

Watts Bar 1

3Q/2005 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

DG Fans Removed From Service and Tech Spec SR 3.8.1.1 Not Performed

Green. The inspectors identified a non-cited violation of Technical Specification (TS) 3.8.1 when the 1A-A Diesel Generator (DG) was inoperable due to both ventilation exhaust fans being out of service. Surveillance Requirement 3.8.1.1 was not performed as required within one hour. A senior reactor operator issued a hold order which tagged out the exhaust fans and did not recognize that this action made the DG inoperable.

The finding is more than minor because it affected the availability attribute of the Mitigating System Cornerstone. The DG would have started and run but manual action would have been required to shut a breaker to provide power to one of the fans for continued operation. The finding was of very low safety significance (Green) because it did not result in a loss of function per Generic Letter 91-18, did not represent an actual loss of safety function for a single train greater than its TS allowed outage time, and was not potentially risk-significant due to possible external events. The cause of this finding impacts the human performance cross-cutting area.

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

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Perform an Adequate PMT for RHR Pump Seal

Green. The inspectors identified a non-cited violation of TS 5.7.1.1, which requires that written procedures be implemented covering the activities in the applicable procedures recommended by Regulatory Guide 1.33, including procedures for maintenance. The procedure and work order for post-maintenance testing (PMT) for a residual heat removal (RHR) pump seal replacement were not followed. The PMT was performed at 215 pounds per square inch gauge (psig) instead of the specified 275-300 psig but was signed as complete and acceptable.

The finding is more than minor because it impacted the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences to the reactor core and the associated cornerstone attribute of human performance. A failure to perform the PMT as specified had a credible impact on reactor safety because the 1A RHR pump mechanical seal subsequently failed. The finding was of very low safety significance (Green) because it only affected one train of RHR and the steam generators (SGs) were available for heat removal. The cause of the finding impacts the cross-cutting area of human performance.

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

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Establish a Contingency Plan for an Orange Risk Condition Involving Electrical Power

Green. The inspectors identified a non-cited violation of 10 CFR 50.65 (a)(4) which requires that the licensee assess and manage the increase in risk that may result from the proposed maintenance activities. The licensee did not establish a pre-approved contingency plan for an Orange risk condition involving electrical power as required by procedure Standard Programs and Processes (SPP)-7.2, Outage Management.

The licensee's failure to establish a contingency plan for a high risk condition is more than minor because it impacted the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences to the reactor core and the associated cornerstone attribute of human performance. The finding did not increase the likelihood of a loss of offsite power or degrade the licensee's ability to cope with a loss of offsite power, resulting in the characterization of very low safety significance (Green). The cause of the finding, failure to implement outage procedural requirements, impacts the cross-cutting area of human performance.

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

G**Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Provide Complete and Accurate Information to the NRC which Impacted a Licensing Decision.

The inspectors identified a non-cited Severity Level IV violation (NCV) of 10 CFR 50.9 for failure to provide complete and accurate information for one licensed operator on his initial license application. The applicant did not meet the American Nuclear Standards Institute /American Nuclear Society (ANSI/ANS) 3.4, 1983, standard for visual acuity without corrective lenses and had a pre-existing medical condition, both of which required a license restriction. The licensee submitted his NRC Form 396, Certification of Medical Examination by Facility Licensee, along with supplemental medical information, without recommending these restrictions. The NRC imposed a no-solo restriction on the operator's license after reviewing the supplemental information. The failure to certify the need for corrective lenses resulted in an incorrect licensing action by the NRC because a license was issued without a restriction to wear corrective lenses.

Because this issue affected the NRC's ability to perform its regulatory function, it was evaluated using the traditional enforcement process. This finding is of very low safety significance because there was no evidence that the operator endangered plant operations as a result of impaired visual acuity while performing licensed duties since the original issuance of his license. However, the regulatory significance was important because the incorrect information was provided under sworn statement to the NRC and impacted a licensing decision for the individual. The facility licensee took prompt corrective action and submitted NRC Form 396 requesting to have the operator's license amended with the appropriate restriction. This issue is documented in the facility licensee's corrective action program as Problem Evaluation Report (PER) 72386.

Inspection Report# : [2004005\(pdf\)](#)**G****Significance:** Dec 31, 2004

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedure for Surveillance of Remote Shutdown System Instrumentation.

