

Calvert Cliffs 2 2Q/2014 Plant Inspection Findings

Initiating Events

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Emergency and Abnormal Operating Procedures for the Loss of the 21 DC Bus

Green. The inspectors identified an NCV of Technical Specification (TS) 5.4.1, "Procedures," because Constellation Energy Nuclear Group (CENG) failed to maintain adequate guidance in Emergency Operating Procedure (EOP) 8, "Functional Recovery Procedure," and/or Abnormal Operating Procedure (AOP) 7J, "Loss of 120 Volt Vital Alternating Current (AC) or 125 Volt Vital Direct Current (DC) Power." Specifically, EOP 8 and/or AOP-7J did not contain adequate instructions to cross-tie the 480 volt AC vital buses to restore the 120 volt AC vital buses during a loss of offsite power (LOOP) event concurrent with a single failure of the 21 125 volt DC bus. As a result, the engineered safety features actuation system (ESFAS) and auxiliary feedwater actuation system (AFAS) would inadvertently actuate on both units if the 120 volt AC vital buses were not restored within a specified period of time. CENG staff's immediate corrective actions included entering this issue into their corrective action program (CAP). Corrective actions planned include revising AOP-7J to add in steps to cross-tie the 480 volt AC vital buses.

The finding is more than minor because it is associated with the procedure quality attribute of the Initiating Events cornerstone and affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, following a LOOP concurrent with a failure of the 21 DC bus, inadvertent ESFAS and AFAS actuations would occur on both units if power is not restored to the vital 120 volt AC buses. The inspectors evaluated the finding using IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power," Exhibit 1, "Initiating Events Screening Questions." The inspectors determined that this finding was of very low safety significance (Green) because the finding did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. The inspectors determined that this finding did not have a cross-cutting aspect because the most significant contributor to the performance deficiency was not reflective of current licensee performance. Specifically, the inspectors determined that this was a legacy procedure issue and did not note any recent reasonable opportunities for CENG personnel to identify this issue. (Section 1R15)

Inspection Report# : [2013005](#) (*pdf*)

Mitigating Systems

Significance:  Dec 31, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Pre-Conditioning of Containment Air Coolers Emergency Outlet Valves

Green. The inspectors identified an NCV of Title 10 Code of Federal Regulations (CFR) 50, Appendix B, Criterion XI, "Test Control," because CENG's in-service test (IST) procedures did not provide instructions to preclude

preconditioning of the containment air cooler (CAC) emergency outlet valves. Specifically, STP-O-065B-2, “21 SRW Subsystem Operability Test,” was written such that a full stroke of the CAC emergency outlet valves was allowed prior to performance of the IST stroke time testing of the valves in the open direction. As a result, the 21 CAC emergency outlet valve, 2-CV-1582, was preconditioned during the last four surveillance tests performed on the valve and the 24 CAC emergency outlet valve, 2-CV-1593, was preconditioned during three of the last four surveillance tests performed on the valve. Immediate corrective actions included entering this issue in the CAP. Corrective actions included revising STP-O-065B to prevent future preconditioning of all the CAC emergency outlet valves.

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 to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). Specifically, preconditioning of the CAC emergency outlet valves prior to performing IST stroke time testing could mask valve degradation. The inspectors evaluated the finding using IMC 0609, Appendix A, “The Significance Determination Process for Findings at Power,” Exhibit 2, “Mitigating Systems Screening Questions.” The inspectors determined that this finding was of very low safety significance (Green) because the finding did not affect the design or qualification of a mitigating structure, system, and component (SSC), did not represent a loss of system function, did not represent an actual loss of function of at least a single train for greater than its TS allowed outage time, and did not represent an actual loss of function of one or more non-TS trains of equipment, designated as having high safety significance in accordance with the maintenance rule program, for greater than 24 hours. The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Resources, because CENG staff failed to ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety. Specifically, CENG staff did not provide a complete and accurate procedure that would preclude preconditioning of the CAC emergency outlet valves during in-service testing [H.2(c)]. (Section 1R22)

Inspection Report# : [2013005](#) (*pdf*)

