

## Callaway 2Q/2013 Plant Inspection Findings

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### Initiating Events

**Significance:** G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Appropriately Pre-plan and Perform Maintenance on the Unit Auxiliary Transformer**

The inspectors reviewed a self-revealing non-cited violation of Technical Specifications 5.4.1 and Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," involving the failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment. Specifically, the licensee failed to properly pre-plan and perform maintenance on the unit auxiliary transformer that contributed to a fire. During Refueling Outage 19, the unit auxiliary transformer was providing power to non-safety house loads and train B battery chargers when it experienced a phase to phase short and fire in the surge capacitor. The fire and loss of power affected the performance of safety-related batteries and battery chargers, and led to manual actuations of the reactor protection system. This issue was entered into the licensee's corrective action program as Callaway Action Request 201302877. Corrective actions included installing new surge protectors on the unit auxiliary transformer, revising station procedures for connecting and disconnecting the surge protectors, and ordering new surge capacitors for the startup transformer.

The failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment was a performance deficiency. The performance deficiency was more than minor because it adversely affected the protection against external factors 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, the fault and fire led to a loss of power to mitigating systems while the reactor was shutdown. Using Inspection Manual Chapter 0609, Appendix G, Attachment 1, Checklist 4, "PWR Refueling Operation: RCS level > 23'OR PWR Shutdown Operation with Time to Boil > 2 hours And Inventory in the Pressurizer," the finding was determined to be of very low safety significance (Green) because the licensee maintained adequate event mitigation capabilities, the event did not result in a change in reactor coolant system inventory or temperature, and it did not require a quantitative risk assessment. This finding has a cross-cutting aspect in the human performance area associated with the resources component because the licensee failed to ensure that the equipment and maintenance procedures were adequate to assure nuclear safety.

Inspection Report# : [2013003](#) (*pdf*)

**Significance:** G Jun 30, 2013

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

#### **Failure to Appropriately Pre-plan and Perform Maintenance on Safeguards Transformer B**

The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1 and Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," involving the failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment. Specifically, the licensee directed contractors to perform work on safeguards transformer B with work instructions, training, and supervisory oversight that was not appropriate for the individuals performing the work. This issue was entered into the licensee's corrective action program as Callaway Action Request 201302280. Corrective actions included a revision

to the work instructions to be more specific on grounding locations and a refocus and retraining of grounding electrical systems. Planned corrective actions include establishing a process for identifying high risk outage activities similar to the process used for online maintenance.

The failure to appropriately pre-plan and perform maintenance on equipment that can affect the performance of safety-related equipment was a performance deficiency. This performance deficiency was more than minor because it adversely affected 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. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 1, "Initiating Events Screening Questions," the finding was determined to be of very low safety significance (Green) because it 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. This finding has a cross-cutting aspect in the human performance area associated with the work practices component because the primary cause for the performance deficiency was that the licensee failed to ensure supervisory and management oversight of work activities, including contractors, such that nuclear safety is supported.

Inspection Report# : [2013003](#) (*pdf*)

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## Mitigating Systems

**Significance:**  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Monitor and Maintain Emergency Core Cooling System Room Coolers**

The inspectors identified a non-cited violation of 10 CFR 50.65, involving the licensee's failure to monitor performance of structures, systems, or components in a manner sufficient to provide reasonable assurance that these structures, systems, or components are capable of fulfilling their intended functions. Specifically, the licensee failed to adequately monitor the cooling water flow through the safety related room coolers that periodically became blocked by silting, to ensure they maintained their capability to remove the heat from the rooms. This issue was entered into the licensee's corrective action program as Callaway Action Request 201301108. Corrective actions included a requirement to monitor the flow rates monthly and determine the appropriate monitoring and flushing requirements based on the results.

