

# Watts Bar 1

## 4Q/2012 Plant Inspection Findings

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### Initiating Events

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### Mitigating Systems

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

#### **Failure to adequately develop and implement ice condenser ice basket repairs**

A NCV of 10 CFR 50 Appendix B, Criterion III, Design Control, for the licensee's failure to adequately develop and implement ice condenser ice basket repairs in accordance with approved engineering and maintenance documents.

Specifically, the inspectors observed that repairs to six

damaged ice condenser ice baskets, previously signed off as complete in the work order (WO) by the installers and following Quality Control inspection and acceptance were not in accordance with the design and maintenance WO documents. The licensee initiated Problem Evaluation Reports (PERs) 623040 and 626983 to address the inspector-identified deficiencies.

The licensee's failure to adequately develop and implement ice condenser ice basket repairs in accordance with approved engineering and maintenance documents was a performance deficiency. The inspectors reviewed Inspection Manual Chapter (IMC) 0612 and determined that the finding was more than minor because the deficiencies were not identified by the licensee and would have remained unidentified at least for the duration of the upcoming fuel cycle. Without the specified repairs being properly implemented on the damaged ice baskets, there was no reasonable assurance they were capable of performing their design function, and there was also potential for damage to adjacent ice baskets obstructing open flow paths, in the event the ice condenser was required to perform its design function. Using the Initial Characterization of Findings guidance of IMC 0609, the inspectors determined that the finding was of very low safety significance (Green) because no actual loss of safety function occurred. The cause of the finding had a cross-cutting aspect in the area of effective supervisory/management oversight in the Work Practices component. It was directly related to the licensee not ensuring adequate supervisory and management oversight of work activities, including the licensee engineering personnel that prepared and reviewed the ECP, the contractors that performed the repair work and the Quality Control personnel that performed the repair inspection and acceptance. (H.4 (c)). (See Section 1R18)

Inspection Report# : [2012005](#) (*pdf*)

**Significance:**  Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to follow procedure resulted in failing to remove jumpers inhibiting proper operation of the steam generator blowdown system**

A self-revealing NCV of Technical Specifications (TS) 5.7.1, Procedures, was identified for failing to adhere to OPDP-1, Conduct of Operations, Section 5.1, Procedure Adherence. The licensee failed to ensure a jumper was removed prior to placing the steam generator blowdown system into service per System Operating Instruction 90.01, Rev. 29, Liquid Process Radiation Monitors, step 5.5 [10]. This was a performance deficiency and a finding. The finding was more than minor because, if left uncorrected, it could lead to a more significant safety issue, a radioactive release, and was associated with the Mitigating Systems Cornerstone attribute of equipment performance (reliability) and adversely affected the cornerstone objective. The finding was evaluated using the SDP Phase I and was determined to be a finding of very low safety significance because actual high contamination levels did not occur

within the steam generators during the period that the jumper was installed. The licensee entered this issue into the corrective action program as PER 637279. The finding directly involved the cross-cutting area of Human Performance under the procedural compliance aspect of the work practices component; in that the procedural requirements of System Operating Instruction 90.01 were not met. (H.4(b)) (Section 40A3)

Inspection Report# : [2012005](#) (*pdf*)

**Significance:**  Sep 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to follow scaffold procedure threatens ERCW pump operability**

The inspectors identified a NCV of Technical Specification 5.7.1, Procedures, for the licensee's failure to properly implement Maintenance Procedure MMTP-102, Erection of Scaffolds/Temporary Work Platforms and Ladders, Revision 7. Specifically, a temporary scaffold erected in close proximity to an essential raw cooling water (ERCW) pump was not adequately restrained to prevent interaction with the pump motor during a seismic event. The licensee entered the issue into the corrective action program as Problem Evaluation Report (PER) 588895, removed the subject scaffold, and implemented corrective actions to inspect all scaffolding in Seismic Category I areas for similar conditions.

