

# Calvert Cliffs 1

## 1Q/2003 Plant Inspection Findings

---

### Initiating Events

**Significance:**  Nov 22, 2002

Identified By: NRC

Item Type: FIN Finding

**Failure to take adequate corrective actions for poor quality welds on reactor coolant pump support systems**

CEG did not adequately complete identified corrective actions in response to a weld deficiency in the component cooling water (CCW) line to a Unit 2 reactor coolant pump (RCP) in October 2001. The incomplete corrective actions, due to missed inspections of some welds in the RCP support systems, contributed to a failed weld in a lube oil line to a RCP and a Unit 1 reactor trip in July 2002.

Inspection Report# : [2002012\(pdf\)](#)

---

### Mitigating Systems

**Significance:**  Mar 29, 2003

Identified By: NRC

Item Type: NCV NonCited Violation

**Untimely & inadequate corr. actions to prevent 4kV breaker auxiliary switch failure. The condition review for SBM switches used in other applications have been inadequate and incompl. since 1996.**

A self-revealing NCV was documented regarding CCNP's inadequate and untimely corrective actions to prevent recurrence of SBM-type auxiliary switch failure as required by 10 CFR 50, Appendix B, Criteria XVI, "Corrective Action". The finding is considered a PI&R cross-cutting issue due to the failure to prevent recurrent SBM-type switch failures and due to inadequate and incomplete extent of condition reviews since CCNPP's review of industry operating experience regarding degraded and defective GE SBM switches in 1996. The inspectors determined that this event was more than minor because the finding represented an actual loss of the safety function, for 28 days, for the 1B EDG to be capable of providing emergency electrical power to the 14 4kV vital emergency bus. The safety significance of this finding was very low because of a plant design feature that allows the Unit 2 motor driven auxiliary feedwater pump to supply the Unit 1 steam generators during a station blackout (no AC power) at Unit 1. (Section 40A3). '

Inspection Report# : [2003002\(pdf\)](#)

**Significance:**  Jun 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to comply with the requirements of 10 CFR 55.53(f)(2) for reactivating licensees to support refueling outages as senior operators limited to fuel handling.**

The inspectors identified a Non-Cited Violation for failure to comply with the requirements of 10 CFR 55.53(f)(2) for reactivating operator licenses to support refueling outages as senior operators limited to fuel handling (LSRO). This

finding was determined to be more than minor but of very low safety significance. It is more than minor because if left uncorrected it would become a more significant safety concern. Specifically, improper re-activation would result in improper training which could cause errors in fuel handling activities resulting in fuel damage and potential radiological releases. The SDP is entered because the performance deficiency is related to operator license conditions. The performance deficiency was determined to be of very low safety significance (green) because more than 20% of the LSRO license reactivations to support refueling operations did not meet the requirements of 10 CFR 55.53(f)(2). No refueling events have occurred due to this training deficiency.

Inspection Report# : [2002004\(pdf\)](#)

---

## Barrier Integrity



**Significance:** Jun 29, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to comply with the requirements of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," regarding the Unit 1 and 2 main steam line break accident analyses.**

The inspectors identified a Non-Cited Violation for inadequate design control associated with the Units 1 and 2 main steam line break (MSLB) accident analyses. The analyses credited the closure of the main feedwater isolation valves (MFIVs) to limit containment peak pressure even though in certain single failure scenarios, the valves may not fully close due to high differential pressure. This violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," is based on the example provided in NRC Manual Chapter 0612, Appendix E, Example 3.i. The above MFIV finding is more than minor because an error identified in an accident analysis assumption requires the accident analysis to be re-performed to assure accident analysis requirements are met. The MFIV finding was determined to be of very low safety significance (green) based on the fact that when the licensee revises their MSLB accident analyses to credit closure of the main feedwater regulating valves, it is likely to result in a net reduction in containment peak pressure.

Inspection Report# : [2002004\(pdf\)](#)

---

## Emergency Preparedness



**Significance:** Mar 29, 2003

Identified By: NRC

Item Type: FIN Finding

**EAL initiating conditions caused delays in declar. approp. emerg. classifi. during simulator as a drill. The EALS & Oper. procedures in lieu of plant conditions alone contributed to this issue.**

The inspectors identified a finding that the CCNPP emergency action level (EAL) initiating conditions, as written, caused delays and an incorrect emergency classification declaration during a simulator scenario evaluated as a drill. A contributing cause of this finding was that the content of CCNPP's EALs incorporated plant conditions and operator implementation of procedures as initiating conditions in lieu of using plant conditions alone as the EAL initiating conditions. This issue was determined to be more than minor because if left uncorrected it could become a more significant safety concern regarding the potential untimely public notification of an emergency. This finding was classified as Green (of very low safety significance) after NRC management review since the Emergency Preparedness (EP) Significance Determination Process (SDP) did not apply. (Section 1EP6)