The failure to monitor performance of structures, systems, or components in a manner sufficient to provide reasonable assurance that these structures, systems, or components are capable of fulfilling their intended functions was a performance deficiency. This performance deficiency was more than minor because it adversely affected the equipment performance 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. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety significance (Green) because all of the questions received a negative response. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the operating experience component because the licensee failed to systematically collect, evaluate, and communicate relevant internal operating experience about silting of room coolers to internal stakeholders.

Inspection Report# : [2013003](#) (*pdf*)

**Significance:**  Jun 30, 2013

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Correctly Screen Repetitive Equipment Failures**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," for the licensee's failure to perform activities affecting quality in accordance with procedures.

Specifically, the licensee failed to recognize the significance of repetitive refrigerant leaks on the safety-related Class 1E electrical equipment air conditioning units and assign the appropriate significance level in accordance with APA-ZZ-00500, "Corrective Action Program," Revision 57. This issue was entered into the licensee's corrective action program as Callaway Action Request 201304985. Further corrective actions are being evaluated, including enhancements to Callaway's corrective action procedure for raising significance of repetitive issues and evaluating new enhancements for the corrective action program's screening process.

The failure to perform activities affecting quality in accordance with procedures was a performance deficiency. This performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems Cornerstone objective of ensuring the reliability of systems that respond to initiating events.

Specifically, the licensee failed to recognize the significance of repetitive refrigerant leaks on the safety related Class 1E electrical equipment air conditioning units and assign the appropriate significance level during issue screening, and therefore failed to perform a cause analysis and correct the cause. The finding required a detailed risk evaluation because it involved the potential failure of safety related equipment for longer than the technical specification allowed outage time. A senior reactor analyst determined that the change to the core damage frequency was much less than E-7/yr (Green). In each case, the affected chiller, while incapable of meeting the 30-day design basis mission time, could have still functioned properly and supported the inverters during the probabilistic risk assessment 24-hour mission time. Therefore, there was no quantifiable increase in the core damage frequency or the large early release frequency. This finding has a cross-cutting aspect in the area of problem identification and resolution with a problem evaluation component, because the licensee failed to fully evaluate the collective body of data regarding the Class 1E air conditioning units such that the resolutions address the causes and extent of condition, including proper classification. Specifically the licensee failed to thoroughly evaluate the repetitive failures all facets of this issue, including properly classifying the refrigerant leaks.

Inspection Report# : [2013003](#) (pdf)

**Significance:**  Sep 25, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Correct an Adverse Condition on an Emergency Diesel Generator**

The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," involving the licensee's failure to correct an adverse condition on a safety related system. Specifically, when a low oil condition was identified on an emergency diesel generator governor, the licensee fixed the symptom by adding oil, but failed to correct the condition by stopping the leak. This issue was entered into the licensee's corrective action program as Callaway Action Request 201206798.

Failure to correct an adverse condition on a safety related system was a performance deficiency. This finding was more than minor because it adversely affected the equipment performance 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. Using Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the finding was determined to be of very low safety concern because it affected the qualification of a mitigating system, but the affected train was still able to meet its PRA mission time. This finding has a cross-cutting aspect in the area of Problem Identification and Resolution associated with the Corrective Action Program component because the licensee failed to thoroughly evaluate the problem such that the resolutions address causes including properly classifying, prioritizing, and evaluating for operability and reportability conditions adverse to quality.

Inspection Report# : [2012004](#) (pdf)

**Significance:**  Jul 15, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to identify and correct the failure mode of an essential service water pump**

The team reviewed a Green self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to promptly identify and correct a condition adverse to quality. During troubleshooting, the licensee incorrectly identified a failed circuit card as the cause of an essential service water pump room fan damper failure. The licensee returned the damper to service and declared the associated pump operable without identifying the actual failure—pinched wires introduced during previous maintenance. This resulted in a subsequent failure.