Barrier Integrity

Significance:  Sep 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Post-Maintenance Test Associated with an Atmospheric Dump Valve

Green: The inspectors identified an NCV of Technical Specifications 5.4.1, “Procedures,” for the failure of Constellation Energy Nuclear Group (CENG) personnel to establish, implement, and maintain maintenance requirements associated with No. 21 atmospheric dump valve (ADV). Specifically, CENG personnel failed to perform an adequate post-maintenance test (PMT) in accordance with the work instructions for the No. 21 ADV following maintenance and prior to its return to service. As a result, the valve was returned to service in a condition where its containment isolation function was inoperable. Immediate corrective actions included entering this issue into the corrective action program (CAP). Additional corrective actions taken or planned include training Maintenance shop personnel on writing condition reports (CRs) for all failed PMTs and for Operations to ensure that work orders involving ADVs include post-maintenance operability tests for containment closure.

The finding is more than minor because it is associated with the human performance attribute of the Barrier Integrity cornerstone and affected the cornerstone objective to provide reasonable assurance that physical design barriers (containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the No. 21 ADV was returned to service in a condition where its containment isolation function was inoperable. In addition, the

finding is similar to IMC 0612, Appendix E, Example 5.b, in that, the system was returned to service prior to resolution of the degraded condition. The inspectors evaluated the finding using IMC 0609, Appendix A, “The Significance Determination Process for Findings at Power,” Exhibit 3, “Barrier Integrity Screening Questions.” The inspectors determined that this finding was of very low safety significance (Green) because the finding does not represent an actual open pathway in the physical integrity of reactor containment. Specifically, there was no loss of steam generator tube integrity. Also, the finding did not involve an actual reduction of hydrogen igniters in the reactor containment.

The inspectors determined that the finding has a cross-cutting aspect in the area of Problem Identification and Resolution, CAP component, because CENG staff did not ensure that issues potentially impacting nuclear safety were promptly identified, fully evaluated, and that actions are taken to address safety issues in a timely manner, commensurate with their safety significance. Specifically, CENG staff did not implement a CAP with a low threshold for identifying issues such as writing a CR following the identification that the ADV was degraded [P.1(a)]. (Section 1R19)

Inspection Report# : [2013004](#) (*pdf*)

Emergency Preparedness

Significance: **W** Jun 30, 2014

Identified By: NRC

Item Type: AV Apparent Violation

Inaccurate EAL Threshold Values Incorporated into Site EAL Scheme Change

•Preliminary White: The inspectors documented a licensee-identified apparent violation of Title 10 of the Code of Federal Regulations (10 CFR) 50.54(q)(2), which preliminarily has been determined to be of low to moderate safety significance (White). Specifically, 10 CFR 50.54(q)(2) requires a licensee to develop and maintain an emergency plan which meets the requirements of 10 CFR 50.47(b), and 10 CFR 50, Appendix E. Contrary to this requirement, from October 11, 2013, through March 4, 2014, CCNPP failed to maintain in effect an emergency plan that met the standards in 10 CFR 50.47(b)(4) and 10 CFR 50, Appendix E, Section IV.B.1 for Unit 2. CCNPP did not maintain an adequate standard emergency level scheme because inaccurate effluent radiation monitor thresholds were incorporated into Table R-1, “Effluent Monitor Classification Threshold.” During the replacement of the Unit 2 main steam line radiation monitors (MSLRMs), CCNPP’s staff inaccurately calculated the associated emergency action levels (EALs) effluent threshold values for Alert, Site Area Emergency, and General Emergency, and incorporated these thresholds into Table R-1. This error could have resulted in an over-classification of an event and at the general emergency level potentially resulted in an unnecessary protective action recommendation and could cause offsite response organizations to implement unnecessary protective actions. Exelon identified the issue, entered it into their corrective action program (CAP), implemented appropriate compensatory actions, and initiated corrective actions to revise the EAL table. The inspectors determined the finding no longer presents an immediate safety concern since appropriate compensatory actions have been implemented.

