Calvert Cliffs 1
2Q/2007 Plant Inspection Findings

Initiating Events

Significance: G Jun 28, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Adequately Maintain the RCS Reduced Inventtory Procedure
The inspectors identified a NCV of TS 5.4.1.a, Administrative Controls, when Constellation did not maintain an adequate procedure to drain and fill the RCS. Specifically, OP-7 permitted operation in a reduced RCS inventory condition without requiring redundant means of reactor level indication available. This is not in accordance with Nuclear Operations Administrative Procedure NO-1-103, Lower Mode Operations and Constellation's commitments in response to NRC Generic Letter (GL) 88-17, Loss of Decay Heat Removal. Constellation entered this issue into their CAP as IRE-022-121 and immediate corrective actions included the suspension of OP-7 pending resolution of this issue.

This finding is greater than minor because it is associated with the Initiating Event cornerstone attribute of equipment performance and affects the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown operations. Specifically, the inadequate procedure for operation in reduced RCS inventory increased the likelihood of the loss of RCS level indication and consequently a loss of residual heat removal (RHR) initiating event. The inspectors determined that this finding was of very low safety significance based on IMC 0609, Appendix G, Figure 1. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance because Constellation did not ensure that the procedure for operation with the RCS in reduced inventory was complete and accurate (H.2.c).
Inspection Report# : 2007003 *(pdf)*

Significance: G Jun 28, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Preclude Recurrence of a Significant Condition Adverse to Quality Associated with Power Operated Relief Valves
A self-revealing NCV of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," occurred because Constellation did not implement adequate corrective actions for a significant condition adverse to quality associated with the slow closure of a pressurizer power operated relief valve (PORV) due to a main disc guide being out of round. Specifically, Constellation did not perform an extent of condition review from a February 2006 event such that corrective actions would preclude recurrence of the issue. Subsequently, during a Unit 2 reactor trip on November 16, 2006, a PORV remained open longer than expected and resulted in a safety injection actuation signal. Constellation entered this issue into the corrective action program (CAP) for resolution. Immediate corrective actions for this issue included replacement of the main disc guide and an extent of condition review of the remaining PORVs on Unit 1 and Unit 2.

This finding is greater than minor because it is associated with the equipment performance attribute of the Initiating Events cornerstone and affects the cornerstone objective to limit the likelihood of those events that challenge critical safety functions. Inspectors evaluated the significance of the finding using an SDP Phase 2 analysis and determined the issue was of very low safety significance (Green). This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not thoroughly evaluate an equipment malfunction such that the extent of condition was considered and the cause resolved (P.1.c of IMC 0305).
Inspection Report# : 2007003 *(pdf)*

Mitigating Systems

Significance: G Jun 28, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Demonstrate that the MSSV Performance Was Being Effectively Controlled per 10 CFR 50.65(a)(2).
The inspectors identified a NCV of 10 CFR 50.65(a)(2) because Constellation did not demonstrate that performance monitoring of the main steam safety valves (MSSVs) was being effectively controlled through the performance of appropriate preventive maintenance. Specifically, in February 2006, Constellation experienced repetitive and numerous issues associated with MSSV lift settings outside specified TSs. However, Constellation did not recognize the unsatisfactory performance monitoring of this system in accordance with the 10 CFR 50.65(a)(2) and place the system in (a)(1) status. Constellation entered this issue into their CAP for resolution.

The finding is greater than minor because it is associated with the equipment performance attribute of the Mitigating Systems cornerstone and affects the cornerstone objective of ensuring the availability, reliability, and capability of the MSSVs, which respond to initiating events to prevent undesirable consequences. The finding is of very low safety significance (Green) because the finding is not a design or qualification deficiency, does not represent a loss of a system safety function or safety function of a single train, and does not screen as potentially risk significant due to external events. The inspectors also determined that this finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not trend and assess information from the CAP and other assessments to identify programmatic and common cause problems with the MSSVs (P.1.b).
Inspection Report# : 2007003 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: FIN Finding
Failure To Take timely Actions To Evaluate And Correct Station Blackout Diesel Degraded Conditions
The inspectors identified a finding for the failure to take timely action to evaluate and correct adverse conditions associated with the station blackout (SBO) diesel generator. During the February 14, 2007, performance evaluation, the SBO diesel experienced high crankcase pressure, a high lube oil filter fouling rate, and glycol in the lube oil. Constellation inspected the diesel engine and identified that the head of the A4 cylinder of the SBO diesel 0C2 engine was cracked. The inspectors determined that similar symptoms existed during the January 14, 2007, performance evaluation; however, the degraded conditions were not adequately evaluated and corrected in a timely manner as required by the augmented quality assurance program for the SBO diesel. Constellation entered the deficiency into their corrective action program for resolution. Immediate corrective actions included a replacement of the cracked cylinder head. The cause of the finding is related to the cross-cutting element in the area of problem identification and resolution because Constellation did not properly prioritize and evaluate conditions adverse to quality (P.1.c).