The licensee's failure to erect the scaffold in accordance with procedures in the vicinity of safety-related equipment was a performance deficiency. The inspectors reviewed IMC 0612 and determined that the finding was more than minor because, if left uncorrected, scaffold interaction with the pump motor during a seismic event could render the pump inoperable. The finding was associated with the Mitigating Systems Cornerstone. Using the Phase I screening worksheet of IMC 0609, the inspectors determined that the finding was of very low safety significance (Green) because no actual loss of safety function occurred and the finding did not screen as potentially risk significant due to external events. The cause of the finding had a cross-cutting aspect in the area of effective supervisory/management oversight in the Work Practices component. It was directly related to the licensee not ensuring adequate supervisory and management oversight of work activities, including contractors that erected the scaffold and licensee engineering personnel that reviewed and approved the deficient scaffold installation that could adversely affect nuclear safety. (H.4 (c)). (See Section 1R01).

Inspection Report# : [2012004](#) (*pdf*)

**Significance:**  Sep 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate corrective actions for the C ERCW pump breaker**

The inspectors identified a NCV of 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to correct an identified deficiency in the C-A ERCW pump breaker on July 25, 2012. This uncorrected deficiency led to the inability of the breaker to trip and is a performance deficiency. The inspectors reviewed IMC 0612 and determined that the finding was more than minor because, if left uncorrected, it would have the potential to lead to a more significant safety concern; specifically the failure of the C-A ERCW pump to load shed on a loss of offsite power. Additionally, the finding was associated with the equipment performance attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Using the Phase I screening worksheet of IMC 0609, the inspectors determined that the finding was of very low safety significance (Green) because the associated shutdown board is a Unit 2 board and is lightly loaded. Additionally, the failure of the C-A ERCW pump breaker to trip and thus be immediately loaded onto 2A emergency diesel generator is within the transient capability of the emergency diesel generator. The cause of the finding was directly related to the cross-cutting aspect for appropriate corrective actions to address safety issues in a timely manner commensurate with their safety significance and complexity in the corrective action program component of the cross-cutting area of Problem Identification and Resolution, in that the licensee failed to take adequate corrective actions to repair the C-A ERCW breaker when the initial deficiency was discovered on July 25, 2012. (P.1(d)). (See Section 40A2)

Inspection Report# : [2012004](#) (*pdf*)

**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to maintain steam generator blowdown isolation valves in the environmental qualification program**

The team identified a Green non-cited violation (NCV) of 10 Code of Federal Regulations (CFR) Part 50, Appendix B, Criterion III, "Design Control", for the licensee's failure to maintain steam generator blowdown (SGBD) isolation valves 1-FCV-1-181, 182, 183, and 184 in the environmental qualification (EQ) program. Removing the valves from the EQ database resulted in internal components (lower bottom gasket and reed switch) in the SGBD valves exceeding their qualified life and replacement intervals as stated in the licensee's existing EQ and revised EQ calculations. The licensee entered this issue into their corrective action program as problem evaluation report (PER) 495239 and service request (SR) 562298, and performed additional analyses and evaluations to provide reasonable assurance of operability of components.

The team determined that the failure to maintain SGBD isolation valves 1-FCV-1-181, 182, 183, and 184 in the EQ program, which resulted in two subcomponents in these valves exceeding their qualified life and replacement interval, is a performance deficiency. In addition, the licensee failed to perform an adequate functional evaluation to confirm operability of these valves after the NRC identified that the reed switch was not included in the original functional evaluation. The revised EQ calculation performed by the licensee to address the lower bottom gasket indicated the reed switch had exceeded its qualified life of 13.5 years; however, this was not addressed in the licensee's functional evaluation until identified by the NRC. This performance deficiency was more than minor because it affected the Mitigating System Cornerstone attribute of design control to ensure the availability, reliability, and capability of safety systems that respond to initiating events to prevent undesirable consequences. In addition, this performance deficiency also closely parallels Inspection Manual Chapter 0612, Appendix E, example 3.j because the error resulted in a condition where there was a reasonable doubt of the operability of safety related components as a result of the revised EQ calculation. The team screened this finding in accordance with NRC IMC 0609, "Initial Screening and Characterization of Findings," Attachment 4, Phase 1, and determined the finding was of very low safety significance (Green). The team determined that no cross-cutting aspect was applicable because this finding was not indicative of current licensee performance. (Section 1R17)