The failure to identify that pinched wires had caused the damper failure and to correct the condition before replacing the circuit card and declaring the system operable was a performance deficiency. This performance deficiency was more than minor because it adversely affected the equipment performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the team determined the finding to be of very low safety significance (Green) because it did not result in the loss of the safety function of any system or train and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. This finding had a cross-cutting aspect in the decision-making component of the human performance cross-cutting area because the licensee failed to conduct an effectiveness review of safety-significant decisions to verify the validity of the underlying assumptions or identify possible unintended consequences.

Inspection Report# : [2012008](#) (*pdf*)

**Significance:**  Jul 15, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

**Failure to provide adequate maintenance instruction**

The team reviewed a non-cited violation of Technical Specification 5.4.1.a, “Procedures,” for the licensee’s failure to provide maintenance instructions appropriate for repair of the Train B emergency diesel generator supply fan. These inadequate instructions resulted in maintenance technicians routing and restraining electrical cables inappropriately during maintenance in July 2006. These cables later came loose and, in August 2011, caused a failure of the Train B emergency diesel generator supply fan to start on demand.

The failure to provide maintenance procedures appropriate to the circumstance was a performance deficiency. This finding was more than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the team determined that the finding was of very low safety significance (Green) because it did not result in the loss of the safety function of any system or train and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The team determined that this performance deficiency was not indicative of current plant performance because it was the result of repair instructions written and implemented in 2006. Therefore, no cross-cutting aspect was assigned.

Inspection Report# : [2012008](#) (*pdf*)

**Significance:**  Jul 15, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to initiate a corrective action document.**

The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure, upon discovery of an adverse condition, to initiate a Callaway Action Request, to notify the shift manager, and to review the condition for, operability, functionality, and reportability in accordance with APA-ZZ-00500, “Corrective Action Program,” revision 54. During planned testing of tornado dampers for the emergency diesel generator rooms, the as-found breakaway torque for the dampers was high out-of-specification. The licensee failed to document this adverse condition in its corrective action program to evaluate it for significance and to determine whether the operability of the emergency diesel generator was adversely affected.

The failure to satisfy the guidance in APA-ZZ-00500 upon identification of high out-of-specification torque measurements on safety-related tornado dampers by initiating a Callaway Action Request, informing the shift manager, and evaluating the condition for operability, functionality, and reportability was a performance deficiency. This performance deficiency was more than minor because if left uncorrected, the licensee’s continued failure to conform to APA-ZZ-00500 upon discovery of an adverse condition impacting the EDG tornado protection system had the potential to lead to a more significant safety concern. Using Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the team determined that the finding was of very low safety significance (Green) because it did not result in the loss of the safety function of any system or train and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. This finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to completely, accurately, and in a timely manner identify and fully evaluate an issue potentially impacting nuclear safety.

Inspection Report# : [2012008](#) (*pdf*)

**Significance:** G Jul 15, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

**Failure to fully implement fluid leak management program**

The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to fully implement the requirements of its fluid leak management procedure. The team identified two instances where the licensee had not hung a fluid leak management tag on an active fluid leak and several examples of fluid leak management tags not indicating whether individual leaks were monitored. Further, the team found no evidence that leakage indications were actively monitored and trended, as required by procedure both before and after repairs were made. The licensee had previously determined that the extent of condition of weaknesses in its boric acid corrosion control program included the fluid leak management program. However, corrective actions only addressed the boric acid corrosion control program.

The licensee’s failure to implement the requirements of its fluid leak management procedure was a performance deficiency. The team determined that the performance deficiency was more than minor because if left uncorrected, it had the potential to become a more significant safety concern. Specifically, if the licensee continued to fail to implement its fluid leak management procedure, leaks that adversely affect safety-related equipment could go unmonitored, resulting in equipment degradation. Using Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the team determined the finding to be of very low safety significance (Green) because it did not result in the loss of the safety function of any system or train and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The team determined that the finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to fully evaluate a problem such that the resolution addressed the causes and extent of condition.

