Callaway
4Q/2012 Plant Inspection Findings

Initiating Events

Mitigating Systems

Significance: G 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: G 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: G 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: G 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 fl uid 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)*

Significance: G Jun 26, 2012

Identified By: Self-Revealing

Item Type: NCV NonCited Violation

Failure to Incorporate Operating Experience for a 10 CFR 50.65(a)(3) Assessment

The inspectors identified a finding for failure to ensure that a system credited in the Final Safety Analysis Report for mitigating internal flooding was available and reliable. On May 1, 2012, the licensee discovered the floor drains in the engineered safety feature switchgear rooms for both trains were almost completely plugged from debris and were not capable of passing water at the credited flow rate. This was a result of failure to perform inspections or preventive maintenance on the system since original construction. In May 2005, the NRC issued Information Notice 2005-11 regarding, in part, internal flooding and blocked floor drains. Title 10 of the Code of Federal Regulations 50.65(a)(3) states, in part, that "evaluations shall take into account, where practical, industry-wide operating experience. Adjustments shall be made. . ." Contrary to the above, in 2005, the licensee evaluated, but did not take action on applicable industry-wide operating experience. In response, the licensee cleaned the drains, created preventive maintenance tasks to verify proper floor drain operation, and was evaluating the planned corrective actions to address the violation. These were documented in Callaway Action Requests 201203302 and 201204582.

The inspectors determined that failure to ensure a system credited in the Final Safety Analysis Report was available and reliable to mitigate internal flooding was a performance deficiency. Specifically, the licensee failed to perform preventive maintenance or testing to ensure the engineered safety feature switchgear room floor drains would drain water from the switchgear rooms for both trains at the rate credited for flood mitigation. The inspectors evaluated the performance deficiency in accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Screening." This performance deficiency was more than minor because it affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. During a Phase 1 screening for significance the inspectors determined the finding was potentially risk significant due to its contribution to a flooding initiating event. It was referred to a senior reactor analyst who determined that because the delta core damage frequency was less than 1E-6 and the finding was not a significant contributor to the large early release frequency, the finding was of very low safety significance. This finding does not have a cross-cutting aspect because the performance deficiency is not representative of current licensee performance.

Inspection Report# : 2012003 *(pdf)*

Significance: G Jun 26, 2012
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Declare Component Cooling Water Train A Inoperable Due to Voids
The inspectors reviewed a self-revealing non-cited violation of 10 CFR 50, Appendix B, Criterion V, involving the licensee's failure to properly assess the operability of component cooling water train A when voids were recognized during a post-maintenance run. On March 19, 2012, when component cooling water pump A was started following maintenance, a large void was discovered in the system. Operators diagnosed that voids had been introduced into the system during the restoration of the spent fuel pool train A heat exchanger. Operators declared the system operable based on seeing pump flows and current readings return to normal values; however, several hours later, the licensee discovered that voids were still present in the system and declared the system inoperable. After extensive venting, the licensee declared the system operable based on an acceptable, measurable quantity of voiding in the system. This issue was entered into the licensee's corrective action program as Callaway Action Request 201203506.

Failure to fully assess a degraded condition before declaring component cooling water system train A operable was a performance deficiency. This finding is more than minor because it is associated with the human performance attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems to respond to initiating events. Using Manual Chapter 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to be of very low safety significance because it did not create a loss of system safety function of a single train for greater than the technical specification allowed outage time and did not affect seismic, flooding, or severe weather initiating events. 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 institutionalize operational experience through changes to station processes, procedures and training programs to support plant safety.
Inspection Report# : 2012003 *(pdf)*

Significance: G May 04, 2012
Identified By: NRC
Item Type: FIN Finding
Failure to establish preventive maintenance for equipment used to achieve post-fire safe shutdown.
The team identified a finding for the failure to establish preventive maintenance of local transfer/isolation switch JEHS0021A, "B D/G Fuel Oil Transfer Pump Iso/Run" for the train B emergency diesel generator fuel oil transfer pump in procedures covering fire protection program implementation. As a result, the licensee failed to ensure that the local control circuit for the fuel oil transfer pump would be isolated from the effects of fire damage caused by a control room fire. The train B emergency diesel generator was the credited alternative ac power supply for the control room fire scenario. The licensee entered this deficiency into their corrective action program as Callaway Action Request System 201202931 to establish preventive maintenance for this component.

The failure to establish preventive maintenance on local transfer/isolation switch JEHS0021A, "B D/G Fuel Oil Transfer Pump Iso/Run" in procedures covering fire protection program implementation was a performance deficiency. Specifically, the licensee failed to ensure that component specific isolation/run switch testing procedures existed and ensured circuit isolation and transfer of control from the control room in the event of a fire. The performance deficiency was more than minor because it was associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team evaluated the finding using Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination Process," because it affected fire protection defense in depth strategies involving post fire safe shutdown. Using Appendix F, Attachment 2, "Degradation Rating Guidance Specific to Various Fire Protection Program Elements," the team assigned a low degradation rating to the finding because the capability to achieve safe shutdown in the event of a control room fire would be minimally impacted by the failure to establish a preventive maintenance procedure for the train B emergency diesel generator fuel oil transfer pump local transfer/isolation switch. Because this finding had a low degradation rating, it screened as having very low safety significance (Green). The finding did not have a cross-cutting aspect because it was not indicative of current performance since the performance deficiency existed for more than three years.

Inspection Report# : 2012007 *(pdf)*

Significance: G Mar 27, 2012
Identified By: Self-Revealing
Item Type: NCV NonCited Violation
Failure to Properly Evaluate the Design of Steam Generator Drain Plugs
The inspectors reviewed a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," after the licensee failed to ensure that testing used to verify the adequacy of a steam generator drain plug was conducted under expected design conditions. On November 1, 2011, containment workers noticed reactor coolant system leakage out of the steam generator B manway onto the floor. Reactor coolant system water from the reactor cavity was draining past a dislodged tube plug out the steam generator manway onto the floor below. Plant operators verified the spent fuel pool isolation to the reactor cavity was intact and pumped the approximately 400,000 gallons of reactor cavity water to the refueling water storage tank. This stopped the leak and left the reactor coolant system at a midloop condition. The licensee's root cause analysis determined that criteria for the drain plug design and installation specifications were inadequate. Specifically, the plug had not been tested under expected conditions such as a slick environment due to boron in the water. Testing with a simulated boric acid solution revealed that slippage occurred at much lower loads than the 70 psi assumed in the original design review. The possibility of side loads being applied to the plug during eddy current maintenance had also not been properly considered. Callaway Action Request 201109257 was generated with actions to address the causes of the plug becoming dislodged.

This finding is more than minor because it is associated with the reactor coolant system equipment and barrier performance attribute of the Barrier Integrity Cornerstone and affects the associated cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. A senior reactor analyst performed a bounding significance determination using NRC Inspection Manual 0609, Appendix G, "Shutdown Operations Significance Determination Process." The senior reactoranalyst determined that there was very little potential for core damage because Callaway Plant was defueled with the reactor head removed at the time. This finding has no cross-cutting aspect because the design plug was tested in 2007, and therefore, is not indicative of current plant performance.
Inspection Report# : 2012002 *(pdf)*

Barrier Integrity

Significance: G 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)*

Emergency Preparedness

Occupational Radiation Safety

Significance: G 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
- 3 -
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)*

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 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 : February 28, 2013