

Calvert Cliffs 2

3Q/2009 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance:  Sep 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Did Not Implement Corrective Action Program Procedure Requirements

. The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for Unit 2 because Constellation did not adequately implement the corrective action program (CAP) requirements contained in CNG-CA-1.01-1000, "Corrective Action Program." Specifically, Constellation did not initiate condition reports (CRs) for conditions adverse to quality during maintenance activities after operators identified that the No. 21 saltwater (SW) pump pit flooded. As a result, Constellation did not initiate CRs for a failed radial bearing, three of the four bearing housing bolts being corroded beyond repair, a clogged floor drain in the SW pump pit, and the No. 21 SW pump pit being flooded. Constellation entered this issue into their CAP for resolution as CR-2009-006077. Constellation corrected these deficiencies when maintenance personnel drained the SW pit and overhauled the No. 21 SW pump on December 22, 2008.

This finding is more than minor because, if left uncorrected, this finding would have the potential to lead to a more significant safety concern. Specifically, Constellation relies on their CAP to ensure that issues potentially affecting nuclear safety and equipment reliability are promptly identified, fully evaluated, and actions taken to prevent recurrence. The failure to initiate CRs when required could result in less than adequate corrective action response to nuclear safety issues in a timely manner. The inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its Technical Specification (TS) allowed outage time, and did not screen as potentially risk significant due to external events. This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not adequately implement the CAP to identify issues completely, accurately, and in a manner commensurate with their safety significance (P.1.a of IMC 0305). (Section 1R19)

Inspection Report# : [2009004](#) (*pdf*)

Significance:  Aug 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Test control of Safety Related Batteries

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion XI, "Test Control," in that Constellation did not assure that required testing was performed in accordance with written test procedures and that test results were documented and evaluated to verify that test requirements were satisfied. Specifically, there were instances where Constellation did not correctly calculate battery capacity, record battery voltages, and properly load the battery during the 11 and 21 station battery discharge tests. In response, Constellation entered the issue into the corrective action program and determined that there was sufficient battery margin to assure operability of the station batteries.

The finding is more than minor because it is associated with the procedure quality attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very

low safety significance (Green) because it was not a design or qualification deficiency, did not represent a loss of system safety function, did not represent an actual loss of safety function of a single3 train, and did not 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, Resources Component, because Constellation did not ensure that complete, accurate, and up-to-date procedures were available and adequate to assure nuclear safety. Specifically, the battery discharge test procedures did not ensure that capacities were correctly calculated, critical voltages were recorded, and battery test loading parameters were correct.

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Aug 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

U=Inadequate Design Control for 125 Vdc System

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that, Constellation did not assure that the design basis was correctly translated into specifications, drawings, procedures, and instructions. Specifically, Constellation did not assure that design inputs were appropriate, calculations were performed corectly, and design changes were incorporated into the 125 Vdc system design documents. In response, Constellation entered the issue into the correctve action program and determined that the station batteries were operable based upon battery age and capacity, and an assessment of the specific deficiencies.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was a design or qualification deficiency that did not result in a loss of the 125 Vdc system operability or functionality. This finding has a cross-cutting aspect in the area of Human Performance, Resources Component, because Constellation did not ensure that complege, accurate, and up-to-date design documentation was available and adequate to assure nuclear safety. Specifically, Constellation did not assure that design inputs were appropriate, calculations were done correctly, and design changes were incorporated into the 125 Vdc design documents. (IMC 0305, Aspect H.2(c)).

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Aug 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control for 4 kV Bus Undervoltage Protection

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that, Constellation did not verify the adequacy of design with respect to establishing the basis for the degraded voltage relay setpoint. Specifically, the load flow calculation used a non-conservative input to justify the 4160 Vac degraded voltage setpoint; and testing that was performed to analyze motor control center contactor voltage was non-conservative.

The finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safet significance (Green) because it was a design deficiency that did not result in the loss of electrical distribution system operability or functionality. This finding did not have a cross-cutting aspect because the most significant contributor of the performance deficiency was not reflective of current licensee performance.

Inspection Report# : [2009006](#) (*pdf*)

Significance:  Aug 28, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control for Potential Air Entrainment i the ECCS

The team identified a finding of very low safety significance involving a non-cited violation of 10 CFR 50, Appendix B, Criterion III, "Design Control," in that, Constellation did not ensure the adequacy of the emergency core cooling system (ECCS) design under post-accident conditions. Specifically, Constellation had not performed adequate analyses or testing to evaluate the potential impact of air being entrained in the flow from the refueling water tank (RWT) during the transition of the ECCS from the RWT to the containment sump. In response, Constellation entered this issue into their corrective action program and performed analyses to demonstrate that this condition did not render associated equipment inoperable.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team determined the finding was of very low safety significance (Green) because it was a design or qualification deficiency confirmed not to result in a loss of ECCS operability or functionality. This finding did not have a cross-cutting aspect because the most significant contributor of the performance deficiency was not reflective of current licensee performance.