Inspection Report# : [2012008](#) (*pdf*)

## Barrier Integrity

**Significance:**  Dec 31, 2012

Identified By: NRC

Item Type: NCV NonCited Violation

### **Failure to Perform Technical Specification Surveillance Requirements on the Control Room Air Conditioning System**

The inspectors identified a non-cited violation of Technical Specification 3.7.11, "Control Room Air Conditioning System (CRACS)," for failure to perform the surveillance requirements specified for the control room air conditioning system. Surveillance Requirement 3.7.11.1 requires the licensee to verify that each control room air conditioning system train has the capability to remove the assumed heat load once every 18 months. The activities that the licensee was crediting to meet the requirement were not adequate because they did not actually verify heat load removal capability. The licensee entered Surveillance Requirement 3.0.3 for a missed surveillance, performed a risk assessment, and will verify that each control room air conditioning system train has the capability to remove the assumed heat load within 18 months. The licensee entered this issue into the corrective action program as Callaway Action Request 201207859.

The inspectors determined that the failure to perform sufficient testing to satisfy a technical specifications surveillance requirement is a performance deficiency. The performance deficiency was more than minor because it impacted the structures, systems, and components and barrier performance attribute for the control room and auxiliary building and the Barrier Integrity Cornerstone objective to provide reasonable assurance that the radiological barrier remains functional. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," the finding was determined to be of very low safety significance (Green) because it did not represent an actual degradation of the barrier function of the control room to protect the operators inside from smoke or a toxic atmosphere. The issue has no cross-cutting aspect associated with it because it is not indicative of current licensee performance.

Inspection Report# : [2012005](#) (*pdf*)

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## Emergency Preparedness

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## Occupational Radiation Safety

**Significance:**  Sep 25, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

### **Failure to Follow Radiation Work Permit Instructions**

The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a, because a worker did not follow radiation work permit

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instructions. Specifically, an individual entered an area with radiation dose rates significantly higher than the areas on which he was briefed. As corrective action, the licensee coached the individual on the radiation work permit instructions and the licensee's expected radiation worker behavior. This was documented in the licensee's corrective action program as Callaway Action Request 201108483.

The failure to follow radiation work permit instructions is a performance deficiency. The performance deficiency was

more than minor because, if left uncorrected, the performance deficiency had the potential to lead to a more significant safety concern. Using the Occupational Radiation Safety Significance Determination Process, the inspectors determined the finding had very low safety significance because: (1) it was not an as low as is reasonably achievable finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This finding had a crosscutting aspect in the human performance area, work practices component, in that the worker failed to use error prevention techniques, such as self-checking. Inspection Report# : [2012004](#) (*pdf*)

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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

**Significance:** N/A Jul 15, 2012

Identified By: NRC

Item Type: FIN Finding

#### **Problem Identification and Resolution Review**

The team reviewed approximately 200 condition reports, work orders, engineering evaluations, root and apparent cause evaluations, and other supporting documentation to determine if problems were being properly identified, characterized, and entered into the corrective action program for evaluation and resolution. The team reviewed a sample of system health reports, self assessments, trending reports and metrics, and various other documents related to the corrective action program. The team concluded that with limited exceptions, the licensee maintained a corrective action program in which issues were generally identified at an appropriately low threshold. Issues entered into the corrective action program were appropriately evaluated and timely addressed, commensurate with their safety significance. Corrective actions were generally effective, addressing the causes and extents of condition of problems.

The licensee appropriately evaluated industry operating experience for relevance to the facility and entered applicable items in the corrective action program. The licensee used industry operating experience when performing root cause and apparent cause evaluations. The licensee performed effective quality assurance audits and self assessments, as demonstrated by its self identification of some minimally effective corrective action program performance and identification of ineffective corrective actions.

The licensee maintained a safety-conscious work environment in which personnel felt free to raise safety concerns without fear of retaliation. All individuals interviewed by the team were willing to raise these concerns by at least one of the several methods available.

Inspection Report# : [2012008](#) (*pdf*)

Last modified : September 03, 2013