The inspectors identified a non-cited violation of Technical Specification (TS) 5.7.1, which requires that written procedures be implemented covering the activities in the applicable procedures recommended by Regulatory Guide 1.33, including procedures for surveillances. The surveillance procedure for remote shutdown system instrumentation was inadequate because it failed to give guidance for determining instrument operability when an instrument was at the top of scale and at the maximum allowed channel deviation. The performance deficiency resulted in an unexpected TS Limiting Condition for Operation entry.

This finding is greater than minor because it affects the ability of the licensee to monitor the status of the reactor following a control room evacuation and is associated with the Mitigating Systems cornerstone and the respective attribute of procedure quality. This finding is of very low safety significance because it did not result in a loss of function per Generic Letter 91-18, did not represent an actual loss of safety function, and is not potentially risk-significant due to external events. A contributing cause of the finding is related to the cross-cutting element of human performance.

Inspection Report# : [2004005\(pdf\)](#)**W****Significance:** Nov 22, 2004

Identified By: NRC

Item Type: VIO Violation

Inadequate Corrective Action to Identify and Correct Silt Blockage of ERCW Piping

On November 22, 2004, the 1A-A Centrifugal Charging Pump (CCP) backup cooling line from the essential raw water cooling (ERCW) system was found completely blocked with silt and had to be cleared mechanically. ERCW cooling via this line supplies the 1A-A CCP, which is the only high head pump provided with a backup source of raw cooling water. A Problem Evaluation Report (PER) was initiated, but was assigned the lowest significance level and closed based on the corrective actions which cleared the line and some planned corrective actions to verify that it remained clear again in six months. In early 2004, Watts Bar had begun to experience silt buildup and some blockages in ERCW lines. In each case, the blockages were determined not to affect operability because the lines were only partially blocked or the blockage cleared when flow was initiated through the line. Licensee corrective actions for the previous instances included clearing the blockage and assessing each incident separately. As a result, the frequency of monitoring the ERCW line to the 1A-A CCP was unchanged at once every 18 months. The NRC identified and determined that TVA's actions in response to the previous silt blockage problems did not constitute adequate corrective action to preclude silt blockage of the ERCW line to the 1A-A CCP.

10 CFR Part 50, Appendix B, Criterion XVI, Corrective Actions, requires in part that measures shall be established to assure that conditions adverse to quality, such as failures and malfunctions, are promptly identified and corrected. Contrary to the above, from July 10, 2003, through November 22, 2004, the licensee failed to promptly identify and correct conditions adverse to quality. Specifically, Tennessee Valley Authority's (TVA) actions in response to previous silt blockage problems in essential raw cooling water (ERCW) cooling lines did not constitute adequate corrective action to identify and correct a complete silt blockage of the 1A-A centrifugal charging pump (CCP) backup cooling line from the ERCW system. In addition, on December 8, 2004, TVA's corrective actions for the blockage of the ERCW line to the 1A-A CCP failed to include efforts to determine if there were other ERCW lines requiring more frequent monitoring that were not included in licensee Technical Instructions 67.003 and 67.004, Component Flow Blockage Testing Utilizing Ultrasonics Essential Raw Cooling Water - (Train A and B). NRC has concluded that the inspection finding is appropriately characterized as White (i.e., an issue with low to moderate

safety significance which may require additional NRC inspections) in the Mitigating Systems cornerstone.

An Assessment Follow-Up Letter was issued on May 11, 2005, which scheduled a Supplemental Inspection and was documented as Inspection Report 05000390/2005011. The supplemental inspection was completed July 15, 2005 and the report issued August 10, 2005. The supplemental inspection assessed TVA's evaluation and corrective actions and concluded that the licensee's problem identification and root cause analysis was acceptable. The licensee determined that the root causes of the event were attributable to less than adequate sensitivity to silt, failure to use a systematic process for non-design engineering output products, and the lack of a systematic program and capability for flushing. The completed and proposed corrective actions, including actions to prevent recurrence, have adequately addressed the results of the root cause evaluation. Given the licensee's acceptable performance in addressing the silting problems, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program." Implementation of the licensee's corrective actions will be reviewed during future routine inspections.

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

Inspection Report# : [2005007\(pdf\)](#)

Inspection Report# : [2005008\(pdf\)](#)

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

Barrier Integrity

Significance:  Sep 30, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Procedures for Containment Closure

The inspectors identified a violation of Technical Specification 5.7.1.1 for an inadequate procedure for containment closure. The licensee's procedure for containment closure during loss of shutdown cooling events could have resulted in not being able to restore containment availability. This was due to the use of a temporary foam seal, which was not rated for containment pressure, and due to the procedures allowing up to four hours to install blind flanges.

