

# Calvert Cliffs 1

## 4Q/2014 Plant Inspection Findings

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### Initiating Events

**Significance:**  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*)

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### 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<sup>-8</sup> 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)

## **Barrier Integrity**

**Significance:**  Dec 31, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

### **Spent Fuel Pool Cask Handling Crane 10 CFR 50.65(a)(2) Performance Not Met**

•Green: The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," paragraph (a)(2), because Exelon did not adequately demonstrate that the spent fuel pool cask handling crane (SFPCHC) (a)(2) performance was effectively controlled through performance of appropriate preventative maintenance. Specifically, Exelon did not identify and properly account for a maintenance rule functional failure (MRFF) of the SFPCHC in September 2013, and thereby did not recognize that the crane exceeded its performance criteria and required a Maintenance Rule (a)(1)

determination. Exelon entered this issue in the corrective action program (CAP) as incident report (IR) 02422876. Exelon's immediate corrective actions were to reclassify the September 2013 failure as a MRFF and conduct a Maintenance Rule (a)(1) determination on the SFPCHC.

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," and determined the finding is more than minor because it is associated with the structure, system, and component (SSC) performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system (RCS), and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, following the MRFF of the SFPCHC in October 2014, Exelon personnel did not identify that the crane required a Maintenance Rule (a)(1) determination, to establish if the crane should be monitored in accordance with 10 CFR 50.65(a)(1). As a result, an excessive amount of time passed for Exelon to comply with the requirements of the Maintenance Rule. In accordance with IMC 0609.04, "Initial Characterization of Findings," issued on June 19, 2012, and IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," issued on June 19, 2012, the inspectors determined that the finding was of very low safety significance (Green) because the finding did not result in handling errors, dropped storage cask, or crane operations over the spent fuel pool that caused mechanical damage to fuel clad and a detectable release of radionuclides. The inspectors determined that the finding has a cross-cutting aspect in the area of Problem Identification and Resolution, Evaluation, because Exelon did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, Exelon personnel failed to properly evaluate the issue that occurred in September 4, 2013 as a MRFF [P.2]. (Section 1R12)

Inspection Report# : [2014005](#) (pdf)

**Significance:**  Jun 30, 2014

Identified By: NRC

Item Type: NCV NonCited Violation

**Main Steam Line Drain Containment Isolation Valves not Scoped in IST**

•Green. The inspectors identified a Green NCV of Title 10 of the Code of Federal Regulations (10 CFR) 50.55a, "Codes and Standards," for Exelon's failure to meet the test requirements set forth in the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code) for main steam line drains (MSLDs) and containment isolation valves (CIVs) motor operated valves (MOVs) (6611, 6612, 6613, 6615, 6620, 6621). Specifically, Exelon failed to scope the MSLD MOVs in their in-service testing (IST) program. As a result, the MOVs reliability was not ensured due to valve degradation not being trended as required in the IST program. Also, the MOV operability was in question because the valves were never tested to perform their containment isolation function. Exelon entered this issue into their corrective action program (CAP) as condition report (CR)-2014-005961. Immediate corrective actions included testing the MOVs.

The inspectors determined that the failure to scope and meet the testing requirements of the OM Code for MSLD MOVs in accordance with 10 CFR 50.55a was a performance deficiency. This finding is more than minor because it was associated with the barrier performance attribute of the Barrier Integrity cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system (RCS), and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to scope and test the MSLD MOVs in accordance with the OM Code did not ensure component reliability by monitoring valve degradation and did not provide assurance that the MSLD MOVs would perform their CIV function in order to protect the public from radionuclides releases during a steam generator tube rupture (SGTR) with a loss of offsite power event. The inspectors reviewed IMC 0609.04, "Initial Characterization of Findings," issued June 19, 2012, and IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions" issued June 19, 2012, and determined that the finding was of very low safety significance (Green) because the finding did not represent an actual open pathway in the

physical integrity of reactor containment, containment isolation system, and heat removal components and the finding did not involve an actual reduction of hydrogen igniters in the reactor containment. 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 2007 IST fourth year interval submittal was the last reasonable opportunity for Exelon to identify this issue. (Section 1R04)

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

Inspection Report# : [2014004](#) (*pdf*)

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## 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*)

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## Occupational Radiation Safety

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## Public Radiation Safety

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## 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.

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## Miscellaneous

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