The failure to maintain the EAL threshold values in Table R-1 of the site approved emergency plan was a performance deficiency that was within the Exelon staff ability to foresee and correct and should have been prevented. Using IMC 0612, Appendix B, “Issue Screening,” the performance deficiency was determined to be more than minor because it impacted the procedure quality attribute of the Emergency Preparedness cornerstone and adversely impacts 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.” Specifically, an EAL change was improperly implemented, which could result in an over-classification of an event and at the general emergency level

potentially result in unnecessary protective action recommendations and movement of the public. The inspectors utilized IMC 0609, Appendix B, “Emergency Preparedness Significance Determination Process,” to determine the significance of the performance deficiency. The performance deficiency is associated with the emergency classification planning standard and is considered a risk significant planning standard (RSPS) function. This performance deficiency impacts the following required planning standard and RSPS function: 10 CFR 50.47(b)(4), “Emergency Classification System.” The inspectors were directed by the SDP to compare the performance deficiency with the examples in Section 5.4, “10 CFR 50.47(b)(4), Emergency Classification System,” to evaluate the significance of this performance deficiency. Using Table 5.4-1, “Significance Examples §50.47(b)(4),” the inspectors determined that the performance deficiency matched an example of a degraded RSPS function, which would be assessed as White. Specifically, the example states, in part, that the performance deficiency would be assessed White if the EAL classification process would result in an over-classification that would lead to off-site response organizations implementing, by procedure, unnecessary protective actions for the public. This condition should also be considered met if the licensee would make a protective action recommendation to the off-site response organizations because of the over-classification.

The inspectors determined that the cross-cutting aspect that contributed most to the root cause is H.12, “Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction techniques.” Specifically, Exelon staff did not independently validate the new EAL threshold values prior to revising and implementing the EAL scheme change. (Section 1R15)

Inspection Report# : [2014003](#) (*pdf*)

Significance:  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate EAL Initiating Condition HA3.1

•Green: The inspectors identified a Green NCV of 10 CFR 50.54 (q)(2) and 10 CFR 50.47(b)(4) because Exelon did not maintain the emergency plan to adequately meet the standards in 10 CFR 50.47(b)(4). Specifically, Exelon failed to include Unit 1 and Unit 2 component cooling (CC) rooms under EAL initiating condition HA3.1. As a result, an Alert declaration would have not been made during a hazardous gas event in a vital area. Exelon entered this issue into their CAP as condition report (CR)-2014-004683. Immediate corrective actions included revising EAL initiating condition HA3.1 to include the CC rooms and verify that there are no other areas that need to be included in EAL HA3.1.

The failure to update the EAL scheme the site approved emergency plan following a plant modification was a performance deficiency that was within the Exelon staff ability to foresee and correct and should have been prevented. Using IMC 0612, Appendix B, “Issue Screening,” the performance deficiency was determined to be more than minor because it impacted the procedure quality attribute of the Emergency Preparedness cornerstone and adversely impacts 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.” Specifically, a plant modification was completed which required operators to be able to enter the CC room in order to bring the plant to cold shutdown and the EAL scheme was not updated to reflect this change. The inspectors utilized IMC 0609, Appendix B, “Emergency Preparedness Significance Determination Process,” to determine the significance of the performance deficiency. The performance deficiency is associated with the emergency classification planning standard and is considered a RSPS function. This performance deficiency impacts the following required planning standard and RSPS function: The inspectors were directed by the SDP to compare the performance deficiency with the examples in Section 5.4, “10 CFR 50.47(b)(4), Emergency Classification System,” to evaluate the significance of this performance deficiency. The inspectors determined that the EAL was ineffective because it, in and of itself, no longer resulted in a timely and accurate declaration of an Alert for the initiating condition. Utilizing Figure 5.4.1, an ineffective EAL

where an Alert would not be declared when required would screen as a Green finding.

