

Duane Arnold

4Q/2008 Plant Inspection Findings

Initiating Events

Significance:  Mar 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PROPERLY ADMINISTER AND DOCUMENT OVERTIME LIMITS, REQUIREMENTS, AND DEVIATIONS.

A finding of very low safety significance, and an associated NCV of Technical Specification (TS) 5.2.2.e, Administrative Controls, Organization, Unit Staff, was identified by the inspectors for the licensee's failure to follow the Administrative Control Procedure (ACP) 101.4, "Overtime Limits and Requirements," Section 3.1 (3) requirement for assuring that personnel do not exceed the overtime requirements without prior authorization. The licensee entered this issue into its corrective action program to evaluate the adequacy and effectiveness of the ACP, and to identify required procedure revisions to prevent recurrence.

Using the minor questions in Appendix B of IMC 0609, the inspectors determined that the finding was more than minor because the issue was associated with the Initiating Events Cornerstone attribute of Human Performance and affected the cornerstone objective of limiting the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the unrecognized periods of excessive work hours would increase the likelihood of human errors during refueling outage activities and response to plant events, i.e. fire watches. Since these periods were unrecognized and not authorized in advance by management, the excessive work hours could result in more significant safety concerns. Because this issue occurred during the last refueling outage, the finding was evaluated in accordance with IMC 0609, Appendix G, "Shutdown Operations SDP." Using Checklist 7, "Boiling Water Reactor (BWR) Refueling Operation with RCS Level > 23", contained in Attachment 1, the inspectors determined that since the plant had appropriately met the safety function guidelines for core heat removal, inventory control, power availability, containment integrity, and reactivity control, and since a phase 2 or phase 3 analysis was not required, the finding screened as Green using Figure 1.

This finding has a cross-cutting aspect in the area of Human Performance for the Resources safety culture component because the licensee did not ensure that sufficient trained personnel and procedures were available and adequate to assure nuclear safety by maintaining work hours within working hour limits.

Inspection Report# : [2008002](#) (*pdf*)

Mitigating Systems

Significance:  Sep 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

INADEQUATE ASSESSMENT OF ECCS ROOM COOLER FAN MOTOR BEARING NONCONFORMING CONDITION.

A finding of very low safety significance and associated NCV of Technical Specification (TS) Section 5.4.1.a, associated with Regulatory Guide 1.33, Revision 2, Appendix A, Section 9, was identified by the inspectors when the licensee failed to adequately evaluate a condition adverse to quality prior to the maintenance activity's Environmental Qualification (EQ) Drop Dead Date (DDD). Specifically, the licensee failed to evaluate the Emergency Core Cooling System (ECCS) room cooler fan motors as operable but non-conforming prior to the EQ DDD as required by Duane

Arnold's Preventive Maintenance Program procedure. The licensee entered this condition into their CAP as Corrective Action Process document 060543, and declared the equipment operable but non-conforming.

This issue is more than minor because the finding 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 undesired consequences. Specifically, the failure to correctly assess the ECCS room cooler fan motor bearings as nonconforming with their EQ calculation of record had the potential to impact the availability and reliability of the ECCS room coolers. The inspectors evaluated the finding using the 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. Because the finding was a qualification deficiency confirmed not to result in a loss of operability or functionality, the finding screened as Green. This finding has a cross-cutting aspect in the Problem Identification and Resolution (PI&R) component of CAP, because the licensee did not properly classify, prioritize, and evaluate for operability a condition adverse to quality [P.1(c)]. Specifically, the Engineering and Operations Departments failed to classify the ECCS room cooler fan motors as operable but nonconforming.

Inspection Report# : [2008004](#) (*pdf*)

Significance:  Sep 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

FAILURE TO PERFORM A TS SURVEILLANCE REQUIREMENT FOR THE HPCI SYSTEM WITHIN THE SPECIFIED FREQUENCY.

A finding of very low safety significance and associated NCV of 10 CFR 50 Appendix B, Criterion III, "Design Control" was identified by the inspectors for the licensee's failure to assure that applicable regulatory requirements and design basis were correctly translated into specifications, drawings, procedures and instructions. Specifically, following installation of a permanent modification to install a high pressure keep fill system for the high pressure coolant injection (HPCI) system discharge piping, the Surveillance Test Procedure (STP) implemented to document performance of Surveillance Requirement (SR) 3.5.1.1 for the HPCI system did not ensure that the minimum requirements for system operability were met. The licensee entered this issue into their CAP as CAP 060168, and invoked SR 3.0.3 to address the potentially missed SR.

The issue was more than minor because the finding was associated with the Mitigating Systems Cornerstone attribute of design control of permanent modifications and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesired consequences. Specifically, the Operations department did not recognize that the implementation of the surveillance procedure which documented the performance of SR 3.5.1.1 for the HPCI system did not ensure that the minimum requirements for system operability were met and therefore had the potential to impact the availability and reliability of the HPCI system. The inspectors evaluated the finding using the 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. Because the finding does not represent an actual loss of safety function of a single train, and does not screen as risk significant due to an external initiating event, the finding was screened as very low safety significance (Green). The inspectors also determined that this finding had a cross-cutting aspect in the PI&R component of CAP, because the licensee did not properly classify, prioritize, and evaluate for operability a condition adverse to quality [P.1(c)]. Specifically, the Operations and Engineering Departments failed to recognize that the system conditions established during performance of STP 3.5.1-13 had the potential to preclude performance of the SR and allow the condition to go unrecognized.