Inspection Report# : [2012003](#) (*pdf*)**Significance:** G Jun 30, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to identify degraded auxiliary charging pump and initiate corrective actions**

The inspectors identified a Green NCV of 10CFR50 Appendix B Criterion XVI for failure to identify that the 1A auxiliary charging pump (ACP) was degraded based on previous questionable testing results. The inspectors determined that no acceptable testing had been performed which verified the functionality of 1A and 1B ACP until March 23, 2012. During subsequent testing, only the 1B ACP met its acceptance criteria. This system relies on the capability of these pumps to support Technical Requirement 3.7.2, Flood Mode Protection Plan.

The performance deficiency 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 of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the 1A ACP was unable to perform its function in the event of severe external flooding for > 1 year. The inspectors performed a Phase 1 evaluation per Inspection Manual Chapter 0609, Attachment 4 and determined that the finding was potentially risk significant due the degradation of equipment specifically designed to mitigate external events (e.g., flooding mitigation). Consequently a Phase 3 analysis was performed by a Senior Reactor Analyst. The analyst determined that the risk significance of the issue was very low (i.e.,  $CDF < 1.0E-7$ ). The dominant sequence was a significant flooding event which would require the licensee to implement their Flood Mode Mitigation strategy, with the subsequent failure of a single train of ACP pumps for the system. The finding directly involved the cross-cutting area of human performance under the supervisory and management oversight of work activities component, in that, the failures of the ACPs were left unresolved for an extended period of time over a number of failed tests. (H.4(c)). (Section 4OA2)

Inspection Report# : [2012003](#) (pdf)

**Significance:**  May 15, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Establish Test Procedures to Assure Satisfactory auxiliary control air subsystem (ACAS) Performance during Design Basis Accidents**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for failure to perform capacity (volumetric flow) testing on the safety-related auxiliary control air subsystem (ACAS). The licensee had documented that, for worst case environmental conditions, the air compressor capacity had little margin when compared to required air demand, even for single unit operation. This issue was entered into the licensee's corrective action program as problem evaluation report 501941 for further evaluation of corrective actions.

Inspection Report# : [2012008](#) (pdf)

**Significance:**  May 15, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Adequately Test the AFW Discharge Check Valves**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for the licensee's failure to establish a test program that demonstrated the adequacy of the auxiliary feedwater (AFW) discharge check valves. Specifically, the licensee failed to develop a test program that would provide assurance that back leakage through the AFW discharge check valves would not prevent the system from providing design flowrates to the steam generators. This issue was entered into the licensee's corrective action program as problem evaluation report 499950. The licensee performed a functional evaluation and determined that the AFW system was operable based on the pumps not currently being degraded to the design limits, and the existence of additional conservatism in the licensee's design basis hydraulic analysis. (Green NCV).

Inspection Report# : [2012008](#) (pdf)

**Significance:**  May 15, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Inadequate Acceptance Criteria in Maintenance and Surveillance Procedures (5 Examples)**

The team identified five examples of a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to correctly translate vendor specifications and design calculations into maintenance and surveillance procedures. The five examples were entered into the licensee's corrective action program. (Green NCV)

Inspection Report# : [2012008](#) (pdf)

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Procedure AOI-30.2 C.36, Fire Safe Shutdown Room 737-A1A, Non-feasible Operator Manual Action.**

The inspectors identified an NCV of 10 Code of Federal Regulations (CFR) 50 Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to ensure that an operator manual action for fire safe shutdown (FSSD) could be feasibly performed under the current physical plant configuration. Specifically, post-fire safe shutdown procedure Abnormal Operating Instruction (AOI)-30.2 C.36, Fire Safe Shutdown Room 737-A1A, Revision 3, contained instructions for an operator manual action for FSSD that could not be feasibly performed following implementation of a plant design change. A temporary scaffold which was previously installed as a corrective action compensatory measure was removed without authorization. The licensee entered this issue into the corrective action program as Problem Evaluation Report (PER) 485043.