Inspection Report# : [2003002\(pdf\)](#)



**Significance:** Jul 19, 2002

Identified By: NRC

Item Type: VIO Violation

**ANS was not capable of activating for 84 days in a timely manner.**

The inspector identified an apparent violation of 10 CFR 50.54(q), 10 CFR 50.47(b)(5) and Appendix E.IV.D.3. The Calvert County offsite ANS (49 sirens) was not capable of being activated in a timely manner for 84 days due to the removal of a computer icon used for activating the sirens at the Calvert County, Maryland 911 Center. The means to alert and notify the public in a timely manner is a Risk Significant Planning Standard (RSPS) and according to the Emergency Preparedness (EP) Significant Determination Process (SDP), (Manual Chapter 0609, EP Risk Determination Flow Chart, Sheet 1, Third Path, Section 4) failure to meet this RSPS is considered of moderate to high safety significance (Yellow). However, using Manual Chapter 0609, Appendix B, Section 1, "Failure to Meet a Risk Significant Planning Standard," and the EP SDP it recognizes that a finding "placed in context" through the SDP can potentially result in a color (e.g. Green, White, Yellow, Red) that exceeds the actual impact on public health and safety. The NRC concluded that the siren activation problem did not have a substantial impact on the EP Cornerstone Objective, and therefore, the finding does not rise to the level of substantial safety significance and is more appropriately characterized as low to moderate safety significance (White). In making this determination, the NRC considered that: (1) the system was capable of sounding and notifying the public within 30 minutes if the system was needed to be activated during the 84-day period (this was based on the time the County identified and fixed the icon problem); (2) prior to the activation of the sirens, 55 emergency vehicles would be placed in the field to begin automatic route alerting simultaneously with initial siren activation (this activity supplements coverage provided by siren activation); and (3) there were no significant equipment problems found to prevent the actual sounding of the sirens as demonstrated on November 15, 2001, during a retest in which 100% of the sirens sounded. Accordingly, the NRC considers the significance of the problem to be the length of time the problem was undetected which is considered a low to moderate safety significance (White). Accordingly, the NRC has determined that the capability of meeting the function of alerting the public was met, but not in a timely manner. The NRC considers the true significance of the problem to be in the length of time the problem was undetected. Therefore, the finding is considered to be of low to moderate safety significance (White).

Inspection Report# : [2002010\(pdf\)](#)

---

## Occupational Radiation Safety

---

## Public Radiation Safety



**Significance:** Sep 28, 2002

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to fill & limit contents of shipment of radioactive material to waste processing facility on 7/11/02 in accord with DOT 49 CFR 173.24(b)(2), specified by 10 CFR 71.5, Transp of Lic Material.**

From an in-office review, the inspector identified a Non-Cited Violation of 10 CFR 71.5. On July 11, 2002, Constellation Generation's Calvert Cliffs Nuclear Power Plant failed to properly fill and limit the contents of a package of hazardous material (i.e., radioactive material) such that, under conditions normally incident to transportation, the effectiveness of the package would not be substantially reduced, as specified by the Department of Transportation's (DOT) regulation, 49 CFR 173.24(b)(2). On arrival at the processing facility on July 12, 2002, a piece of metal, from

the shipment of radioactive material, was found to be protruding from the package. Constellation Generation's failure to fill and limit the contents of the package to preclude a substantial reduction in the effectiveness of the package to ensure conformance with the requirements of 49 CFR 173.24(b)(2) was determined to have very low safety significance, using the Public Radiation Safety Significance Determination Process. The finding involved a breach of a package containing less than a Type A quantity of radioactive material during transit but did not involve a loss of containment of the radioactive material. Although the package was breached and contained contaminated material, the piece of metal protruding from the package was not contaminated with radioactive material.

Inspection Report# : [2002005\(pdf\)](#)



**Significance:** Jun 29, 2002

Identified By: NRC

Item Type: VIO Violation

**Failure to prepare a shipment of radioactive material so as not to exceed the transportation radiation level limits of 49 CFR 173.441(a).**