This finding is more than minor because it affected the availability objective of the equipment performance attribute under the Mitigation System Cornerstone. Based on a Significance Determination Process (SDP) Phase 3 analysis, the finding represented low safety significance and was determined to be Green for Units 1 and 2 based on Core Damage Frequency (CDF). (Section 1R15)

Inspection Report# : 2007002 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Adequately Implement FME Procedures And Controls
A self-revealing non-cited violation (NCV) of Technical Specification 5.4.1.a occurred because Constellation did not adequately implement foreign material exclusion (FME) procedures and controls to prevent debris from entering the spent fuel pool (SFP). This was the most likely cause of a control element assembly (CEA) to bind and become inoperable (untrippable). Constellation submitted a licensee event report (LER) and entered this issue into theircorrective action program for resolution. The inspectors determined that a contributing cause of this finding is

related to the cross-cutting aspect in the area of human performance because Constellation did not define and effectively communicate expectations to follow FME procedures (H.4.b).

This finding is greater than minor because it affected the reliability of the reactivity control system and is associated with the Mitigating System Cornerstone and the respective attribute of human performance. The finding is of very low safety significance because it did not result in an actual loss of system safety function for a period of time greater than allowed by Technical Specifications. (Section 4OA3.2)
Inspection Report# : 2007002 *(pdf)*

Significance: G Mar 31, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure To Recognize That One Or More Channels Of The High-Rate-Of-Change Trip function Was Inoperable
The inspectors identified a non-cited violation (NCV) of Technical Specification Limiting Condition for Operation (LCO) of 3.3.1 and 3.0.3 because Constellation did not recognize that one or more channels of the high rate-of-change (startup rate) trip function did not meet Technical Specifications (TS) requirements following the completion and acceptance of Linear Power Channel Calibration surveillance on several occasions during a three year period. Constellation discovered this during a reduction of power to perform maintenance on the Unit 2 voltage regulator drawers. Constellation submitted a licensee event report (LER) and entered this issue into their corrective action program for resolution. The inspectors determined that a contributing cause of this finding is related to a cross-cutting aspect in the area of problem identification and resolution because Constellation did not promptly take actions to address safety issues in a timely manner, commensurate with its significance (P.1.a).

This finding is greater than minor because it affected the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems (i.e., reactivity control) that respond to initiating events to prevent undesirable consequences and is related to attributes of procedure quality and human performance. The finding is of very low safety significance because it did not result in an actual loss of safety function because the plant was not in a condition that only relied on the startup rate trip function to protect against anticipated operational occurrences (AOOs). The startup rate trip function serves as a backup to the power level high and thermal margin/low pressure trip functions while the reactor is critical at low power levels, to protect against CEA rod withdrawal and boron dilution events. (Section 4OA3.5)
Inspection Report# : 2007002 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Comply with TS for SRW and AFW with Watertight Doors Open
The Inspectors identified a non-cited violation (NCV) for the Service Water (SRW) and Auxiliary Feedwater (AFW) systems being inoperable without completing the actions required by Technicial Specifications. Constellation did not declare AFW and SRW trains inoperable when water tight doors providing a High Energy Line Break (HELB) carrier were opened for maintenance or testing. Station personnel wrote condition report (CR) IRE-016-870 to address the control of these HELB barriers and have provided guidance to declare the trains inoperable if the water tight doors are open.

This finding is more than minor because it had a credible impact on the objective for the mitigating system cornerstone and the attribute of component availability during design basis events, specifically HELBs. The SDP phase 1 review determined a phase 1 evaluation was required since both SRW and AFW subsystems could have been impacted with the HELB barrier removed. The phase 2 evaluation yielded a very low safety significance (Green) because of the low exposure time when the watertight doors were open. A contributing cause of the finding is related to the cross cutting aspect in the area of problem identification and resolution (PI&R) because Constellation did not implement and institutionalize operating experience (OE) related to control of the HELB barriers through changes to station processes or procedures. (Section 1R15)
Inspection Report# : 2006004 *(pdf)*

Significance: G Sep 30, 2006
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Comply with TS 5.4.1 for Salt Water Strainers
The inspectors identified a NCV of TS 5.4.1.a because Constellation did not initiate a condition report (CR) to document the adverse performance of the service water (SRW) heat exchanger salt water (SW) strainers during high debris loading as required in the Service Water Heat Exchanger Alarm Manual. Constellation also did not assess the operability of the strainers as required by the Corrective Action Program. Station personnel initiated CR IRE-017-018 to address the issue and assess operability of the strainers.