Inspection Report# : [2008004](#) (*pdf*)

Significance:  Mar 14, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Calculations/Analyses for Essential 4160 VAC Circuit Breaker Close/Open Coils (1R21.3.b.(1))

A finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to assure and verify that adequate control voltage was available for the close and open coils of the 4160VAC [volts alternating current] safety-related breakers. The licensee entered this performance deficiency into its corrective action program, performed a simplified evaluation to determine the worst case available close coil voltage at the worst case breaker fed from the 4160VAC essential switchgear, and conducted testing to demonstrate a reasonable assurance of operability. The finding was determined to be more than minor because the failure to assure and verify that adequate control voltage was available to close and open the 4160VAC breakers could have affected the capability of emergency diesel generators and other safety-related equipment to respond to initiating events. The issue was of very low safety significance because the inspectors determined it was a design deficiency that did not result in actual loss of safety function. The inspectors determined there was no cross-cutting aspect associated with this finding. (Section 1R21.3.b.(1))

Inspection Report# : [2008006](#) (*pdf*)

Significance:  Mar 14, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Calculations/Analyses and Testing for TOLs on Safety-Related MOVs (1R21.3.b.(2))

A finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified by the inspectors for the failure to assure that thermal overload relays (TOLs) on safety-related motor-operated valve (MOV) circuits were sized properly and periodically tested. The licensee entered this issue into its corrective action program and was able to demonstrate operability in that the TOLs would not prevent any MOVs from performing their safety function. The finding was determined to be more than minor because the failure to assure that TOLs were properly sized and periodically tested could have affected the ability for MOVs to respond to initiating events. The issue was of very low safety significance because the inspectors determined it was a design deficiency that did not result in actual loss of safety function. The inspectors determined there was no cross-cutting aspect associated with this finding. (Section 1R21.3.b.(2))

Inspection Report# : [2008006](#) (*pdf*)

Significance:  Mar 14, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Failure to Periodically Test Reactor Protection System Key Lock Bypass Switches (1R21.6.b.(1))

A finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," was identified by the inspectors for the failure to test reactor protection system (RPS) key locked bypass switches. The licensee entered this issue into its corrective action program and initiated procedural changes to require periodic testing of the RPS bypass switches. This finding was more than minor because the licensee did not ensure the operability and functional performance of the key lock switches used bypass automatic protection circuits in the RPS. The issue was of very low safety significance because the inspectors determined that it did not result in actual loss of safety function. The inspectors determined there was no cross-cutting aspect associated with this finding. (Section 1R21.6.b.(1))

Inspection Report# : [2008006](#) (*pdf*)

Barrier Integrity

Significance:  Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

HPCI STEAM EXHAUST VACUUM BREAKER PIPING CONFIGURATION NOT IN CONFORMANCE WITH PIPING DESIGN BASIS ANALYSIS OF RECORD.

A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified by the inspector for the failure of the high pressure coolant injection vacuum breaker piping configuration to be in conformance with the piping design analysis of record. The licensee entered this issue into its corrective action program and was able to demonstrate the vacuum breaker piping to be operable during design basis accident conditions.

The finding was determined to be more than minor because the finding was similar to Inspection Manual Chapter 0612, Appendix E, Example 3a. Specifically, to restore conformance of the high pressure coolant injection vacuum breaker piping to the piping design basis analysis of record, a modification to the existing piping configuration is necessary. The inspector determined the finding was of very low safety significance because it was a design deficiency that did not result in actual loss of safety function. The inspector determined there was no cross cutting aspect associated with this finding.

Inspection Report# : [2008005](#) (*pdf*)

Significance: SL-IV Dec 31, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

10 CFR 50.59 SAFETY EVALUATION NOT PERFORMED FOR CHANGE IN METHOD OF EVALUATION.

A finding of very low safety significance and associated NCV of 10 CFR Part 50.59, “Changes, Tests, and Experiments,” was identified by the inspector for the licensee’s failure to provide a documented basis that a change in the method of evaluation for small bore torus attached piping systems as defined in the Plant Unique Analysis Report for torus attached piping did not require prior NRC approval.

Because the issue affected the NRC’s ability to perform its regulatory function, this issue was evaluated using the traditional enforcement process. The finding was determined to be more than minor because the inspector could not reasonably determine that the change would not have ultimately required NRC prior approval. The finding was determined to be of very low safety significance by the NRC’s significance determination process because it was a design deficiency that did not result in actual loss of safety function. 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 to demonstrate that a proposed action is safe to proceed, in that, the licensee did neither verify the validity of their justification to not reevaluate the high pressure coolant injection steam exhaust vacuum breaker piping attached to the modified high pressure coolant injection steam exhaust piping nor identify adverse consequences due to changes in the high pressure coolant injection steam exhaust piping resonant frequency content [H.1(b)].

Inspection Report# : [2008005](#) (*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 : April 07, 2009