Inspection Report# : [2009006](#) (pdf)

Significance:  Jun 30, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Test Control associated with the Safety-Related Auxiliary Feedwater Pump Room Emergency Ventilation System

The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," for Units 1 and 2 because Constellation did not establish an adequate test program to assure that the auxiliary feedwater (AFW) pump room emergency ventilation system would perform satisfactorily in service. Specifically, the performance evaluations used to determine the equipment performance of the emergency ventilation system did not incorporate the requirements and acceptance limits contained in the Updated Final Safety Analysis Report (UFSAR). This resulted in Constellation not recognizing that the AFW pump room emergency ventilation system did not meet the design requirements stated in the UFSAR. Constellation entered this issue into their corrective action program (CAP) for resolution as CR-2008-002833. The immediate corrective action included performing an operability determination to verify the operability of the Unit 1 and 2 turbine driven auxiliary feedwater (TDAFW) pumps. The planned corrective action included the installation of larger ventilation fans to obtain the required flow rate and to create a preventive maintenance task to measure the airflow for each emergency ventilation fan.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of the AFW system, which responds to initiating events to prevent undesirable consequences (i.e., core damage). Additionally, the finding is similar to a "not minor if" example in Appendix E of IMC 0612, example 3.i, in that the facility was not consistent with the UFSAR and required that an analysis be re-performed to ensure that accident analysis requirements were met. The inspectors determined that the finding is of very low safety significance because it is not a design or qualification deficiency, did not represent a loss of a safety function of a system or a single train greater than its Technical Specifications (TS) allowed outage time, and did not screen as potentially risk significant due to external events. There is no cross-cutting aspect identified for this finding because the inspectors determined that the performance deficiency is the result of a latent issue and Constellation did not have a reasonable opportunity to identify the problem.

Inspection Report# : [2009003](#) (pdf)

Significance:  Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Risk Assessment Associated with the No. 21 Charging Pump

The inspectors identified an NCV of 10 CFR Part 50.65 (a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," because Constellation did not assess and manage the increase in risk that resulted from maintenance activities that impacted the availability of the No. 21 charging pump. On February 4, 2009, operators isolated the Unit 2 core flush piping to prevent back-leakage of water from the charging system into one of the safety injection tanks. Isolating the core flush piping also prevented the ability of the No. 21 charging pump to

automatically start on a safety injection actuation signal and deliver concentrated boric acid to the reactor coolant system (RCS). The inspectors noted that this function is modeled in the site specific probabilistic risk assessment (PRA) model. However, Constellation did not assess the risk associated with the unavailability of the No. 21 charging pump for an 8 day period. Immediate corrective actions included a re-evaluation of the risk and entering this issue into their CAP for resolution.

The finding is more than minor because Constellation's risk assessment did not consider risk significant structures, systems, and components (SSCs) (i.e. No. 21 charging pump) that were unavailable during the maintenance activity. The finding is associated with the configuration control attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding is of very low safety significance because the incremental core damage probability deficit was less than 1.0E-6. This finding has a cross-cutting aspect in the area of human performance, because Constellation did not appropriately plan and incorporate risk insights in work activities associated with maintenance activities that impacted the availability of the No. 21 charging pump (H.3.a).

Inspection Report# : [2009002](#) (*pdf*)

Significance:  Dec 30, 2008

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Design Control Associated with the Auxiliary Feedwater Pump Room Temperature.

The inspectors identified an NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," because Constellation did not provide design control measures for verifying the adequacy of a design calculation used to determine the maximum initial room temperature for the auxiliary feedwater (AFW) pump room. Specifically, Constellation used non-conservative inputs and assumptions in the design calculation that resulted in Constellation not recognizing that the design basis accident (DBA) temperature limit could have been exceeded. The AFW pump room emergency ventilation system must be established prior to exceeding a specified maximum initial room temperature to ensure that the AFW pump room temperature would not exceed the design limit of 130°F. Constellation entered this issue into their corrective action program (CAP) for resolution. The immediate corrective actions included establishing compensatory requirements for initiating emergency ventilation and conducting a re-analysis of the design calculation. The planned corrective action includes a modification to install a new automatic starting emergency ventilation system.