The finding was more than minor since it had a credible impact on the objective for the mitigating system cornerstone and the attribute of component reliability during design basis events where the SRW system was required. This finding was determined to be a finding of very low safety significance (green) because only one subsystem of the SRW system was inoperable at any time and the subsystem inoperability time was less than the maximum allowed by TS. A contributing cause of this finding was related to the cross-cutting aspect of PI&R because Constellation did not implement the corrective action program with a low threshold for identifying the problems with the SRW heat exchanger SW strainers. (Section 4OA2)
Inspection Report# : 2006004 *(pdf)*

Significance: W Aug 16, 2006
Identified By: Self-Revealing
Item Type: VIO Violation
Failure to Adequately Control the Design of the Setpoints for "1A" EDG Feeder Breaker for Essential EDG Support Systems
A violation of 10 CFR 50, Appendix B, Criterion III (Design Control) was identified involving the failure to ensure an adequate trip setpoint for the electrical circuit breaker that supplies the "1A" EDG support systems. An SDP Phase 3 risk analysis determined that the failure to account for possible combinations of "1A" EDG support equipment operation in the short-time over-current trip setpoint for the supply breaker to 1MCC123 was preliminarily of low to moderate safety significance. Specifically, the short-time over-current trip setpoint was set too low and it did not account for the in-rush current associated with the possible combinations of equipment that could start and operate to support the "1A" EDG following a loss of offsite power (LOOP). This low setpoint, combined with normal setpoint drift, resulted in substantial periods where the "1A" EDG would not have been able to perform its safety function, because the support system supply circuit breaker would have tripped open inappropriately. Calvert Cliffs took immediate action to correct the breaker setpoint and evaluate other potential deficiencies of a similar nature. This issue was entered into the corrective action program at Calvert Cliffs for resolution.

The finding was more than minor because it affected the Mitigating Systems Cornerstone objective to ensure the availability and reliability of systems (i.e., emergency AC power) that respond to initiating events to prevent undesirable consequences, and its related attribute for design control. The "0C" Station Blackout Diesel Generator (a non-safety related, but risk-important power source) and the breaker for its support systems were similarly affected by the performance deficiency. SDP Phase 1, Phase 2, and Phase 3 assessments were used to evaluate the risk significance of this finding. The Phase 1 screening required performance of a Phase 2 evaluation because the finding represented a loss of safety function of a single train, for greater than its allowed outage time. The Technical Specification (TS) allowed outage time is 14 days for a single EDG. To assess the full significance both the Phase 2 and Phase 3 analyzes assumed a 5407 hour exposure for the "1A" EDG being unable to perform its safety function and an additional 6.7 hours where both the "1A" EDG and the "0C" DG would not have been able to perform their required functions (the "0C" EDG had less instrument drift). The Region I senior reactor analyst (SRA) conducted a Phase 3 Risk Assessment, to refine the Phase 2 analysis and to incorporate external events and recovery credit. The Phase 3 analysis for internal and external initiating events, using the above assumptions and licensee risk information, determined a ?CDF of approximately 1 in 150,000 years of operation (mid E-6 per year range) for both internal and external events, with no associated increase in large early release frequency (LERF). The risk of the "1A" EDG exposure time dominated the analysis by several orders of magnitude over the risk of the concurrent "1A" EDG and "0C" DG exposure time. A large fire in the turbine building, which causes a loss of offsite power, was the dominating initiating event.

Inspection Report# : 2007006 *(pdf)*

Inspection Report# : 2006012 *(pdf)*

Barrier Integrity

Significance: G Jun 28, 2007
Identified By: NRC
Item Type: NCV NonCited Violation
Failure to Implement TS 3.6.3 Required Actions for Containment Isolation Valves
The inspectors identified a NCV of TS 3.6.3, Containment Isolation Valves, because Constellation did not implement actions as specified in TS 3.6.3. Specifically, Constellation did not include all containment isolation valves (CIVs) within the scope of TS requirements, which led to inadequate TS actions being taken for these valves when they became inoperable. Constellation entered this issue into their CAP as IRE-021-913. The planned corrective actions included a review of potential reportable conditions and a standing order for operation personnel to enter TS 3.6.3 for all CIVs as appropriate.

This finding is greater than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone and affects the cornerstone objective to provide reasonable assurance that physical design barriers such as containment protects the public from radio nuclide releases caused by accidents or events. The inspectors evaluated the significance of this finding using a SDP Phase 1 and Phase 2 analysis, which required evaluation using IMC 0609, Appendix H, because some of the inoperable valves identified in the reportability review involved an actual reduction in the defense-in-depth for the atmospheric pressure control of the reactor containment. Based on the results of the Phase 2 analysis, this finding was determined to have very low safety significance (Green). This finding has a cross-cutting aspect in the area of problem identification and resolution because Constellation did not take actions to address safety issues in a timely manner, commensurate with their significance (P.1.a).
Inspection Report# : 2007003 *(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 : August 24, 2007