Inspection Report# : [2012002](#) (pdf)

**Significance:**  Mar 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to Comply with Technical Specification 3.4.12 by Allowing a Safety Injection Pump to inject into the RCS in Mode 5.**

A Green, self revealing NCV of Technical Specification (TS) 3.4.12 was identified for failure to ensure that no safety injection pump was capable of injecting into the reactor coolant system while in Mode 5. The finding was determined to be greater than minor because it was associated with the human performance attribute of the Mitigating Systems cornerstone and affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding was evaluated using the significance determination Phase 1 screening criteria in accordance with Inspection Manual Chapter (IMC) 0609 "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," and was determined to require review in accordance with IMC 0609 Appendix G, Shutdown Operations Significance Determination Process. This finding was determined to have a cross-cutting aspect in the area of human performance associated with the work practices component. The licensee failed to adequately implement human error prevention techniques, such as self and peer checking, to ensure that the work activity was being performed on the correct component. [H.4(a)].

Inspection Report# : [2012002](#) (*pdf*)

**Significance:**  Mar 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to Comply with Technical Specification 3.8.4, 3.8.5 and 3.0.3 by failing to recognize Vital Batteries III and IV degradation.**

A Green, NRC-identified NCV of TS 3.8.4, DC Sources Operating, was identified. The licensee's failure maintain TS operability by accurately identifying that vital battery III was approaching end-of-life was a performance deficiency. It is more than minor because, if left uncorrected, it could lead to a more serious safety concern, that of loss of functionality. Additionally, the finding was associated with the equipment performance attribute of the Mitigating Systems cornerstone and 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). Using IMC 0609, "Significance Determination Process," Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," the finding was determined to be of very low safety significance (Green), because subsequent functional testing by the licensee, witnessed by the inspectors, showed that vital batteries III and IV would meet all design basis analysis requirements.

This finding was determined to have a cross-cutting aspect in the area of human performance associated with the decision-making component. The licensee failed to use conservative assumptions in decision making and to adopt a requirement to demonstrate that the proposed action is safe in order to proceed rather than a requirement to demonstrate that it is unsafe in order to disapprove the action. [H.1(b)].

Inspection Report# : [2012002](#) (*pdf*)

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## Barrier Integrity

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## Emergency Preparedness

**Significance:**  Dec 31, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Late state notification of unusual event**

A self-revealing non-cited violation (NCV) of 10 Code of Federal Regulations (CFR) 50.54q(2) for failure to follow the approved emergency plan. Specifically, on August 10, 2012, state officials were not notified within 15 minutes of the declaration of an Unusual Event. State notification is a risk-significant planning standard requirement required by 10 CFR 50.47(b)(5), 10 CFR 50 Appendix E, Section IV.D.3 and Section 5.2.1, of the licensee's Radiological Emergency Plan.

The issue was greater than minor because it was associated with the Emergency Planning cornerstone attribute of Emergency Response Organization performance during an actual event. The finding affected the cornerstone objective in that timely notification is critical to 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. The inspectors reviewed this finding using IMC 0609, Appendix B, Emergency Preparedness Significance Determination Process, Attachment 1, Failure to Implement (Actual Event) Significance Logic. The finding was determined to be of very low safety significance because it was a failure to implement during an Unusual Event. The finding had a cross-cutting aspect in the area of Human Performance, Decision-Making, because the unit supervisor, in the absence of the shift manager, did not effectively fulfill his responsibility to direct or perform required state communications within the required 15 minute time period as required by the Radiological Emergency Plan. (H.1(a). (Section 1EP5)

Inspection Report# : [2012005](#) (*pdf*)

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## **Occupational Radiation Safety**

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## **Public Radiation Safety**

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## **Security**

Although the Security Cornerstone is included in the Reactor Oversight Process assessment program, the Commission has decided that specific information related to findings and performance indicators pertaining to the Security Cornerstone will not be publicly available to ensure that security information is not provided to a possible adversary. Other than the fact that a finding or performance indicator is Green or Greater-Than-Green, security related information will not be displayed on the public web page. Therefore, the [cover letters](#) to security inspection reports may be viewed.

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## **Miscellaneous**

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