This finding has a cross-cutting aspect in the area of Human Performance, Change Management, because Exelon personnel didn't use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, Engineering personnel did not ensure that the impact to the Emergency Plan was adequately evaluated as a result of the permanent plant change engineering change package (ECP)-11-000983 [H.3]. (Section 1R15)

Inspection Report# : [2014003](#) (pdf)

Significance:  Mar 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

Inadequate Compensatory Actions for Out of Service Letdown Radiation Monitor

Green: The inspectors identified an NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.54, "Conditions of Licenses," paragraph (q)(2), because CENG did not maintain the Emergency Plan to adequately meet the standards in 50.47(b)(4). Specifically, following the removal of the Unit 2 letdown radiation monitor for maintenance on October 28, 2013, CENG did not establish adequate compensatory measures to ensure that a fuel clad degradation emergency action level (EAL) could be assessed in a timely manner as discussed in the Emergency Plan. This could have resulted in an unnecessary delay in the recognition of a Notice of an Unusual Event (NOUE) EAL declaration for elevated coolant reactivity. Immediate corrective actions included restoring the proper valve lineup, entering this issue into their CAP, and implementing compensatory actions, which included the use of a portable radiation monitor with appropriate alarm setpoints to initiate action to sample the RCS to determine if the specified reactor coolant activity limits are exceeded. Planned corrective actions include restoration of the Unit 2 letdown radiation monitor.

This finding is more than minor because it was associated with the emergency response organization performance attribute of the Emergency Preparedness (EP) cornerstone and affected the cornerstone's objective to ensure that CENG is capable of implementing adequate measures to protect public health and safety in the event of a radiological emergency. Specifically, the failure to establish compensatory actions beyond the normal RCS sampling frequency could have resulted in exceeding an NOUE EAL threshold for a degraded fuel clad and the condition not becoming known until the next normal RCS sample or upon further fuel clad degradation requiring escalation under other EALs. In accordance with IMC 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," issued February 24, 2012, the inspectors determined the finding is of very low safety significance (Green). Utilizing IMC 0609, Appendix B, the inspectors determined that the finding is associated with an aspect of the Emergency Plan related to the EAL Classification Scheme 10 CFR 50.47(b)(4). The inspectors determined that the EAL was ineffective because it, in and of itself, no longer resulted in a timely and accurate declaration for the initiating condition. Utilizing Figure 5.4.1, the impact of the ineffective EAL is that a NOUE would be declared in a timely manner, which screens as a Green finding. In addition, the finding is similar to a Green finding in Table 5.4.1, "Significance Examples §50.47(b)(4)," in that the EAL classification process is not capable of classifying an Alert or NOUE in a timely and accurate manner. This finding has a cross-cutting aspect in the area of Human Performance, Work Management, because CENG personnel adequately implement a work process that included the identification and management of risk commensurate to the work and the need for coordination with different groups or job activities. Specifically, Operations and Chemistry personnel did not ensure that the assigned tasks were adequate to compensate for the increased in nuclear risk associated with having the letdown radiation monitor out of service [H.5]. (Section 1R15)

Inspection Report# : [2014002](#) (pdf)

Occupational Radiation Safety

Public Radiation Safety

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.

Miscellaneous

Significance: N/A Sep 27, 2013

Identified By: NRC

Item Type: FIN Finding

PI&R Report Summary

The inspectors concluded that Constellation was generally effective in identifying, evaluating, and resolving problems. Constellation personnel identified problems, entered them into the CAP at a low threshold, and prioritized issues commensurate with their safety significance. In most cases, Constellation appropriately screened issues for operability and reportability, and performed causal analyses that appropriately considered extent of condition, generic issues, and previous occurrences. The inspectors also determined that Constellation typically implemented corrective actions to address the problems identified in the CAP in a timely manner.

The inspectors concluded that, in general, Constellation adequately identified, reviewed, and applied relevant industry operating experience to Calvert Cliffs operations. In addition, based on those items selected for review, the inspectors determined that Constellation self-assessments and audits were thorough.

Based on the interviews the inspectors conducted over the course of the inspection, observations of plant activities, and reviews of individual CAP and employee concerns program issues, the inspectors did not identify any indications that site personnel were unwilling to raise safety issues nor did they identify any conditions that could have had a negative impact on the site's safety conscious work environment.

Inspection Report# : [2013008](#) (*pdf*)

Last modified : August 29, 2014