From an in-office review, the inspector identified an apparent finding of low to moderate safety significance. On May 23, 2002, the licensee failed to prepare a shipment of radioactive material to a waste processing facility in a manner such that, under conditions normally incident to transportation, the radiation level at any point on the external surface of the package would not exceed 200 millirem per hour, as specified by the Department of Transportation regulation 49 CFR 173.441(a). Upon arrival at the processing facility on May 24, 2002, the radiation dose rates, measured on portions of the external surface of the package were as high as 300 millirem per hour, which is in excess of the limits specified by the regulatory requirement. The failure to properly prepare the shipment in a manner to assure conformance with the requirements of 49 CFR 173.441(a) was determined to have low to moderate safety significance, using the Public Radiation Safety Significance Determination Process. The finding involved the transportation of radioactive material in which an external radiation limit was exceeded, but was not greater than 5 times the regulatory limit. A supplemental inspection was performed by the NRC to assess the licensee's evaluations and corrective actions associated with a finding of low to moderate safety significance (WHITE) involving failure to properly prepare a shipment of Class 7 (radioactive) materials for shipment, on May 23, 2002, to a vendor waste processing facility located in Oak Ridge, Tennessee. The inspection was conducted in accordance with NRC Inspection Procedure 95001, "Inspection For One or Two White Inputs in a Strategic Performance Area." This performance issue was preliminarily determined to be WHITE, in NRC Inspection Report 05000317-02-04, 05000318-02-04, dated July 30, 2002. The licensee did not contest the characterization of the finding and no Regulatory Conference was held. The issue received final characterization as a WHITE finding in an August 29, 2002, NRC letter to the licensee. The licensee provided its response to the WHITE finding, and associated violation, in letter dated September 17, 2002. The inspection determined that the licensee performed an evaluation of the issue, identified root and contributing causes, and identified and implemented immediate and compensatory corrective actions to address these causes and prevent recurrence. Notwithstanding, it was not apparent that the extent of condition of risk significant performance issues had been identified or that the corrective actions taken or planned were sufficient to prevent recurrence. Specifically, multiple examples were identified where packaged radioactive materials were not properly stabilized resulting in nonconformance with applicable shipping regulations. The corrective actions taken and planned do not appear to provide assurance that the specific performance deficiency was corrected or that actions on broader issues (e.g., program procedures, human performance, or oversight activities) were sufficient to preclude recurrence of material packaging and stabilization concerns. Consequently, the inspection objectives outlined in the NRC Inspection Procedure 95001 could not be achieved. Further, and consistent with the guidance contained in NRC Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program", this issue will remain open and will not be removed from the Action Matrix pending additional NRC inspection. A supplemental inspection was performed by the NRC to assess Constellation Generation's evaluations and corrective actions associated with a WHITE finding involving identification of elevated radiation dose rates on a package of radioactive material shipped from the Calvert Cliffs facility on May 23, 2002, to a waste processing facility. (Reference EA-02-138, NRC Report No. 50-317/02-04; 50-318/02-04, dated August 19, 2002). A previous supplemental inspection, conducted in October 2002, to assure that the causes of the performance issues associated with this finding were understood, the extent of condition had been

identified, and that corrective actions were sufficient to prevent recurrence, was unable to assure that the extent of condition of risk significant performance issues had been identified or that the corrective actions taken or planned were sufficient to address the issues as required by the inspection objectives outlined in NRC Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area." (Reference NRC Inspection Report No. 50-317/02-011; 50-318/02-011, dated November 7, 2002). The current inspection identified that Constellation Generation conducted a detailed Collective Significance Analysis of this matter, identified root and contributing causes, and identified and implemented corrective actions to address these causes and prevent recurrence. The inspection also identified actions had been taken to improve the corrective action process including root cause analyses. Consistent with NRC Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program," this issue will only be considered in assessing plant performance for a total of four quarters from the date when the issue was identified (May 28, 2002).

Inspection Report# : [2002004\(pdf\)](#)

Inspection Report# : [2002006\(pdf\)](#)

---

## Physical Protection

---

## Miscellaneous

**Significance:** N/A Nov 22, 2002

Identified By: NRC

Item Type: FIN Finding

**Based on the sample selected for review, the PI&R team concluded that implementation of the corrective action program was adequate.**

Based on the sample selected for review, the team concluded that the implementation of the Constellation Energy Group (CEG) corrective action program was adequate. In general, personnel identified problems and entered them into the corrective action program at an appropriate threshold. However, the team identified several minor valve packing and pump seal leaks within the Unit 1 and Unit 2 emergency core cooling system (ECCS) pump rooms that were not identified and captured in CEG's corrective action program. CEG generally prioritized and completed evaluations in a timely fashion and evaluated problems in adequate detail commensurate with the safety significance. The evaluations reasonably identified the causes of the problem, the extent of the condition, and provided for corrective actions to address the causes. The evaluations of equipment problems generally included operability assessments of sufficient depth to conclude that equipment remained capable of performing its safety functions. CEG also assessed reportability requirements appropriately. CEG corrective actions and improvement initiatives were generally effective in improving equipment reliability and human performance. However, inadequate corrective action follow through for a Unit 2 reactor coolant pump (RCP) support system weld deficiency contributed to a Unit 1 reactor trip. The team also noted that CEG was not fully effective in resolving some recurrent equipment deficiencies. CEG's self-assessments and corrective action program audits identified similar findings.

Inspection Report# : [2002012\(pdf\)](#)

Last modified : May 30, 2003