

Calvert Cliffs 1

2Q/2014 Plant Inspection Findings

Initiating Events

Significance: G Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Inadvertent Loss of RCS Inventory During Lowered Inventory Conditions

Green: The inspectors identified a self-revealing NCV of Technical Specification (TS) 5.4.1, "Procedures," for the failure of Constellation Energy Nuclear Group, LLC (CENG) personnel to adequately implement procedures associated with a local leak rate test (LLRT). Specifically, CENG personnel did not isolate the letdown line in accordance with surveillance test procedure (STP)-O-108D-1, "Containment Penetration Local Leak Rate Tests," prior to draining the piping in preparation for an LLRT on chemical and volume control system (CVCS) containment isolation valves. This resulted in inadvertently draining 150 gallons from the reactor coolant system (RCS) while the reactor vessel was in a lowered inventory condition. Immediate corrective actions included entering this issue into their corrective action program (CAP), performing a prompt investigation, and conducting a safety stand-down. In addition, an apparent cause evaluation will be performed to determine any additional corrective actions.

The finding is more than minor because it is associated with the configuration control attribute of the Initiating Events 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, the failure to isolate the letdown line prior to draining resulted in the loss of 150 gallons of RCS inventory and challenged the critical safety function of inventory control while in a lowered inventory condition. Operator actions were required to identify and isolate the leak to prevent further inventory loss. The inspectors evaluated this finding using IMC 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and IMC 0609, Appendix G, "Shutdown Operations Significance Determination Process," issued February 28, 2005, and determined that the issue screened to Green (very low safety significance). Specifically, the inspectors determined that adequate mitigating capability remained available and the finding did not represent a loss of control of RCS level due to less than 2 feet of inventory loss when not in midloop. As a result, a Phase 2 quantitative assessment was not required and the issue screened to Green. The inspectors determined that the finding has a cross-cutting aspect in the area of Human Performance, Teamwork, because CENG individuals and work groups did not adequately communicate and coordinate their activities within and across organizational boundaries to ensure nuclear safety was maintained. Specifically, a detailed shift turnover between dayshift and nightshift LLRT operators was not completed to ensure that the oncoming operators were aware of the letdown system configuration [H.4]. (Section 1R20)

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

Significance: G 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:  Mar 31, 2014

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

11 and 12 AFW Pumps Inoperable due to Valves Misposition

Green: The inspectors identified a self-revealing problem consisting of NCVs of TS 3.7.3, “Auxiliary Feedwater System,” and TS 5.4.1, “Procedures,” because CENG Operations personnel did not adhere to procedures which resulted in a valve mispositioning event that inadvertently rendered the 11 and 12 turbine driven auxiliary feedwater (AFW) pumps inoperable for approximately 12 hours, a condition prohibited by TSs. Specifically, on February 7, 2014, operators did not perform draining of 11 turbine driven AFW pump steam supply drain line as stated in Operating Instruction (OI)-32A, “Auxiliary Feedwater System,” resulting in two main steam (MS) drain valves being left opened. With the drain valves open, an actual auxiliary feedwater actuation system (AFAS) signal would have resulted in steam blowing down into the room via the sump and causing room temperatures to exceed 130°F, the maximum temperature allowed in the room to protect the pump air cooled bearings. Immediate corrective actions included restoring the proper AFW system valve lineup, entering this issue into their CAP, returning the valves to their normal position on Unit 1, and ensuring that similar valves were in the correct position on Unit 2. Planned corrective actions include conducting an apparent cause evaluation to understand the apparent and contributing causes of this event and determine additional corrective actions.

The problem is more than minor because it is associated with the configuration control 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,

Operations personnel lost configuration control of valves MS-225 and MS-228 resulting in the inoperability of the 11 and 12 AFW pumps for approximately 12 hours. The inspectors evaluated the problem using IMC 0609.04, "Initial Characterization of Findings," and IMC 0609, Appendix A, "The Significance Determination Process for Findings at Power," Exhibit 2, "Mitigating Systems Screening Questions," issued June 19, 2012, and determined that the problem represented an actual loss of function of at least a single train for greater than its TS allowed outage time which required a detailed risk evaluation. The senior reactor analyst performed a detailed risk assessment utilizing the CCNPP Unit 1 simplified plant analysis risk model version 8.2.1 and determined that the problem is of very low safety significance (Green). Specifically, given a 12 hour exposure period with both turbine driven AFW pumps assumed to fail-to-run, the change in the internal events core damage frequency (CDF) was calculated to be in the high 10⁻⁸ range (Green). This problem has a cross-cutting aspect in the area of Human Performance, Procedure Adherence, because CENG personnel did not follow processes, procedures, and work instructions. Specifically, after draining the 11 AFW pump mud leg, CENG plant operators did not restore MS-225 and MS-228 to their required position as stated in procedure OI-32A [H.8]. (Section 1R15)

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

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

Emergency Preparedness

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*)

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