This finding is more than minor because it affected the configuration control attribute of the Barrier Integrity Cornerstone for the reactor containment. The temporary penetration seals relied upon for containment closure were not leak tight and would fail if the containment pressurized. This finding was of very low safety significance because the time duration with the reactor coolant system depressurized and vented with the vessel head on, one charging pump and two safety injection pumps was short, and all four diesel generators (DGs) were available, and the Unit 2 DGs can backfeed the Unit 1 shutdown boards. The finding was entered into the licensee corrective action program as problem evaluation report (PER) 79310. The cause of this finding (inadequate technical evaluations) impacts the human performance cross-cutting area.

Inspection Report# : [2005004\(pdf\)](#)

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Implement Procedures which Impacted TS Requirements of the Pressurizer PORV.

Green. The inspectors identified a non-cited violation of TS 5.7.1.1 which requires that written procedures be implemented covering the activities in the applicable procedures recommended by Regulatory Guide 1.33, including procedures for maintenance. The licensee failed to follow procedures for work control which resulted in de-tensioning the pressurizer PORV mounting nuts when it was a designated operable vent path per TS.

This finding had a credible impact on safety involving the challenge of RCS integrity by the performance of work on the pressurizer PORVs. The finding was more than minor because it impacted the Barrier Integrity Cornerstone objective to provide reasonable assurance that the RCS physical design barrier protects the public from radionuclide releases caused by accidents or events and the associated cornerstone attributes of human performance. The licensee had the functional ability to establish an alternate core cooling path in the event of a loss of RHR based on the licensee's conclusion that the venting capability of the detensioned PORVs was still functionally available. This resulted in the characterization of Green (very low safety significance). The cause of the finding impacts the cross-cutting area of human performance.

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

Emergency Preparedness

Occupational Radiation Safety

Significance:  Mar 31, 2005

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Radioactive Material Movement Created an Unposted and Unbarricaded High Radiation Area

Green. A self-revealing non-cited violation of TS 5.11.1 was identified for an un-posted high radiation area. The high radiation area was created when lower containment coordinators sent contaminated trash out of lower containment to upper containment without properly notifying the radcon radwaste technician.

The finding was more than minor because it was associated with the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material. The uncontrolled high radiation area created the potential for unplanned and unintended dose to individuals working in the proximity of the trash. The finding was of very low safety significance because the dose rates were not sufficient to produce a substantial potential for an exposure in excess of regulatory limits. This finding impacts the cross-cutting aspect of human performance.

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

Public Radiation Safety

Significance:  Mar 31, 2005

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Evaluate Effluent Sample Line Losses for the Auxiliary Building Ventilation Monitor (0-RE-90-101) Compensatory Sampling Skid

Green. The inspectors identified a non-cited violation of TS 5.7.1.1 for failure to implement effluent monitoring quality assurance design guidance used to demonstrate representative sampling for the Auxiliary Building Ventilation Monitor (0-RE-90-101) compensatory sampler. This issue was initially identified as an Unresolved Item following an inspection in December 2004.

This finding is more than minor because it is associated with the program and process attribute of the Public Radiation Safety Cornerstone and affects the cornerstone objective to assure 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 failure to conduct appropriate evaluations to assure representative sample collection from the U1 plant ventilation exhaust streams using the compensatory sampling configuration could result in inaccurate measurement of airborne particulate radionuclides in effluent samples and inaccurate dose estimates to members of the public. This finding was evaluated using the Public Radiation Safety SDP and is of very low safety significance (Green) because the licensee's ability to assess offsite dose was not impaired and doses to the public were below 10 CFR 50, Appendix I, and 10 CFR 20.1301 limits.

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

Physical Protection

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

Miscellaneous

Significance: N/A Mar 04, 2005

Identified By: NRC

Item Type: FIN Finding

Problem Identification and Resolution

The team determined that the licensee was identifying plant deficiencies at an appropriately low level and effectively entering them into their corrective action program. The team made several observations on the licensee's new eCAP computer system that the licensee is assessing. Some aspects of using it were cumbersome and it limited access to all licensee staff members and the ability to initiate anonymous concerns. The team also determined that the licensee was prioritizing and evaluating issues properly. The team identified several examples where corrective actions did not appear appropriate or were not completely carried out. The team concluded, however, that several of these were documentation problems. Overall, the licensee was generally providing effective corrective actions.

On the basis of interviews conducted during this inspection, workers at the site felt free to put safety concerns into the corrective action program. The inspectors concluded that the employee Concerns Resolution program was functioning as intended.

Inspection Report# : [2005006\(pdf\)](#)

Last modified : November 30, 2005