This finding is more than minor because it is similar to example 3.j. in Appendix E of IMC 0612 in that the non-conservative inputs and assumptions resulted in a condition where it created reasonable doubt on the operability of the turbine-driven AFW (TDAFW) pumps . The finding is associated with the design control attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability and reliability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding is of very low safety significance (Green) because the finding is a design and qualification deficiency confirmed not to result in the loss of operability per "Part 9900, Technical Guidance, Operability Determination Process for Operability and Functional Assessment." There is no crosscutting aspect associated with this finding.

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

Significance:  Dec 30, 2008

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Untimely Corrective Actions Associated with 480 Volt Power Supply Disconnects.

A self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions," was identified because Constellation did not take timely corrective actions following the identification of degraded 480 volt power supply handswitch disconnects. This led to the failure of the Unit 1 No. 13 component cooling (CC) pump to start during performance of a surveillance test. The inspectors noted that Constellation had previously identified handswitch disconnects failures in 2006 and 2007. Immediate corrective action included replacing the handswitch disconnect for

the 13 CC pump, conducting an extent of condition review, and entering this condition into their CAP.

The finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors determined that the finding was of very low safety significance because the finding does not represent the loss of system safety function, does not represent actual loss of safety function of a single train for greater than its technical specification allowed outage time, and does not screen as potentially risk significant due to external events. The finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not take appropriate corrective actions to address safety issues associated with handswitch disconnects in a timely manner commensurate with their safety significance and complexity (P.1.d per IMC 0305).

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

Barrier Integrity

Emergency Preparedness

Significance: **W** Jan 14, 2009

Identified By: NRC

Item Type: VIO Violation

Failure to Maintain Emergency Plans

Constellation identified a violation associated with the failure to meet emergency preparedness planning standard 10 CFR 50.47(b)(4). For the period of August 31, 2005, until April 10, 2008, the emergency action level (EAL) table's fission product barrier matrix contained an inaccurate threshold associated with identifying the potential loss of the containment barrier. The error was not identified by Constellation prior to implementation of the revised EAL table. Constellation evaluated this condition and took prompt actions to correct the inaccurate EAL.

The finding was more than minor because it was associated with the procedure quality (EAL changes) attribute of the Emergency Preparedness cornerstone and affected the associated cornerstone objective to ensure 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. This finding is associated with risk significant planning standard 10 CFR 50.47(b)(4) and 10 CFR 50 Appendix E, IV.B, "Assessment Actions." The NRC determined that the finding is preliminarily White, a finding with low to moderate safety significance, that may require additional NRC inspection. Using Emergency Preparedness Significance Determination Process, Inspection Manual Chapter (IMC) 0609, Appendix B, Sheet 1, "Failure to Comply," the finding was determined to be a risk significant planning standard (RSPS) problem and an RSPS degraded function (White). Additionally, IMC 0609, Appendix B contains an example of Loss of RSPS Function for 10 CFR 50.47 (b)(4); more than one Alert, or any Site Area Emergency would not be declared that should be declared, resulting in a White finding. There is no crosscutting aspect associated with this finding since it is not reflective of current licensee performance.

Inspection Report# : [2008502](#) (pdf)

Occupational Radiation Safety

Significance: **G** Mar 31, 2009

Identified By: NRC

Item Type: NCV NonCited Violation

Did Not Follow radiation Protection Procedures

The inspectors identified an NCV of T.S. 5.4.1.a, "Procedures," because Constellation did not implement radiation protection procedural requirements for obtaining airborne radioactivity samples prior to workers entering the Unit 2 steam generators. Specifically, on February 25, 2009, Constellation did not conduct airborne radioactivity samples to evaluate radiological conditions prior to worker entry as required by radiation work permit (RWP) No. 2009-2408. This resulted in workers entering an area in which radiological conditions were not fully characterized. Constellation subsequently obtained air samples and entered the finding into their CAP.

The finding is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of program and process and affected the cornerstone objective of protecting worker health and safety from exposure to radiation. Specifically, Constellation did not fully characterize airborne radioactivity concentrations in the steam generators prior to worker entries. Using IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," the inspectors determined that the finding was of very low safety significance (Green) 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. This finding has a cross-cutting aspect in the area of human performance because Constellation did not effectively communicate expectations to personnel to follow RWP requirements (H.4.b).

Inspection Report# : [2009002](#) (*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

Last modified : December 10, 2009