human Performance 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 inspectors determined the finding to be of very low safety significance (Green). The licensee entered the issue into their CAP (CR 1219539) and, since the work created airborne radioactivity in the area, performed in-vivo monitoring on the affected workers to assess doses from the intake of radioactive material. This finding involved the cross-cutting aspect of Human Performance, Avoid Complacency, [H.12], because, considering the contamination levels present, RP staff underestimated the risk for potential airborne radioactive material in the area

Inspection Report# : 2017001 (*pdf*)

Public Radiation Safety Security

The security cornerstone is an important component of the ROP, which includes various security inspection activities the NRC uses to verify licensee compliance with Commission regulations and thus ensure public health and safety. The Commission determined in the staff requirements memorandum (SRM) for SECY-04-0191, "Withholding Sensitive Unclassified Information Concerning Nuclear Power Reactors from Public Disclosure," dated November 9, 2004, that specific information related to findings and performance indicators associated with the security cornerstone will not be publicly available to ensure that security-related information is not provided to a possible adversary. Security inspection report cover letters will be available on the NRC Web site; however, security-related information on the details of inspection finding(s) will not be displayed.

Miscellaneous

Current data as of : February 01, 2018

Page Last Reviewed/Updated Monday, November 06, 2017